

Ron Paul's
MONETARY POLICY
ANTHOLOGY



MATERIALS FROM THE
CHAIRMANSHIP OF THE
SUBCOMMITTEE ON DOMESTIC
MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
112TH CONGRESS

VOL. I

EDITED BY
LYDIA MASHBURN
& PAUL-MARTIN FOSS

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*"...all those who wish to stop the drift
toward increasing government control
should concentrate their effort on
monetary policy."*

~ F. A. Hayek

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An anthology of this size and scope requires the collective effort of too many people to successfully list here individually. Each contributor, witness, lecturer and referenced source provided their own unique and substantial insight to the themes and topics discussed herein, making it a project worth pursuing. Extreme gratitude is given to each and every one of them.

Special acknowledgement must be given to Rep. Spencer Bachus, Chairman of the Financial Services Committee, who helped ensure Rep. Paul was able to achieve his position of Subcommittee Chairman. And also to the active participation of the Members of the Subcommittee: with their engagement the Subcommittee was able to explore topics of monetary policy long ignored.

Particular thanks must be given to the Full Committee staff who helped facilitate DMP hearings and the Congressional lectures sponsored by Chairman Paul. We owe a tremendous debt to all the members of Rep. Paul's Congressional office for being a great support on this project – especially Peter Coyne, who was indispensable in compiling the breadth of these materials. Lastly, special thanks to Tho Bishop, for his help on this project and his assistance throughout the 112th Congress.

EDITORS' NOTE

This anthology grew out of a desire by Chairman Paul and his staff to assemble a record of his tenure as chairman of the Subcommittee on Domestic Monetary Policy. While much of this record is currently available online, it is scattered across several different websites, many of which may not be available electronically in years to come. Accordingly it seemed worthwhile to compile as much material as possible into a single resource for anyone interested in understanding Dr. Paul's stance on monetary policy and the Federal Reserve.

During Dr. Paul's tenure as chairman, the subcommittee held a number of hearings to find out exactly what actions the Fed took during the financial crisis, and what it has done since, in its attempts to manage the economy. The Subcommittee examined problems with the monetary system; the instability of the current fractional reserve banking system; and other monetary policies that impact the economy. In addition, through his congressional office, Dr. Paul invited experts to lecture Members of Congress and their staff about the history and politics of money—lectures which have now been viewed by hundreds of thousands of people on YouTube.

This anthology is organized in a manner it is hoped will provide even the novice reader a clear grasp of the issues surrounding monetary policy. It begins with a brief monetary history of the United States, which explains the history of money in the U.S. and charts the development of our monetary system over the centuries. Without a grasp of the history and evolution of money and monetary policy, an informed understanding of sound monetary systems will remain elusive.

The monetary history is followed by transcripts of the Monetary Policy Lecture Series (the "Tea Talks" as they became known on Capitol Hill). This lecture series sought to educate Congressional staffers on important monetary policy matters. Starting with three lectures on the history of money, the series progressed into the

history and workings of the Federal Reserve System, and then ended with a capstone lecture by Congressman Paul. While videos of the “Tea Talk” lectures have been on YouTube for a number of months, this anthology publishes the written transcripts for the first time.

Over the years Congressman Paul and Fed Chairman Ben Bernanke have had many lively exchanges at the semiannual Humphrey-Hawkins hearings before the full Committee on Financial Services. Transcripts from the last two years of those exchanges while Dr. Paul was chairman of the DMP Subcommittee are included in the anthology after the “Tea Talks.”

Chairman Paul’s hearings before the Subcommittee on Domestic Monetary Policy conclude the anthology. During Dr. Paul’s tenure, the Subcommittee was more active than it had been in years, holding over a dozen hearings on a wide variety of topics. Reproductions of transcripts in their entirety, witness testimony, and supporting materials from the hearings are provided. Certain hearings in this anthology were bolstered by additional expert submissions—original articles written specifically for inclusion in the anthology by monetary policy experts who were unable to testify before the Subcommittee.

Rep. Paul often jokes that if the American people understood what went on at the Federal Reserve, there would no longer be a Federal Reserve. The editors hope this anthology proves a useful tool in improving the people’s comprehension of monetary policy by serving as a single resource for important information related to monetary policy and the Federal Reserve System. Its length was necessary to give justice to the scope and magnitude of the subject, and to thoroughly illustrate the principles that have guided Rep. Paul’s actions as Chairman of the Subcommittee.

“Thoughts and ideas are not phantoms. They are real things. Although intangible and immaterial, they are factors in bringing about changes in the realm of tangible and material things,” wrote the esteemed Austrian economist Ludwig von Mises. Chairman Paul has dedicated his political life to bringing the ideas of liberty and sound money to the forefront of America’s public discourse. The overwhelming support given by the U.S. House of Representatives in the 112th Congress (by a vote of 327-98) for a full audit of the Federal Reserve is one measure of the strength and power of these ideas.

While the return to sound money will take on-going and resolute endeavors by many, it is hoped this anthology will provide a useful resource for understanding monetary policy and reform to support those efforts.

*P*REFACE

When the 112th Congress convened in January 2011, Congressman Ron Paul became chairman of the U.S. House of Representatives' Committee on Financial Services Subcommittee on Domestic Monetary Policy and Technology (DMP). During Rep. Paul's tenure the jurisdiction of the DMP Subcommittee included: agencies which directly or indirectly affect domestic monetary policy – including the effect of such policy and other financial actions on interest rates, the allocation of credit, and the structure and functioning of domestic financial institutions; financial aid to all sectors and elements within the economy; economic growth and stability; and development of new or alternative forms of currency. This meant the Subcommittee was charged with overseeing the Federal Reserve and the monetary system of the nation.

Over the course of two years as Chairman, Rep. Paul convened thirteen hearings related to monetary policy, monetary reform, and oversight; sponsored seven educational lectures in Congress on monetary policy and the Federal Reserve System; and had four exchanges with the Chairman of the Board of Governors of the Federal Reserve System, Ben S. Bernanke, at the semi-annual Humphrey Hawkins hearing. (Due to Financial Services Committee Rules, Chairman Bernanke could only appear before the full Financial Services Committee, not a Subcommittee.)

History shows that the state of monetary policy is an issue of grave importance to the prosperity of a nation. This is particularly true when a country faces economic panic, as was the case for the United States following the financial crisis of 2008. During Rep. Paul's tenure as DMP Chairman, the Federal Reserve continued to engage in unprecedented monetary policy actions, which subjected the Fed to some of its most vocal criticism in a century of existence. One of the goals of this anthology is to capture for posterity the

debate over the Federal Reserve's actions and to provide greater transparency as to nature of the U.S. monetary system.

The materials in the anthology are broken up into four "books." Book 1 is a brief monetary history of the United States; Book 2 features the content of Congressional lectures by monetary experts sponsored by Chairman Paul on vital components of monetary policy; Book 3 is made up of selected exchanges between Chairman Paul and Fed Chairman Bernanke; and Book 4 concludes the anthology with a compilation of transcripts and other materials from the Subcommittee hearings.

The brief review of monetary history provided in Book 1 is included to illustrate the development of the U.S. monetary system and help the reader better understand the system as intended by the Framers' of the Constitution—and how it has transformed over time to what exists today. By understanding the motivations and actions of those who shaped monetary policy in the past, readers will hopefully have a firm understanding of how America found itself on the road to a centrally managed fiat currency and better appreciate the concerns that were raised as the nation went down this path. Readers are encouraged to examine the "Books and Articles" list at the conclusion of Book 1 to further their monetary history education.

The history primer in Book 1 provides a backdrop for the Congressional monetary lectures in Book 2, in which renowned experts from across the country gave insights into and analysis of the foundations and current structure of monetary policy. The lecture series consisted of seven lectures divided into three themes. Part 1 is titled "The Basic Principles of Money," and illustrates how the basic principles of money are what enable the development of society, how money was defined under the U.S. Constitution, and the role money plays in the fermentation of financial crises. Part 2, titled "The Federal Reserve System," provides a thorough overview of the creation of the Fed, an examination of the central bank's operations, and how its current actions influence the future state of monetary policy. The single lecture in Part 3 was given by Chairman Paul who illustrated the role the Federal Reserve plays in the continued growth of the Federal government.

Book 3 recounts the exchanges between Chairman Paul and Federal Reserve Chairman Ben Bernanke. Taking place over the last two years, these four exchanges provide historical snapshots into the state of the debate over the actions of the Federal Reserve relative to the date of each hearing.

Book 4 contains hearing materials that were originally published in the official hearing records. The hearing topics ranged from

general debates about the impact of central banking on the economy, the Fed's responses to real world events such as the Eurozone crisis, to investigations of possible paths to significant monetary reform. The hearings have been organized topically, rather than chronologically, into three parts: Part 1 examines the consequences of monetary policy, Part 2 explores monetary reform, while Part 3 records the Subcommittee's oversight efforts.

In addition to hearing testimony, several experts who were unable to appear as Subcommittee witnesses were asked to contribute written submissions to be included as part of this anthology. These expert commentaries are placed at the end of the hearing for which their contribution is most relevant.

Additional materials, including studies and reports submitted by witnesses as part of their written testimony; data and other witness responses to Subcommittee Member questions; and published articles submitted by Members for inclusion in the hearing record can be found in the Appendices. A portion of *The Case for Gold*, a minority report co-authored by Rep. Paul as part of the 1982 Gold Commission is contained in Appendix A.

*I*NTRODUCTION

My interest in the world of politics began in large part on Sunday, August 15, 1971. For decades, I, like all Americans, had lived in a country where it was illegal to own gold. The idea probably seems preposterous today, but there was a time when the government seized all the citizens' gold and declared gold illegal to own. From that point on, even the paper currency in circulation was no longer backed by gold. Then, on a Sunday in 1971, President Nixon severed the last remaining link that Americans had to gold as money: he closed the international gold window, which allowed foreign governments to exchange 35 paper dollars for one ounce of gold. That was the last day that money had any value apart from the will of government. And nobody seemed to care.

I was very concerned about the government's mishandling of money and what it meant for the U.S. economy and for our freedom. I started looking for ways to restore sound money to the people, or at least allow them to legally own gold again. As I became more involved in trying to legalize gold ownership, I had the opportunity to meet some of the world's most eminent free market economists, including Ludwig von Mises, Friedrich von Hayek, and Murray Rothbard. Being able to meet and learn from such brilliant minds was enlightening not just in terms of learning sound economic theory, but also in learning how to spread that message to the American people.

When my local Congressman stepped down in the middle of his term, I decided to run for his seat, thinking that the worst that could happen was that I would win. As luck would have it, I did win that special election, and won three more terms starting in 1978, at a time when America was facing high inflation, high interest rates, and high unemployment. It had not even taken a decade for the entirely unbacked fiat paper dollar Nixon created to wreak serious economic havoc. Americans were searching for answers, wondering why the economic system that had been touted as bringing economic growth

and liberation from the strictures of gold was now responsible for the most severe and longest-lasting economic crisis since the Great Depression.

From the very beginning of my service as a Congressman, I sought to use my office as an educational platform to make Americans aware of the intrusions and depredations of the federal government. Monetary policy had always been an issue that deeply concerned me because of the importance of sound money to a free society. My involvement with the Austrian School of economics reinforced the importance of sound money, as the Austrian theory of the business cycle – the booms and busts in the economy – accurately explained the disastrous consequences of unsound, fiat money; consequences from which we were actually suffering. And so I tried to educate the American people about monetary matters.

During my first few years in Congress, I served as a member of the House Banking Committee as well as a member of the U.S. Gold Commission, where I shared my rather unpopular Austrian perspective on the state of our money. As a member of the Banking Committee (which has since become the Financial Services Committee), I sought to bring light to the Federal Reserve System and the destructive effects that its monetary policy was having on the dollar and on the standard of living of the American people. As a member of the Gold Commission, I supported returning to the use of gold as currency. Along with Lew Lehrman, I submitted the Commission's minority report, a dissent from the majority opinion which had affirmed the status quo. This report was later published in book form as *The Case for Gold*.

After a long hiatus, I returned to Congress in 1997 and rejoined the Banking Committee, finally acceding to the chairmanship of the Domestic Monetary Policy Subcommittee (DMP) in 2011—the subcommittee with jurisdiction over the Federal Reserve and the nation's money. Chairmanship of that subcommittee was the only position in Washington I had ever wanted, and for many years it seemed that I would never achieve it. When I returned to Congress in 1997, my previous terms of service were not accepted towards my seniority, and so I had to start all over again at the bottom of the heap. Then every time that I seemed to be in line for the chairmanship, something came up and denied me. One time it was a more senior member joining the committee, another time two subcommittees being merged, but the result was always that I ended up excluded from consideration. It was not until 2007, when Spencer Bachus took over as ranking member of the full committee, that I once again became ranking member of the Domestic and

International Monetary Policy Subcommittee (I had previously been ranking member of the equivalent subcommittee in the early 1980s). When Mr. Bachus became Chairman of the Financial Services Committee in the 112th Congress, despite opposition from leadership, he allowed me for the first time to chair the DMP subcommittee.

There are some who have expectations that a single Congressman can single-handedly stop unconstitutional legislation or fix all that is wrong in Washington. When I became chairman of DMP there were probably many who expected that I would somehow stop the Federal Reserve's loose monetary policy and bring the Fed to heel. I wish I could. The reality, though, is that a single Congressman, a subcommittee chairman, even a committee chairman, by himself can do little to move Congress in a direction that it neither understands nor finds politically palatable. It takes numbers to achieve legislative success, and the numbers are not behind sound money. Instead of focusing on what is good for the country, too often members of Congress are more concerned with scoring political points, managing their public image, or maintaining their good standing with party leadership. Because of this state of affairs, I realized that a single Congressman could do very little legislatively to advance the cause of liberty. Even holding the chairmanship of DMP, the subcommittee with power over the Federal Reserve, would afford little opportunity to actually rein in the Fed, when the House is stacked against us, so to speak.

What the chairmanship of DMP did allow me to do is something I have always thought to be necessary in everything I have tried to do: educate. As you examine this anthology, you will find that a main focus of my tenure as Chairman was on education. It is impossible to talk about reform when people know nothing about the system that is to be changed or the options for changing it. So we attempted to bring light to the important issues of money that had not been discussed in the halls of Congress for decades.

In our hearings we examined the problems with the current monetary system; the relationship between the Federal Reserve and government debt; the negative impact of easy money on the economy; the creation of the boom and bust cycle; and the suffering caused by the false prosperity of cheap credit. We examined the problems of our fractional reserve banking system, the impediments to sound money emerging from the marketplace, and even the abolition of the Federal Reserve. Through my congressional office we brought in speakers to lecture staffers from other congressional offices on the history and

politics of money—lectures which have now been viewed by hundreds of thousands on YouTube.

Even with this focus on education, the Subcommittee did not neglect its oversight duty. We managed to conduct more oversight in one Congress than in the three previous Congresses combined. We held hearings about the Fed's actions during the financial crisis, its uncollateralized swap lines with foreign central banks, and explored the status of U.S. government gold holdings—consisting mostly of the gold seized from the American citizens when gold ownership was outlawed. (Our inquiries seem to have prompted the U.S. Mint to undertake an audit of the gold held at the Federal Reserve Bank of New York, which has not been done since the gold was first placed into that vault many decades ago.

Of course, there is much more that might have been endeavored but could not, given our limited time and resources. For that there will always be some regret. But what we were able to accomplish we have tried to comprehensively compile into this anthology. This book will hopefully provide a useful resource to the sound money movement for many years to come, and assist the progress toward monetary reform and the restoration of sound money to the American people.

Noble Laureate Friedrich Hayek said that “...all those who wish to stop the drift toward increasing government control should concentrate their effort on monetary policy.” Through my time in Congress, my brief chairmanship of DMP, and my various other ventures, I have always sought to follow this advice. For those endeavoring to do the same, I commend to you the resources contained herein.

For Liberty
Chairman Ron Paul
Washington, DC
December 2011

Book One

A BRIEF MONETARY HISTORY
OF THE UNITED STATES

A BRIEF MONETARY HISTORY OF THE UNITED STATES

*“Those who cannot remember the past
are condemned to repeat it.”
- George Santayana*

I. INTRODUCTION

To avoid repeating the mistakes of the past and to provide for a more prosperous future, the lessons of history must be both explored and understood. This is no less true for something used in everyday life: money. The present monetary regime did not appear overnight. Rather, it is the result of centuries of concerted action, much of which has been forgotten by history. The following pages are intended to provide the reader with a brief yet relatively comprehensive introduction to the history of money and monetary policy in the United States from the late-18th century to the present. While not an all-inclusive look at American monetary history, this section covers the main historical events that have led to the current U.S. monetary system. If America seeks to achieve a sound and stable economy, it is necessary to examine the history of money in the United States and its evolution over time.

Money as a medium of exchange is what allows civilization to flourish; there is no surer way to erode civilized society than to debase currency and destroy the institution of money. Money and credit allow for the vitally important functioning of markets, since nearly all economic transactions have goods or services on one side and money or credit on the other. As such, money literally comprises one half of most economic transactions.

Money is not just a medium of exchange, however; just as important are its roles as a store of value and a unit of account. Creating new money reduces the value of existing money, lowers its purchasing power, and slowly siphons real wealth from the middle class and the poor to those fortunate few who are closest to the federal government or the power brokers of Wall Street, the levers of money creation. Even the economic calculation enabled by money is skewed when the value of the unit of account is constantly diminishing. Artificially influencing the price of money has real effects throughout the economy, distorting the economy's capital

structure, causing the all too familiar boom and bust of the business cycle, and enhancing the influence of government.

It is for this reason that Nobel laureate Friedrich von Hayek stated that:

Inflation is probably the most important single factor in that vicious circle wherein one kind of government action makes more and more government control necessary. For this reason all those who wish to stop the drift toward increasing government control should concentrate their effort on monetary policy.

The U.S. economy has been beset by crisis after crisis. It is too easy to give credence to those who make the superficial claim that the free market is inherently unstable and that only government firmly at the helm directing economic behavior will result in economic stability. A deeper look reveals that government intervention into and control over money has been the cause of, not the solution to, economic instability.

II. THE EARLY YEARS

Colonial Money and the Continental

During the time of the American colonies the dominant circulating form of money was the Spanish milled dollar. There was no central bank. There was not even a central government mint, as the colonies had been forbidden from operating their own mints, and the export of English coin to the colonies had been prohibited. Due to the global trade in which the colonies engaged, many foreign coins made their way into the thriving and prosperous colonial economies, the most numerous coins being the Spanish milled dollars. The favorable reputation of the dollar was due to its long-standing record as a sound, stable currency that had not been subject to government debasement. It was for this reason that the dollar was chosen as the unit of account when the new United States of America was formed under the U.S. Constitution.

The choice of precious metal money for the unit of account was also due to several disastrous experiences with paper money prior to adoption of the Constitution in 1789. In fact, the first government paper money used in the Western world was introduced by the Massachusetts colony in 1690. This paper currency quickly became devalued, as did similar paper currencies that were eventually issued by other colonies. During the Revolutionary War the Continental Congress issued paper money called the "Continental" to help finance

the war effort. However, this paper currency was printed in such large amounts that it quickly became worthless, leading to the adoption of the well-known phrase “not worth a Continental.” As the debasement proceeded apace, merchants were loath to accept the Continental, as it lost value almost immediately after they exchanged their goods for it. Under the Articles of Confederation that preceded the Constitution, the individual States tried to finance their debts by issuing their own paper currencies similar to the Continental. Succumbing to the same temptation to overprint, the States debased their paper money to such an extent that their economies suffered severe turmoil due to inflation.

Because of these problems with paper money, the framers of the Constitution were determined to ensure that neither the federal nor the state governments would be able to resort to monetary debasement through the issuance of paper currency. Article I, Section 10 of the Constitution prohibits the States from coining money, emitting bills of credit (i.e. paper money), or making anything but gold and silver legal tender. The federal government, in Article I, Section 8, is given the power to coin money and regulate its value, but no power to emit bills of credit or to create a legal tender.

Foreign Coinage and the Coinage Act of 1792

It was not until 1792 that Congress passed a coinage act to enable the federal government to begin minting coins of its own. The Coinage Act of 1792 established the dollar as the unit of account, equal to 371.25 grains of pure silver (the same silver content as the circulating Spanish milled dollars, already the predominant market-chosen means of exchange and unit of account).

The Act also established subsidiary copper coinage, as well as gold coins. Unfortunately, the ratio of silver to gold was legally fixed at 15 to 1, a ratio which diverged from the prevailing market trend, which was moving towards a 16 to 1 ratio. Because of this legally-mandated bimetallic ratio, silver became overvalued relative to gold. Gold coins left the United States almost as soon as they were minted, and foreign silver coinage flooded in. Since Congress also attempted to fix the value of foreign coins by giving them a legal tender exchange value in terms of dollars and cents, the foreign coins in circulation faced similar valuation problems. The result was that certain coins were undervalued and others overvalued, leading to the operation of Gresham’s Law.

Gresham's Law states that when one form of money is legally overvalued and one legally undervalued, the legally undervalued currency will disappear from circulation while only the legally overvalued currency will remain. In layman's terms this means that "bad money drives out good." For example, if a coin with 5 grams of silver were valued at 20 cents, while another coin with 6 grams of silver were also valued at 20 cents, the coins with 6 grams of silver would not circulate. People would begin pulling the 6-gram coins from circulation, as their metal content was worth more than their government stated face value.

This is precisely what happened under the bimetallic monetary regime established by the federal government, which did not comport with the relative values of gold and silver on the market—an inherent problem of trying to legally define one monetary unit as two things: a fixed amount of silver and a fixed amount of gold. As a consequence, higher silver content coins (and gold) were exported, hoarded, or melted. At the same time the U.S. (and most other countries) was operating under a system of "free coinage," where anyone could bring gold or silver to the U.S. Mint to be minted into coins at little or no charge. Every ounce of U.S. gold coins would fetch 16 ounces of silver abroad, which silver could be returned to the U.S. and presented to the U.S. Mint for minting into U.S. coins. Fifteen ounces of that silver could be exchanged for an ounce of new gold coins, leaving one ounce of silver as profit for the arbitrageur. Thus the export and melting of the government's overvalued coins became very common.

The changing market ratios of coinage compared to the government's decreed values caused the supply of money in the United States to be quite erratic. While the attempt to create a unified currency was well-intended, fixing the gold-silver ratio rather than allowing the market ratio to predominate caused severe problems with the circulation of gold and silver coins for many decades. Had the federal government allowed the market to determine the exchange value of various coins rather than intervening in the marketplace of money, it is likely that much of the monetary disruption that took place throughout the 19th century could have been avoided.

First and Second Banks of the United States

The First Bank of the United States was established in 1791 as a national central bank. One of the justifications behind the establishment of the Bank was to combat the supposed scarcity of money and to facilitate commerce through the expansion of credit.

The national bank proposal ignored the true cause of specie scarcity, which was the legal overvaluation of one form of money over another. Whenever money was given legal tender status and a fixed legal value, Gresham's Law took hold and gold or silver vanished from circulation. What proponents of central banking really wanted was an enlarged and eased issuance of credit, especially to the federal government, believing that easy credit was the path to economic prosperity.

The establishment of the Bank of the United States was hotly debated. The Jeffersonians argued that because there was no explicit authority for the federal government to create a bank, the establishment of a bank was therefore unconstitutional. The Hamiltonians argued that establishing a bank was an implied power necessary to the functioning of government and therefore justifiable under the Constitution's Necessary and Proper Clause. President Washington sided with the Hamiltonians and signed into law the First Bank of the United States. This was one example of a number of laws passed in the early years of the Republic which tested the restrictions placed upon the federal government by the Constitution.

While the notes of the Bank of the United States were not legal tender, any of its notes payable in gold and silver coin were to be "receivable in all payments to the United States."¹ This meant that the notes the Bank issued would be treated as good as gold in, for example, payment of taxes or customs duties. Government acceptance of this new currency aided its circulation, and the Bank promptly issued millions of dollars worth of new notes. The Bank's note issuance fueled a wave of speculation, a series of bubbles, and drastic increases in prices.

The Bank's charter was only for twenty years and was due to expire on March 4, 1811. A vigorous debate on the charter's renewal occupied Congress. In the end, a bill to renew the Bank's charter failed by a single vote in both the House and Senate, and the Bank's charter expired. Its stock and buildings were purchased by Stephen Girard, who named his newly acquired bank after himself. That bank funded much of the federal government's bond issues during the War of 1812, and survived until its acquisition by Mellon Bank in 1983.

The War of 1812 roiled the country's monetary system, particularly in the aftermath of specie suspension which was initiated in late 1814. Specie suspension meant that banknotes, which were

¹ "An Act to incorporate the subscribers to the Bank of the United States," Section 10. February 25, 1791. Accessed from: <http://memory.loc.gov/cgi-bin/ampage?collId=llsl&fileName=001/llsl001.db&recNum=314>

issued by banks and usually contained a promise to pay the bearer of the note on demand in gold or silver, were no longer required to be redeemed for gold or silver. Freed from the requirement to back their notes with hard money, banks were able to dramatically increase the dollar amount of notes issued. Not surprisingly, this monetary inflation led to continued speculation and price increases.

Proponents of central banking managed in 1816 to pass a law establishing a new Bank of the United States, ostensibly to combat the monetary mischief overtaking the country. Among the provisions of the new law was a ban on this Second Bank of the United States being able to suspend specie redemption; were it to do so, it would be required to compensate noteholders not only with principal, but with interest accruing at the rate of 12 percent per year. This safeguard tacitly acknowledged the role that suspension of specie redemption had played in the monetary turmoil. Within a year of its chartering, however, the Second Bank of the United States struck a deal with state banks, offering them millions of dollars in credit in exchange for the state banks resuming specie redemption, and promising mutual assistance in the event of crisis. In practice, though, mutual assistance meant that the stronger, government-privileged Bank of the United States would stand ready to bail out the weaker state banks, and not vice versa.

Ultimately the Second Bank of the United States followed the same course as the First Bank. It pyramided large amounts of notes on top of a small supply of specie, and its laxity in demanding specie payments from state banks allowed the state banks to pyramid note issue on top of their specie holdings. Because it was forbidden from suspending specie payments on its own notes, the Bank was eventually forced to demand specie from its debtors, brought specie in from abroad, and sharply contracted credit: policies which helped lead to the Panic of 1819. Continuing its monetary inflation into the early 1830s, the Second Bank created another artificial credit boom that eventually burst, causing the Panic of 1837.

During the credit boom, the Bank still faced opposition, predominantly from President Andrew Jackson, who viewed the bank as unconstitutional and corrupt. The Second Bank's charter was good until 1836, but supporters of the Bank decided to push for renewal early, in 1832—to head off Jackson's opposition to renewal by making it an election year issue. The Bank's president, Nicholas Biddle, successfully lobbied for a recharter bill, which passed both Houses of Congress. Despite political opposition, President Jackson vetoed the bill. Rather than hurting him in the election, his anti-Bank platform aided his election to a second term. Without enough votes in Congress

to override the veto, the Bank's federal charter was allowed to lapse and it received a new charter as a Pennsylvania state bank under Biddle's leadership, eventually going under altogether in 1841.

McCulloch v. Maryland

Even though The Second Bank of the United States lasted only twenty years, it played a major role in one of the most important Supreme Court Cases ever decided, *McCulloch v. Maryland* (1819). The state of Maryland attempted to tax the Baltimore branch of the Second Bank of the United States, as it was a bank operating in Maryland that had not been chartered by the Maryland legislature. The Bank's Baltimore branch director refused to pay the tax, and the ensuing court case made it all the way to the Supreme Court, which decided in favor of the Bank.

The major principle ratified by this decision was that of "implied powers." In the Court's opinion, because incidental or implied powers were not expressly prohibited by the Constitution, the federal government was permitted to exercise whatever powers it deemed necessary to carry out its Constitutional functions. This broad interpretation of implied powers and of the Constitution's Necessary and Proper Clause set a dangerous precedent for future Court decisions, particularly in the development of American banking and monetary policy. In the eyes of the Court, *McCulloch* validated the constitutionality of federal government intervention into the banking sector as well as the creation of a federal government-established central bank.

Coinage Acts of 1834, 1837, and 1853

Due to the fact that the market exchange rate between silver and gold rose from 15:1 towards 16:1 after the passage of the Coinage Act of 1792, legally undervalued gold coinage failed to circulate in the United States. In 1834, Congress passed the Coinage Act of 1834, which retained the dollar as 371.25 grains of silver, but devalued the \$10 gold eagle coin from 247.5 to 232 grains of gold. This was later amended by the Coinage Act of 1837 to 232.2 grains of gold, or 23.22 grains of gold per dollar, which was to remain the gold weight of the dollar until 1934.

The immediate result of this legislation establishing a 16.002:1 ratio (slightly higher than the prevailing world market rate) was that gold coinage began to flow into the United States once again. Fortunately, silver was not so undervalued against the world market

rate that it flowed out, and so, both domestic and foreign gold and silver coins once again circulated side by side in the United States.

Discovery of gold in California and the subsequent California Gold Rush of 1849 led to a decrease in the world market value of gold relative to silver, with the silver/gold ratio moving back down towards 15:1. With the government's bimetallic ratio at 16:1, coins (this time silver) began to leave the country since it was now profitable to export and melt them. Silver coinage being the more practical medium of exchange for everyday purchases, economic transactions became more and more difficult. In response, Congress passed the Coinage Act of 1853, which debased the half dollar from 206.25 grains of 90% silver to 192 grains of 90% silver, with quarters and dimes being debased in the same manner. Additionally, silver half dollars, quarters, and dimes were to be legal tender only to a maximum of five dollars, the first time such restrictions had been placed on silver coinage.

The Gold Rush and Private Coinage

In California, coins of any type were scarce. Not only were silver coins hard to come by, but gold coins as well. San Francisco had a U.S. Assay Office, which could qualitatively assess precious metals, but was not allowed to mint coins since it was not a branch of the U.S. Mint. In the absence of an official branch of the Mint, private mints began producing gold coins, often of original design, in denominations ranging from 25 cents to 50 dollars. These coins circulated as needed until the U.S. Mint established its San Francisco branch and began minting operations.

Private coinage was nothing new in the history of the United States, as areas underserved by the U.S. Mint's operations often saw private mints spring up to mint newly mined metal into currency that was badly needed to maintain economic activity. One prominent example was that of Christopher Bechtler in North Carolina, who minted gold coins for years before the U.S. government opened its mints in Charlotte, North Carolina and Dahlonega, Georgia. As long as the market trusted that the coins contained the amount of gold claimed by the minter, the coins circulated at face value. While they were never as widely circulated throughout the country as U.S. or foreign coins, privately-minted coins served a useful and crucial function in those areas facing a shortage of federal or foreign coinage.

III. GOVERNMENT BEGINS TO MONOPOLIZE CURRENCY

Coinage Act of 1857

As the 19th century progressed, the federal government sought to enhance its control over the banking industry and the monetary system. In 1857, Congress passed a coinage act which removed the legal tender status that circulating foreign coinage had until then enjoyed. All circulating foreign coins received by the Treasury were to be melted down and recoined. By driving foreign coinage out of circulation, Congress sought to ensure that only U.S. coins circulated, a step towards federal government dominance of the money supply. This was ostensibly to provide a uniform national currency, a stated goal of the federal government since the country's founding. By "uniform national currency" the federal government did not mean adherence to a dollar defined as a specific weight of metal with coinage circulating by weight and valued in relation to that dollar. Instead, the federal government sought to ensure that only the United States Mint's coins would circulate in commerce, regardless of what type of coins the market desired.

A further strike against market choice in currency came in 1864, when Congress passed legislation to prohibit private production of coins. The minting of any coins intended for use as current money was made illegal, even if the coins were of completely original design. This prohibition remains in force today, and was most famously used in recent years to prosecute the creators of the Liberty Dollar.

Legal Tender and National Currency

War often leads to the strengthening of central government, and the Civil War was no exception. In an effort to fund its war efforts, the federal government attempted to raise hundreds of millions of dollars. Facing difficulty in selling its notes and bonds to banks, as well as decreased holdings of specie, Congress in 1862 passed the Legal Tender Act, issuing \$150 million in non-interest-bearing United States Notes. These notes were not backed by specie but had a vague promise to be redeemed at some point in the future. Specie redemption had by this point been suspended, so Congress felt confident that these notes would be accepted. The reverse of the notes was printed with green ink, so the notes came to be known as "greenbacks." The notes were to be accepted as legal tender for all debts, public and private, except for duties on imports, which were required to be paid in specie. This was the first instance in which the

federal government issued unbacked paper money and declared it to be legal tender.

The Legal Tender Act of 1862 was followed by two major National Banking Acts, the National Banking Acts of 1863 and 1864. The system of state banks was much-maligned, and not without reason. Note issue by state banks was required to be backed by state bonds. Banks that needed to issue more banknotes had to buy more state debt. State legislators were only too willing to engage in that symbiotic relationship, with state governments spending into debt without discipline and banks willingly purchasing that debt to back new note issues and inflate the money supply.

For all its drawbacks, however, the state banking system was at least a decentralized banking system that was not controlled by any single entity; as such it was also a system in which banks that made mistakes could fail without taking down the entire system at the same time. The National Banking Acts of 1863 and 1864 attempted to nationalize the banking system and place it completely under federal control, strengthening the federal government's control over the economy and eroding the power of the states. The Acts created a new system of national banks regulated by the newly-created Comptroller of the Currency. Rather than having to back their notes with state debt as state banks did, these banks had to back the creation of notes with U.S. Treasury securities, providing a ready market for the debt the federal government needed to sell in order to fund the Union war effort. The notes, while issued by national banks, would be printed by the Treasury, and thus would further the aim of a unified national currency.

Unfortunately, this did not fix the major problem with the state banking system: note issue required to be backed by government debt. The National Banking Acts merely replicated an already-flawed system, but this time at the national level where its inflationary nature could cause more harm to the economy. In a further attempt to destroy the state banking system, in 1865 Congress assessed a 10 percent tax on state banknotes aiming to force state banks to convert to national charters or leave the banking business. The result was, as intended, a precipitous decline in the number and influence of state banks.

The Greenback Dilemma

In the aftermath of the Civil War, Congress was faced with severe monetary and fiscal problems. The national debt had ballooned in order to fund the war, approaching nearly \$3 billion in late 1865.

Specie redemption was still suspended, and hundreds of millions of dollars worth of greenbacks were outstanding and awaiting redemption. Almost from their inception, and despite government attempts to force them to circulate at par, the greenbacks had depreciated against specie. At one point, greenbacks were circulating at a value of 40 cents to the dollar.

While there were a great mass of people wishing to see the wartime expedient greenbacks retired from circulation and specie redemption resumed, there were quite a few others who wished to continue issuing greenbacks. Throughout history there have always been those who believe that the path to prosperity can be achieved merely through the creation of additional monetary units, and the era following the Civil War was no different.

Proponents of easy money and credit have always heralded the supposed benefits of currency creation, while ignoring the drawbacks. The “Greenbackers” believed that the creation of additional United States Notes would lead to untrammelled economic growth. Among their ranks were found many railroad owners and speculators who knew that the depreciation of the value of the currency, brought about by the creation of additional unbacked fiat paper greenbacks, would steadily depreciate the value of the bonds issued by the railroad companies. Inflation always benefits debtors since they are able to pay their debts with devalued currency. In this way inflation acts as a form of wealth distribution, siphoning wealth from creditors to debtors.

Legal Tender Cases

The government understood the need to return to specie redemption, but was loath to let go of its issue of greenbacks. After all, greenbacks were an interest-free form of debt that circulated as money and could be used to pay off creditors, thus saving the government from having to use its valuable gold and silver. However, from the very inception of the Legal Tender Act, the constitutionality of legal tender paper currency had been called into question. That question was finally resolved after the decisions handed down in a series of Supreme Court cases known as the Legal Tender Cases.

In 1870 the Supreme Court ruled in *Hepburn v. Griswold* that Congress’ bestowal of legal tender status upon greenbacks was unconstitutional. In the Court’s opinion, the Constitution did not grant the Congress power to declare paper notes, the greenbacks, legal tender for all debts, although the case itself dealt specifically

with debts pre-existing the passage of the Legal Tender Act. The following year, after two new pro-greenback Justices had been appointed, the Court in two separate cases, *Knox v. Lee* and *Parker v. Davis*, overturned the *Hepburn* decision and declared that Congress did in fact have the power to declare paper money to be legal tender for *all* debts. Relying heavily on Chief Justice Marshall's arguments in *McCulloch v. Maryland*, the Court in *Knox* and *Parker* ruled that the federal government had broad implied powers to provide a national currency, including the right to make bills of credit legal tender. Finally, in 1884 the Court in *Juilliard v. Greenman* once again reaffirmed the constitutionality of fiat paper money, citing the precedents not only of *Knox* and *Parker*, but also of *McCulloch*.

The Supreme Court had validated the federal government's ability to issue legal tender paper money in the form of greenback notes. And with no pledge for immediate redemption, Congress essentially had given itself an interest-free loan for as long it wished. While the result of these cases was to ensure the continued existence of greenbacks, political pressure on Congress to resume specie redemption did prevent the supply of greenbacks from increasing.

The "Crime of '73"

Due to a combination of European countries moving to the gold standard and new silver mines being discovered (e.g. the Comstock Lode), monetary demand for silver dropped during the late 1860s and early 1870s. This caused the market price of silver to drop rapidly relative to gold. With the government's legal silver to gold ratio still at 16:1, gold began leaving the country and silver began pouring in. Congress responded to the symptom of the problem, gold outflows and silver inflows, rather than the actual problem, the bimetallic system.

The Coinage Act of 1873 discontinued the minting of silver dollars—the original dollar and unit of account of the United States. In its place, the Act established a one-dollar gold coin as the “unit of value.” The Act suppressed the existing silver dollar and only granted legal tender status to silver subsidiary coinage (half dollars, quarters, and dimes) for sums up to five dollars. A new silver trade dollar was introduced that shared the same legal tender status as the subsidiary coinage, but it was intended primarily for use in commerce with China as opposed to domestic circulation. The Act also specified that silver deposited at the Mint could only be minted into trade dollars or into silver bars, and explicitly banned the free coinage of subsidiary silver coinage. Effectively, the Coinage Act demonetized silver and placed the country on a *de facto* gold standard.

Because of the way in which the Act was passed and the fact that gold was made the basis for the currency with hardly any debate, it was referred to as the “Crime of ’73,” particularly by silver producers and supporters of silver as money. While true that had the United States not eliminated free coinage of silver, gold coins would have, in all likelihood, disappeared from circulation and been exported to Europe and massive amounts of legally overvalued silver coins would have flowed back into the United States, the real problem was not addressed. The existence of the government-mandated silver to gold ratio had once again caused a major upheaval in American monetary policy. Unfortunately, rather than allowing market prices to establish the relative values of gold and silver, the federal government acted with a heavy hand to defend its 16:1 legal bimetallic ratio by demonetizing silver.

The debate among the supporters of gold, silver, and greenbacks over the country’s monetary direction colored much of the political debate of the late 19th century. Popular opinion supported the continued use of silver coinage and so in 1878 Congress passed the Bland-Allison Act, which required the federal government to purchase a minimum amount of silver every month and mint that silver into silver dollars. The Sherman Silver Purchase Act of 1890 mandated an increase in the amount of silver purchased. At the end of the 19th century, the fight amongst the supporters of gold, silver, and paper reached a fever pitch. Gold ultimately triumphed, as Congress passed the Gold Standard Act in 1900, officially placing the country on the gold standard with the dollar defined as 23.22 grains of pure gold. That victory, however, was short-lived.

IV. THE RISE OF THE FED

The Panic of 1907

The year 1907 saw a particularly severe financial panic and recession. The underlying cause of the recession, as in previous instances, can be found in the government’s intervention into banking and monetary affairs. The Treasury Department sought to conduct itself as a central bank, even to the extent of making purchases on the open market to supply liquidity to the financial system. Once the Treasury-created inflation bubble burst, banks began to fail and the stock market plunged. Specie redemption was once again suspended, leading to runs on banks.

In the aftermath of the panic, calls for reform of the monetary and banking systems intensified. The nascent central bank movement acted with renewed vigor in its attempt to create a central bank. The Aldrich-Vreeland Act, passed in 1908, established a National Monetary Commission, which ostensibly sought to examine possible reforms to the American banking system. Like many commissions established by Congress, its conclusions were pre-ordained. It was intended to solicit expert opinions in favor of central banking in order to convince the public of the necessity of creating a central bank. The commission surveyed the banking systems of the United States, Canada, Mexico, and many European countries, eventually recommending the creation and formation of a national reserve association, similar in structure to what eventually became the Federal Reserve System.

Creation of the Federal Reserve System

Led by Senator Nelson Aldrich, a group of influential Wall Street bankers met at Jekyll Island, Georgia, in late 1910 to develop plans for the creation of the Federal Reserve System. Great pains were taken to conceal the purpose of the meeting and the identities of its participants from the press while the plan for a new central bank was conceived. One part of the plan was to influence popular and elite opinion through a series of articles, conferences, and speeches in favor of central banking. By the time the Federal Reserve Act was passed in December of 1913, the overwhelming consensus within the banking community favored the establishment of a central bank.

Bankers hoped that with the establishment of a central bank, panics could be averted. They hoped that the central bank would create a more “elastic” money supply, allowing the supply of money to expand and contract with seasonal and other demand fluctuations. In addition, they hoped for the central bank to be a lender of last resort in the event that banks found themselves unable to make good on their obligations. While private clearinghouse associations existed to perform lender of last resort functions, they often lent at penalty rates in order to discourage banks from making regular recourse to loans from the clearinghouse. The creation of a central bank, it was hoped, would allow banks to take out loans at lower rates and with friendlier terms when they got into trouble.

The Federal Reserve's Inflationary Character

Commencing operation not long after the outbreak of World War I, the Federal Reserve almost immediately started expanding the money supply. Just as the creation of the Banks of the United States and the passage of the National Banking Acts were intended to spur the purchases of government bonds, the Federal Reserve was involved from the outset in accommodating purchases of Treasury bonds for the war effort. Through special discount rates, easing of reserve requirements on the banks within the Reserve System, and other policies, the Federal Reserve grew the money supply to unprecedented levels. The cost of the war to the United States was immense, and the Fed's inflationary monetary policy to help pay for the war resulted in a near-doubling of the domestic price index by 1920.

Depression of 1920-21

The Depression of 1920-21 is sometimes referred to as the "Forgotten Depression." As a result of the policies both of the Federal Reserve and the federal government, the federal government's debt level was enormous, and prices were rising at a rate of nearly 20 percent per year. The federal government responded to the end of the war by slashing its budget 65 percent from FY1919 to FY1920, while the Federal Reserve raised its discount rate. The drop in the monetary base and the overall contraction of credit were more severe than during the Great Depression, yet the Depression of 1920-21 only lasted about a year before the country pulled out of it. The federal government continued to slash its budget even further, and engaged in no intervention into the markets to combat the ensuing depression or its effects. The result was that the economy rebounded and recovered very quickly.

In the aftermath of the Depression of 1920-21, the Federal Reserve decided on a program of price stability. While price stability sounds innocuous at first, it really means a policy of subtle inflation. The general prices of goods have a natural tendency to decrease over time if the monetary unit remains stable. (A prime example from modern times is the decline in the price of computers.) When new goods or technologies are first introduced they are often expensive, but as technology improves and production increases, the price decreases. This natural tendency for prices to fall should lead to a gently decreasing price level. As time progresses and the price level

falls, the purchasing power of each unit of currency increases. Increased production thus leads to an increased standard of living.

While industrial production increased throughout the 1920s², the Federal Reserve counteracted what would have been a naturally falling price level by adherence to its policy of price stability. Prices remained relatively stable throughout the decade, since the Fed would not allow prices to fall as low as they would have in an unhampered market. In fact, the money supply increased 61 percent from 1921 to 1929³ and yet the price level remained relatively constant throughout that same period.⁴ The freeing up of resources due to reduced government expenditures and the increased use of newer methods of manufacturing allowed industry and markets to expand throughout the 1920s. But the benefits of lower prices through increased production and efficiency were masked by the Fed's inflation of the money supply, which artificially propped up prices.

The Great Depression

The Federal Reserve's monetary inflation throughout the mid- to late-1920s resulted, not surprisingly, in the Great Depression. As with any credit-induced economic boom, the newly created credit caused a distortion in the allocation of resources. Instead of economic growth resulting from increased real savings and investment, the boom of the 1920s was caused by an artificial increase of credit in the banking system by the Federal Reserve.

Whereas savings-induced growth aligns consumers' present and future preferences, credit-induced growth does not. An artificial increase in credit allows banks to make more loans to businesses, and these increased loans signal to businesses that consumers are saving more in the present in order to consume more in the future. Businesses begin to undertake longer-term, more capital-intensive projects which, once they are finished, they find to be unsustainable because consumers either do not actually want them or cannot afford them because they have not saved enough money to purchase the goods. These resources have been malinvested, or invested badly, into sectors of the economy that do not actually serve the needs and wants of consumers. And it is not just one or two businesses which find

² <http://research.stlouisfed.org/fred2/data/INDPRO.txt>

³ Rothbard, *America's Great Depression*, p. 92

⁴ <http://research.stlouisfed.org/fred2/data/CPIAUCNS.txt>

themselves in such straits, but a whole slew of businesses, often across many different sectors of the economy.

The way out of a crisis had traditionally been to allow these malinvested resources to liquidate. Bad debts had to be liquidated so that prices could fall in order for markets to clear. In doing so, resources that were malinvested would be shifted to be used productively in other sectors. This was what was done during the Depression of 1920-21, in which President Harding refused to allow any sort of intervention by the federal government to alleviate the crisis. As we have seen, that crisis, although quite sharp, came to a quick end as the economy rebounded and returned to normal.

The federal government's response during the Great Depression was completely the reverse of its behavior during 1920-21. President Hoover was determined not to allow bad debts to liquidate, and intervened into the economy on a scale never before seen in American history. In the aftermath of the stock market crash of 1929, Hoover called a series of conferences with industrial leaders and induced them not to reduce wage rates; he introduced a series of farm subsidies to keep the prices of various agricultural commodities artificially high; and he began a series of public works projects. The Federal Reserve increased its purchases of government securities, increased the amount of credit available to the banking system, and lowered its discount rate, keeping poorly-run banks from going under.

Not surprisingly, none of Hoover's or the Fed's policies alleviated the Depression; in fact, they made it worse. Unemployment continued to rise and economic production continued to fall. Passage of the Smoot-Hawley Tariff Act put a damper on international trade and helped to contribute to the economic problems facing Europe. And while private spending continued to decrease, tax rates increased and government spending rose significantly as a percentage of total economic output. Contrary to popular belief, government interventions of the New Deal type originated not with President Franklin Delano Roosevelt, but with Hoover. FDR merely enlarged and expanded upon Hoover's intervention through the programs which came to be known as the New Deal. These programs, too, failed to achieve their intended aim, and the burdens they placed on American taxpayers and American businesses only prolonged the duration of the Depression.

Gold Confiscation

The worsening economic situation led to a fall in confidence in the dollar, as Americans pulled their money out of banks in droves. In response, state governments began to institute bank holidays, forcibly closing banks in order to keep depositors from withdrawing their money. Just after taking office in 1933, President Roosevelt pushed through Congress the Emergency Banking Act of 1933, which ordered a federal bank holiday and also granted the Secretary of the Treasury the authority to order any individual or corporation to turn over any gold under their control to the Treasury.

Less than a month after the bank holiday, Roosevelt issued Executive Order 6102, ostensibly to prevent the hoarding of gold coin and gold bullion. This order made it illegal for any individual, partnership, or corporation to hold gold coins, gold bullion, or gold certificates, with limited exceptions. All gold coin, gold bullion, and gold certificates were to be turned over to the Federal Reserve or to member banks of the Federal Reserve System. From this point on, the United States was no longer on the gold standard. Citizens could no longer redeem their notes for gold, only for silver coins or other notes. It was not until 1975 that gold ownership was once again legalized in the United States.

In 1934, Congress enacted the Gold Reserve Act, which transferred all title of Federal Reserve-held gold to the U.S. Treasury. Almost immediately the government redefined the value of the dollar from \$20.67 per ounce to \$35 per ounce, massively increasing the amount of dollars the government could issue while devaluing the purchasing power of the citizenry's dollar holdings.

The Gold Standard vs. The Gold-Exchange Standard

In some circles, the existence of the gold standard is blamed for exacerbating the Great Depression. Yet since World War I the world had not been on the same international gold standard as existed during the century preceding the war. Instead, there existed a system called the gold-exchange standard, in which international balance of payment settlements were settled with gold-backed national currencies (in particular the British pound sterling) rather than actual gold.

The primary force behind the adoption of the gold-exchange standard after World War I was the United Kingdom. The U.K. had decided to return to the gold standard at the pre-war level of parity. Before the war the pound had been defined as a weight of gold that

made it worth roughly \$4.86. Inflation during the war drove down the pound to where it was only worth around \$3.50. Despite the fact that the currency had been devalued, the British government was determined to return to the gold standard at the pre-war exchange rate.

In order to do so, the British government had to convince other governments to return their currencies to their pre-war rates as well, while at the same time discouraging gold redemption of pounds because the British government did not have enough gold to back up all the new money that had been created during the war. And by also making British notes redeemable only in gold bullion rather than gold coin, the British government ensured that the only conversion of notes into gold would come from foreign governments and not from individuals. Furthermore, the British government would also redeem its pounds in dollars, and in fact preferred to do so in order to conserve its gold balances. Other countries were willing to accept dollars because they knew that the dollar was entirely backed by gold. This led to an international monetary system in which the dollar joined the pound as one of the premier currencies of international exchange because the dollar was “as good as gold.”

As long as no other countries sought to redeem their pounds for gold, the system functioned more or less smoothly. Unfortunately, once the British government was freed from the discipline of having to redeem its pounds for gold, it began to inflate its currency yet again. Eventually the system broke down as the worsening banking crisis in Europe in 1931 caused the U.K.’s international creditors to seek to redeem their pounds for gold, resulting in the U.K. leaving the gold standard for good.

V. THE DOLLAR REIGNS SUPREME

Bretton Woods and Gold

In the aftermath of World War II, the United States cemented its position as the world’s largest and most powerful economy. The new international monetary order created at Bretton Woods, New Hampshire in 1946 was based in part on the gold-exchange standard of the 1920s, only with the dollar as the sole international reserve currency—since it was as good as gold. All countries tied their currencies to the dollar at fixed exchange rates, with the dollar being defined as FDR had left it, at 1/35 ounce of gold (i.e. \$35 per ounce of gold). While individuals in the United States were still unable to own

gold or to redeem their dollars for gold, foreign governments were able to cash in their dollars to the U.S. government and receive gold in return, a process that became known as the “gold window.” While the United States would pyramid its dollar issue on top of its gold reserves, other countries were supposed to hold dollars, and not gold, as their primary foreign exchange holdings.

Just like the gold-exchange standard of the 1920s, the system would work as long as everyone cooperated. Unfortunately, the temptation to print more money was too great for the United States to withstand; just as the U.K. did in the 1920s, the U.S. inflated its currency throughout the 1950s and 1960s. As long as no other countries came to the gold window to exchange their dollars for gold, the United States thought it could reap the benefits of inflation without the negative consequences. Since all other currencies were pegged to the dollar at a fixed exchange rate, inflation of the dollar would overvalue it in relation to other currencies, and other countries would have to purchase dollars to hold them as foreign exchange reserves to keep the pegged exchange rate the Bretton Woods system required. Thus the United States could pursue a beggar-thy-neighbor policy, increasing the amount of dollars in circulation in order to purchase more goods and services while pressuring other countries to hold those dollars and not redeem them for gold.

Gold Outflows of the 1960s

Increasing the amount of dollars, however, led to a decrease in purchasing power of each dollar in circulation. European countries began to realize that the dollar was increasingly losing value, and began to return their dollars to the United States for gold at the defined rate of \$35 per ounce. American gold stocks plummeted, yet the response of American politicians was not to discontinue inflationary monetary policy, but rather to place increased pressure on European countries, particularly France, not to come to the gold window.

The United States sought to collude with other foreign countries in the creation of the London Gold Pool, a mechanism that attempted to maintain the \$35 per ounce market price of gold through targeted buying and selling of gold on the market. This arrangement proved unsuccessful and collapsed in 1968. In its place, the United States and foreign governments sought to create an official two-tiered gold market, with central banks selling gold to each other at \$35 per ounce while the free market gold price was free to fluctuate according to market conditions. As the market gold price very quickly rose above

\$40 per ounce, this created an arbitrage opportunity, as central banks could redeem their dollars for gold at \$35 per ounce and then sell that gold onto the market for an easy profit.

Coinage Act of 1965

At the same time as the U.S. was hemorrhaging gold to Europe, the price of silver was climbing as well. Because of the decline in value of silver during the late 19th century, silver dimes, quarters, and half dollars had long had a face value far in excess of their silver value. Silver would have to be worth \$1.29 per ounce in order for the silver content of dimes, quarters, and half dollars to equal its face value. In the Silver Purchase Act of 1946, the U.S. Treasury was authorized to purchase silver at \$0.905 per ounce and to sell it at \$0.91 per ounce.⁵ By the early 1960s, however, the price of silver on world markets had surpassed this level and was moving towards \$1.29 per ounce. Rather than being a large purchaser of silver, the Treasury was now becoming a large seller, and was at risk of selling silver at a great loss.

While government silver sales were suspended in 1961, legislation was passed in 1963 to repeal the silver purchase acts, with the intention of eventually removing silver coinage from circulation. Realizing this, Americans began to hoard silver coins. Congress responded by passing the Coinage Act of 1965, which called for a half dollar containing 40% silver (as opposed to the previous 90%), and quarters and dimes which contained no silver whatsoever. While 1964-dated silver coinage continued to be minted through 1966⁶, and the government publicly claimed that silver coinage would circulate alongside the new clad (copper and nickel) coinage, for all intents and purposes silver coins no longer circulated as money. They were pulled out of circulation almost as soon as they were minted, and millions of coins were melted down in the mid- to late-1960s as the silver price rose above \$1.29 per ounce and it became profitable to melt the coins for their silver content.

Silver certificates continued to be redeemable at the Treasury for silver bullion, but only until June of 1968, after which time the government's promise to redeem the certificates for silver was abrogated. From this point on, circulating coinage in the United States had no precious metal content, and circulating bills had no precious metal backing (since private citizens could not redeem bills

⁵ <http://minerals.usgs.gov/minerals/pubs/commodity/silver/880798.pdf> p. 140.

⁶ http://www.usmint.gov/faqs/circulating_coins/#anchor15

for gold or silver). The domestic system of circulating money was now a completely fiat system.

The 1970s and Stagflation

The continuing outflows of gold throughout the late 1960s and into the early 1970s began to worry the federal government greatly. The Federal Reserve had severely inflated the money supply to accommodate the massive government debts resulting from President Johnson's Great Society programs and from funding the Vietnam War. As the U.S. dollar devalued, redemption demands from France and other foreign countries for gold increased to such an extent that there was a very real threat that the entire gold supply of the United States government might be wiped out. Rather than restraining the inflation of the money supply, President Nixon responded to the gold outflows by announcing the closure of the gold window on August 15, 1971. From that day forward, foreign countries would no longer be able to redeem their dollar holdings for gold. The market price of gold skyrocketed in the aftermath of Nixon's actions, with the monthly average gold price reaching above \$60 per ounce by June of 1972, and \$100 per ounce by May of 1973.⁷

Freed from the limited constraints imposed by the gold-exchange standard of the Bretton Woods system, the Federal Reserve was free to continue inflating the money supply. Economic growth began to stagnate in the early 1970s, while unemployment began to rise and inflation hit double digits. At the time, mainstream economists believed in a tradeoff between unemployment and inflation, thinking that higher inflation rates led to lower unemployment rates, and vice versa. The 1970s saw the first instance of what came to be known as stagflation: the existence of high unemployment and high inflation rates at the same time. Whereas the overall money supply (as measured by M3) had increased by 50% over the five years prior to Nixon's closing of the gold window, the money supply increased by 70% over the next five years, and nearly tripled by 1981.⁸ Unemployment had risen from 3.4% in 1969 to 6.1% by the time Nixon closed the gold window. By 1975 it rose to 9% and, after a modest drop back to 6% in the late 1970s, continued to climb to nearly 11% by 1982.⁹ It was only with the appointment of Paul Volcker as Chairman of the Federal Reserve that the rate of

⁷ http://www.kitco.com/scripts/hist_charts/yearly_graphs.plx

⁸ <http://research.stlouisfed.org/fred2/data/M3SL.txt>

⁹ <http://research.stlouisfed.org/fred2/data/UNRATE.txt>

monetary growth was slowed significantly for a few years, as Volcker allowed the federal funds rate to reach over 20 percent.

The 1980s to the Great Recession

Economic conditions became so bad by the late 1970s that calls to return to the gold standard increased. Congress established a Gold Commission in 1980 to examine the possibility of a return to gold. Although President Reagan was publicly sympathetic to the gold standard, he did not restrain the anti-gold members of his administration. As a result, the Gold Commission was packed with supporters of the existing unbacked fiat monetary system. Despite the Commission's ultimate endorsement of the fiat paper money system, the Commission's work did provide some impetus towards the eventual adoption of legislation to authorize the minting of Gold Eagle coins by the U.S. Mint—the first gold coins minted by the United States since 1933.

While Chairman Volcker's moves to combat inflation temporarily calmed fears, monetary growth began again in earnest after this period, and the three decades since have seen a series of booms and busts. Monetary pumping in the mid-1980s resulted in the stock market crash of 1987 and the ensuing recession, which Chairman Greenspan attempted to paper over with yet more inflation. This led to the dot-com bubble of the late 1990s, the popping of which was countered with even more inflation, leading to the overheated housing market and the financial crisis of 2008-2009, an economic crisis that has been prolonged and papered over by more artificially cheap credit.

Each economic boom has been the result of the Federal Reserve pumping newly created credit into the banking system. Just as in previous economic booms, the expansion of credit by the Federal Reserve leads to malinvestment of resources. Once the malinvestment is discovered, the economy must correct itself. Bad debts must be liquidated, malinvested resources repurposed, etc. Just as in the 1920-21 Depression, allowing the economy to self-correct will remedy the problems caused by the Federal Reserve's monetary intervention.

Unfortunately, just as during the Great Depression, the Federal Reserve over the past 30 years has resorted to credit expansion to counter economic recessions. The seeds of the recession are sown as the Fed lowers the federal funds rate and expands credit in the banking system. When the credit expansion ceases and the

malinvestments are discovered, the Fed tries to solve the problem it created by expanding further, driving the federal funds rate down even lower than during the last economic boom, and sowing the seeds for yet another economic downturn. This cycle continues, resulting in more of the same economic problems. Each boom seems to take the economy to higher and higher heights, and each bust to deeper and longer-lasting lows.

The Fed now finds itself with no room to maneuver in terms of its normal monetary policy actions since it has lowered the federal funds rate to zero, causing real rates actually to be negative. It has resorted to unconventional measures such as quantitative easing to purchase trillions of dollars worth of mortgage-backed securities and newly-issued Treasury debt. With all the talk in Washington about systemically important financial institutions (SIFIs) and how to wind them down in the event that they threaten the stability of the financial system, the one SIFI whose importance is completely ignored is the Federal Reserve. No other organization can be and has been as destructive to the economy as the Federal Reserve System.

VI. THE FUTURE

Monetary policy is the most important, yet also the most ignored, issue facing this country. Congress has abdicated its responsibility for monetary policy to the Federal Reserve, with disastrous results. Now that the recent financial crisis has exposed the malfeasance of the Federal Reserve's monetary policy, more and more Americans are beginning to understand the destructive nature of the Fed's monopoly on money. As prices continue to rise and the value of the dollar continues to fall, the necessity of a return to sound money becomes more evident every day.

However, without a firm understanding of the past, one can neither understand the present nor advance to the future. Far too many people today, both in Washington and outside of it, take our present monetary system as a given. To anyone under the age of 50, Federal Reserve Notes have been the only paper money they have ever known, and coins have always been made of copper, nickel, and other base metals. The idea that our monetary system could be and in fact has been different sounds utterly implausible to most, and so, calls for change too often fall on deaf ears.

Yet it is clear that the current monetary regime has been a complete and utter failure. In fact, the course of American economic history is riddled with economic crises caused by some sort of

government intervention into money and banking. Almost from the beginning of the republic the federal government sought to exert control over monetary matters. The history of the 19th and 20th centuries demonstrates this slow, steady, methodical march towards government control over money.

Just in the last 100 years, since the Federal Reserve's creation in 1913, the dollar has lost 96% of its value according to the government's own statistics, and nearly 99% of its value when compared to gold. The U.S. has seen a cycle of booms and busts that seem to be getting larger and more severe with each passing. This latest business cycle has been one of the worst financial crises the nation has ever faced, one which shows no signs of abating. And because of the Federal Reserve's insistence on creating ever more money and credit, it is only sowing the seeds for another, even worse financial crisis. Will that crisis be the depression to end all depressions, the final bust that utterly destroys the economy? One can only hope not. But one thing is certain: the monetary and banking system of this country needs a major overhaul.

There are many within the financial and political establishment who see nothing wrong with the current monetary regime, and who in fact want to give the Federal Reserve even more power. There are others who seek a more tightly-controlled and regulated international monetary framework or even a single world currency. There are even those whose sympathies towards gold cause them to advocate for a return to gold-backed currency, albeit through a system closer to that of the 1920s gold-exchange standard or Bretton Woods than a true gold standard.

But at least the monetary issue is gaining some exposure. The Republican Party recently embraced a gold commission in its party platform, Forbes magazine has called for serious consideration of a gold standard, and even former Federal Reserve Board governors are beginning to question the wisdom of the Federal Reserve's monopoly on currency creation. Most importantly, the young people of today understand what the Fed is doing. Quantitative easing and the destruction of the dollar inherent in the Fed's response to the economic crisis is destroying savers and imperiling the economic future of millions of young Americans. More than any other generation before, this current generation understands that we need to end the Fed's monopoly on money and return to a sound monetary system.

In the end, however, the only successful monetary system is one that allows the market for money to function free of government

interference. Despite the earliest attempts at centralization, such a system existed and, government meddling to the contrary notwithstanding, thrived during the first three-quarters of a century of the United States' existence. Our present situation affords both hindsight and the means to avoid the mistakes of the past by relying on advances in technology that have made it far easier to do business in foreign currencies, precious metals, and other non-dollar forms of payment. It is past time that we draw the correct lessons from our monetary history and roll back the tide of government intervention.

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★ ★ ★

Book Two

MONETARY LECTURE SERIES

PART 1.

THE BASIC PRINCIPLES OF MONEY

I. WHAT IS MONEY?

JOSEPH T. SALERNO, PH.D.¹⁰
PROFESSOR OF ECONOMICS
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MODERATOR: Good afternoon ladies and gentlemen. I'm Lydia Mashburn, Chairman Ron Paul's Policy Director for his Subcommittee on Domestic Monetary Policy. On behalf of Congressman Ron Paul and his office I welcome you to the first in our three part afternoon tea lecture series on the basic principles of money. Thank you for coming.

Today's question, "What Is Money?" is a simple one, but a rarely asked question and as such not properly understood. Understanding money as a market phenomenon versus understanding it as a government phenomenon is crucial to understanding our economy in general and understanding crises that we have faced in the past few years.

To help us answer this question of "What is Money?" we have joining us today Dr. Joseph Salerno, who is a professor of economics at Pace University. He is also the Academic Vice President of the Mises Institute in Auburn, Alabama, and he is the author of the book *Money, Sound and Unsound*. He will speak for about 35 to 40 minutes followed by Q & A. Without further ado please join me in welcoming Professor Salerno.

SALERNO: Thank you, Lydia. And thanks for all being here, it's a great turnout. And I'm thrilled to be here.

As Lydia pointed out, what I want to do is address a deceptively simple question, the question of "What is Money?" We all use it every day. It's part of our daily lives. But if you examine it a little bit more closely, if you think about why you would accept for maybe a house that you're selling or your very valuable labor time, little pieces of paper with green ink on them, that – the materials in which cost about four cents – that might puzzle you. Because you have no intention to use these notes, or paper tickets, directly, right? You can't eat them. You can't use them as wallpaper – well, you could use

¹⁰ [The video of the lecture may be found at:
http://www.youtube.com/watch?v=vowbrq_g5NM.]

them maybe. Maybe a miser would want to lie in his bed at night and fondle them or something. But normal people have no direct use for these pieces of paper.

So, there's a lot of questions that come up when you're talking about money. For example, why are 80 percent of the hundred dollar bills that have been printed in the US outside the country? Being used to finance drugs trade or being used as a hedge against inflation by citizens of other countries with irresponsible monetary systems, things like that which I won't address. But the basic question of why would we accept paper tickets worth very little in exchange for very valuable goods deserves an answer. So, what I want to do is to give you that answer, but that answer has to be given historically.

We want to start from the beginning and that is: what occurred before there was money? If you go back to primitive times, you will find that there were instances of barter. You won't find many of them. Even the ancient Babylonians' first records talk about money, but there was a time before there was money.

And that state of affairs is called barter, where people would exchange things that they intended to use directly to satisfy their wants, for other things that they valued less. So I put up a little model up there [Figure 1].

What I want to point out is that there's an almost insurmountable problem with barter, or a problem that makes it very costly in terms of time and resources to use barter to satisfy your wants. And that is what we call double coincidence of wants.

That term which seems forbidding at first really refers to the fact that: Look, I may want what you have. Or, I may want that pastry that you have. But, you may not want my watch. You may have enough watches. So in this case let's say that A is in desperate need of a pair of shoes and has eggs. So he wants what B has. But B is allergic to eggs, breaks out in hives and so on. Doesn't want to hear about eggs, even the thought of them makes him nauseous. Now, that could be the end of it. He would then have to begin to search – and especially in an area that's not densely populated – for someone else

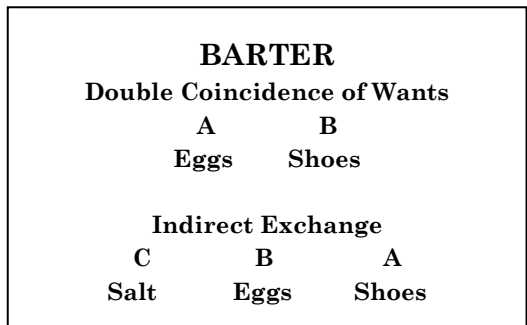


Figure 1

that is capable of producing shoes. But if he was ingenious and persistent, he would hit upon a solution that at first seems more complicated and less likely to achieve his ends, but in fact is much more efficient. And that is indirect exchange.

He may know that everyone in that society uses salt. This is before refrigeration, so people use it to season their foods, but also to preserve their perishable meats, and so on and so forth. And so he knows that there is a wide demand among people who may have many different goods for salt. So what he would do then would be to take his eggs to some person C – there's a lot of C's out there, many people have salt – and find a person who would want his eggs in exchange for salt. But he himself doesn't want the salt.

At that moment in time you have the emergence of indirect exchange, the first step towards money. We don't know when it happened, we don't know what individual discovered that way of solving the problem of barter – the double coincidence of wants – but what we do know is that A would turn around with that salt and use it in or to exchange for the shoes that he initially wanted. Others will see that A solved his problem that way and will then, will begin to emulate him. But the more people use salt for a medium of exchange, the more widely acceptable it is, and therefore the better a medium of exchange it is.

So, as time goes on, salt becomes, in that society, a medium of exchange. Yes, it's still used directly to satisfy certain human wants, but its main use becomes the facilitation of further exchanges. As we'll see then, everyone is permitted to specialize, because whatever they produce, they can always sell it for salt, and then use the salt to buy all the other things they need.

Another problem with barter, very quickly, is if someone has an indivisible good, like a dairy cow, and that person wants clothes, whiskey, shoes, and other things. Well, if he cuts the cow up it loses its value. So how does he buy these different things from different people, without dividing up the cow? Very simply, he takes the cow and sells the cow for salt. He sells it for maybe 15 barrels of salt and then divides the salt up among the other specialists he wants to buy from.

So, these problems are then solved in that way. And we know in history that many useful items were used as media of exchange – the plural of medium of exchange – which means the intermediary good that people buy, not because they want it, but because they want to give it away again in the future for something more valuable. Which is why we hold the dollars. We'll come back to that. Cattle was used

in Greece; leather in Rome; maize or corn in Mexico; wampum – strings of beads that were used by the American Indians, you've heard the story, whether apocryphal or not, that the Dutch purchased Manhattan Island from the Indians for \$26 worth of wampum; dried fish in the Canadian maritime colonies, salt was used and so were iron implements, farming implements in ports of Africa; wives were used in ancient Egypt. Before the advent of capitalism, women were little more than chattel property, so if they were bothering you while you were watching a football game, you could say “You're going to be someone else's wife, tomorrow;” and finally dried tobacco was used in the colonies of Virginia.

So, all these things were used, but a few goods came to be used throughout the world over time, because of the qualities that they embodied as media of exchange. But before I get to those goods, let me just mention that there are some interesting modern examples of money arising in emergency situations. Some of you had economics so you must have heard the story of the German POW camps. American prisoners received rations from their German captors, as well as care packages from the Red Cross during WWII. An American economist happened to be a captive in a POW camp and recorded all of this. And what he found was when people got their care packages and their rations every week or month, there were many things in those packages: chocolate, razor blades, socks, underwear, cigarettes, and so on. But if you've seen old WWII movies, what does everybody do? They all smoke.

What occurred – and this is representative of what actually happened – is that since everyone used cigarettes, eventually people who had too much chocolate and wanted razor blades but couldn't find someone with razor blades who also wanted his chocolate would begin to exchange for cigarettes. So eventually, on each barracks – each prison building – there was posted cigarette prices of the various prison services. So, money emerged. And there was inflation and deflation. As the months wore on people smoked the cigarettes so that prices went down until just a few were in the camp, and then when the new packages arrived, they went up again.

But I found another interesting example in Iraq. There was an article by a former Marine who did a seven month stint in Iraq and he was posted in a number of different farming villages. A lot of wealth had been destroyed, real wealth: houses, cars, trucks, fishing boats, and so on. The people in those villages rightly so, didn't put much trust in the paper money issued by Baghdad and what they did was – they all owned sheep and if you're affluent you owned a whole

herd of sheep, but even the poorer families had some sheep. And what happened was – people began to exchange sheep for other goods and services, and write their contracts in sheep, and repay debts in sheep.

But sheep were very big and valuable in that sort of an economy. So, a second good began to emerge, alongside the sheep. These villages were located near the Euphrates River. The water in the Euphrates was suitable for watering their crops and the sheep, but not for human consumption, so water from the cities was generally purchased and came in big trucks. For smaller purchases, people began to use water, because everyone drank water, especially in the summer. And then, finally, cigarettes – usually smoked at night with a Chai tea by the villagers – were in circulation. So we have three parallel monies, and the paper money wasn't used at all. This was in 2007 that this occurred. So, this is some examples.

As trade between different regions and countries began to develop, as small groups began to trade with other small groups, and we began to get a network of inter-regional and even international trade, during the Middle Ages, a few goods emerged as the general media of exchange.

When we talk about a general medium of exchange, we mean that good that is universally and routinely accepted by everyone without giving it a second thought. And right now the Federal Reserve note is such a good. We don't think twice about accepting Federal Reserve notes, or claims on Federal Reserve notes – which is bank deposits – in exchange for all the goods that we sell or the labor that we sell to our employers. So, it's a medium of exchange in that sense, when people do not think twice about it but simply accept it and pass it on.

The question I asked in the beginning could be answered by pointing out that the reason we accept these pieces of paper is because they have a preexisting purchasing power: You know that people will be willing to accept them at certain prices for different things so that you accept them and pass them on. That happened with gold and silver. So, over centuries an evolutionary process took place in which gold and silver, and to a lesser extent copper, out-competed all other local media of exchange, so that they became the world money.

Now let me just – very quickly – talk about the qualities of a good medium of exchange. First of all – as you saw in the Iraq example – they have to be generally acceptable. They have to be widely used in that society. That's the first quality. It's extremely important. Gold and silver were used in almost all societies and cultures in religious

rituals, for ornamentation, as jewelry, to embroider the dresses and suits of the nobility, so everyone accepted them.

Second, they were also highly durable. Remember, when you accept a medium of exchange, you don't want it to deteriorate overnight. That's why cigarettes for example aren't a good medium of exchange: they're used up in their natural function. Because you want to hold them until you find attractive opportunities on which you want to spend the gold coins or silver coins. Just keep in mind that almost all the gold that was mined when, let's say, Jesus of Nazareth walked the earth, is still in existence today. Even if you go back beyond recorded history: all the gold and silver ever mined is still in existence today, except that which was lost in fire – gold can be melted and lost in a fire – or sunk in ships. So, gold is extremely durable. Ah, but if that's so, why isn't iron a good medium of exchange? Iron did serve as a medium of exchange for a while but was out-competed. It's enormously durable, very highly durable.

Well, there's a third characteristic that's very important, and that is that it must be portable – easy to carry. Now, you could say, “An ounce of iron is just as easy to carry as an ounce of gold.” But the key is: the good must have a high value-to-weight ratio. So, if you wanted to buy a lawnmower at Sears or at Wal-Mart, or something, that cost three hundred dollars, you'd have to bring only a small amount of gold – maybe a fifth of an ounce of gold – but you'd have to bring a ton of iron. So, iron wasn't very portable, because it had a very low value-to-weight ratio, so it was out-competed.

It also must be highly divisible. That you can divide up gold into very small pieces, without them losing any of their value. You cannot do that for example with precious gems, which were used as a medium of exchange. If you break up a diamond into small pieces, it loses its value. So, that's why precious gems were out-competed.

Every unit has to be identical to every other unit. So every ounce of gold ever mined is exactly the same, in all its physical properties, as every other ounce of gold, which we call homogeneous. That's not true of diamonds. In fact, diamonds are precisely desired – especially for engagements, and so on – because no diamond is like any other diamond, like no two snowflakes are exactly the same. When two things are exactly the same it is easy to recognize the value of it. Whereas, when each time it's different, the value of it would have to be appraised at each purchase and that would be highly expensive.

Finally, it has to be easily recognizable. In those old cowboy movies, when a coin was passed in the old West, you'd see a cowboy biting down onto it. Well, the gold leaves teeth marks, because it's

malleable, it's easy to work with. Whereas fool's gold, which looks very much like gold – I don't know which chemical element it is – is very hard. So, there were easy chemical tests which allowed you to quickly and inexpensively find out if you were dealing with a counterfeit or not.

So, the bottom line in all this is that money was not invented. It was not created by the State. There wasn't some wise old king benevolent that said, “My people are suffering from a lack of coincidence of wants and therefore I must get all my wise men together and solve this problem.” And then they got together and said “Yes, we have to use salt!” That's nonsense, that's not the way it happened. Nor was there a big town meeting where all the Virginia colonists got together and made a contract that they would all use dried tobacco leaves as money. That's not the way it happened either.

It happened as the result of a market process, which embodied the actions of millions of people over time, all seeking their own benefit, all seeking to solve the problems of indivisibility and coincidence of wants, and in doing so, motivating others to follow their example so that over time money arose on the market. Government had nothing to do with it. It stepped in much later and actually distorted the monetary system later on.

Let me mention one other thing here, and that is: Could money come into existence as a paper fiat currency? “Fiat” meaning “issued by the State.” “Fiat” is a Latin word for “this must be” or “this is my will,” you will use this paper. No, it couldn't. And the reason why it couldn't is because, if you issued paper ... let's say you trusted me completely despite the fact that I'm from New Jersey and my name ends in a vowel, you still thought I was very trustworthy. So, I came to you and I said, “Look, here's ten Salerno's. Can I have your pen or can I have your watch?” Even if you trusted me you wouldn't accept it, because “What the hell is it worth?” There's no past history. But with gold, silver, salt, iron, there's a past history: there's barter. They were exchanging for other things under barter. So you had an idea of what they were worth. So that's why money must come in existence as a useful market commodity and cannot be imposed from without by the State.

Now, let me just mention some of the benefits of money. First of all and very importantly, it serves as a unit of pricing. It allows you to compare prices against one another. And also as a unit of economic calculation, it allows businesses to calculate their revenues, costs, profits, and losses. In a barter economy, let's say there are only 1,000 goods. That means there are 499,500 prices to keep track of, because

each good has 999 other prices – because each good can potentially be exchanged for each of the other 999 goods. In a money economy, money is always one half of every transaction so if there are 1,000 goods, there's 1,000 prices and not 499,500 prices. That's just 1,000 goods. The average supermarket in the US today has 27,000 items. So there's millions and millions of barter prices for those goods, if they were exchanged against one another. There'll be no way to have a supermarket under barter.

Also under barter: there's very little specialization, that is, people specialized in those things in which they are most productive, which raises our standard of living and the productivity of labor so greatly. And the reason is the following: Let's say I'm an economics professor and I want a Wall Street Journal. Well, how do I get it under barter? There is no money, so I can't sell my services for money. I have to go to the guy and give him a ten-minute economics lecture, or something like that, which he probably doesn't want to hear, so he won't give me the Wall Street Journal anyway. Or, if I want breakfast, I'd have to stand there and talk to the waitress, or whatever. You see the problem.

And there's a third problem. The third problem that money solves is that you can't produce large, durable consumer goods or capital goods, because how is the entrepreneur going to pay the workers? Let's say you're producing cars. Are you going to pay the workers in cars? Are you going to break up the cars and try to pay the workers every two weeks, or something like that? That's impossible. Or, if you're producing something that's not even a consumer good, like oil or steel. Are you going to give them bars of steel or barrels of oil? They don't want that. So, you have a very primitive economy under barter and money solves that problem. Again, no one set out to solve all of those problems, no one set out to invent money. It, again, happened as a result of the interactions of hundreds of millions of individual human minds over time.

So, what is the monetary unit? Money comes into existence as a useful commodity. Most commodities circulate by weight or by volume – ounces of gold, pounds of silver, barrels of salt. Well, money circulates by weight, that is, the unit of money is a unit of weight of a specific commodity. Even when the gold standard in the nineteenth century came into existence – and by then we had names for different national currencies – it was still a unit of weight. Let me just take three different currencies, the British pound, the French franc and the American dollar. They were actually just names for units of weight. Let me give an example of that:

1834 – 1933 \$ 1.00 = 1/20 oz gold

1821 – 1931 £ 1.00 = ¼ oz gold

1806 – 1914 FF 1.00 = 1/100 oz gold

Okay, let's stick with the pound and the dollar. For about a hundred years the dollar was legally defined as about one twentieth of an ounce of gold, that's an approximation. And the British pound was defined from 1821 to 1931, when Britain went off the gold standard, as one fourth of an ounce of gold. They weren't different monies. They were the same money.

Now, the exchange rates for all the 19th century – I was in Austria last week where I was watching the continually changing exchange rates between the euro and the dollar in order to make the most advantageous exchanges from the dollar to the euro and from the euro to the dollar, and it was changing all the time, every day – but for a hundred years it was stable. The exchange rate between dollars and pounds was approximately \$4.86 per pound.

Some people – and many economists – say that under the gold standard we had “fixed exchange rates”, but an exchange rate is a price between two different things. The pound and the dollar during the 19th century were not two different things. They were different weights of the same thing. So it's wrong to say that that is an exchange rate. That is determined, not by the laws of economics, but by the laws of arithmetic. In the same way that the “exchange rate” between a quarter and nickels is 5 to 1. Because a quarter is defined as one fourth, or .25, or 25 cents of a dollar, and the nickel is defined as one twentieth, or .05, or 5 cents of a dollar. Since the quarter refers to five times more of a dollar than does a nickel, five nickels exchange for a quarter.

Well the same is true here: the pound was defined as having approximately five times the amount of gold and therefore was five times more valuable than the dollar: \$4.86 / £1.00. That is not true today. All currencies are different things now because they are issued by different monopolists, different monopoly central banks.

What was the money supply under this, what we call the commodity standard? Money developed as a useful commodity, so we called it commodity money. Today we call money, fiat money, because it's a piece of paper or it could even be this bottle. The government or the US central bank as a legal monopoly that can print money, can put in this space here [points to the label on his water bottle] “ten dollars” or “twenty dollars,” and it would be legal tender. You could

use this eraser, you can use my shirt, it can use anything. It's not necessary to use paper. But under a commodity standard, there was one thing that was the commodity, that was the money and that was the physical commodity itself. So, the money supply was the total quantity of the commodity that was in monetary form, the total amount of gold in the country that was in the form of bars, which is called bullion, or coins. Or even gold dust was used in western towns. Or gold nuggets. So, all of those things constituted the money supply.

Let me talk just a few minutes before I end on, how did the money supply behave under commodity money? Did we have inflation? Did we have deflation? In the case of gold, the only time the money supply increased was when gold was mined. So it increased very slowly over time. Every once in a while it would jump because a new source was discovered, in Australia in the 1870s, in California in 1849, in South Africa in 1896, and so on. Or when a new improved technology for extracting gold was developed. So, there was very little inflation. In fact, there wasn't even inflation. There was a fall in prices.

Since gold and the money supply increased very slowly, the increase in goods and services – real wealth – was faster. And so, as a result what happened was as the supply of goods and services shifted out – there was an increase in the supply of these things – in relation to money – and money is what lies behind the demand for these things – prices actually fell. To take an example, even though the money supply is increased very rapidly and has been increased very rapidly since WWII, we still found that if goods and services in certain sectors of our economy increased more rapidly than the money supply, prices are going to fall, and we are going to benefit from those falling prices.

Take the example of computers. A mainframe computer, produced by IBM in the seventies, cost about three million dollars. A personal computer nowadays costs five hundred dollars, and the PC is faster and has more memory. So, we've had a tremendous drop in prices. Now, did this “deflation” cause any sort of problems in the computer industry? In fact, no. In 1980 there was about a half a million PCs shipped. By 1999, twenty years later – despite the fact that prices had come down from \$20,000 to less than \$1,000 for PCs – you had eleven million or twenty-two times the amount of computers shipped. So, falling prices, when they occur naturally on the market as a result of goods and services being increased due to improvements in technology and in capital that brings about labor productivity, bring about a very benign – what we call – growth deflation.

And that's actually what happened in the 19th century. So, to end up with a few of the statistics: In 1800, it took only 79 cents to purchase what a dollar in 1800 could buy. In 1913 years, the value of one dollar had gone up 27 percent. In other words, what you could buy for a dollar in 1800, cost you only 79 cents to buy in 1913. What you could buy in 1913 for a dollar, the year the Fed came into existence, didn't cost you less, it costs you much more, it costs you 22 dollars today. So, under the commodity standard, the value of the gold dollar went up by about 27 percent, because prices fell very gently.

Under the fiat standard, that is controlled by a central bank, the Federal Reserve System, the value of the dollar has shrunk to about a nickel of what it was worth in 1913, when the Fed was established. Basically, what you've got for all countries on the gold standard during the 19th century was a very slow decline of prices. Which meant that all the fruits of improved technology, of increased investments in machines and other labor productivity increasing type investments, all of those things were spread to the whole population, whether your salary went up or not in money terms. Because prices were coming down, as they have for computers, your dollar became more powerful. So, if you go back to a commodity standard, you'll find that, over time, the value of money would rise.

QUESTIONS & ANSWERS

QUESTION: [inaudible]

SALERNO: Under the gold standard, eventually, the governments began to get involved. They took over monopoly over the mints. They began to debase the coins. They made them lower and lower in weight. The kings would call back the coins to re-coin them. When they had a one full ounce – let's say there was a King Nitwit, who was king of some realm. The first thing he did when he took over the mints was put a name on the face of the coin. And he would charge people a lot of money to get their gold minted into coins. That's called seigniorage. It was a monopoly price for getting your gold coined.

In any case, what would happen then is every once and a while the coins would get worn or a new king would come in and want to put his face on it. So they called the coinage, but instead of giving you a full ounce of gold back, they would only give you eight tenths of an ounce of gold. And they would put the same name on it: one nit. So what they did was in effect was increase the money supply by twenty percent, because they would keep the twenty percent that they stole from the people who were turning in their gold coins and mint them

into their own coins, so that they could pay for more palaces, wars, mistresses, and so on.

Over time, and after the printing press was discovered, they found that an easier way of creating money, that was less costly, was simply to print paper, set up a central bank – the first central bank was set up in that fashion with the Bank of England in 1694 – get the bank to loan them money, to pay for the wars, and so on. And then the bank would promise to pay back the notes that the king spent in gold. So, people got used to paper money over time, but we still had a gold standard.

But, to get to your question, by the 19th century it wasn't a pure commodity standard anymore. So, the central banks would keep maybe 20, 30, or 40 percent of the notes they issued in the form of gold. And then you had private banks beginning to start. And they would hold, not gold itself, or very little gold, but they would hold the notes of the central bank. So, eventually, all the gold which backed up the money became centralized in the central bank. So you had maybe 10 percent backing up – Let's say there was ten million dollars in the economy, then there was only a million dollars worth of gold in the central bank. So that, if everyone came and demanded gold – or even a significant portion of the population, because they didn't trust paper money – the whole system would collapse literally like a house of cards.

So, there were problems under even the gold standard, because the banks could create paper money and lend it out, pushing the interest rate down, and cause inflation to occur. And at that point, when prices went up, people began to buy goods from other countries, where the prices were lower. But other countries didn't want the paper, they wanted gold. At least under the gold standard the central banks would start to lose gold as people turned in their dollars to pay for their imports from China and so on. At that point, everyone would begin to get fearful that they wouldn't get their gold back, so the central banks had to stop inflating.

So the gold standard was called “the golden handcuffs,” because if the banks got too inflationary, gold would start to flow out. The people would see that, the clients of the banks who had deposited their money would see that. They would begin to get nervous, and that would increase the outflow of gold, because people would rush to the banks. To prevent that from happening, they always nipped the inflation in the bud.

After 1933 we went off the gold standard, almost every country did. They tried to reconstruct it after World War II, in 1946. It was

called the Bretton-Woods system, the brainchild of John Maynard Keynes and Harry Dexter White – who turned out to be a Soviet spy. He worked for the US Treasury. That system was a phony gold standard. Normal people, like you or I, or your parents or grandparents, could not redeem our dollars for gold at the stated price of \$35 per ounce. Only the foreign central banks and governments could do that.

But the US continued to inflate to pay for the Vietnam war and then also for the War on Poverty under President Johnson, and as a result of that we began to lose a lot of gold to the rest of the world. Initially people were willing to hold US dollars, because we had most of the gold at the end of World War II. And since our own people couldn't get hold of that gold, they couldn't convert their dollars, the rest of the world said, "There is more than enough gold to accommodate all the outstanding dollars."

But the Fed, to pay for government deficits, created so much money during the 1960s, that – I think that towards the end of the sixties we had twelve billion dollars worth of gold that we had, and foreigners held eighty billion dollars, so that the French under De Gaulle and the Germans wanted to en masse convert their dollars into gold. And we basically blackmailed the Germans, and tried to blackmail the French by basically saying, "We have to remove our nuclear umbrella. We have to stop protecting you from the Soviet Union, if you do this. It's going to cost a lot of money."

In any case, the Germans backed off, the French dropped out of NATO, and at the end of the whole story, we were still losing gold like crazy, so by 1971, when we had about two weeks left of gold, President Nixon – it's forty years this past August, right? – then stepped up to the podium and said, "We're going to close this gold window." So, we reneged on the solemn pledge that we made to the rest of the world in 1946, and the whole thing collapsed. From 1971 on, there was enormous inflation because now there was no more danger of losing any gold.

QUESTION: Would you recommend going back to the gold standard as a commodity based standard, and if so how would you accomplish that?

SALERNO: The answer to the first question is yes. The answer to the second question is, that's very, very difficult. But I think you could accomplish the first few steps in that direction.

A few things that you could do is to allow people to buy and sell gold without any capital gains taxes, without any sales taxes, excise taxes. Remove all the taxes on gold and silver so that now people

could use them if they wanted as a parallel currency. At the same time allow people to hold euro accounts in American banks, and Swiss franc deposits. So, then the American government would be looking at the fact that dollar deposits are losing popularity vis-à-vis these alternative monies. That's one way you could begin to be working back in that direction. And in the meantime stop the inflation.

QUESTION: What about repealing legal tender laws?

SALERNO: You're absolutely right. And repealing legal tender laws. So people could make their contracts in gold or silver, and they would have to repay them in gold or silver. Legal tender allows you to repay any debt you owe in paper money. It forces the creditor to accept the paper money.

QUESTION: Just to single out what he just said. It actually seems that the most common objection to going back to a gold standard is that precious metals is one of the least abundant phenomena in the world today. Is that actually true?

SALERNO: Well, remember, there's not enough of anything in the world to satisfy the human wants for it. That's why we have prices for things. So if the price is right.... In the Soviet Union at the end, even a simple item like toilet paper was in short supply. If you've seen the movie "Moscow on the Hudson," people were lining up to get toilet paper. Because the prices were kept so low. Well, the same thing is true for gold. At some price of gold it will be enough to back the dollar, and so on. And also I think silver would be used in smaller transactions.

QUESTION: So you're saying basically commodity money often goes up in value, becomes more valuable, that's deflation, and fiat money becomes less valuable through inflation. How come a lot of talking heads blame the Japanese recession of the eighties and nineties on deflation?

SALERNO: Because they're confusing depression with deflation. If you look at it, there is a little deflation in the Japanese economy, but the money supply was almost always increasing. You really can't have deflation without a fall in the money supply unless there's a big increase in the demand for money, when people are frightened of the future and want to hold their money – which happened here in the US in 2008 during the financial crisis.

So even though the money supply is going up, the demand to hold the money and not spend it was going up by more. So that can cause prices to fall, but that only happens during crisis situations. For the most part, Japan did what all American economists were urging them to do. They ran big deficits and they increased the money supply. But

they have a very productive economy, so they never really had much of a recession. They had what's called a growth recession – their rate of growth went down. Their economy shrunk only for a few quarters.

So, I would say that main problem with Japan is the fact that its labor markets are extremely rigid, its business organizations are tied into government and aren't flexible. There was actually a very good article about all of this very recently [inaudible] and it had to do with the fact that Japanese companies are looking down on this new firm – I think it's called Uniqlo – which is selling a lot of clothing throughout the world, like a low tech product, and it's looked down on in Japan and people are dismissing it. But the guy who owns it – Yanai – is the second wealthiest man in Japan, now, and he's broken the whole Japanese model. He's hired foreigners and he's poaching – going to other companies trying to bid away good talent – which isn't done. So I think it's the rigidity in the Japanese economy that has a lot of government intervention that really caused that recession. China had falling prices for a long time, and they were growing like crazy, because they're very entrepreneurial.

QUESTION: Is there a lot of money that's owned [inaudible] that they're holding, to still release into the economy and what would happen if we really repatriate money: lower capital gains, decreased regulation and start encouraging money that's being held also flow into the economy. What happens if it comes from both directions?

SALERNO: You're asking a good question. The first part of that question: The Fed has increased what's called the monetary base. That is, the reserves of the banks, and currency. The banks, because of the bad business climate, aren't lending them out to the extent that they could lend those reserves out. They're holding what's called excess reserves. They're allowed to lend out 90 percent of all their deposits, but they're not doing that.

So, you're right, if things pick up and that money is lent out – and also by the way, they're discouraged from doing that because the Fed is paying them a quarter of a percent on holding that money at the Fed rather than lending it – that could cause an enormous inflation. But the way the Fed could offset that is try to begin to sell off some of its assets that it has purchased in mortgage backed securities, and so on, and begin to absorb those extra dollars from the banking system. Because when it sells things to the banking system, the banks have to pay with their own reserves. So that's a question what the Fed will do and I think it will try to prevent that sort of an inflation.

The other part of your question is people themselves holding money, investors, and not investing. Because they're fearful of the

potential cost of Obamacare, what is going to happen with taxes as a result of the trillion dollar deficits we keep racking up, and all of those questions. That kind of spending is good for the economy. In other words, then people will begin to be taking risks to invest in actually producing goods and services. And that will actually cause prices to fall, all other things equal.

QUESTION: Milton Friedman blamed the lack of action on the part of the Federal Reserve as one of the causes of the Great Depression. If we'd taken away the Fed's ability to expand the money supply, how would we've ever gotten out of the Great Depression?

SALERNO: If we had taken it away before that, we would've never had a Great Depression. I don't mean to be flip, but the point is during the 1920s the Fed expanded the money supply at between six and seven percent per year. Most – all – of American economists believed the true indicator of inflation was consumer prices. Whereas the Austrian economists who observed America – and came to America such as Hayek, the Nobel prize winner, and Mises, in Austria – they pointed out that the American economy was growing tremendously during the 1920s.

We had electricity now coming into general use, refrigeration was being developed, cars were being mass produced after World War I, so there was tremendous industrial activity. Prices should have actually fallen a great deal every year, but prices didn't change. Between 1921 and 1928 prices stayed about the same when they should have come down tremendously. What caused prices to stay up? Inflation.

The Fed was inflating the money supply, the money was being lent out to the banks, pushing interest rates down, causing people to speculate on the stock market and drive up real estate prices. So, my response to Friedman would be that had they not had that power, prices would have naturally fallen, as they did during the 1880s and 1890s, and we wouldn't have had a crash that led to the Depression.

And the reason why it was extended – and this will be talked about in another lecture – was that there was a lot of legislation that prevented prices and wages from falling to meet the fact that... Look, people didn't want to spend during the Depression, they were afraid of the future. So, yes, there was a deflationary pressure, but if the Fed tried to stop that, they would simply reproduce the problem. So that would be my response, it's a very short time period to give you that. But, yeah go ahead.

QUESTION: Are you sure that there aren't times when monetary policy is necessary? Maybe where we did things right but we still get

into a new recession or depression or something like that. What do you propose we do then if we have no access to all those tools?

SALERNO: Again, that's a good question, and I'm not sure how much that confuses depression with deflation. If a depression occurs, that means that the relationships between prices are wrong. That is, costs are too high in relation to selling prices, so businesses don't want to invest. So, by holding up wages and by holding up prices of agricultural commodities and so on during the Great Depression, the New Deal prevented the reestablishment of profitable margins.

So, let's put it this way. Anything that monetary policy can do, you're right, in the short run if you can inject money in the economy to push prices up, so that businessmen believe that there's a profit to be made. But that's only a short run solution, because then costs catch up again. A better approach, a better solution, would be the micro-economic solution. Getting rid of all government legislation such as special privileges to labor unions, minimum wage laws, price support for farm products, that keep costs up.

QUESTION: You said that computers are so much cheaper right now, so are you saying they should be cheaper than that?

SALERNO: Yeah, I would love for them to go down to a nickel. No, I'm serious!

QUESTION: So you would like it if we were still on nickels and cents?

SALERNO: Yeah, very good question. The price of a car was \$350 in 1915 or 1916, right after they started to be mass produced. And maybe they should be that much, or a little bit less, whatever, yeah! I mean prices would be going down, sure. In other words, the actual price doesn't matter. It's always the relationships between prices.

If your salary doubled tomorrow, but prices tripled, you'd be worse off, not better off, right? But if your salary fell by ten percent, but prices fell by fifteen percent, you'd be better off. So you should get away from this illusion of what's happening to the actual height of these nominal prices. It's always the relationships between prices.

QUESTION: [inaudible] At what point do the falling prices become an issue for the producer? We see that in agriculture, today. Let's say potatoes. They produce so much of it; they can't make a living out of producing them anymore.

SALERNO: OK. There's two parts, so two answers. It's a good question. The first part is that in industries that are growing, like computers, costs are coming down, faster than the prices are dropping. That's why the computer industry is expanding even though prices are dropping. So, industries like that you don't have to

worry about. As long as costs are falling, no matter how far prices fall, as long as costs are falling too – and they're producing more, because it's now more profitable – you're going to have growth.

The problem comes with farmers: there are too many farmers. We are supporting inefficient farming. Because, as farming technology develops, some of the smaller farms are unable to take advantage of that and would go out of business – normally, as prices come down. We don't let that happen with all our farm subsidies, and so on. So, that's a market adjustment that needs to happen.

We used to have two hundred years ago maybe 97 percent of the labor force work in farming, and we could barely feed the whole United States. Do you know what proportion is involved in farming today? One and a half percent. So, all those jobs went elsewhere, and that's fine. Because farming labor is so much more productive today, because of capital investment, technological improvement, and so on.

But that doesn't mean that in some cases you're going to have firms going out of business as a result of these low prices. But if those prices are manipulated in any way, that's giving a signal: that look, we have too much farming goods, and not enough other goods.

QUESTION: So, if we didn't have these farming subsidies, there would be no need for a price for it, because there would be less farmers producing less of it.

SALERNO: Right. More efficient farms would expand as these other farms went out of business.

QUESTION: In terms of, if the price of computers could drop to, say, I don't know, maybe \$200 per computer, but right now they're able to and making a decent amount of money charging \$1,000 per computer. Why wouldn't they simply charge still \$1,000 per computer because they could get enough people to buy those computers?

SALERNO: Competition. Because the other guys are going to... The ballpoint pen was first introduced in 1946. It sold for \$25. In today's world that's \$200, eight times as much. People would leave them on their coffee tables, just like you would leave your BMW... just to show that you were affluent. Within two years, the price went from \$25 to eighteen cents, or something like that. And the costs had come to like ten cents. Because of the fierce competition. You could prevent that from happening if you allow patents and crap – stuff like that. But otherwise it's same with computers.

QUESTION: But why wouldn't that competition I mean occur, now as well...?

SALERNO: Competition is occurring.

QUESTION: But why aren't prices lower now?

SALERNO: Because they're as low as costs will permit them to be. If everyone can enter, and no one is entering, that means there's some sort of an equilibrium, right? That that rate of return is what everyone is satisfied with. But if someone finds an even cheaper way of making it, so that they can increase the rate of return to themselves, they'll enter and they'll sell at a slightly lower price and the others will have to adopt that new technology, or go out of business.

Thank you.

MODERATOR: I'd like to thank you all for coming today. Again, this is the first in our three part series. The next one will be occurring in October, the third one in November. October's lecture will be on "What is Constitutional money?" We will be looking at how the Constitution looks at a dollar and what those ramifications are for the economy. And then in November we will be discussing "What about money causes economic crises?" How did we get into this financial mess we're in now? So I hope you will join us for that, details will be coming shortly. Thank you again for coming and please, let's give another round of applause for Dr. Salerno.

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II. WHAT IS CONSTITUTIONAL MONEY?

EDWIN VIEIRA, JR. J.D., PH.D.¹¹

AUTHOR

*PIECES OF EIGHT:
THE MONETARY POWERS
AND DISABILITIES OF THE
U.S. CONSTITUTION*

MODERATOR: I'm Lydia Mashburn, Policy Director for Chairman Ron Paul's Subcommittee on Domestic Monetary Policy. On behalf of Congressman Ron Paul and his office, welcome to the second in our three part afternoon tea lecture series on the basic principles of money.

Today's question is going to be "What Is Constitutional Money?" This is following up on our first lecture which was "What Is Money?" At that lecture – if you missed it – we had Professor Joe Salerno come and talk about money. Essentially money is a natural market driven phenomenon that satisfies, fulfills the properties of indirect exchange. So money is a commodity.

Throughout history various things have fulfilled the role of money: salt, leather, cattle, and of course silver and gold. So, if money is a naturally occurring market phenomenon, why is it that governments are so involved in money? Which brings us to today's question: "What is constitutional money?"

The Founders had a very particular understanding of money, based on their own historical circumstances and some rather disastrous experiments with money that governments did. Based on this understanding they put in provisions in the Constitution, to help ensure sound money existed throughout our great nation. Unfortunately, those provisions have been either misinterpreted, misunderstood, or completely forgotten. And I'd say today, we've completely forgotten why the Founders put in certain provisions or what their understanding of those provisions was.

So I'm delighted to say that we have to talk to us about constitutional money, Dr. Edwin Vieira, Jr. Dr. Vieira holds four degrees from Harvard, including his J.D. as well as his Ph.D. He is also the author of this lovely work *Pieces of Eight*, this is two

¹¹ [The video of the lecture may be found at:
<http://www.youtube.com/watch?v=k6gMkKmQSW4>.]

volumes, more than 1700 pages, on constitutional money. The full title is *Pieces of Eight: The Monetary Powers and Disabilities of the US Constitution*. To give a sort of a Cliff's Notes version of his magnum opus he will be answering the question "What Is Constitutional Money?" Please join me in welcoming Dr. Ed Vieira.

VIEIRA: Thank you, Lydia. Thank you ladies and gentlemen.

"What Is Constitutional Money?" covers essentially three centuries of American history, so put your seat belts on, we're going to have a very fast flight.

As Lydia pointed out, governments have historically become involved in monetary questions and the reason for that, basically, is redistribution of wealth. Whoever controls the substance and the supply of money at the source, can do a great deal of redistributing wealth, either directly through government expenditures or indirectly through government involvement with the private sector. So keep that in mind as we go through some of these historical principles.

Now, to understand the Constitution one has to do more than simply read it. You have to put yourself in historical context of "We the People" – the people: the Framers, the Founders. You have to put yourself in the political context, the legal context, and in the linguistic context as well. Because there are some terms – terms of art, legal terminology – used at that time which don't quite correspond to the terminology we use today. Or at least, the original meaning has been lost.

Historically, if you go back to the colonial period, the pre-Constitutional period, the Colonies generally speaking had no power and did not claim a power to coin money. There were some desultory attempts in Massachusetts and Virginia, but they mostly fizzled out because that power was one of the prerogatives of the King and was jealously guarded. And if you read Blackstone's *Commentaries on the Laws of England*, which anyone who studies the Constitution should start with, because it puts you in that historical-legal context of Anglo-American law at the time, Blackstone discusses this prerogative of the King, which was essentially to take a standard – the pound-sterling was the one that England adopted – and then arithmetically regulate the values of all of the coinage with respect to that standard. Pretty simple process.

Now, some of the English kings, Henry VIII especially, Edward VI – well, Edward VI was a minor, the people around him – engaged in debasement of the currency. And Blackstone went out of his way to

show that if this wasn't a usurpation, it was certainly an aberration under the English constitution.

So this was the basic principles of coinage, but it didn't have much to do with the Colonies per se, because they weren't in a position to coin money. So the Colonies were using two sources of coinage, one, English coinage – of course, they were English colonies – and secondly, foreign coinage, which was coming in through foreign trade and in fact, the major foreign coinage that was used was coming from Central and South America. And that's why in 1704 in a proclamation of Queen Anne and in 1707 the Statute of Parliament, the Spanish milled dollar was established as the standard for all foreign coins within the Colonies.

I emphasize the Spanish milled dollar because you're going to hear about this again. The Spanish milled dollar was silver coin, actually the Spanish unit was the real, and there were eight reals in a silver dollar. And in those days there wasn't a tremendous amount of coinage and people would literally cut Spanish dollars in little wedges. There were eight potential wedges and they were called "bits", colloquially. Two of those bits made up a "quarter". Four of those bits made up a "half". You following this now? This is why Wall Street until a few years ago, quoted stocks in "eighths", "quarters" and "three-quarters". They were referring back to this original monetary system. So, here were the Colonies using the coinage that was supplied from England, and supplied through essentially the Spanish trade and part of that of course was the infamous triangle trade – the slave trade between New England, Africa and the West Indies.

But that wasn't really sufficient, or they didn't believe it was sufficient for their economy, so the Colonies started generating paper money. I emphasize those two words, because money was always considered to be coinage – gold or silver – and then there was this other thing, this paper money, which was a different concept entirely. And it's interesting to see how these statutes come out.

Typically speaking, you'll see first a statute that deals with raising troops to engage in some kind of military adventure. Especially in New England where they're going after the French and the Indians in Canada. And there'll be the statute raising so many troops and all the logistics that are involved and then as part of that statute – or as the next statute in the line – is a statute for emitting bills of credit. That's the special term of art: a bill of credit. That's what they called paper money in those days. Because it was a bill, a note, a promise to pay – some kind of debt instrument based on

“somebody's” credit – back there. And it was typically the credit of the colonial administration and it might have been paid off in terms of taxes, so that you take your bill of credit and pay your taxes or other public dues with it. Or it might have been a redeemable bill of credit, at some point in the future, that colonial administration would pay in gold or silver, supposedly the face value of those notes.

So these were the two forms that the colonial governments used. Parliament, however, did not like the emission of bills of credit. English merchants did not like to be paid with bills of credit, especially colonial bills of credit that were made “legal tender,” that could be forced on a creditor. So Parliament passed two statutes in the middle of the 1600s extremely limiting the ability of the Colonies to emit these things, especially with legal-tender character.

Alright, so there's the background. Now we come to the period of the War of Independence. The thirteen Colonies become thirteen independent States and now start asserting for themselves the full panoply of governmental authority with respect to essentially everything. From potentially coining money – although none of them really did – to raising troops and fighting a war.

The first document of consequence you need to think about is the Articles of Confederation, because that is the precursor to the Constitution. The Articles of Confederation created a Congress which had both legislative and executive authority. And it granted to that Congress the power to coin money and to regulate the value of money that was coined by the States, because the States were still claiming that they had this authority. Secondly it granted to Congress the power to borrow money or emit bills on the credit of the United States.

Notice how they were treated as two separate powers, the power to borrow or the power to emit bills to create this paper money or paper currency. And in fact, Congress used the second of those powers – it didn't do any coinage of consequence (it may have sent out a couple of base alloy coins) – but they certainly used the power to emit bills. And they generated a paper money called the Continental. And I think everybody knows the economic history of the Continental and the phrase “not worth a Continental.” For one reason or another – especially over-issue and the fact that Congress had no power to tax, so it really didn't have a credible way to say it was going to redeem these things – the purchasing power of Continentals dropped terrifically and eventually they were anything like 212 to 1 when they were finally paid off.

Now the States also engaged in the printing of bills of credit of their own. So you had bills of credit coming out of Congress and you had bills of credit coming out of the States and you had essentially a near hyper-inflationary event going on at that period of time. The war is on, you have stagflation, depreciation of all of these paper currencies. During the war Congress had asked the States to make the Continentals legal tender, so that they could be forced on merchants, especially so that they could buy materials for the war. And eventually that didn't work out too well even with price controls and all sorts of typical government interventions and they had to give that up. The legal tender provisions were repealed.

So now we're in a position of essentially economic chaos. And what's interesting is that the same people who had fomented this economic chaos, the same people who had been in the Continental Congress, the same people who had been in the State legislatures, many of them now repaired to Philadelphia for the federal convention to deal with the drafting – well actually it was supposed to be the amendment of the Articles of Confederation – but they ended up drafting a new constitution. And this has always struck me as a fascinating thing, because it's one of the few instances – maybe the only instance I know of in world history – where the politicians who had made these blunders turned around and said to themselves, “We made a mistake.” And then corrected it.

How did they correct this? Well, let's take a look at the provisions of the Constitution dealing with monetary affairs. First one: Article I, Section 10, clause 1. Article I, Section 10 contains three clauses, a whole slew of limitations of the powers of the States. With respect to money, Article I, Section 10, clause 1: no State shall coin money.

They remove that power from the States, primarily because they didn't want thirteen types of coinage circulating. No State shall emit bills of credit. Period. Any kind of bill of credit, whether legal tender bill of credit or not. They didn't want State paper money anymore. No State shall make anything but gold and silver coin a tender in payment of debts. Interesting way to phrase it. “Anything but gold and silver” meaning there's a reserved power and actually a duty to make gold and silver coin the tender in payment of debts. Why were they concerned about that?

Well, what are debts? Typically, debts are some kind of obligations arising in the commercial realm; at least the most important of them do. So, dealing with commercial transactions, where were most commercial transactions, if they came to litigation, going to be settled at that time? Well, in the State courts; there were

no federal courts. So what they were looking at was a situation where the merchant class was going to go into the State courts, and the State courts were being told by the Constitution that when they issued judgment on this debt it had to be payable in gold and silver coin; it could not be made payable in something else, as a matter of State law.

So, now if you look at the State level, you have a gold and silver economy, absolutely. Where is this gold and silver coin going to come from? We'll get to that in a moment. What about the congressional side, the Congress side? Article I, Section 8. Article I, Section 8, clause 5. Congress has been delegated the power to coin money, regulate the value thereof, and of foreign coin. So we have: coinage taken away from the States; coinage given to Congress. It's pretty clear that Congress' power at least as a government to coin money is exclusive, because the States' power has been completely removed. This is interesting language: regulate the value thereof. That takes you back to Blackstone. Blackstone told us how to do that.

If you have a unit of silver, and this coin has twice as much silver in it, then it's worth: two units. If it has half as much silver, then it's worth: half a unit. Whatever that unit may be. When you factored gold into the equation you have another element to look at, because the exchange rate between gold and silver in the market place is never 1 to 1; it's never been 1 to 1; it probably never will be 1 to 1. Gold has always been more valuable in the market place than silver. So you have to factor in that market ratio. So if a gold coin has the same weight as the silver unit and the ratio in the market is 10 to 1, that gold coin is worth 10 units – again it's simply arithmetic. That's regulation of the value.

“And of foreign coin.” Why were they interested in that? Because they wanted to monetize the entire gold and silver coin in the world as part of the American monetary system. And if you look at what happened early on in the area of tariffs, customs duties, you'll see exactly how that worked. Foreign merchants come into the United States, bring in their goods; they have to pay some customs duty. Paid in what? Well, typically they would pay in some kind of foreign money. That's what they would have. So Congress passed a series of statutes right away setting out the various foreign monies that would be acceptable and what they were worth; the regulated value of those foreign monies in terms of the United States' standard. Of course, that brings you to this question: What is the United States' standard?

Well, the Constitution talks in two places about “dollars”: Article I, Section 9, clause 1 – the slave tax clause, so-called; a tax of 10

dollars on every person imported into the United States. Some of those “persons” might have been indentured servants, or possibly they might have been free people who would be brought in some way. But it was directed at the slave trade. And then of course, the 7th Amendment – jury trial in any case in which the issue is of greater value than 25 dollars – 25 dollars or more. Does the Constitution define the word “dollars?” No! There are quite a few words in the Constitution it doesn't define; one of the few that it does is “treason.” You look at that, that is a good example because they wanted to narrow the definition. The English definition of treason was extremely broad. It was a political crime, essentially.

But most terms in the Constitution are not defined, you're supposed to know what they mean. And at that time people did know what they meant. The “dollars” they were talking about were what dollars? From 1704 and 1707 – what dollars? The Spanish milled dollars! How do we know they were talking about this? Because the Continental Congress of the Articles of Confederation adopted the Spanish milled dollar as the American dollar. It was Thomas Jefferson who proposed that. So, when the Constitution is written and refers to dollars, they're thinking back to what was done under the Articles of Confederation, and proposed by Jefferson and adopted – they're thinking back to this Spanish milled dollar. And of course, if you go historically and try to find anything else that was called “the dollar” in those days, you will get frustrated very quickly.

So, it is fairly clear that the standard in this system is going to be the dollar. What is a dollar? Again we come to Mr. Jefferson and Mr. Hamilton. This is one of the few things on which they agreed. During the first Washington Administration, Jefferson was Secretary of State and Hamilton was Secretary of the Treasury, and the question is: “All right. The dollar is the standard. What is a dollar?” These were pretty practical men, they went out and got some merchants and said: “Go out on to the market place and do” – what we today would call a statistical sampling or analysis - “and get what appears to you to be a good sample of Spanish milled dollars that are circulating by tale in the economy.” And that means they are taken at sight. Because, obviously, when a coin is worn sufficiently, people don't take them at sight. Then they have to go and be remelted somewhere. Some of these would be pristine, some of them would be worn to the point almost at which they would no longer be taken.

They went out and did this analysis, melted them down, divided by the number of coins, and they said: “The average Spanish milled dollar that's now circulating in the economy contains 371 ¼ grains of

silver.” And they put that into the coinage act, the Mint Act of 1792, which says that the dollar or unit shall be of the value of the Spanish milled dollar as the same is now current and containing on average $371 \frac{1}{4}$ grains of silver.

Notice the language: “shall be of the value of the Spanish milled dollar.” What are they talking about? “Value” is weight in silver that it contains. Not “purchasing power” as we think of it today, but the actual weight of the coin. “...as the same is now current...” “Current”, Latin: *curro, currere*; to run; running, in the market place, accepted in the marketplace. So what they were doing in that statute was determining an historical fact. They were determining as a historical fact what that word in the Constitution meant. Because it was out there, in the market place.

Now, I suppose today we could come back and we could find that bar of melted silver that they had somewhere off with the Ark of the Covenant there hidden away in the Archives and if we gave that to some top flight analytical chemist, we could come up with a more accurate number, like 371.32 or 370.99; whatever it would be. It's essentially irrelevant, because whatever the unit is, it's arbitrary. But it's fixed, or it was fixed in 1792. That's the unit.

What are they going to do with the gold coinage? In that same statute they created gold coins. Did they call them dollars? Well of course not. You can't call something by a name that doesn't apply. They called them eagles. And they gave them values in dollars by looking at – what? Their weight and what was the exchange value in the market place at the time, which was about 15 to 1. So there was the system. And there's absolutely no other way to interpret what was done, because actually there's a hundred something years of history that ties it all together. So there you have the coinage system.

Now the problem in that coinage system was the gold-silver ratio. Because, I said, the gold-silver ratio was not fixed; never has been. Typically, for several hundred years before the American War of Independence, it fluctuated a little between $14 \frac{1}{2}$ and 15. So it was relatively stable and given the lack of ability for information to be transferred from one place to another, it worked fairly well. So they adopted that principle, so-called bimetallic standard, a fixed exchange ratio between silver and gold in that statute. And that was their mistake, their practical mistake. I'll tell you about that a little later.

Now, what about paper currency? Well, go back to Article I, Section 10, clause 1: No State shall emit bills of credit. End of discussion. That was their word for paper currency. There shall be no official currency coming out of the States. But what about Congress?

Remember, the Articles of Confederation had the power of Congress to borrow money or emit bills on the credit of the United States. And the first draft of the Constitution in the Federal Convention essentially borrowed that language directly from the Articles of Confederation. In fact, you'll find a lot of language in the original draft of the Constitution and even in the final draft of the Constitution that you can trace right back to the Articles of Confederation.

So, it was proposed initially that Congress should have the power to borrow money and emit bills. And for those of us interested in reading legislative history – who I assume you are, being connected to the Legislature – if you read Madison's notes on the debates with respect to that provision of the Constitution, Article I, Section 8, clause 2, you'll see that there was a tremendous dispute over those three words: “And emit bills”.

Some people wanted them left in, because they thought Congress should be able to emit paper currency in an emergency, at least. Some of them wanted them absolutely to be removed. There were two delegates who said they would vote against the whole Constitution if those three words were not removed. And they were removed. And if you read Farrand's notes on the Constitutional Convention – he has Luther Martin's report to the Maryland legislature. Luther Martin was one of Maryland's delegates. And Martin makes it very clear. He says: “By the removal of those three words you have absolutely disabled Congress from emitting paper money.” Why? “Because Congress has only the power that is granted to it. Congress, this Congress especially, did not exist prior to the Constitution of the United States. So there is absolutely no way that you can find an implied authority in this entity when it was proposed to give it that power, and those three words were removed.”

So, 1788 – 1791, Bill of Rights, that period of time; what do we have? We have a system that's running in principle entirely on a gold and silver coin basis – as official money. And I say “official money” because nothing in the Constitution would preclude private parties from engaging in banking. And, typically, what banks did then – and they do now, at least through the Federal Reserve cartel – but individual banks did then was to emit their own bills of credit, private bills of credit, banknotes, which typically they promised to redeem in gold or silver, usually on demand, so that they pushed the circulation.

But there is nothing in the Constitution that prevented that kind of activity, except insofar as it was fraudulent and then the Commerce Clause could come into play, or the State police powers

could come into play. So you had a private sector monetary system that would depend upon honest bankers, and then you had an official system that was based entirely on gold and silver. Why? Because that's the one system that prevents the government from redistributing wealth.

Unless the government happens to have gold and silver mines, where does the coinage come from? It comes from the free market through some minter. And the system of minting that you find in the Mint Act of 1792 is what was called "free coinage." The mint was open to all the gold and silver that might be brought from the market place. And it would cost the individual who brought that gold and silver nothing to have it converted into coinage – they were essentially treating coinage as a public utility. Or if the individual wanted to take the coinage immediately he had to pay a premium for that. But basically the government's role was to mint gold and silver, and by putting a stamp on those coins – defined in the statute – to certify what the weight of the gold and silver was in the official coins that were coming out of the mint. Period. End of discussion.

Now we go back to what I was discussing a little bit earlier: the gold-silver ratio. Of course the gold-silver ratio changed – fairly quickly – after the 1792 Mint Act. It moved up. It went from 15 to the 16 level. So comes the statute of 1834, the Coinage Act of 1834. Congress now recognizes this problem, and they engaged in regulation of the older coinage. They changed the value of the older gold coinage, and they came up with a new gold coinage that would reflect this new 16 to 1 ratio.

What was interesting is that at the time there was a Senate committee, the Coinage Committee, that recommended what I think everybody today would recognize as the right thing to do. They said: "Look, let the gold coins flow." That's our term, not theirs. "Don't give them a dollar denomination. We're calling them eagles anyway. Simply put a weight denomination on them, and let the market place determine from day to day what these gold coins are valued in terms of the silver dollar."

But apparently traditionalism overcame innovation, as it were, and so they stuck with the bimetallic ratio. And apparently there was also lurking in the background the idea that if they used that fixed ratio they'd be able to put pressure on the Bank of the United States. So there was a political brouhaha in the background.

So there was a point at which a great deal of future difficulties could have been avoided, but weren't.

The next example of that is 1849. A gold dollar was coined. Very small coin. Looked like a button. And in principle I suppose one could say, well, if what you're talking about there is a gold coin that has the value of a dollar. That's alright. But, in fact, it began to have people think of a gold dollar as opposed to a silver dollar, well, "silver dollar" is a redundancy. So now this is the beginning of the gold-silver political controversy, which eventually breaks out in a large scale after the Civil War, 1873.

Alright, now let's go back to paper money. No paper money being generated out of the Treasury, no paper money being generated by the States, paper money being generated by the banks. But there was this – let me call it an incestuous relationship – between Congress and the banking system.

Alexander Hamilton said it very well, he said: "We need to have the merchants on the side of the government, and to have the merchants on the side of the government we need to give them a amount of special interest legislation." He didn't put it quite that way, but that's what he meant. And the Bank of the United States was one of those pieces of special interest legislation. It was a private entity, but the government of the United States had some influence over the selection of the directors.

And it was generating its own banknotes. We had the First Bank of the United States, that wasn't ... we had the Second Bank of the United States – famous bank fight with Jackson. And the charter was not renewed. By the time we get to the Civil War, you don't even have a connection between the government of the United States and private banking. You have these two episodes and then they're gone. At the State level there were a lot of private State banks chartered by the State governments. So the system is pretty much the same as it was at the beginning.

Now comes the Civil War. The Union government had a problem. It was an unpopular war. There were a lot of Southern sympathizers, even to the extent of being the so-called Copperheads, really sympathizers with the South. There's great difficulty in raising taxation to the level necessary to pay for this war. The banks were charging astronomical rates of interest, so now the Union Congress found itself in a fiscal squeeze. What do they do?

Well, Salmon P. Chase, the Secretary of the Treasury comes forward and says, "Aha, we're going to do the same thing I told you they did during the Colonial period. You know, when they had a war, what was the first thing they did after they raised the troops? They printed paper money!"

So, February of 1862, the first paper money under the government of the United States under the Constitution – orderly under the Constitution – is emitted. The so-called “greenbacks” because on one side they were printed with green ink. And these were made legal tender and lawful money: legal tender for all payment of all debts and lawful money. Supposedly they were going to be redeemed, but they weren't going to be redeemed during the war, because the government wasn't redeeming anything. There was what's called the suspension of specie payments during the war.

So now we have gold and silver coinage and the irredeemable legal tender paper notes. Comes the end of the war. You had two political – parties, if you will. You had a greenback party, a greenback movement that wanted to expand the paper money; who thought it was a great idea. And then you had a sound money movement that wanted to redeem and then remove the paper money entirely. So they compromise. And the compromise was that the paper money would be redeemed, as it came into the Treasury, for gold and silver coin, but then the Treasury could re-emit that paper money. And here's where the Supreme Court comes into play because there were two interesting cases dealing with the constitutionality of paper money.

The first is the Knox case of 1871, and there's the Juilliard case, of 1884, I guess. The question in the Knox case was: Is this stuff constitutional? There was a 5 to 4 decision. Interestingly, Salmon P. Chase had become the Chief Justice of the Supreme Court in the interim. But he was in the minority, he said, “Oh no, this was wrong. This is unconstitutional. I should never have done this.” But it didn't matter. There were a bunch of railroad lawyers on the Court by then, Republicans and... not Republicans, but a political point of view in this. And they said, “Look, this was necessary to win the war. It was emergency legislation that was necessary to win the war. And besides we can't go back now, declare unconstitutional and unwind all of those contracts made in it.” Now, that was false. Because, in fact, there was a whole series of cases in which they unwound contracts that had been made in Confederate money and had come up through the court system to determine whether those contracts could be enforced. But that was the basis for an emergency piece of legislation.

Well now comes the readmission of the Treasury notes. And somebody noticed: “Wait a minute. We're not in an emergency anymore, there's no war going on here.” There was another challenge: the Juilliard v. Greenman case. The Supreme Court said: “Well, we said that about an emergency then, but actually it's for Congress to decide when it should do this.” You see, this is the incremental way

the Constitution has been subverted. Really. And I lay it all at the doorstep of the Supreme Court. They don't operate properly in dealing with the Constitution. They treat the Constitution as some common law document, which it isn't. But anyway, there we have it.

So now we have paper money as a permanent fixture in the system. But it's paper money that is redeemable in gold or silver – even the earlier decision had pointed that out – and it's paper money that issues from – where? From the United States Treasury. Not from a private institution of some kind. Now, meanwhile the banks are coming into closer involvement with the government. Civil War – you have the National Currency Act, the creation of the National Bank system; we still have those banks, the national banks: Chase Manhattan National Bank, Wachovia National Bank, is that still around, Wachovia? Well, whatever. The national banks come from the Civil War, in 1863 and 1864, two statutes were passed. That system was kind of a cartel, because you had the rural banks and the small city banks and the big city banks.

The rural banks were supposed to deposit their money at the larger banks and the larger banks at the big city banks which are in New York and Chicago. So it was a way to essentially focus financial resources behind the big players, essentially in Wall Street and Chicago. But it was limited because the currency depended upon the banks buying US bonds and depositing the bonds with the Treasury, and then they could emit currency, 90 percent of the value of their bonds. And this was at a period of time when the United States government and the people were not particularly interested in extending public indebtedness. They had huge public indebtedness from the Civil War. So there was a restriction on the banks.

Well, banks don't like restrictions on the emission of currency, because – How do they make their money? – they emit currency and interest, right? So the more they can emit, the more return they make. They didn't like that. Well, fractional reserve banking; you probably heard, if you've heard Joe Salerno, he'll tell you that fractional reserve banking is an inherently unstable process, so you had a series of bank crises from the Civil War through to the turn of the 20th century, eventually the big one, 1907. During this period of time the bankers came up with the idea that, “Well, we need a central bank. This cartel structure we have is too loose, we need to bring it together with a lender of last resort, a capstone.” And this is the basis of the Federal Reserve System.

Now, the Federal Reserve System is interesting because Federal Reserve notes are not simply notes of a private banking system or a

bank cartel or private, individual banks, although all the Federal Reserve regional banks and the commercial banks, are all private institutions, thank you very much. Federal Reserve notes were made obligations of the United States. So now you have the American people on the hook for this banking system.

Now, they were also originally to be redeemed in lawful money or gold. But the banks actually didn't have to redeem in gold, the Treasury had to redeem in gold. So, once again you had the US Treasury on the hook, as the ultimate surety of this system. The system was sold on the basis that this was scientific management of currency. We would no longer have depressions, we would no longer have stringencies, we would no longer have inflations. All that stuff that we had had in the 19th century would be gone. Twenty years later: the greatest depression the world had ever seen... okay.

Now what's fascinating here is – I'm going to have to stop in a moment, I'm just going to tell you about Franklin Roosevelt – here Franklin Roosevelt comes in. And what he wanted to do is raise prices. That was the theory of the New Deal: prices are being driven down by the Depression, and we have to raise prices, so we're going to kill pigs and pour milk in the streets and do a lot of stuff to raise prices. And one of the ways he wanted to raise prices was to depreciate the value of the gold currency.

The gold dollar – the dollar actually of the Coinage Act of 1900 which had finally settled on this gold unit. He wanted to depreciate that value. And he did that how? He did that by seizing all the gold from the American people, and then simply putting an arbitrary value on gold from day to day until he came up to \$35 an ounce. You ought to read how he did that. Henry Morgenthau, the Secretary of the Treasury would sometimes come in to Roosevelt, and Roosevelt was lying in bed, “How much are we going to put it up today, Henry? How about 25 cents more?” “OK. Let's do that.” It's going to be arbitrary, right?

Remember how I told you that the value of currency, of money was supposed to be set? Well, the ratio between gold and silver in the 30's never went below 50 to 1. So, if Roosevelt had simply come in... if I'd been Roosevelt's advisor I would have said, “Franklin, here's what we have to do. We have the wrong ratio between silver and gold at 16 to 1. If we put in the correct ratio, let's say 51 to 1, that will effectively depreciate the gold coinage versus silver, and we'll get what you want, constitutionally. We won't have to seize the gold from the American people, and we won't have to prohibit gold clause contracts, and we won't have to have this huge political brouhaha, if

we would just follow the Constitution. And, oh, by the way, we can depreciate it far more than Congress is willing to let you depreciate it now. They're only willing to let you depreciate it 60 percent. We can depreciate it 76 percent." So it would really have been valuable if Franklin Roosevelt and Henry Morgenthau and the people around them had known a little bit – just a little bit – about the Constitutional principles of money.

So where are we today? The answer is, where we are today, we have an irredeemable paper currency – actually an electronic currency, because most of it is just generated on electronic account books – an irredeemable paper currency coming out of a private banking cartel for which the American people are on the hook, in some kind of bailout. Because, of course, the bank cartel comes to us and says, "Oh, we've made terrible mistakes. We'll admit that and now they may be fatal to the economy, if you don't bail us out." And of course, "They'll be worse next year. And you can bail us out next year..." This thing just perpetuates.

So this is the system we have now. And I would suggest that it's even worse than the worst events that occurred under the Colonial and State systems prior to the Constitution. Because there's absolutely no control on this system whatsoever. Except for one – actually two: the States can take action. You're going to see, I think, in the next couple of years, action being taken by the States to deal with alternative currencies – Section 30 of the Federal Reserve Act. You know what Section 30 does? Section 30 of the Federal Reserve Act: "Congress retains the right to alter, amend or repeal legislation at any time".

Why is that even there? In most of the statutes you people see, there's no provision like that. "Congress retains the right to repeal this." Of course Congress has the right to repeal. Because they recognized that those banks were private entities and by creating this charter and by giving them these powers some smart lawyer in the future might come along and say, "Wait a minute. You can't take these away! Because you've made a contract with us." Actually the Supreme Court said that a long time ago, that the Legislature makes this kind of arrangement, maybe a contractual arrangement, and it cannot be rescinded.

So Congress put this in – it's also in the Social Security Act, by the way, the Railroad Retirement Act, a number of these provisions, where Congress recognizes it might have a problem in changing the terms of the deal, so it puts that kind of language in there. Well, that means that the Federal Reserve system, the Federal Reserve note is

what John Exter, now deceased, pretty famous banker, called it, it's an I owe you nothing currency in the truest sense of the word. The banks don't owe you anything. And Congress can turn around and tell you it owes you nothing too. So, I'd suggest that you people and the people you talk to should begin thinking about just what we are going to do to correct this situation, before the roof falls in.

Now, I'll take whatever questions you have.

QUESTIONS & ANSWERS

VIEIRA: The first question is of course, how long? How long before the roof falls in? Well, I don't predict such things, but I'm willing to predict this: It will not be a depressionary phenomenon, it will be a hyper-inflationary phenomenon. Won't necessarily start in this country, it could start in Europe. But a hyper-inflationary phenomenon. What I mean by that is 50 percent depreciation per month, minimum.

You always come out of every hyper-inflationary phenomenon, at least to my knowledge in the world – except for one, because we had one during the War of Independence, except for that one – with some kind of police state, a dictatorial system. Always. Because the chaos that's generated by that event – especially at this time you have the most complicated price structure in the history of the world. It depends entirely on essentially a stable monetary unit of some kind. When you blow that monetary unit out, what happens? The price structure collapses. You go to barter? How do you go to barter? What are the number of products out there? How do you settle on a product, a series of products, a small number of products to be used as the bartering medium? It's essentially an impossibility.

So we're looking at an unprecedented situation. If this currency system goes into hyper-inflation, you're going to have an economic collapse, the world just – you can't contemplate what's it going to be like. That's why I'm saying, somebody has to begin to think what would be the alternative currency if this one goes down. And don't tell me it won't go down, it's already gone down once, in 1932. Well, 1930 to 1932. It's already gone down once. And that was on a 40 percent gold reserve, thank you very much. 40 percent behind the notes and 35 percent behind the demand deposits in the Federal Reserve regional banks. And that wasn't enough. Now you have no reserve.

So this is like the Titanic. And the Titanic had the one possibility that someone might have gotten there in time. There's nobody coming to help us. It's going to have to be done – I'm sorry to say – right here. Because the system is now essentially out of control.

And I think you see that especially in Europe now. I've been watching the Italian situation. You can smell the panic coming over the Internet, from this. And Italians you know, they're kinda voluble. But these are mostly not Italians that are panicking, it's mostly Germans. But really you can smell it, coming out of Europe. And who's going to bail them out? Do we have a guess as to who's going to do that? It's going to be Mr. Bernanke. Because they cannot face – and I think correctly so – the consequences of a depression.

Can you imagine what a 1930's style depression in this country would be like? That's what they won't have happen. And the one tool they have that they think can prevent that in the short term is – what? Quantitative easing, inflation, generating money, generating paper currency, bills of credit. Well, bills of discredit, because they're not going to be paid. We keep generating this stuff and we hope that something will happen. We're playing for time, financially. But think what Machiavelli has said, "That's a fallacy. Time brings all things, bad as well as good."

And the only solution here, I think, is to come up with an alternative currency. A lot of people have proposed exactly how to do this. This is not something that's difficult. On the shelf technology. We can set this thing up in 30 to 60 days after the statute is passed. An alternative sound currency based on silver and gold. Start using that in the market place. Start transitioning the governments into using it for purposes of taxation and spending. And let the banks figure out how to solve their own problem. Because we can't figure it out.

It's a problem of what's called rational economic calculation. Which is the problem of all central planning. There is no way from the top down how to reform this system, it has to be reformed from the bottom up, through the market place. And to do that you have to give the market place an alternative, sound currency to generate a price structure that works.

Which we're going to discover very shortly we do not have. Interesting problem, you know. I've been doing this for a long time and I never thought it would get to this. I thought I'd miss out. I'm watching it. But no. I wouldn't want to be anywhere else. It should be fascinating to see how this plays out.

QUESTION: Just curious whether you have any view with regard to the sort of little baby steps the States take, you talked perhaps Virginia as well, to perhaps protect themselves from their own government and to give themselves the leeway to do what you suggested for themselves in the event that the U.S. economy gets so

unstable that they need to protect their own folks and their own economies.

VIEIRA: Well, yeah, I know about these things because I've been involved in a lot of them going back several years. New Hampshire to begin with and then Montana. Virginia, we're trying to get them to...the Virginia State Legislature came up with a commission to study this problem, primarily to educate the legislators.

In most states the legislators have never thought about this. Most state legislators treat it as some kind of a federal problem, that doesn't relate to them. But basically the idea is exactly what I said: the States adopt an alternative currency unit which is actual silver, or actual gold. I'd like to see that done on the electronic basis because that already has been tested on the market place. Those systems are there, they work. You can funnel any kind of gold and silver into the market.

It doesn't have to be a particular kind of coinage, it can be bullion. And they're capable of working down to very small amounts. One of them – one of the private companies out there – goldmoney.com founded by a fellow by the name of James Turk, whom I've known for a long time. They're down now to a thousandth of a gram of gold, and a thousandth of a gram of silver, that they'll use in transactions: Well, now you're making small change in gold.

And that was always the problem in the coinage era. You had coins of certain sizes, but how did it work out in between? You'd have some kind of token coins, some kind of paper credit, or whatever; it was rather cumbersome. And if you look at it today, it's even worse; because, what's the value of an American Liberty silver dollar, one ounce, the coins that are now coming out of the Mint under the 1985 Act?

Well, it's somewhere between 35 and 40 Federal Reserve notes, right? So your one dollar silver piece is worth 35 of these other things in the market. That's not going to be that useful in the supermarket. Well, it will be later, when hyperinflation sets in, but right now it isn't. Or the American Eagle, the gold coin; what are those? That will probably be close to \$2000 now, one ounce of gold in coin form.

So if you look at the coinage system we have, once again because Congress – because they're the ones that are supposed to be doing the coinage here – because Congress has not kept up to date with our problem, we have a coinage system that really is not workable. The states can't coin money, so we couldn't see any reform there. But the states can make gold and silver tender in the payment of debts, and they can certainly use these electronic systems. The Supreme Court

already ruled on that twice. Not on electronically, but they ruled on the right of the states to have an alternative currency of their own.

So we don't have to worry on the legality of the thing. And if that were done – let's say it were done in Virginia – don't want to take some ... I mean Montana is kind of a backwater, people might not pay attention to it, but Virginia is difficult to ignore; here's Virginia, right next door to DC, right? Virginia does this, what do you think the influx of capital into Virginia is going to be?

Virginia will be the only polity in the entire world with a sound money system. And you don't think that other States that border Virginia will say: "Oh, my goodness, it will be to our advantage to pick this up too, because we have cross border trade." And on and on it goes. And of course, this particular system, if you use the electronic system – international trade, because everybody can be tied into the Internet too – that's the way it runs.

So, I told these legislators, I said: "Listen, 30, 60, 90 days after the statute – tell me how fast you want it done – we can have this up and running." And what it would mean is that the average Virginian – because you'd have to tell them to do this – would get a debit card, and he'd be told how he'd go on the Internet and sign up for this; transfer his funds from his regular bank account into this; all very simple. You don't force him. If he wants to do it, fine, if not... But he has to have the capability. And then the State simply starts taxing in the alternative currency. And paying out from that tax fund to creditors of the State, first come first served to whoever asks for it. What do you think is going to happen?

Those creditors are going to deplete that fund as fast as it is built up. And then the Treasurer is going to come back to the General Assembly in Virginia and say: "I need to expand the tax base here." And pretty soon you'll have the Commonwealth of Virginia on a gold and silver basis treating Federal Reserve notes as a foreign currency – because they may need those Federal Reserve notes for something. And you'll have the economy of Virginia following along with this, because the state has given them the mechanism and the state of course, is a big player in the economy – a lot of money passes through state finance. Now you have shown how it can work.

And my view of the thing is, if people have two choices, a relatively sound currency here and a rotting vegetable currency over here, which one are they going to choose? Well, they'll choose this one, of course. That's the reversal of Gresham's Law. Gresham's Law says what? Bad money drives good out of circulation. That's how it's usually formulated? It's actually Aristophanes' Law, I think it's in the

play “The Frogs”. It goes back to the ancient Greeks. Gresham had nothing to do with it.

Why is that true? I have bad money in one pocket and good money in the other, and you're willing to take money, what am I going to give you? The bad money, right? Think of Mommy with Jimmy, and there is Jimmy and Billie playing in the sandbox. And Billie is crying, because Jimmie won't let Billie use one of his toy soldiers, and Mommy says, “Be fair Jimmy, let him use one of your toy soldiers.” Which one is he going to give to the other child? The nice one that's beautifully painted, or the other one with one arm broken off and the head that's twisted. You tell me. That's Gresham's Law. It's at the kindergarten level of intelligence here.

But it works the other way too. If I'm going to you to make a contract, I'm going to demand what? The bad money or the good money? I'm going to demand the good money, right? So we can reverse this whole system if you once put into play somewhere a significant player in the marketplace – has to be a fairly large size – that's using this good money and we can force that through taxation. Start off with a certain amount of State taxation. Congress can do this too!

Maybe I'm being facetious, but in principle Congress can do this too. And I should think Congress would have more understanding of this problem, it's their power we're talking about, monetary power. The difficulty I always have with state legislators – always talking to them is you know–: “Oh we can't do that. States can't do that.” And I say: “Well, wait a minute. Article I, Section 10, ...” We go through this little litany of constitutional principles and then eventually the little light bulb comes on over their head: “Oh, yeah, I guess we can do that.” And then there's the problem: “Well what's the six o'clock news going to say about me? That I'm a gold bug, they're going to making fun of me.” That type of thing. You're getting into the political problem there.

But as a practical solution – I shouldn't say solution, there is no solution, this thing is going to happen; we can't stop it from happening – as a practical direction, putting a floor under, mitigating, the damage, I'm willing to bet a stack of Krugerrands this high this is the only way it can be done. If someone can think of another way that doesn't involve Congress passing... I rack my brain...

If someone came to me and offered me some huge fee to write a statute to correct the Federal Reserve problem, through the Federal Reserve, could I do it? No. I think I'd say “I can't take the money, I

can't do it. It won't work. There's no way we can correct that." The market has to correct it. And the market won't correct it, unless it has an alternative to work with. Wasn't it Archimedes who said: "Give me a place to stand and I will move the earth with my lever." We need a place to stand monetarily. We need the alternative currency.

An example, go back to Weimar Germany; everybody remembers Weimar Germany, right? Six months: June, July till the end of November, they blew the currency out. An egg that cost 80,000 marks in June – they created a lot of inflation during the war and immediately after the war – 80,000 marks was like a trillion marks by the end of November. And the first week of December the currency was gone. How did they survive? Because they had a whole slew of alternative currencies circulating in Germany. From other European countries, from the United States, from England – England wasn't considered a European country – and people using these and making contracts in them. So they had a kind of black price structure in alternative currencies. So when the mark collapsed the entire economy didn't go with it.

QUESTION: So you're assuming that we still keep the Federal Reserve but states can create their own currency? But then how will the big banks themselves, will they stop being a member given that the states will have to create their own State Bank or will they be a member of the Federal Reserve?

VIEIRA: Well, there would be a state depository to deal with the alternative currency, because the alternative currency system is not really banking, it's warehousing. What I anticipate would happen is – if I were writing the complete statute for... I'd say: Look, we need to set up some private institutions dealing with what used to be called "real bills." 30-, 60-, 90-day banknotes based on real commodities, because that kind of puts an underpinning to the use of gold and silver.

In a lot of transactions you don't need to use gold and silver, if you have real bills. And those private institutions I would imagine at some stage they might also come into the depository. That'll be the loan function. See, the depository function is the warehousing function. The loan function is a different situation and you can have a loan bank which is paying on demand. The depository obviously is paying on demand, paying immediately, electronically.

So you'd set up banks dealing with the 30-, 60-, 90-day real bills, and you'd set up banks – or it could be those same banks – who set up accounts that would be longer term. But the fractional reserve aspect of it has to be cut out entirely. That's the devil in the detail, as the

word goes. You cannot lend short and borrow long for very long. That's why fractional reserve systems and banks have always failed, because the notes are out there to be paid on demand, and they don't have a hundred percent reserve to pay those notes.

Leaving aside if that were inherently fraudulent or not, I guess it wouldn't be if people were completely told about it. But the other assets that might be Fed into that pool, they're not on demand. Who knows how long those assets might be until they're paid. The banks might invariably get into these squeezes, because they extended themselves too much. And there's only one way to get around that and that's to prevent it at the beginning.

Our problem is, we've painted ourselves into a – I won't say we, I don't want to include myself. Somebody out there has painted me into a corner, and you as well. We're painted into this corner, and either we're going to go down with the Titanic, or we're going to get in a lifeboat and row away. That's the difference between the Titanic situation and our situation: on the Titanic they didn't have enough lifeboats and they didn't have a way to build any more.

We don't have enough lifeboats now, but we have 50 ways to build them. This can be done at the state level. And I don't say there won't be a lot of wailing and gnashing of teeth, economically. Or that a lot of people won't be very sorry that we put up this system and ran it as long as we did and ran it into the ground. But that's not my problem.

My problem is, I'm sort of the salvage yard guy, here. You've brought me this mess, and you say clean it up: and I say "This is the most I can do." Or like trauma surgery, "You've got to lose the leg. Don't blame me. You shouldn't have been driving drunk."

Oh I know, I sound so pessimistic, but do you know what the definition of a pessimist is? He's an optimist who knows the facts. Thank you.

MODERATOR: I'd like to thank you all for coming today. We have our third and final lecture in December, details coming shortly. Just for one quick exposition, this is an 8 reales, this is a Federal Reserve note. Well, there went a Federal Reserve Note. Which one do you want? I don't know.

III. WHAT ABOUT MONEY CAUSES ECONOMIC CRISES?

PETER SCHIFF¹²
PRESIDENT & CEO
EUROPACIFIC CAPITAL

MODERATOR: Good afternoon ladies and gentlemen. I'm Lydia Mashburn, Policy Director for Chairman Ron Paul's Subcommittee on Domestic Monetary Policy. On behalf of the Congressman and his office I'd like to thank you all for coming to our concluding lecture in our afternoon tea series on the basic principles of money.

Today's question is going to be "What About Money Causes Economic Crises?" It's sort of the culmination of what our other lectures have led to. Our first lecture was "What Is Money?" And then our second one was "What Is Constitutional Money?"

In those two lectures – our first lecture Dr. Salerno very nicely laid out for us what money is, that money is a commodity. It is a market-chosen commodity that serves the role of money. And what the market needs money to do is, it needs it to be recognizable: then you know that this is the same thing that they're able to trade in future. They need to be able to divide it, so that they can purchase large or small things. They need it to be portable: they need to take it with them – cattle as money didn't work very well, because it's a little difficult to move them from one place to another. And then one of the pinnacle faculties of money is that it has a stable value. You need it to maintain value for what you exchanged it for.

Which then brought us to our second lecture where Dr. Vieira talked to us about Constitutional money. The Founding Fathers wanted us to understand... or wanted us to keep stable money. And it had turned out that the market had chosen gold and silver to fulfill money because it filled all those properties of divisibility, portability, recognition and stable value. So they set up in the Constitution certain provisions to maintain what the market had chosen as money. Because they had already experienced through the Revolutionary War and then under the Articles of Confederation some terrible

¹² [The video of the lecture may be found at: http://www.youtube.com/watch?v=npj0CUT8d_Y.]

experiments with paper money where it did not retain its value because you could increase it at whim.

Dr. Vieira sort of took us through I think roughly 200 years or more of history and showed how, over time, that stable value of money has eroded, legally and got us to the point where we are today where we are now able to talk about what happens when your money loses its value. So, while it's terrible that over time your money does lose its value, what's even worse – I don't know if it's even worse, but it's not good – is that it also can cause booms and busts in an economy. It causes economic crises.

That's what brings us to today's question: What about money causes economic crises? Which is why I am delighted to say that we have Peter Schiff to answer this question for us. He is CEO and president of EuroPacific Capital. He is a financial analyst. He is an author. And most importantly though – at least to me – he was one of the few financial analysts to predict the collapse of the housing bubble. Everyone else was like “Housing prices have gone up! They just keep going up. They've never historically dropped.” And he said: “Look, it's going to collapse, because it's not sustainable.” Because he understood what it was about money that caused these bubbles in the economy. And he knew it was going to collapse.

Analysts running the gambit laughed at his face. And when he was proven correct, we're now left picking up the pieces. But unfortunately we are still not understanding what it is that caused the crisis to begin with. So our policy prescriptions are kind of off base in terms of dealing with the aftermath.

I'm delighted to welcome and I hope you'll join me in welcoming Peter Schiff.

SCHIFF: Thanks everybody for coming. Hopefully most of you are not here for the free desserts. Let me just talk a little bit about money.

One of the roles of money – that you have just alluded to – is that money needs to represent a store of value. The reason that that is so important is because that facilitates savings. You are not going to save money if you anticipate that its value is going to erode over time. So you need something that has a store of value.

The reason savings are so important in a market economy is because – contrary to the conventional wisdom – spending is not what grows the economy. People who believe that are basically putting the cart before the horse. What actually grows an economy is the opposite of spending, it's under-consumption, it's savings. It's the money that we don't spend that makes the economy grow. Because when we don't

spend it and it's saved, that money is available to finance capital investments, business expansion, job creation. All the things that grow the economy flow through from savings.

You know, popular refrain among the Occupy Wall Street crowd when they say that “businesses don't create the jobs.” “So,” you say, “we're gonna tax the job creators?” They say, “No, no, no, the job creators are the consumers, because they're the ones that are spending the money,” and they say “if there were no customers, there'd be no businesses.” Of course, what that theory overlooks is, where do consumers get the money? They get it from their jobs.

So you can't say that the consumers create jobs when you need jobs to have consumers. So, it's the other way around. And what gives the consumer purchasing power is his productivity. If everybody just had a job from the government and the government printed money and gave it to people, there'd be no demand because there'd be no supply. There'd be nothing to buy, because nobody would be working.

What creates the purchasing power is the production. And the production comes from productivity. And what makes workers productive is capital. It's the tools and the equipment that they have. If they were simply using their hands, they couldn't produce nearly as much. And all of that capital and all of those tools are only here because of savings. So savings are very important.

And also, savings help determine the rate of interest. Because interest rates are a very important aspect of money. Because interest rates represent a price. And like all prices they are determined by supply and demand. The supply is all the savings. The demand is all the people that want to borrow money. Whether it's businesses, whether it's college students, someone who wants to buy a car, the government. Everybody borrowing money is competing for this store of savings. Because for every dollar borrowed, someone had to save that dollar. Somebody had to not consume and put that dollar in savings so somebody else could spend it or invest it. And so, if you have a lot of savings, then you're going to have lower interest rates, because the supply is going to be greater. And what does that mean, if there is a lot of savings, what economic signals is that sending to the market?

If people are saving a lot of money, what that says is that people prefer future consumption to current consumption, because after all, while you're saving money, you're just deferring consumption. Every dollar you save is going to be spent eventually. Except you're not going to spend it today, you want to spend it tomorrow. And hopefully you'll spend the dollar tomorrow plus all the interest that you earned

over time. So, it sends out signals, that there's, if there's a lot of savings, that there is low interest rates. And then, of course, the economy will react, investments will be made, based on the fact that consumption has been deferred to the future.

Also, one of the reasons that people might save in a free market economy is, in a free market economy – contrary again to conventional wisdom – prices go down. The natural tendency in a free market is deflation. Prices go down. Prices went down for almost the entire history of the United States, until the Federal Reserve. Our grandparents would tell us stories about how cheap things were when they were a kid. Well, their grandparents, or their grandparents' grandparents told the opposite stories. How expensive things were when they were a kid and how much cheaper they are now.

The politicians try to tell us “No no, inflation is a good thing”, and “Money losing value is a good thing, because the economy would collapse if prices weren't rising”. They try to make us feel that falling prices would be a disaster, when, of course, it is the opposite. Falling prices are a reward for capitalism. They make wages more valuable, they make savings more valuable.

The argument is, if prices are falling, nobody is going to buy anything. We'd all just be waiting for lower prices. And of course that's absurd. We all have cell phones, we all have laptop computers, we all have plasma TV's. The prices for those items are falling all the time. That doesn't stop people from buying them. In fact, it encourages people to buy them. If cell phones were still as expensive as they were when they first came out, nobody in this room would have one. The reason that we buy them is that the prices are coming down. So, it's the exact opposite. Falling prices create demand. It's not the other way around.

But there's another reason that people save. If you save your money and money gains value, you can buy more stuff in the future, not only because you earned interest, but because things got cheaper, the money became more valuable. So, if you have lot of savings, you can have low interest rates. If you don't have a lot of savings, well, you're going to have high interest rates.

And the beauty of this is, let's assume there's not a lot of people saving money, and a lot of people who want to borrow money. You have a very limited supply; you have a lot of demand, what happens to the price? The price goes up. Interest rates go up. Higher interest rates discourage people from borrowing because it's more expensive, and they encourage people to save. And ultimately the market is going to create an equilibrium between savings and debt, and you're

going to have a market rate of interest. And investments are going to be made, capital projects are going to be made that can be adequately financed.

Now, the problem comes in – now that we don't have real money and you don't know what that is – now that we have fiat money or a money substitute, the Fed can create money out of thin air. And they create money, they don't actually create any real value, they're just printing money. So, they diminish the value of the money that already exists.

But also, when the Fed creates money they do it in a way where they buy up Treasuries and they also control short term interest rates raising the cost of money to banks. And when they do that the Federal Reserve can bring down interest rates. That has the effect of sending the same types of signals to the market that there's more savings, because interest rates are low. But people aren't saving their money. There is no real change in time preference for money. It's the same, and so you send out this false signal to the market and as a result of that false economic signal a lot of investments are made that really should not be made. There's no real viability there. But they are made because of these false signals.

And I often joke, you know, when the housing bubble burst and one of the things that President Bush said at the time was, he blamed everything on Wall Street and he said, “well, Wall Street was drunk and they did a bunch of stupid things.” And, well of course yeah, they were drunk, but he never asked the question why. Where did they get all that alcohol? Why were they drunk? They were drunk because the Fed liquored them up.

Alan Greenspan kept interest rates very, very low for a very long period of time. And just like anybody, if you're drunk you're going to do some stupid things while you're drunk. You don't realize it until you sober up the following morning. So, this is what causes the business cycle. People think that the business cycle is just some flaw in capitalism. Just for some reason we have these booms and busts. And that's not the case. These booms are caused by malinvestments that are created in response to the Fed intervening in the money supply, where you have the Fed price fixing interest rates, creating too much money and fueling these bubbles. And one thing all these bubbles have in common is debt. A lot of them are financed by borrowing money, particularly the housing market.

I mean, obviously, what made it possible for people to buy houses they couldn't afford, other than Freddie and Fannie or the FHA that might have been guaranteeing the mortgages, was the fact that the

interest rates were so low. When people buy houses in America they buy them based on the monthly payment. And the monthly payments were a function of the mortgage rate. And especially when you got an interest-only payment, when the only thing you're paying is the interest, then the low interest rates really made it cheaper. And when you had the Fed with interest rates at one percent and the banks were offering teaser rates based on those temporarily low interest rates, people could really get in over their head. So, this was a function of money being too cheap. Instead of the market setting interest rates, you had central government planners at the Fed picking an interest rate. And why did they pick one that was so low?

Well, the reason is that politicians like the boom. They like it when people feel good, when voters feel good, because they are more likely to reelect the people who are in office if they feel good. If they think they're getting rich in housing, if they think they can get rich without working, they're going to be happy. Especially if you're taxing them so much on what they earn, if you can create the illusion that they are making money in the real estate market, well, then they are not going to be so upset at the taxes they have to pay. So, the politicians like the boom.

In fact, everybody thinks that the boom is what's good and then the minute you have a recession, what does Congress want to do, what does the President want to do? "We need a stimulus. We can't have this recession. We need to stimulate the economy." What they don't understand is the stimulus is why we have a recession. The stimulus is what caused the boom. But the boom is the problem. The boom is where all the mistakes are made. The recession is where the mistakes are corrected. That's where the cure takes place. So, we need the recession.

Now, when I try to say "We need the recession," people say, "Oh, you're heartless. You're happy that people are suffering." But it doesn't mean we're happy about it, it just means it's necessary. It's just like when somebody checks into rehab because they're a drug addict and then they're going through withdrawal, that doesn't mean that the rehab center is happy that the people are suffering through withdrawal. They just know that they want to get healthy and kick the habit, they going to have to go through withdrawal. That's just part of the cure. If you checked into rehab and every time you have withdrawal symptoms they gave you drugs, you're not going to get cured. You might be popular, you might be a popular rehab center if you're giving out drugs to everybody, but not because you're curing anybody.

And so what happens is, the minute the narcotic of the cheap money begins to wears off, we realize the mistakes that we made and people say “I can't believe I bought that condo” or “How did I buy that Internet stock?” You don't see this when it's the mania. So, interest rates eventually rise and – the mistakes – and what happens during the recession is the market tries to correct all these imbalances. Because during the boom resources are misallocated. Capital, labor is misallocated. In the housing bubble too much capital went into building homes, remodeling homes. Too many people were buying all kinds of furnishings for their homes, buying cars based on home equity loans. Too many people were working in the mortgage industry, in the finance industry. People had jobs where they shouldn't have gone.

Because the whole idea of an economy is to allocate resources, which includes labor, capital and land, in a way to maximize productivity, to maximize our enjoyment, our utility from these resources, so that we can have a rising standard of living. But if labor, capital, or land are not where they're supposed to be, you have to correct that. Well, what does that mean? What happens when the bubble bursts? People that have made bad investments, they lose money. People with jobs that they shouldn't have, they have to lose those jobs, so that they can get other jobs.

You see, a lot of times in Washington, people don't differentiate between jobs. They just think that as long as people have a job, it's okay. If someone has a job digging a ditch, and someone else has a job filling it back up, as far as Washington is concerned, they are both employed. But, they're employed doing what? What do you have to show for the labor? Nothing. You filled a hole in the ground, you have exactly what you had before they started.

We don't want jobs because we want jobs – jobs are not an end, they're a means. What people want when they have a job is all the things they can buy with their paychecks. But you can only buy stuff as something is produced. So people have to be employed productively. That's the key.

In the old Soviet Union, before it collapsed, one of the things they used to brag about is that they had no unemployment. They would tell their citizens, “Look at these Americans, they have all this unemployment, but nobody in Russia is unemployed.” And of course, everybody worked for the government. Everybody had a job. But they had to wait in line for six hours to buy some bread, or whatever. Because nobody was baking bread, everybody was working for the government. And so, if no one is producing anything, your salary

doesn't have any value. It's just money. You can print all you want. That's not the solution.

A lot of people now talk about how we don't have enough demand. You hear all the Keynesians saying “The problem with the economy is that Americans are broke. They have big mortgage debt. They have car loans. They have student loans. They don't have any money. So the government needs to print money, so we can have more spending.”

But if you're broke, just adding money isn't going to change the circumstances. Because money in and of itself doesn't have any value at all. It's just a little piece of paper. They're broke because they're loaded up with debt and they're not productive. And more money isn't going to change that. Or if the government – they'll say “Well the people are broke, so the government has to spend.” Spend what? If the people are broke, the government is broke. Where does the government get the money? It doesn't get it from the moon. It gets it from the people. So, if the people are too broke to spend, the government is too broke to spend. Because the government has to tax them to get the money.

But one of the problems with the monetary system we have now is that people think that, “We don't have to tax them to get the money. We can just print it. And then we can spend that.” As if there are no adverse consequences to printing money. Because that's a tax like anything else, except instead of taking your money away from you, what that does is take the purchasing power away from your money. So you don't necessarily see the tax, but you feel the tax.

But if you go to the supermarket and groceries are more expensive, or go to the gas station and gasoline costs more money, a lot of people don't see the connection. They don't see that that's a tax. Especially when you have the government, or the economists blame the high prices on a greedy oil company or on OPEC, or on natural disasters, or bad weather, or a flood. So they tell us it's not the governments fault.

And then you have the economists saying “Look, it's a good thing that the prices are going up, because otherwise we might have deflation. So this is the price that you have to pay to avoid deflation as you've got to pay higher prices.” So they don't make the connection and it lets the politicians off the hook. Because the public doesn't understand how all these benefits are being financed.

Now, the other source of this big bubble, the other big problem has to do with the role of the dollar as the world's reserve currency. Up until the Second World War all the countries were using gold.

Everybody was on a gold standard, including the United States. After the Second World War, America had pretty much all of the world's gold, or ninety percent or more of the world's gold was owned by the U.S. government.

Where did we get all that gold? We didn't mine it all. We got it because people used it to buy the products that we produced. And how did we produce all these products? We produced them because we were the freest country in the world. We had more capitalism and more freedom, and as a result we were more productive. The world wanted the stuff that we produced yet they weren't productive enough to produce stuff for us, so they had to give us their gold. So we had all this gold.

We went around to all the other countries and basically proposed a new monetary system. And this was going to be where instead of foreign central banks backing up their currencies with gold, they would back them up with the dollar. The dollar though was backed up by gold. Of course, that's the only reason it made sense. If the dollar was backed by nothing, then we couldn't have coned the world into signing up for this arrangement.

But everybody knew the dollar was as good as gold and if you had \$35 you get one ounce of gold. That was the deal we made with the world. And what was in it for the world was, if they held dollars, they got interest. If they held gold they got storage costs. So, it made sense, hold the dollars, run a dollar standard, the dollar is the reserve currency, the dollar is backed by gold, America is the world's richest country, they have biggest trade surplus, they're the biggest creditor nation, they've got all the gold. Good deal.

Well, it was a great deal for us, because the minute we got that privilege we abused it. Because now, all of a sudden, we could pay for our imports by printing money. Technically we were supposed to have the gold to back it up, but that didn't stop the government. They just lied, they just wrote checks that they couldn't really cash, assuming that people would just not care or not notice.

After the 1960s when we had the guns 'n butter economy, the war on poverty, the Great Society, we went to the moon, Vietnam, all this stuff, we were running big deficits. And some of our creditors began to notice this and realized that we couldn't possibly have enough gold to back up these IOU's, which is what these Federal Reserve notes were. They were promises to pay real money. The real money was the gold that the Fed had in its vaults.

So, rather than acting responsibly, rather than devaluing the dollar and allowing a deflation to occur, cutting government spending

and doing the right thing, the politicians did the expedient thing, an almost unthinkable thing. They defaulted. Nixon basically told our creditors, “We promised to give you gold for your Federal Reserve notes, we're now going to give you nothing. You can hold on to them if you want, but you're not going to get any gold.”

The world should have gone back on a gold standard at that point. But they didn't. Now, they marked the dollar down, rather dramatically. The dollar was marked down by about two thirds, during the 1970s. When the 1970s began you could buy four deutschmarks for the dollar, at the end you could get about one and a half. The swiss franc went from like 23 cents to 75 cents. The yen, you used to get 360 yen for the dollar, later in the decade it was down to like 150. Of course it's much lower now, but that was a big drop during the 1970s.

Oil prices went from \$3 a barrel to \$30 a barrel. I mean, that's why the oil prices went up. It wasn't because of the Arabs, it was because of Nixon. It was because of what the government did, it was all the money we printed. Money lost value. Oil prices didn't go up at all. But, in terms of the depreciated dollar, oil went from \$3 a barrel to \$30 a barrel. And gold prices went up from \$35 to over \$800.

Another thing happened too during the 1970s. A lot of women came into the workforce and it wasn't because they were liberated. In fact they were liberated before. But, as a result of all this inflation and all these taxes, their husbands could no longer afford to support them. So they had to start working. You know, our standard of living declined dramatically with the loss of the purchasing power of the dollar.

And in fact, I mentioned oil, I often use as an example – I think I even used it in that congressional testimony – when people say “Oh, gasoline prices are so high now, we're paying almost \$4 a gallon. These are record high prices.” I say “They're not! They're actually lower than they were in the 1950s.” “How do you mean they're lower?” “Well, back in the 1950s you could buy a gallon of gasoline for a quarter. That's all it cost: 25 cents. If you have a 1957 Chevy and if you scoop around in the seat cushions and find a [silver] quarter that was dropped there in 1957, you could still buy a gallon of gas for that quarter. You get change, too.” Because it doesn't cost that much, it costs less. Real money held its value. The only reason oil is more expensive is because we're paying for it with depreciated dollars. That is the problem.

So, the standard of living declined dramatically during the 1970s, but even though the world marked down the dollar, after it collapsed,

it stabilized. It stabilized when Paul Volcker came in and interest rates went up to 20 percent. Ronald Reagan came in promising to reduce government and lower regulations and cut government spending. And that created some confidence in the dollar. It kind of stopped the hemorrhaging.

The world then continued to function. The dollar was still the reserve currency, even though it was backed by nothing. And that was the problem. Because the whole idea was that if the deutschmark wasn't backed by gold, it was backed by the dollar that was backed by gold. But if the deutschmark is backed by the dollar that is backed by nothing, then the deutschmark is backed by nothing.

So that's when basically we embarked on this giant experiment – that has failed every time it's ever been tried – in fiat money. The whole world is on this fiat money system. But of course, once the world knew the dollar was backed by nothing, now it was so much easier for the government to run deficits. Much easier than when they had to pretend it was backed by gold. At least back then, when Lyndon Johnson was doing this, he had to worry that somebody might figure out what was going on. But when we basically told the world “You're going to get nothing for your dollars,” there was no limit to how much we could print.

And that's when the U.S. economy began this massive transformation from the world's biggest creditor to the world's biggest debtor, from the world's best, biggest manufacturer of low cost, high quality stuff ... I mean all the low cost merchandise was made in America. Everything. Even though we paid the highest wages in the world. If something was imported, it meant it was expensive. People used to brag about the fact that they could afford to buy imports. If you bought imported products that meant you were rich, because everything that was imported was expensive. All the bargain basement stuff was made here. And it wasn't because we had low labor costs, we had the highest labor costs in the world. But our workers were the most productive, because they had the most capital. They had the most tools and the most equipment. Our businesses had the fewest regulations. So it was freedom that made us prosperous.

But all that changed and we began to live off the printing press. Because when the dollar was just printed out of thin air and the world was going to take it, we could buy all these products from our trading partners for nothing. When the Chinese are making things for Americans, they need land, labor, and capital, and people have to work hard in factories. What are... do we give them in return? Just some money that ran off a printing press. And what do they do with

it? Nothing. They can't even spend it. All they can do is loan it back to us and buy Treasuries.

And then, what are Treasuries? Just more dollars. And again, a lot of people confuse this. They think the Chinese are benefiting from this relationship. They're not gaining at all, we're benefiting, right? We get all the stuff and they get all the work. Well, what good is the work without the stuff? See, we're trying to say "They get jobs." So what? The slaves had jobs. Wasn't a good deal for the slaves. These jobs are not a good deal for the Chinese, if we get all the stuff that they produce. They're working. The whole idea about exporting is not to create jobs. It's really to eliminate jobs.

I mean, the reason you export is to import something else because you want to consume. How do you consume as much as possible? Well, if there is something that you can do really well, that you can make more efficiently than somebody else, rather than try to make everything, you just make the things you make best and then trade for the things that other people make better than you. But, the whole reason to export something is so you can buy something else. You don't export something just so you can have a job, you'd just be wasting your labor.

Well, what happens when we trade with the world is they send us stuff and what we basically say is "I got nothing for you. But I've got an IOU – dollars – will you take the IOU?" And they take it, because, you know, it's the reserve currency. And maybe in the back of their mind, or I guess in the front of their mind, they figure that one day they can use it to buy something. But meanwhile, what are they going to buy? What are we making? Every year we're making less and less stuff that they want. The stuff that the Chinese want to buy is all made in China. That's where the stuff that we want to buy is.

This whole thing is maintained. We now have this entire bubble, we have this entire phony economy that is now predicated on Americans borrowing money they didn't save to buy products that they can't afford and didn't make. This whole thing is phony. And all of our economic policy is designed to sustain this. Nobody wants to allow it to be corrected, because the correction happens in a recession.

We have a lot of problems. The biggest problem in the US economy is that interest rates are too low. Interest rates have to go up. We're never going to have a recovery, we're never going to have real economic growth, we're never going to create productive jobs, unless interest rates go up. But that's going to be very painful, because we're so overly indebted.

What's going to happen when interest rates go up? Banks are going to fail, and next time we're not going to be able to bail them out. What's going to happen to the housing market? It's going to go down more. It needs to go down more, that's part of the correction. Prices are too high, they're still too high.

What about the government? What's going to happen when interest rates go up? The government is going to have to dramatically reduce spending. In fact they may have to default on the bonds they've already sold. Because the only reason the government can pay the interest on the debt is because the rates are really, really low.

Well, what happens if interest rates go up? Then we can no more afford to pay our bonds back than the Greeks can. For a while interest rates in Greece were at record lows and the Greeks had no problem. But then interest rates went up and now you have a crisis. The same thing is going to happen here. Now, there are people who think that that will never happen here because interest rates are never going to rise. But that's just impossible. They have to rise.

What is the consequence of keeping interest rates artificially low? We continue to screw up our economy. Instead of allowing market forces to correct the imbalances, we make the imbalances bigger. The more we stimulate the economy with this toxin – because that's what the stimulus is, it's a toxic sedative and eventually you overdose on it. What is happening if we keep interest rates low? Nobody is going to save. Who's going to save money that's depreciating in value? You're going to destroy your savings. You're going to destroy the ability of the economy to generate capital, to generate growth, or production. You're going to create massive inflation.

Now, the government can lie about inflation for a while. They can hide it for a while behind these doctored-up CPI numbers that are mechanized, or so manipulated – not that there's a conspiracy, but the formulas they use to calculate prices going up are flawed. They're deliberately engineered to get a low number. That's why they're there. But of course, when they're measuring prices they're not even measuring inflation, they're measuring an effect of inflation.

But at some point, inflation is going to be so pronounced, and its effect on prices is going to be so great that the government is not going to be able to pretend that it doesn't exist. And then at that point interest rates are really going to have to rise and then it's all going to hit the fan. And as I said, that's when the banks are going to fail. And next time the banks fail: if the Fed is doing the right thing – raising interest rates, then that means not only do the banks fail, not only do the bondholders lose money, but the depositors lose money.

Because if the government is having trouble paying its own debts, how is it going to bail out the FDIC? Where is it going to get that money?

So, there are tremendous losses and all we're doing now and all of our policy is designed to postpone the day of reckoning beyond the next election. That's all Congress cares about. "How can we get through 2012 without it hitting the fan?" And they don't care that the policies they're pursuing are making all the problems worse. And when we look at the economy, people say "Oh the economy is growing. Look at the GDP". The economy is not growing: we're spending more borrowed money. That's not economic growth.

Look at the debt. In the last few years, since Obama has been President, look at how the debt has skyrocketed. It's grown by much more than the GDP. So, all this consumption has been financed with debt. It's not real prosperity. It's phony. It's like looking at half of a balance sheet. You're looking at the assets and you're ignoring all the liabilities. Or on an income statement, you look at the income but not at the expenses.

We're not better off because the GDP went up, we're worse off. Where did the money come from? We borrowed it. And what do we do with it? We spent it on consumption. We didn't invest it. We don't have more plants and equipment. We blew it. The government spent it.

The bubble that we had as a result of the cheap money that the Fed created in the 1990s, that inflated a stock market bubble. When that bubble burst, instead of letting the market correct the problem, they deliberately gave us more stimulus and that created the housing bubble. When that bubble burst, again, instead of sucking it up – "Gee, we really screwed up after the last bubble. Let's do the right thing now. Let's let the market run its course" – instead of doing that and taking the more painful recession, which was now necessary because we didn't take our medicine the first time, they did the same mistake and now they're inflating a government bubble.

The government bubble is bigger than the housing bubble. It is bigger than the stock market bubble. It's going to burst. It's no more sustainable than the previous bubbles and you can see it in the bond market, you can see it in the currency market. But the real crisis that's coming as a result of the fact that we no longer have sound money, that we've been printing all this money and that we've created all these huge imbalances, there's a sovereign debt crisis, a collapse of the US government bond market, a collapse in the dollar on a much grander scale than we now see playing out in Europe.

And if you remember when the housing market first began to crack, when the signs first showed up in the sub-prime market, everybody, all the experts, from the Administration down to Wall Street, was on television reassuring everybody not to worry, that it was all contained, that it was just a sub-prime problem, "Tiny little problem. Don't worry about it. The market is sound."

Of course, at the time I was saying "That's not true. It's not a sub-prime problem." It was a mortgage problem, that we were just seeing the symptoms first in sub-prime. But the symptoms were there. And it wasn't even about contagion, about spreading. Everybody was already sick. It was just a matter of time before the symptoms showed up. Well, the thing is happening with sovereigns. This is not an Italian problem, or a Greek problem, or an Irish problem. It's a debt problem. And we've got more debt than Europe. Just because we can print money and we have the world's reserve currency doesn't mean that we're immune from these laws.

Right now, I think, is the time in history when the sovereigns are being held accountable. Just like the Italians or the Greeks have borrowed more money than their citizens can repay, the American government has borrowed more money than Americans can possibly repay. And we're not going to pay off the debts by raising taxes on the 1 percent. We can't even do to it by raising taxes on the 99 percent. As if we can even extract all that revenue. It's going to have to come through a restructuring, it's going to have to come through a default, one way or another. And there's two ways that that can happen.

We can legitimately default: Congress can level with its creditors and say "We're not going to pay you a hundred cents on the dollar on these Treasuries." It can level with people who expect a government pension or a Social Security check and say "Look, the money's not there. We can't pay you everything that was promised." They'll come up with some way of means testing, they'll come up with something so we can make do with less. Or we're going to inflate the currency into oblivion. And it won't just be "not worth a Continental", it'll be not worth a Federal Reserve Note.

Because one way or another, the people who loaned money to Americans are going to lose. The savers are going to lose, the creditors are going to lose. Either they're not going to get their money back, or the money they get back isn't going to have much value. But the problem is, the longer we wait the worse it's going to be for everybody and the more damage we're doing to do to our underlying economy. Because, the longer we allow these malinvestments to build

up, the bigger the impact when they collapse and the harder it is to restore balance.

And part of that would be going back to sound money, going back to a gold standard. I'm confident that the world is going to go back on a gold standard. The question is how much longer is it going to take and how high is the price of gold going to be when that happens. But if we go back on a gold standard we'll have discipline again in Congress. Because Congress won't be able to spend money unless they can extract it from the taxpayer. They're not going to be able to print money. They're not going to be able to run all these trade deficits. If we want to import, we're going to have to export. If not then we're going to have to settle our accounts with gold and if we can't mine the gold then... And so that's going to bring everything back into balance. And the longer we wait to do it, the more mistakes we make in the interim, the harder it's going to be.

And the real threat to our liberty is that this real crisis that's coming and the economic collapse that's coming, the financial crisis is going to be much worse than 2008. The problem is, all these problems result from government. They result from government meddling in the economy. All these distortions that the regulations, the subsidies, and the money printing create.

But the government is very successful in blaming capitalism for the problems it creates. It mixes capitalism with socialism and then it causes a problem and they say "You see, capitalism doesn't work, we need more government." And then you get more government and then you get more problems. Well, this is such an enormous problem that we might end up with total government and completely change the fabric of our country.

So I think it's very important that as many people in Congress as possible – and that's where you guys can come in – understand the root cause of this problem. It's not that we have too much freedom and too much capitalism but the reverse. Capitalism doesn't work when government distorts it and interferes with it, tries to micromanage it. That's where all the problems come from. The solutions are going to be in the market. It's not going to be more government, it's less government. It's rolling back all these rules and regulations that are distorting the market and returning to sound money.

And if we do that we're going to have real economic growth, we're going to have real prosperity. We might have to suck it up and bear some pain. Just like you can swallow some bitter tasting medicine. It might not taste good, but if it works you've got to do it. But denying

that you're sick or covering up the symptoms while you get sicker is not the way to go. But that, unfortunately, is what we're doing now.

Anyway, let me just open it up to questions. Yeah.

QUESTIONS & ANSWERS

QUESTION: Can you talk a little bit about your views on unemployment insurance and if the structure of the economy and our work force is changing? Do cyclical and structural unemployment factor...

SCHIFF: Obviously there's an economic truism that you're going to get more of what you subsidize and you're going to get less of what you tax. I mean, if you pay people not to work, people are going to take you up on it. I mean, I did it myself.

I remember the one time in my life I collected unemployment benefits, I did not look for a job until I exhausted my benefits. I was in my twenties and I was living in Southern California and the weather was great and I liked the beach and I liked that better than working. And if I can get paid for lying on the beach – as long as I had enough money for gas and booze – it was fine with me. There are a lot of people today who are doing the same thing. I mean, it's not wrong, it's human nature! And if you can collect unemployment for two years, man, that's a lot of time on the beach.

People forget that leisure has value. People would rather not work. People save up so they can retire. Well, you can retire early now on unemployment. A lot of people say “That's ridiculous. It's only \$300 or \$350 a week.” True. If somebody offered an unemployed person a \$100,000 a year job, they'd probably take it. But what if the only job they're offered is only \$400 or \$500 a week? They probably won't take it. They'd rather have unemployment. Because it's like a huge tax on getting a job. The highest marginal tax bracket is faced by someone who's collecting unemployment. Because, not only does he have to pay taxes on what he earns, he loses all of his unemployment benefits. So the tax rate is enormous.

And what people forget is when you get a job, you don't get to keep all of your income. There's a lot of expenses that the IRS won't want you to deduct. What if the job that you get offered is 45 minutes from your house? What's it going to cost you in gas money to get there and back? And maybe you have to eat in a restaurant, maybe you have to wear a suit, maybe you have to go to a dry cleaner. What if you have a kid? What if you have to put your kid in day care? How much is that going to cost? So, it's so much easier just not to work.

The more lucrative we're going to make it, the more people aren't going to work.

I've talked to plenty of people, small businessmen, who've told me they can't find people to work. And if they find anybody, they're only willing to work if you pay them under the table. Why? Because they don't want to give up their unemployment benefits. There are people in my family, right now, who've told me – in my family! – that they're collecting unemployment. That's their job. But when I did it, when I had to do it, I actually had to go down to the unemployment office and pretend I was looking for work.

And I remember, I used to actually go, because I was afraid that the government might catch me. So I actually went and met with ... I dropped off some resumes, I made a little log, so I could at least look like I was looking for a job. But I didn't want one. I just wanted the unemployment benefits. But I at least had to pretend that I was looking. Today you don't even have to do that, today you don't even have to look someone in the eye and lie. You do it all online. You can just be in South America collecting those unemployment benefits. Because they go a lot further if you go down to Costa Rica. The money is going to go a lot further if you're lying on a beach down there.

So, yeah, I mean, it's a racket. But the politicians love it. The unemployed, "Yeah, extend those benefits" because they'll vote for whoever extends them. And of course part of the problem is we've got all these illegal immigrants coming in. Who's going to take those jobs if they can get unemployment benefits?

I mean, we shouldn't even have mandated unemployment insurance. If someone wants unemployment insurance let them buy it. I mean, you buy car insurance, you buy health insurance, you buy fire insurance. If you want insurance against losing your job, just go and buy it in the private sector. It'd be there if the government didn't provide it. At least then it would make more sense, you'd have market setting premiums and people who wanted it could buy it. It would have different incentives; it would probably pay off in a lump sum if you lost your job.

But now we give people all kinds of incentives not to work. We pass laws that make it illegal for people to work. Probably the dumbest law we've passed is the minimum wage law. But everybody in Congress just loves it, because they can pretend "Oh, it's terrible! Nobody should have to work for \$5 an hour, so let's make the minimum wage \$7.50." But what does that mean? It means if you're not worth \$7.50, it's actually illegal for you to get a job. And it's not just \$7.50. Actually, you have to cover all your payroll taxes, other

fees, mandates. And of course, there's a lot of legal liability that comes with being an employer. So an employer has to assign that value. Because the minute you hire somebody there are a million ways you can be fined or sued.

If the government doesn't like the way you're hiring people, they'll sue you. If they don't like the way you're firing people, you can be sued. So it's very risky, the government has made it very risky to hire somebody. So a lot of people have made a rational decision not to hire people. Or, to hire as few people as possible. Or, if you have to hire somebody, hire in another country, where you don't have all these liabilities. So, if we got rid of that minimum wage law and also got rid of all these unemployment benefits, a lot more Americans would have jobs.

How can it be? Look at all the stuff that we're importing. Yet we have all these unemployed people. One of the statistics I – this is ridiculous – we import 90 percent of our seafood, 90 percent of it. We're surrounded by oceans, we've got all these lakes and we got all these unemployed people. You don't think they can fish? Just pick up a rod! But why aren't they doing it? They don't have to.

So, we have to get rid of all these rules and regulations, that are making it illegal to work, that are making it expensive to hire people. Because people forget where jobs come from. I've hired a lot of people. Why did I do that? Is it because I'm a humanitarian and I just want to create jobs? No, I want to make as much money as possible and I figure I can make more money if I hire people. That's the reason jobs are there, because someone wanted to make money. And they hire somebody to make money. But the more difficult the government makes it, the more expensive the government makes it to hire people; the less likely it is that somebody is going to do it. If I'm going to hire people and I'm going to lose money, obviously I'm not going to do it. So, you have to have more profit, more opportunity.

And, of course, the other thing you need is capital. I can't hire workers if I don't have any tools to give them, if I don't have any equipment to give them. Where is that all coming from? That comes from savings, that comes from underconsumption. The government keeps talking about “We have to raise taxes. We have to raise taxes on the wealthy. Because they're not the ones spending money. If we just raise taxes on the wealthy, they'll just have less money to save.” Yeah! Which means they'll have less money to invest, which means they'll create fewer jobs and we'll have a lower standard of living. So if the politicians that are saying “We need more jobs,” if they really understood where jobs come from, they would understand that they

need to reduce the regulations and that they need to reduce the taxes on the people that create those jobs.

QUESTION: One argument that I've heard over and over again about the gold standard is that there's not enough gold for the money that we've printed. Do you have a rebuttal for that?

SCHIFF: Well, not at this price, there's not. The gold price will just have to go up, that's all.

But the idea that there's not enough gold in the world is ludicrous. It doesn't matter how much gold there is. Prices are just going to adjust to the gold that exists. Money needs to be scarce, that makes it valuable. If it was plentiful, if there was all the gold that we needed, then it would have no value. What makes it rare and valuable is that it's scarce. And if you look historically, the gold supply increases by maybe one or two percent a year. That's it. That's pretty predictable, pretty consistent.

And it works great. I mean, we had the industrial revolution on a gold standard. People that say "The economy can't grow on a gold standard" – our economy grew more on a gold standard than since we left it. If you look at the standard of living of the average American from, let's say 1800 to 1900, and compare the way the average American lived and the way he lived at the end of that century, and then compare that to the changes we made since we've been on the fiat standard, it's a much bigger difference. The standard of living grew a lot faster. Imagine how much wealthier society would be, how much less we would all be working, how much more prosperity and leisure we would all enjoy, if we would have continued on the gold standard for the twentieth century. Instead we went off it and we sacrificed a lot of economic growth in the process.

QUESTION: If you operate on the assumption that Washington writ large basically keeps doing what it's been doing, rather than do the right thing and just keeps progressing the way they've continued to progress, how do you see events unfolding? Obviously, you alluded to larger financial crisis, but how does that manifest itself in a world where you have a Ben Bernanke and members of Congress determined to do their best not to let nature take its course?

SCHIFF: Eventually it just has to happen, because the numbers are just so large. Just like the people who were buying houses using a teaser rate on their sub-prime mortgage. The problem was, the teaser rates expired and they couldn't afford the higher payments. Well, we've got the same thing.

I think, about 40 percent of the national debt matures in the next year. That's a lot of money. That's six trillion dollars – I don't know

the exact amount – but it's two to three times what the government collects in taxes. How can we possibly pay that off? Well, we can't! And the idea is that we don't have to, because we'll just borrow the money. Well that's the same idea that Bernie Madoff had. And it worked for a while for Bernie, but it didn't work forever.

We're not going to be able to constantly roll this debt over. Not at near zero percent interest. Eventually our creditors will want to get paid. And we can't pay. And then, we're not going to have a crisis until it's forced – we're not going to do the right thing until there is a crisis. So we're not going to preempt it.

But we had this phony crisis with the debt ceiling crisis, when we refused to raise the debt ceiling. The real crisis is when the lenders won't raise the lending ceiling. And in fact, we actually admitted to our creditors how much trouble we're in. We said: "If we don't raise the debt ceiling, we're going to default." That's what we told them. We told them we were running a Ponzi scheme. We didn't say that if we don't raise the debt ceiling we're going to raise taxes so we can pay our debt. Or that we're going to cut Social Security spending or military spending so that we can honor our commitments. We said: "If we can't raise the debt ceiling and borrow more money, we're not going to pay off the people we borrowed money from." So, we told our creditors that they're the little man on the totem pole. So they already know this, but at some point they're no longer going to be buying this debt. The Chinese are going to wake up.

They're going to stop buying this. People think that the Chinese are going to throw good money after bad indefinitely, that they've got two trillion in Treasuries that they can't afford to lose, so they're going to keep on buying. Well, pretty soon they're not going to be thinking of the two trillion they have, but five or ten trillion they're going to buy if they don't stop. Might as well lose money on two trillion than lose money on ten. So at some point they are going to wake up.

And their economy is going to boom the minute they stop doing this, that is the biggest irony. You have American politicians beating up on China for manipulating their currency, but the benefactors of that policy are not the Chinese, it's the Americans! We get to buy stuff for cheap. We have all this stuff that the Chinese are sacrificing. If the RMB went up, the Chinese would be buying all this stuff, not us. They would have the fruits of their labor, instead of just the labor, and we get the fruits.

Now, long-term the Chinese aren't doing us a favor, because they're helping to undermine our economy. But in short-run we have

a higher standard of living, because it's financed on the backs of people in China working in factories and not getting the full benefit of what they produce.

But, the way the crisis is going to come: we can't borrow any more money and the Federal Reserve has to print, they have to do QE3 or QE4, or maybe they won't call it anything, they'll just do it. And then prices will really start to rise much faster. I know prices are rising, for food, for energy. Look, I just got my health insurance premiums from last year and my initial increase was 19 percent. Now I had to shop it around to get my increase down to 12 percent, but that's just in one year for the same coverage. But it's health care, it's college tuitions that are going up; prices are going up. The only place they're not going up is in the CPI.

I wish I could buy the CPI. But unfortunately I have to buy real things and they're getting more expensive. But at some point they'll get a lot more expensive and the government is not going to be able to pretend it doesn't exist. The dollar is just going to collapse. Right now, Europe is temporarily buying us some time, but it's going to be very expensive time because it's enabling us to go deeper and deeper into debt.

But again, where is this debt going? It's going to finance more government. The government bubble is worse than the housing bubble, it's worse than the dot-com bubble. Because at least, in the dot-com bubble we got a couple of companies that had value. At least in the housing bubble we got houses. We might have spent too much money on it, but they're there. The crazy thing is guys like Alan Greenspan who argued for burning them. He wanted to destroy them so we would have no benefit whatsoever from the housing bubble. At least we got houses. But what are we getting from the government bubble? We're not getting anything. More bureaucrats. We're getting more consumption, more spending. So this is the biggest bubble of them all. And it is going to unravel.

The question is what is going to happen when the dollar really starts to collapse and prices start spiraling out of control. What are we going to do? Are we going to do what Nixon did and put in wage and price controls? We probably won't need wage controls because wages probably aren't going up. That's the one price that probably won't rise. But the price of everything else is going up, which is going to be particularly problematic.

You know, a lot of economists make the incorrect assumption that you can't have inflation without rising wages. Oh yes you can. It's just a lot more painful when the wages don't go up. But employment costs

go up. Maybe not wages, but other costs associated with employment. But, people working doesn't create inflation. In fact, people working helps bring prices down. It's people not working that makes prices go up. Because prices are a function not just of demand, but of supply. People working creates supply. When they're not working you have less supply.

And also, what happens is, when the dollar crashes the supply of goods in America goes down because we can't afford to import. In addition, we export less. So, what happens is, capacity comes down. You can see that now in the airlines. The airlines are raising prices even though fewer people are flying. How are they doing that? Because they're reducing capacity and they're going to have to reduce it a lot more and air prices are going rise dramatically in the next few years, even though fewer people are going to fly. Fewer people are going to fly, but they'll pay a lot more.

The same thing is going to happen as we're starting to export more refined gasoline now. That's more and more of that that's going to happen. So even as Americans are using less and less gas, they'll pay a lot more for the gas they use. Because the supply is going to be less, because a lot of the gas that used to be here is filling up a car in China. And that's going to be even more dramatic once the Chinese RMB goes up. Once the Chinese let their currency go up, everything goes on sale in China. So the Chinese will buy more of everything. Well, where are they getting all that stuff? It's the stuff that we used to buy, but that we can't afford anymore. Because, if the prices go down for the Chinese, they go up for Americans.

So, this whole collapse is coming. And if we want to do anything about it, we have to recognize what the fault is and then we have to start dealing with the real cause of the problem: which is Big Government, all the regulations, all the taxes, all the spending. And we can't just talk about cutting taxes, we've got to cut spending. That's the tax. The cost of government is measured by what it spends, not what it taxes. Because all government spending has to be paid for, one way or another. And either they're going to pay for it through taxation, or through inflation. Now, temporarily they can borrow, but that either means that they're going to have to raise taxes in the future or raise inflation in the future. So ultimately, they can either tax or inflate, but that's it. So that's the cause.

But when people talk about "Hey, we've cut your taxes", but they have these huge deficits, they haven't cut our taxes at all. If government is more expensive, we're paying more to support it, one way or another. The politicians can lie about it when they run the

deficits, but ultimately we're going to have to pay. So we have to shrink the government dramatically if we're ever going to get out from under this mess.

The only reason this phony economy works now is because we can borrow the money to sustain it, because the world will take our paper for their stuff. But when that stops we cannot function, this economy cannot function with this level of bureaucracy. We're going to have to make some deep rooted changes. And they're obviously going to have to come from here.

QUESTION: Kind of a two-part question. First, it's good that the Austrian School is starting to get more attention nowadays, but for a long time it was more in the public's view sort of an intellectual battle between Keynesians and the Chicago School. So, what do you say to the suggestion that the Chicago School could be very, very dangerous, because they essentially preach the free market except when it comes to currency and debt, and then, when something goes wrong, the Keynesians say "look, the free market doesn't work"?

SCHIFF: Yeah, I mean, it's a bad comparison. You give capitalism a bad name when you preach it but don't really practice it. That's what's happened. I think you really have to start to look at the Austrians who have a much better explanation for what's happened, and a much better understanding.

But the problem – and the reason why Keynesianism is so popular here on the Hill – is it's exactly what the politicians want. Keynes gives them a reason to do what they wanted to do anyway. Because it's so easy to just spend government money. And if you can argue that it's going to grow the economy [inaudible]...and where you can often destroy their arguments, like they're saying we have to extend unemployment benefits because it's going to help the economy, how is it going to help the economy? "Well," they say, "because the unemployed are going to spend the money." Well, if just printing up money and giving it people to spend grew the economy, why just limit it to the unemployed? Why not give the benefits to everybody? Then we'd have even more growth. And why not double the benefits? Then we'd get double the growth. Why not triple them, quadruple them? Why not give everybody a million dollars? Then, at some point they're going to say, "Well, that's too much." "Well then, what if we do a dollar less. Is that too much?"

You see, it never works, because whatever the government gives the unemployed, it has to take it from someplace else. The government has nothing, all it does is redistribute. So it's not going to help the economy, it's going to hurt the economy. Apart from the fact

that it subsidizes people not to work, so the economy is deprived of the labor and the output that would have otherwise accompanied that work – instead somebody is idle – but when you transfer money around, you're lessening economic growth. The deficits that we create to pay for those unemployment benefits are going to do more damage to the economy than whatever benefits you get from spending those unemployment checks.

So, it's easy to critique that, but the Keynesian view is the more politically popular. And that is the problem. Everything we need to do that are good for the economy, are bad politics, and everything that's bad for the economy is good politics. Among the people who understand that government is the problem, a lot of them still want their Social Security benefits. They want a lot of stuff from the government and they don't realize that the government doesn't have the money.

QUESTION: So when this collapse does occur, is there any country around the world that will fare better? Or how will America fare relative to other countries?

SCHIFF: I think the countries that have the most to gain are the countries that are bearing the lion's share of the burden of supporting us. So, if you look at the countries that are amassing enormous foreign exchange reserves, particularly in dollars – countries that have these huge sovereign wealth funds – these are the countries that have the most to gain, because they are paying the lion's share of the subsidy.

America gets a huge subsidy. A lot of people will be able to conceive that Americans live beyond their means. We buy a lot of things that we didn't produce, we borrow and we spend. So, we live beyond our means. Well, that's only possible because other people are content to live beneath their means. Well, the people who've been living beneath their means, when they don't do that anymore, they're going to see big gains.

The Chinese for example, when they allow their currency to rise, all of a sudden the Chinese are going to be able to afford a lot of things that today are out of their price range. And so the Chinese are going to see a big increase in their standard of living. At the same time we're going to see a corresponding decline in ours, because now we're not going to have these things. And if an American wants to buy something made in China, maybe he's going to have to pay three or four or five times as much money.

QUESTION: And then, as an individual, is there anything you can do to lessen the blow for yourself in this situation?

SCHIFF: Well yeah, as an individual, you can recognize that the dollar is going to lose value and so you don't save dollars. And that's part of the problem. We need savings to grow the economy, yet you'd have to be a fool to save dollars. So we can't get the savings that we need if we're chasing capital out of the country. But you can buy gold, you can buy silver, you can invest overseas, you can have foreign currencies, you can have stocks abroad, in economies that are going to improve when this dollar at the center of the global monetary system comes to an end.

This is the problem. We have polluted the entire global economy. We export our bad monetary policy. Because the dollar is reserve currency, everybody is trying to maintain a parity in relationship with the dollar. But instead of being a force for good and stability, we're a force for instability and recklessness. Because it's a race to the bottom. We're disrupting the entire global economy. We are at the epicenter of these massive global imbalances that are the real root causes of the problems and the booms and the busts. But when that ends, the world can collectively breathe a sigh of relief.

But it's going to be difficult in America to get used to actually having to live within our means. Because then we'll have to acknowledge how dramatically our means have been diminished, over the years. And as I said earlier, if we're going to restore our economy, we can't do it with all this government. We never could've produced the wealth we once had if we had all this government. It's the absence of government that allows us to be productive, it's freedom. That's what we need. If we want to help people we need to give them more opportunity, more freedom. And we don't get that by passing laws, we get that by repealing laws.

QUESTION: I had a question about convertibility, because the American history textbook explanation for us leaving the gold standard is that other countries, particularly France, converted *en masse* our debt into gold. Can the United States, if we go through an organized default rather than letting the markets tear us apart, be the only economy that switches back to a gold standard if there's that risk of convertibility? Or, if the dollar skyrockets, how will we export?

SCHIFF: Well, the way we exported before. Just because you have a strong currency doesn't mean you can't export. In fact, if you have a strong currency, it diminishes your capital costs, you have more savings, you have more investment, it diminishes your raw material costs, it makes imported components less expensive. It

means you don't have to give as much in wages, because your workers are getting wages in a higher purchasing power. They don't need a nominal [inaudible]. So there are a lot of benefits.

But yeah, if we were to be proactive and admit right now, "OK, the country is broke. Let's restructure on our own terms. Let's figure out what we have to do." Because as I said, we need higher interest rates. That is the only way we're going to solve the problem.

But we have to acknowledge that if interest rates go up, this whole phony thing collapses. Which is, of course, a good thing, because the sooner this economy collapses the sooner we can build something real in its place. But everybody is so afraid of the short term consequences that they want to postpone it as long as possible. Which means it's not going to be on our own terms. It's going to be a crisis that hits us from abroad.

If we do it ourselves, if we preempt, it still is going to be painful; but it is not going to be as painful. It'll be a lot better. And, of course, a lot of the pain is not going to be uniform. The pain is going to be felt principally on people who are living off the government. The people who are getting checks from the government will be getting smaller checks. Or in some cases, no checks at all. We're going to remove the burden off of the backs of the American public. So it's not like I'm going to talk about austerity. Austerity for who? Not the people paying the bills. The people riding in the wagon are getting austerity, not the people pulling it. They're going to get some relief. Which is what they need.

But, some of the things that we can do, as far as getting government out of the way, will have such immediate benefits. If we got the government out of education and out of student loans, tuitions would plummet. All of a sudden, college wouldn't be such an insurmountable expense. Families wouldn't have to worry about saving for college, because it wouldn't be so expensive. And maybe not all their kids would go. I mean, now everybody goes to college, even when you've got no aptitude for it whatsoever. What's the point? What's the point of sending a kid to college so he can party it up for five years and get drunk, and then graduate with a lot of debt and no skills, no knowledge? What if we got government out of health care and all of a sudden medical costs would collapse. Isn't that a good thing if it doesn't cost so much to go to the doctor, if it doesn't cost so much if you get sick?

So, there are a lot of things where, if you just get government out of the way and you get free market efficiencies in, you get an immediate benefit. Now, who does that hurt? Well, someone's going to

hurt. If tuitions come down, some overpaid administrators at universities are going to earn less money. Oh well. And some people working at universities are going to lose their jobs. OK, then they didn't need those jobs and they'll have to do something productive. And if they do something productive, we're all going to benefit. The more people employed productively – everybody benefits from that productivity. The more people that are doing things that they shouldn't be doing because of some government subsidy, we're all made poorer as a result.

So, it's not going to take that long, if we do all the right things. It's like ripping off a band-aid. If you just rip it off it doesn't really hurt that much. But if you peel it off slowly, then it hurts. So, if we just get rid of all this government, and bring back freedom, there is not going to be that much suffering – not long. Some people, sure. People who thought they were going to retire on Social Security, OK, they're going to find out that that's not going to happen. They have to work, they have to save their money. But, they're not going to get Social Security anyway. So, let's deal with it now, instead of paying them off in worthless money. What good is that going to be? Because that's the end result.

But, not only do the politicians not have the integrity to do the right thing, most of them don't know what the right thing is. Hopefully we can educate people. There's got to be somebody in Congress, other than Ron Paul, that actually cares about the country. And a lot of times when the Congressmen think, “Well, I can't do that, that's too big of a risk.” Well, what's the risk? That you don't get reelected? What's so terrible about that? There are people that risk their lives on a battlefield for their country. You can't risk not getting reelected? Big deal!

So people have to understand. And this is a very pivotal point in our history.



*P*ART 2.

THE FEDERAL RESERVE SYSTEM

IV. WHY WAS THE FED CREATED?

DR. GEORGE SELGIN¹³
PROFESSOR OF ECONOMICS
THE TERRY COLLEGE OF BUSINESS
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MODERATOR: Good afternoon everyone. I am Paul-Martin Foss, Congressman Paul's Legislative Assistant for monetary policy and on behalf of Congressman Paul and his office I would like to welcome you to the first lecture in our second series of tea talks.

The first series of lectures dealt with money, what it is and how it came to be and the second series of lectures will build on that and explore further issues in money and banking by focusing on the Federal Reserve System.

Today's lecture will explore the issue of why the Federal Reserve System was created and we are pleased to have with us today to explain this topic Professor George Selgin, professor of economics at the Terry School of Business at the University of Georgia. Prof. Selgin is a renowned expert on money and banking and the author of such books as "Bank Deregulation and Monetary Order," "The Theory of Free Banking," and "Good Money." In the words of Don Boudreaux, professor of economics at George Mason University, quote: "there is today no finer, more informed, more thoughtful, more learned, and more eloquent scholar on issues of money in banking than George Selgin" unquote. So without further ado I present to you Professor George Selgin.

SELGIN: Thank you for that very nice introduction. I will see Don Boudreaux this evening and I'll thank him for it as well. Thanks to all of you for coming on such a beautiful day it's hard to compete with the sunshine, but I at least can hope to fulfill my charge, which is one of enlightening you about the origins of the Fed. It's tempting in a talk on that subject to want to go way back, at least to the days of the First and Second Banks of the United States or perhaps further back to the founding of the republic and the constitutional clauses that concern money and banking or even back to the Bank of

¹³ [The video of the lecture may be found at: <http://www.youtube.com/watch?v=JelljifA8Ls.>]

England, which after all is the crucial precedent for all modern central banks.

But we don't have time for that kind of thing, so I'm going to settle for taking you briefly to the period just before the Civil War to talk about what the banking system was like back then. And I'm going to do so by first pointing out to you that there's a lot of myths about what banking was like in the days prior to the Civil War, but after the demise of the Second Bank of the United States in 1836. The myth concerns the claim that banking was a fly by night, unregulated industry, and that the consequence was a lot of wildcat banking with many bank failures and so on.

The truth of the matter is that, first of all, the banking and currency system of that day wasn't very good. It wasn't quite as bad as it's made out to be, particularly by the outbreak of the war, but it wasn't very good. Not because there was no regulation, although it's true that there was no federal regulation, but because States did regulate banks and often regulated them in heavy-handed ways. For example, the most common cause of bank failures during that time, and there were plenty of them, turns out to be state regulations that variously required banks in the States in question to buy specific assets. Usually consisting of the bonds of the state governments in question to back their notes and then engaging in such reckless fiscal policies that the bonds became worthless. That was the most common cause of bank failures. In other words banks failed most often because they were forced to buy assets that turned out to be junk.

Another criticism of the old pre-Civil War system, which is true, is that the currency was not uniform. That is if you took a note from any bank in any part of the country, say any state, and traveled far from that state perhaps not very far even to a neighboring state in some cases, that note would no longer be worth its full face value in gold or silver. It would be worth something less. And this was also related to regulations. In this case the fact that the vast majority of banks, almost all of them, were not allowed to branch by their statutes or by their incorporating laws. And as you know it would be another hundred years before banks could generally branch, especially nationwide.

So that was the most common... the most basic cause of non-uniform currency because it meant that, well, it was costly to bring a note back to its source to get gold or silver for it and you could only get gold or silver for the full value at the source. Those costs were reflected in the various discounts from face value that these notes were subject to.

By the way, the non-uniformity was not as bad on the eve of the Civil War as you might think. I know this because I actually went through the trouble of finding out the exact value of notes every bank had outstanding in 1863. I think October was the last year for which I had the relevant statistics. I left the south out because the southern banking system by then was in shambles. I took all of the notes of the union banks, figured out what value they had outstanding, figured out what they would have been worth in Chicago or New York if you sold them to a broker and calculated the total discount from face value. Suppose I had bought all those notes in 1863 at full value and then tried to sell them in New York or Chicago it doesn't matter where. What would my percentage loss have been, anyone want to guess how much I would have lost? Ten percent, twenty, eighty? Less than one percent.

So, you heard a lot of stories about how bad things worked, they were bad, but it wasn't because of lack of regulation it was because of bad regulations and they weren't that bad. In any event during the Civil War there's some major changes made to the US currency and monetary system, two of which are especially important for us, well one really, the other important one is the greenbacks. The US treasury gets in the business of issuing its own currency we go off the gold standard that's temporary, the greenbacks will be around for a while and then they'll be gone. So they don't have much of a role ultimately in the emergence of the Fed.

The other change that is of more enduring significance is the establishment of a new kind of federally chartered bank, national banks. They still exist now right, the national banks you see with that name in their title and many others that don't have national in their title. This is... this marks the federal government's re-entry into the banking business, but this time unlike in the past it charters lots of banks not just one at a time.

Now, here's what significant though about this new national banking legislation or national currency legislation. As a condition for issuing currency and in those days a bank could hardly survive if it couldn't float its own circulating notes. National banks have to back their notes more than a hundred percent with specially designated securities. Guess whose securities. This was during the Civil War anyone want to guess? Hmm?

SPECTATOR: The federal government.

SELGIN: Yes, thank you, bonds of the US government. So a bank could only issue notes if those notes were fully backed by US government securities, which securities would be held as collateral in

the event that the bank got wound up by the comptroller of the currency which was also created, an office created by this reform.

Now, what was the rationale of this currency setup? If you read the textbooks they'll often say well it was done to create a uniform currency. But that's not really true. First of all, as I mentioned the currency wasn't that non-uniform but the more important point is this measure was very obviously a revenue measure. They were trying to sell government bonds to pay for the war and by creating this new system of national banks they thought they had a way of creating... of making the banking industry, the banking system, forcing it to become a new market for federal government debt. As a matter of fact, at first the banks didn't go for it, that is the demand for national bank charters was very, very meager. And ultimately, they had to change the law in a number of ways but also they taxed the state banks out of the currency business with a ten percent tax.

Now this is all very significant because if it had in fact been true that the national bank currency was superior, as the textbooks would have you believe, then consumer preferences should have driven state bankers to convert en masse to national charters because the public would have demonstrated a preference for national bank notes and national banks that were established should have outcompeted the state banks. Nothing of the sort happened. In fact, it was only by forcing state banks out of the currency business that the Congress was ultimately able to create a widespread demand for the new national bank charter. State banks barely survived this measure and they eventually recovered by becoming pure banks of deposit that don't issue currency which is what all banks are like today, except the Fed.

Okay, so how did this measure for basically nationalizing the currency, how did it perform? Right, so after the Civil War state banks no longer issue currency. All currency other than the greenbacks comes from these newly established national banks. So was this a good currency measure? Well, we can ask that question two ways. First we can ask was a good wartime measure? And there the answer would have to depend on whether it did succeed in raising revenue for the Union. I'm not even going to answer that question, I'll let you... we can just assume, though some people have questioned this, that, as a wartime fiscal measure, the national currency and banking acts were a good idea but what I want to make clear is that as peacetime monetary reform measures, that is, as the basis for the foundation for a peacetime, economy and a peacetime banking and currency system the measures were disastrous.

And the reason they were disastrous had to do with the fact that, under this arrangement, the stock of currency or the only potentially variable component of the stock of paper currency is tied to the availability of government debt. One way to put that starkly is, imagine that the government retired all of its debt. What would be the maximum amount of currency the national banks could issue? The answer would be under this law none. And if it hadn't been for the greenbacks then, which would eventually be retired, people would have had no currency with which to make payments and in those days checks weren't important and needless to say there were no debit cards. Currency was the main medium of exchange that people relied on. Paper currency that circulated from hand.

So, in fact of course the government never did retire its entire debt but it came pretty close because after the Civil War, in starting in the 1870s, the federal government ran surpluses regularly year after year after year. Cool, huh? It doesn't do that anymore but in those days it did. And just as when you run a deficit the way you, a government deals with that is by issuing more debt in those days these regular surpluses were used to retire outstanding federal debt. So the government was throughout the period roughly from 1870 to 1900 or so, was reducing the number of its bonds outstanding, the federal government. But because of the currency laws enacted during the war when the government wanted to issue more debt and get somebody to take it, the stock of currency now could not grow. In fact, it had to shrink because the bonds that banks needed to back the stuff were becoming scarcer and scarcer and scarcer.

Also the rules for a bank to get new currency were such that quite apart from it becoming harder and harder over the years it was very awkward. In fact, it was entirely uneconomical for banks to get hold of bonds to secure more note issues only for the purpose of meeting temporary demands for currency for example during the harvest season. The harvest season back then was the time of peak demand for currency. You needed it to pay the people moving the crops who were mostly itinerant laborers who certainly didn't know anything about bank deposits and checks.

So, the currency was what people at the time refer to as inelastic. It couldn't adjust for the general growth of the economy. Instead it was tending to shrink and it couldn't adjust at all for short run changes in demand especially seasonal changes, harvest season changes. This inelasticity of the stock of currency in the US economy was the ultimate cause or crucial cause, not the sole cause, of a series of very serious financial crises during the last half of the nineteenth

century which were not accidentally known at the time as currency panics. Currency panics, because suddenly there wasn't enough currency to go around.

By the way, if a bank couldn't issue enough of its own notes, it had to part with gold reserves and that meant they would have to contract credit. So an inability of a bank to supply all the currency that its customers needed when they came to convert deposits in the currency, for example or if they needed loans would translate into a credit crunch. There were major crises of this kind in 1873, though that one had other elements as well, 1884, 1893 and 1907 and the trend was for them to get worse and worse.

Now, I have only one picture (Figure 2) to show you, but it's a crucial picture because it helps to drive home a very important point I want to make. Which is these currency shortages and crises were unique products of the way in which we regulated our banks, in the way in which we regulated banknotes, which prevented the supply of bank created currency from being at all capable of meeting the needs of the economy.

And what this chart shows, it shows two plots the smoother plot, which is descending for most of the period, and by the way the period at the bottom covers 1880-1900. The smoother plot is the left-hand scale and it starts at about three hundred million dollars and then descends to a little less than half of that by 1890 and you'll notice it doesn't have any saw-tooth pattern. The second plot is the one that's rising with the distinct saw-tooth pattern and it goes with the right-hand scale, which is similar to the left but about one-tenth the magnitudes.

Well, if I didn't tell you anything else about this chart except that both plots refer to two different economies and that the 1880-90s are periods of rapid economic growth in both and in both economies there is a significant harvest season where the demand for currency peaks in that season is roughly from August to November every year. Which country would you say has the more scientific currency system that seems to be adjusting with economic needs: the ones with the saw-tooth pattern or the one that's rising on the whole or the one that's shrinking with no saw-tooth pattern? It's a rhetorical question you don't have to answer. The right scale and the saw-tooth pattern are Canada's; the left scale is the United States with its bond-secured currency.

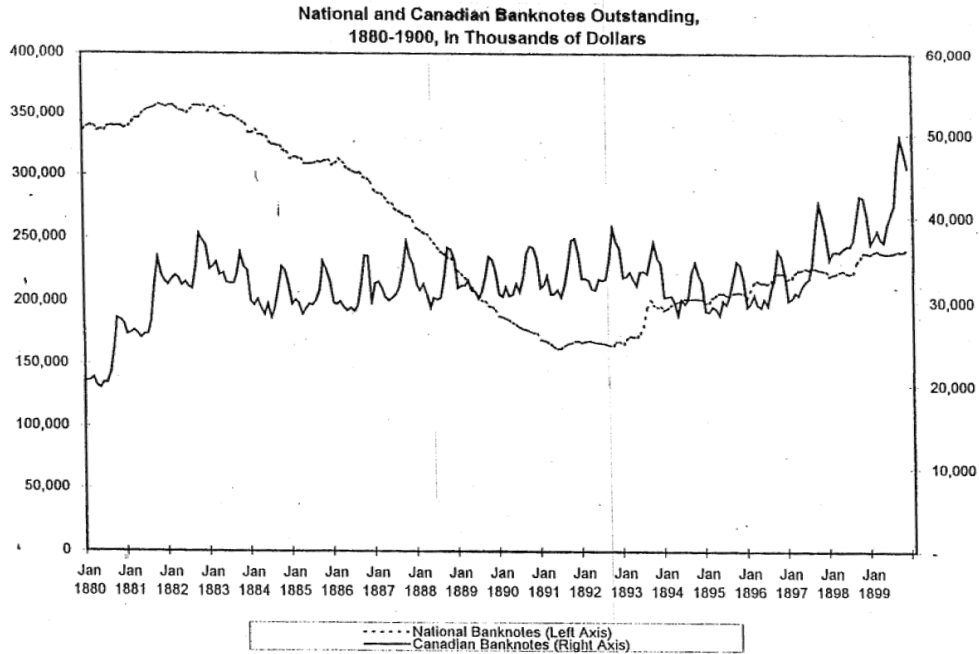


Figure 2

As you can see in the US... and we had rapid economic growth right the currency stock falls to... loses more than fifty percent of its value in the ten years of 1880 to 1890 and behind that decline is the fact that the Treasury's retiring the bonds that, because of old Civil War legislation, are supposed to back every outstanding national bank note. And the supplies you see has no seasonal adaptability; it's just not worth it to banks to take this stuff out if they can't leave it out given the costs of abiding by the regulations. Canada in contrast has a currency supply that seems to be adapting quite naturally to the needs of a growing economy with a substantial peak demand for currency every fall. Now, you might wonder what has Canada got here? Perhaps it has an enlightened central bank, regulating the money supply to make sure that there are no shortages. And by the way, Canada avoided all those major crises that were plaguing the US economy.

But if you thought that it was because of a central bank you'd be wrong. Canada didn't adopt a central bank until 1935 and if anyone wants to ask me later about the politics behind that decision I'm happy to answer. But in this period it not only has no central bank, what it has is a competitive and largely deregulated currency and banking system. Now largely deregulated. They had a charter system and entry into Canadian banking was restrictive. But they still had a couple dozen banks and they were allowed to branch anywhere and to back their notes with general bank assets. No special securities have to be purchased to back the notes. This competitive system with very little regulation, apart from regulation limiting total numbers of banks that were allowed into it automatically provided a fluctuating supply of currency that didn't grow excessively but adjusted according to changing needs over time both secular and seasonal and cyclical. It was a good system.

In contrast, as I pointed out in the United States, we had one crisis after another and everyone understood that these crises were due to the bad manner in which our currency system was regulated. And this of course led to calls for reform especially after the 1893 crisis. The reform movement that ensued after that went through two distinct phases; the first phase was something that has come to be known as the asset currency movement. The second phase was originally known as the reserve bank movement, but of course it was a movement to establish a central bank. I'd like to tell you about both phases of the currency movement because you can best understand how we turned to the idea of a Federal Reserve System by understanding why the alternative wasn't successful.

The asset currency movement took Canada in fact or a system like Canada's as its model for reform. It was essentially a program for deregulating banking and currency. It called for repealing the bond backing requirements that dated back to the Civil War and letting banks back their notes with the same general assets they used to back their deposits, in other words, no special collateral requirements. It also in some of its manifestations called for abolishing the ten percent tax that had been used during the Civil War to force state banks out of the business of issuing notes or force them to convert to national charters. Finally and crucially, the asset currency proposals mostly included proposals for allowing banks to branch not only within States but nationwide. They were a hundred years ahead of schedule in the sense that it would take about that long for similar legislative reforms to actually become successfully adopted.

Why did the asset currency people want branching? Because they understood that the reason why the Canadian currency supply could go up when it needed to by virtue of the lack of special bond backing requirements but also came back down when extra currency was no longer needed was the presence of a widespread system of bank branches. Each branch was like a little vacuum that would suck up excess currency when it was no longer needed as rival banks found it very easy and convenient to return items to each other the way they might today through a clearinghouse. So branch banking was seen as a way to make sure that banks, freed from special restrictions on their powers to issue notes were nevertheless forced by competitive forces with the help of widespread branch networks to mop up extra currency when it was no longer wanted by their customers, by the public.

Unfortunately, that branch-banking element of the asset currency reform proposals turned out to be the proposal's political Achilles heel. You see the fact is that something like a dozen different bills were presented in Congress all involving these reforms, asset currency measures. You can read all about them and they tried and tried and tried again, but they all failed because of opposition by special interests to branch banking. Opposition that I probably don't have to tell you too much about since it continued in one form or another as I said for another hundred years. But the basic political story was this - there were two groups actually who opposed these measures and one group that was in favor but outnumbered.

The group that favored asset currency was mostly Midwestern-city banks who saw these reforms as a way that they could spread

their branches and get a foothold on the banking business of the rest of the country. Of course the political economists were also behind these proposals because they thought that they would result in a more stable and crisis free monetary system. But opposed to them all and especially to branch banking were Main Street, of course, where the small independent banks thought that they would get crushed by larger banks spreading out from Wall Street and ironically Wall Street. Wall Street banks opposed it because under the unit banking system, the only way other banks everywhere in the country could get access to the New York money market was by using them as correspondents which was really good business. If those other banks could have branches in New York it would be kaput to the correspondence system and bad news for the Wall Street banks.

So, Wall Street lined up with Main Street and they voted down these measures. It was as a result of this that roughly at the time just following the Panic of 1907, attention shifts in the reform movement away from the asset currency idea, which fails politically towards the alternative of a central reserve bank or simply as we would call it today a central bank.

This movement starts with the establishment after the panic, of the National Monetary Commission, which is appointed to study alternatives and published its results like all commissions appointed by Congress it of course knows what it's going to conclude before the studies are actually conducted and it has been more or less taken over from the start by proponents of a central bank. The central banking solution, the solution that was ultimately embodied in the Federal Reserve Act, there is nothing magical or mysterious about it. Basically it boiled down to this: Instead of removing the shackles from the established national and state banks and allowing them to issue more currency free from the restrictions that had prevented them from doing so before, and also introducing branches, this new reform, the Federal Reserve Act in particular, will establish another bank or system of banks, that are uniquely privileged in not being subject to those restrictions and so when the other banks can issue currency they come like the little fellow in Oliver with a bowl to the Federal Reserve System and say please sire may I have some more.

In fact, the way this actually works is through the mechanism known as discounting which in those days meant this. Suppose you were a bank, a national bank and you want to issue more currency but there were no more bonds to be had to allow you to do that legally, or to be had at a decent price. Then you might have plenty of other assets on your balance sheet right like commercial bills. Under

the new rule you could bring the commercial paper to the Fed, they could discount it for you, which, meant buying it temporarily at a discount from face value, and then they would issue Federal Reserve notes to you. So what you have is a kind of asset currency except only these privileged banks right the twelve Federal Reserve Banks are allowed to produce the stuff.

It sounds like it should have the same results, as deregulating the other banks but it doesn't because the Fed is a monopoly and it's not itself subject to any competitive pressures. It makes all the difference in the world whether you have a few dozen banks all competing on equal footing issuing currency and then sending excess currency back to each other for settlement versus the central bank with a monopoly. When it issues notes nothing automatically brings them back. It has to take steps to bring them back. So, the problem with the central banking solution is, yes the Fed can get it right it can issue just the right amount of currency to make up for the lack of ability to do so by the other banks. It can also issue too little or too much and there's nothing automatically to prevent it from making those mistakes.

I want to say one other thing about the founding of the Fed because I can't help raising this point. I'm not a conspiracy theorist. I actually rather dislike conspiracy theories because I think that they are well, not parsimonious, mere stupidity explains plenty, you don't need to appeal to conspiracies and in fact conspiracies get it wrong because they assume that the people involved are all smart enough to actually know the consequences of what they're doing but, there was an element of conspiracy in the creation of the Fed, because Nelson Aldrich who was the Senator responsible for heading the National Monetary Commission, secretly did hold this meeting at Jekyll Island with a bunch of Wall Street bankers after promising that Wall Street was definitely not going to take this over. And those guys drafted the Federal Reserve bill and they would have kept it secret forever if somebody hadn't snitched in the 1930s, but the fact is that the actual shaping the Federal Reserve legislation was done by a bunch of Wall Street bankers and nobody on the actual commission had any role in it except Aldrich itself. That bothers me as a non-conspiracy theorist; it ought to bother you too.

But never mind. How did the thing actually work? Well in a word rather badly. How did it work with respect to prices? From the founding of the republic till the founding of the Fed, the price level had of course moved around a bit but actually it ended up more or less where it started. And it was very rare to have inflation of more than four percent or deflation of more than two or three percent, the

exceptions were periods like the Civil War when the gold standard was temporarily suspended. After the Fed's founding right from the get-go during World War I you have very rapid inflation. You may think that the 1970's were the worst past inflation rates for the United States of the twentieth century not so. There were some months between 1914-1920 when the monthly inflation rate translated to an annual basis was over twenty five percent. We didn't have anything like that in the 1970's. Prices then fell dramatically during the Great Depression under the Fed's watch, but then starting in the 1970's especially once the last link to gold was severed in 1971 the price level more or less became unanchored and now prices are roughly, oh I don't know twenty three times what they were at the time of the founding of the Fed some large factor. And ours is one of the better central banks on that score.

What about cycles? I have a paper with two colleagues one from Georgia and one from George Mason on how the Fed has performed. It reports all of these statistics that I'm summarizing here very quickly it's called "Has the Fed Been a Failure?" With regard to cycles and fluctuations if you go by the most reliable new statistics of output concocted by some very good economic historians, in particular Christina Romer, who you should be familiar with as someone who was the President of Obama's Council of Economic Advisers for a time, those statistics show the following: that certainly if you include the whole Fed period and compare it to the thirty years before the national currency period, the volatility of output is greater and the number of cycles and their average duration is higher. But here's what's really surprising. Even if you take out period between the two wars, even if you take out the great depression and the crisis in 1920-1921 there's hardly any improvement in the cyclical performance of the US economy, hardly any. In fact, if the recent crisis is fully factored in I suspect you could show that there's a slight deterioration.

Finally what about banking crises? The Fed would like to have you believe that it's solved the problem of banking crises. That's getting harder all the time of course but the reality is quite different. The number if ... we need to divide historical period here between 19..., sorry say the 1870's when the national banking system is up to the 1914 the founding of the Fed and then the next division 1934 which is when the FDIC is in place. If you compare the incidence of bank failures and crises of the first two periods, that is, the period without the Fed and the period with the Fed but without the FDIC, crises get worse not better. The number bank of suspensions gets

much worse not better. After 1934 the record starts to look better but it is evident that this is a result of the FDIC, not the Fed's presence, at least that's what the statistics suggest. And we can very well understand how the FDIC put an end at least for a while to bank runs and panics.

But until it was created, the Fed itself had a dismal record with regard to both things. Okay, so now what. I guess I should conclude and I'll be little ahead of schedule by saying that this all of what I've said to you doesn't necessarily mean we should end the Fed. What it means though, in my opinion, is that we should be doing, we should seriously consider doing, what people were doing after the Panic of 1907. Which is talking about whether you can come up with a better arrangement than the one you've got. We should have a discussion like that too. We should have another national monetary commission preferably one that doesn't already know the answer before it goes out and studies things. But what we need is an honest, serious discussion of whether the Federal Reserve System really is the best of all possible monetary systems. I frankly doubt it very, very much I see nothing in history that should compel us to take that view I think we could have done better than the Fed at least in theory if not politically back in 1913 and I think that it's quite possible that we could do better today. Thank you very much.

And now I am invited to ask you to ask me questions for another fifteen or twenty minutes and I'm very happy to try my best to answer them. Yes.

QUESTIONS & ANSWERS

QUESTION: I think that a lot of our bosses are concerned that the Fed's current policies will eventually lead to inflation. How credible do you think those fears are?

SELGIN: I think they're very real. I think it's very important though to distinguish between the risk of future inflation and the question of whether inflation is in fact the problem we should be fighting now. I know a lot of people who think the Fed should tighten more now, but I think that the idea of tightening in anticipation of a problem that hasn't arisen yet is a very bad idea. They tried that in 1936 and it didn't work well. But, as for the risk being there of a future outbreak of inflation, it is and it's very serious because the Fed created massive amounts of new basic reserve money during the crisis and its aftermath and those reserves are now sitting there in a banking system that for various reasons is not prepared to part with them. But as the economy recovers, which it seems finally to be doing there's a very, very great risk perhaps we shouldn't call it a risk but a

prospect that bank lending will be revived. That will leave the Fed with a major mopping up operation that will require not only its using every instrument it has at hand to try to see to it that excess reserves don't turn into excess spending and inflation but it also will need a great deal of political will to do the job that it has created for itself. So, this is something we have to really worry about. I've already seen evidence and you have perhaps too of the Fed jockeying to try and rationalize inflation. "Oh we're moving our inflation target up, oh well, the CPI is really biased." When you start hearing talks like that you know they're preparing the stage for making excuses when headline inflation starts to go well beyond what originally were said to be limits that the Fed would protect. Over here and then back there.

QUESTION: You said that the period that's up on that screen was a period of significant economic growth.

SELGIN: Yes it was, yes.

QUESTION: I've seen some statistics that would agree with that; however, doesn't that period also contain a large part of the Long Depression?

SELGIN: Ah, the Long Depression.

QUESTION: I was going to ask that... could you explain exactly what was going on...

SELGIN: Yes, sure.

QUESTION: Why it's referred to as the Long Depression?

SELGIN: Oh, that's a lovely question for me. So, there is this myth, I'll come right out and say it, of something called the Long Depression, which in the United States is sometimes said to have been a depression that lasted from 1873 to 1896 which would be this whole period and yet the statistics show a lot of growth. Interrupted by crises, as I've already told you. What's going on here? I'm afraid what's going on here is that some very naive people have assumed that because prices were generally falling during that period at a modest rate on average of perhaps two percent that therefore there must have been a depression because everybody knows that when prices are falling when there's deflation, that's depression. Well everybody knows it, but it ain't so. Because in fact throughout most of history most deflations, mild deflations, haven't been depressing at all. They've been periods of rapid growth where falling unit costs simply were allowed to be reflected in falling product prices. In other words, most stuff looked like computers look in recent history.

The exceptions were episodes famously the 1930's, 1920-1921, and of course the recent episode of 2008-2009 there. Those have been

exceptional cases where deflation was associated with depression. The theory of the Long Depression emerged after the Great Depression when political economists and economic historians got it into their heads that any deflation must be a depression and so they started writing about the Long Depression. They should have written about the long deflation. It wasn't in fact a long depression. And there are whole books, there is a book in fact it's been out there for some time, it's called "The Myth of the Great Depression" which is not about the 30s, it's about the so-called Long Depression. That book is mostly about England where the same false theories circulated because the same deflation was noted during the same time.

But there's a very good University of Virginia PhD dissertation dealing specifically with the American case. There was no depression, there were short depressions within that period but there was no long or first great depression.

Yes.

QUESTION: What banking reserve systems would you point to as better alternatives to ours?

SELGIN: Well I've already mentioned, I made a lot of hay about Canada and there's obvious reasons for picking on Canada, its geographical proximity, its having had closest trading relations. In many ways, apart from its much smaller scale, the Canadian economy sort of looks like the US economy and therefore it seems reasonable to think that a system that could do a good job there has a good prospect of doing a good job here. But Canada's was by no means the only example of a well working currency and banking system that avoided major crises. If I were giving this talk in England I'd be talking about the virtues of the Scottish system, which was again a less centralized system they had many banks issuing notes. Until 1845 they had hardly any restrictions on note issue and they had no central bank unlike England, which of course has central bank, which had many privileges, piled up in it and the remaining English banks were deprived of similar privileges. So the Scottish system was another good example a lot of work has been done on it. There are other examples too that have not been researched as much: Northern Ireland, Switzerland, but rather than go off into a long list of these other systems, I would simply say this, that any serious attempt to get a grip on our monetary system and its historical problems or to reform the system with something, by turning it into something better, has to be informed by a wide variety of historical experiences.

One of the things that bugs me about most American economists, monetary economists who write about money and banking in the

United States, is that the vast majority of them don't seem to know anything about the economic history, the monetary history, the banking history of other countries and so they cannot see the things that you can see if you just look. They can't see even what you can see from a simple chart like this. They've never looked. They think you can figure everything out that you need to figure out by only looking at one country. You cannot do that. You cannot do a good job. In its essence the National Monetary Commission was a good plan because it was charged with looking at all the different countries' experiences so as to find all the necessary clues to sound reform. The problem was that it was politically a set up from the start and as I mentioned the commissioners themselves ultimately played no role in shaping the actual legislation that was adopted. So it shouldn't be done like that. That is, instead of it just being a dog-and-pony show the research on countries should be taken seriously.

Yes.

QUESTION: You mentioned your fear over inflation but the other real concern over inflation, the other fear is that we end up in a Japan-like scenario, there are similarities there. [inaudible] extraordinary actions taken by the central bank, so are the comparisons between the United States and Japan clear?

SELGIN: Well I think that the Japan scenario is precisely the one that was worth worrying about these last couple years. But, I think as the recession ends it becomes less relevant, and less of a concern. And so I think that recovery of course is something we all welcome but at the same time it should cause a shift in our fears in a more inflationary direction. That is not because recovery causes inflation, this is the kind of talk that I really dislike, however, recovery in this case can mean a revival of bank lending that results in all these excess reserves suddenly being dispersed into the economy like so many hot potatoes and that could be very inflationary. Personally though I don't like to make forecasts I don't think the Japan scenario is in our future. I think the inflation scenario is something that might be. I can't imagine the Fed taking such aggressive steps to counter inflation should it break out as to bring us into a Japanese type deflation. I don't think that's likely either. I think if anything they won't do enough to stop the inflation.

Yes.

QUESTION: I have a question about the Canadian system during that period. So, it seems like every time there was a higher demand for currency during harvest season, the banks would sell bonds.

SELGIN: No they didn't have any bond thing going on. All they had to do was the simplest thing in the world, if I had blackboard I'd show you or I can even describe it. So the point of a Canadian bank is it has no special assets it has to be holding when it issues notes compared to when it has deposits outstanding. So imagine, you should never do this on camera all right. Imagine a balance sheet right and this is assets and liabilities and the assets are just commercial assets right. It could be some bonds there but whatever the banks like to invest in right, whatever they considered to be sound loans, investments. And on the other side you have deposits and outstanding notes. Here's the thing, if all the depositors came and said we don't want deposits anymore, we want notes, the banks would just switch the liabilities and it would have no other balance sheet implications, liquidity's the same, the reserve ratio's the same, they're just swapping liabilities.

That couldn't happen under the national banking system because a switch from deposits to notes, right, people moving out of deposits into currency meant that the bank was obliged to come up with more bonds on its assets side because the law said it had to have bonds for notes it couldn't have whatever assets it already had for its deposit and then there'd be a scramble for bonds. Or, if they're just too expensive, and by the end of this, you know 1890, they're commanding a thirty dollar premium over par, then the banks would say well, we just can't get hold of these bonds it's not worth it and then the customer would say, well give us some gold. They go, "please don't make us give you gold. Well, we need something and you're obliged to give us gold." And out would flow the reserves and down would flow the supply of credit.

QUESTION: So the key difference is the Canadian system didn't require getting new assets whereas the American system did?

SELGIN: Right, the Canadian system worked because it wasn't regulated, right. The Canadian... the American system didn't work because it was. But remember, and this is why I took things back to the Civil War. Why is this regulation on the books right? You're bound to ask that question, well because once upon a time we needed revenue, we needed to sell bonds to pay for a war. But it stays there. Think about that when you pass a law, right, it might stay around long after the contingency for which you design it has passed. Then what? Will it then be worth it? This one wasn't.

Yes, sir.

QUESTION: In a shift away from a Federal Reserve System, what are the implications for international trade and the

international banking system? The Federal Reserve note is an international reserve currency and our US treasuries are sort of a safe haven for international banking. So what are the implications and how will those implications differ from those of a US default?

SELGIN: Well, there really isn't an answer to that question because... there's many answers depending on what it is you're shifting towards, right? It's all well and good to talk about getting rid of the Fed, but it means nothing unless you talk about what it is you're going to put in its place. And unless I know what that would be, and I don't, right, I have written about... in that paper I mentioned to you we talked about some possible alternatives, some which would involve going back to a form of gold standard but some which would not, but every one of those alternatives has... provides... implies a different answer to your question, which is a great question. But the more fundamental question is what would we replace the Fed with if we moved away from it and I'm afraid that we won't have time to cover that ground.

QUESTION: One question, could you go into explaining why Canada decided to move to central banking because even proponents...

SELGIN: Oh, you remembered that.

QUESTION: ...of the Federal Reserve, you know, pointed to the Canadian situation as an example of where you didn't need a central bank in order to have stable banking system and currency system.

SELGIN: Right, what happened is after... first of all Canada did very well with its monetary system during the first years of the Great Depression. Canada suffered very badly on the whole don't get me wrong but it was bound to, given its very, very close trade links with the United States it's utter dependence on the performance of the US economy for that of its own, but for example, two facts. The US of course was plagued by bank failures during the early years of the Depression. A third of our banks were wiped out in three years and that was the proximate cause of a massive collapse of the money supply. About 35 percent, if you go by one standard monetary statistic. That's a big collapse. Throughout the entire 1930's Canada had this many bank failures. [holding up fingers to show 'zero'] This many. In the 1920's it had this many. [holding up one finger] and the money stock in Canada during the first crucial three years fell thirteen percent as opposed to thirty four percent or thirty five. So this is an indication that the monetary system in Canada weathered the Depression relatively well. Nevertheless the Depression created a substantial increase in agitation especially in western Canada for

inflationary policies. Partly that was driven by the fact of the Depression itself; partly it was driven by the increasingly popular views of a certain Major Douglas, the social credit theorists. Anyway this guy was a kind of monetary guru who said that everything would be solved by having social credit and more paper money and blah, blah, blah.

As a way of heading off this populist pro-inflation movement, the bank of Canada was created as a sort of sop. The idea was to please the commercial interests who wanted nothing to do with Major Douglas and his ideas, but at the same time create a political agency that could be sold to the populists as something that might give them some more inflation if they really ask nicely and that sort of thing. And this is why the bank of Canada was created. It was not an institution that was needed or bound to improve the performance of the Canadian monetary system. There is in fact an article I think in the Journal of Money, Credit and Banking it might be the Journal of Political Economy with the intriguing title "Why did the Bank of Canada Emerge in 1935?" So it's a question and populism has... the answer has to do with the populist movement.

Any other questions? Anyone else? That's it, that's why we have the Fed. Thank you all.

MODERATOR: I wanted to thank you Professor Selgin for such an enlightening and thoughtful lecture and thank all of you for attending today. I hope all of you will join us for next two lectures in March we'll be dealing in depth with the topic "What does the Fed do?" followed by our third lecture in May on "What is the Fed's future?" Thank you all again for attending and I hope you'll join me in another round of applause for Professor Selgin.



V. WHAT DOES THE FED DO?

MR. JAMES GRANT¹⁴
FOUNDER & EDITOR
GRANT'S INTEREST RATE OBSERVER

MODERATOR: Good afternoon ladies and gentlemen. I'm Lydia Mashburn. I'm the policy director for Chairman Paul's Subcommittee on Domestic Monetary Policy and on behalf of the Congressman and his office I'd like to welcome you all to today's afternoon tea talk on the Federal Reserve System, where we're asking the question "What does the Fed do?" If you'll bear with me a few moments, I would like to sort of share with you a little bit where we've come in our tea talks as we like to call them, over... I guess we've had four of them so far. So our first series started out talking about the basic principles of money very simple questions; "What is money?", "What is constitutional money?" followed by "What about money causes economic crises?"

It's really important to understand these simple things about money to understand our economy better. But, so what we learned essentially was that money is a commodity, it is derived from the marketplace and it is whatever commodity the marketplace chooses to use as a medium of exchange.

Many things have been money throughout history including beads and shells, salt, tobacco and of course silver and gold. Silver and gold...the market has chosen them to be money more often than not because they satisfy certain properties of money, which are that they are divisible, recognizable, portable and they retain their value. Our founding fathers... we then talked about our ...what money is constitutionally and our founding fathers had set up in our constitution that silver and gold should be our money because it did retain its value so well and they had personally experienced some pretty terrible... experiments with paper money which caused inflation and economic booms and busts. Which is what our third lecture in that series was about.

¹⁴ [The video of the lecture may be found at:
<http://www.youtube.com/watch?v=pRipVd5wxhI>.]

It was about what about money causes economic crises which is when you have this...no longer have a market derived money system it can be - it doesn't give the market what it needs and isn't regulated by the market anymore you can end up with too much of it or not enough of it at times because you're managing the money supply. So when you do that we end up with again inflation, booms and busts, and economic hardship.

So that was essentially our money talk. So now we moved into this second series, which is the Federal Reserve System where we're continuing to talk about money actually, because the Federal Reserve as our central bank is integral to our money. So we had Professor Selgin last time talk to us about how the marketplace for money, money in the banking system prior to the creation of the Federal Reserve was regulated in such a way that we were not given a stable money system and things went poorly and then what we so often do in a crisis instead of responding to the real problems, which were these bad regulations, we instead just added more regulations and created the central bank--Our Federal Reserve System. If you missed any of those lectures I encourage you to go to the Congressman's YouTube channel, they're all posted there. We had some great lectures but then this brings us to today's question which is "what does the fed do?" how does it actually operate how do we conduct monetary policy.

Which is why I'm delighted to say that we have with us today Mr. James Grant. James Grant is the founder and editor of *Grant's Interest Rate Observer*, one of the most highly respected newsletters and widely circulated newsletters in Wall Street, on Wall Street. He's a great scholar as well, he's written a number of books, his most recent one is *Mr. Speaker!* so he has some little bit of understanding about how Congress works itself and...in the House at least. The other interesting thing about Mr. Grant and this is just recently, he was invited by the New York Federal Reserve to come and talk to people at the New York Fed about some of the more critical or some of the elements that people are more critical of about the Federal Reserve. So I'm delighted that he's now here to talk to you all about what the Fed does and hopefully to give us all a much better understanding about how it's involved in our money and in our lives and in our economy so please join me in welcoming Jim Grant.

GRANT: Well thank you what a pleasure it is to be here. Yes I did go to the New York Fed. They invited me to come in and tell what was wrong. I said when Dr. Paul and I enter the government officially, he in the presidency and myself as his Fed chairman, that

would be I guess next year, there will be some changes. They were most gracious and accepting of this information. I want to... my plan today is to describe how the Fed operates in contrast to how it was meant to operate by its founders. And to propose a few modest points of improvement and the way it does operate. If you read the Federal Reserve Act you are struck, you must be struck, by how little the 21st century model resembles the projected central bank. Actually, it was not to be a central bank, the founders were quite certain about that. It was to be a decentralized system of reserve banking. The act projected an institution quote, and my challenge to you is to identify in these not very many words the pregnant phrase that gives you a sense it could have given more a sense of where this was going, okay, so here it is the act projected institution quote: "to provide for the establishment of the Federal Reserve banks, to furnish an elastic currency, to afford means of re-discounting commercial paper and to establish a more effective supervision of banking in the United States and for other purposes."

Yeah, right. For other purposes was the meat and we do indeed have these purposes. If you go on the Fed's website or read their publications they admit to four big purposes and the fifth and unacknowledged purpose I will identify presently. So here's what they do own up to doing every day. You wonder what they do for a living, here it is.

Number one, they conduct the nation's monetary policy. Well that's new because in 1913 there was none, no monetary policy.

Number two, to supervise and regulate banks and to quote: "protect the credit rights of consumers." Well, there were no such rights under Woodrow Wilson.

Number three, to maintain the stability of the financial system. Well, this at least would have rung a bell with the founders because in the thirty years before the law's enactment there was... there were more than a few banking panics.

Number four, to clear checks to administer Fedwire, which is an automated clearing system for currency and securities and to serve as a kind of sales window for the Treasury and operate a custody business on behalf of the Treasury for foreign central banks and other such institutions. Now, in 1913, clearing was done privately. The public debt was insignificant and the prompt settlement of international payments deficits was the sine qua non of the gold standard then in force. Ergo, no mountain of treasury securities rising up on the balance sheets of foreign central banks as we see today so that's what they acknowledge.

Number five...there are five, what I have identified in my thirty years or so of hurling brick bats their way. Number five, is to serve as a kind of a national economic oracle. Of all the changes this one from the vantage point of the first Wilson administration would seem least explicable. In a free market, after all, of what use is a government seer?

The deviations of present function from original intent are almost too numerous to count and some may hope they will stay uncounted if the point of adding them up is to charge the Fed with the heinous crime of evolution of adaption. Institutions either adapt or they fall by the wayside. It will be correctly observed the United States Navy, to pick a bureaucracy out of the hat, has adapted by deploying aircraft and guided missiles even though John Paul Jones knew nothing about them. Open market operations and econometric modeling would similarly have drawn a blank from the central banks legislative fathers including Senator Carter Glass of Virginia.

So, the argument goes that the Fed like the navy has only kept up with modern improvements. Or maybe not, for here we encounter the difference between physics and economics. Both use quantitative methods to build predictive models but physics deals with matter; economics confronts human beings. And because matter doesn't talk back or change its mind in the middle of a controlled experiment or buy a lot, high with the hope of selling even higher, economists can never match the predicted success of the scientists who wear lab coats. If you believe that human action is unpredictable you will be... not be overly impressed by econometric forecasts of next year's GDP, still less will you share the confidence of some Federal Reserve officials in the ability of interest rate manipulation to herd human beings in a desired direction.

Now the incumbent chairman of the Fed, Ben Bernanke, is one of the true believers. He is a believer in the physics-like capability of economics to predict the future and even - even to improve it before can arrive. Hear him give a lecture many ... not so many years ago at the London School of Economics, quote he said, "if all goes according to plan"... now that's getting off on the wrong foot, isn't it?"...If all goes according to plan, the changes in financial asset prices and returns induced by the actions of monetary policy makers lead to changes in economic behavior that the policy was trying to achieve." close quote. Now, ladies and gentleman, if all went according to plan the London School of Economics [inaudible] case studies in the triumphs of the Soviet economy although, for all I know, it is. So the question before the House is, what the heck does the Fed do all day

long. It has a lot of time on its hands, thousands of employees, 250 plus Ph.D.'s in Washington alone, can you imagine it? Do you know what they do? I'm going to read to you some of the titles... the research projects of the recent Federal Reserve economic research staff: "A Bayesian Analysis of Stochastic Volatility Models with Levy Jumps: Application to Risk Analysis," "Are Spectral Estimators Useful for Implementing Long-run Restrictions and SVAR's" and "An Empirical Investigation of Consumption Based Asset Pricing Models with Stochastic Habit Formation". Now, "habit formation" we can get our arms around! The rest of it I don't know.

I propose to you rather by way of preface for what's going to follow that, that we must distinguish between progress in money and finance on the one hand and progress in science on the other. In science, progress is cumulative; we stand on the shoulders of giants. In money and finance progress is cyclical; we keep stepping on the same rakes. It is the signal error, to me, of the Federal Reserve not to acknowledge this humble truth. Now I have, as the editor of Grant's Interest Rate Observer, I have had one success only in changing the behavior the Federal Reserve Board and even that I'm not sure of. Years ago the announcements, the press releases from the Federal Open Market Commission would invariably contain the somewhat presumptuous phrase the "foreseeable future". Oh, I wrote them about that, "Tell me Chairman Greenspan how much of the future to you is foreseeable, one fiscal quarter, five minutes, tell me, Is it going to rain next Wednesday? Please, we want to know." He never answered but, but the phrase vanished from the FOMC minutes and wasn't I pleased. I was.

I'm working on another project with the Fed I proposed this to them on Monday. Is that actually, I couched it in terms of my agenda as the imminent chairman of the Fed I said that during my incumbency the first step I would take is to institute an Office of Unintended Consequences. Do I have any volunteers? It would please me greatly and it would not harm your careers if you put your hands up right now. I saw a couple hands. So how does the Fed do what it does and what does it do? Well, I enumerated the kind of bland functions. And, I will go into a little bit more detail, then I'll circle back and describe how what they do today is at variance with what they were meant to do and propose perhaps new ways forward.

The most important--well the Fed has subsidiary functions as well as its major one as I mentioned it's the fiscal agent for the Treasury, it handles the distribution of Treasury securities. It does this through the agent of so-called primary government dealers.

These are twenty-one financial institutions, some of them very mighty indeed. Have you heard of Goldman Sachs recently? It's the one that used to have culture. By the way, what was that culture when they had it? I forgot now, but the Goldman Sachs is one, Namura securities is one of these primary dealers so is ...so is... Paribas Bank in France is one; they have many domestic some few foreign primary dealers. A primary dealer is the business of buying and selling treasuries and mortgages and dealing sometime... some of them foreign exchange. What you get to do if you're a primary dealer is to interact with the open market desk of the Federal Reserve Bank in New York, the flagship bank. And this is a pretty sweet thing to do because you get to hear from the traders in the open market desk what the Fed is thinking about. You are obligated as a primary dealer to respond to the Fed's request to bid on securities. The Fed says we want to sell a hundred billion dollars worth of two percent notes maturing in ten years you have to come forth with the bid for that lot of bonds. You have to stand ready to kind of commune with the Fed and tell them your views of the market. In short, you have to be a participant in this vast enterprise called the public debt. That is the job of the primary dealers.

So what does the Fed do else besides that, well, it regulates banks. Does it ever regulate banks? Have you heard of Dodd-Frank? The Fed is a most extraordinary institution in that, as a consequence of its signal failures of prediction and analysis going into our sorrows of 2007-08-09, and counting in consequence of that lapse, the Fed has emerged with much enlarged power. Wouldn't you once in your life like to own the stock that does better after the company does worse? That's the Fed. It has come away from this crisis with immense powers of regulatory oversight. It is the sidewalk superintendent of world finance. The Fed is also in the business of consumer protection. Now frankly, this is a little rich. There is something called the Protection of Savings Act of 1991...protection of savings. Do you know what rate of interest you earn on savings these days? I'm sorry, the Truth in Savings Act. Anybody, what rate of interest you earn? Okay, answer to this question, nothing, and that's before tax. After tax it's horrible. So the Fed is in charge of protecting the consumer while at the same time stripping the consumer of interest income that he or she was accustomed to getting for the first two hundred odd years of American history. And by the way I'm speaking a little bit in unacknowledged and unadmitted interest, my publication's called Grant's Interest Rate Observer and there are currently no interest rates to observe and nobody's getting any younger, I can hardly see

these things on the page they're tiny. So it's not good for business, well, it is good for business ... financial news is ever so interesting...not good for people, but it's great for the press.

The Fed, as Chairman Bernanke protested on 60 Minutes, does not actually print money. The literal printing of money falls to the Treasury's own Bureau of Engraving and Printing, which does by the way a pretty, pretty economical job at this. What would you reckon to be the cost of producing a unit of American currency? It doesn't matter if it's a hundred dollar bill or a humble one-dollar bill, what would you guess the cost is? Well, I'm glad you asked. It's six point four cents, which happens also to be about the cost of producing a nickel, but paper is cheap and the Bureau of Engraving and Printing is efficient so that happens a little bit off stage. But, the Fed nonetheless through its monetary operations produces the impulses through which these units of currency are brought into the world. And, it's the monetary policy function of the Fed that ought to occupy us because that is the function that truly moves the face of the earth from hither and yon.

How does the Fed influence the value of money, how does it affect interest rates, how does it affect asset values, how does it affect the economic lives we lead? It has a mighty lever in what is known in the trade as the federal funds rate, this is the basic wholesale money market interest rate and the Fed influences the level and the rate of change of this rate through either creating dollar balances or erasing them and it does this through what is called open market operations with this great roundtable of primary government dealers I mentioned before.

So, the fed through the buying and selling of securities can either create dollar balances as it has done hand over fist in the past several years, or it can make those that... those dollar balances vanish through operations of the opposite side kind. By buying securities and paying for them with money didn't exist before the Fed conjures money, materializes it out of thin air. It buys securities, it buys treasury bills, treasury notes and bonds, mortgages, with money that didn't exist until it, the Fed, hit the keystroke on the computer and that is how they make money. It is quite an astonishing piece of work. The Fed isn't alone, the European Central Bank in two actions – the first one being in December, the second was a few weeks ago – the European Central Bank conjured more than seven hundred billion Euros into existence. They materialized them. They didn't exist until European Central Bank tapped the computer key.

Don't you wonder what these things are worth? I do. The Fed has become the well that is by way of preface to the Fed's principal functions and I would like to proceed by explaining how it came to do this. I think with some historical background you will have a greater appreciation of how radical and indeed, from the point of view of the founders, unimagined the correct techniques of operation of the Fed. The Fed virtually has overridden the price mechanism for interest rates. It has interposed itself between the buyers of money and the sellers of money. It, the Fed, has as it were, nationalized the nation's money and bond market. Hardly anyone made a peep.

So the institution envisioned by the founders was intended to function passively. It was designed to forestall panics by centralizing the nation's gold reserve and serving as a lender of last resort. It would develop a market in bankers' acceptances, bills of exchange, other commercial paper, it would lend against acceptances and other acceptable collateral. Improving the future before it happened was not one of its legacy lines of work. The Fed would not in fact be a central bank, it would be a kind of a hybrid, it was partially public, partially private. The founders were conventional thinkers of course they would have to be – if visionaries were to write legislation that would never get enacted. These founders believed that the gold standard was a superior form of monetary organization and they believed that the quality of credit much more than the quantity was a controlling factor in central bank policy.

And, if the Fed lent only against the volume of commercial paper brought to it to be lent against, it would create neither too much credit nor too little - that was the idea. There was one behavior modifying intention embedded in these propositions. Credit channeled into commerce was credit denied the New York broker loan market. The founders of the Fed were adamantly against the institution of speculation on Wall Street. That was one of the great motivating forces, which of course throws into the highest, if not the most amusing irony. Our Federal Reserve's work nowadays of manipulating interest rates, of adjusting its regulatory actions so as to sustain in life some of the precarious institutions that almost fail, some of them really would have failed, the biggest ones would have failed had they been left to their own devices. The Fed, from having been the opponent and the institutional bulwark against speculation on Wall Street, has turned out to be under the current regime the salvation of Wall Street.

You know back in Woodrow Wilson's time, Wilson went on the stump in 1912 and he railed against the twelve bankers who control

American economic life, the twelve bankers. Can you remember the book it came out a couple years ago called "Ten Bankers." It was an indictment of the ten bankers who control America, so we've gotten two worse over the past 99 years, I don't call that much progress in decentralization. But, the Fed was meant to be the money-market for producers, for farmers, for merchants, for manufacturers. It has instead turned out to be the great fast friend of the failed speculations on Wall Street. Anyway, almost immediately after the founding after the bill was signed into law, if you please with gold pens, in 1913, events thwarted the founders' intentions. The international gold standard perished in World War I, which began just eight months after the Fed was signed into existence. With America's entry into the war in April 1917, the Federal Reserve began to facilitate deficit finance with credit creation, a preview of the modern age. A modernization marched double time during the war and afterward open market operations got their start in the early 1920's.

Open market operations, as I mentioned, I think a moment ago, open market operations are kind of a monetary technique implemented by the Fed. The Fed has an idea, has an idea about where interest rates should be. To enforce these ideas on the marketplace, it goes to its primary dealers and it buys or sells treasury bills, notes or bonds. What was intended was the Fed would sit there and wait for business. A bank would come knocking at the door and the Fed would say "yes, please come in," and the bank would say, "We have had rather a rushing demand for credit, we haven't got capacity, but we do have some collateral; which, if you were to lend us money against this collateral, we would be able to accommodate our borrowers." And the Fed would say "very well let's see the collateral" and if it was any good the Fed would lend, the Fed would respond to the demands of the marketplace. It would be a part of the marketplace. It would not seek to override it. That was the founding ideal. So, as I say, open market operations got their start in the early 1920's and the stabilization of finance began in the twenties.

Stabilization. Stabilization is a very tricky piece of business. How often do you hear the chairman of the Fed extolling the virtues of price stability. That is indeed one of the legislative [inaudible], the Fed is meant to stabilize prices and promote full employment. And if the price level rises significantly or falls a little bit, the Fed has taken upon itself to intervene to drag it back into dead center, a level of stability. This to me is one of the signal errors of the present day, but

I'll get to that in a moment. Let me go on and tell you how this thing evolved.

So, the Fed during the twenties invoked many of the same arguments brought forward today on behalf of inflation targeting, and the Fed resisted those pleas with many of the same objections produced today on behalf of central bank discretion. Benjamin Strong who was the head of the Federal Reserve Bank of New York, who was kind of the miracle working Alan Greenspan of his day, would field these requests or demands by the economists of this time that the price level must be stabilized, there must be no sag in prices. As there turned out to be moments in the twenties. Later more perceptive economists asked this, they said "tell us in a time of the most transforming and dramatic advances in technology, the time of great, great strides in productive method and declines in the cost of production, why shouldn't prices fall, why should there not be everyday lower and lower prices?"

We Americans spend most of our weekends looking for them and the Fed spends much of its work week, Monday through Friday, trying to resist them. What's wrong with more things for the same amount of money? I mean Wal-Mart has made not a bad business of this idea, what's wrong with it? Well the Fed resisted it. So this pre-war gold standard, the great international classic gold standard of the hundred years ending in 1914, never was put back together again and in the 1920's the New York Fed used monetary statistics more than monetary gold movements as a guide to policy. So much for one of the pillars of the original Federal Reserve ideal. And the depression knocked down the others.

In particular, [inaudible] in the Depression era was the end of something called double liability in bank shareholdings. Today the Fed is one of the most aggressive and hovering of the bank supervisors in America. We have several. We have the FDIC and the office of the comptroller of the currency. These regulators singularly failed to detect the weaknesses in the financial structure before 19... 2007 and they are extra dutiful today, perhaps imagining things aren't there rather than seeing things that are. Before 1935 if a bank failed, the shareholders of that bank got a capital call. The courts insisted that they, the stockholders, put up funds with which to pay off the creditors including the depositors. It was their bank, it wasn't the taxpayers' bank, it wasn't the government's bank, it was their bank. If the bank failed, the stockholders should put the money up. That was capitalism. Gradually and by degree since the early 1930's it seems to me we have evolved a system of socialized finance,

socialized in one direction chiefly, to the capitalists go the swings to the upside and to we the people come the costs of the downside increasingly in this country. Those who take risks don't bear risks and it will certainly be a part of the Ron Paul agenda next year that those who take risks will also bear them.

I have a good friend named Paul Isaac on Wall Street who speaks to the Fed's role in regulation and Paul has devised what I think is a very sensible way forward in regulation and I want to share it with you because I think that it has, I think it ought to have serious legislative study. It is an idea that the basic notion behind the idea, the proposal, is that yes, our bankers do love money. That is true. Perhaps they love it too much, but why not harness that very love in the public interest. Now in regulation we have drafted rules as thick as the old Encyclopedia Britannica when it was still printed. They have got us to that state of affairs in which some of the biggest banks in New York City would have been failures, certainly are wards of the state in the financial crisis characterized by decline in GDP of no more than say three percent. It's one of the truly shocking failures of professional finance in the entire history of this country.

How did we come to this pass? Our financiers can't be much dumber than their forbearers who didn't fail for example the 1920-21 depression. There was not a single major bank failure despite nominal GDP being down by more than twenty percent, peak to trough in eighteen months. Nominal GDP down more than twenty percentage points, not one single major bank failure. This time, nominal GDP down a couple or a few percentage points, Citicorp a ward of the state. How did it happen? Well perhaps it happened because of the socialization of risk, because of the detachment of taking risk from bearers so here is the legislative proposal to amend our approach to bank regulation put forth by my good and very, very smart friend Paul Isaac. Paul's idea is instead of hovering, instead of micro-management, instead of sidewalk superintending, what we do is we say this; we pass a law that says that the government will have the right to claw back that portion of the compensation paid out by a failed bank in excess of ten times the average wage in manufacturing for the seven full calendar years before that bank hit the wall. Any salary paid out to any officer of any failed institution over ten times the average manufacturing wage that would be around four thousand dollars, anything over four thousand dollars, that gets claw back for seven full years before the bank failed. Now that means that no one can take a lot of risks, get paid a bonus, and leave the firm and consider himself free and clear. This reinstitutes the notion of

capitalism and harnesses the financial motivation of our capitalists and would be capitalist and aspirational billionaires, it harnesses what makes them tick in the public interest. It is a more or less free market approach and a just approach it seems to me to the knotty problem, which we are not through voluminous regulation of how we restore something like market discipline to our wholly unmanageable, it seems, banks.

You realize that there's a bank in Tuscany, in Italy. Monte de...I can't think of its full name now, it was founded more than 500 years ago and it has recently had to do something it has not had to do in the first of five hundred years of its existence which is to - the family that, the foundation that controls its affairs has to sell some stock because it got into debt. So the failure of professional finance, the failure of institutional big finance is universal and it seems to me it falls to a capitalist country to introduce a capitalist solution so that's my perhaps...that's Paul Isaac's good idea.

So, I submit to you that in the first twenty years of the Fed's existence it changed its operating methods in ways that, if the founders could be brought back to life today, its founders could be invited to inspect the handiwork of 1913 they would die all over again of shock. But these changes were put in place in the first twenty years of the Fed's existence. So let us fast forward 75 or so years to the present-day and review the Fed's actions and the theory behind the actions and I welcome a question or two. The Fed's principal approach to its job seems to me to be one of overriding markets and suppressing prices.

The most visible and to me worrying expression of the Fed's approach to the world was the December announcement by Chairman Bernanke, indeed by the FOMC, by the Federal Open Market Committee, that the Fed would most likely hold its federal funds rate, this rate that controls or influences, would hold at zero through late 2014. Chairman Bernanke, is it going to rain on Tuesday? How can they know that, how can they possibly know what conditions might be in 2014? Yesterday in the credit markets there was a huge sell-off in treasuries. I know it's happening today. But there are little signs of revolt in the money markets and in the credit markets against these dicta, especially the quite extraordinary evident conviction of the Fed that it knows what is good for us for the next two years. Those who have been on Wall Street for a long time and who have made some money being on Wall Street for a long time have basically taken away one lesson, which can be reduced to one phrase, that phrase being: "don't be so sure." And yet the Fed in its innocence or its arrogance

has taken upon itself as they call it, to repress financial activity, to impose its will on the marketplace and to virtually, if not literally to, guarantee that things will remain as they are for two more years. It's quite unprecedented. So the sound doctrine of 21st century central banking, what passes for sound doctrine, includes such things as this so-called "financial repression," this fancy phrase for control and manipulation of interest rates, the levitation of stock prices through various techniques the Fed employs, and this frosted glass term "quantitative easing" - all these things fall under a single heading which is the single heading of overriding the price mechanism.

Finally, it will be said the Fed does say, its defenders and apologists say that those who would seek to reinstate the price mechanism for example, under the classical gold standard which, was activated in the marketplace and by market forces – these apologists contend that that is an anachronism. That we must look forward, that we can't look back. I propose to you that the Fed's methods and techniques of control are themselves anachronistic. That command and control of the interest-rate lever, that influences if not directly controls so much of our financial activity. That, that is anachronistic, that the gold standard and that the price mechanism is of a piece with these collaborative social networks some of them known as Facebook others known simply as markets. We are in a day and age of wiki-everything and yet the Fed persists in meeting six or eight times a year, I guess eight times a year, and issuing a press release which through the modification of a single phrase, the interjection of a single adjective can result in hundreds of billions of dollars worth of gains and losses for those who are so exposed or those who knew that nuance was coming. It strikes me that the system in place is a relic of the kind of Italy 1953, whereas the system that was lost in 1914, that oddly enough was one that anticipated wiki-finance as it's practiced in many other departments of our economic lives. So that's my two cents literally on the Fed. I wound up when I was speaking, I said as to little Grant's and big Fed, I'm going to leave it at this. I'm going to quote in closing and I'm going to quote the opening lines of the editorial in a provincial Irish newspaper in the fateful year 1914, and these lines were: "we give this solemn warning to Kaiser Wilhelm, the Skibbereen Eagle has its eye on you."

I let him know that *Grant's Interest Rate Observer* will be watching him. But, anyway we have a few minutes of questions, I think and I would be delighted to take a crack if you have anything to ask on how they do what they do or why the heck they do it that way, please do. Try me.

QUESTIONS & ANSWERS

QUESTION: You talked a lot about how the Fed injects money into the economy, [inaudible] interest on reserves to extract [inaudible] do you think that's enough of a policy tool to combat whatever inflationary pressures are coming down the road?

GRANT: I think the question concerns the Fed's ability to manipulate the interest rate it now pays on idle balances that are lying fallow at the various Federal Reserve banks, especially that of New York. It's like a trillion dollars plus now is sitting there earning one-quarter of one percent, which these days passes for a mighty fancy rate of interest. And could the Fed not raise that rate and thereby extinguish idle balances before they can do mischief in the economy?

Okay, I think the question is not so much whether the Fed has the tools, they use this word tools, I think they do have the wherewithal to erase, extinguish, what have you, these credit balances, they do. But do they have the flexibility or the judgment. Most successful investors and speculators on Wall Street are aghast at the Fed's pledge to keep rates at zero through 2014. I mean, the financial markets seemingly were created to make monkeys out of human beings who would try to anticipate them and second-guess them. I mean, it is so hard and so interesting. But what the successful investor does is always to say what if I'm wrong? That is... that's the first thing you learn. And the Fed has given self no way out, so I have no doubt the Fed could, if it so chose, take timely action to do what it ought to do. It will not be clear until much later what it ought to have done and the Fed, don't forget, I mean, the Fed saw nothing coming in 2006, I mean nothing. The Fed had no intimation that the biggest failure in the history of professional American finance was at its doorstep. They would simply not listen. Why would they listen now? Are they any better now, if they're the same people doing the same econometric forecasting?

I just don't think that human affairs are susceptible to the kind of techniques that the Fed employs in money and banking to make things work. I think that the very approach is simply... is failed.

QUESTION: It really is quite remarkable how many people sort of instinctively realize that if the government sets the price for, you know, milk or cheese, or whatever, there would be mass distortions and chaos in the markets, but with the interest rate, you know, they give them free rein to do that. So my question is in regards to the next step, once the Federal Reserve is out of the picture and you have

free banking, would it be... would you support 100% reserve free banking or fractional reserve free banking?

GRANT: I would support institutions that meet a need in the marketplace and that are accountable to their stockholders. It seems to me that the best approach to this, to the question of the structure of banking is variety and is the individual decisions of owners. There were examples, there's a wonderful book by Bray Hammond, Bray Hammond was the author and he wrote a book on the.. on money and politics from the American Revolution to the Civil War . It's a terrific history of banking in the day and age before, you know, federal regulation. And he describes some of the systems that evolved spontaneously, there's one in New Orleans the bankers evolved, it was a model of conservatism and imagination and not least solvency. There was one in Massachusetts earlier call the Suffolk System, which is kind of a spontaneously evolved central banking arrangement. I would be in favor of choice and variety. I don't think 100% reserves are necessary, I think that there no doubt is a market for that for people who were risk averse to the point of wanting that.

But, I think that a good banker can do with less than 100 percent and good bankers ought to be allowed to succeed and they ought to be allowed to fail if they prove not to be good bankers.

QUESTION: But now, with the issue of fiduciary media, with fractional reserve banking, isn't that exactly what causes the business cycle to begin with?

GRANT: I think the business cycle is a feature of the human animal as much as it is of the fiduciary media. People will buy at the top; they will sell at the bottom. We can't help ourselves. We get excited collectively. No doubt some of this has been germinated by monetary activity. I have no doubt also that in the late 1990s that the last several hundred or thousand points on the run-up in the great NASDAQ bull market was the consequence of cheerleading from the Federal Reserve. But then it was a ... there more to it than that... it was a great technological revolution and people were just carried away by it. So I think that I'm not some... I'm not such a believer in the mechanistic properties of central banking to actually finally and definitely be the cause of these cycles. I dare say that in a banking arrangement suitable for the Garden of Eden, we'd still have booms maybe busts too.

QUESTION: In third world countries... you mentioned that they sort of nationalized the bond markets, and when I think of that I think of third world countries where Chavez nationalizes something or GM gets bailed out by the government. The stockholders in those

two instances, except if the government ruled court and you get the money back but the stockholders lose their capital. Would this nationalization of the bond market when the federal government bailed out the banks in 2008 with TARP, did any of the bank stockholders lose their capital?

GRANT: Oh, yeah.

QUESTION: The same people still own the banks?

GRANT: Well, let me clarify this word nationalization. I use it a little figuratively in the sense that the government by dictating the level of rates and by managing the expectations on the future course of rates has taken a lot of the volatility and a lot of the market... the market's own initiative from the discovery of interest rates. So, and I call this a kind of a nationalization. The Fed has fixed interest rates it has manipulated the term structure of rates, what we call the yield curve, therefore figuratively speaking it has nationalized it.

Now, indeed bank stockholders were roughed up terrifically during the liquidations of 2008, early 2009. A lot of people lost everything, I mean these... Citicorp became virtually a penny stock. Down from like forty dollars a share, I forgot what the levels were, it's called Citibank, a 40 dollar stock was a 40 cent stock, it was that kind of washout. So yeah, plenty of people got hurt. But you get... there's... there still was a big disconnect between ownership and responsibility. In New York City there are two institutions that were founded in the second decade of the nineteenth century. One was Citicorp, which today is Citigroup; the other was Brown Brothers Harriman. Brown Brothers Harriman is a general partnership in which the general partners are liable for their share of the debts of the firm, up until their entire net worth. So if Brown Brothers fails, the creditors of that firm can go after you the general partner, not just your stock holdings in Brown Brothers or your options in Brown Brothers, they can go after your house, your car, your Matisse, your Labrador Retriever, everything. So guess which one didn't fail in 2008? Well, Brown Brothers didn't fail, it was very carefully stewarded by these general partners who have so much to lose and nothing much to gain by being reckless.

So they hold this Isaac idea, my friend Paul Isaac's idea, this claw back. It is meant to inculcate the ideals or the culture of a partner... of a general partnership into these limited liability corporations. And as I say, until 1935 there was this very salutary rule that if the company failed you the stockholder and not us the taxpayers got the capital call. So again I reiterate that what I, what my program is, what the program of little *Grant's Interest Rate Observer* is for

American finance is capitalism and it is the market mechanism. It is the price mechanism and capitalism. And therefore it is a forward-looking and twenty-first century program rather than a backward-looking and anachronistic one.

I didn't meant to give a campaign speech but I heard myself giving one.

QUESTION: It would seem that if the Fed wanted its policy to go as well as it plans it to, that they would be more transparent and close the gap between the public's expectations and what actually happens, but I think that the Fed is resisting being more transparent. [inaudible]

GRANT: Yeah, I think the Fed can't stop talking. I don't know how much more transparent it can be, it comes out and gives you a press release as soon as the meeting's over and it gives you the minutes some years later, as painful as they are for the incumbents to read, I mean, you read the minutes of 2006 as the housing bubble peaked, they were joking about how house prices would never go down. I think the Fed, the Fed up until 1994 I think would not put out a press release, you had to guess, there was a whole industry of guessing what the Fed was going to do based upon perturbations in the federal funds rate. Then they issued press releases and then they got more loquacious. Now they won't shut up. So I think, is that what you were driving at?

QUESTION: Well, they still don't release the numbers for the FOMC meetings, am I right?

GRANT: I'm sorry?

QUESTION: They don't actually list the numbers for what they do on the open market.

GRANT: Right, right, right, right.

QUESTION: Do you think that would help at all?

GRANT: No, it's, it's just more light on the same bad process in my opinion. You know, there was an interesting book written by a guy named Charles Goodhart, C.A.E. Goodhart who was a very senior guy at the Bank of England. Before that he was a scholar and he wrote this book during his professorial days. It was a history, this book was, of the New York Money Market from 1900-1913, those fourteen years inclusive before the Fed was founded. And Goodhart found two interesting conclusions, he found one, that never before or since has the banking system of the United States been sounder than it was in those thirteen years notwithstanding the panic of 1907. That was one conclusion.

The second conclusion was that because the fed funds rate of that day, they called it the call money rate, because it dove and it sunk and it flew and it was all over the place, a highly volatile rate, the very volatility of this rate made the financiers honest, they couldn't borrow too much because they couldn't predict the cost of their debt. And if the chairman were here, Chairman's Bernanke, he's a famous baseball fan, I'd say, "Chairman, if you were pitching, and if you told the batter that you were going to throw cheese, it's a baseball term for a high fastball, nothing but fastballs for the oh, two years, and by the way, right down the middle just dig in;" how would that be as opposed to moving around the plate? So what the Fed has done to the baseball game of finance it has told everybody, okay, everybody, dig in, zero percent for as far as the eye can see. Have a blast. And this naturally, paradoxically I guess, creates the very waves of speculative lending and borrowing that seem to have gotten us in the soup before, that's building again now.

QUESTION: [inaudible]

GRANT: No, I don't, no. I'd say that let the market set rates and let the Fed not say a damn thing.

QUESTION: I guess I have two questions that are very short. One is that you spoke very benevolently about the intentions of the founders of the Fed. If they could see what has become of it they would roll over in their graves. But there are a great many people that think that the founders were not so benevolent and that is witnessed by secret meetings at Jekyll Island and all of that. Would you concede that there could be a gap between the stated intentions of the people who conceived this system that we currently have and what their actual intentions were?

GRANT: Could be, I --yes, there could be. Compared to what we have now, a program set in place legislatively, let's get away from intentions because I don't know what they were. I do know that many people regard them as malign, but if you look at what they said in the debates, if you look at what the legislative... legislation, if you read Carter Glass' adventures in constructive finance, what you see is the most to me is a kind of a benign, they wanted a gold standard, they wanted a passive discount window approach to the money markets, they wanted the fed to stay out of Wall Street, I mean that seems kind of okay.

Let me read you, this'll take a second, let me read you a line from a guy named Parker Willis, who was the first Secretary of the Federal Reserve Board. He was writing, was Willis in 1946 or so; his heart was broken by what had happened twenty years since the founding of

the Fed. And here's what he said: "Central banks would do wisely to lay aside their inexpert ventures in half baked monetary theory, meretricious statistical measurements of trade and hasty grinding of axes of speculative interests with their suggestion that by doing so they are achieving some sort of vague stabilization that will in the long run be for the greater good." That was Parker Willis. And he was in on it. I mean, that to me is, that's pretty sound stuff so, anyway, your second question.

QUESTION: If you operate under the assumption that what is going to happen in terms of central banking and government policy from around here for the foreseeable future is just keep doing another version of what they're doing, what would you foresee would be the inevitable consequences?

GRANT: Good copy. Good copy for me. I think you can see the liniments or the outlines of the next financial crisis forming right now as a consequence of the intervention to forestall the effects of the previous financial crisis. For example, there's a great pouring of funds into the junk bond market into the speculative grade corporate bond market so companies that would otherwise not be able to finance are able to finance rather easily now. There's a marginal drug store company called Rite-aid you've seen certainly and it competes against much better financed competitors such as Walgreens. Now, Rite-Aid has not made profit in five years, it is spending more on interest expense than it is on refurbishing its somewhat tatty stores, and it's able to borrow at nine percent for ten or twelve, I forget what the exact terms were, but it had to pay fifteen percent last fall then Fed comes in and says we're going to put the funds rate at zero for two years. Now it does it at nine percent--new lease on life. Well that's good for the employees of Rite-aid, it's not good for the entrepreneur who had his or her sights set on doing something better than Rite-aid if only that ridiculous dying enterprise would get out of the way.

So by preserving the structure of things as they are, with every good intention, our masters at the Fed are penalizing the unseen, the unimagined that could have happened with the failure of institutions that ought not to be around. So these life support operations bring us closer to Japan. Ben Bernanke keeps on saying about the risks that we become like Japan, that's not deflation. That's how you get to be like Japan, is by prolonging the established order of things through financial manipulation. What is wanted is American dynamism we've had that.

You know I mentioned this depression of 1920-21 a while ago. This is a case study. Chairman Bernanke can't stop talking about the Great Depression. Every other phrase is... has to do with what we must not do again like they did in the thirties. The previous depression began in January 1920, ended in August of 1921, it was ugly, violent, down twenty nine or so percent nominal GDP, wholesale prices down forty percent, four-oh percent, if you please. The Fed raised rates in response - eight percent from six percent. The Treasury balanced the budget, the depression ended.

Now that's not to say that's the way to cure a depression but it is to say that you don't have to anesthetize the patient with continued doses of so-called stimulus. You don't have to run interest rates to zero to get us out... why did the depression of 1920-21 ever end if you have to have zero percent rates to end a depression?

So I... the Fed to me, I mean all these research titles I read to you, but how about something in the Fed, how about an office or a... one effort in applied financial history, how about an enterprise within the Fed to say, "what did work in the past, what are we doing that never has worked. Let's use experience rather than these bowers, these perfumed bowers of quadratic equations and linear algebra." You know it's the stuff is, fine for the guy who didn't get into NASA after all, who didn't get a job with NASA, but the Fed to me is not working. It is one big institutional mission creep is the Fed. Anyway, that's enough. One more?

QUESTION: Just one quick question. Have you observed a trend, have you observed any growing skepticism from professionals in finance?

GRANT: Oh yeah, they hate it. I had, yes, I think they don't respect it because of this... Friedrich Hayek had kind of a fancy phrase, did this great economist, called the pretense of knowledge. In Brooklyn we'd say, are you kidding, how do you know that? But the Fed exhibits this insolence, this pretense of knowledge by such things as saying "we're going to... our econometric models indicate that for the next two years the wholesale clearing rate should be zero percent." So they said, so people are thunderstruck on Wall Street by this rookie error. Nobody who is solvent on Wall Street has a view like that, I can guarantee it, nobody who is solvent. Certainly nobody who's middle aged.

QUESTION: Just a quick question. Do you think this will just drag on and on, or will there be a triggering event where we have a... somewhat of a collapse, or can the Fed keep this up?

GRANT: I mean, as I have aged I have become rather less apocalyptic. I, if you asked me this twenty years ago, I would be certain that there would be collapse and there might be, but to me, yeah, I'd say it's America's a bit like major league baseball. Try as they might to destroy it, they just can't. So I have every, and besides that, next year, Ron Paul's going to be president. So, Lydia, thank you.

MODERATOR: Our next lecture will be on “what is the Fed's future?” So we will be exploring that last question in a little bit more detail. That won't be until May I believe, but we will keep you posted on details. If you would please join me in another round of applause for Jim Grant.



VI. WHAT IS THE FED'S FUTURE?

DR. ROGER W. GARRISON¹⁵
PROFESSOR OF ECONOMICS
AUBURN UNIVERSITY

MODERATOR: Ladies and gentlemen, good afternoon and welcome to the final in our three part series on the Federal Reserve System. I'm Lydia Mashburn, policy director for Chairman Paul's Subcommittee on Domestic Monetary Policy. On behalf of the Congressman's office, thank you for joining us today. In the first two parts of the series, we learned why the Fed was created and what the Fed does. In the late nineteenth and early twentieth century there were a series of banking panics, which led to cries for reform. Unfortunately, the real problem of government intervention in the banking system was not addressed and as government tends to do they've responded to a government created problem with more government and our central bank. So we then learned how our central bank conducts monetary policy how the fed attempts to navigate the booms and busts of the business cycle by providing money and credit to the economy when it's sluggish and contracting money and credit when it's overheated... or so the story goes.

The Fed, as our economic mandarin, however fails to see that it's responsible for those very booms and busts in the economy that we suffer from. We have seen especially in the last few years how the Federal Reserve has indeed not been as successful as we are led to believe in managing the economy and today we are going to learn just how bad of a record they have and where it is taking us and hopefully a few recommendations to brighten the outlook on our monetary future. Dr. Roger Garrison is going to be answering today's question: "What is the Fed's future?" He is Professor Emeritus at Auburn University. He is the author of "Time and Money: The Macroeconomics of Capital Structure." Over his long academic career, he has been studying Keynesian economic modeling, which actually informs nearly every aspect of our modern understanding of monetary policy and how we can supposedly control our economy and

¹⁵ [The video of the lecture may be found at:
<http://www.youtube.com/watch?v=IdX60JgPTmA.>]

manage our economy through monetary policy. Dr. Garrison, I think he's deftly illustrated in his own modeling the consequences of monetary policy on the market place and as I hope we will see today, we'll see what those consequences really mean, and what they mean for the Fed and what they should mean for us going forward into the future with our Federal Reserve System and our own monetary structure. So without further ado please join me in welcoming Dr. Roger Garrison.

GARRISON: Yeah, thank you Lydia. Well the future of the Fed and the necessity for reform. I could just as well have titled this talk "Why the Time is Right for Monetary Reform." With this unending sequence of booms and busts and particularly with the characteristics of this latest downturn, the housing crisis, the Fed has painted itself into a corner or maybe I should say printed itself into a corner. With interest rates at zero they've been at zero for over three years now and will be in zero for the foreseeable future. I think the Federal Reserve has announced through 2014 is for zero rates. This is not the sign of a healthy economy and so therefore time for reform now.

The reform I'm talking about is not going to be a new way to target interest rates or it's not going to be a new way to measure the money supply, but rather I'm looking at polar alternatives and we can present them here. One is government money and the central bank and that's what we have now and the second is private money and decentralized banking. So this is a radical nature of the reform that I'm proposing. As I develop my arguments, what I want you to pay attention to is the interest rate and the role of the interest rate in a market economy and the role of the interest rate at the Federal Reserve. They're at war with one another, as we'll see. So if I subscript this, I can't read it, I hope you can off the screen but this is interest rate the central bank in which interest rates serve as a policy tool for the central bank. Essentially, the central bank has commandeered the interest rate to serve as its own policy tool, which means it can no longer work as it should be working in the market economy. If you look at the private money and decentralized banking, that's a system in which the interest rates allocate resources, what does that say in conformity with people's preferences and decisions? In other words, it's a market-determined rate not a policy-determined rate.

The big difference between the two is that the market will give you sustainable growth while the central system will give you boom and bust and throughout this lecture I use the word "sustainable" a number of times, but in a macroeconomic context and this is certainly

an Austrian economic theory, sustainable just means no booms and busts okay? You don't have a boom that contains the seeds of its own undoing and goes bust that's what we mean by sustainable growth. Much of the discussion today, much of the analysis will take the form of a contrast between Keynesian economics in which it's recommended that the interest rate be a policy tool to guide the economy and to dampen booms and busts, it does quite the opposite of course, and Hayek who is the Austrian economist and argues against interest rate manipulation and argues instead that in a market economy the interest rate will seek its own level and that level will give us a sustainable growth rate in the economy.

So, this is a study in comparative frameworks and you'll see what a contrast there is between the Keynesians on the one hand and the Austrians on the other. I start out with the Keynesians and recognize that the central bank and government money is the handmaiden of Keynesian policy-making. Fiscal policy of course, it comes into play here too but more often than not the monetary policy is supporting fiscal policy by creating the money with - for the government to spend. The framework is called the circular flow framework and we'll discuss that shortly we'll see pictures of it shortly. But before we do that, I want to look at the policy tools that the Fed currently has. It's called the Federal Reserve's dual mandate as spelled out by legislation largely in the Humphrey-Hawkins 1978 dual mandate. I'm going to show you all three of them. Stable prices as one although stable doesn't necessarily mean constant in fact it doesn't for Ben Bernanke and others. Maximum employment those are the two that you hear a lot of talk about. Those are the two that get discussed at every policy meeting by the Fed, but there's a stealth mandate in the legislation too and it's sustainable economic growth and we'll see why it's stealth.

It's not so much of a mandate as a nagging concern okay? There's a nagging concern that maybe policy actions taken with respect to the first two items in the mandate aren't consistent with achieving that third mandate. So, it doesn't get discussed very much. Let's look at the targets here. Stable prices. Conventionally that's taken to mean a two percent rate of inflation. Now if my talk today was a more nusty-boltsy talk about the day-to-day operations of the Fed, I would take issue with the notion that we need a two percent inflation but we've got bigger fish to fry here today and so I'm gonna pass that by. How do you get your two-percent inflation? Well, you use the policy tool namely the federal funds rate of interest, the rate that the Fed has substantial control over. This is the rate that they have down to

zero or very near zero right now and of course when we talk about the interest rate as a tool, what we're really talking about is the money that needs to get pumped out into the economy to drive the interest rate down to zero. Which, as we'll see, is quite a little bit of money.

So our focus is narrowly on the interest rate, but more broadly on the monetary expansion that is needed to bring interest rates down to where the Fed wants it. That's the policy tool. Now let's look at the maximum unemployment or maximum employment. The target implicitly is five to six percent rate of unemployment. Typically this is discussed not so much in terms of the unemployment rate but in terms of what's called the GDP gap, you know how far is GDP now actually from where potentially it could be and if those two things differ though, it's because there's unemployment. And so we can list that target as the unemployment rate. Well now what tool do they use to hit that target? Well, that's the same one. It's the same policy tool, it's the fed funds rate. the problem is that sometimes the fed funds rate needs to go one way to hit the maximum employment target, it needs to go the other way to hit the inflation target so that's always a big problem and it's been handled in different ways as we'll see shortly.

Now I'll say a little bit about sustainable growth but I can't say too much because the Fed certainly doesn't say too much. And the implicit target on growth is what? Not too high and not too low. Well, we're not sure what that is and as we'll see later on in this lecture we might as well start now. But the Fed claims, as Greenspan often claimed, that you don't know if you're in a bubble until it bursts. That was his claim made during the housing bubble; that was the claim made during the dot-com bubble. You just don't know; you can't tell until it bursts and when it bursts then, "oh, you're in a bubble." So, what I'll suggest here is that another way of saying that is— that you don't know whether you're fostering sustainable growth or not because those are two ways of saying the same thing. If you've got sustainable growth, then you're not in the bubble. If you don't know whether you're in a bubble, then you don't know whether you have sustainable growth and so it's a nagging concern.

They don't have a policy "tool" - I put tool in quotes here just to say the only tool that will work is the market rate of interest. You have to let interest be set in the market and that will give you sustainable growth. But, that's not something that the Fed can do because it's controlling interest rates and instead you heard just a lot of whistling in the dark about whether the growth is sustainable or not, okay.

Now, at the risk of traumatizing some of you people who have had a course in macroeconomics—how many have had a college-level course in macroeconomics...so you know what this is all about, the circular flow framework? And I want to present it in such a way to give it the best contrast between the Keynesians and the Austrians. And it goes like this. You have business firms that's just a facilitator, it facilitates the interaction between the different sectors of the economy between consumers and investors and workers. And then down below here you have those groups; workers, investors, consumers and so on and you know how the circle works. It turns out the workers supply labor and other resources, this is a common expression of Keynes: “labor and other resources.” But he pretty much forgets those other resources and argues strictly in terms of labor. So, labor is supplied to the firm. Well fine, they get paid for it—it's called income and that's half of the circular flow.

If you look at the other side there, it is at the firm that labor is used to produce goods and services which is offered for sale to investors or to consumers and they pay for that and it's called expenditures, okay. There's expenditures, okay. Now what I want to use the circular flow for—look at the labor side, if there's a change in labor, at least if it's in the downward direction, a change in labor income, that's because there's unemployment. Wage rates tend not to fall and you get unemployment. So over there, we want to look for unemployment. On the other side we have expenditures if you have changes over there at least if it's on the upside then you get inflation so that's a part of the thing to look for inflation.

One thing we see already is that the interest rate hasn't made its entrance. There's no interest-rate. But we can get the interest rate in but it's a policy tool and there it is. There's the Federal Reserve and its policy tool and if it has interest rates high looks like about six percent it's going to be a pretty sluggish economy you're probably going to have unemployment. If it gets the interest rates low there'd be a more vigorous economy but then you get inflation. So let's get this thing started see, there see, my circular flow actually circulates but it's circulating pretty slow and so sure enough unemployment's on the rise. What do the policy makers do with it? What do they do for that? Well lower the rate, boy you learn well, when you lower the rate you switch it over there you get a very vibrant economy and unemployment goes down. Unfortunately, inflation goes up alright. Now you noticed I label those two percent and six percent as “brake” and “gas” that's in honor of Milton Friedman who complained all during the 1960's and 1970's that the Federal Reserve hit the brake,

hit the gas, hit the brake, hit the gas and gave us ups and downs in the economy. And in fact, now we've got inflation high that would be the late 1970's when G. William Miller was chairman of the Fed. And he got inflation up to the double digits and they finally got rid of him, Jimmy Carter did, called in Paul Volcker and Volcker had the solution on how to deal with the inflation. What was it? Okay, it was go back to high interest rates. And of course that gave you the other result again. So that's the 1960's and 1970's where we had a lot of hit the gas, hit the brake was followed by another period.

This is called the Taylor Rule, how many of you have heard of the Taylor rule? You know something about the Taylor Rule? Okay. And it goes like this: don't just hit one then the other back-and-forth that's a losing proposition. What you need to do is figure out this—how to split the difference and how to set an interest rate that does something for both of those problems. And so the idea is split the difference between fighting unemployment and fighting inflation. It's what I've come to call and I'll show you this later but I use the term here “learning by doing” process but it gave rise to what came to be called the “great moderation.” This was a term coined in 1999 by Charles Nelson, but was popularized in 2004 by Ben Bernanke when he was one of the governors, not the chairman, of the Fed. So, the great moderation and that was a period where they weren't quite so bad at hitting the brake and hitting the gas.

So, let me show you a chart to see how that plays out. What we're looking at is the growth rate of GDP. And squint your eyes and look at the chart to see if you can see that great moderation. Yeah, if you look at that boxed in area a little bit, yellow area whatever it is, it looks like the variation isn't quite as bad as it was before. Although there's some pretty bad things you see first—you see the savings and loan crisis, although that was predominately a problem with the FDIC rather than the Federal Reserve. You see the dot-com bust. And then finally you get outside the box and you see the housing crisis. So that has to be the end of the great moderation; there's nothing moderate about the housing crisis.

Now, it's interesting to learn how Taylor came up with his rule, he didn't write the article until 1993 and that's well into the period that's called the great moderation. And what he did is look at data, look at what the Federal Reserve was actually doing starting with about 1985 and he wrote an equation that described what the Fed was doing. Did they raise rates or lower rates depending on what unemployment was and what inflation was and how did they trade off one against the other and choose the rate and he wrote an equation

that fitted those decisions. And, he said this is the equation that shows what the Fed has been doing. It was just descriptive. Okay, fine. And so he managed to turn his into an art and the way he did it is to tell the Fed, “look if you're happy with what you're doing, then here's how to keep doing it, just apply the Taylor Rule and then you'll be doing the same thing you've been doing for the last several years.” Now the Fed didn't ever explicitly adopt the Taylor Rule but implicitly it did, okay.

Now the problem is – and this is where the “learning by doing” comes in – that the doing part is once every six weeks when the Federal Open Market Committee meets. And then that yellow block there is about a hundred and eighty four doings but the learning comes much less frequently, just every time there's a crash, okay. So you have a lot of doing, before you get learning and so I think we can put that across the screen here. There's a little bit of learning there, little more learning there and then a big lesson there okay, which says for the whole period there, they really weren't doing so hot but they didn't figure that out until the end. And again, there's another episode of you don't know that you're doing the wrong thing until it goes bust. You don't know you're in a boom until the bust. But, you do know that those interest rates you're setting are not market rates, they're not market rates. And we also know there's a political bias to have them lower rather than higher, so it's not at all surprising that you get still more boom-bust episodes and this one was a particularly bad one – the housing crisis. We'll have more to say about that later. Okay so it's time to stop that stuff, okay. And, we need something else so let's look at private money and decentralized banking.

Here I call it the “save zone for the Hayekian system” as described by what I've come to call “capital-based macroeconomics.” I use that term in “Time and Money” and it tends to have caught on some in the literature which I am pleased about. And, it's not that I don't like to use the word Austrian. I do use it sometimes, the Austrian theory, it's Mises and Hayek. In fact, I probably have a picture of them here somewhere, is it right... there they are... okay, Mises and Hayek. Mises wrenched this theory into existence a hundred years ago, it's an old theory and Hayek developed it in the late twenties and through the thirties and so deserves to be called an Austrian theory. But, I learned, at least at Auburn University, it confused the students. They either thought it was the economics of Austria or some of them thought it was Australia, so I thought “well, okay capital-based macroeconomics, we'll go with that.”

Now I've got sequence one. I'm going to have sequence one and sequence two in honor of Hayek and his methodological maxim. He said this to Keynes, "Before you can figure out what might go wrong in the economy you first have to understand how it could ever go right." Just saying that sounds right doesn't it? But Keynes rejected that maxim, as have a lot of other economists. So sequence one is showing how the economy can work right with the market rate of interest, alright. And then sequence two is just a corollary, really. It's a corollary. It's what happens when the rate of interest is not controlled by the market. Well things go wrong so let's look at this first sequence and we'll see how it works. The interest rate's determined by the market, there's a supply of savings it turns out. It's upward sloping like all, most other supplies and the demand for loanable funds is the business community borrowing in order to invest. And, if interest rates are allowed to seek their own level, then of course you have a market clearing interest rate. But, let's think for just a minute about what this means when you save.

You know you memorize it in college that savings equals investment in equilibrium, savings equals investment. But what does that mean? You know what savings means— people go to work and they produce things, they produce output they get paid for, it's called income, they spend part of that income on the output they created collectively and they save the rest. Well saving the rest represents the unconsumed output. It's what you produced during the period but didn't consume. And it's that unconsumed output that can be used by the business community to enhance the productivity of the economy and they borrow your savings in order to take command of that unconsumed output. So, that's the equivalence that you need, you need that unconsumed output, real output in order to build the productive capacity of the economy. So that's why economic growth, sustainable growth requires that – that rate of interest is telling the truth about how many resources there are out there for businesses to take command of, okay. Otherwise, they may undertake too many business projects and discover they can't complete them all, okay. In fact, that's the essence of the Austrian theory.

Now, suppose people become more future-oriented and – sometimes I think I have to say that apologetically, because Keynes argued that no, no, no, no, people are creatures of habit, they don't just decide to save more. Well, maybe they do to pay for their children's education or to pay for travel after retirement, pay for the retirement center, whatever it is, you know. So, if they do then look what happened you have a shift of that supply curve to the right. It

drives down the interest rate and increases the level of saving and investment. Okay so what we have here is more saving is available because people have decided to save more. The interest rate is lower which entices the business community to borrow the saving and it also, this is important, it particularly stimulates long-term projects and for two reasons: One is that long-term projects have a disproportionate cost of interest payments. If you've got to borrow money to fund that project, it is going to take a long time to finish it. Then you got to be paying interest while you're working on the project. So, for that reason long-term projects are favored. And also partly because people are saving now, but they're saving up for something. You're going to have more spending power in the future and so you want your future output to be able to go further in the future, which you get by having long-run projects. So that's the way that interest-rate guides the allocation of resources okay.

Now and you can see the resources are freed up to undertake these long-term projects because people are saving they're not consuming as much as what they have produced.

Now let's look at the structure of production. This is the capital part of capital-based macroeconomics. It has a distinct time element in it. In other words, we don't have a circular flow, we've got a means-ends framework with the production process going through a number of stages until it emerges as consumable output. Hayek introduced that as a triangle like that showing five stages of production just for pedagogical reasons. That first stage to the left doesn't amount to much because you're just getting started, there's just some early stage in the production process, that's why it has a small height, but the output of that stage feeds in as input to the next stage and the output of the next stage feeds in as input all the way up until the end in which case the output is consumable output, alright. That's Hayek's structure of production. So you can think of early stage as a product development. Looks like this guy knows what he's doing but it's going to be a long time before that shows up as consumable output. It's a long term.

Now there, that's short term, that's inventory management. And that guy looks like he knows what he's doing too, he needs a few customers I think, but he's got the store stocked. Now, so those two things of course both can be going on at the same time it's just that the early stage is aimed at a more distant point in the future. But, you can think of goods and services working their way through the stages of production. Let's see if we can do something like that. Watch the resources, goods, and process move through the stages of

production. There see, goes something like that. Now, this is a theory, I think I mentioned, this that was developed in 1931 by Hayek and that was the last year that Henry Ford made the Model A, kind of sad. But, I use the Model A as an example here because if you know anything about Henry Ford he owned all the stages. You know, he had iron ore fields and everything else between there and finished output. So if Hayek had wanted to, he could show production of Model As with this same-- goes like this-- there they are. But you get the idea how it works.

Now we put these two things together and we show what happens in the market economy when people decide to save more. I'll step up the pace a little bit, might be running short of time. When people save more they send two messages to the market: one is interest rates lower which means favors long-term projects, two is current consumption is down which means that last stage those last few stages are disfavored, okay. So, let's watch that again. You've seen it once already you know what it looks like and then see how that affects separately the individual stages and that structure of production. It goes like this, okay and you can see why because, if people are saving more now, then it means they're not consuming as much. If they're not consuming as much you don't have to stock as much at retail so your investment in inventory, in retail is going to go down. Alright, but at the same time that low interest rate makes it more profitable to undertake long-term projects which can then be sold to these people who are saving up that money.

So that's the market at work for you and for me. That's how markets work, that's what Hayek meant when he said first we have to see how things go right, if they do go right, and then we can talk about how things might go wrong.

So, that takes me to sequence two --looks the same doesn't it? Okay. But here we're getting something very different, but it's significant that it almost looks the same. That instead of people saving more we have a central bank pumping money through credit markets shifting that supply of credit to the right but without really affecting anybody's saving. The sequence I'm using here, the example I'm using is what we call a political business cycle theory. In other words, the interest rate is what it is, it's not changing but the central bank decides to lower it maybe for political effect. An example would be Arthur Burns in 1972 helped Nixon get re-elected by lowering interest rates and that same Arthur Burns though four years later didn't help Gerald Ford, who of course lost. In an interview, it was pointed out that this is what Burns had done and Burns was asked to

explain why didn't he help Ford like he helped Nixon. And Burns says, "He didn't ask me." Ford didn't ask. We see another instance of this when Greenspan helped Clinton get re-elected in 1996, but four years earlier he didn't help Bush forty-one at all and there's still bad blood between those two because ...

So, anyhow we've got a different kind of a process here. Let's see if we can detect the difference. We're going to create money and pump it out through credit markets. So when that happens it looks like there's more saving but there isn't. There's just more credit and in fact saving goes the other way, the saving curve is just where it was before and with the interest rate lower people save less. So you drive a wedge between saving and investment that's probably what that says and so you've got a disequilibrium. And, in fact, if you look at that horizontal line that goes through those two disequilibria points it looks kind of like a price ceiling doesn't it? Remember price ceilings in class in which case you say, "oh, there's a big shortage of credit." And the only reason the shortage doesn't show up is because it's literally papered over by the central bank who creates some money to lend that larger amount to investors, but that also means then that that's an unsustainable boom. It festers, it's not a shortage that has an immediate impact. It's an artificial boom that festers until eventually it turns into busts because there aren't enough resources to support that much investment.

Okay, let's look at—here I'm just showing you investors go down on their demand curve, savers down along their supply curve and the difference is the money created.

They could make good on the difference. Look at the structure of production, it's torn at both ends too. It turns out that the lower interest rate will stimulate long-term projects but they can't all be finished because there aren't enough resources to finish them. The reduction in saving and therefore increase in consumption will send some resources to the late stages so you get a distorted triangle which essentially contains the seeds of its own undoing. This will eventually collapse. Mises even had the terminology for this, he called "beefing up of early stages," malinvestment in other words. It doesn't reflect real saving, it reflects Federal Reserve policy and the upper reaches he called overconsumption. People are buying more even though there are less resources available than before. Now when the Fed looks at this they don't look at the capital part because they don't know anything about the Austrian theory, they're just looking at the saving and investment and interest rate and so they see the economy going in the dumper because the economy crashed and their reaction is

guess what: to lower interest rates. So, they lower interest rates further and end up locking in the malinvestment big-time, the housing market this time. Rather than letting the housing market liquidate itself it kept more resources in housing than had any justification at all.

Now I have a few other, how much time do I have, a little bit or not? Five minutes? Okay. So I'm just going to clip through this because I'm not going to ask you to read this, I'm not going to give you time to read it, but this is different economists Axel Leijonhufvud claiming that our recent cycles are Austrian and not Keynesian. The same for Steve Hanke. I like that one because he looks so stern I can't look that stern. Hanke can, and he has a little synopsis of the of the housing bust and says that it was an Austrian affair. I like this guy's title "ignoring the Austrians got us into the mess" now I do want to show this one and then I'll quit.

I want to show you why the recent boom-bust was so much worse than the dot com boom-bust that typically it's not just a political business cycle it starts out as an increase in demand for loanable funds because of innovations like the digital revolution. If you have a digital revolution like we had in the 1990's you'll get an increase in the demand for loanable funds to take advantage of the innovations. And you can see what that does, that calls forth saving. People slide up that saving curve and that finances the innovations, but the Fed won't leave that alone. The Fed sees the interest rate rising and will drive it back down so it increases the supply of loanable funds. What does that do, that knocks that saving in the head and it leverages investment so you're back to an unsustainable boom that was the dot-com boom and bust. It wasn't quite so bad because it really was the welfare enhancing development underlying the boom, namely the digital revolution. It was great.

Now things are different with the housing boom and bust because what underlay that wasn't innovation it was a distortion of housing markets. It was subsidizing risk taking – Fannie Mae and Freddie Mac. And so the initial distortion, not welfare enhancing, was distorting housing markets. Now, if that's all that happened that would've shifted resources out of other sectors into housing. But those other sectors would've been hurting and so the Fed made good on that by, guess what, increasing the money supply. So you have a double whammy. You have the Fed now increasing the money supply when, in fact, it was the supply of loanable funds which was brought about by guaranteeing mortgages in the first place. So you have a double decrease in interest rates. That's why interest rates were so low. In

fact there, I'm showing even if that low interest rate of saving is driven clear to zero which it was during the boom. I'll do a little bit of stock taking and then with that interest rate of zero we're on life support and we could see that interest rate too low for too long that was during the housing boom. And then the interest rate shot up because the Fed realized it had messed up and then when the crash came, of course it lowered it to zero which means that essentially the economy's on life support. I think maybe I'll stop here and take questions although I've got more charts I could throw at you.

Yes.

QUESTIONS & ANSWERS

QUESTION: Thank you very much for your critique of the present system. I'm just wondering have you seen a study by Carpenter and Demiral which shows empirically that the Fed doesn't really have any control over the system at the moment, that the banks lead and the Fed follows?

GARRISON: I haven't seen that report, but I think that's true. But the reason it's true is because the central bank has already pumped the banks full of reserves, the reserves are just astronomically high. And if you remember your monetarism from your macro course, the way that the Fed controlled the money supply or controlled the economy was on the assumption that banks would be fully loaned-up that they wouldn't hold excess reserves, okay. And now they're holding tremendous amounts of excess reserves. You played right into my hands, I think I've got a.. there, there are those excess reserves one and a half trillion. In fact, it looks better on the axis you see that this excess reserves down to zero and then boom, you know that's the excess reserves. And with those reserves, then he lost control of things but that's another reason it's time for reform.

QUESTION: Yeah, this basically shows that the money multiplier, which a lot of economists have been assuming from their textbooks, has been inapplicable since at least the late 1950s.

GARRIONS: That's right.

QUESTION: Follow up question related to that. In your model you have savings equal investments, but in the present banking system, every new bank loan or bank purchase creates a new deposit, it doesn't transfer a previous deposit. So how does that affect your model when you apply it to the current situation?

GARRISON: I'd have to think about that, I think that if you're talking about a situation where there is a change in the reserve ratio then you get that, you get that kind of a result--

QUESTION: Going back to this, this shows that the change in reserve ratio has no effect when there's only \$20 billion in reserves and now there's \$1.6 trillion in reserves [inaudible]

GARRISON: That's right, that's right, you're certainly correct about that. I will say about when you look at this chart on the board, Bernanke has said a number of times that he is confident about his exit strategy, have you heard that comment made? And what that means, most of you probably know this but what that means, he's confident that he can suck those reserves out of the banking system if they actually start lending them out. He's confident about his exit strategy. At a conference not long ago where several of the Federal Reserve presidents participated, I asked one of them how can he be confident about his exit strategy? This is uncharted territory and the answer was that "Oh, being confident is part of his job description." And so I've decided that his strategy is to pretend to be competent but he doesn't know what he's going to do if banks start lending that money out. Yeah.

QUESTION: They do have a new policy tool to pay interest on excess reserves. Do you think that's effective enough to...[inaudible]

GARRISON: No, as... In fact this came in with the TARP legislation. That not only on those reserves sitting in the banks, but the central bank is paying them to hold those reserves point two five percent and the idea is that, if they start to lend them out, then Bernanke can reel them back in by offering to pay them more for holding the reserves. But that's got positive feedback in it, hasn't it? Because if he pays them more, then what he pays them become more reserves. So where does that story end? I don't know. It looks like that could just be explosive so I don't get it—don't get how anyone could be confident about that. Anybody else?

QUESTION: So, the current Fed isn't doing what it's supposed to do, but what would be your recommendations for a different monetary arrangement? Do you favor some sort of tightly constrained by fiscal rule central bank or do you favor a gold standard or free banking?

GARRISON: I favor free banking. In fact I've got a chart that probably, it's at the end so I won't pull it up, but it essentially is decentralize the business of banking and allow for competitive banks. I would predict if you have private banks issuing their own notes that the only way they're going to get them accepted is by tying those banknotes to hard money, most likely gold, okay. Could be silver, but that... so the gold or silver would serve as a redemption medium. And if somebody, some bank can issue notes and have them circulate and not have that, I don't know how they would do it, but it is more of a

prediction than part of the creation of the reform. The reform would just be competitive banking; the prediction is that successful banks are going to have to redeem their notes in gold. But let me go over here . Yes.

QUESTION: Can you briefly sketch how you would get from theory to practice and how it would actually work out in the economy?

GARRISON: Yes that's the big problem and the only thing that makes it even half way realizable, at least more realizable now than it was in the past, is just because the alternative, namely pressing on with the Federal Reserve is increasingly a bad choice okay. That's really the big thing. It may be the only thing we have going in our favor. One of the obstacles is that gold has a very stable value if it's used as a medium of exchange okay. If you're on a gold standard, then that is a very stable standard. But if you're on a paper standard like we are now, then gold is not at all stable. It becomes object of speculation, but the speculation isn't about the value of gold it's about the trouble that the paper standard's in. So how to overcome that I don't know how do you switch from, from gold being a hedge against a bad paper standard to gold being the standard, that's very difficult. It's also difficult even for one country to switch to a gold standard while other countries are not on it. When we had a gold standard it was the whole western world so I can't be optimistic there, I can just tell you those are the problems

QUESTION: You talked about your preference for free banking and banks issuing their own notes. Presently about 97% of the money supply, considering the Fed has 2/3 of its notes overseas, is electronic and about 99% of transactions by value are electronic, so would you [inaudible] are you talking sort of figuratively when you say notes, do you mean notes or their electronic equivalent?

GARRISON: Well yeah electronic equivalent but I don't think there's going to be an end to hand-to-hand and currency I think that's here to stay. But yeah you're certainly right that the electronic component could be handled privately as well. It doesn't require a centralized governance.

QUESTION: So to stop the multiplication of the electronic equivalent of each bank-funded purchase would you consider that those deposits be treated as private property and the bank acts as a fiduciary for customers instead of a creditor-debtor relationship?

GARRISON: See, I think the way that you're conceiving of that problem is that somehow when private banking would be analogous to the... the private bank would have problems analogous to what the central bank has now and I don't think that's so. I think the problems

you're seeing with the central bank are of its own creation and are unique to a central bank. And I think, if you have a system of private banking, then each bank is a check on the other to keep any one of them from getting out of hand. And that if, if a bank does over expand in a private environment, a private bank environment, then I think it would do it itself in and not do the economy in. It's only when you have a monopoly bank that it does the economy in with booms and busts.

QUESTION: So you're basically saying there'd be no fractional reserve banking, it'd basically be 100% reserves?

GARRISON: No, no I don't think that's right. I don't think it would and I know there's some people in the Austrian school that do think that fractional, that 100% reserves should be mandated. But, I don't think that's the case. I think that the banks will be a check on each other to keep... to not over issue. Larry White has written a lot on this, with George Selgin, on free banking and shows the competitive dynamics that prevent private banks from over issuing in any sort of way that a central bank can over issue. Yeah.

QUESTION: Doing that on a national scale and doing that on an international scale seem to be two very different things. If we were to tomorrow begin to undertake that sort of transition, it's always seemed to me that one of the problems with that, is that if there are a bunch of other central banks in nations that we are trading so much with, that they could still cause many of the same problems because of the way that currency exchange rates flowed and because of how much trade goes on between nations, especially now more than ever. How exactly would you recommend to somehow protect against that, can you protect against that?

GARRISON: No, yeah, I'm not even sure what protecting against it would mean. But, like I mentioned earlier, one of the problems is having a country go on a gold standard when it's the only country on the gold standard, that tends not to work. When we had a full-bodied gold standard before World War I, it was the whole western world on the gold standard. And that worked out quite nicely thank you. But for one country to go it alone is very difficult, but of course other central banks are in trouble too. So, it's more likely. I hate to be dark about this, but it's more likely that competitive banking will rise up out of the ashes of central banks rather than having some legislated smooth transition from central banking to private banking.

MODERATOR: I think there were two more questions. And then we'll...

GARRISON: And then we'll eat.

QUESTION: Do you think or when do you think the US dollar will lose its status as the world's reserve currency?

GARRISON: Well, that's a hard one and I used to think anytime now, but of course the euro is in bad trouble too. The euro is sort of a second choice, but it's in bad shape too and I've heard the US dollar described as the healthiest horse in the glue factory. So, the dollar seems to be holding on but mainly because the euro is in bad shape too.

QUESTION: Well, we're seeing reports from the IMF switching to a basket of currencies as a world reserve currency, China, [inaudible], two other ones, it was not the euro. Have you seen...

GARRISON: Yeah, I can believe it wasn't the euro, now I have heard about that I haven't studied it, but a basket of currencies as a world reserve-- it might be a better alternative than either dollars or euros.

QUESTION: It seems like in the modern systems, so much of our savings is now not determined by rational, forward-thinking decisions, it's more what my insurance company tells me my rate is, and whatever my employer match is, our retirement savings. So a huge chunk of savings is not shifting based on perceptions about the future so much anymore. Does that dampen some of the market adjustments with respect to, as seen in your capital...

GARRISON: Not... I agree with what you pointed out about how saving has gotten institutionalized to that point, but like any market adjustments happen at the margin. So it's at the margin where changes in price or changes in interest rate will affect your decisions and it maybe, for instance, that even now despite the institutional impact on your savings, that with the interest rate down to one percent you just decide to consume more and that means you're saving less than you otherwise would. That's the kind of adjustment at the margin that the market depends on and not only infra-marginal aspects of it, although still what you say could ... I'm not saying it's no concern but the market still works as long as you can have marginal adjustments. Okay. Thank you.

MODERATOR: I want to thank everybody for coming to this final lecture on the Federal Reserve if you missed any of our prior lectures they are available on the Congressman's YouTube page. The first one is "Why was the Fed created?" with Professor George Selgin, which Dr. Garrison did mention him and his paper with Larry White. That paper's also very interesting if you really like to read economic academic papers. I know there are a few of us in this room that do that. The second one was "What does the Fed do?" with Jim Grant

that's also on our YouTube page and then this one will be posted as well. So, thank you again for coming and please join me in another round of applause for Dr. Garrison.



*P*ART 3.

THE GREAT ENABLER

VII.
**THE GREAT ENABLER: THE RISE OF THE
FEDERAL RESERVE AND THE GROWTH OF
GOVERNMENT**

HON. RON PAUL¹⁶
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

MODERATOR: Good afternoon ladies and gentlemen, I'm Lydia Mashburn, Policy Director for Chairman Paul's Subcommittee on Domestic Monetary Policy. So today's lecture is going to be "The Great Enabler: The Rise of the Federal Reserve and the Growth of Government. Congressman Paul has sponsored six of these Tea Talks, but this is the first one that he's actually presenting himself. So delighted you all could be here today for his lecture. We also have a special guest today to introduce our speaker. He is one of the leading advocates for limited government in the Senate. He is the sponsor of the Audit the Fed bill in that chamber and he is the junior Senator from the Commonwealth of Kentucky. So without further ado, please welcome, to introduce Dr. Paul – Dr. Paul.

SEN. PAUL: Thank you, thank you, glad everybody could come out today and we've been trying to have a lot of different speakers and we've had some different intern speakers throughout the summer but I was excited to be able to get my dad here today and looks like a crowd. We've had a good crowd and a good turnout so thanks for coming out today. You know many people read many things about my dad, but I think there are a couple things that could sort of summarize who he is. One, lobbyists don't bother to come to his office. If you work in his office, one of the extraordinary things is the lobbyists don't even bother to come by and I think that's a good thing. He's decided how he's going to vote; he's decided how the voters in his district want him to vote and what he wants to do with this, with this time and with his energies here. One of the reporters from the Wall Street Journal wrote when he came back in 1996, they reported that his refusal to compromise was legendary and I think that's something

¹⁶ [The video of the lecture may be found at:
<http://www.youtube.com/watch?v=ehh77k0rgPs.>]

that folks will remember about my dad, is that throughout the years, many times he stood alone. Whether it was voting alone against things that his party was supporting or the opposite party. In fact, I think many would say he voted on principle regardless of which party introduced it. It's important that we have folks who are willing to do that, because we have too much of what I call empty partisanship up here; people who were simply for something just because their party's for it or against something just because the other party presented it. And I think what you'll find if you listen to my father today, you'll find that what you get is something that is beyond partisanship and without any further ado, I'd like to introduce my father Ron Paul.

REP. PAUL: Thank you. Thank you very much I appreciate you coming out and I appreciate Rand coming over. You know Senators are very busy and he might have to leave, but he might not want to hear this talk again, he's probably heard it ten, fifteen, twenty times, so he may decide to leave. But, you know they were kidding me a whole lot when we were sworn in last January. You know we were sworn in together and somebody, I think it was Cavuto asked me, he said, "boy, what does it feel like to, you be in the House and your son is now a Senator?" And I told him, I said, "if he does a real good job in the Senate, someday he might even make it to the House of Representatives." But I don't think he's working on that project, he's working on being a very good Senator.

But today we're going to talk about the Fed and those of you who have attended some of our other meetings on this, we talked a lot about monetary policy and the Fed. And it is a bit of irony, because as I leave here, I'll go to the floor, we're going to vote on the Audit the Fed bill and that wasn't - this wasn't that planned that way because we didn't know when the bill was coming up. So, ironically, we will visit here with you, those who have been interested in this issue as well as we'll have the Audit the Fed bill up. It's under suspension, which means that that we have to have two-thirds of the vote and that's even more of a challenge, but I believe we can do that. We have 272 co-sponsors, but the actual vote will come tomorrow, it comes tomorrow after lunch and it'll be something well watched and a lot of people already have declared. You know since I am leaving the Congress at the end of the year, that and they use the word futile, futility he's been doing this for all these years and he won't get this bill passed, the President won't sign the bill, nothing good has come of it.

Well, I look at it on the positive side. I compare it to ten, twenty, thirty years ago and nobody cared at all about this issue, but

inevitably I always believed that it would be a big issue. I always believed inevitably that it would become a big issue. It's getting bigger all the time, it's going to get a lot bigger because we embarked on a grand experiment in 1971 and it was the breaking down of the last vestige of a gold standard, worldwide gold standard. And we embarked on something different, than ever happened before and that was a paper standard worldwide run by a single currency, which was the United States Dollar. In 1945, when the Bretton Woods was set up, which was a pseudo gold standard. A real gold standard would be gold coins; redeemable currency and the monetary authorities would always be held in check. So in 1945, when they announced "oh we don't need to have gold coins we don't - we won't even allow the people to own gold," the American people weren't allowed to own gold. But, even at that time, the famous Austrian journalist and economist Henry Hazlitt who befriended Mises when he came to this country made a prediction, he says "this isn't going to work either." You know he said the Bretton Woods wouldn't work and he was right and it finally broke down in 1971. But the same type of economists, the Austrian free market economists in the 1970's, not only did they predict the event of 1971, at that time they predicted that this would lead to nothing but trouble. Big government, big spending, huge debt, and the longer it lasts the bigger the problem will be. And that was when in the early 1970's I decided to speak out, not because I had much thought about coming to Congress, because, quite frankly, I thought talking about the Federal Reserve and the gold standard was a little bit esoteric. But it's not esoteric at all when you realize that if you have a concern about personal liberty, if you have concern about needless war, if you have concern about runaway welfare spending, you can't ignore the Federal Reserve.

So, I was anxious to speak out and I ran the first time in 1973 and the person I ran against, I didn't win that time, but the gentleman I ran against resigned and I won a special election. So it was sort of one of those things in politics, it's being in the right place at the right time. It wasn't so much that in the 1970's anybody really, really cared or was thinking about it, but events have transpired over all these years. And if you can look at economic charts, look at them from 1971 on, they're unbelievable of what happens. When you see the size of government, the problems that we have, the inflation rate the value of the dollar, it's all like this and then things go exponentially.

And I think the greatest threat comes when you have a government that endlessly finances through counterfeit money. It's

an attack on personal liberty so there's a lot of reasons to be interested in the Federal Reserve and studying the Federal Reserve. There are economic reasons, there are historic and constitutional reasons, there are moral reasons, but it's the growth of government that is the really big – the big issue. And when you look at it, it has – the American people have been so complacent. So, we have had a society for these many decades where the people actually want bigger government.

People always complain about the Congress and they should, I've done a little bit of that myself, but believe me, Congress reflects the people's views. The reason we are going to debate the Audit the Fed bill isn't because all of a sudden there's an enlightenment, a desire here in the Congress to have monetary reform, it's because the people of this country found out that it was an important issue and they called their Congressmen and they you know indicated that we should have more transparency of the Fed.

And this to me shows that government is a reflection of what the people want and, even in an extreme case, when people really, really get sick and tired of dictators they usually get rid of them. Even the kings of old were limited to the support of the people. Sometimes it's frustrating it doesn't move more quickly. But, the attitudes are changing and I think this is very, very good because there are so many individuals, especially young people today now, high school kids and college kids coming in and telling me about studying and reading about the Fed. And I tell them, I said, “how old are you?” And some are fourteen and sixteen and I said I didn't even have the vaguest idea about what was going on when I was your age, but this to me is very encouraging.

And this is why of course there's a lot more attention. But, we're in a crisis now because we have facilitated the growth of big government. If a country wants to go to war – in our country, we're supposed to have a declaration of war. We're supposed to have the people behind it and we're supposed to know who the enemy is, and what has to be achieved to win the war. But, inevitably throughout history even in the old days, they almost always financed wars with inflation, you know they'd either steal money or clip coins or dilute the metal. Today, we just print the money and certainly since World War II a tremendous amount of monetary inflation. So, if you happen to be on the side of saying we have way too many wars and we go to wars carelessly, not only do we have to restrain our Executive Branch, we have to restrain the Congress for financing these wars

and also we have to restrain the Federal Reserve's willingness to finance the war.

If you did not have a Federal Reserve either to finance the wars, or the welfare state what would happen? All of a sudden interest rates would go up it would go up, up, up and the politicians would have to say "hey, we can't borrow everything out of the economy, interest rates are too high" and it would be a natural restraint. But, when the Federal Reserve can fool the people for a long time and say, even if there's no savings we'll pretend there's savings, we'll pretend that capital, the capital that you need to make investments can come out of a computer. And they've been doing this for a long time but the crisis I think that were in the midst of is probably not even fifty percent of the way through because nothing has changed. Monetary policy hasn't changed, spending hasn't changed we're doing the same thing. We're spending and monetizing and expand the size of government, the debt is increasing and this really, there's no attempt at all to cut anything.

The Republicans pretend they're going to cut, the Democrats don't even pretend. And you know, and the spending continues so there, there's a pretense of course but if there is a cut, like this whole program of sequestering money and spending. Well guess who's opposed to following the rule that was passed by both Houses, you know Democrats and Republicans? They're the ones who want to eliminate it and there's no way that they're going to go through with that. They're going to spend more money because if you don't put more and more money into the military then they say "you're, oh, you're not supporting the troops and you're unamerican and you don't want to have a strong national defense level" and the truth is essentially opposite of that.

So, the spending it looks like it hasn't slowed up. So how does this all come to an end if the Fed is the facilitator that allows this to continue. How does it end? They're going to keep doing it and they are doing it, interest rates are really low so the world governments and other banks are taking the money. It's going to end when price inflation rears its ugly head, it's really much higher than the government admits and interest rates start to rise and foreigners won't take our dollars so easily. And then the end stages of a currency destruction can come rather rapidly. It's been slipping and sliding in the value of the dollar. I mean if you measure purchasing power and however you want to measure, it's been slipping for a long, long time. But currencies at the end go very rapidly because confidence is lost. But nobody knows when that comes. One thing in

Austrian economics, they can project trends pretty well. They can have basic economic laws that say you know, if you print a lot of money, the money's going to lose some value, you know really a complex law that says that. But if - but one thing you can't predict is saying I know that in the fall of 2008 everybody's going to know there is a financial crisis. That is not predictable because there's a subjective element into people's confidence level. But be assured that this is far from over.

And if you want smaller government you have to look at the Federal Reserve. If you think welfare spending is out of control then you have to look at the Federal Reserve. If you want to control special-interests you have to look at the Federal Reserve because many; whether on the right, they might support deficits and the Federal Reserve to finance wars; on the left it might be, oh well we have to help the poor people, we can't cut anybody off food stamps, this would be horrible, horrible, we'd rather have the deficits and we will just monetize the debt. But there will be a limitation on that and I think that is what's coming and then there will have to be a revamping of this. But overall, what a whole generation has decided is not only what the Federal Reserve should do and what the nature of money should be. What we have to decide as a people is what should the role of government be and this is where we fail. Our consensus now is still that the role of government ought to be that we're the policeman of the world. And that it's to manage our personal lives because they're in all of our personal lives day-in and day-out, instructing us on what kind rules and regulations that make us better and also the government is necessary for a fair distribution of all income and it doesn't work.

So, if you decide that if you want a more traditional role for government, if you want to talk about what we had in our early history, what the Constitution says, the government is supposed to protect our liberties. Matter of fact the word "safety" isn't even in the Constitution. The government isn't there to make you safe and comfortable and have an income. It's to give you liberty, assuming you'll take care of yourself better than anybody else. And this is...I believe what the founders thought is that safety is an important issue, but you as an individual have a responsibility, your family has a responsibility, community has a responsibility and then they gave us the 2nd Amendment and that was supposed to help also.

But, we have assumed now that the government somehow or another can have a safety net up to take care of the poor and protect us from all harm. Now the motivation to protect the poor is a good

motivation, but one thing that we as a country have forgotten is that if you have humanitarian instincts and you want to make sure the poor are taken care of, then you'd better defend liberty and free markets and sound money, productivity. This is the system that takes care of the maximum number of poor and when we had a lot more freedom we had the largest middle class in the history of the world. Today the middle class is shrinking and guess what? All those programs designed to help the poor; what is happening? They're losing their jobs and they're losing their houses, housing programs, print the money, everybody can qualify for a house and then force banks to even make bad loans and it looked great. The price of houses going up, borrow more money looked like a perpetual money machine until the crisis, the predictable crisis hit.

And guess what? Those individuals who overextended in the financial markets, those who got involved in derivatives and wild speculation and then they literally go bankrupt. Oh, they're too big to fail and we have to save the country and guess what? They got the bailout secretly, you know, from the Federal Reserve, a little bit from Treasury, but mostly secretly from the Federal Reserve and that didn't help the poor people. Matter of fact, I think most welfare programs end up helping the wealthy more than the poor, but it's a tougher political argument to make because it's much easier to say whoever needs it. Need a house; I'll give it to you. If you need free education; I'll give it to you. If you need food stamps; I'll give it to you. If you need medical care; I'll give it to you. It's for free. And you can get reelected under those circumstances. So that is quite a bit different than civic responsibility for ourselves, which is what was supposed to happen in a free society. So that reassessment of what the role of government ought to be would have to come even before you can curtail the Federal Reserve System.

But the act of printing money is counterfeit, it's an immoral act and it's something that we should look at it in that way. It's certainly unconstitutional. There's no authority in the Constitution to have a central bank. There is authority in the Constitution for the Congress to have oversight and have control of the money supply and it does nothing.

Today we have a combination of...we have a combination of a secret Federal Reserve dealing with private banks, who collude with private banks, to set interest rates at the same time they collude with the Executive Branch. They claim, they say, "well, we can't have an audit of the Fed because it would make it political." Well how could it be more political if the Treasury Department from the Executive

Branch gets together with the Federal Reserve and bails out their friends and then they want it kept secret? And they say “well, it'd be chaotic if we had this come out,” yeah it'd be chaotic for those people who've been ripping us off. That's why they don't want to have it. They talk about... I want transparency and they talk about independence; independence to them means secrecy. And that's what they don't want.

But this country now has awakened, not only transparency in monetary policy, but it's a very popular position to have more transparency, so it's bad that the government has gotten so big. The fact it's secret makes it even that much worse, so it's transparency that we want. We don't want secrecy because that's when the special interests get bailed out then they're too big to fail, let's take care of them. Oh, what if we'd have taken half that amount of money, we probably could have paid off all our mortgages of the people who lost their houses. Not that I advocate that, but you know in comparison it's still protecting the powerful special interests.

That is the biggest delusion of people who are good at heart and believe that we have to help the people in poverty and take care of the poor, is that they don't realize that they're really helping the very, very rich. And that raises the question, you know we've had a tea party movement you know these last several years to address some of these problems, but we also have this Wall Street... Occupy Wall Street. And Occupy Wall Street are considered, well, they're the leftists, and they don't know what they're talking about, but actually they're half right on it. Because they're right in that there is a one percent or more that don't deserve it because they made their money off being on the inside track of the Federal Reserve, the banking system, and they make money off the system. They made money building weapons we don't need. And if that one percent, or if there's a large number of very rich people that couldn't have gotten rich on their own, then they should be condemned and the whole process should be changed. That to me is quite a bit different than if you have a Steve Jobs who's very, very wealthy and he made his money you know only by selling us stuff that we wanted. If you buy stuff that you like and you want it and you make somebody rich you both benefit. But this whole idea that we have to attack rich people I think is dangerous at the same time. We should not, you know, take the attitude that we have to defend everybody who's rich no matter how they made it, if they made it with special deals with the government. And right now, I think the majority of the super-rich are on the inside track and the whole system of money and banking

has always benefited the very wealthy and that's why we have to be as objective as possible.

But I want to, you know, finish up on my opening remarks, because I do want to get some questions. But we're living in a different age; we're living in an age when this whole crisis is being resolved and will have to be resolved. I do not believe that we will gradually work our way out of it. Although, I think it will end rather badly because we don't seem to have much desire to cut the spending.

I always try to have a process where we can work our way back. Medical care you can have medical savings accounts, always legalize a freedom option. You could do this all on education too, if they take away homeschooling and private education and force everybody into a government school and dictate the curriculum that's bad news for us. In money, you can do the same thing. I don't, even though I have a book "End the Fed;" I wouldn't end the Fed tomorrow if I could because it would be even more chaotic. But what you need and deserve is the right to opt out and you have – you should have the right to use your freedom in the midst of the chaos that we have; which means that you ought to have the Constitutional right to use gold and silver as legal tender and we'd have to repeal legal tender laws. We would have to take taxes off gold coins and silver coins and not put people in prison for doing that. So, I think if we always have a freedom option, time and effort would work our way out of this. Historically though, most of the time it ends badly and I'm afraid that we're moving in that direction.

But the most important thing is that a whole generation of individuals know what the right thing is because there will be, whether it comes quickly, calamitously or just how it happens, the rebuilding is crucial. So, right now I think we've made tremendous progress in so many millions of people now understanding that the Federal Reserve is important. And that means the repairing of this is going to be quite a bit different, because I think in the next few years it's going to be clear that there's something deeply flawed with this notion that we have twelve people in a private room secretly creating money out of thin air and passing it out, to take care of all the special interests and they get hysterical if we say that the Constitution says the Congress has the right of oversight.

I just am convinced that's it's coming to an end and I believe that is good. Even though times will get much tougher I'm actually very optimistic that the educational activities in this country has been fantastic. You're so far ahead of where I was in the 1950's and 1960's, desperately seeking to figure this stuff out with no Internet and no

free-market think-tanks. They're all available now, the information is out there spreading like a wildfire and I don't think it's going to be put to sleep. No matter what I do, if I go down home in January and you never hear another word from me, it's not going to stop. There's no way it's going to stop because there'll be somebody, somewhere, possibly even in this room – somebody's going to get up and pick up the banner and say “This is a worthy cause; sound money is equivalent and is necessary to have a free society,” and I encourage you to do so. Thank you very much.

QUESTIONS & ANSWERS

REP. PAUL: Thank you and I think I got my allergies a little bit under control. Okay, questions. When you ask questions make them as loud as you can for me.

QUESTION: You were talking about having Congress control money. What would, given their nature, what would keep them from openly and transparently destroying the currency?

REP. PAUL: I don't really want the Congress to do what the Fed's doing, and some people see that. Some people want that, they want the Congress to print the money and send it out to the people they like and they'd be more inclined to maybe give it to the mortgage holders or the farmers or the small businessman and say “oh, this is much better and we're not going to let the Fed do it because we'd pay interest to the Fed and get the banks involved and the bond dealers involved.” But no, I don't want the Congress to print money either, but see we did have a pretty good period when we didn't have a Federal Reserve.

This argument has been going on since Jefferson and Hamilton, Hamilton wanted a central bank, Jefferson did not. They had a national bank for twenty years and Jefferson got rid of it. Then they did it again and Jackson got rid of it. Then we had a period of time, especially in the latter part of the nineteenth century that we didn't have a central bank and then 1914, 1913-14 came and it was very bad. The Congress' responsibility is to guarantee the value of the coinage, you know the weights and measures. It's in the section of Congress that talks about honest weights and measures and that's what they should do. They need to make sure that coins are of an honest weight. But no, they don't have the right to create money out of thin air. They have, governments have an obligation not to break contracts and counterfeit money. Matter of fact, in 1792 they passed a coinage act that said that anybody who counterfeited money could get the death penalty. That's how, how strongly they felt about this. So I don't want the Congress counterfeiting money. I don't want

individuals because it's fraud, nor do I want the Federal Reserve to do this. But the money supply under those conditions probably increases around two-three percent a year and as long as you have free market pricing, prices of goods and services and exchanges between those goods and services are free...

The one other mistake they made back then was they fixed the ratio of gold to silver and that was difficult because then depending on which price was best it would drive out one metal and not the other. You'd want to use the other metal. But no you don't want the Congress printing the money; you want the Congress to live up to the law of the land which means no counterfeiting.

QUESTION: Yes sir, thank you so much for coming to talk to us today and for your lecture. I want to know what you think would have happened immediately after the 2008 financial crisis were we on the...

REP. PAUL: A little bit louder.

QUESTION: What do you think would have happened after the financial crisis if we were on the gold standard and we couldn't pump a bunch of liquidity into the market?

REP. PAUL: Okay, if we'd have been on the gold standard, you wouldn't have had the crisis. So, the crisis came from the paper money system and the bubble that the Federal Reserve creates by lowering interest rates lower than they should be sending false information that there's too much debt and too much malinvestment. That comes from the Fed. But then the question is, what if they didn't bail them out? Maybe, because it'd be hard to say you're automatically on the gold standard that instant you know but the – if you didn't bail out, it would've been a bit of havoc, you know there'd have been a bunch of bankruptcies and, but that's what the correction is supposed to be doing. It's when you delay the correction and the liquidation and getting rid of debt and malinvestment, when you don't get rid of it, you just prolong the agony. This is the reason why Japan's been in the doldrums for a couple decades and while we've been – we went fifteen years in the depression and World War II it was just because the debt wasn't – took so long to liquidate the debt and we're not liquidating debt. We're just transferring it from the people who deserve to go bankrupt and giving it to the taxpayer, either by diluting the value of the money or raising people's taxes. And we own the debt now rather than you know the big banks and the financial institutions. But to say “oh yeah, just let them go bankrupt, it wouldn't be a big deal,” it would've been a big deal. But it would've been a big deal for the people who it should have been a big

deal for, not the average person. But the average person now is that individual losing their jobs and in losing their mortgages and they're in a lot worse shape because of it.

In 1933, it was by executive order that Roosevelt just called in the gold and said you're not allowed to own gold anymore. I mean you think that would cause a rebellion. But people were complacent and went along with it. In 1971, Nixon, I can remember clearly because it was a dramatic evening. It was on a Sunday evening that they made the announcement that they would quit and, up until 1971 we were required to honor the dollar at \$35 an ounce to foreigners, but not to Americans. So he just said "no, no more, I'm not going to do it"-In a way, he declared bankruptcy. We're bankrupt, we couldn't honor our commitment, but he did that by executive order. He put on wage and price controls, he put on a ten percent tax – tariff – on all imports and amazingly the stock market soared the next day thinking that this was a wonderful thing.

But in the IMF, was changed at that time, the IMF was used to work on the imbalances between currencies and trade policy, but that all fell apart because there were fixed exchange rates back then. And so, the whole role of the Federal Reserve changed.

It was 1976, then Congress got around to writing laws to sort of accommodate, you know, what they had done, but the 1970s were very bad. The 1970s came as a consequence of LBJ's comments and his policy of the 1960s, saying guns and butter we can fight the Vietnam War, we can give welfare to everybody, and take care of everybody. But then the consequence came, that we no longer had the dollars at \$35 an ounce, we had to admit that. They made that announcement and the 1970s were terrible. I mean it was when they admitted there was stagflation, there was high inflation rates, interest rates went to 21 percent and unemployment was even higher than now. Today we have problems that are probably worse, but a lot of it is hidden. I was just thinking that, you know, if you had everybody that's on disability, and also disability as well as getting food stamps and unemployment benefits, and you had to stand in line, in the bread line like they did in the depression, everybody would know how bad things are. But now it's done with dignity, you don't have to wait in line but it also means that you're just still building a bubble. You're still kidding yourself, but, because you have to get back to production, but no they did all that in 1971 without the Congress very much involved.

But this is the fault, this is the problem we have, is Congress has reneged on their responsibility. How do we go to war? We don't go to

war because the people have a sentiment to go to war and their Congress has an up and down vote on war. No, we either ignore or tell the President to do what he wants or the President makes a decision say “oh, I'll get my instructions from the UN or NATO.” So, whether it's monetary policy or foreign policy and so much of domestic economic policy, it's out of control and, unfortunately, it seems like regardless of which party is in charge the process continues.

QUESTION: [inaudible]

REP. PAUL: She asked what would be the process to restore a gold standard. Today it'd be difficult. I made a suggestion in the talk that the first thing you do is you legalize it and let the market help decide when we can go back to a gold standard. It would be best to be international, but if we wise up someday, somebody in the not too distant future will have a gold standard. It may be India or somebody or China, because they're buying the gold in the west and European countries and others are selling gold and the gold is going east. But they could, we could do it. We could lead the way, but you know it's rather dramatic. It's not likely to happen because it would require living within our means. We can't print money anymore, so that means no deficits and the other thing it requires is that the people have to believe the politicians. So, if I'm representing the politicians and the government and I come in and say “okay, we've decided to have our gold standard and all we have to is – the dollar is going to be backed by gold at \$2000 an ounce and everything's going to be okay and we'll not – we'll always balance our budget and there'll be no excessive spending and we're going to back off on these wars,” nobody would believe this.

Now, the best example of this under different conditions was in 1875. See they suspended the gold standard during the Civil War because once again you know war comes, “gotta have money, no more gold,” so they suspended the gold standard but times were different then and they decided to go back to a gold standard. In 1875, they had a resumption act and they had a - designed a three-year period to transition back to gold. And the price of gold was much higher than \$20 an ounce and they said we're going to quit printing money. We're not going to run up these deficits and they withdrew some greenbacks and they withdrew them all. And by the time the three years was up, gold in the marketplace was \$20 an ounce and they didn't go back to carrying gold in their pockets or anything, but they were back on the gold standard. Anybody who wanted to turn in a certificate back then,

you had gold certificates, you could turn it in and get an ounce of gold for it, or an ounce of silver or whatever.

So it's this attitude of big government, it's pretty hard if you want to finance a government that we shouldn't have with a gold standard. When you want, what you'd have to do is decide that the role of government should be different should be protecting our liberties and not to run a welfare state and police the world. Maybe it'll be when the total collapse of the economy and the currency comes that that's when hopefully somebody'll wake up and say, "you know, well we have to have a sound money and when we follow the advice of the founders."

QUESTION: I was wondering what you thought that Mitt Romney or Gary Johnson might do for sound money, either one of them?

REP. PAUL: Well I don't know exactly. I do know that yesterday, I had somebody told me that Mitt Romney announced that he was supporting an audit the fed bill and I would say that Gary Johnson would support that too. I've never had a conversation with either one of them about the gold standard, but I don't think that, I don't imagine they give a lot of thought to it because we're not quite there yet. I'm trying to push people in that direction, but I don't think they're on the verge of it, endorsing or condemning the gold standard.

QUESTION: There's a funny anecdote in your book "The Revolution" about how you went to Alan Greenspan and got his gold standard paper signed by him. I was wondering if you ever, since that book was printed a few years ago, had a follow up conversation with him about the gold standard after the Committee hearing?

REP. PAUL: No. He's referring to an article that Greenspan wrote for a newsletter that I was receiving back in the 1960's, *The Ayn Rand Objectivist Newsletter* and Greenspan was really good. He was hardcore and he said paper money was confiscation of wealth. It would lead to huge debt. I mean he was saying everything an Austrian economist would say and so I knew that he was coming before the Committee and we were supposed to go in and say hello and get a picture if we wanted. So, I dug out my original copy of that and it was a little green booklet, maybe one or two people that remembers that. So, I took it in and I said, "do you remember this?" And he said, "oh yeah, I remember this." And I said, and then I opened it up to the page where this very, very great article – it's not hard to find that article on the Internet – Greenspan and the gold standard and objectivism or Ayn Rand or something it'll come up rather quickly. And he says "Oh yeah, I remember this," so I said,

“Would you autograph this for me?” So he put his signature on that great article and I said, “You want to write a disclaimer on there?” He said “No, I read it recently and I endorse everything,” which didn't make any sense because if he had endorsed it, he did everything opposite of that, but no I never had any more conversations on that.

He did [inaudible] Murray Rothbard, a great Austrian economist, knew Greenspan pretty well because Rothbard was in the Ayn Rand circles for a while and they had crossed paths. But, Rothbard has a book. Now, if you want to really understand the business cycle, at least want to help me the most to sort out Republicans and Democrats and intervention and inflation, read Rothbard's book “America's Great Depression” and that will really explain to you why we had the depression and why it took so long to get out of it. And Bernanke studied the Great Depression and he even apologized to Milton Friedman for saying that the Federal Reserve was responsible for the Depression, which most Austrians agree that is true. But he said it was because they didn't print enough money and, of course, the Austrians believe that the bubble of the 1920's created the problems, the excessive debt and the malinvestment and that set the stage. But the prolongation was because they kept propping it up; they didn't want prices to go down, they didn't want wages to go down, and they did everything like they're doing now but today it's probably much worse.

QUESTION: [inaudible]

REP. PAUL: Do I think the dollar's losing its status as the reserve currency world? Yes. It's less used now than it used to be and it eventually will disappear. Somebody else will pick up. When that happens, I don't know that, but eventually that because it just can't last forever this way. If it would be true that we kept the reserve standard and that we could print the reserve standard of the world, none of you would ever have to work again. I mean why wouldn't we just print the money. And we're in a way doing this. We print it, look at all we buy from China, so everybody gets angry at China, but they're taking this paper and sending us stuff. But of course we end up with debt. So, it's not viable for them; it's not viable for us. I think that China might do it; I think they would like to they're working in that direction. I think that it may be a group of countries. I believe it will be in the Far East, it may be India and Singapore and maybe Malaysia and China, they might get together and establish it. It may be a retaliation by nations that are considered more Muslim, you know just because they, they're involved with oil and other things like this they might be able to do it. And if they're buying gold, so I think

you'll live to see the day when the dollar will not be the reserve standard of the world, but that will be a rocky test on exactly what happens. But what could happen is, let's say that we wake up with realization, maybe then we would devise monetary reform that people would accept the dollar, you know, if it was guaranteed and convertible into gold but right now that's not likely to happen.

QUESTION: [inaudible]

REP. PAUL: People hold dollars, and we print dollars and then they hold them. They're holding huge amounts of cash. We just print the cash, we spend it overseas. They just keep it and they circulate it because, right now, it's still better than the rest of the currencies. So, if one country did this, our standard of living is going down; no, it's systematically going down. This country's a lot poorer than it was ten years ago and it would get a lot worse if another country did this and we lost the status. It would be very, very harmful to our economy—we would be much poorer.

QUESTION: [inaudible]

REP. PAUL: The Constitution prohibits the States from issuing currency, but it also tells the States that they can only use gold and silver as legal tender. So, if they lived up to that mandate and because we do have American gold coins and silver coins, they should be allowed to use them. And they should say, “well, we're only going to use gold and silver coins,” the Constitution tells us to do this but they had a lot of trouble with the States. One of the reasons why they had the Constitutional Convention is many States did issue their own paper currency and they did abuse it, so there is a prohibition against the States just issuing paper money. But to use US gold and silver coins I think this would be beneficial.

I think education - educationally that's why I like to see all these resolutions, you know, coming up in the various States. Because it's calling attention to it and that is what is required. Education is the most important thing that we do and like I said before, this is the reason we're having Audit the Fed bill on the floor this afternoon, is through the education of many people who said to their Congressmen, “Support the bill.”

QUESTION: Why do think that younger people are so much more willing to recognize the problems of the Fed and monetary policy and they're holding their positions?

REP. PAUL: She asked why young people might be more interested in the Federal Reserve. But, generally speaking, I think young people have a more open mind just in general. They're not locked in and stereotyped. As people work within the system and

they go decade after decade, they learn to be more flexible to work within the system. It's sort of like, you may know somebody like this, that they'd run a real hardcore campaign and they're going to be hardcore and they're going to come to Washington and change, and then they get here and they don't vote that way. Anybody ever hear of anybody like that? But they get here and they feel more comfortable because, "Oh, I gotta blend in, I gotta be part of the process, I can't be separate, I can't be by myself" and they can't get on the Committee unless they do it. And they can't get benefits and so it goes on and on and so they learn to work within the system. I think people, the longer they've been in business, they say "Oh yeah, the Federal Reserve is a little different, but I'm not going to buck it."

You know young people are much more open to ideas. I think also, young people know that there's a problem out there that they're inheriting, they had nothing to do with. I mean if you happen to not endorse all these wars going on— you can't ignore it. I mean, but in the last ten years of it, between three and four trillion dollars in debt because of these wars. And you might have a friend, or a neighbor, or a relative that either's getting hauled over there constantly, or has been injured or killed and then young people seem to respond to that because they are - that's a burden that's put on your shoulders. Exactly why they became more fascinated with the - that's the general philosophy that young people became interested, but it's the reason they got particularly involved and interested in the Federal Reserve... It might've been the financial crisis that got their attention, but I think it's part of the process. This material has not been available readily, like it has been lately. We have the crisis and it's hard not to know what's going on in this day and age with the information we get from the Internet. Anyway, I don't have a full explanation for that but I'm very pleased with it.

QUESTION: [inaudible]

REP. PAUL: He asked about auditing the amount of gold we have. And that - the last audit and it was a pretty thorough one, was probably fifty, sixty years ago, in the 1950's they did it. In 1982 there was a - in 1981 we had the Gold Commission. There were seventeen of us on the Gold Commission to study the role of gold, so I proposed that we have an audit of the gold with this commission. It was some members of Congress on it, but there were other members too and there was a vote. There were seventeen members of the commission, and fifteen voted not to audit the gold. Two of us voted, said "yeah, we ought to count the gold." The gold is listed on the balance sheet of the Federal Reserve, so I would think that the way I interpret the bill to

audit the Federal Reserve you could also find out about the gold. But no, they haven't done it and it is pretty important. It would be...for many, many years I would keep saying to myself "They can't be that bold, do you think so, they would actually steal our gold?" Today, I say, "Yeah probably. " I used to have to struggle with this whole idea that our leaders would actually lead us into war and do things that actually you know set the stage for it, like lie about things, you know, whether it's the Gulf of Tonkin or you know lie about what's happening in Iraq and some of the things that – controversy that led up to World War II, I just – that was so horrendous to me I just couldn't accept that. But I'm more likely to think that.

I've seen it too often that they do, so that's an argument that yes, they may well have done something with the gold. But, you know if any one of us would walk in there, we look at these vaults, they say "see, there is the gold, count the bricks" you know and be satisfied. It takes a lot more, you need assayers, assays. But you'd have to look at the records too, what if we loaned the gold out? There's been a lot of central banks loaning gold and using it as assets and the subject of gold came up on this issue of Greece. They said "look, we're not going to loan Greece any more money unless they produce some asset for it" and they were talking about using the gold. But the answer is, there's been no recent audit of the gold and it certainly should be, especially if we get to that point where we want to go back on the gold standard. I think we have time for another question or two. Here we go.

QUESTION: What are your plans after you leave office to continue the great freedom movement you've helped create?

REP. PAUL: Well, I know one thing, that I won't be twiddling my thumbs. I'll have something to do and hopefully I can write another book, whatever good that'll do. And also I have an educational foundation. I really think education is the most important thing, changing people's minds is much, much more important than being a politician. So, when people of your age so often will come and say "oh, how do I become a Congressman," I say, "don't plan on it, don't even think about it." If it comes along fine, but the most important thing is to understand free-market economics, the principles of individual liberty, the principles of a non-interventionist foreign policy, and understanding monetary policy and somebody'll make good use of those individuals. So, I will continue with the education.

We'll also have this organization called Campaign for Liberty, which helped energize a lot of people to wake up Congress, you know about the Federal Reserve and other issues. So, I will do that. I plan to do some traveling. I've had a lot of invitations, not only in this

country, but overseas and I have haven't gone very far. I sort of resented the idea I had to go and get you know permits from the Congress in order to go someplace. There's a lot more restrictions. If I wanted to go to Europe and speak at a University and they would pay my way – I'm not allowed to take an honorarium, but they would pay my way – I gotta jump through more hoops than if I go on a junket and get on a, you know, a US Air Force private airplane and they pick you up and take you over there. Nobody pays any attention. They're much more worried that you had somebody outside the government pay it. The taxpayer, let them pay for it, and you can travel. So I was, I didn't take for the years I've been here, I never took a junket and looks like I'll make it the next four months without taking one. But, I may take some private trips because, right now, this whole issue of money and finance, this is not— it might be a bigger deal in Europe right now when you think of the crisis. Matter of fact, today I had a long interview with a German newspaper because, you know Germany is sort of under the gun, they're the richest country over there, they can bear the burden of bailing out Greece and Spain. So it's a big issue and they are paying attention to this. So, anyway I think it's time that I go to the floor shortly but thank you very much for coming and study hard.

MODERATOR: Thank you all for joining us today. If you are interested in learning more about these issues, of course the internet is your playground, but also there are the number of tea lectures that the Congressman sponsored on the basic principles of money, as well as the Federal Reserve, that are posted to his YouTube page. They had some excellent scholars come and present to other crowds, so if you're able to look at those I would encourage you to do that. Again, thank you for coming. I'd also like to thank Senator Paul for having been here and giving the introduction. So, if we could get one more round of applause for the Senator.

☆☆☆

Book Three

CHAIRMAN vs. CHAIRMAN
AT THE SEMI-ANNUAL
HUMPHREY-HAWKINS HEARING

I.
RON PAUL QUESTIONS BEN BERNANKE

HEARING ON
MONETARY POLICY AND THE STATE OF THE ECONOMY
COMMITTEE ON FINANCIAL SERVICES
U.S. HOUSE OF REPRESENTATIVES

WEDNESDAY, MARCH 2, 2011

WITNESS

Bernanke, Hon. Ben S., Chairman, Board of Governors of the
Federal Reserve System

*T*RANSSCRIPT¹⁷

The committee met, pursuant to notice, at 10 a.m., in room 2128, Rayburn House Office Building, Hon. Spencer Bachus {chairman of the committee} presiding.

[...]

Chairman BACHUS. This hearing will come to order. We meet today to receive the semiannual report to Congress by the Chairman of the Board of Governors of the Federal Reserve System by Chairman Ben Bernanke on the conduct of monetary policy and the state of the economy. Without objection, all members' written statements will be made a part of the record.

For the purpose of an opening statement, I will recognize the gentleman from Texas, Dr. Paul. Prior to that, we want to welcome you, Chairman Bernanke, to the committee. I want to personally commend you for your stand that we need to address the national debt and the deficit. I know that makes your job much harder and presents challenges in managing our monetary policy.

Dr. Paul, you are recognized at this time for 1½ minutes.

Dr. PAUL. Thank you. It has been said ever since the crisis hit that one of the causes has been that interest rates were kept too low for too long, and that is more or less a consensus. Now, the treatment over these last couple of years has been to lower interest rates even longer and keep them low for a much longer time.

We were told yesterday that we shouldn't expect any permanent increase in price inflation, that it will be temporary and modest and the CPI is under control. If we look at the free market economists, we find out that the measurement of the CPI the old-fashioned way is going up at 9 percent and the true money supply as measured by the

¹⁷ [The full hearing record, Serial No. 112-11, is available from the Committee on Financial Services at: <http://financialservices.house.gov/uploadedfiles/112-11.pdf>]

Austrian economists is going up at 24 percent. So I would suggest that we still have a lot of inflation in the system. It is going to get much worse.

The excuse for the prices going up right now is that we have growth. So I guess the answer will be to destroy growth. And that is generally the case. What we have done in the past, we have growth, and the Keynesian economists always claim because of growth, prices go up. But prices don't go up when you have growth in the electronics industry, so it is hardly an excuse to purposely diminish growth, which is generally done. But all kinds of blame are placed, whether it is on the Middle East, the weather, labor, prices, speculation; all these things. That is the reason prices go up.

Rarely, if ever, would we see the admission that the real cause of price inflation, which is a deadly threat to us right now, is the Federal Reserve System and our monetary policy.

[...]

Chairman BACHUS. Thank you, Ranking Member Frank.

Dr. Paul, chairman of the Monetary Policy Subcommittee.

Dr. PAUL. Thank you, Mr. Chairman. Let me just say a word about the deficit. The spending and the deficit was a concern of mine in the early 1970s because I foresaw that after the breakdown of Bretton Woods, we would have endless spending, endless deficits, endless financial bubbles. And we have had that. As to whether or not we have military Keynesianism, we do. And I reject that as well as I reject domestic monetary economic Keynesianism. And until we put the two together and reject them, we are going to continue with these problems.

But the reason why I don't think it is a Federal Reserve job to lecture the Congress, even though I agree Congress is at fault, is they spend too much money. Congress at times will say the Fed is at fault. Congress and the Fed are symbiotic. They have a symbiotic relationship because the Congress spends and they know there is a moral hazard involved here because they know that if interest rates go up, the Fed accommodates them. So the Fed really facilitates this spending. And until we realize this, I think the Fed is involved with our deficit and encourages this as well as the Congress. But it is true, Congress' initial responsibility ought to be to cut the spending, because this deficit is exploding, inflation is exploding, and interest rates are going to go up. So we are going to have one heck of a problem here in the near future.

But I want to ask a question dealing with monetary policy because it used to be that was the key to this hearing. Today, economic management, central economic planning, and everything is up for grabs. The monetary policy, of course, it was stated that the job of the Fed is to give stable prices and full employment. But if you look at the last 3 or 4 decades, there is nothing stable about it.

Unemployment today, if we are honest with ourselves, if we look at all the people who no longer look for work, it is over 20 percent. To pretend it is going down and everything is rosy, I think we are deceiving ourselves to think that is happening. So I would say it is a total failure.

One other reason I would like to suggest and get your comments on is how can you manage monetary policy, which means to manage the dollar, if we don't have a definition of a dollar? I can't find in the Code what a dollar is or a Federal Reserve note. And everybody knows a Federal Reserve note is a dollar, you create a note, which is a promise to pay, and that is another dollar. So the more debt you have, the more dollars you have.

But I would like to know if you know whether there is a definition of a dollar and when it became known that a dollar was a Federal Reserve note. I want a definition of money. That seems to be the real job. We want a measurement of value. And this is a reason I believe that we made a big mistake by declaring fiat money, paper money would be our measurement of value. There is no way to maintain a true measurement of this.

If you look at what the stock market—if you bought the stock market in the year 2000, the index, it would have taken 44 ounces of gold. In 1980, it would have taken 1.5 ounces of gold. Today, it is back down to 8 ounces. So in true value, the stock market is in a crash. You say, oh, no, gold is not money. And you and I will have a disagreement on whether gold is money or not. But the Fed holds gold, the Treasury holds gold, the central bank holds gold. My opinion doesn't matter either because it is history. It is the marketplace. Gold is the true long-term measurement of value.

So how can you run your operation without a definition of the dollar, and what is your definition of a dollar?

Mr. BERNANKE. You raise some important points, Congressman. Our mandate is maximum employment and price stability. My definition of the dollar is what it can buy. Consumers don't want to buy gold. They want to buy food and gasoline and clothes and all the other things that are in the consumer basket. It is the buying power of the dollar in terms of those goods and services that is what is important,

and that is what I call price stability. The fact is that after the 1970s, where there was a lot of instability, and inflation was very high, since Chairman Volcker in the early 1980s, and I know you have talked about your relationship with him, brought inflation down, that inflation in the United States has been low and stable around 2 percent for some time. In fact, it has been 2 percent over the last 5 years, despite everything else that has been going on.

Moreover, in terms of the unemployment part of the mandate, it is certainly true unemployment is unsatisfactory now. My own view is that is largely due to the financial crisis, which, in turn, had a lot to do with problems in both the private markets and in the supervisory and regulatory regime. But putting that aside, over the period of the last 25 years or so, stability of unemployment has been much greater than it was in previous decades. So there has been improvement.

Chairman BACHUS. Thank you, Dr. Paul. I appreciate that.

[Rep. Paul's time for questioning concluded.]

STATEMENT
FOR THE RECORD

HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman,

Every day we hear stories about rising prices. Whether it be food, gasoline, or clothing, the cost of living is going up, and not just for Americans, but for people around the globe. The Federal Reserve's program of quantitative easing has taken some of the blame for this, and rightly so in my opinion. This program, known as QE2, sought to purchase a total of \$900 billion in US Treasury debt over a period of 8 months. Roughly \$110 billion of newly created money is flooding into markets each month, markets which are still gun-shy after the events of the last few years. Banks still hold underperforming mortgage-backed securities on their books, and are hesitant to loan out further money, holding well over a trillion dollars on reserve with the Fed. Is it any wonder, then, that this new hot money is flowing into commodities around the world?

Cotton is up over 170% over the past year, oil is up over 40%, and certain categories of food staples are seeing double-digit price growth. Yet while the Fed takes credit for the increase in the stock market, it claims no responsibility for the increases in food and commodity prices. What is always lost on economists is that inflation is at root a monetary phenomenon. As the money supply increases, more money chases the same amount of goods, and prices rise. There may be other factors that contribute to price rises, such as famine, flooding,

or global unrest, but these effects on prices are always short-term, not long-term. Consistently citing rising demand or bad weather while ignoring monetary policy is a cop-out. Governments throughout history have sought to blame price increases on bad weather, speculators, and a whole host of other factors, rather than acknowledging the effects of their inflationary monetary policies.

We must also remember that those policymakers who exercise the most power over the economy are also the least likely to understand the effects of their policies. Chairman Bernanke and the other members of the Federal Open Market Committee were convinced in mid-2008 that the economy would rebound and continue to grow through 2009, even though it was clear to many observers that we were in the midst of a severe economic crisis.

These policymakers are also the last to feel the effects of inflation, in fact, they benefit from it. Inflation, that is an increase in the money supply, results in a rise in prices, but those who use this new money first, such as government employees, contractors, and bankers are able to use this new money before prices begin to increase, while those further down the totem pole have already had to deal with price increases before they see any of this new money.

For too long the Federal Reserve's monetary policy has led to higher prices and a decreased purchasing power of the dollar. It is well overdue that this Committee exercise increased oversight and scrutiny of the Fed's actions, and I look forward to further Committee action to rein in the Fed.

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II.
RON PAUL TO BEN BERNANKE:
“IS GOLD MONEY?”

HEARING ON
MONETARY POLICY AND THE STATE OF THE ECONOMY
COMMITTEE ON FINANCIAL SERVICES
U.S. HOUSE OF REPRESENTATIVES

WEDNESDAY, JULY 13, 2011

WITNESS

Bernanke, Hon. Ben S., Chairman, Board of Governors of the
Federal Reserve System

*T*RANSCRIPT¹⁸

The committee met, pursuant to notice, at 10 a.m., in room 2128, Rayburn House Office Building, Hon. Spencer Bachus {chairman of the committee} presiding.

[...]

Chairman BACHUS. This hearing will come to order. We meet today to receive the semiannual report to Congress by the Chairman of the Board of Governors of the Federal Reserve System on the conduct of monetary policy and the state of the economy.

[...]

Chairman BACHUS. I now recognize the subcommittee chair, Mr. Paul, and also acknowledge that he has announced that at the end of this term, he will be leaving Congress, and I am sure that came as quite a disappointment to the Federal Reserve.

Mr. FRANK. Mr. Chairman, would you yield briefly, can I join because Mr. Paul and I have worked in opposition on some issues, and together on some others. He has been an extraordinarily valuable Member, and I will miss him. Could I also note, Mr. Chairman, that you have the honor of I think presiding for the first time in American history over a committee that has three declared Presidential candidates. I hope we will not soon have to have Secret Service replacing our Capitol policemen at the door, but I will miss Mr. Paul.

Chairman BACHUS. And one of them is here today.

¹⁸ [The full hearing record, Serial No. 112-46, is available from the Committee on Financial Services at: <http://financialservices.house.gov/uploadedfiles/112-46.pdf>]

Dr. PAUL. I thank the chairman for yielding. Somebody had told me that announcement would put a smile on Chairman Bernanke's face.

Chairman BACHUS. And his staff, they are all smiling.

Dr. PAUL. But I thank the chairman for yielding and I welcome Chairman Bernanke. The country today has become very aware of how serious our problems are. I think everybody understands that it is very, very serious. It is critical, and from my viewpoint, I think the country is literally bankrupt, and we are not quite willing to admit that. But these are overwhelming problems that we do face. Unfortunately, from my viewpoint, I think we have more going on here on who to blame for the problems and who is going to benefit by blaming. I see it a little bit differently because I see it as a failed policy, a policy of central economic planning, and that has not been going on just with this Congress and this President. It has been going on for quite a few decades. I think that is what we have to address.

Literally, the Congress appropriates the money and is a big blame. But also, the special interests have tremendous influence, and they are to blame, but also we have citizens groups who always want handouts and special benefits. They have some blame to assume as well. But also it is these wars that continue to go on, the undeclared war, the consonance of wars. Nobody can even tell us exactly how many wars we are in today and when the next one is going to start or when the last one is going to end. And then all of this spending and pressure.

Then we also have the Fed to deal with, too. And I see the Fed as a problem because I see so much of this other spending would not have gotten out of hand if we did not have a monetary system where the system provides the funds. We do not have to be responsible because we can always say, it is up to the Fed. If we did not have the Fed buying up our debt, interest rates would rise and everybody would yell and scream, but you know what it would do? It would put pressure on us here in the Congress to do something about it. But I see the monetary system and the Federal Reserve System as a facilitator for all these special interests, and for a good many decades, we have been able to get away with this. But we are not getting away with it anymore because we have run out of steam. We have run out of jobs. We have run out of productive capacity.

Our Tax Code is all out of whack. The entitlements are out of control. Our good jobs are going overseas. We chase capital away, we have a deliberate policy of a weak currency. Weak currency chases away capital. So I see this has all added up to give us this crisis, and

unfortunately we are still looking for who to blame for this. You cannot find one individual or one Administration. You have to blame the policy, and unfortunately central economic planning, whether of the Soviet style or whether of the style of the interventionist where we do it through congressional activity as well as central banking, the central economic planning is always flawed because it is never as smart as the market. That is why I object to the idea that we are knowledgeable enough to set interest rates and know what the money supply should be because that is information that should come from the market. When it does not come from the market, it is a failed policy and leads to the type of crisis we are now suffering from.

Chairman BACHUS. I thank the subcommittee chair. At this time, I would like to recognize the ranking member of the Subcommittee on Monetary Policy, Mr. Clay, for 3 minutes.

Mr. CLAY. Thank you, Mr. Chairman. I, too, want to say that I will miss my colleague, Dr. Paul. Perhaps he will remain in this town in some capacity.

[...]

Chairman BACHUS. Thank you, Mr. Chairman, and thank you, ranking member. At this time, I recognize Mr. Paul, the subcommittee chair, for 5 minutes.

Dr. PAUL. Thank you. I thank you, Mr. Chairman. We hear that in the future we are going to have a better economy, and everybody hopes so, but it is hard to believe, it is hard for me to believe, anyway, because I look back on our past 3 years, and what Congress has done and what the Fed has done, we have literally injected about \$5.3 trillion, and I do not think we got very much for it. The national debt went up \$5.1 trillion. Real GDP grew less than 1 percent. So I do not think we have gotten a whole lot. Unemployment really has not recovered. We still have 7 million people who have become unemployed, and one statistic that is very glaring, if you look at the chart, is how long people are unemployed. The average time used to be 17 weeks. Now it is nearly 40 weeks they stay unemployed. So nothing there reassures me.

And also when we talk about prices, we are always reassured there is not all that much inflation, and we are told that they might start calculating inflation differently with a new CPI. Of course, we changed our CPI a few years back. There is still a free market group that calculates the CPI the old-fashioned way. They come up with a figure in spite of all this weak economy that prices have gone up 35

percent, 9.4 percent every year. I think if you just went out and talked to the average housewife, she would probably believe the 9 percent rather than saying it is only 2 percent.

So I would say what we have been doing is not very reassuring with all this money expenditure. But my question is related to the overall policy. Spending all this money has not helped, and yet many allies that would endorse so much of what has been going on, whether it is the Fed or the Congress, they recognize that consumer spending is very, very important. And they concentrate on that. But the \$5.1 trillion did not go to the consumers, it went to buying bad assets, it went to bailing out banks, it went to bailing out big companies, and lo and behold, the consumer did not end up getting this. They lost their jobs and they lost their houses and mortgages, and they are still in trouble.

But my question is, if you took that \$5.1 trillion and said that consumer spending is good, you could have given every single person in this country \$17,000. Why is it the program of both the Congress and the Fed to direct the money to the people who have been making a lot of money instead to the people who, if you argue that the consumer needs to spend the money, I obviously do not advocate this, but I would suggest that maybe it could have worked better—it could not have worked any worse. But what is the reason we directed it towards the banks and the big corporations too-big-to-fail and we do not pay that much attention to the consumer, if it is true, and I do not know if you agree with that or not that consumer spending is an important issue?

Mr. BERNANKE. It is an important issue, Congressman, but you are mistaken in saying that the Federal Reserve has spent any money. You say \$5 trillion. We have lent money. We have purchased securities. That is not buying, that is not dissipating the money. We have gotten all the money back. As an article over the weekend by Allan Sloan showed, in fact, the Fed has been a major profit center for the U.S. Government. We have turned over profits in the last 2 years of \$125 billion. We are not costing any money in terms of budget deficits or anything like that.

In terms of what we were trying to do, the reason the Federal Reserve was founded a century ago was to try to address the problems arising from financial panics which did, by the way, occur in an unregulated environment in the 19th Century. We provided liquidity and short-term loans to help financial systems stabilize. We did that not because we particularly care about the managers or the shareholders of financial firms.

Dr. PAUL. I hate to interrupt, but my time is about up. I would like to suggest that you say it is not spending money, but it is money out of thin air. You put it into the market and you hold assets, and the assets are diminishing in value when you buy up bad assets.

But very quickly, if you could answer another question because I am curious about the price of gold today is \$1,580. The dollar during these last 3 years was devalued almost 50 percent. When you wake up in the morning, do you care about the price of gold?

Mr. BERNANKE. I pay attention to the price of gold, but I think it reflects a lot of things. It reflects global uncertainties. I think the reason people hold gold is as a protection against what we call tail risk, really, really bad outcomes. To the extent that the last few years have made people more worried about the potential of a major crisis, then they have gold as a protection.

Dr. PAUL. Do you think gold is money?

Mr. BERNANKE. No, it is not money; it is a precious metal.

Dr. PAUL. Even if it has been money for 6,000 years, somebody reversed that and eliminated that economic law?

Mr. BERNANKE. It is an asset. Would you say Treasury bills are money? I do not think they are money either, but they are a financial asset.

Dr. PAUL. Why do central banks hold it?

Mr. BERNANKE. It is a form of reserves.

Dr. PAUL. Why do not they hold diamonds?

Mr. BERNANKE. It is tradition, a long-term tradition.

Dr. PAUL. Some people still think it is money. I yield back. My time is up.

[Rep. Paul's time for questioning concluded.]

STATEMENT
FOR THE RECORD

HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman,

An aphorism in common use today states that the definition of insanity is repeating the same thing over and over and expecting a different result. I cannot think of a better way to describe the Federal Reserve's conduct of monetary policy over the last three years. Business cycles are caused by monetary expansion, and the bust phase of the cycle is the natural consequence of malinvestment caused by the Fed's creation of easy credit. Each time this country falls into recession, the Federal Reserve has resorted to further monetary expansion in order to pull the country out of its economic malaise. This monetary policy always results in a new and bigger boom, followed by an even bigger bust. Now we find ourselves in the midst of the mother of all business cycles. We have seen the monetary base explode with trillions of dollars of newly created money, with Wall Street fat cats receiving bailout after bailout, while ordinary Americans increasingly find their standard of living decreasing.

Assertions that the government's interventions have returned a profit for taxpayers are ludicrous. The federal government's deficit spending is subsidized by the Fed, which purchases newly created Treasury debt with money created out of thin air. The Fed receives tens of billions of dollars of taxpayer dollars in interest payments on

those debt holdings, uses part of the interest to fund its operations, and then returns the rest of the money to the Treasury. This indirect taxpayer funding of the Fed's operations, in which the Treasury receives less money than it paid out, is called a "profit." With regard to the TARP bailout loans, the only reason so many banks are able to repay is because the Fed has purchased so much Treasury debt from the banks, who hold those new funds as excess reserves. The Fed pays interest on those excess reserves, allowing the banks to repay their TARP loans with interest, which is then characterized as profit. So money is created out of thin air to purchase Treasury debt, and is created out of thin air again to pay interest on the money that was just created out of thin air. It is easy to make a profit when one has this ability to create unlimited amounts of new money.

Total spending on all the bailouts, stimulus packages, and quantitative easing has come to over \$5.3 trillion, and what does Chairman Bernanke have to show for this? What have these trillions of dollars in spending actually accomplished? Real GDP has increased by only \$105 billion since the beginning of 2008. If the Fed were really concerned with stimulating consumption, it could have just as easily loaded this money into helicopters and dropped it over American cities. \$5.3 trillion is nearly \$17,000 for every man, woman, and child in this country. Where would the average American be with an extra \$17,000 in his pocket? That would have stimulated consumption far more than what the Fed has done by shoveling trillions of dollars to the politically-connected big banks who either hold that money as excess reserves or loan it out at interest to the taxpayers whom the Fed will not deign to assist.

The latest job numbers have further underscored the fact that the economy, rather than recovering, is still mired in the depths of a serious recession. The Fed has failed in its Congressionally-mandated mission of maintaining stable prices and ensuring full employment and has failed to achieve its own goal of returning to adequate levels of economic growth. Chairman Bernanke has even gone so far as to admit that "we don't have a precise read on why this slower pace of growth is persisting." Seven million fewer people are employed now than at the beginning of 2008, while the population has increased by nearly eight million. Just to return to pre-crisis levels of employment will take several years. In fact, the only reason that the official unemployment rate is only 9.2% is that so many Americans have given up looking for work and have dropped out of the labor force.

The dollar has lost nearly 50% of its value against gold since 2008 and continues to deteriorate against major currencies. While the Fed

claims that inflation has averaged 2% or less over the past few years, economists who compile alternate data conclude that the CPI has increased over 9% per year. Americans feel inflation keenly, despite the pronouncements of leaders who have been proclaiming for the past year that the recession is over and the economy is improving. Commodity prices continue to rise, food is becoming more expensive, and everything the Fed does has the goal of ensuring these continued high prices.

It is painfully obvious that the economy is not recovering, so what will Chairman Bernanke do now? Consumers, investors, and taxpayers wait with bated breath, unsure of what the Fed's next step is. Will the Fed continue its policy of quantitative easing, forcing more devalued dollars into the system, or will it finally acknowledge that the first step to recovery is allowing bad debt to liquidate, insolvent financial firms to go under, and housing prices to return to more reasonable levels? Treasury Secretary Geithner has recently admitted that “we don't have the ability, because of the overhang in housing, and the problems in the financial system, to engineer artificially a stronger recovery.” I certainly hope that Chairman Bernanke will take this statement to heart when he plans his next move.

A sound economy is an impossibility without sound monetary policy. Rather than defend the integrity of the dollar and the people who depend on it to purchase the necessities of life, the Fed has done its darnedest to devalue the dollar and continue the same inflationary policies that got us into this mess in the first place. Until the Fed acknowledges the role that loose monetary policy plays in creating booms and busts, eschews further bailouts to insolvent financial institutions, and ceases its attempts to prop up the housing market, I fear that the economy will continue to implode.

III.
RON PAUL vs. BEN BERNANKE

HEARING ON
MONETARY POLICY AND THE STATE OF THE ECONOMY
COMMITTEE ON FINANCIAL SERVICES
U.S. HOUSE OF REPRESENTATIVES

WEDNESDAY, FEBRUARY 29, 2012

WITNESS

Bernanke, Hon. Ben S., Chairman, Board of Governors of the
Federal Reserve System

*T*RANSSCRIPT¹⁹

The committee met, pursuant to notice, at 10 a.m., in room 2128, Rayburn House Office Building, Hon. Spencer Bachus {chairman of the committee} presiding.

[...]

Chairman BACHUS. This hearing will come to order. We meet today to receive the semiannual report to Congress by the Chairman of the Board of Governors of the Federal Reserve System (the Fed) on the conduct of monetary policy and the state of the economy. Pursuant to committee rule 3(f)(2), opening statements are limited to the chair and ranking minority member of the full committee and the chair and ranking minority member of the Subcommittee on Domestic Monetary Policy and Technology for a period of 8 minutes on each side.

[...]

Chairman BACHUS. All right, at this time Mr. Paul, your thorn in the flesh, is recognized for 3 minutes.

Dr. PAUL. Thank you, Mr. Chairman, and welcome, Chairman Bernanke. I guess over the last 30 or 40 years I have criticized the Fed on occasion, but the Congress deserves some criticism, too. The Federal Reserve is a creature of the Congress, and if we don't know what the Fed is doing, we have the authority and we certainly have

¹⁹ [The full hearing record, Serial No. 112-103, is available from the Committee on Financial Services at: <http://financialservices.house.gov/uploadedfiles/112-103.pdf>.]

the authority to pursue a lot more oversight, which I would like to see.

So although the Fed is on the receiving end, and I think rightfully so when you look at the record, the Fed has been around for 99 years, a few years before you took it over, and 99 percent, 98 percent of the dollar value is gone from the 1913 dollar. So that is not really a very good record. And I think what we are witnessing today is the end stages of a grand experiment, a philosophical experiment on total fiat money. Yes, they have been debasing currencies for hundreds, if not thousands of years, and it always ends badly. They always return to market-based money, which is commodity money, gold and silver. But this experiment is something different than we have ever had before, and it started in 1971, where we were actually given an opportunity in many ways to be the issuer of the fiat currency, and we had way too many benefits from that than people realized.

But it has gone on for 40 years and people keep arguing from the other side of this argument that it is working, it is doing well, and yet, from my viewpoint and the viewpoint of the free-market economists, all it is doing is building a bigger and bigger bubble. And the free-market economists were the ones who predicted the NASDAQ bubble, the housing bubbles, but we never hear from the Keynesian liberal economists and the central bankers saying watch out, there is a bubble out there. There is too much credit, too many problems there. There is a housing bubble. We have to deal with it. Usually, we get reassurance from the Fed on that.

But I believe that there is a logical reason for this, because the Federal Reserve is given a responsibility to protect the value of the dollar. That is what stable prices are all about. We don't even have a definition of a dollar. We ask about the definition of a dollar; oh, it is whatever it buys. Every single day it buys less than the next day. To me, it is sort of like building an economy and having economic planning, like a builder had a yardstick that changed its value every single day. Just think of the kind of building you would have. This is why we have this imbalance in our economic system.

But it was a system designed to pyramid debt. We have a debt-based system. The more debt we have and the more debt that the Federal Reserve buys, the more currency they can print, and they monetize this debt. And no wonder we are in a debt crisis. It is worldwide. I think it is something we have never experienced before. And I think the conclusion would be a vindication either for sound money, or if you win the argument and say yes, we are great managers, we know how to do it, we want the credit for the good

times, and we want the credit for getting us out of those good times, I think within a few years, we are going to know. Of course, I am betting that the market is smarter, commodity money is smarter, nobody is smart enough to have central economic planning. So I am anxiously waiting for this day, for the conclusion, because reforms have to come. They are already talking about—when you see Robert Zoellick talking about monetary reforms, and talking about gold, the time has come for serious discussion on monetary reform.

Thank you, Mr. Chairman.

Chairman BACHUS. Thank you, Dr. Paul, for that statement.

[...]

Chairman BACHUS. Dr. Paul?

Dr. PAUL. Thank you, Mr. Chairman. Mr. Bernanke, if you don't mind, would you tell me whether or not you do your own shopping at the grocery store?

Mr. BERNANKE. Yes, I do, sir.

Dr. PAUL. Okay, so you are aware of the prices. This argument that the prices are going up about 2 percent, nobody believes it. In the old CPI, it says prices are going up about 9 percent so they believe this. People on fixed incomes are really hurting. The middle class are really hurting because their inflation rate is very much higher than the government tries to tell them, and that is why they lose trust in government. But this whole idea about prices and debasement of currency, if you loaned me \$100, and 2 years from now I gave you \$90 back, you would be pretty upset. But we pay that money back and it is worth 10 or 15 or 20 percent less, and nobody seems to be able to do anything about it. It is very upsetting. But it is theft if I don't give you your full \$100 back and you loan me \$100. I am stealing \$10 from you. So somebody is stealing wealth and this is very upsetting. But in January, at one of your press conferences, you said that—you sort of poked a little bit of fun at people to downplay the 2 percent inflation rate, but if you say it is 2 and I say it is 9, let's compromise for the sake of argument; it is 5 percent. You said that it doesn't hurt you unless you are one of those people who stick the money in the mattress. But where are you going to put it? Are you going to put it in a CD and not make any money at all? So this doesn't make any sense. It doesn't encourage savings. And it just discourages people.

But I do want to make a point about prices, because prices go up. That, to me, is not the inflation. It is one of the bad consequences of the inflation which comes from the increase in the money supply. And

that is one of the bad effects. But you took over the Fed in 2006. I have a silver ounce here, and this ounce of silver back in 2006 would buy over 4 gallons of gasoline. Today, it will buy almost 11 gallons of gasoline. That is preservation of value. And that is what the market has always said should be money. Money comes into effect in a natural way, not in edict, not by fiat by governments declaring it is money.

But why is it that we can't consider, the two of us, an option? You love paper money. I think money should be honest, constitutional, it is still on the books, gold and silver legal tender. Why don't we use it? Why don't we allow currencies to run parallel? They do around the world. One of my options, as much as I would like to do something with the Fed, I say the Fed is going to self-destruct eventually anyway when the money is gone. But why wouldn't we legalize competing currencies? Why couldn't people save, put this in a mattress, and get 4 or 5 times as much of the value in a few years. So the record of what you have done in the last 6 years is to destroy the value of real money, of paper money, at the same time real money is preserved.

But a competing currency—we already have a silver eagle. It is legal tender for a dollar, and some people say well, it is legal tender. It is a dollar. It is on the books and they use it and they get into big trouble. The government comes and closes them down. You can get arrested for that. But what would be wrong with talking about parallel currency, competing currencies? This is something that Hayek talked about, something that I think would be a compromise and that we could work along those views.

Mr. BERNANKE. First of all, it is good to see you again, Congressman Paul. Just one word on inflation. Of course, those numbers are constructed by the Bureau of Labor Statistics, not by the Fed. They are independently constructed, and I think they are done in a very serious and thoughtful way.

On alternative currencies, nobody prevents you from holding silver or gold if you want to. It is perfectly legal to do that, and it is also perfectly fine to hold other currencies, euros or yen or whatever else. So in that respect, you can do that and I would be happy to talk to you about—

Dr. PAUL. But Mr. Chairman, that is not money. When you pay taxes to buy a coin or you have capital gains tax, when it is not— if you have to settle a lawsuit, it is always settled in depreciating Federal Reserve notes. It is never settled in the real contract. So that is nothing near money when it is illegal to use it. But to do it, you

would have to repeal the legal tender laws. You would have to legalize this. You would have to get rid of the sales taxes, you would have to get rid of the capital gains taxes. People even in Mexico, they are talking about this. They are trying to have competing currencies. They have been wiped out too many times with inflation, and wiped out the middle class. They are allowing people to start to save in a silver currency.

So I hope we move along in that direction because there shouldn't be any overwhelming changes all of a sudden that there could be a transition so people could vote on it. Maybe they will give up on the Federal Reserve note and vote for real money.

Mr. BERNANKE. I would be very happy to talk to you about it.

Dr. PAUL. Thank you very much.

Chairman BACHUS. Thank you.

[Rep. Paul's time for questioning concluded.]

STATEMENT
FOR THE RECORD

HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman,

Thank you for holding this hearing on monetary policy and the state of the economy. I believe that now, more than ever, the American people want to hold the Federal Reserve accountable for its loose monetary policy and want full transparency of the Fed's actions.

While the Fed has certainly released an unprecedented amount of information on its activities, there is still much that remains unknown. And every move towards transparency has been fought against tooth and nail by the Fed. It took disclosure requirements enacted within the Dodd-Frank Act to get the Fed to provide data on the its emergency lending facilities. It took lawsuits filed by Bloomberg and Fox News to provide data on discount window lending during the worst parts of the financial crisis. And it will take further concerted action on the part of Congress, the media, and the public to keep up pressure on the Fed to remain transparent.

Transparency is not a panacea, however, as a fully transparent organization is still capable of engaging in all sorts of mischief, as the Federal Reserve does on a regular basis. Ironically, one of the Fed's more egregious recent actions, adopting an explicit inflation target, was hailed by many as another wonderful example of transparency. Yet if you think about what this supposed 2% inflation target actually is, you realize that it is an explicit policy to devalue the dollar and

reduce its purchasing power. Two percent annual price inflation means that prices rise 22% within a decade, and nearly 50% within two decades.

Indeed, if you look at the performance of the consumer price index (CPI) under Chairman Bernanke's tenure, prices have risen at a rate of 2.25% per year. Many, perhaps even most, economists would consider this a modest rise, an example of sober, cautious monetary policy. Some economists of Paul Krugman's persuasion might even argue that this is too tight a monetary policy. However, 2.25% is not too far off from the Fed's new 2% target.

Now look at the performance of the US economy since February 1, 2006, the date Chairman Bernanke took the mantle from Alan Greenspan. Trillions of dollars have been wasted on bailouts, stimulus packages, and other feckless spending. Millions of Americans have lost their jobs and have lost hope of ever regaining employment. The national debt has risen to more than 100% of GDP, as the federal government continues to rack up trillion-dollar deficits, aided and abetted by the Fed's policies of quantitative easing and zero percent interest rates. And we are supposed to believe that a 2% inflation rate, similar to what has prevailed during the worst economic crisis since the Great Depression, is the cure for what ails this economy.

This explicit 2% target also fails to take into account that whatever measure is used to determine price inflation, be it CPI, core CPI, PCE, etc., will always be chosen with an eye towards underreporting the true rate of inflation and price rises. Pressure will be exerted on those calculating the price indices, so as not to alarm the public when prices begin to accelerate. One need only look at what is taking place in Argentina today, where the government publishes an official CPI figure that is often less than half that reported by private sources.

A similar situation exists in this country, where economists calculating CPI according to the original basket of goods have determined that price inflation has increased 9.5% per year since 2006, rather than the 2.25% reported by the government. Even the government's own data reports price rises of nearly 7% per year since 2006 on such consumer goods as gasoline and eggs. Bread, rice, and ground beef have increased by nearly 6% per year, while bacon and potatoes have increased nearly 5% per year. This means that in a little over half a decade, prices on staple consumer goods have increased 30-50%, all while wages have stagnated and millions of Americans find themselves out of work and without a paycheck. Of

course, government officials claim that price increases do not affect the average American because they can always buy hamburger instead of steak, or have cereal instead of bacon. But the American people can see how they are suffering because of the Federal Reserve. The government's claims that the official statistics show no reason to be concerned about inflation is Marxist—as in Groucho, who famously said: “Who are you going to believe, me or your own eyes?”

The Federal Reserve continues to keep interest rates low in the hopes of boosting lending and consumption. But keeping interest rates at zero discourages saving, particularly as the rate of price inflation continues to rise. Why stick money in a savings account earning 0.05% if it is guaranteed to lose at least 2% of its value every year? And this is a guarantee, as the Fed has promised a 2% rate of increase in price inflation, while also guaranteeing a zero percent federal funds rate through 2014. Retirees living on fixed incomes, dependent on savings, or on interest income from investments will see their savings drawn down as they are forced to consume principal. Young people, hard hit by the recession and struggling to find jobs, will fail to see the virtue of thrift. Saving or investing is an exercise in futility, as parking money in the bank or in CDs will guarantee a loss, while investing in stocks, bonds, or mutual funds will net at best paltry gains, and at worst massive losses in this continuing weak economy.

The longer the Federal Reserve keeps interest rates low and discourages savings and investment, the more societal attitudes will change from being future oriented to present oriented. The Federal Reserve and its policies already served to stimulate and prioritize consumption over saving, creating the largest debt bubble the world has ever known. The extended zero interest rate policy only serves to promote more consumption and debt now, eviscerating thrift and savings—the true building blocks of prosperity. This present-oriented mindset has become pervasive especially among politicians, putting the government in dismal financial shape as Congressmen and Presidents over the years have taken to heart Louis XV's famous saying: “Après moi, le déluge.” If the American people follow the same path in their own lives, this country will be ruined. Capital will be depleted, infrastructure will fall into disrepair, and the United States will be a mere shadow of its former self. It is well past time to end the failed monetary policy that encourages this mistaken preference for cheap money now.

IV.
**RON PAUL'S FINAL QUESTIONS TO
BEN BERNANKE?**

HEARING ON
MONETARY POLICY AND THE STATE OF THE ECONOMY
COMMITTEE ON FINANCIAL SERVICES
U.S. HOUSE OF REPRESENTATIVES

WEDNESDAY, JULY 18, 2012

WITNESS

Bernanke, Hon. Ben S., Chairman, Board of Governors of the
Federal Reserve System

*T*RANSCRIPT²⁰

The committee met, pursuant to notice, at 10 a.m., in room 2128, Rayburn House Office Building, Hon. Spencer Bachus {chairman of the committee} presiding.

[...]

Chairman BACHUS. I thank the ranking member. Before recognizing Dr. Paul for his statement, I want to note that this may be his last committee meeting with the Chairman of the Federal Reserve. And throughout his time in office, Dr. Paul has been a consistent and strong advocate for sound monetary policy, and his leadership on the committee especially during these hearings when we've had the Federal Reserve chairmen up here before us have certainly made the hearings more interesting and provided several memorable YouTube moments.

Mr. FRANK. Mr. Chairman. Could I get unanimous consent just to say that, having served a long time with Ron Paul, with whom I agree on a number of issues, I am very pleased that I was able to serve one term with his as the Chairman because there were times during our joint service when despite his seniority, I thought he would never get to it. So I am glad he finally achieved that chairmanship that he should have had long ago.

[...]

Chairman BACHUS. Dr. Paul for three minutes.

Dr. PAUL. Thank you, Mr. Chairman. Welcome Chairman Bernanke. Appreciate your comments, chairman and the ranking

²⁰ [As of December 2012, the record for this hearing remained open waiting on written responses from Chairman Bernanke to questions submitted in writing by Members.]

member. I am delighted to be here today, but I just want to refresh a few people's memory. I was first elected to Congress in 1976 in April in a special election. And the biggest bill on the docket at that time was the revamping of the IMF. There was a major crisis going on from the breakdown of the Bretton Woods agreement, and they had to rewrite the laws. They wanted to conform the laws with what they had been doing for five years. And that was a major piece of legislation. But it was only a consequence of what was predicted in 1945, because when 1945 established the Bretton Woods, it was predicted by the free market economists it wouldn't work, it would fail. And this whole idea they could regulate exchange rates and deal with the balance of payments, it totally failed.

And so they had to come up with something new. And 1971-76 is that transition period. And those same economists at that time said this was an unworkable system, too, and it would lead to a major crisis of too much debt, too much malinvestment. It would be worldwide. It would be worse than anything because it would be based on the fiat dollar globally, and many of the problems we have domestically would be worldwide. And that certainly has been confirmed with the crisis that we are in, and it has not been resolved yet. We are still floundering around, and we still have a long way to go.

I have, over the years, obviously been critical of the what goes on in monetary policy, but it hasn't been so much the Chairman of the Federal Reserve, whether it was Paul Volcker or Alan Greenspan or the current chairman, it has always been the system. I think they have a job that they can't do because it is an unmanageable job. And it is a fallacy, it is a flawed system, and therefore we shouldn't expect good results, and generally, we are not getting results.

Policies never change. We say the same thing. No matter what the crisis is, we still do more of the same. If spending and debt was the problem, spending more and in greater debt and have the Fed just buy more debt doesn't seem to help at all. And here we are doing the same thing. We don't talk about the work ethic and true production and true savings and why this excessive debt is so bad for us. We talk about solving a worldwide problem of insolvency of nations, including our own, by just printing money, creating credit.

And now the Fed, in the last four years, tripled the monetary base, and it has \$1 trillion more money sitting there, and the banks are sitting with trillions of dollars. And just the creation of money doesn't restore the confidence that is necessary. And until we get to the bottom of this and restore the confidence, I don't think we are

going to see economic growth. This whole idea that you have the job of managing money, and we can't even define the dollar, nobody has a definition of the dollar. It is an impossible task.

So I have hoped in the past to try to contribute to the discussion on monetary policy and the business cycle and why it benefits the rich over the poor, and so far, my views have not prevailed. But I have appreciated the opportunity, and I appreciate this opportunity to have served on the Banking Committee.

[...]

Chairman BACHUS. Thank you. Dr. Paul for five minutes.

Dr. PAUL. Thank you, Mr. Chairman. I had a question prepared, but I think I better follow up on the question you asked Chairman Bernanke dealing with the audit of the Fed. Because when the Fed talks about independence, what they are really talking about is secrecy, not transparency. And it is the secrecy that I don't like and that we have a right to know about.

What the GAO cannot audit, and I believe it would be the position of the chairman, is it cannot audit monetary policy, and you expressed yourself on monetary policy. It would not be able to look at agreements and operations with foreign central banks and governments and other banks, or transactions made under direction of the FOMC, discussions or communications between the Board and the Federal Reserve System related to all those items.

So it really, it is really not an audit without this. It is still secrecy. And why this is important is because of what happened four years ago. It is estimated that the amount of money that went in and out of the Fed for the bailing out overseas was \$15 trillion. How did we ever get into this situation where Congress has nothing to say about trillions and trillions of dollars of bailing out certain banks and governments through these currency swaps?

And the Chairman has publicly announced that he is available, there is a crisis going on in Europe, part of this dollar crisis going on that has been building. It is unique to the history of the world of monetary policy. And we stand ready. Who stands ready? The American taxpayer, because we are just going to print up the money. As long as they take our dollars, we will print the money and we will bail them all out and we are going to destroy the middle class. The middle class I shrinking. The banks get richer, the middle class, they shrink, they lose their houses, they lose their mortgages.

The system is biased against the middle class and the poor. So I would say that is—if we protect this amount of secrecy, it is not good policy and it is not good economics at all, and it is very unfair. But my question is, Mr. Chairman, whose responsibility is it under the Constitution to manage monetary policy? Which branch of government has the absolute authority to manage monetary policy?

Mr. BERNANKE. The Congress has the authority, and it has delegated it to the Federal Reserve. That is a policy decision that you have made.

Dr. PAUL. Yeah, but they can't transfer authority. You can't amend the Constitution by just saying we are going to create some secret group of individuals and banks. That is amending the Constitution. You can't do that, and all of a sudden allow this to exist in secrecy. And whose responsibility is it for oversight? Which branch of government has the right of oversight?

Mr. BERNANKE. Congress has the right of oversight. And we certainly fully accept that, and we certainly fully accept the need for transparency and accountability. But it is a well-established fact that an independent central bank will provide better outcomes. If you want to go—there is no Constitutional reason why you couldn't, why Congress just couldn't take over monetary policy. If you want to do that, I guess that is your right to do it. But I am advising you that it wouldn't be very good from an economic policy point of view.

Dr. PAUL. Yeah, but if it is allowed to be done in secret—this is the reason why I want to work within the system. What I want to say is Congress ought to get a backbone. They ought to say we deserve to know, we have a right to know, we have an obligation to know because we have an obligation to defend our currency. It is the destruction of the currency that destroys the middle class. There is a principle in free market banking that says if you destroy the value of currency through inflation, you transfer the wealth from the middle class and it gravitates to the very wealthy. The bankers, the government, the politicians, they all love this. It is a fact that the Federal Reserve is the facilitator. You couldn't have big government—if everybody loves big government, love the Fed, because they can finance the wars and all the welfare you want. But it doesn't work, and it eventually ends up in a crisis. And it is a solvency crisis, and it can't be solved by printing a whole lot of money.

So I think the very first step is transparency, and for us to know. We have a right to know. And you may be correct in your assumption, at least I am sure you believe this, but maybe I should be talking to the Congress that we should stand up and say, yes, we demand to

know. Trillions and trillions of dollars being printed out of thin air, and bailing out their friends. They stand ready to do it. The crisis is just in its, as far as I am concerned, my opinion is it is in the early stages. It is far from over. We are in deep doldrums, and we never change policy. We never challenge anything. We just keep doing the same thing.

Congress keeps spending the money. Welfare expands exponentially. Wars never end. And deficits don't matter. And when it comes to cutting spending, Republicans and Democrats get together and say, oh, no, we can't really cut. And if we do cut, we just cut proposed increases.

Mr. FRANK. Mr. Chairman, regular order. Regular order, Mr. Chairman.

Dr. PAUL. And you stand there and facilitate it all.

Chairman BACHUS. Thank you, Dr. Paul.

[...]

Chairman BACHUS. Thank you. Mr. Jones?

Mr. JONES. Mr. Chairman, thank you very much. And, Mr. Bernanke, thank you for being here.

I want to say, two of my worst votes in 18 years, the Iraq war—and we didn't have to go to Iraq—and the second, the repeal of Glass-Steagall. And if I was not going to yield my time, I would ask you about reinstating Glass-Steagall. I think I will write you a letter with that question, sir.

But at this time, because he is one of my dearest friends and I supported him for the Republican nomination to be President of the United States, I yield my time to Dr. Ron Paul.

Dr. PAUL. I thank the gentleman from North Carolina.

I wanted to make a very brief statement about our previous discussion about the Audit the Fed bill. That bill has nothing to do with transferring who does monetary policy. It is strictly a transparency bill. Monetary policy reform I believe will come, but that is another subject. This is just to know more about what the Federal Reserve is doing.

Mr. Chairman, one of your key points that you have made through your academic career as well as being at the Fed has been the need to prevent deflation. Would you agree with that?

Mr. BERNANKE. Generally, yes, sir.

Dr. PAUL. Right. And you argue that the Depression was prolonged by the Federal Reserve not being able to reflate. So, in

that sense, I think you really have achieved—you have had the chance—you were put in a situation that you alone didn't create. It is, as far as I am concerned, the system created it and other managers helped create this. And there was this, what I see as a natural tendency to deflate and liquidate and clear the market. And under your philosophy, you say we can't allow this to happen, we have to prevent it. And I would say you have done a pretty good job, you know. The monetary base has been tripled, and in the last 12 months I think M1 has grown about 16 percent, M2 over 9 percent. So it seems to be like the monetary system, the monetary numbers are still growing.

But the—pricing houses, you know, everybody knows there is a bubble. I like to believe that the free market economists knew about it and predicted it; others did not. But the prices soared up, everybody knows there was a bubble, and then they collapsed. When those prices of houses collapse, do you call that deflation?

Mr. BERNANKE. No. deflation is the prices of current goods and services. So inflation doesn't capture house prices. It includes the house or the rental—

Dr. PAUL. Okay. And I think one of the problems even getting a full-fledged discussion out is sometimes the definition of words, about what inflation and deflation means. Because, as far as I am concerned, deflation is when the money supply shrinks, and inflation is when the money supply expands. But just about everybody in the country, especially the financial markets, and the way I think the conventional use of inflation is the CPI. And I think it is, you know, a lousy measurement. Because if it is the money supply increase, if prices going down of houses is not deflation, I wonder why it is that inflation is measured by the CPI going up rather than the money supply going up.

Our argument is that once you distort interest rates and increase the supply of money, you end up with this gross distortion that is demanding some correction. So I would—I have worked on this for years, and we are not going to solve it today. The definitions would be much better if we—if prices of houses going down is not deflation, then CPI going up shouldn't be inflation.

But we have had trouble five years. The monetary system, you say this is not the all-end—end-all. You can't solve every problem with monetary system—monetary policy. We have had this for five years, and we are still in a mess.

Is there ever a time—let's say we go five more years and we have the same problems but much worse—is there ever a time you might

say, I have to reassess my philosophy on monetary policy, or do you think it will be the same no matter what kind of crisis? Can you foresee any kind of problem that we would have that you would reassess your assumptions?

Mr. BERNANKE. I can't conjecture what specifically, but of course, yeah, I am evidence-based. I look and see what happens and try to draw conclusions from that. Certainly.

Dr. PAUL. Well, the definitions, obviously, to me are, you know, very, very important. And if we don't come to this conclusion and we use these terms—inflation demands corrections, and the market wants to correct. So this is why we believe that we are going to have perpetual doldrums and finally have a big one.

Do you consider this recession that we are facing today something that is significantly different since 1945? Much worse and different in any way?

Mr. BERNANKE. Yes, because of the financial crisis, yes.

Mr. FRANK. Regular order.

Chairman BACHUS. Thank you. Thank you. Thank you, Dr. Paul. That was a double dose you got. So that was pleasantly unexpected, I guess.

[Rep. Paul's time for questioning concluded.]

*Q*UESTIONS
FOR THE RECORD

FROM CHAIRMAN RON PAUL TO
CHAIRMAN BEN BERNANKE

Question 1:

What items constitute the "Other Federal Reserve assets" line item in Table 1 of the weekly Federal Reserve Statistical Release H.4.1 Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks? Please provide as detailed a categorized list as possible?

Answer:

"Other Federal Reserve assets" ("other assets") include assets denominated in foreign currencies; premiums paid on securities bought; accrued interest on other accounts receivable; Reserve Bank premises and operating equipment less allowances for depreciation; and, until recently, float-related as-of adjustments.²¹ Until January 2009, "other assets" also included the currency swaps with other central banks. For reference, the Board of Governors' Credit and Liquidity Programs and the Balance Sheet public website presents a summary of the H.4.1 statistical release with an interactive guide (<http://www.federalreserve.gov/monetarypolicy/bstfedsbalancesheet.htm>).

Question 2:

²¹ As one part of an effort to simplify the administration of reserve requirements and thereby reduce burden on the banking sector, the Federal Reserve eliminated as-of adjustments on July 12, 2012. Additional information about reserves simplifications can be found at <http://www.federalreserve.gov/newsevents/press/other/20120405a.html>.

The "Other Federal Reserve assets" line item increased from approximately \$40 billion in early 2009 to roughly \$100 billion in early 2010, remaining at that level throughout 2010. What were the causes for the increase in the "Other Federal Reserve assets" line items over the 2009-2010 period?

Answer:

You noted that between 2009 and early 2010, "other assets" increased. Indeed, between January 28, 2009, and the present, "other assets" have increased by roughly \$150 billion. The increase primarily reflects an increase in unamortized premiums on securities held in the Federal Reserve's System Open Market Account portfolio. The Federal Reserve purchases securities in the open market at market-determined prices. The market price of a security can be expressed as the face value of that security plus a premium or a discount, depending on whether the market price of the security is above or below the face value on the date of purchase. On the H.4.1 statistical release, we report the face value of the securities, and the premium or discount at the time of purchase is separately reported under "other assets." This accounting treatment has been in place for decades.

Since early 2009, the Federal Reserve has engaged in large-scale asset purchases in an effort to ease overall financial conditions and to provide support for the economic recovery. Because the market prices of most of the securities that were purchased were greater than the face value of those securities, "other assets" have increased reflecting the accumulation of premiums as our holdings of securities have increased.²²

Question 3:

The "Other Federal Reserve assets" line item has nearly doubled since early 2011, increasing from roughly \$100 billion to almost \$200 billion. What is (are) the cause(s) for this increase in the "Other Federal Reserve assets" line item?

Answer:

Please see the response to question 2.

²² The Federal Reserve publishes the details of all of its securities holdings on the public website of the Federal Reserve Bank of New York (http://www.newyorkfed.org/markets/soma!sysopen_accholdings.html).

Question 4:

Is the increase in the line item "Other Federal Reserve assets" related in any way to the dollar swap lines with foreign central banks or to other assistance to foreign central banks, commercial banks, or governments?

Answer:

The central bank liquidity swaps that the Federal Reserve has with other central banks have been reported separately since January 2009. As a result, the increase in "other assets" since then is not related to those swaps, nor is it related to assistance to foreign institutions.

Question 5:

The central bank liquidity swap lines when first drawn upon in 2007 were published in the H.4.1 release with the "Other Federal Reserve assets" line item before being broken out into a separate line item in early 2009. Are there some specific facilities, asset types, or other categories that could be given their own line item now that the "Other Federal Reserve assets" line items had grown so large?

Answer:

Although the security premiums at the date of purchase are largely a technical accounting item, we are considering whether to report the premiums on securities separately from other items included in the "other assets" category.

STATEMENT
FOR THE RECORD

HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Mr. Chairman, I thank you for calling this hearing today on monetary policy and the state of the economy. For the past few years the Federal Reserve has received criticism from all sides of the political spectrum, and rightly so, for its unprecedented intervention into the economy and its bailouts of large Wall Street banks and foreign central banks. Yet this criticism risks losing sight of the most insidious result of the Fed's actions, which is to enable the growth of government.

For nearly the first 40 years of its existence, the Fed operated as an adjunct of the Treasury Department, tasked with purchasing government debt in order to keep the government's borrowing costs low. Even after gaining its vaunted "independence" from Treasury in 1951, the Fed never shrank from enabling the growth of government. The extraordinary monetary policy of the last four years has reaffirmed that the Fed, its protestations to the contrary notwithstanding, is only too willing to enable growing government spending and massive fiscal deficits.

For centuries, banks have received special privileges from government in exchange for funding the government's wars. The creation of the Federal Reserve System in 1913 formalized and centralized this arrangement in the United States. From the very beginning, the Fed was intended to provide a more liquid market for federal government debt, enabling the growth of big government.

What we've seen over the last century is nothing less than the remaking of American government, thanks in large part to the Fed. Its loose monetary policy gave rise to:

- (1) the welfare state, encouraging dependency on government largesse and destroying the work ethic and family life of lower-income Americans;
- (2) the warfare state, allowing the U.S. government to involve itself in wars of aggression around the world; and
- (3) the regulatory state, the mammoth bureaucracy that relentlessly grinds away at the rights of the American people.

Little more than a decade ago, Fed economists were wringing their hands over the prospect that the federal government might pay off the national debt. Nothing could be worse for the Fed, because the Fed's monetary policy operations require the existence of government debt. Treasury debt is purchased from or sold to banks on the open market in order to influence interest rates. Without government debt, the Fed would have no idea how to conduct monetary policy. From a free market perspective this would be wonderful, as it is Fed monetary policy which largely creates the booms and busts of the business cycle. Unfortunately, the federal government has run up the national debt to unprecedented levels over the past decade, and the Federal Reserve has been right there, monetizing that debt to ensure that none of it goes unsold.

While the desire of foreign countries and private investors to purchase Treasuries was drying up, the Federal Reserve was only too willing to step in and enable the government to continue its deficit spending. The Fed's balance sheet exploded as it purchased over one trillion dollars in Treasury debt over the past few years. And before it did that, the Fed also purchased over a trillion dollars of overrated mortgage-backed securities from Wall Street banks, giving those banks the cash they needed to purchase Treasury debt of their own. Were it not for the Federal Reserve's actions, the federal government would not have been able to run trillion-dollar deficits for the past several years.

In fact, had the Federal Reserve never been created, the federal government never would have been able to run up a \$16 trillion debt. No market actor would lend money to such a major debtor at such low interest rates. The only reason that banks are willing to buy Treasury debt at such low interest rates is because they can easily resell that debt to the Fed.

Without the Fed, interest rates would rise to such levels that the federal government would have no choice but to curtail its expenditures and focus only on doing what is truly necessary. With market discipline allowed to prevail, the size of the federal government would be drastically smaller. If Congress were really serious about limiting the size of government, it would eliminate the most important enabler of government profligacy by ending the Fed.

★ ★ ★

Book Four

HEARINGS OF THE SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY
& TECHNOLOGY

PART 1.

CONSEQUENCES OF MONETARY POLICY

- I. THE RELATIONSHIP OF MONETARY POLICY & RISING PRICES
- II. CAN MONETARY POLICY REALLY CREATE JOBS?
- III. MONETARY POLICY AND THE DEBT CEILING: EXAMINING THE RELATIONSHIP BETWEEN THE FEDERAL RESERVE AND GOVERNMENT DEBT?
- IV. THE PRICE OF MONEY: CONSEQUENCES OF THE FEDERAL RESERVE'S ZERO INTEREST RATE POLICY

*H*EARING I.

THE RELATIONSHIP OF MONETARY POLICY AND RISING PRICES

THURSDAY, MARCH 17, 2011

WITNESSES

Lehrman, Lewis E., Senior Partner, L.E. Lehrman and Company
Grant, James, Editor, Grant's Interest Rate Observer
Salerno, Joseph T., Professor of Economics, Lubin School of
Business, Pace University

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “The Relationship of Monetary Policy and Rising Prices” at 10:00 a.m. on Thursday, March 17, 2011 in Room 2128 of the Rayburn House Office Building.

At the time of the hearing, the massive injections of liquidity into the economy by the Federal Reserve through its policies of quantitative easing had given rise to fears that inflation would rise as the economy recovered. Inflation is destructive because it distorts the capital structure of the economy, eats away at savings, and redistributes wealth arbitrarily from lenders and savers to debtors. Many feared that efforts by the Federal Reserve to stimulate the economy and increase employment could touch off an inflationary spiral similar to that of the 1970s, or worse, a hyperinflation such as that during Weimar Germany—concerns that continue today as the Fed’s accommodative monetary policy persists.

This was a one-panel hearing with the following witnesses:

- Mr. Lewis E. Lehrman, Senior Partner, L.E. Lehrman & Co.
- Mr. James Grant, Editor, Grant’s Interest Rate Observer
- Professor Joseph T. Salerno, Pace University, New York

Defining and Measuring Inflation

Inflation is defined as an increase in the supply of money, with its primary effect being a rise in the prices of goods and services as more money chases the same amount of goods and services. Popular parlance has conflated the effects of inflation with the cause, so that inflation in common usage refers to a general rise in prices, not the monetary expansion that causes those price rises. Inflation as popularly defined has become so persistent in the economy that

economists refer to “inflation expectations,” i.e., the expected rate of price increases that individuals expect. The cumulative effect of this price inflation has resulted in prices that have increased tenfold since the end of World War II.

The most common method of measuring this price inflation is through the Consumer Price Index (CPI), or sometimes the “core” CPI, which excludes energy and food costs. The Federal Reserve references the core CPI, as one measure of inflation, because it alleges that energy and food prices can be subject to temporary shocks from weather, political disturbance, or some other calamity that would cause prices to rise in the absence of monetary disturbances. Because food and energy costs account for as much as 25 percent of an average family’s expenses, many economists have argued that core CPI is not the best way to measure inflation. Some have suggested that an index more heavily weighted towards food and energy costs would be a better measure of inflation, since most Americans spend their money largely on food and energy consumption. Others have argued that “headline” (i.e. overall) CPI is the best predictor of future inflation, noting that headline CPI was well over the Fed’s “comfort range” of about 2 percent before each of the last two recessions while the core CPI was below 2 percent.²³

Monetary Policy and Inflation

The Federal Reserve uses monetary policy in an attempt to control the pace of economic growth. The Federal Reserve was given a dual mandate in the Humphrey-Hawkins Act to maintain both price stability and maximum employment. This dual mandate assumes the existence of the Phillips curve, i.e. an inverse relationship between the unemployment rate and the rate of price inflation. Hence the Federal Reserve attempts to perform a balancing act between unemployment and inflation. As unemployment rises, the Federal Reserve pumps more money into the economy; as price inflation rises, the Federal Reserve pulls money out of the system, at the expense of higher unemployment. Although the 1970s saw the emergence of stagflation, the existence of both high price inflation and high unemployment, the Federal Reserve continues to believe in this tradeoff between price inflation and unemployment, and conducts its monetary policy accordingly.

²³ In early 2012, the Fed announced for the first time an explicit inflation target of 2%. The Fed stated that its main metric of reference was the Personal Consumption Expenditures (PCE) index, which measures the goods and services purchased by households and nonprofit institutions.

When the Federal Reserve injects money into the economy it normally does so through open market operations. It creates new bank credit and uses that to purchase securities, normally Treasury securities, on the open market. Banks can then pyramid new loans on top of this newly-created credit they have received from the Federal Reserve. The injection of new credit has the effect of pushing down interest rates. Since interest rates have been lowered, it becomes cheaper for businesses to borrow money and they engage in longer-term, more capital-intensive projects. As more and more credit makes its way into the economy, and because credit is a money substitute, prices begin to rise. In response, the Federal Reserve often attempts to pull credit out of the system by selling securities back onto the open market in an attempt to raise interest rates and curb price inflation. As former Federal Reserve Chairman William McChesney Martin, Jr., once stated, the Federal Reserve's job is to "take away the punch bowl just when the party is getting good."

Inflation, Zero Interest Rate Policy, and Quantitative Easing

The difficulty with the Fed's approach is that the Federal Reserve lacks the necessary ability and knowledge of when to loosen and tighten monetary policy. Because consumption and investment decisions are made by millions of people whose desires change on a weekly, daily, or even hourly basis, any monetary policy pursued by an entity such as the Federal Reserve will necessarily be based on outdated data with a significant time-lag, will not reflect consumer preferences, and will result in an interest rate that is either lower than the natural market rate (thereby artificially stimulating economic activity) or higher than the market rate (thereby artificially depressing economic activity). Thus the monetary policy pursued by the Federal Reserve will result in an economic boom followed by a bust. Attempting to balance economic activity is a Sisyphean task.

Some economists have pointed out that after the Dot-com boom of the late 1990s the Federal Reserve held interest rates too low throughout the 2000s, despite a rise in measured inflation. By keeping interest rates so low for so long, the Federal Reserve created the real estate bubble. When the Fed started raising interest rates to avoid overheating the economy, it burst the housing bubble it created. The Federal Reserve's holding of interest rates near zero since the end of 2008 and its recent bouts of quantitative easing have sparked a similar round of asset bubbles, which may likely lead to a deeper and more prolonged recession.

At the time of the hearing, the Federal Reserve had signaled that it would continue to maintain an accommodative monetary policy, a position that puzzled many economists, given that GDP had been growing modestly for more than a year and that job growth in the private sector had occurred over the past several quarters, even though the overall jobless rate remained uncomfortably high, at 9 percent. Despite a fall in the unemployment rate to 7.7% in November 2012, the Fed has maintained its position of keeping interest rates near zero until the middle of 2015, or until the unemployment rate declines to 6.5%, while purchasing up to \$85 billion in securities per month.

Many economists remain concerned about the amount of liquidity that the Federal Reserve has injected into the economy. At the end of 2012, the Fed's balance sheet stood just shy of \$3 trillion with an expectation of growing \$85 billion per month for the foreseeable future; in September 2008 the Federal Reserve's balance sheet was less than one-third that size, at roughly \$900 billion. Although the Federal Reserve claims to have plans in place to remove that liquidity from the economy at a time it deems appropriate, the scale of the task dwarfs anything the Fed has attempted before. The risks for an inflationary event persist and the Fed's actions have already fueled what appears to be a new bubble in the bond market.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:03 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, McHenry, Luetkemeyer, Huizenga, and Schweikert.

Chairman PAUL. This hearing will come to order.

I want to welcome our three witnesses today, and they will be further introduced when they are ready to give their testimony.

The ranking member, Mr. Clay, is going to be coming later, but he has advised me that we can go ahead and start the hearing.

So I will start with an opening statement and those who want to give opening statements can do so, as well. I will advise that we will have some votes, probably in about 20 minutes or so, and we might have to take a 30-minute break. But we will deal with that when the time comes.

I consider these hearings very important. A few weeks ago, we had hearings on the Federal Reserve's relationship to the unemployment problem, and the Fed has been given two mandates: one, to keep low unemployment, which they haven't done a very good job of; and two, to maintain price stability. And the evidence is mounting that they haven't been doing a very good job with maintaining price stability either.

Most people refer to rising prices as inflation and that is the conventional wisdom. But many of us concentrate on things other than just rising prices and seeing rising prices as a symptom of the basic problem, which means that when a money supply has increased, the value of that currency goes down and inevitably it will lead to rising prices, unfortunately not uniformly, which means that some people suffer more than others.

But the one thing that is done when prices rise is that a lot of scapegoats are found. And this has been traditional throughout history.

As a matter of fact, as long ago as 40 centuries, 4,000 years ago, the very first known price controls occurred in ancient Egypt. They put on price controls because prices were going up and they didn't want to deal with the real issue, which was the monetary issue. And that is a modern phenomenon too. The United States has done this during wartime periods, during wars in the 20th Century as well as another time in the 1970s, saying that if we can just control prices, we will take care of the problem.

So they are always looking for something to blame for the rising prices. Sometimes it is energy. In the 1970s, it was energy, and boycotts caused rising prices. Even today, the Middle East crisis is causing prices to go up and it does have an influence, but it is not the whole cause.

Any type of crisis will contribute to rising prices. Sometimes labor is blamed for the inflation of prices and sometimes it is weather. Sometimes the blame is placed on the speculators. Once prices start rising, well, if the speculators are doing it, they are buying too much stuff and they are hoarding and they become the scapegoats.

Also, business people, when they make profits, can be accused of contributing to the price inflation. And sometimes, we just blame foreigners for not managing their currencies quite well and causing our prices to go up.

But one of the most bizarre arguments by the conventional wisdom of those at the Federal Reserve, and other places, is that it is excessive growth. We are having too much growth these days and therefore we have to slow it up. And literally, that is what they do.

If they have an inflationary period and they are concerned about rising prices, I think if we just kill the economy, yes, it will. Decrease demand and you will have price adjustments. But that is a heck of a way to solve the problem, which is the monetary problem.

But growth, in itself, doesn't cause higher prices. If you have a healthy economy, you are more likely to lower prices with excessive growth.

We had tremendous growth in the electronics industry—telephones and computers and TVs. In spite of the monetary inflation, we still saw prices drop.

So this whole idea that you have to slow up the economy in order to keep prices down, in order to stimulate growth of the economy, all

you have to do is print money, I think people are starting to realize that is a hoax and it is coming to an end.

The definition of inflation, by many of us, is the increase in the supply of money. Ludwig von Mises, the great Austrian economist, argued this case clearly. And I used to think it was just semantics, but he argued that it was more than that. It was deliberate, so that we in charge—the monetary people in charge didn't want to address the subject of money and why they are responsible, rather than these other issues.

I consider this very, very important because it is so unfair. If governments and central banks increased money, prices went up and wages went up and profits went up all equally, I guess no big deal, but why do it, if that is what is happening?

What happens, though, is some people benefit at the expense of others. And I think it is a reasonable assumption to say, which many have said in the free market school, that if you destroy a currency, you will destroy the middle class. A sound currency encourages the middle class. And I believe that the inflation of prices, when prices go up, are most damaging to the poor and low- to middle-income people because they suffer the consequences much more so than those who can protect themselves. And therefore, it is a tax on the poor and the middle class. They tend to lose their jobs and get the higher prices. So to me, it is very, very important that we address the subject.

And now, I would like to yield to the vice chairman of the subcommittee, Walter Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you very much. And to the panel that is here today, thank you. I think I agree with the chairman that I don't—as a centrist in my philosophy, as it relates to the people in my district, I really believe this is a critical and very important hearing because the relationship between monetary policy and rising prices brings me to my brief statement.

I do the grocery shopping in my family. I have been married for 46 years, and I have been doing the grocery shopping that whole time. I found this editorial in the Wall Street Journal that I think tells why this is an important hearing today—it says I cannot eat my iPad—the subtitle was “Federal Reserve bombs in Queens.” So let me just say that. But this is one of the comments in the article: “Come question time, the main thing the crowd wanted to know was why they are paying so much more for food and gas?”

Keep in mind, the Fed doesn't think food and gas matter in its policy calculations because they aren't part of core inflation. In other

words, food and gas, in the eyes of the Fed, are not part of the core inflation.

So Mr. Dudley tried to explain that other prices are falling: “Today, you can buy an iPad 2, that costs the same as an iPad 1 that is twice as powerful. You have to look at the prices of all things.”

Then from the crowd, someone quipped, “I can’t eat an iPad.” Another attendee asked, “When was the last time, sir, that you went grocery shopping?”

So, this hearing today is extremely important and I am delighted to be part of it and I look forward to the question period. But I want to see it end with one comment. I have my staff email my district every time that we are going to hold a hearing, Mr. Chairman. And when we hold a hearing, I bring to this debate, this hearing, comments from my district.

I just want to mention one and then I will close:

“I have been retired from Ma Bell for 22 years and my pension has only increased once. We did get a small cost of living too, but a couple of years ago, that stopped. For people like us, in this situation, we are getting drained. The way things are going, my wife and I will have to hope to die before we cannot afford to live.”

That is why this is a very important hearing, and I thank you, Mr. Chairman, for the time you just allowed me.

Thank you, sir.

Chairman PAUL. Thank you very much.

Mr. Huizenga, do you care to make a statement?

Okay. There are no other opening statements, so we will now proceed to the testimony. I will introduce the three witnesses, and then we will proceed. Lewis Lehrman will be the first one to give his testimony. Mr. Lehrman is an active proponent of the gold standard and former member of President Ronald Reagan’s Gold Commission. After serving as president of Rite Aid in the 1970s, Mr. Lehrman ran for governor of New York on the Republican and Conservative party ticket. In addition to being a senior partner in his investment firm, Mr. Lehrman continues to remain active in a number of political and civic causes.

Next, we will hear from James Grant. Mr. Grant is a noted investor and publisher of Grant’s Interest Rate Observer. A former columnist for Barron’s, he is the author of five books on finance and financial history. He has appeared on numerous television programs and his writings have been featured in numerous publications, including The Wall Street Journal, the Financial Times, and Foreign Affairs.

And finally, we will hear from Professor Joseph Salerno, who is a professor of economics at Pace University in New York. He is also vice president of the Ludwig von Mises Institute in Auburn, Alabama, and has written extensively on monetary policy and theory, banking, and comparative economic systems. He received his MA and Ph.D. in economics from Rutgers University.

So we will proceed, and Mr. Lehrman, you can give us your statement.

All of your written statements will be made a part of the record, so we ask that you give us a 5-minute summary.

Proceed.

STATEMENT OF LEWIS E. LEHRMAN²⁴
SENIOR PARTNER
L.E. LEHRMAN AND COMPANY

Mr. LEHRMAN. Mr. Chairman, and distinguished members of the subcommittee, I want to thank you for the time. I want to thank my colleagues, Mr. Grant and Mr. Salerno, who have carried on the most distinguished research in monetary history, monetary theory, and monetary policy.

Since the expansive Federal Reserve program of quantitative easing began in late 2008, oil prices have almost tripled. Gasoline prices have almost doubled. Basic world food prices, such as corn, sugar, soybeans, and wheat have almost doubled. The Fed credit expansion from late 2008 through March 2011 created almost 2 trillion new dollars on the Federal Reserve balance sheet alone.

This new Fed credit triggered, as the chairman was just suggesting, a commodity and a stock boom, because the flood of new credit could not be fully absorbed by the U.S. economy, then in recession.

Indeed, Chairman Bernanke recently suggested that quantitative easing aimed to inflate U.S. equities and bonds directly, thus, commodities, of course, indirectly.

But some of the excess dollars raced into the foreign exchange markets, calling a fall on the dollar on foreign exchanges.

Now with quantitative easing, the Fed seems to aim at depreciating the dollar.

Foreign mercantilist countries such as China purchased these depreciating dollars on the foreign exchanges, adding them to their official reserves. Issuing an exchange, they are pegged undervalued

²⁴ [The prepared statement of Mr. Lehrman can be found on page 272.]

currencies. This new money is promptly put to work, creating speculative bull markets and booming economies in China. The emerging market equity and economic boom of 2009 and 2010 was the counterpart of sluggish economic growth in the United States during the same period.

But in the year 2011 and 2012, we will witness a Fed-fueled economic expansion in the United States. Growth for 2011 in the United States will, I believe, be about 3.5 percent or more, unless there is an oil spike. Another oil spike, combined with even greater catastrophe in Japan.

The consumer price index, the so-called CPI, will be suppressed because unemployment keeps wage rates from rising rapidly. The underutilization of physical and industrial capacity keeps producer prices and finished prices from rising as rapidly as they otherwise would. Thus, the flood of new Fed credit has shown up first in commodity and stock price rises.

But commodity and stock inflation inevitably engenders social effects. Two generations of inflationary, monetary, and fiscal policies have been a primary cause of the increasing inequality of wealth in American society.

Bankers and speculators have been and still are the first in line, along with the Treasury, to get zero interest credit from the Fed. The bankers were also the first to get bailed out. Then, with the new money, they financed stocks, bonds, and commodities, anticipating, as in the past, a Fed-created boom.

A very nimble financial class, in possession of cheap, near zero interest credit, is able, at the same time, to enrich themselves and to protect their wealth against inflation. But middle-income professionals and workers on salaries and wages and those on fixed incomes and pensions are impoverished by the very same inflation that subsidizes bankers and speculators.

So if the problem is an unstable dollar, inflation and deflation, boom and bust, what is the solution? I remember Senator Robert Kennedy saying once, "If you do not have a solution, you do not have a problem."

The solution is a dollar convertible to gold at a fixed value. This is the necessary Federal Reserve discipline, to secure the long-term value of middle-income savings and pensions and to backstop the drive for a balanced budget.

The gold standard would terminate the world dollar standard by prohibiting foreign official dollar reserves. Thus, the special access of

the government and the financial class to limitless Fed and foreign official credit would end with the gold standard.

Equally important, the gold standard puts control of the supply of money into the hands of the American people as it should in a constitutional republic.

If the Fed creates more dollars than the people at home and abroad desire to hold, they can exchange excess paper for gold at the fixed value, requiring the Fed to slow down credit creation in order to maintain the statutory gold convertibility of the dollar.

To accomplish this monetary reform, the United States can lead: first, by announcing future convertibility on a date certain of the

U.S. dollar, the dollar itself to be defined then in statute as a weight unit of gold, as the plain words of the Constitution suggests; second, by convening a new Breton Woods Conference to establish mutual, multilateral, gold convertibility of the currencies of the major powers at a level which would not, lower nominal wages; and third, to prohibit by treaty, the use of any currency but gold, as official reserves.

The gold standard is not perfect. But it is the least imperfect monetary system tested in the only laboratory we human beings have available to us: the laboratory of human history.

The dollar as good as gold is the way to restore America's financial self-respect and to regain its role as the equitable leader of the world.

Thank you, Mr. Chairman, and members of the subcommittee.

Chairman PAUL. Thank you.

We will go next to Mr. Grant.

**STATEMENT OF JAMES GRANT²⁵
EDITOR, GRANT'S INTEREST RATE OBSERVER**

Mr. GRANT. Mr. Chairman, good morning. I have the honor of testifying—thank you.

The original Federal Reserve Act said nothing about zero percent interest rates, quantitative easing, inflation targeting, stock price manipulation or indeed, paper money.

The law, rather, projected an institution, “to provide for the establishment of the Federal Reserve Banks to furnish an elastic currency to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes.”

We should have known.

²⁵ [The prepared statement of Mr. Grant can be found on page 291.]

“For other purposes” was the operative phrase. Mission creep is endemic to bureaucracy, of course, but few government departments have crept, indeed galloped, faster, further toward a more unhelpful direction than our own Federal Reserve.

Central banking has elited into a kind of central planning.

And to top it all, the Fed has unilaterally added a third mandate to the two Congress conferred on it some years ago. The “Bank of Bernanke” is today the self-appointed booster of stock prices.

Now, the progenitors of the Fed, notably Senator Carter Glass of Virginia and the economist H. Parker Willis, had no time for Wall Street. They were rather devoted to commerce and agriculture and to decentralization of finance.

It would sorely grieve those two to discover that in their absence, the Fed’s zero percent funds rate has simultaneously served to starve savers and to fatten speculators.

It should likewise grieve us, the living.

There is something deeply and fundamentally wrong in American finance.

According to Chairman Bernanke, himself, in private testimony before the Financial Crisis Inquiry Commission in November of 2009, 12 of this country’s largest 13 national institutions were at the risk of failure in the fall of 2008.

In our Great Recession, nominal GDP was down top to bottom by no more than 4 percent or less.

In our Great Depression, 1929 and 1933, nominal GDP was down by 46 percent, that is to say the economy was virtually sawed in half, yet most banks did not fail.

The predecessor to today’s Citigroup was notably solvent. You do wonder if only one 21st Century American financial institution could stand up to anything like the Depression of yesteryear, well not eager to find out, the Fed insisted once, no truck with even the statistical absence of inflation, let alone with outright deflation.

Still less of course, with the Depression, so it boons its balance sheet and it presses its interest rate to the floor. That is not of course the end of the story. The dollar is thereby materialized, the interest rate thereby suppressed, have unscripted consequences.

They inflate prices and investment values, and because prices and values are the traffic signals of a market economy, the Federal Reserve unintentionally becomes the cause of crashes and pileups on our financial streets and highways. Some of these accidents, notably the 2007, 2009 residential real estate debacle are the monetary equivalent of a chain reaction on a foggy California freeway.

The trouble with our monetary Mandarins is that they believe impossible things. They have persuaded themselves that a central bank can pick the interest rate that will cause the GDP to grow, payrolls to expand, and price to levitate by just 2 percent a year, no more mind you, as they measure it.

It is impossible, experience and common sense both attest, yet they hold it to be true. Today's dollar, it is weightiness uncollateralized by anything except the world's faith in us. That too seemingly in history's judgment would be an impossibility yet here it is.

Yet that faith justifiably is today fading. William F. Buckley famously and persuasively said that he would rather be governed by the first 400 names in the Boston phone directory than by the faculty of Harvard.

Unaccountably, this Congress has entrusted the value of the dollars that we own, we transact, to an independent committee dominated by monetary scholars. In one short generation, we have moved to the Ph.D. standard from the gold standard.

I submit, Mr. Chairman, it is past time to reconsider.

Chairman PAUL. I thank the gentleman, and we will go on to Professor Salerno.

**STATEMENT OF JOSEPH T. SALERNO, Ph.D.²⁶
PROFESSOR OF ECONOMICS, LUBIN SCHOOL OF BUSINESS
PACE UNIVERSITY**

Mr. SALERNO. Chairman Paul and distinguished members of the subcommittee, I am very honored to be here.

The old argument has come back into vogue that modern inflation is desirable to prevent the far greater evil of deflation. This has been given a scientific sounding name of "inflation targeting."

In the past decade, this view has been promoted both by former Federal Reserve Chairman Greenspan and current Federal Reserve Chairman Bernanke. But this view is based on a fundamental confusion. It confuses deflation with depression, which are two very different phenomenon. Falling prices are, under most circumstances, absolutely benign and the natural outcome of a prosperous and growing economy. The fear of falling prices is not the phobia, a deflation phobia which has no rational basis in economic theory or history.

Let us look at the experience of the past 4 decades with respect to the products of the consumer electronics and high tech industries. For

²⁶ [The prepared statement of Professor Salerno can be found on page 297.]

example, a mainframe computer sold for \$4.7 million in 1970 and probably is the size of this room, while today, one can purchase a PC that is 20 times faster for less than \$1,000. The first hand calculator was introduced in 1971 and was priced at \$240, and by 1980, similar hand calculators were selling for \$10 despite the fact that the 1970s was the most inflationary decade in U.S. history.

The first HD TV was introduced by Sony in 1990 and sold for \$36,000. When HD TV began to be sold widely in the United States in 2003, their prices ranged between \$3,000 and \$5,000. Today, consumers can purchase one of much higher quality for as little as \$500.

In the medical field, the price of Lasik eye surgery dropped from \$4,000 per eye in 1998 when it was first approved by the FDA to as little as \$300 today.

No one, not even a Keynesian economist, would claim that the spectacular price deflation in these industries has been a bad thing for the U.S. economy. Indeed, the falling prices reflect the greater abundance of good which enhances the welfare of American consumers.

Nor has price deflation in these industries diminished profits, production or employment. In fact, the growth of these industries has been as spectacular as the decline in the prices of their products. But if deflation is a benign development for both consumers and businesses in individual markets and industries, then why should we fear a fall in the general price level, which of course is nothing but an average of the prices of individual goods?

The answer given by theory and history, is that a falling price level is the natural outcome of a dynamic market economy operating with a sound money like gold.

Under a gold standard, prices naturally tend to decline as technological advance and investment in additional capital goods rapidly improve labor productivity and increase the supply of consumer goods while the money supply grows very gradually. For instance, throughout the 19th Century and up until World War I, a mild deflationary trend prevailed in the United States.

As a result, an American consumer in the year 1913 needed only \$0.79 to purchase the same basket of goods that required \$1 to purchase in 1800. In other words, due to the gentle fall in prices during the 19th Century, a dollar could purchase 27 percent more, in terms of goods, in 1913 than it could in 1800.

Contrast this with the current-day consumer who once paid \$22 for what a consumer in 1913 paid only \$1 for.

The secular fallen prices under the classical gold standard did not impede economic growth in the United States, in fact deflation coincided with the spectacular transformation of the United States from an agrarian economy, in 1800, to the greatest industrial power on earth by the eve of World War I.

Ironically, while Chairman Bernanke just reaffirmed again a few days ago that the Fed will persist in its inflationary policy of quantitative easing to ward off the imaginary threat of falling prices, signs of inflation abound.

I will skip over, in my testimony, the review of inflation in the commodity markets which was given by Mr. Lehrman. But let me just add that as a result of skyrocketing prices of agricultural products such as corn, wheat, soybeans, and other crops, the price of farm land in the United States has been soaring, particularly in the Midwest, where land prices increased at double-digit rates last year and regulators now are fearing a bubble.

And just today it was reported that wholesale food prices in the United States rose by 4 percent last month, the most in 46 years. That is since the stagflationary 1970s.

Not only does Chairman Bernanke seem unfazed by these inflationary developments, but what is more astounding, he appears to welcome the rapid increase in stock prices as evidence that QE2 is working to right the economy. He seized on the Russell 2000 index of small cap stocks, which has increased 25 percent in the last 6 months, stating, "A stronger economy helps smaller businesses."

In other words, despite the stagnant job creation and sluggish growth of real output, Mr. Bernanke has declared Fed policy a success on the basis of yet another financial asset bubble that threatens again to devastate the global economy. This would be farcical if it were not so tragic. But what else can be expected from a leader of an institution whose very rationale is to manipulate interest rates and print money.

And I will just end on the following. Just today, hot off the presses, USA Today reported substantial evidence that a new tech bubble is starting to grow. Facebook is estimated to be worth \$75 billion on private markets and is reported to be bidding against Google for a \$10 billion purchase of Twitter.

Over the last year, there have been 48 tech IPOs, which is 28 percent of all deals. And the stock prices of these tech IPOs have jumped 19 percent on their first day of public trading.

Thank you.

Chairman PAUL. Thank you. There are votes on the Floor, so we are going to take a recess, but we will be back shortly.

{recess}

Chairman PAUL. The committee will come back to order[.]

[QUESTIONS & ANSWERS]

[A]nd we will go into the question session right now. I will start off by taking 5 minutes for that.

I do want to welcome once again, the three witnesses and I appreciate very much you being here, and talking about a very important subject. Not only for our business climate and our employment, but also for all Americans who suffer the consequences of rising prices. This hearing has been set up mainly to sort out the relationship of monetary policy and why prices go up.

A lot of people, as I mentioned in my earlier statement, would like to blame everything else and try to avoid the Federal Reserve completely. But I do want to start off with a question about the opposite of what people call inflation, and it was touched upon in the testimony, and that is the deflation.

Deflation of course, for some of us, would mean that the money supply is shrinking as it did in the 1930s but other worry about prices going down and there is—I guess there are some people who justifiably worry about it especially when they are overextended and they have to pay their debts. But overall, if we are on a sound monetary system, if we are on a commodity standard it may well be that prices would go down.

I would like to ask Professor Salerno to distinguish between these two, between deflating the money supply and prices going down and who then would best benefit if prices actually dropped?

Mr. SALERNO. If we use deflation to mean falling prices, it is the mechanism by which people are benefitted, even on a fixed income, when we have increases in productivity, increases in productivity result from technological progress and more savings and investment in the economy. So workers become much more productive, more goods are produced in a given hour, and at the same wages their standards of living go up because their dollars become more powerful in exchange.

If you prevent this drop in prices, then many people who were not involved in the original increase in productivity, people who are in other industries or people, especially on fixed incomes, people on pensions, and insurance policies, will benefit from the falling prices. Their real incomes go up.

Chairman PAUL. Thank you. I want to ask Mr. Lehrman a question about the long-term effects of gold. You brought up the subject of gold and some of the advantages. There have been studies done with gold and stability of prices over long periods of times. Even with an imperfect gold standard, do we not have a fairly good record of stability in prices when it wasn't a Fiat currency?

Mr. LEHRMAN. We do, Mr. Chairman. If you will permit me to wave a piece of paper at you, in my testimony, I have charted the price of gold or the value of the dollar—was all that heard before?

We do have the history of the general price level under the gold standard and I have prepared in my written testimony a chart which shows that since the end of the gold standard, that is to say the class of gold standard in 1914 on the eve of the First World War, the value of the dollar as measured by the CPI, adjusted for the available statistics, before 1920, has fallen to \$0.05. The value of an ounce of gold in March, well on March 15th, or I should say even March 17th, today, 1910, was \$20 per ounce of gold.

On March 15th or March 17, 2011, one century later, the price of gold is approximately \$1,400 per ounce. So the price of gold is, as it were, the reciprocal of the fall in the value of the dollar over the same period.

During the history of the American Republic from let us say the Constitution of 1788, 1789, we can chart the price level quite accurately. And in my testimony I submit such a chart, with Coiny Jack of 1792, essentially Alexander Hamilton's, Coiny Jack, the 1792, which made the dollar convertible to precious metal, primarily under the circumstance that the silver is first but by 1834 we were on to the gold standard.

If you take the price level under the gold standard, from 1834, and of course make the exception for the Civil War which went on for a very long period was a convertible of suspension. But if you take from 1834 until 1914, you will find under the gold standard that the general price level or the CTI as we would say today was exactly in the same position.

In other words, over the long run, near a century, there was neither a fall in the general price level, siflation, as Professor Salerno might describe, nor was there any general inflation. So that is—in testing monetary theory, or even economic theories we have only one laboratory, it is the laboratory of human history.

And in the laboratory of human history, we find that the gold standard, proven by the price level stability from 1834 until 1914 for

example, that the gold standard provides virtual stability in the price levels on the average level of general prices.

Chairman PAUL. I thank the gentleman and we will go on now to Mr. Luetkemeyer for his 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. Mr. Grant, you made an interesting statement during your testimony that, "The only thing holding up our dollar was the faith in it." Would you elaborate just a little on that, I have some agreement with you on that. And that I think that our whole system right now seems to be held together by the confidence that we will be able to pay something back and forth versus the actual collateralization, the actual asset backing of the actual—there being some value there.

I think—it would appear to me that the whole system is held together by just the confidence between you and I, that we can do business versus the actual asset that is there.

Could you elaborate a little bit on your statement and whether you think that is the right perception or not?

Mr. GRANT. Yes, Congressman, I do. To a degree, every monetary system is faith-based. One must have confidence in the quality of the metal, if there is collateral behind the currency.

Never, I think until the present day, has the world been on a system of pure paper. The dollar is the Coca Cola of monetary brands. It is a remarkable achievement in that it is today treated as good money, the world over, though the cost of production is essentially nothing.

And this is a pretty flattering expression of confidence by the world in America and its institutions. However, faith must be continually refreshed. It is not perpetual. I think that the very size of this so-called quantitative easing program has crystallized doubts as to the nature of the currency and of its underlying value.

In the language of modern finance, the dollar is a derivative. It used to derive its value from the collateral behind it, mainly gold. In 1971, if you were a foreign official institution, you presented your \$35 to the Treasury and said you would prefer to have an ounce of gold and you got it.

Over the past 40 years that has been of course, out the window. And so the dollar is in the language of modern finance, a kind of a nonsequitur; it is a derivative without an underlying asset.

Sometime recently, a reader of the Financial Times wrote to the editor and said, "Sir, the scales have fallen from my eyes. I think I finally understand the meaning of quantitative easing. I think I

finally get it. What I no longer understand is the meaning of the word money.”

I think the very size and the audacity and the physics of the project of materializing \$600 billion effortlessly has captured the imagination and the doubt of the American people, and indeed of the world’s money-holding population.

May I close with, to me, the greatest crystalizing, clarifying line about money in American literature, and it happens to be from a novel. It is a Laura Ingalls Wilder novel called, “Farmer Boy.” And this is a story of a boy growing up in Upstate New York, hard scrabble, dairy country, in which—campaigned for governor, he carried all of this country, by the way, with a huge majority.

But Alonzo, this child turns up at the county fair and he asks his father very definitely for a nickel and his father miraculously materializes \$0.50 from his pocket and he says to the kid, not wanting to let the moment pass without the moral instruction, he says, “You know what this is?” And the boy actually can’t think of anything to say. And the father says, “It is money, do you know what money is?” And the boy again, is silent. And the father says, “Money is work.” And for the past 40 years, money has been a concept. It has been the project of a Ph.D., and I think the world would like it to be work.

Mr. LUETKEMEYER. Okay, along those lines, obviously the key too is considering it to erode the confidence in our dollar and right now the dollar is sort of the gold standard around the world. What happens if our dollar goes away or like some other people are trying to look to a different currency. How does that impact out country, in your view?

As no longer being the standard—

Mr. GRANT. I think we have to answer the question. I think we have to consider our unique privilege in creating a currency that is treated as good money the world over and which only we can lawfully create. This is called the Reserve Currency Privilege and both Professor Salerno and Mr. Lehrman have written really important stuff on this. But the nature of our franchise, of American franchise is that we import, we pay with our dollar bills created at essentially no marginal cost.

These dollars we ship effectively to Wal-Mart suppliers in Asia, the dollars wind up, because the suppliers don’t need it, on the balance sheet of the central banks of our Asian creditors. The Asian creditors turn right around and buy Treasury securities.

So it is as if the dollar has never left the 50 States. So that is what we have and if the world were to lose this astounding confidence in the institution of the Federal Reserve we would lose that franchise, this privilege of seignorage, this reserve, this—what was the last term they—exorbitant privilege.

Mr. LUETKEMEYER. Exorbitant privilege.

Mr. GRANT. And we would quickly find that we, like Paraguay and other nations not uniquely blessed with a reserve currency would have to suffer a lower standard of living.

Mr. LUETKEMEYER. Okay. Thank you very much. Thank you, Mr. Chairman.

Chairman PAUL. Congressman, I wonder if I may just add a couple of numbers to the question?

Mr. LEHRMAN. May I interrupt?

Chairman PAUL. Yes, you may, but I wanted to advise the members if they would like, there will be a second round of questioning, also.

Yes, go ahead Mr. Lehrman.

Mr. LEHRMAN. Mr. Grant's comment is so compelling, and I think the numbers themselves are illuminating. The official reserves of foreign central banks held in custody at the Federal Reserve System itself, published in the balance sheet of the Federal Reserve every Thursday evening at 4:00, those official reserves now amount to \$3.5 trillion invested in U.S. Government securities, primarily in

U.S. Treasuries, the residual in Federal agency securities.

That just gives you a quantitative estimate of the mechanism that Mr. Grant just described. The best way also, if I might say, to think about this is that this is the credit provided to our government, to the Treasury in deficit by the purchases by foreign central banks who are mostly mercantilists wanting to maintain undervalued currencies. This is the credit provided to our U.S. Government.

Until we end the official reserve currency system and, I might add, the unlimited discretion of the Federal Reserve to buy \$600 billion worth of U.S. Government securities in a mere 8-month period, until we end that, all efforts to control the deficit will be unavailing.

All of the great conscientious efforts of so many of the Congressmen, especially freshman Congressmen, Republicans and I believe some Democrats too, all of them will be unavailing. We have gone through 40 to 50 years of every President declaring that he was going to reduce spending and the deficit, even President Reagan, a great President, wound up with deficits running somewhere between 3 percent and 7 percent output.

The reason is that the U.S. Government grows through the deficit spending which is authorized and then it is financed in combination by the Federal Reserve System and the official reserves which are accumulated and reinvested in U.S. Treasury by foreign governments making limitless credit available. When limitless credit is available event to an individual, over a very long period of time, we can be assured that they will make use of it.

Chairman PAUL. Thank you.

Now, to Mr. Schweikert, from Arizona.

Mr. SCHWEIKERT. Thank you, Mr. Chairman. That limitless credit as an individual would be an interesting concept.

Can I go—something I have ultimately wanted to ask and if our two—the two trading partners that actually buy most of our debt which is China and Japan, what happens—what sort of cascading effect, at all if there is, let us say Japan right now; bless them with their disasters and things they are facing, begins to have fairly substantial steps up in inflation. All we were seeing, regionally, rather aggressive inflation in areas of China, what potentially does that do in our inflation indexes?

And could we actually start from the right and go left?

Mr. SALERNO. I think the big danger is that if Japan needs extra imports and so on as their economy slows down in reaction to this disaster, and they begin to offload reserves of American currency which are actually government securities, there could be a cascading effect as it puts downward pressure on the U.S. dollar. And if China does the same thing, then we are at the situation where there—the only thing that the U.S. Government can do to finance this deficit is to borrow from the American people.

Mr. SCHWEIKERT. But that is also our bond prices functioning, start having to move up to be able to sell the product. That was actually going to be the second half of my question.

But even just—let us say there was just a national inflation step-up within Japan and China. What do you see from just that in the price of the products being imported and exported?

Mr. SALERNO. To the extent that China keeps its exchange rates with us, their prices would actually become higher in relation to us and we would actually have an increase in our exports and a decrease of imports from China. So for mercantilists, that would sort of be a good thing.

So given the system of exchange rates that we have today, there would not be a huge impact on the U.S. price level of those developments. Although, the problems in Japan if their economy slows down,

that would put an upward tick on world prices and there would be some effects on consumer prices here in the United States.

Mr. GRANT. Agreed.

Mr. SCHWEIKERT. No, no I appreciate brevity.

Mr. LEHRMAN. Agreed, Congressman.

Mr. SCHWEIKERT. Okay, now going back in the other direction. What if we actually start to see the nation of China, which is the second biggest buyer of our debt, now they have to start to begin to finance their own reconstruction so they no longer are participating as much in the U.S. debt market so now we have lost one of our customers. So we start to tick up our own bond rates.

What do we face?

Mr. LEHRMAN. Do we go from right to left? There are at least two alternatives. One would be that despite Japan not absorbing U.S. dollars in exchange for exports and then adding them to their official reserves, that other emerging countries who have absorbed enormous amounts of dollars in their banking systems and then into their official reserves, which have risen even more dramatically than Japan, in the last 10 years, that they too would absorb whatever Japan no longer absorbs.

I might add that Japan had been out of the market for absorbing

U.S. dollars and then investing them in U.S. Government securities in custody of the Fed for a good long while until recently, as the yen strengthened and they of course wanted to lower its value in order to maintain their valued export industries.

The other possibility is that there was no other emerging country or major country willing to absorb the residual of the securities and were the United States balance of payments to remain the same, all fairly large assumptions, the dollar would then fall on the foreign exchanges until there was intervention by countries who did not want the dollar to become increasingly competitive in the export markets or until the Federal Reserve reduced the volume of credit they were issuing talk in the market especially the subsidizing of banks and the U.S. Treasury and deficit.

For a concrete example of that, that is exactly what Paul Volcker did in 1981, 1982. He imposed the most Draconian credit contraction in American history since the Great Depression, or least comparatively with all other recessions. He put the Fed's fund rate up to 20 percent the prime rate hit 21 percent.

Unemployment in New York State that Jimmy referred to, in 1982, which was my year on the campaign, the unemployment rate in New York hit 11.2 percent. The unemployment nationally, in 1982,

under the Volcker credit contraction policy hit almost 11 percent nationally, higher than at any time during the so-called Great Recession.

So that these two options, namely a great fall in the dollar with no residual buyer of excess foreign dollars in the foreign exchange markets, combined with Federal Reserve contractions, presents us with two unattractive alternatives.

Mr. SCHWEIKERT. Mr. Chairman, without objection, can I have another 60 seconds?

Mr. GRANT. Briefly, the more birthday candles I blow out, the less certain I am about cause and effect with bond prices and interest rates. Paradox seems to govern many of these markets. For example, the difficulties, the tragedy in Japan has forced the yen not downward but upward as the Japanese repatriate assets from abroad to finance the holes in their income statements and balance sheets. To attempt to suppress the rise in the yen the Japanese buy more dollars. They help to finance our deficit even in the midst of their travail and our interest rates have been going down since 1981. For 30 years, bond prices ostensibly have been rising and interest rates falling.

I think probably that no matter what happens with respect to the dollar, no matter what happens with regard to these hearings or with the congressional approach to monetary policy, the chances are that the next 30 years would see more likely interest rates rising and falling. Interest rates have tended to rise and fall in generation length intervals since the late 19th Century.

Mr. SALERNO. Foreign confidence in the dollar is precarious. So that if there is a drop in the dollar as the foreign demand for the dollar falls, I think what you are going to see is a cascading effect. There is already talk among China and Brazil and the president of the IMF of moving towards this sort of a gold-based reserve currency or a currency that has basket weight entities.

But at that point, I think then it could be a vicious circle in which it feeds on itself, the dollar drops, if the Fed doesn't contract the money supply what you will get is an explosion upward of import prices, no more cheap shopping at Wal-Mart. And it is so precarious, but a few years ago there is evidence that—now that drug dealers are beginning to offload their \$100 bills, 80 percent of the \$100 bills that are printed in the United States are not in the United States, they are financing drug deals they are hedging against inflation.

And they are beginning to stop using them and they are replacing them with EUR 500 notes. So that is just sort of the first step.

Mr. SCHWEIKERT. Mr. Chairman, forgive me, but should I be worried about that?

Chairman PAUL. I think we all should be, and we should have been a long time ago.

Mr. SCHWEIKERT. Something about when the drug dealers have attended their monetary economic classes I—we are in trouble. But please, I interrupted.

Mr. SALERNO. No, that is what I was going to say.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

Chairman PAUL. I would like to talk a little bit about the measurement of price inflation. The government depends on this CPI, there is an old CPI and a new CPI. John Williams has spent some time as a free market person, trying to keep us honest about what the CPI is really doing. And of course traditionally, when the government makes reports, they talk about core CPI and they drop off those unessential things like food and energy and it seems like the markets very frequently accept whatever they say.

“Oh, inflation is only 2 percent; prices are only going up at the rate of 2 percent.” Of course, eventually, I think the numbers catch up, even with the government. In the 1970s, he did admit that prices were going up at a 15 percent rate.

But my question is, talk a little bit about the difference about the CPI, how good is it, how accurate is it? Is it—does John Williams have a good point there, saying that the revamping of it—what do you all look at if you want to know how prices are going up? I know we all look at the CPI and the PBI and it seems to have the immediate effect, but where do you put your most importance, what price measurement do you use?

All three of you, could you give me your comment?

Mr. SALERNO. Varese's once said that the housewife who just checks a few prices in the supermarket and keeps track of them is much more scientific than the arbitrary price indexes that are used by economists and statisticians. But I tend to look at something called median CPI which is calculated by the Cleveland Fed. It is not perfect and it shares some of the same problems as the CPI itself. But also I like to look at the raw prices of goods and what has happened over time, to them.

I do want to mention that these adjustments are just ridiculous. We have a substitution bias adjustment which, if the price of prime beef goes up, they don't include that increase; they reduce that and they say, “Well, people can eat chicken at a lower price.” So the full increase is not reflected.

They have hedonic adjustments, if a car gets two-side airbags, “The increase in the price of the car has to be reduced by the fact that it is a higher quality now.” And new technology adjustments, the iPad as someone talked about, when that comes into play, that is a deflating force. Despite the fact that other prices are going up at a certain rate, that rate is reduced for that reason.

Chairman PAUL. Are there any other comments?

Mr. LEHRMAN. I think it may be Mr. Williams’ research, Mr. Chairman, I am not sure, I cannot quote the author for certain, but in his research on the CPI, he used the methodology that was in force in 1980. And if one were to use the methodology in force in 1980 without the hedonic adjustments, without the substitution effects and so much of the changes which have occurred, that the price level is increasing at approximately 8 percent by that methodology as opposed to the methodology presently adopted by the Bureau of Labor.

And for purposes in our investment business, we pay no attention whatsoever to these fictitious Ph.D.-created mechanisms otherwise known as the CPI. Even the PPI leaves much to be desired up until—for the longest period of time, up until the Second World War, which was a period, certainly before the Great Depression, of the greatest economic growth the world had ever experienced, it was the Industrial Revolution. It was the Wholesale Price Index, which was used to measure the level of prices.

The CPI and the PPI themselves aren’t innovations. So looking at commodity prices, looking at equity prices which themselves are articles of wealth in the market and are excluded from the CPI, means to anybody who is involved in business, corporate capital allocations, or if you will, in long-term investing, one has to ignore the publication on a monthly basis of the CPI and PPI and look at the actual prices in the market which serve as indicators of the cost of production of producing another article of wealth to the market.

Chairman PAUL. Would it not be true that if they would use the CPI, wouldn’t some groups of people suffer more by rising prices, and other groups be more protected? Everybody is not going to be penalized the same way, even if we did look at those numbers. The average person might spend their money differently. If your income is \$25,000 a year, the inflation rate might be much more painful than if you were making a couple of hundred thousand a year.

Mr. GRANT. Or depending on your age, it—a younger person spends a great deal of his or her money on consumer electronics, that personal CPI is plummeting. He or she is in clover. It seems to me,

and Professor Salerno will know whereas I am surmising, but it seems to me that the ancients posited that inflation is not too much money chasing too few goods, inflation is too much money, that which the money chases is variable. In one cycle, it might chase skirts at retail, and in another cycle, it might chase the Russell 2000 Stock Index.

And I think the complacency of our masters, the Fed, with respect to inflation, has to do with their overlooking this most basic concept about inflation.

Mr. LEHRMAN. Conversely, if I may, with the—with respect to the younger generation and the amount of money they spend on technology, with ever falling prices, you have the entire world of emerging markets, not to mention middle-income families and poorer families in the United States driven from subsistence level to starvation by basic food prices. The milk price has doubled in the past year and a half. Food prices, we know, have risen, depending upon the supermarket, anywhere from 15 percent to 20 percent in basic foods.

So, I believe that the political turmoil for example in North Africa, indeed all around the world, and some of the protests, the intensive protests about issues which in the past, in the United States have been received without quite the kind of ferocious protests, I think are related to the frustration that middle-income and poorer families all around the world are feeling.

As the political class is indifferent to what the effect of the commodity price is, the basic food and food prices have done to those on subsistence or near subsistence level, as they feel ever more the threat of starvation.

Chairman PAUL. Mr. Schweikert.

Mr. SCHWEIKERT. Mr. Chairman, actually—is it pronounced “Lehrman?”

Mr. LEHRMAN. Yes, sir.

Mr. SCHWEIKERT. Actually, heading in that same direction, just—and I know this is a bit of a lark, and there are other components that go into that food price. While our farm policies in this country subsidize certain commodities crops—or make them more expensive around the world. I once sat down with some agricultural economists who basically said U.S. agricultural policy kills people in Sub-Saharan Africa. So when you talk about the food prices, particularly what we see around the world, and some of the protests breaking out, what is a combination of just purely organic inflation and also government policy.

Mr. LEHRMAN. Government subsidies in the agricultural sector, as you suggest Congressman, are themselves very controversial. In the end, if I can make it brief, it is a question of, compared to what?

The common agricultural policy of the European Union causes, for example, corn prices and wheat prices and they too are great producers and exporters, to be about twice or more the level of basic agricultural prices in the United States because the United States farmer is the most efficient producer of all basic food goods and high-protein goods such as meat products, in the world.

So, that the elimination of subsidies in the United States, it is true, might make the production, the total output of farm goods sometimes—in some areas in which we export 50 percent of our own output to the world at very cheap prices relative to the rest of the world, those subsidies might reduce the prices, but it is also true I think that the profitability of the industry would change and the supply therefore would contract in the U.S. market in general and thus make less of our output in the farm sector available for export to countries: (A) which do not product sufficient food to feed their population; or (B) have to buy much more expensive goods subsidized at much higher rates of subsidy from the European Union.

Mr. SCHWEIKERT. Mr. Lehrman, I know we are not doing agriculture, but isn't there also, the flip side of that domestic agriculture in these foreign countries is also suppressed because we import a cheaper product than they can actually produce it domestically?

Mr. LEHRMAN. If I understand the question, are they able to import U.S.—

Mr. SCHWEIKERT. No, no, yes, often our commodity hits the country often at a price that is sometimes below what they would domestically produce. And so therefore all—

Mr. LEHRMAN. That is correct and that is because we produce it so cheaply in this country relative to the rest of the world.

Mr. SCHWEIKERT. And therefore, if we hit any price bumps or those things there they have no domestic agricultural safety net?

Mr. LEHRMAN. They do not, in some countries, most countries have a—most countries that are well advised have a food sufficiency strategy, the Chinese being a particular and a good example of this. Whereby believing that they always have to be prepared for a war, that—and this used to be the United States' policy, that food sufficiency in time of war, total war, was absolutely indispensable since only a blue water navy could fully protect the sea lanes in order to import food in the event it was blockaded by the enemy.

Mr. SCHWEIKERT. Mr. Chairman, may I ask unanimous consent for another minute or 2 minutes?

Chairman PAUL. Granted, yes.

Mr. SCHWEIKERT. Now, back to what I was actually really hoping to ask. Okay, if I was a market observer and I have a fixation of watching bonds and bond futures, but I think one of those over there said as his birthdays move along he sometimes isn't sure what those numbers really mean. If you were me and you are trying to watch the financial markets, where do I go to see a tell of both my future on interest rates and a tell of my future in inflation? Let us start from the far side and come back.

Mr. SALERNO. I think the tell on inflation is the long-term bond markets which will crystalize inflationary expectations in the longer-term bonds. And I think contrary to what Chairman Bernanke and the Fed believed when they engaged, when they undertook QE2, long-term bond rates did not fall they went up. And that because of the expectations that were stimulated, of an inflation in the future.

Mr. GRANT. With respect, I think that there is no long-term tell on anything, especially inflation, especially interest rates. Two examples from history, one in 1946, April, the long-dated U.S. trades at an astonishingly low 2.2 percent, 2.2 percent. At that time, the CPI was running in double-digits when General Marshall delivered his famous Marshall address at Harvard the next year, the CPI was even higher, close to 20 percent, bond yields rather lower, but Marshall was looking backwards. He was looking at the Depression and not forward to the prospects of a full generation of inflation and rising interest rates, observation number one.

Observation number two is, in the spring of 1984, bond yields are quoted at 14 percent, 14 percent and the CPI is at 4 percent, the market was looking backward to the experience of the tumultuous and wholly profitless period, 35 years of a bear market in bonds, rising interest rates, 1946 to 1981.

So the bond market to me is like an—it is like a badly trained waiter, looking at his shoes, looking left, not meeting your eye. He is—the bond market is an arbitrage market, that is it is priced, principally, I submit, off of the cost of financing a portfolio of bonds and not with regard to a possible scenario for the future.

The stock market is meant to look forward, the bond market I think is rather present minded.

Mr. LEHRMAN. Observation three, agreed on all the propositions that Mr. Grant just put forward. The one exception, I believe, on forecasting, would be that when an economy is fully employed, all

resources—labor, capital, savings—are fully mobilized, the banking system is fully committed to full output and we are the authorities then because prices were advancing to establish wage and price controls then I think as the—as you the observer or the bond investor or speculator, you could bet on a rising level of interest rates and thus a falling bond market in the future.

And the example I would cite would be the infamous example of President Nixon deploying the Federal Reserve to pump up the money supply in 1971 on the verge of the 1972 elections. Having—on August 15, 1971, declared the dollar no longer convertible to gold. And in 1972 with the effects of the vast inflation which were developing as a result of the Fed policy, imposing wage and price control.

We know what happens after that.

Mr. SCHWEIKERT. Mr. Chairman, can I ask that there be no more cursing like that. Those are dirty words.

Chairman PAUL. Which words?

Mr. SCHWEIKERT. Wage and price controls.

Chairman PAUL. Oh.

Mr. SCHWEIKERT. Mr. Chairman, would you allow me just because there is one. In the whole sort of discussion of tells and inflation and my fear of a classic sort of cascading event, it is sort of the miniature version of a black swan; we float much of our U.S. debt, very short term. Our WAM is, I think, actually somewhat dangerously short. If we start to hit some ticks on the short end of the curve, what—does that create a ratcheting affect both on interest rates and therefore inflation or should I just stop worrying about it?

Mr. GRANT. No, you should really worry.

Mr. LEHRMAN. You should worry substantially. The average maturity of the U.S. Treasury debt is approximately 4 years which is very short for a country which is approaching a level of direct debt equal to total national output. We are at the level of interest rates now subsidized by the Federal Reserve, despite their marginal rise, as Professor Salerno suggested, we are at the level of interest rates to rise close to market rates which are typical of full employment.

The level of debt service payments would rise by an order of magnitude, consume that part of the Federal budget, the total Federal budget which today is almost unthinkable and could be only as little as 4 or 5 years away.

And all of the talk about cutting \$100 billion of spending would be consumed by the fact that the level of interest rates had risen from several hundred billion to as much as \$700 billion, \$800 billion. So

the political leaders of our country, the Congress, need to worry very much about a rise in the level of interest rates from their present subsidized level to market interest rates associated with a more fully employed economy.

Mr. GRANT. Think about how this might just look in retrospect. We are sitting here in 2011, we have a Federal Reserve that is suppressing money market interest rates, it is funds rate notoriously is zero. We are running \$1.5 trillion a year, public deficit we are running deficit on current account of 3 percent to 4 percent, 5 percent, depending on the fiscal quarter, of GDP. We are enjoying generation low market interest rates and the measured rate of inflation as they measure it is comfortable.

That is the moment—and one can imagine looking back on this moment saying, couldn't we see that this was Nirvana that nothing better was going to be coming down the pike. In fact, as Mr. Lehrman has suggested, market interest rates were going to revert to something like normal. So if the long-dated Treasury bond goes from 3.25 percent to 6 percent, and if money market interest rates go from zero to 3 percent, or 4 percent that presupposes an immense increase, as has been suggested, in the cost of financing these debts, these are the good old days with respect to interest cost.

Mr. SCHWEIKERT. Anything else to be shared?

Mr. SALERNO. I agree with both Mr. Grant and Mr. Lehrman.

Mr. SCHWEIKERT. All right. Thank you for your tolerance, Mr. Chairman.

Chairman PAUL. You are welcome. Thank you.

I have a couple more additional questions that I want to touch on before we adjourn. The opposition, those people who believe in a monetary system quite different than you describe, the people who believe in Fiat money and the creation of money out of thin air, do they deliberately have a purpose for dealing with the debt? We know that the debt won't be paid, do they actually believe that it is a proper policy to liquidate the debt by just reducing the debt by devaluing the money because real debt goes down?

If you have a \$14 trillion debt and you can get inflation going again, because I sense when I talk to individuals at the Federal Reserve that they would sort of like inflation to come back.

Do they ever actually in their writings describe that this is one way you can handle the debt? And likewise, is there ever an argument by those who believe in that system that this is one way you can lower real wages without lowering nominal wages? If there is a correction it is necessary, wages, maybe they should go down.

But nobody can quite accept the idea of, we are going to lower your wages, but we will lower the real wage by inflating the currency. Do we have evidence that they actually use that as a policy? Would anybody care to answer that?

Mr. SALERNO. In academic writings, increasingly they are talking about adjusting wages through the device of inflation. As far as the debt is concerned, it is hard to know people's motives but the standard argument is that we owe much of it to ourselves and increasingly more to the rest of the world but that we would still, as a reserve currency, we can pay the rest of the world off by simply printing money to pay those debts.

They don't go on and say that in fact what we are really doing is repudiating the debt over time.

Chairman PAUL. I have trouble, politically, as others would, to describe our position about what to do when a bubble forms. Those of us who believe in sound money don't create the bubbles; they come from the excessive amount of credit that is created.

But when the crisis hits and the bubble bursts, we can do a lot of things like we have done in the last 2 years—we just turn off the printing presses and the spending and hope that is going to take care of it. Others would argue that we just do nothing like we did in 1921. How do we handle this politically, because right now it is virtually impossible to talk to—people are saying, let us just not do anything. Any suggestions on how you present this to people who want to and feel compelled to do something?

Mr. GRANT. I have a modest suggestion speaking as a non-politician. I would suggest, as an interim step before the promulgation of a new gold standard, let us say as an interim step to that, I would suggest to the Congress, respectively, that the Congress admonishes the Federal Reserve to speak in plain language, in plain English. For example, “quantitative easing” should be called money printing. “Quantitative easing” should not be allowed in the official discourse.

Similarly, the chairman used the phrase “portfolio balance channel” to convey the Fed's intentions to manipulate stock prices higher. In place of “portfolio balanced channel,” I would suggest the Congress admonish the Fed to use the term “thimble rigging,” an ancient Wall Street term, or a little more clinically, “manipulation.” So if we talk about money printing and manipulation, the public will understand what is afoot. These three-dollar words signify nothing, and I think that Congress should outlaw them.

Mr. LEHRMAN. I wish not to assail the motives of any man. But I would say, directly, in answer to your question, Dr. Paul, that it is

not, I think, correct to blame or to assign motives to those who are manipulating the monetary system. We live in America, in a world of institutions that were created over time and created a set of facts and circumstances in which men and women find themselves operating.

The academics believe that the Federal Reserve System should be a form of the GOSS plan; it should be sort of general manager of the national economy if not the world economy. But they have been trained to think that way. In the economics department of almost every graduate school, this is the way they are trained to think. They are either neo-Keynesians or they are members of, if you will permit me to say it, the discredit moniterus school.

So that it is sufficient to say that the system is flawed, it is imperfect that the Federal Reserve manipulates interest rates as well as the money supply. That foreign officials, the governments are financing the Treasury, creating inflation, without attributing base motives to the individuals who are operating in a set of institutions which were bequeathed to them sort of by chance or by historical developments rather than by any satanic design.

Mr. SALERNO. From an academic perspective, Keynesian economics and even the moniterus have no place for bubbles in their theories. They deal with the effect of the money supply on current production and employment, and so on. So that when Chairman Greenspan made a statement that—in the early part of the last decade, there is no bubble, you wouldn't know if there was one and if there was one we wouldn't do anything about it because it would cause recession.

Most macroeconomists agreed with him. Now, that is starting to change and they are starting to cast around for some sort of an explanation of bubbles. But what they have seized on now is irrationalities in the markets which certainly from the off stream perspective, it is not true. What we look at is the manipulation of the interest rate by the Fed, there is a ready explanation for the creation of bubbles.

Chairman PAUL. I had a Federal Reserve Board Chairman testify before the committee that the gold standard had some merits but it was unnecessary because central bankers have now learned how to manage a Fiat currency in a manner in which it would mimic the gold standard. Would anybody care to comment about where the flaw is in that thinking?

Mr. LEHRMAN. I am anxious to comment on that, Dr. Paul. Under—and I must say Mr. Greenspan made the same insipid remark. Mr. Greenspan and Mr. Bernanke will have to then explain why it was that two of the greatest booms in American history, and

two of the greatest panics and busts in American financial history, occurred under their 25-year watch.

We have the just unparalleled boom in the U.S. equity market focused on the Internet stocks of the late 1990s and a collapse under Mr. Greenspan's tutelage of not only the stock market but a fall in the economy and a rise in unemployment. This is not what Mr. Greenspan, I think, believes would be the characteristics of an economy regulated with a stable price level, under the gold standard.

And equally, Mr. Bernanke himself, who was the Vice Chairman of the Fed under Mr. Greenspan, would have to explain the near catastrophic boom generated by the Federal Reserve in the real estate market in the United States among other markets. The great panic and the bust which have then led to Mr. Grant's quantitative easing one, two and—

Mr. GRANT. Money printing.

Mr. LEHRMAN. —money printing, one, two, one and two. So that this is just an—it is incredible that a responsible academic economist from Princeton or one preceding him, from NYU, could have the temerity to suggest.

All of their 25 years presiding over the U.S. monetary system is a witness to the contrary.

Mr. GRANT. I would say something a little bit different, and I would echo Mr. Lehrman's earlier observation that gold standard is the least imperfect system, but it is not people-proof. Long before the Federal Reserve was conceived, let alone enacted, we saw plenty of booms and busts. We got rich we got poor, there was a terrific boom in Great Plains farm land in the 1880s, Moody's hadn't even been invented.

For a really fouled-up economy, you don't need anything except people; that goes without saying. But what the gold standard did was to introduce an element of reciprocal movement in money from one country to the next, in one country that participated in the gold standard to the next.

So I think the telltale feature of our present day landscape that shows you how far we have come from the gold standard is the existence of the 3 trillion and counting dollar bills on the balance sheets of our mercantilist counterparts, counterparties, in Asia.

That never happened, it couldn't have happened in the gold standard because creditors and debtors exchanged cash to clear trades.

The failure of AIG is so instructive in this respect. AIG, this immense insurance company with this ever so brilliant financial prod-

ucts group, didn't do one thing. It didn't mark its positions to market. Finally came the day of judgment and it argued with Goldman Sachs about what these things were worth, AIG said 100 cents on the dollar, Goldman Sachs said not close, Goldman Sachs won that debate and AIG failed.

As with AIG and Goldman Sachs, so it is today with the United States and its Asian trading partners. We never clear our trades. Our dollars go there, and they come right back here. We run 25 consecutive years of debts on a current account and there will be for us, as there was for AIG, a moment in truth in which we must settle.

Mr. SALERNO. I just want to add that the statement that you quoted by the Fed Chairman shows a complete innocence of any familiarity with the history of monopolies. The Federal Reserve has a legal monopoly of printing money. In history, every monopolist that has been granted a legal monopoly has used it.

Now, they could use it for motives they believe are altruistic. You can use it to cure unemployment or think you can use it for that. Or to keep interest rates low. But the point is, even if Mother Teresa was reincarnated and was given this monopoly, she would use it to print money to feed poor people, but the effects would be exactly the same: bubbles; manipulated interest rates; and inflation.

Mr. LEHRMAN. I want to demur. I think Mother Teresa would be a sound money lady.

Chairman PAUL. I want to thank our very excellent panel for participating in this very important hearing.

I have a couple of announcements before we adjourn. Without objection, all members' opening statements will be made a part of the record. The Chair notes that some members may have additional questions for these witnesses which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

This hearing is adjourned.

{Whereupon, at 11:55 a.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

There is perhaps no topic as important to the average American today as rising prices. Whether we consider food, gasoline, or clothing, the cost of living is increasing significantly. At a time of high unemployment, rising prices trap American families between a rock and a hard place. While rising prices colloquially are referred to as “inflation”, true inflation is defined as an increase in the money supply, and all other things being equal, an increase in the money supply leads to a rise in prices. Inflation is and always has been throughout history a monetary phenomenon, and its destructive effects have ruined societies from the Roman Empire to Weimar Germany to modern-day Zimbabwe.

Blame for the most recent round of price increases has been laid at the feet of the Federal Reserve's program of quantitative easing, and rightly so in my opinion. This program, known as QE2, sought to purchase a total of \$900 billion in US Treasury debt over a period of 8 months. Roughly \$110 billion of newly created money is flooding into markets each month, markets which still have not fully recovered from the financial crisis of the last few years. Banks still hold billions of dollars in underperforming mortgage-backed securities on their books, securities which would render numerous major banks insolvent if they were “marked to market.” These nervous banks are hesitant to loan out further money, instead holding well over a

trillion dollars on reserve with the Fed. Is it any wonder, then, that the Fed's new hot money is flowing into commodity markets?

The price of cotton is up more than 170% over the past year, oil is up over 40%, and many categories of food staples are seeing double-digit price growth. This means that food, clothing, and gasoline will become increasingly expensive over the coming year. American families, many of whom already live paycheck to paycheck, increasingly will be forced by these rising prices into unwilling tradeoffs. Rising prices lead to consumers purchasing ground beef rather than steak, drinking water rather than milk, and choosing canned vegetables over fresh. Clothes are worn until they are threadbare, in order to conserve money that keeps food on the table and pays the heating bill. While some might argue that this new frugality is a good thing, frugality is virtuous only when it results from free choice, not when it is forced upon the citizenry by the Fed's ruinous monetary policy.

While the Fed takes credit for the increase in the stock markets, it claims no responsibility for the increases in food and commodity prices. Even most economists fail to understand that inflation is at root a monetary phenomenon. As the supply of money increases, more money chases the same amount of goods, and prices rise. There may be other factors that contribute to price rises, such as famine, flooding, or global unrest, but these effects on prices are always short-term, not long-term. Consistently citing rising demand, bad weather, or energy supply uncertainty while never acknowledging the effects of monetary policy is a cop-out. Governments throughout history have sought to blame price increases on bad weather, speculators, and a whole host of other factors, rather than acknowledging the effects of their inflationary monetary policies. Indeed, tyrants of many stripes have debased their nations' currencies while denying responsibility for the suffering that results.

The unelected policymakers at the Fed are also the last to feel the effects of inflation, in fact, they benefit from it, as does the government as a whole. Inflation results in a rise in prices, but those who receive this new money first, such as government employees, contractors, and bankers are able to use it before prices begin to increase, while those further down the totem pole suffer price increases before they see any of this new money. By reducing the purchasing power of the dollar, the Fed's monetary policy also harms savers, encouraging reckless indebtedness and a more present-oriented pattern of consumption. Hard work and thrift are punished, so economic actors naturally respond by spending more, borrowing

more, and saving less. After all, why save rapidly depreciating dollars?

We must also remember that those policymakers who exercise the most power over the economy are also the least likely to understand the effects of their policies. Chairman Bernanke and other members of the Federal Open Market Committee were convinced in mid-2008 that the economy would rebound and continue to grow through 2009, even though it was clear to many observers that we were in the midst of a severe economic crisis. Chairman Greenspan before him was known for downplaying the importance of the growing housing bubble, even while it was reaching its zenith. It remains impossible for even the brilliant minds at the Fed to achieve both the depth and breadth of knowledge necessary to enable centralized economic planning. As Friedrich von Hayek stated in his Nobel Prize address:

The recognition of the insuperable limits to his knowledge ought indeed to teach the student of society a lesson of humility which should guard him against becoming an accomplice in men's fatal striving to control society - a striving which makes him not only a tyrant over his fellows, but which may well make him the destroyer of a civilization which no brain has designed but which has grown from the free efforts of millions of individuals.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF LEWIS E. LEHRMAN SENIOR PARTNER L.E. LEHRMAN AND COMPANY

I. Monetary policy, the Federal Reserve, the Budget Deficit, and Inflation

Since the expansive Federal Reserve program of Quantitative Easing began in late 2008, oil prices have almost tripled, gasoline prices have almost doubled. Basic world food prices, such as sugar, corn, soybean, and wheat, have almost doubled. Commodity and equity inflation, financed in part by the Fed's flood of excess dollars going abroad, has profound effects on the emerging markets. But in many emerging countries, food and fuel make up 25-50% of disposable income. Families in these countries can go from subsistence to starvation during such a Fed-fueled commodity boom.

The Fed credit expansion, from late 2008 through March 2011 -- creating almost two trillion new dollars on the Fed balance sheet -- triggered the commodity and stock boom, because the new credit could not at first be fully absorbed by the U.S. economy in recession. Indeed, Chairman Bernanke recently wrote that Quantitative Easing aimed to inflate U.S. equities and bonds directly, thus commodities indirectly. But some of the excess dollars sought foreign markets, causing a fall in the dollar on foreign exchanges. With Quantitative Easing the Fed seems to aim at depreciating the dollar. In foreign countries, such as China, financial authorities frantically purchase the depreciating dollars, adding to their official reserves, issuing in exchange their undervalued currencies. The new money is promptly

put to work creating speculative bull markets and booming economies.

The emerging market equity and economic boom of 2009 and 2010 was the counterpart of sluggish growth in the U.S. economy during the same period. But the years 2011 and 2012 will witness a Fed-fueled economic expansion in the United States. Growth for 2011, in the United States, will, I believe, be above the new consensus of 3.5% -- unless there is an oil spike, combined with even greater catastrophe in Japan. The Consumer Price Index (CPI) will be suppressed because unemployment keeps wage rates from rising rapidly; the underutilization of industrial capacity keeps finished prices from rising rapidly. Inflation has shown up first in commodity and stock rises.

For Congress the irony could be that euphoria -- always caused by renewed, gradual inflation -- may set in once again, disarming potential budget and monetary reforms.

But commodity and stock inflation inevitably engenders social effects, not only financial effects. Inflationary monetary and fiscal policies have been a primary cause of the increasing inequality of wealth in American society. Bankers and speculators have been, and still are, the first in line, along with the Treasury, to get the zero interest credit of the Fed. They were also the first to get bailed out. Then, with new money, the banks financed stocks, bonds, and commodities, anticipating, as in the past, a Fed-created boom. The near zero interest rates of the Fed continue to subsidize the large banks and their speculator clients. A nimble financial class, in possession of cheap credit is able, at the same time, to enrich themselves, and to protect their wealth against inflation.

But middle income professionals and workers, on salaries and wages, and those on fixed income and pensions, are impoverished by the very same inflation that subsidizes speculators and bankers. Those on fixed incomes earn little, or negative returns, on their savings. Thus, they save less. New investment then depends increasingly on bank debt, leverage, and speculation. Unequal access to Fed credit was everywhere apparent during the government bailout of favored brokers and bankers in 2008 and 2009, while millions of not so nimble citizens were forced to the wall, and then into bankruptcy. This ugly chapter is only the most recent chapter in the book of sixty years of financial disorder.

Inequality of wealth and privilege in American society is intensified by the Fed-induced inflationary process. The subsidized banking and financial community, combined with an overvalued

dollar -- underwritten by China -- have also submerged the manufacturing sector, dependent as it is on goods traded in a competitive world market. In a word, the government deficit and the Federal Reserve work hand in hand, perhaps unintentionally, to undermine the essential equity and comity necessary in a constitutional republic. Equal opportunity and the harmony of the American community cannot survive perennial inflation.

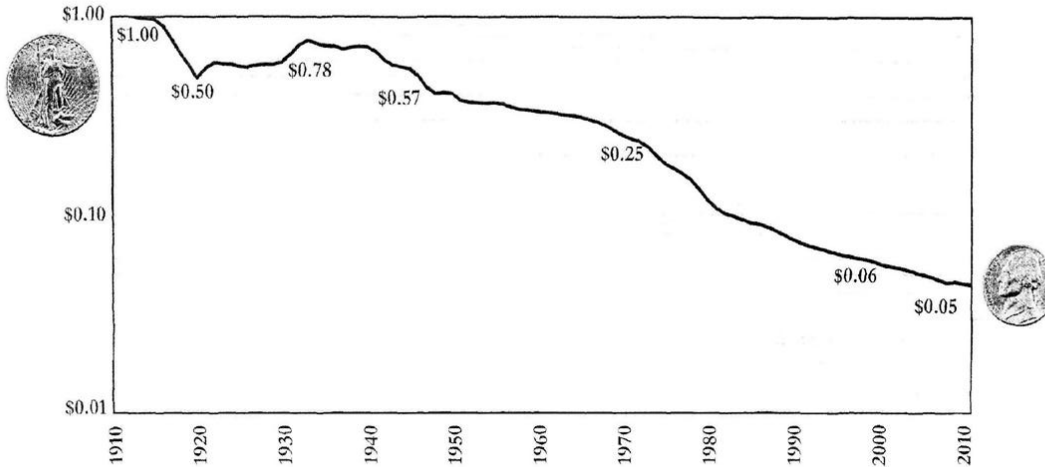
If the defect is inflation and an unstable dollar, what is the remedy?

A dollar convertible to gold would provide the necessary Federal Reserve discipline to secure the long term value of middle income savings, to backstop the drive for a balanced budget. The gold standard would terminate the world dollar standard, by prohibiting official dollar reserves, and the special access of the government and the financial class to limitless cheap Fed and foreign credit.

The world trading community would benefit from such a common currency -- a non-national, neutral, monetary standard -- that cannot be manipulated and created at will by the government of any one country. Thus, dollar convertibility to gold must be restored. But dollar convertibility to gold must also become a cooperative project of the major powers. Gold, the historic common currency of civilization, was during the Industrial Revolution and until recent times, the indispensable guarantor of stable purchasing power, necessary for both long-term savings and long-term investment, not to mention its utility for preserving the long-term purchasing power of working people and pensioners. The gold standard puts control of the supply of money into the hands of the American people, as it should in a constitutional republic. Because excess creation of credit and paper money can be redeemed by the people for gold at the fixed statutory price, the monetary authorities are thus required to limit the creation of new credit in order to preserve the legally guaranteed value of the currency. As President Reagan said: "Trust the people."

To accomplish this monetary reform, the U.S. can lead, first, by announcing future convertibility, on a date certain, of the U.S. dollar, the dollar itself to be defined in statute as a weight unit of gold, as the Constitution suggests; second, by convening a new Bretton Woods conference to establish mutual gold convertibility of the currencies of the major powers -- at a level which would not pressure nominal wages; third to prohibit by treaty the use of any currency but gold as official reserves.

A Century of Decline in the Dollar's Value



March 15, 1910
One ounce gold = \$20.00

March 15, 2011
One ounce gold = \$1,396.60

Figure 3

A dollar as good as gold is the way out. It is the way to restore American savings and competitiveness. It is the way to restore economic growth and full employment without inflation. Gold convertibility is the way to restore America's financial self-respect, and to regain its needful role as the equitable leader of the world

II. The Monetary Problem and its Solution in Historical Perspective

As a soldier of France, no one knew better than Professor Jacques Rueff, the famous French central banker and economist, that World War I had brought to an end the preeminence of the classical European states system; that it had decimated the flower of European youth; that it had destroyed the European continent's industrial primacy. No less ominously, on the eve of the Great War, the gold standard -- the gyroscope of the Industrial Revolution, the proven guarantor of one hundred years of price stability, the common currency of the world trading system -- the monetary standard of commercial civilization -- was suspended by the belligerents.

The Age of Inflation was upon us.

The overthrow of the historic gold standard, led, during the next decade, to the great inflations in France, Germany, and Russia. The ensuing inflationary convulsions of the social order, the rise of the speculator class, the obliteration of the savings of the laboring and middle classes led directly to the rise of Bolshevism, Fascism, and Nazism -- linked, as they were, to floating European currencies, perennial budgetary and balance of payments deficits, central bank money printing, currency wars and the neo-mercantilism they engendered.

Today, one observes -- at home and abroad -- the fluctuations of the floating dollar, the unpredictable effects of its variations, the new mercantilism it has engendered, and the abject failure to rehabilitate the dollar's declining reputation. Strange it is that an unhinged token, the paper dollar, is now the monetary standard of the most scientifically advanced global economy the world has ever known.

The insidious destruction of the historic gold dollar -- born with the American republic -- got underway gradually, in the 1920s, during the inter-war experiment with the gold-exchange standard and the dollar's new official reserve currency role. It must be remembered that World War I had caused the price level almost to double. But after the war, Britain and America tried to maintain the pre-war dollar-gold, sterling-gold parities. Designed at the Genoa Convention of 1922, the official reserve currency roles of the

convertible pound and dollar collapsed after 1929 in the Great Depression -- a collapse which helped to cause and to intensify the worldwide deflation and depression. Then, Franklin Roosevelt in 1934 reduced the value of the dollar by raising the price of gold from \$20 to \$35 per ounce.

But it must be emphasized that it was in 1922, at the little known but pivotal Monetary Conference of Genoa, that the unstable gold-exchange standard had been officially embraced by the academic and political elites of Europe. It was here that the dollar and the pound were confirmed as official reserve currencies to supplement what was said to be a scarcity of gold. But there was no true scarcity, only overvalued currencies after World War I. Professor Rueff warned in the 1920s of the dangers of this flawed gold-exchange system designed "to economize gold." He predicted again in 1960-61 that the Bretton Woods system, a post-World War II gold-exchange standard, flawed as it was by the same official reserve currency contagion of the 1920s, would soon groan under the flood weight of excess American dollars going abroad. Rueff in the 1950s and 1960s forecast permanent U.S. balance of payments deficits and the tendency to constant budget deficits, and ultimately the suspension of dollar convertibility to gold. His prescience was borne out by the facts.

After World War II, Professor Rueff saw that because the United States was the undisputed hegemonic military and economic power of the free world, foreign governments and central banks, in exchange for these military services and other subsidies rendered, would for a while continue to purchase, (sometimes to protect their export industries,) excess dollars on the foreign exchanges against the creation of their own monies. But these foreign official dollars, originating in the U.S. balance of payments and budget deficits, were then redeposited by foreign governments in the New York dollar market which led to inflation and excess consumption in the United States. This same process engendered inflation in its European and Asian protectorates which purchased excess dollars against the issuance of their own currencies. In a word, official reserve currencies jam the indispensable, international settlements and adjustment mechanism. Moreover, these purchases of dollars by foreign central banks have the simultaneous effect of creating inflation in these foreign countries and undervaluing their currencies relative to the dollar. Incipient mercantilism was only one pernicious result of the dollar's overvalued, official reserve currency status. The decline of the great U.S. manufacturing center was another.

Incredibly, during this same period of the 1960s, the International Monetary Fund authorities had the audacity to advocate the creation of Special Drawing Rights (SDRs), so-called “paper gold,” invented, as International Monetary Fund officials said, to avoid a “potential liquidity shortage.” At that very moment, the world was awash in dollars, in the midst of perennial dollar and exchange rate crises. Professor Rueff remarked that the fabrication of these SDRs by the International Monetary Fund would be “irrigation plans implemented during the flood.”

The post-World War II gold-exchange standard (Bretton Woods) came to an end on the Ides of March, in 1968, when President Johnson suspended the London Gold Pool. After a few more crippled years, Bretton Woods expired on August 15, 1971. The truth is that Monetarists and Keynesians sought not to reform Bretton Woods, as the true gold standard reform of Jacques Rueff intended, but rather to demolish it. The true gold standard had become passé among the intellectual, economic, and political elites because of their confusion over the difference between the gold standard and the gold-exchange standard -- the collapse of the latter, *not* the former -- having intensified the depression. I shall give you just one example of the obtuseness of the political class of the 1960s and 1970s, which happened at the height of one major dollar crisis. A friend of Professor Rueff, the American banker and policy intellectual, Henry Reuss, Chairman of the Banking and Currency Committee of the United States House of Representatives, went so far as to predict, with great confidence and even greater fanfare, that when gold was demonetized, it would fall from \$35 to \$6 per ounce. (I am not sure whether Congressman Reuss ever covered his short at \$800 per ounce in 1980.)

President Nixon, a self-described conservative, succeeded President Johnson and was gradually converted to Keynesian economics by so-called conservative academic advisers, led by Professor Herbert Stein. Mr. Nixon had also absorbed some of the teachings of the Monetarist School from his friend Milton Friedman -- who embraced the expediency of floating exchange rates and central bank manipulation and the targeting of the money stock to create a stable inflation rate. Thus, it was no accident that the exchange rate crises continued because the underlying cause, inflation, continued. On August 15, 1971, after one more violent dollar crisis, Nixon defaulted at the gold window of the western world, declaring that “we are all Keynesians now.” In 1972, Nixon, a Republican, a so-called free market President, imposed the first peacetime wage and price

controls in American history -- encouraged by some of the famous "conservative" advisers of the era.

In President Nixon's decision of August 1971, the last vestige of dollar convertibility to gold, the final trace of an international common currency, binding together the civilized trading nations of the West, had been unilaterally abrogated by the military leader of the free world.

Ten years later at the peak of a double digit inflation crisis, the gold price touched \$850. At the time, Paul Volcker, Chairman of the Federal Reserve declared that the gold market was going its own way and had little to do with the Fed's monetary policies. Volcker then engineered a draconian credit contraction leading to near 11% unemployment and a decline in inflation. At that time, Professor Wallich declared that the gold market is but "a side show." Secretary of the Treasury William Miller, and a short-lived Fed Chairman, who had been selling United States gold at about \$200 in 1978, announced solemnly that the Treasury would now no longer sell American gold. Presumably Secretary Miller, an aerospace executive, meant that whereas, more than one-half the vast American gold stock had been a clever sale, liquidated at prices ranging between \$35 and \$250 per ounce -- now, in the manner of the trend follower, Secretary of the Treasury Miller earnestly suggested that gold was a "strong hold" at \$800 per ounce.

On January 18, 1980, Fed Governor Henry Wallich, a former Yale Economics professor, explained Federal Reserve monetarist policies in an article appearing in the *Journal of Commerce*:

"The core of Federal Reserve...measures," basing "control upon the supply of bank reserves," he said, "gives the Federal Reserve a firmer grip on the growth of monetary aggregates..."

As subsequent events showed, the Federal Reserve promptly lost control of the monetary aggregates. The bank prime rate rose to 21%, inflation to double digits.

Professor Rueff's experience as a central banker had taught him from hard experience what his five volumes of monetary theory and econometrics demonstrated. That is, no central bank, not even the mighty Federal Reserve, can determine the quantity of bank reserves or the quantity of money in circulation -- all conceits to the contrary notwithstanding. The central bank may influence indirectly the money stock; but the central bank cannot determine its amount. In a free society, only the money users -- consumers and producers in the market -- will determine the money they desire to hold. In a reasonably free society, it is consumers and producers in the market who desire and decide to hold cash balances, and also to change the

currency and bank deposits they wish to keep; it is central banks and commercial banks which can supply them.

During the past forty years, the important links between central bank policies, the rate of inflation, and the variations in the money stock have caused much debate among the experts. It is still generally thought by neo-Keynesian, and some monetarist economists and central bankers, that the quantity of money in circulation, and economic growth, and the rate of inflation can be directly coordinated by central bank credit policy. May I now firmly say that, to the best of my knowledge, no one who believes this hypothesis, and, as an investor, has systemically acted on it in the market, is any longer solvent. But I do confess, that the neo-Keynesian and monetarist quantity theories of money still hang on -- even if its practitioners in the market cannot. In the end neo-Keynesian and monetarist economists at the Federal Reserve were ultimately required to accommodate to a reality in which, for example, during 1978, the quantity of money in Switzerland grew approximately 30% while the price level rose only 1%. The quantity of money, M-1, grew in 1979 about 5% in the United States while the inflation rate rose 13%. The Fed learned that the CPI inflation rate cannot be precisely associated with the quantity of money in circulation.

If then, a central bank cannot determine the quantity of money in circulation, what, in Rueffian monetary policy, can a central bank realistically do? To conduct operations of the central bank, there must be a target. If the target is both price stability and the quantity of money in circulation, one must know, among other things, not only the magnitude of the desired supply of money, but also the precise volume of the future demand for money in the market -- such that the twain shall meet. It is true that commercial banks supply cash balances, but individuals and businesses -- the users of money -- generate the decisions to hold and spend these cash balances. Thus, the Federal Reserve must have providential omniscience to calculate correctly, on a daily or weekly basis, the total demand for money -- assuming the Fed could gather totally reliable statistical information -- which it cannot; and even if the Fed's definitions of the monetary aggregates were constant -- which they are not.

Jacques Rueff, himself the Deputy Governor of the Bank of France, clarified this fundamental problem in the form of an axiom: Because the money stock cannot be determined by the Federal Reserve Bank, nor can it determine a constant rate of inflation, the monetary policy of the central bank must not be to target the money supply or the rate of inflation. The Federal Reserve Bank simply

cannot determine accurately the manifold decisions of the public to hold money, for individual and corporate purposes, in order to make necessary payments and to carry precautionary balances. Therefore, the leaders of the European central bank and the Federal Reserve System, all central banks cannot and should not try to determine the quantity of money in circulation.

But, if the true goal of the central bank were long run stability of the general price level, the operating target of monetary policy at the central bank must be simply to influence the supply of cash balances in the market, such that they tend to equal the level of desired cash balances in the market. To attain this goal, the central bank must abandon open market operations and simply hold the discount rate, or the rediscount rate, above the market rate -- when, for example, the price level is rising -- providing money and credit only at an interest rate which is not an incentive to create new credit and money. Indeed, if the target of monetary policy is long run price stability, the central bank must supply bank reserves and currency only in the amount which is approximately equal to the desire to hold them in the market. For if the supply of cash balances is approximately equal to the desire to hold them, the price level must tend toward stability. If there are no excess cash balances, there can be no excess demand, and, thus, there can be no sustained inflation. There also can be no sustained deflation, caused by scarcity of cash balances, because the target of monetary policy is a stable price level and, in these circumstances, the central bank supplies the desired cash balances.

An effective central bank policy, therefore, must reject open market operations. Professor Rueff shows further that, in order to rule out inflation, and unlimited government spending, the government treasury must be required by law to finance its cash needs in the market for savings, away from the banks. That is, a government treasury, in deficit, must be denied the privilege of access to new money and credit at the central bank and commercial banks, in order also to deny the government the pernicious privilege of making a demand in the market without making a supply -- the ultimate cause of inflation. That is, since the Federal Reserve creates new money and credit to finance the Treasury deficit, but the Treasury creates no new goods and services, total money demand will exceed supply at prevailing prices. Prices must rise. At first, commodity and equity prices advance. Then the general price level rises gradually. This exorbitant U.S. government financing privilege, a function of total Fed discretion and of the dollar's reserve currency

status, is a necessary cause of the balance of payments deficit and persistent inflation. It is also a fundamental cause of unlimited budget deficits and bloated big government. So long as new bank credit is available to the government, so long will the budget deficit persist and grow.

One can see that the monetary theory and policy of Jacques Rueff finally does come to grips with, indeed it modifies, the famous Law of Markets of Jean Baptiste Say, building of course on Say's insights, but perfecting the flawed Quantity Theory of Money. Jacques Rueff reformulated the quantity theory of money, definitively, in the following proposition: aggregate demand is equal to the value of aggregate supply, augmented (+/-) by the difference between the variations, during the same market period, in the quantity of money in circulation and the aggregate cash balances desired. This is a central theorem of Rueffian monetary economics. Rueff demonstrated that Say's law does work, namely, that supply tends to equal demand, provided, however, that the market for cash balances must tend toward equilibrium. Any monetary system, any central bank, which does not reinforce this tendency toward equilibrium in the market for cash balances destroys the first law of stable markets, namely, overall balance between supply and demand -- a necessary condition for limiting inflation and deflation.

It is conventional wisdom that Milton Friedman and the Monetarists try to regulate the growth of the total quantity of money and inflation through a so-called money stock rule designed to constrain the central bank monopoly over the currency issue. In practice, the Federal Reserve has failed, and will fail, to succeed with such a flawed, academic, and impractical rule. Professor Friedman, himself, humbly admitted failure in a remarkable 2003 interview. The much simpler, more reliable, market-biased technique -- proven in the laboratory of history -- as Professor Rueff demonstrated, would be to make the value of a unit of money equal to a weight unit of gold, in order to regulate, according to market rules, the same central bank monopoly. But academics have argued for a century that a monetary "regulator," such as gold money, absorbs too much real resources -- by virtue of the process of gold production -- and is therefore, in economic terms, too costly.

Whatever the minor incremental mining cost of a gold-convertible currency, it is a superior currency stabilizer, as history shows. The empirical data also show that it is a more efficient regulator of price stability in the long run. The gold standard was no mere symbol. It was an elegantly designed monetary mechanism -- carefully

orchestrated over centuries by wise men of great purpose -- who developed convertibility into a supple and subtle set of integrated financial and credit institutions organized to facilitate rapid growth, quality job creation, a stable price level, above all, social stability amidst free economic institutions. Thus did the free price mechanism and the international gold standard become the balance wheel of rapid economic growth during the long-lasting Industrial Revolution. Who can deny that two generations of floating exchange rates, pegged undervalued currencies like the Chinese Yuan, and discretionary central banking, have burdened the world with booms, panics, and busts, producing immense inflation and uncertainty costs, much greater than the comparatively modest cost of mining gold?

Therefore, in order to bring about international price stability and long run stability in the global market for cash balances, the dollar and other key currencies must be defined in law as equal to a weight unit of gold -- at a statutory convertibility rate which insures that nominal wage rates do not fall. Indeed, nothing but gold convertibility, without official reserve currencies, will yield a real fiduciary monetary standard for the integrated world economy.

At the end of the first decade of the new millennium, the world requires, a real monetary standard, a common non-national monetary standard, to deal with the monetary disorder of undervalued, pegged, currencies and manipulated floating exchange rates -- the diabolical agents of an invisible, predatory mercantilism. Despite all denials, the currency depreciations of today are, without a doubt, designed to transfer unemployment to one's neighbor and, by means of an undervalued currency, to gain share of market in manufactured, labor intensive, value-added, world traded goods. If these depreciations and undervaluations are sustained, floating exchange rates combined with the twin budget and trade deficits will, at regular intervals, blow up the world trading system. Great booms and busts, inflation and deflation, social instability must ensue.

To head off the mercantilism of present floating exchange rates, and the consequences of exchange rate disorders caused by official dollar reserves, an international monetary conference is indispensable. The present high rates of unemployment and perverse trade effects, associated with floating exchange rates, require an efficient and stable international monetary reform. Not least because floating exchange rates re-price entire national production systems at unpredictable intervals. Such monetary perversity cannot be sustained. A European Monetary Union may be necessary; but it is not sufficient.

Now we see clearly, what before we saw in a glass darkly -- the dollar's official reserve-currency status still gives an exorbitant credit privilege to the United States. Professor Rueff spoke of American "deficits without tears," because the American budget deficit and balance-of-payments deficits were -- they still are -- almost automatically financed by the Federal Reserve and the world-dollar reserve-currency system -- through the voluntary (or coerced) buildup of dollar balances in the official reserves of foreign governments. These official dollar reserves were, and still are, immediately invested by foreign authorities, directly or indirectly, in the dollar market for United States securities, thus giving back to the United States, at subsidized rates, the dollars previously sent abroad as a result of the persistent United States balance-of-payments deficit and budget deficits. This is the subtle mechanism by which excess American domestic consumption and budget deficits are financed. To describe this awesome absurdity, Professor Rueff invoked the metaphor of the King's overworked tailor, yoked permanently to fictitious credit payments by His Majesty's unrequited promissory notes. Despite his purchases, His Majesty's cash balances and euphoria kept rising, blinded as he was to his ultimate, debt-induced insolvency.

There is not sufficient time to dwell on all the intricacies of the superior efficacy of the balance-of-payments adjustment mechanism grounded in domestic and international convertibility to gold. But it can, I think, be shown that, in all cases, currency convertibility to gold, without official reserve currencies, is *the least imperfect monetary mechanism*, both in theory and in practice, by which to rule out currency wars, to maintain global trade and financial balance, a reasonably stable price level, and economic growth -- while ensuring budgetary equilibrium. This proposition has been proven in the only laboratory by which to test monetary theory -- namely, the general history of monetary policy under paper and metallic regimes, and, in particular, the history of the international gold standard. [See Table 1]²⁷

Whereas, by contrast, when one country's currency -- the dollar reserve currency of today -- is used to settle international payments, the international settlement and adjustment mechanism is jammed -- for that country -- and for the world. This is no abstract notion. An example from the past: during the twelve months of 1995, one hundred billion dollars of foreign exchange reserves were accumulated by foreign governments which were directly invested in

[²⁷ The original testimony read: "(See chart in appendix)." That chart has been labeled Table 1.]

U.S. Treasury securities held in custody at the New York Federal Reserve Bank -- thus financing the more modest U.S. current account and U.S. budget deficits of the time. Between March 10, 2010 and March 9, 2011, foreign governments monetized \$415 billion dollars in the form of U.S. securities held in custody at the Fed. This is only a fraction of the \$3.5 trillion of official dollar reserves, held in custody at the Fed, accumulated by March, 2011, over two generations. This accumulation of foreign dollar reserves is a gigantic mortgage on America. It is the infernal mechanism by which the government budget deficit and balance of payments deficits are financed. Along with the Fed, foreign dollar reserves are sufficient today to finance domestic over-consumption in the United States at below market interest rates.

It is essential to understand the nature of this ongoing process of currency degradation -- because the dollar's reserve-currency role in financing the U.S. budget and balance of payments deficits certainly did not end with the breakdown of Bretton Woods in 1971. The perennial and extraordinary U.S. budget and balance of payments deficits still persist because there is, today, no efficient international monetary mechanism to forestall the American deficits. Indeed, Professor Rueff argued that if the official reserve role of the dollar -- i.e., the world dollar standard -- were abolished, and convertibility restored, the immense U.S. budget and current account deficits must end -- a blessing not only for the United States, but for the whole world. This is so because the Fed and the Treasury would be bound by statute and treaty to maintain the gold convertibility of the dollar. It is true that both law and international treaty may be violated, but they do create the only barriers to the license of rogues.

The reality behind the "twin deficits" is simply this: the greater and more permanent the Federal Reserve and foreign reserve facilities for financing the United States budget and trade deficits, the greater will be the twin deficits and the growth of the U.S. Federal government. All congressional, administrative, and statutory attempts to end the United States deficits have proved futile, and will prove futile, until the crucial underlying flaw -- namely the absence of an efficient international settlements and adjustment mechanism -- is remedied by international monetary reform inaugurating a new international gold standard and the prohibition of official reserve currencies.

Broadly speaking, at least three essential steps toward convertibility could be taken by America and other great powers.

- (1) The U.S. president should request the Federal Reserve

System to cooperate with, say, a Group of Ten to stabilize the value of key currencies at levels consistent with balanced international trade among national currency areas. That is to say, exchange rates should be stabilized at approximately their purchasing power parities, based largely upon comparative unit labor costs of standardized world traded goods. To do this, indexes of purchasing power can be agreed upon within the Group of Ten and, thus, an optimum and fair value determined for mutual convertibility of national currencies. But how should the value of the gold monetary standard be determined? The optimum value of the gold parity should reflect a gold price correctly positioned within the hierarchy of all prices; that is, a price proportional to its underlying cost of production. This dollar price of gold, or more properly, the defined gold weight of the monetary standard, must be set above the average of the marginal costs of production of gold mines operating throughout the world. This price would provide for steady output of the gold monetary base (about an average of 1.5% to 2% increase per year over a long run, as centuries of available monetary statistics show). Such a gold price would also prevent any decline in the average level of nominal wages -- avoiding, for example, the British problem of underemployment in the 1920's caused by an overvalued pound. Under existing conditions, during the present market period, I have estimated, based on empirical data, that the optimum convertibility price of gold is not less than \$2,000 per ounce. (March, 2011)

- (2) The President should recommend to the Group of Ten, that convertibility regimes take effect at a fixed date in the future, subsequent to the international monetary conferences and agreements made there, perhaps an interval of three to four years. Gold-convertible currencies should become the monetary standards of Europe, of the United States, of the world, just as the gold standard should become the common money of world trade and finance in Asia and elsewhere.
- (3) To simplify, if the United States government, or any other key country, then creates excess money and credit, under conditions of gold convertibility, it will be forced in a relatively short period to change, because market participants will exchange paper currencies for gold, or gold for paper, to

bring the quantity of money in circulation into balance with the desire of the public to hold these cash balances.

- (4) In a constitutional republic such as the United States the sovereign people should control the supply of money through the limiting mechanism of gold convertibility of the dollar. As President Reagan said, "Trust the people." Moreover, domestic monetary reform in the United States, and elsewhere, would also mean that only gold and domestic, non-government, secured, self-liquidating securities, convertible at maturity to gold, could serve as collateral, or backing for new currency issues such as, for example, Federal Reserve Notes. Standard gold coins, minted according to the statutory standard, should be generally circulated in the market to be held by all working people, so as to guarantee that neither the monetary standard, nor the wages and savings of working people, will be arbitrarily abridged by inflationary governments. Such a regime, among other purposes, eliminates the advantage of nimble speculators over middle income people and those on fixed incomes.
- (5) The new international monetary system would rule out, by enforceable treaty obligations, official reserve currencies which so plagued the entire financial history of the twentieth century and the first decade of the twenty-first. Existing official dollar-reserves could be consolidated and refunded and then gradually amortized over the long term (even to a certain extent refunded through the rise of the official value of gold above the last official revaluation (\$42.22 per ounce). This is not unlike the consolidation plan deployed by the first United States Secretary of the Treasury, Alexander Hamilton, to refund the national and state debts after the revolutionary war.

This was and is the Rueff plan, brought up to date to deal with the exigencies of the present facts and circumstances. May I say, it is an intellectual scandal that such a solution is today regarded as impractical. For if we and our former adversary, Russia, can share capsules in space, why can the United States and its trading partners not agree to restore monetary convertibility, the indispensable condition for stable currencies, world economic growth, and free trade?

By pinning down the future price level by gold convertibility, the immediate effect of international monetary reform will be to end

currency speculation in floating currencies, and terminate the immense costs of inflation hedging. Gold convertibility eliminates the very costly exchange of currencies at the profit-seeking banks. Thus, new savings will be channeled out of financial arbitrage and speculation, into long-term financial markets.

Increased long-term investment and improvements in world productivity will surely follow, as investment capital moves out of unproductive hedges and speculation -- made necessary by floating exchange rates -- seeking new and productive investments, leading to more quality jobs. Naturally, the investment capital available at long term will mushroom, inspired by restored confidence in convertibility, because the long run stability of the price level will be pinned down by gold convertibility -- as history shows to be the case in previous, well-executed monetary reforms of the past two hundred years. Along with increased capital investment will come sustained demand for unemployed labor, at quality wages, to work the new plant and equipment.

The world now awaits a far-seeing leader to carry out the international monetary reform proposed by the great monetary statesman of the twentieth century, Professor Jacques Rueff.

Lewis E. Lehrman
March 15, 2011

[EXCERPT FROM JOHN D. MUELLER'S

REDEEMING ECONOMICS: REDISCOVERING THE MISSING ELEMENT]²⁸

America needs: A dollar that is, once again, an honest dollar, a dollar as good as gold.

Both American and world history show that only proper monetary reform -- specifically, restoring the international gold standard without official reserve currencies -- will end chronic episodes of inflation (or deflation), U.S. international payments deficits, and endless Federal deficit spending.

A brief monetary history of the United States. The stability of the U.S. dollar has varied widely in its history. This variation is

²⁸ [The excerpt was included as part of Lehrman's testimony with the indentifying footnote: "John D. Mueller, *Redeeming Economics: Rediscovering the Missing Element* (ISI Books, 2010) Table 16-1." -Ed.]

explained by two factors: the monetary standard chosen for the dollar, and whether other countries have simultaneously used securities payable in dollars as their own monetary standard.

The United States has alternated between two kinds of standard money: inconvertible paper money and some precious metal (first silver, then gold). The dollar was an inconvertible paper money during and after the Revolutionary War (1776–92), the War of 1812 (1812–17), the Civil War (1862–79), and again from 1971 to the present. The dollar was effectively defined as a weight of silver in 1792–1812 and 1817–34, and as a weight of gold in 1834–61 and 1879–1971. The dollar was not used by foreign monetary authorities as a monetary reserve asset before 1913, but has been an official “reserve currency” for many since 1913, and for most since 1944.

Applying these two criteria divides the monetary history of the United States into distinct phases. We can compare the stability of these monetary regimes by examining the variation in the Consumer Price Index (as reconstructed back to 1800) by two simple measures: long-term CPI stability (measured by the annual average change from beginning to end of each monetary standard) and short-term CPI volatility (measured by the standard deviation of annual CPI changes during the period). Weighting these criteria equally, the classical gold standard from 1879-1914 was the most stable of all U.S. monetary regimes (as the table below shows).

The first chart shows why ending the dollar’s official reserve currency role would end chronic U.S. payments deficits. In 1980 U.S. residents owned net investments in the rest of the world equal to about 10 percent, but by 2009 had become net debtors equal to about 20 per cent, of U.S. GDP. Meanwhile U.S. net official monetary assets -- official monetary assets minus foreign liabilities -- declined by almost exactly the same amount, while the books of the rest of American residents remained in balance or slight surplus.

This comparison proves that the entire decline in the U.S. net investment position has been due to Federal borrowing from foreign monetary authorities.

As the second chart shows, the same process caused the commodity-led inflations that triggered each of the recessions of 1974-75, 1979-80, 1990-91, and 2007-9. The chart compares the annual rate of inflation of CPI nondurable goods -- mostly food and energy prices -- with a ratio of the main factors affecting them: the lagged “World Dollar Base,” or total supply of “high-powered” dollars, divided by a proxy for the current demand for high-powered dollars:

U.S. currency and commercial bank reserves times current world oil production.

In each case, voters blamed the President: Richard Nixon, Gerald Ford, Jimmy Carter, George H.W. Bush, George W. Bush, or Barack Obama. Thus, any presidential candidate who does not wish to become a by-word must restore the first principle of successful presidential economic policy, by defining the dollar again as a weight of gold and ending by treaty the dollar's role as chief official reserve currency.

U.S. Consumer Price Index, Long-term stability and short-term volatility, By period and monetary system: 1800–2009	Long- run stability (average annual change)	Short-run volatility (standard deviation annual change)	Memo: Maximum price change (High vs. low)	Stability rank (weighing both criteria equally)
1800–1834: Domestic silver standard (interrupted 1812–17 by domestic paper standard)	-1.5%	5.2%	76%	4
1834–1861: Domestic gold standard	-0.4%	3.5%	36%	2
1862–1879: Domestic paper standard	+0.1%	8.8%	74%	3
1879–1914: International gold standard	+0.2%	2.2%	20%	1
1914–1944: Interwar international gold-dollar-sterling standard	+1.9%	7.2%	99%	5
1944–1971: Bretton Woods international gold-dollar standard	+3.1%	3.1%	130%	4
1971–2009: International paper dollar standard (1971–1981 1981–2009)	+4.5% (+8.5%) (+3.1%)	2.8% (+2.7%) (+1.2%)	432% (125%) (137%)	4

Table 1

WRITTEN TESTIMONY OF
JAMES GRANT
FOUNDER & EDITOR
GRANT'S INTEREST RATE OBSERVER

"What Should the Federal Reserve Do Next?" was the headline over the roundup of expert monetary opinion on the op-ed page of the Sept. 9 *Wall Street Journal*. The experts couldn't seem to agree. Buy Treasurys by the boatload, one counseled. Do nothing of the sort, urged another. Hew fast to the Taylor Rule, John B. Taylor, himself the author of the very rule, modestly proposed (i.e., fix the federal funds rate at one-and-a-half times the inflation rate plus one-half times the shortfall of GDP from potential, plus one). The half-dozen authorities shared not much common ground except to ignore the principles on which the dollar was defined in 1792 and those on which the Federal Reserve was enacted in 1913. The burden of this essay is that they thereby missed the point.

The trouble with living authorities on money and banking is the ideas they absorbed in school. For instance, that a central bank can calibrate the rate of debasement of the currency it prints by adjusting the speed of the digital press. Or that the Federal Open Market Committee can pick the interest rate that will cause the GDP to grow and payrolls to swell and prices to levitate by 2% per annum, give or take a basis point. Such things are impossible.

Say that the Fed built bridges rather than manipulated interest rates, and that, in 2008, its bridges fell down. The world would want to know why. Maybe we aren't engineers, the people would say, but we know a heap of rubble when we see it. And if an inquest determined that the Fed had built its bridges with plywood instead of reinforced concrete--a clever updating of the fusty old operations manual, some bright light on the board staff had determined--even a layman would see that "progress" is sometimes retrogression.

So it is in money and banking. With a little help from our friends, we are about to make the case that there has been no net progress in doctrine and policy since 1914, when the lights went out on the true-blue gold standard. Some will smile. The pure paper dollar, these scoffers say, is but a lighter, sleeker, more intelligent variant on the old, gold-backed model. But you could only issue so many gold-backed dollars, the supply being constrained by the scarcity of the collateral. There now being no check on the volume of issuance, dollars pile up in the vaults of America's creditors. It falls to them to say "uncle,"

and say it they will one day, we are certain. They will then be queuing up to exchange intrinsically worthless paper for tangible value. May the readers of *Grant's* beat them to the punch.

In the theory and practice of interest-rate manipulation, too, we have fallen off the shoulders of giants. Under classical doctrine, developed in England and deemed best practice in this country into the administration of William Howard Taft, commercial banks existed not to "create credit" but to facilitate and liquefy the credit that two parties to a business transaction created when one said to the other, "I'll pay you in 30 days." There was an exquisite economy of motion in the old methods--no central authority deemed it necessary to buy up \$1 trillion or so of public securities or to scoop up every available residential mortgage to stave off disaster in the housing market. Somehow, the economy functioned without econometricians.

Though the Fed's monetary and credit bridges collapsed two years ago, few have demanded a fundamental accounting of the ideas that undergird Chairman Bernanke's \$2.2 trillion balance sheet and inform his interest-rate policy. Maybe it's as simple as the fact that the living authorities don't know, and the dead ones can't talk. Then, again, some of the ancients wrote books. Henry Parker Willis (1874-1937) is one such posthumous expert, and it's him we call on now.

Present at the monetary creation, Willis consulted for the authors of the Federal Reserve Act. He was first secretary of the Federal Reserve Board and right-hand man to Sen. Carter Glass of Virginia, the so-called father of the Fed and co-author of the Glass-Steagall Act of 1933. "The Theory and Practice of Central Banking," published in 1936 and long out of print, was his swan song. Possibly, he died of a broken heart.

The Fed--*his* Fed--had gone off the rails almost as soon as it opened its doors for business in 1914, Willis lamented. The central bank he envisioned was a kind of balance wheel in the engine of the American money market. The Reserve Banks would turn commercial IOUs into cash according to the demands of the season and the cycle, in that fashion making the currency elastic. Critically, the Fed itself would not create credit. It would, rather, liquefy the bills that a vendor would extend to his customer--the self-liquidating kind of commercial credit that allows the economic wheels to turn. In the founders' conception, the Fed would operate passively through the discount window, not actively through open-market operations. That is, it would accommodate the needs of the community, not determine what those needs should be. It would no more intervene to rescue the American residential real estate market than it would to steer the

GDP or manipulate the rate of rise of the core Personal Consumption Expenditures index (as if anyone could reliably calculate it, which Willis doubted).

Alan Greenspan was 10 years old the year Willis published; Ben S. Bernanke was minus 17. Still, the lineaments of the modern command-and-control approach to monetary management were all too much in evidence. The Mark I gold standard had died in World War I, and with it had gone the classical English central banking technique of discounting commercial bills. Discretionary open-market operations--buying and selling government securities in the open market--were the new, new thing. "Central banks. . .," wrote Willis, wagging a finger at the young fellows, "will do wisely to lay aside their inexpert ventures in half-baked monetary theory, meretricious statistical measures of trade, and hasty grinding of the axes of speculative interests with their suggestion that by so doing they are achieving some sort of vague 'stabilization' that will, in the long run, be for the greater good." It may interest Willis's ghost to learn that, although "inflation targeting" became the darling of the monetary-policy intellectuals in the years leading up to the 2008 crisis, the "stability" it thereby seemed to achieve turned out to be singularly unstable.

To the *Journal's* timely question, "What Should the Federal Reserve Do Next?" numerous economists have proposed myriad nostrums. Among the scariest of these brain waves was one proffered last week by the chief economist of Citigroup. Writing in the *Journal's* European edition, Willem Buiter suggested that the Fed explore techniques to impose a federal funds rate of less than zero percent. "To restore monetary policy effectiveness in a lower interest rate environment when confronted with deflationary or contractionary shocks, it is necessary to get rid of the zlb [i.e., zero lower bound, meaning a zero-percent funds rate] completely," Buiter wrote. "This can be done in three ways: abolishing currency, taxing currency and ending the fixed exchange rate between currency and bank reserves with the Fed. All three are unorthodox. The third is unorthodox and innovative. All three are conceptually simple."

Still simpler is the old doctrine that the moderns have pushed aside or never learned in the first place, and to which if the Citigroup front office had adhered, might have spared the bank the indignity of a \$4 stock price. Thus, commanded the ancients: Anchor the dollar to the precious metals, raise liquidity to the top of the list of banking virtues and understand the process by which commercial credit comes into the world (hint: not by bankers' pens). The first of these rules to

live by was, to Willis and his contemporaries, as clear as the law itself. Under the Constitution, the 1792 Coinage Act and the 1900 Gold Standard Act, the dollar was defined as a weight of silver and gold. The verdict of monetary history resoundingly seconded the wisdom of the lawmakers: Paper currencies unbacked by anything except the issuing politicians' good intentions invariably lost their value. Regrettably, that was not the end of the discussion. The economists were busily chipping away at the semiautomatic workings of the pre-1914 gold standard. Better, they contended, a managed system of their own devising. Willis mocked the eggheads: "The 'new era' in central banking theory," he wrote, "may thus be said to have taken form as a view that it was possible for central banks to 'manage' the level of prices and, incidentally, the business situation by issuing more or less currency (or credit). . . ." Hopefully more than analytically, Willis predicted that these demonstrably false notions were on their way out. In fact, they were on their way in.

The idea of liquidity, too, had had a hard time of it in the 1920s. A liquid asset, as Willis and his peers defined it, was a short-dated commercial IOU--a money-good industrial purchase order, for example. Banks had no business owning any asset that did not, upon its maturity, generate a cash payment. Leave bonds, mortgages and other long-lived capital instruments to the savings banks and insurance companies, Willis preached. Commercial banks were put on this earth to facilitate the exchange of goods, not to "create" credit or finance speculation. But in the Harding and Coolidge years, a new theory came to the fore. Banks need not confine themselves to the gospel of so-called real bills, the theorists held. It was not strictly necessary that a banking asset be "liquid" (as defined). All would be well if an asset were "shiftable," i.e., salable in the continually functioning, deep and liquid capital markets of the day. Willis cringed at the heresy but had the sour pleasure of seeing it exploded in the Great Depression. Though bankers and economists had endlessly debated the matter, hard experience finally told the tale: "In this case, as in so many other economic disputes, however," Willis wrote, "the test is furnished not by the usual or 'normal' experience, but is afforded by the action or experience with regard to bank portfolios during special trial or difficulty. Particularly is such a test applied in times of panic followed by depreciation when the security markets suffer most from long-period fluctuations and when unemployment and business derangements give large scope to fluctuation in volume of trade."

Holders of frozen assets in the long, hard financial winter of 2008-09 will warm to the words that followed: "[D]uring the depression following the panic of 1929, banks have lost relatively little through the 'freezing' of their bona-fide commercial paper, while they have suffered heavily through inability to dispose of their long-term capital obligations or from deterioration of such obligations when sold at a sacrifice," Willis recorded. "In a word, recent experience is positively against the acceptance of the doctrine of shiftability in place of that of liquidity as a canon of banking soundness." Reading Willis, one is led to wonder how often the same lesson must be absorbed. Evidently, once a generation.

And, in a panic, what duty did a central bank owe to the institutions that chose shiftability over liquidity? "There is no more reason for violating the canons of conduct of central banking in a time of 'panic' than there is at any other time," Willis answered. "No central bank can, by the mere exercise of its credit-granting power, make something out of nothing, or save other banks from the disastrous consequences of their past policy. When a central bank does so it merely tends to make a bad matter worse."

The story of the evolution of American finance since the publication of "The Theory and Practice of Central Banking" has been the comprehensive rejection of every theory and practice Willis advocated. Commercial banks have seemed to apply themselves to the pursuit of illiquidity while the Federal Reserve has devoted itself to the black arts of central planning. As for the dollar, it is a claim on nothing except the competence of the public servants who somehow failed to anticipate--having so signally helped to cause--the greatest credit calamity of the past 70 years.

"What Should the Federal Reserve Do Next?" Less, we say. Withdraw from the business of macroeconomic management. Acknowledge the essential error of the doctrine of interest-rate manipulation. Confess to the obvious flaws in the paper-currency system. Renounce debasement under the pseudo-scientific name of "quantitative easing."

"What Should We the People Do Next?" is another question. Inflation usually proceeds by stealth--in the 1950s and 1960s, "creeping inflation" was the phrase. There is, however, nothing stealthy about Chairman Bernanke. He could not be more forthright. Inflation is his policy, and money printing, a.k.a. quantitative easing, is his method. Gold is one refuge from this design, though there is safe harbor in cheap stocks and undervalued real estate, too. As for

bonds, they are promises to pay dollars, the definition of which the bondholder entrusts to the man who intends to cheapen them.

David A. Stockman, paid-up subscriber and former director of the Office of Management and Budget, points out that Willis's name does not even appear in the index of Bernanke's "Essays on the Great Depression." Monetarists like the late Milton Friedman brushed aside Willis's quaint (to them) attachment to the doctrine that credit has its origins not with a bank loan officer, but with the businesspeople who anticipate each other's cash in the process of production.

"The ironic point," Stockman observes, "is that H. Parker Willis and the English banking tradition did not believe in macro-management of the aggregate economy. They thought that the free market would take care of itself as long as trade bills were not artificially and precipitously liquidated in a money panic. Stated differently, they thought that the job of the central bank was to liquefy the commercial banking system, not to levitate the GDP. So in embracing the quantity theory of money, Mr. Capitalism and Freedom ["Capitalism and Freedom" was a Friedman best seller] laid the planking for central planning by the Fed. Yes, Friedman said that such macro-management of the aggregate economy should proceed not from discretionary tinkering by the Open Market Committee, but based on a fixed rule. As we can see, his wayward disciple, Professor Bernanke, has done just that. He is running the U.S. economy based on *his* rule."

**WRITTEN TESTIMONY OF
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Since it began operations in 1914 the Federal Reserve System (“the Fed”) has presided over a relentless decline in the value of the U.S. dollar. Prices increased in 83 of the 97 years of the Fed’s existence. Over the last 60 years, beginning in 1950, prices rose in 58 of them. As a result the cumulative loss of the dollar’s buying power during the Fed’s existence has been staggering. For example, today a consumer pays \$22.13 to purchase a basket of goods comparable to a basket that a consumer in 1913 would have paid \$1.00 for. This means that since 1913 the dollar has lost 95 percent of its purchasing power and that today’s dollar is worth roughly a nickel in terms of the pre-Fed dollar of 1913. The Fed’s performance in safeguarding the value of the dollar has been particularly abysmal since 1971, when President Nixon closed the “gold window” and completely unshackled the Fed from the remaining restraints of the gold standard. Since then the price level has more than quintupled, so that today’s dollar retains only 19 cents of the purchasing power of the 1971 dollar.

Now the view held by Chairman Bernanke and other mainstream macroeconomists is that the Fed was chastened and enlightened by the disastrous consequences of the inflationary monetary policy that it pursued in the 1970s. According to this view the enlightened monetary policy that the Fed began to follow in the 1980s was responsible for the so-called “Great Moderation” from 1984 to 2004. During this period, price inflation was stabilized at moderate levels and the economy grew more steadily while unemployment remained low. But this story conveniently ignores the October stock market crash of 1987, the sudden collapse of the S&L industry in 1989-1990, and the high-tech bubble of the late 1990s that culminated in the stock market collapse and the recession of 2001. But even the claim that inflation remained moderate during this period is dubious when viewed from a longer run perspective. For if we take 1984 as the beginning of the “The Great Moderation,” average consumer prices have more than doubled and the dollar has lost 52 percent of its purchasing power since then. And this is accepting at face value the dubious method of calculating official CPI indexes.

Now, some economists have responded to this criticism of the Fed’s performance by arguing that “money is neutral in the long run.”

Their point is that average wages and salaries, which are the prices of labor services, rise roughly in proportion to inflation *in the long run*. So, if prices are 20 times higher now than they were in 1913, well then so are incomes twenty times higher, and therefore, no one is really worse off in terms of their real standard of living. There are serious problems with this argument but I will mention only one here.

The key point is that prices and wages do not all increase at the same time during inflation. When the Fed initially expands the money supply, not everyone receives a share of the new money immediately. There is no Friedman-Bernanke helicopter that spreads the money evenly throughout the country. New money and credit is always injected into the economy at specific points through bank loans and government purchases and subsidies. Some firms, financial institutions, and households necessarily receive the new money before others in the economy. The money incomes of these groups rise before prices go up, enhancing their ability to purchase real goods and services and increasing their standard of living. As these first recipients of the new money increase spending on investment and consumption, prices begin to rise and inflation sets in. The rest of the entrepreneurs and laborers, who did not initially receive the newly created money, suffer a decline in their living standards because they must pay rising prices for the goods they purchase while their selling prices and wages remain unchanged. Eventually, as the new money works its way through the economy—and this may take months or even years—their product prices and wages finally adjust to the depreciation of the dollar. In the meantime, they suffer an arbitrary and unseen inflation tax that redistributes part of their real income and wealth to those who have privileged access to the new money created by the Fed—for example, subsidized agribusiness, defense contractors, the creditors of financial institutions bailed out by the Fed and so on.

Furthermore, if inflation is a continuous process as it has been in the U.S. since World War Two, then many wage-earners and entrepreneurs find their living standards permanently depressed as their wages and sale prices persistently lag behind the rising prices they must pay. And of course, those living on fixed incomes such as pensions and life insurance annuities suffer a cruel and relentless decline of their living standards that is never reversed.

So, it is indeed true that in the long run inflation results in average wages and other productive incomes rising in rough proportion to average prices. But this statistical correlation conceals

the true devastation wreaked by inflation. The rapid decline of the purchasing power of the dollar, especially since 1971, has involved a massive and surreptitious transfer of real income and wealth from productive laborers, entrepreneurs and investors to those privileged corporations and financial institutions that are the recipients of government largesse and bailouts. Additionally, in orchestrating this inflationary process, the Fed has repeatedly driven the interest rate below its natural market level, misleading investors and entrepreneurs and causing disastrous asset market bubbles, unsustainable business investments and the creation of jobs that are not consistent with consumer preferences. It is the arbitrary manipulation of the interest rate by the Fed that has caused the financial meltdowns and recessions that the U.S. economy has suffered over the last four decades.

One of the arguments in favor of inflation that has recently come into vogue again is that moderate inflation is desirable to prevent the far greater evil of deflation. In the past decade, this view has been promoted by many mainstream economists, most notably former Fed Chairman Greenspan and current Fed chairman Bernanke. But this view is based on a fundamental confusion. It confuses deflation with depression, which are two very different phenomena. Falling prices or deflation is, under most circumstances, absolutely benign and the natural outcome of a prosperous and growing economic. The fear of falling prices is thus a phobia, a “deflation-phobia,” which has no rational basis in economic theory or history.

Let me explain. As technology advances and saving increases in a progressing economy, entrepreneurs and business firms are given the means and the incentive to invest in new methods of production, which in turn enables them to lower their costs and expand their profit margins. In a given market, the natural result is an increase in the supply of the good and more intense competition among its suppliers. Assuming no change in the money supply and continuing technological innovation, this competitive process will drive the production costs and price of the good ever downward. Consumers will benefit from the falling price because their real wages will continually increase as each dollar of income commands an increasing quantity of the good in exchange.

This is not merely abstract theoretical speculation but is precisely the process that occurred in the past four decades with respect to the products of the consumer electronics and high-tech industries, such as hand calculators, video game systems, personal computers, HDTVs, and medical lasers. Thus, for example, a mainframe

computer sold for \$4.7 million in 1970, while today one can purchase a PC that is 20 times faster for less than \$1,000. The first hand calculator was introduced in 1971 and was priced at \$240, which is \$1,400 in terms of today's inflated dollar. By 1980, similar hand calculators were selling for \$10 despite the fact that the 1970s was the most inflationary decade in U.S. history. The first HDTV was introduced in 1990 and sold for \$36,000. When HDTVs began to be sold widely in the United States in 2003 their prices ranged between \$3,000 and \$5000. Today you can purchase one of much higher quality for as little as \$500. In the medical field, the price of Lasik eye surgery dropped from \$4000 per eye in 1998, when it was first approved by the FDA, to as little as \$300 per eye today.

Now no one, not even a Keynesian economist, would claim that the spectacular price deflation in these industries has been a bad thing for the U.S. economy. Indeed the falling prices reflect a greater abundance of goods which enhances the welfare of American consumers. Nor has price deflation in these or other industries diminished profits, production and employment. In fact, their growth has been just as spectacular as decline in the prices of their products and has been caused by it. But if deflation is a benign development for both consumers and businesses in individual markets and industries than why should we fear a fall in the general price level, which of course is nothing but an average of the prices of individual goods? The answer given by theory and history is that a falling price level is the natural outcome of a dynamic market economy operating with a sound money like gold.

Under a gold standard, prices naturally tend to decline as ongoing technological advances and investment in additional capital rapidly improve labor productivity and increase the supplies of consumer goods while the money supply grows very gradually. For instance, throughout the nineteenth century and up until World War I, the heyday of the classical gold standard, a mild deflationary trend prevailed in the U.S. As a result, an American consumer in the year **1913** needed only **\$0.79** to purchase the same basket of goods that required **\$1.00** to purchase in **1800**. In other words, due to the gentle fall in prices during the nineteenth century, a dollar could purchase 27 percent more in terms of goods in 1913 than it could in 1800.

Contrary to our contemporary deflation-phobes, the secular fall in prices under the classical gold standard did not inhibit economic growth in the U.S. In fact deflation coincided with spectacular transformation of the United States from an agrarian economy in 1800 to the greatest industrial power on earth by the eve of World

War One. If we examine the data more closely, we find that the years from 1880 to 1896 included the decade of the most rapid growth in U.S. history. Yet, during this period, prices fell by almost 30 percent, or by 1.75 percent per year, while real income rose by about 85 percent, or roughly 5 percent per year. More generally, a 2004 study of 73 episodes of deflation from sixteen different countries dating back to 1820 indicates that only 8 of the 73 episodes of deflation involved recession or depression. It also indicates that 21 of the 29 depression episodes involved no deflation. The authors of this study, Andrew Atkeson and Patrick J. Kehoe conclude, "In a broader historical context, beyond the Great Depression, the notion that deflation and depression are linked virtually disappears." Even when the Great Depression is included in the data, they find that link between falling prices and negative economic growth is economically insignificant.²⁹

Ironically, while Chairman Bernanke just affirmed again a few days ago that the Fed will persist in its inflationary policy of quantitative easing to ward off the imaginary threat of falling prices, signs of inflation abound. The prices of consumer food staples have risen by 6 percent over the past year, with the prices of beef, bacon, butter and lamb rising by 10 percent or more. The U.N. index of grain export prices has risen by 70 percent in the past year and stands at its highest level in 21 years. Gasoline prices have surged 49 percent in the last six months. According to IMF statistics, commodity prices are up by 33 percent in the past year; metals prices by 40 percent; energy prices by 30 percent; crude oil prices by 31 percent; and commodity industrial inputs by 40 percent.³⁰ As a result of skyrocketing prices of agricultural products such as corn, wheat, soybeans and other crops, the price of farmland in the U.S. has been soaring, particularly in the Midwest where land prices increased at double-digit rates last year and regulators fear that a bubble is forming.

Not only does Chairman Bernanke seem unfazed by these inflationary developments, but, what is more astounding, he appears to welcome the rapid increase in stock prices as evidence that QE2 is working to right the economy. When it became apparent that the Fed's \$600 billion buying program for treasury bonds had failed to reduce long-term interest rates as intended but caused them to rise

²⁹ Andrew Atkeson and Patrick J. Kehoe, "Deflation and Depression: Is There an Empirical Link," *American Economic Review Papers and Proceedings* 94 (May 2004): 99-103.

³⁰ Commodity data is from Index Mundi available at <http://www.indexmundi.com/commodities/>

instead, Mr. Bernanke desperately sought another sign that QE2 was working. While he denied that the Fed was responsible for rapidly rising commodity prices, he credited Fed with re-igniting the stock market boom. Oddly, he seized on the Russell 2000 index of small cap stocks, which has increased 25 percent in the last six months, stating “A stronger economy helps smaller businesses.” In other words, despite the stagnant job creation and sluggish growth of real output, Mr. Bernanke has declared Fed policy a success on the basis of yet another financial asset bubble that threatens again to devastate the global economy. This would be farcical were it not so tragic. But what else can be expected from the leader of an institution whose very rationale is to manipulate interest rates and print money.

EXPERT COMMENTARY

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U.S. CONSUMER INFLATION: ITS CREATION BY THE FEDERAL RESERVE, ITS CURRENT UNDERESTIMATION BY THE FEDERAL GOVERNMENT

In the near-century since the creation of Federal Reserve in 1913, the U.S. dollar has lost virtually all of its purchasing power, as shown by consistent measurement of consumer price inflation and as reflected in estimates of growth in the broad money supply. Nonetheless, when individuals and businesses have had reasonably accurate information available as to the extent of ongoing inflation—as was the case into the late-1970s—they have been able to take actions to mitigate financial damage to their businesses, income or investment returns.

Starting in the 1980s and 1990s, though, the U.S. government changed inflation-reporting methodologies, so to as to reduce—deliberately and artificially—the level of reported ongoing inflation. Driven by the needs of politicians to reduce federal spending on programs such as Social Security, by stealth, the altered inflation accounting not only reduced government outlays for annual cost of living adjustments tied to government inflation measures, but also misled the investing public as to income and investment returns that

would stay ahead of inflation. These areas are reviewed in this brief missive.

Historical Inflation

Putting the current environment into historical perspective, the accompanying two graphs [Figure 4 & Figure 5] measure the level of consumer prices since 1665 in the American Colonies and later the United States. The first shows what appears to be a fairly stable level of prices up to the founding of the Federal Reserve in 1913 (began activity in 1914) and to Franklin Roosevelt's abandoning of the gold standard in 1933. Then, inflation takes off in a manner not seen in the prior 250 years, and at an exponential rate when viewed using the Shadow Government Statistics (SGS)-Alternate Measure of Consumer Prices in the last several decades. The price levels shown prior to 1913 were constructed by Robert Sahr of Oregon State University. Price levels since 1913 either are Bureau of Labor Statistics (BLS) or SGS-based, as indicated.

The magnitude of the increase in price levels in the last 50 years or so, however, visually masks the inflation volatility of the earlier years. That early volatility becomes evident in the next graph, where the CPI history is plotted using a logarithmic scale. Seeing such detail is a particular benefit of using such a plot, although the full

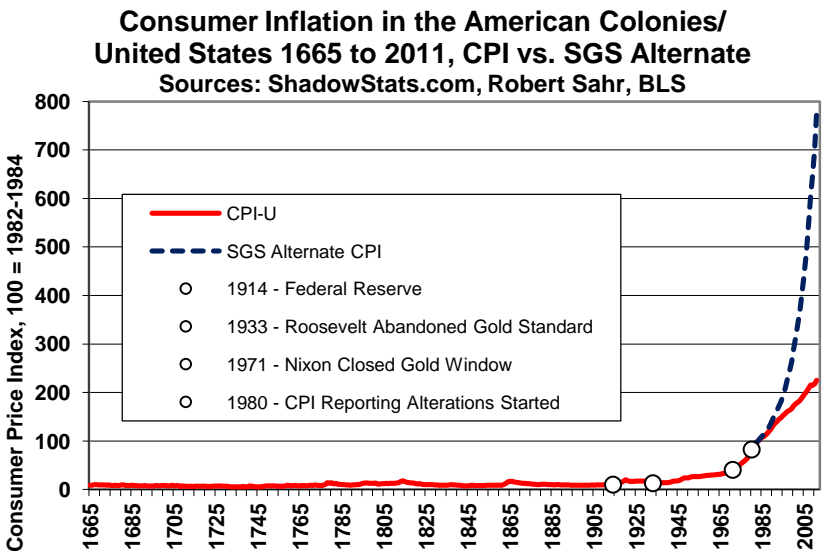


Figure 4

scope of what is happening may be lost to those not used to thinking log-based. The pattern of the rising CPI level, however, still looks rather frightening even in the modified form. Nonetheless, since inflation ideally is something that is flat over time—not necessarily compounding like the population and related series that grow with it—I do not have any issue with using a non-log scale for the visual impact of what is happening.

Persistent year-to-year inflation (and the related compounding effect) did not take hold until post-Franklin D. Roosevelt. Additionally, the CPI level reflects purchasing power lost over time for those holding dollars, which is cumulative, and which has reached extremes during the last century.

Indicated by the visible detail in the second graph are the regular periods of inflation—usually seen around wars—offset by periods of deflation, up through the Great Depression. Particular inflation spikes can be seen at the time of the American Revolution, the War of 1812, the Civil War, World War I and World War II (which lacked an ensuing, offsetting deflation). As a result, consumer prices at the time of the Fed's founding in 1913 were about the same as they had been in New Amsterdam (today's New York City) in 1665.

Log-Scale Consumer Inflation -- American Colonies/ United States 1665 to 2011, CPI vs. SGS Alternate

Sources: ShadowStats.com, Robert Sahr, BLS

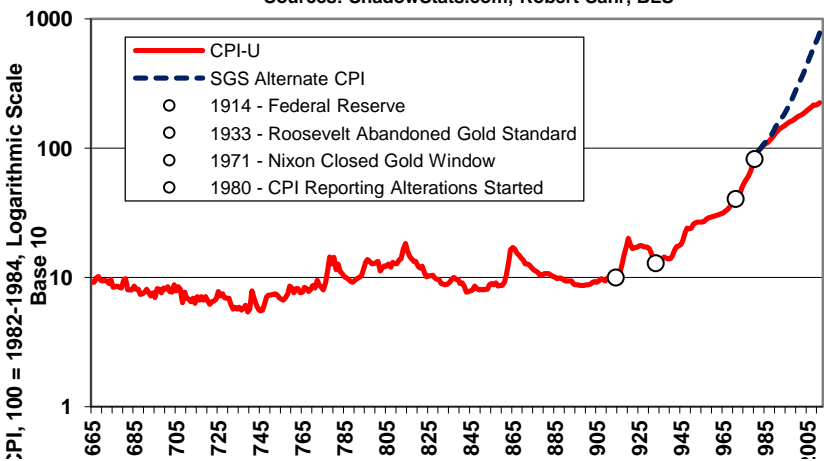


Figure 5

The inflation peaks and the ensuing post-war depressions and deflationary periods, tied to the War of 1812, the Civil War and World War I, show close to 60-year cycles, which is part of the reason some economists and analysts have been expecting a deflationary depression in the current period. There is some reason behind 30- and 60-year financial and business cycles, as the average difference in generations in the United States is 30 years, going back to the 1600s. It seems to take two generations to forget and repeat the mistakes of one's grandparents.

Allowing for minor, average-annual price-level declines in 1949, 1955 and 2009, the United States has not seen a major deflationary period in consumer prices since before World War II. The reason for this is the same as to why there has not been a formal depression since before World War II: the abandonment of the gold standard and recognition by the Federal Reserve of the impact of monetary policy—free of gold-standard system restraints—on the economy.

The gold standard was a system that automatically imposed and maintained monetary discipline. Excesses in one period would be followed by a counterbalancing flight of gold from the system and a resulting contraction in the money supply, economic activity and prices.

Faced with the Great Depression, and unable to stimulate the economy, partially due to the monetary discipline imposed by the gold standard, Franklin Roosevelt used those issues as an excuse to abandon gold and to adopt close to a fully-fiat currency under the auspices of what I call the debt standard, where the government effectively could print and spend whatever money it wanted to create.

Roosevelt's actions were against the backdrop of the banking system being in a state of collapse. The Fed stood by twiddling its thumbs as banks failed and the money supply imploded. A depression collapsed into the Great Depression, with intensified price deflation. Importantly, a sharp decline in broad money supply is a prerequisite to significant goods and services price deflation. Messrs Greenspan and Bernanke are students of the Great Depression period. As did Mr. Greenspan before him, Mr. Bernanke has vowed not to allow a repeat of the 1930s money supply collapse and a resulting severe deflation.

Where the Franklin Roosevelt Administration abandoned the gold standard and its financial discipline for the debt standard, twelve successive administrations have pushed the debt standard to the limits of its viability, as seen now in the continuing threat of systemic collapse. At present, it is the Obama Administration that has to look at abandoning the debt standard (or risk hyperinflation) and starting fresh. Yet, the Administration and many in Congress have taken recent actions showing the lack of political will to address the nation's long-range insolvency, hoping to push off the day of reckoning as far as possible for the economic and systemic solvency crises. They likely do not have that much time.

The effect of the post-Roosevelt policies has been a slow-motion destruction of the U.S. dollar's purchasing power, per the following table, since the gold standard was abandoned in 1933. With the dollar's purchasing power down by 95.7% (based on the CPI-U), by 98.5% (based on the SGS-Alternate) and by 99.7% (based on broad money supply creation) since 1933, equivalent or greater purchasing power loss was seen against the precious metals, down by 98.9% versus gold, and down 98.7% versus silver. That means that holding equivalent assets in the precious metals, since 1933 (in 1933 it became illegal to own gold privately in the United States, but it became legal again in the early 1970s after Nixon closed the gold window; holding silver was legal throughout the full period), more than preserved the purchasing power against the losses from CPI inflation, and fully preserved the purchasing power against the losses from SGS inflation.

Please note in the above table that gold and the Swiss franc were held constant by the gold standard versus coins in 1914 and 1933. The data are from the Federal Reserve Board, the Bureau of Labor Statistics, Kitco, "A Monetary History of the United States 1867-1960" (Milton Friedman and Anna Jacobson Schwartz, 1971), and from ShadowStats.com data and calculations.

Loss of U.S. Dollar Purchasing Power (Through October 2012)³¹

Versus	Since January of			
	1914	1933	1970	2002
Swiss Franc	-81.7%	-81.7%	-77.7%	-44.2%
CPI-U	-95.7%	-94.4%	-83.7%	-23.4%
Silver ¹	-98.6%	-98.7%	-95.1%	-86.4%
Gold	-98.9%	-98.9%	-96.3%	-83.9%
Alternate CPI ²	-98.9%	-98.5%	-95.7%	-62.7%
Broad Money ³	-99.9%	-99.7%	-95.8%	-45.5%

¹ October 2012 measured versus annual averages for 1914, 1933, 1970.

² ShadowStats.com alternate CPI measure based on 1980 methodologies.

³ Broadest money measure, closest available equivalent of M3, including the ShadowStats.com ongoing estimate of M3, post-February 2006.

Table 2

The preceding table [Table 2] shows the loss of purchasing power of the U.S. dollar against various inflation measures, precious metals and the broad money supply.

Consumer Price Index Has Been Reconfigured Since the Early-1980s, So As to Understate Inflation versus Common Experience.

As a direct result of methodological changes made to the consumer price index (CPI) during the last three decades, the CPI no longer measures the impact of consumer inflation as seen in common experience. It presents multiple problems and disservices to the public. Consider:

- The CPI no longer measures the cost of maintaining a constant standard of living.
- The CPI no longer measures full inflation for out-of-pocket expenditure.

³¹ Please note in the above table that gold and the Swiss franc were held constant by the gold standard versus coins in 1914 and 1933. The data are from the Federal Reserve Board, the Bureau of Labor Statistics, Kitco, "A Monetary History of the United States 1867-1960" (Milton Friedman and Anna Jacobson Schwartz, 1971), and from ShadowStats.com data and calculations.

- With the misused cover of academic theory, politicians forced significant underreporting of official inflation, so as to cut annual cost-of-living adjustments to Social Security, etc.
- Use of the CPI to adjust retirement benefits, private income or to set investment goals impairs the ability of retirees, income earners and investors to stay ahead of inflation.
- Understated inflation used in estimating inflation-adjusted growth has created the illusion of economic recovery in reported GDP.

Real-World Experience and Public Perceptions versus Academic Theories and Political Gimmicks.

In 30 years as a private, consulting economist, I have noted a growing gap between government reporting of inflation, as measured by the consumer price index (CPI), and the perceptions of inflation held by the general public. It has been my experience that the general public believes inflation is running well above official reporting, and that the public's perceptions tend to mirror the inflation experience that once was reflected in the government's CPI reporting.

The growing difference in perception versus reality primarily is due to changes made over decades as to how the CPI is calculated and defined by the government. Specifically, changes made to the definition of CPI methodologies in recent decades have reflected theoretical constructs offered by academia that have little relevance to the real-world use of the CPI by the general public. Importantly, these changes generally are not understood by the public.

What the Public Looks for in an Inflation Measure.

Individual use of a CPI measure generally is tied to personal financial decisions or planning, in terms of wage or income growth/adjustment, contract or benefit price adjustments and/or in terms of targeting financial returns that will stay ahead of inflation.

Accordingly, I contend that individuals look to the government's CPI as a measure of the cost of living of maintaining a constant standard of living, as well as measuring that cost of living in terms of out-of-pocket expenses.

While the CPI at one time was the measure desired by the public, government efforts turned the CPI away from measuring the price changes in a fixed-weight basket of goods and services to a quasi-substitution-based basket of goods, which destroyed the concept of the CPI as a measure of the cost of living of maintaining a constant standard of living.

The use of hedonic quality modeling in adjusting the prices of goods and services has destroyed the concept of the CPI as a measure of out-of-pocket expenses.

The Way It Was.

Measurement of consumer inflation traditionally reflected measuring the cost of maintaining a constant standard of living, as measured by a fixed-basket of goods. Maintaining a constant standard of living, however, is a concept not popular in current economic literature, and certainly not within the thinking or the lexicon of the Bureau of Labor Statistics (BLS), the government's statistical agency that estimates and reports on consumer inflation.

The changing costs of maintaining a constant standard of living were measured by pricing out a fixed-basket of goods and services—same components, same weighting—period after period. Whatever the percentage change was in the cost of that basket of goods, that is how much income would have to rise in order for someone to maintain a fixed- or constant-standard of living over the given period. At least it was a reasonably consistent approximation of same.

Tracking changes in the cost of a fixed-basket of goods was the approach to estimating inflation, going back to at least the 1700s (see the opening graph),³² and prior to 1945, the fixed-basket CPI tracked by the U.S. government actually was known as the Cost of Living Index.³³

In the first half of the 20th century, though, the concept of a “constant level of satisfaction” evolved in academia, as a “true cost of living” concept. The general argument was that changing relative

³² Fixler, Dennis, Bureau of Labor Statistics, “The Consumer Price Index: underlying concepts and caveats,” *Monthly Labor Review*, December 1993.

³³ Schmidt, Mary Lynn, Bureau of Labor Statistics, “Comparing market basket changes and the CPI,” 1995.

costs of goods would result in consumer substitution of less-expensive goods for more-expensive goods. Allowing for a substitution of goods within the formerly fixed-basket, the maximization of the “utility” of money held by consumers would allow attainment of “constant level of satisfaction” for the consumer. This type of inflation-measure is more appropriate for the GDP concept—where it is used today—measuring shifting weightings with actual consumption, rather than the fixed weightings needed to assess the costs of maintaining a constant standard of living.

Where the substitution-based approach was viewed as impractical for a consumer price index, the fixed-basket approach remained the preferred inflation measure.³⁴ The academic thinking in this area remains divided, even today.³⁵

The constant-level-of-satisfaction approach was contrary to the concept of measuring the cost of maintaining a constant-standard-of-living. In the extreme current circumstance, where the average household cannot stay ahead of even the official CPI inflation rate, consider that shifting household preferences from more-expensive to less-expensive products is forced by limited income. Maintaining a constant-standard-of-living means being able to consume the same goods in the same quantity, without having to trade-off living quality versus price.

While the average consumer may not be able to maintain his or her current standard of living at the moment, it still is of significant value to know what is needed in income growth to offset the living-standard loss from actual inflation.

The Way the Politicians Wanted It.

In the early-1990s, political Washington moved to change the nature of the CPI. The contention was that the CPI overstated inflation (it did not allow substitution of less-expensive hamburger for more-expensive steak). Both sides of the aisle and the financial

³⁴ Ulmer, Melville T., “On the Theory of Cost of Living Index Numbers,” *Journal of the American Statistical Association*, Vol. 41, No. 236 (December 1946), pp. 530-542.

³⁵ National Research Council, *At What Price? Conceptualizing and Measuring Cost-of-Living and Price Indexes*, (2002).

media touted the benefits of a “more-accurate” CPI, one that would allow the substitution of goods and services.

The plan was to reduce cost of living adjustments for government payments to Social Security recipients, etc. The cuts in reported inflation were an effort to reduce the federal deficit without anyone in Congress having to do the politically impossible: to vote against Social Security. The changes afoot were publicized, albeit under the cover of academic theories. Few in the public paid any attention.

Katharine G. Abraham, then commissioner of the Bureau of Labor Statistics, laid out her recollections in an August 1996 paper:

“Back in the early winter of 1995, Federal Reserve Board Chairman Alan Greenspan testified before the Congress that he thought the CPI substantially overstated the rate of growth in the cost of living. His testimony generated a considerable amount of discussion. Soon afterwards, Speaker of the House Newt Gingrich, at a town meeting in Kennesaw, Georgia, was asked about the CPI and responded by saying, ‘We have a handful of bureaucrats who, all professional economists agree, have an error in their calculations. If they can’t get it right in the next 30 days or so, we zero them out, we transfer the responsibility to either the Federal Reserve or the Treasury and tell them to get it right.’”³⁶

A further comment was noted in a 2008 *San Francisco Chronicle* article, “In the 1990s, for example, Republicans wanted to make changes in calculating inflation along the lines recommended by a special commission, including more use of quality adjustments. By lowering the official inflation rate, such changes promised to reduce the annual cost-of-living adjustments for Social Security and other federal programs.

[Katherine] Abraham, the Clinton bureau [of Labor Statistics] commissioner, remembers sitting in Republican House Speaker Newt Gingrich’s office: “He said to me, If you could see your way clear to doing these things, we might have more money for BLS programs.”³⁷

Federal Reserve Chairman Alan Greenspan and Michael Boskin, the chairman of the Council of Economic Advisors, were very clear as

³⁶ Abraham, Katharine G., Bureau of Labor Statistics, “Statistics Under the Spotlight: Improving the Consumer Price Index: Statement,” Paper presented at a meeting of the American Statistical Association, Chicago, Illinois, August 6, 1996.

³⁷ Zuckerman, Sam, “Government’s economic data misleading, he says,” *San Francisco Chronicle*, May 25, 2008.

to how changing or “correcting” the CPI calculations would help to reduce the deficit. As described at the time by Robert Hershey of the *New York Times*:

Speaker Newt Gingrich, Republican of Georgia, suggested this week that fixing the [CPI] index, with its implications for lower spending [Social Security, etc.] and higher revenue [tax bracket adjustments], would provide maneuvering room for budget negotiators ...

Alan Greenspan, chairman of the Federal Reserve, is among the other Government officials who have spoken optimistically about financial benefits of a more accurate [CPI] index ...

[E]conomists believe one of the most important [CPI upside biases] is when consumers shift their buying patterns in response to changing prices, substituting one product for another. The [CPI] index is based on a fixed market basket of goods and services. But, for example, if the price on an item like steak gets too expensive, consumers may switch to hamburger.³⁸

The Boskin Commission Report, December 4, 1996, actually used steak and chicken for its substitution example. The examples used in arguing for changing the CPI clearly were tied to prices rising and resulting consumer demand shifting to a lower-quality product. Simply put, that was the destruction of the cost-of-maintaining-a-constant-standard-of-living issue and was the primary consideration of those seeking to change the CPI, although other issues would come into play. The drive here was as to get a lower inflation reading, irrespective of whether the data were “more-accurate.”

SUMMARY OF REAL-WORLD NEEDS VERSUS THEORETICAL CONSTRUCTS OF ACADEMIA

Maintaining Constant Standard of Living (Fixed-Basket Inflation) versus Substitution in CPI:

- Since the 1700s consumer inflation has been estimated by measuring price changes in a fixed-weight basket of goods, effectively measuring the cost of living of maintaining a constant standard of living.

³⁸ Hershey, Robert D., Jr., “Panel Sees a Corrected Price Index as Deficit-Cutter,” *New York Times*, September 15, 1995.

- Allowing substitution of lower-priced and lower-quality goods in the basket (i.e. more hamburger when steak prices rise) lowers the reported rate of inflation versus the fixed-basket measure.
- BLS introduced: Geometric weighting—a purely a mathematical gimmick that automatically reduces the weightings of goods rising in price, and vice versa—it has no demonstrated relationship to consumer substitution of goods based on price changes. It was explained as a surrogate for a substitution measure.
- BLS introduced: More frequent re-weightings of the CPI index from every ten years to every two years, which moved the CPI closer to a substitution-based index, but the change was not considered a change in methodology.
- BLS introduced: Ongoing re-weightings of sales outlets (discount/mass-merchandisers versus Main Street shops), also moving closer to a substitution-based index and creating other constant standard of living issues.

Out-of-Pocket Expenses versus Nebulous Quality (Hedonic) Adjustments:

- Traditionally, what a consumer pays out-of-pocket for goods and services reflected adjustments for quality changes that could be directly quantified in a monetary sense.
 - Quality adjustments that can be measured directly in price are legitimate, such as measuring the price differential of an eight-ounce candy bar that is reduced in size to six-ounces but remains priced and packaged in the same sized box as the eight-ounce version.
- BLS expanded quality adjustments to include the concept of “hedonic” quality adjustments, altering the pricing of

goods and services for nebulous quality changes that could not be priced directly and that often are not viewed or recognized by the consumer as a desired improvement.

- Where the effect here on the pricing of goods and services cannot be quantified directly from a pricing standpoint, the pricing impact is estimated by computer statistical modeling—hedonic adjustment modeling—that has little if any relevance to real-world experience.
- Where the quality of the product is deemed by the government to have improved (the usual circumstance), prices in the CPI calculations are adjusted lower to offset the higher quality.
- Usually, though, the purchasing consumer only has the option of paying out-of-pocket the full price for the product, again with little or no concept of the quality improvement being acquired and/or having no chance to opt out of paying for the improvements.
 - In an early example, the government mandated the use of a gasoline formulation that purportedly would improve auto emissions. That added ten cents per gallon to gasoline costs, but that cost was excluded from CPI calculations. The person filling his or her gas tank, however, felt the actual out-of-pocket expense.
 - The government later abandoned excluding government-mandated “quality” improvements, such as gasoline additives, from inflation calculations, but the principles here are exactly the same for industry-generated “quality” improvements that are not optional to consumers.
 - Textbooks, for example are modeled, where one pricing factor in the hedonic quality model is whether or not there are color pictures in a book.

Unless the student is an art student, the concern usually is not over colored pictures, but rather along the lines of “What is my out-of-pocket cost for textbooks this semester?”

- New computer features usually are deemed quality improvements, with a downside price adjustments made in the CPI for the changes, even though a consumer may not want or use the features.
 - The consumer still has to buy those features and pay full cost out-of-pocket, irrespective of what government determines those products are generating in purported hedonic quality benefits that the consumer is not considering or using.
 - I contend that significant feature changes should be treated as a new product introduction, or otherwise ignored.
- If the use of the hedonic process were legitimate here, it would be applied to all goods and services, but a CPI, so based, soon would come meaningless to the public (as already has happened with the CPI-U).
 - For example, there has been no pricing adjustment (upside in this case) to the costs of air travel for the destruction of travel convenience with the advent of the TSA, or from the downward spiral in U.S. air traveler comfort and convenience resulting from the effects of mergers and acquisitions, and from increasing flight delays due to economizing on aircraft maintenance.
 - Consumer concerns are for his or her out-of-pocket expenses. What am I paying for my textbooks this semester; what am I paying out-of-pocket to fly from New York to Chicago; or what am I paying out-of-pocket for a

computer, even if I am looking just to use limited functions but have no choice but to buy unwanted features?

Net Reduction in CPI-U Inflation from Changes in Methodology
As Reflected in the CPI-U-RS versus CPI-U Series (1980 to 2011)

Year	Average CPI-U-RS Dec 97=100	(1) CPI-U-RS Yr/Yr	Average CPI-U '82-4=100	(2) CPI-U-RS Yr/Yr	(1)-(2) Change in Annual Inflation*	Cumulative Annual Inflation Shortfall
1980	127.1		82.4			0
1981	139.2	9.5%	90.9	10.3%	-0.8%	-0.8%
1982	147.6	6.0%	96.5	6.2%	-0.1%	-0.9%
1983	153.9	4.3%	99.6	3.2%	1.1%	0.1%
1984	160.2	4.1%	103.9	4.3%	-0.2%	-0.1%
1985	165.7	3.4%	107.6	3.6%	-0.1%	-0.2%
1986	168.7	1.8%	109.6	1.9%	0.0%	-0.3%
1987	174.4	3.4%	113.6	3.6%	-0.3%	-0.5%
1988	180.8	3.7%	118.3	4.1%	-0.5%	-1.0%
1989	188.6	4.3%	124.0	4.8%	-0.5%	-1.5%
1990	198.0	5.0%	130.7	5.4%	-0.4%	-1.9%
1991	205.1	3.6%	136.2	4.2%	-0.6%	-2.5%
1992	210.3	2.5%	140.3	3.0%	-0.5%	-3.0%
1993	215.5	2.5%	144.5	3.0%	-0.5%	-3.5%
1994	220.1	2.1%	148.2	2.6%	-0.4%	-4.0%
1995	225.4	2.4%	152.4	2.8%	-0.4%	-4.4%
1996	231.4	2.7%	156.9	3.0%	-0.3%	-4.7%
1997	236.4	2.2%	160.5	2.3%	-0.1%	-4.8%
1998	239.7	1.4%	163.0	1.6%	-0.2%	-5.0%
1999	244.7	2.1%	166.6	2.2%	-0.1%	-5.1%
2000	252.9	3.4%	172.2	3.4%	0.0%	-5.1%
2001	260.0	2.8%	177.1	2.8%	0.0%	-5.2%
2002	264.2	1.6%	179.9	1.6%	0.0%	-5.1%
2003	270.1	2.2%	184.0	2.3%	0.0%	-5.2%
2004	277.4	2.7%	188.9	2.7%	0.0%	-5.1%
2005	286.7	3.4%	195.3	3.4%	0.0%	-5.2%
2006	296.1	3.3%	201.6	3.2%	0.1%	-5.1%
2007	304.5	2.8%	207.3	2.8%	0.0%	-5.1%
2008	316.2	3.8%	215.3	3.8%	0.0%	-5.1%
2009	315.0	-0.4%	214.5	-0.4%	0.0%	-5.1%
2010	320.2	1.7%	218.1	1.6%	0.0%	-5.1%
2011	330.3	3.2%	224.9	3.2%	0.0%	-5.1%
Aggregate Methodological CPI-U Reduction					-5.1%	
Sources: BLS, SGS * Totals may vary due to rounding						

Table 3

What The Changes Did to Reported Inflation.

The substitution-related alterations to inflation methodologies were made beginning in the mid-1990s. The introduction of major hedonic concepts began in the 1980s. The aggregate impact of the reporting changes since 1980 has been to reduce the reported level of annual CPI inflation by roughly seven percentage points, where 5.1 percentage points come from the BLS's published estimates of the effects of the individual methodological changes on inflation, shown in the preceding table and as discussed later. The balance comes from my estimates of the changes not formally estimated by the BLS. The effects are cumulative going forward in time.

With the support of academic expertise affirming the correctness of the new methodologies, the effects of the reduction in the pace of reported inflation and in the related spiking of reported inflation-adjusted economic growth, have been discussed openly at different times. Consider examples from the 1999 *Economic Report of the President Report (Report)*.³⁹

“A final reason for the slowing of reported price indexes has been methodological changes to both the CPI and the indexes used in the national income accounts. In general, these changes have reduced the measured rate of inflation. For the CPI, methodological changes made from 1995 through 1998 reduced the rate of inflation by about 0.44 percentage point. Changes to be introduced in 1999 and 2000 will reduce it by an additional 0.24 percentage point.” Again, these are cumulative changes going forward.

The *Report* continued, describing the benefits of reduced inflation rate reporting in adding to reported GDP growth, “The BEA [Bureau of Economic Analysis] has also recently switched [1997] from using the CPI to using the producer price index (PPI) to deflate physicians' services and the services of government and for-profit hospitals. ... Because the PPI measures of these prices have been increasing less than the comparable CPIs, the changes reduce the rate of increase of the chain-weighted price index for GDP and raise real [inflation-adjusted] GDP growth. These changes, in addition to those passed

³⁹ “Inflation: Flat or Falling,” *Economic Report of the President 1999*, pp. 87-95.

through from the CPI, will have cumulated to raise the annual growth rate of real GDP by 0.29 percentage point by 2000.”

That cumulated GDP growth rate boost for those several years really should have been 0.54-percentage point, accounting for new hedonic adjustments.⁴⁰

Keep in mind that the CPI changes of 0.68% were an aggregate for those years and need to be carried forward—added back in—on a cumulative basis if one wanted to remove the effects of the methodological from future data. Against the aggregated 0.68% reduction in the reported inflation, the BLS's related CPI-U-RS series shows an aggregated reduction in the reported inflation of 0.7%, as discussed in the next two sections.

Measuring the Methodological Impacts Going Back and Forward in Time.

The BLS has created a CPI-U-RS (RS stands for research series) that is designed to restate inflation history as if all the current substitution and hedonic adjustment methodologies always have been in place. Limited effects of the artificially lowered historical inflation can be seen with the following graph.

⁴⁰ “Comparing growth in GDP and labour productivity: measurement issues,” OECD, December 2007.

Median Household Income (1967 Dollars)

CPI-U vs CPI-U-RS, (ShadowStats.com, BLS, Census)

— Deflated by CPI-U-RS

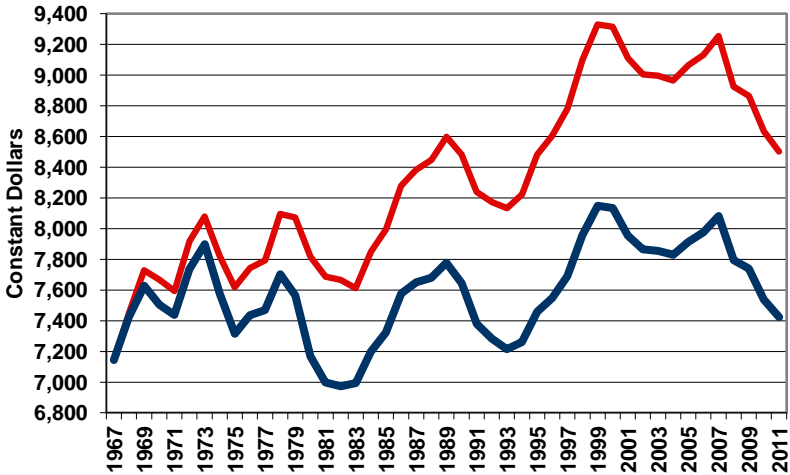


Figure 6

The narrow red line shows median household income, deflated by the CPI-U-RS, as having been much stronger than the series shown by the thicker blue line, which was deflated by the higher inflation in the traditional CPI-U [Figure 6]. The CPI-U versus the CPI-U-RS is detailed in the table.

While the difference between current methodologies, going in back in time, may appear small, that is because the recent years of the CPI-U since 2000 already include the bulk of the changes, so largely they are identical in terms of year-to-year change between the CPI-U and CPI-U-RS. In the earlier years, the changes average less than half of a percent, but those changes reflect the incremental decline in annual inflation triggered by the various methodological changes.

Reverse engineering the CPI-U-RS to as to reconstruct the CPI-U, as if the various changes had not been made, requires carrying forward the effects of the changes on a cumulative basis. The cumulative effect is seen in the last column of the table.

SGS-Alternate Consumer Inflation Measures.

What we have done in creating the SGS-Alternate Consumer Inflation Measures is to reverse engineer the CPI-U-RS series, adding in estimates of the inflation effects of factors not otherwise estimated by the BLS, such as more-frequent (two-years versus ten-years) reweighting of the CPI series.

The two SGS series are based on the methodologies in place as of 1980 and separately as of 1990 (further detail and graphs available at www.Shadowstats.com. The estimated lost inflation is added back in, over time, as described in the methodology (1980-based) published each month in the *Commentary* that covers the CPI reporting:

The SGS-Alternate Consumer Inflation Measure adjusts on an additive basis for the cumulative impact on the annual inflation rate of various methodological changes made by the BLS (the series is not recalculated). Over the decades, the BLS has altered the meaning of the CPI from being a measure of the cost of living needed to maintain a constant standard of living, to something that neither reflects the constant-standard-of-living concept nor measures adequately most of what consumers view as out-of-pocket expenditures. Roughly five percentage points of the additive SGS adjustment reflect the BLS's formal estimate of the annual impact of methodological changes; roughly two percentage points reflect changes by the BLS, where SGS has estimated the impact not otherwise published by the BLS.

Artificially-Low Inflation Estimates Have Created the Illusion of Recent Recovery.

Separately, to varying degrees, artificially depressed inflation rates have created misleading indications of economic growth in various economic series, including the GDP, industrial production and real retail sales as otherwise deflated by the CPI-U. When an economic series is deflated by the use of understated inflation, the resulting inflation-adjusted series reflects overstated economic growth.

Corrected for the artificial reduction of GDP deflation by roughly two percentage points from hedonic quality adjustments, the GDP shows a pattern of economic collapse into 2009, followed by a period of low-level stagnation, not the full recovery currently reported.

This is discussed in some detail and graphed in *Hyperinflation 2012*, with assumptions discussed in Chapter 5, beginning on page 38, available at www.shadowstats.com.



*H*EARING II.

CAN MONETARY POLICY REALLY CREATE JOBS?

WEDNESDAY, FEBRUARY 9, 2011

WITNESSES

DiLorenzo, Thomas J. Ph.D., Professor of Economics, Sellinger
School of Business, Loyola University Maryland
Vedder, Richard K. Distinguished Professor of Economics, Ohio
University
Bivens, Josh, Macroeconomist, Economic Policy Institute

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy held a hearing entitled “Can Monetary Policy Really Create Jobs?” at 10:00 a.m. on Wednesday, February 9, 2011, in Room 2128 of the Rayburn House Office Building.

In the aftermath of the financial crisis of 2008-2009, the unemployment rate hit historic highs above ten percent. By the beginning of 2011 they had come down slightly, but were expected by economists to remain persistently high for years to come. In an attempt to boost labor markets the Federal Reserve had maintained a highly accommodative monetary policy stance, continuing to inject huge amounts of liquidity into the financial system even after the immediate effects of the crisis subsided. With unemployment still hovering around nine percent in February 2011, this hearing examined whether the Fed was meeting, or could ever meet, its mandates of maintaining stable prices and high employment. It also explored whether the Fed’s loose monetary policies had implications for long-term employment prospects.

This was a one panel hearing, with the following witnesses:

- Dr. Thomas J. DiLorenzo, Professor of Economics, Sellinger School of Business, Loyola University, Baltimore
- Dr. Richard Vedder, Professor of Economics, Ohio University
- Dr. Josh Bivens, Economic Policy Institute, Washington, D.C. (witness for the Minority)

Monetary Policy

In conducting monetary policy, the Federal Reserve is required by statute to fulfill a dual mandate of price stability and maximum employment. The primary mechanism by which the Fed attempts to

do this is by adjusting the target federal funds rate, the rate at which banks lend to one another on an overnight basis. The Federal Open Market Committee (FOMC) sets a target rate – usually done at meetings about every six weeks – increasing or decreasing the target to try to affect economic activity by influencing the amount of liquid credit in the financial system. In August 2007, the target rate was 5.25 percent. At the time of this hearing, up until the time this anthology went to print, the target rate was set between 0 and 0.25 percent, essentially eliminating the usefulness of the federal funds rate as a monetary policy tool.

In addition to the federal funds rate, the Fed also has the ability to inject liquidity into the system by lending directly to member banks via the discount window and adjusting the amount of money institutions are required to hold as reserves. The Fed has exercised some generally unused authorities and developed new methods of injecting liquidity in the wake of the financial crisis, when it deemed traditional methods insufficient. Late in 2010 the Fed undertook a second round of “quantitative easing,” commonly called “QE2,” buying mostly longer-term Treasury securities in an attempt to lower rates for longer-term bonds since the Fed had already lowered its short-term rate to zero. The various liquidity programs undertaken since the beginning of the financial crisis have exploded the size of the Fed’s balance sheet, from around \$900 billion in August 2008 to over \$2.8 trillion at the time of print.

Unemployment

According to the Bureau of Labor Statistics (BLS), the nation’s unemployment rate stood at or above 9 percent from May 2009 to February 2011, the longest period since World War II. The BLS’ report in early February 2011 stated that the economy created a mere 36,000 new non-farm jobs in January. The jobs numbers were disappointing, as some economists had expected more than 180,000 and most economists believed that the economy needed to add at least 215,000 jobs a month to start making a dent in unemployment.

Even Fed Chairman Ben Bernanke, in a speech on February 3, 2011, said that he believed it would be years before the economy got back to regular employment levels. “Until we see a sustained period of stronger job creation, we cannot consider the recovery to be truly established,” he said.

While the BLS release in early February 2011 showed a 0.4 percentage point drop in the unemployment rate, to 9 percent, there were concerns that it was mostly due, not to more people finding

employment, but rather a shrinking number of potential job seekers because of the severe weather conditions experienced by many parts of the country in January. A broader Labor Department measure, U6 (total unemployed, plus all persons marginally attached to the labor force, plus total employed part time for economic reasons, as a percent of the civilian labor force plus all persons marginally attached to the labor force) put the January 2011 unemployment rate at 17.3 percent, up 0.7 percentage points. A private survey by Gallup put the conventional unemployment rate at 9.8 percent, up 0.2 percentage points. Alternative measures of unemployment that calculate the unemployment rate according to the methods used before BLS' 1994 methodological changes showed an overall U6 figure of 22.2% for January 2011.

Along with generally good trends in other economic data – including a fairly strong corporate “earnings season” – the February 2011 BLS numbers contained some good news: manufacturing picked up, adding nearly 50,000 jobs, and aggregate hours worked rose 0.6 percent, the latter being an indicator that often points to new hiring. Yet some observers said the strong earnings season and relatively high productivity figures may have given employers the impression that they could continue to meet demand for some time without adding new staff.

In December 2010, the Small Business Optimism Survey conducted by the National Federation of Independent Business had fallen 0.6 points and showed little to no improvement in most of its key components. Small businesses play a critical role in the economy and generate around 45 percent of private-sector employment. Small businesses remained pessimistic about the near-term economic outlook. While hiring plans had picked up to their highest level since September 2008, that level still remained at historic lows as of this hearing.

The Dual Mandate and Employment

The Federal Reserve was given a dual mandate in the Humphrey-Hawkins Act of 1978 to maintain both price stability and maximum employment. This dual mandate assumes the existence of the Phillips curve, i.e. an inverse relationship between the unemployment rate and the rate of price inflation. Hence, the Federal Reserve attempts to perform a balancing act between unemployment and inflation. As unemployment rises, the Federal Reserve pumps more money into the economy; as price inflation rises, the Federal Reserve pulls money out of the system, at the expense of higher

unemployment. Although the 1970s saw the emergence of stagflation, the existence of both high price inflation and high unemployment, the Federal Reserve continues to believe in this tradeoff between price inflation and unemployment, and conducts its monetary policy accordingly.

Some economists argue that the Federal Reserve's dual mandate of maintaining stable prices and low unemployment causes an inherent confusion in monetary policy, and that especially in the short term, the two are somewhat in conflict. Most central banks in the world are given a single mandate directed toward price stability or an inflation target. Several times in the last several Congresses, bills have been introduced to eliminate the Fed's dual mandate and revert to a single mandate of stable prices or inflation targeting. The argument is that with stable inflation rates, the economy can grow steadily over the long term and that recessions would be few, short and shallow. Proponents of this approach in the 112th Congress included Congressmen Mike Pence and Paul Ryan.

One of the most prominent proponents of a single mandate has been Dr. John B. Taylor of Stanford University, who in numerous appearances before the Financial Services Committee has proposed that Congress reinstate a requirement that the Fed should report on exactly how it intends to achieve its monetary policy, and if that approach changed, report exactly why. Taylor, who devised the so-called "Taylor Rule" to describe generally how monetary policy should be formulated in normal business cycles, believes that the causes of recent economic cycles are precisely that the Fed has exercised too much discretion in monetary policy.

Similarly, Dr. Allan Meltzer of Carnegie Mellon University noted in the *Wall Street Journal* in early February 2011 that:

[I]n the 1970s, despite rising inflation, members of the Federal Reserve's policy committee repeatedly chose to lower interest rates to reduce unemployment. Their Phillips Curve models, which charted an inverse relationship between unemployment and inflation, told them inflation was the lesser concern. They were, therefore, flummoxed when both inflation and unemployment rose together over the decade.⁴¹

Quantitative Easing

In addition to lowering the effective interest rate target to nearly zero and undertaking a series of other moves designed to restart the economy, the Fed adopted a policy of "quantitative easing," an

⁴¹ <http://online.wsj.com/article/SB10001424052748704709304576124033729197172.html>

approach in which central banks purchase financial assets to spur the economy when the typical monetary policy measures are not working because short-term rates are already at or close to zero. In March 2009, the Fed started its first round of quantitative easing, which consisted of purchasing approximately \$1.2 trillion in Treasury and Agency-backed securities and debt.

Economic conditions, however, did not improve. In particular, the unemployment rate climbed from 8.6% in March 2009 to 9.6% in October 2010. On November 3, 2010, the Fed announced its plan to purchase \$600 billion in longer-term Treasuries, a move popularly known as “QE2” because it was the second effort at quantitative easing since the onset of the financial crisis. These purchases occurred at a rate of approximately \$75 billion per month and were completed in June 2011. As a result of QE2, the Fed’s balance sheet was expected to grow from a level \$2.3 trillion to \$2.9 trillion by the programs end in June 2011, which it reached, and had already hit \$2.5 trillion at the time of this hearing, with little show in terms of higher employment. In its announcement, the Federal Reserve was not concerned with the potential inflationary effects of QE2, noting that because measures of underlying inflation were, in its view, trending lower in recent quarters, further asset purchases should not result in increased inflation.

The views within the Fed on undertaking a second round of quantitative easing were not unanimous: Kansas City Federal Reserve Bank President Thomas Hoenig cast the lone vote against the Fed’s action. And although Fed Governor Kevin Warsh voted in favor of the policy, he noted that increasing the Federal Reserve’s balance sheet would expose it to downside risks, arguing in a *Wall Street Journal* op-ed that the Fed would need to reconsider its stance if risks were to begin to emerge.

The Federal Reserve’s decision to embark on a second round of quantitative easing sparked a political backlash from a number of quarters. On November 17, 2010, Republican Congressional leaders sent a letter to Fed Chairman Bernanke criticizing QE2 because “such a measure introduces significant uncertainty regarding the future strength of the dollar and could result in both hard-to-control, long-term inflation and potentially generate artificial asset bubbles that could cause further economic disruptions.” Other observers criticized QE2 because there had already been a huge amount of liquidity injected into the system, which had not spurred economic growth. Instead of increasing investment and expanding their

payrolls, businesses and financial institutions continued to hoard cash as a consequence of continued economic uncertainty.

Despite the criticisms, Chairman Bernanke stood squarely behind the QE2 effort. In a speech at the National Press Club in early February 2011, he said he continued to view the program as appropriate, and pointed to increases in stock prices and somewhat more robust business borrowing as evidence of QE2's success. Nevertheless, criticism of the program did not abate. And while Chairman Bernanke repeatedly declined to rule out an extension of quantitative easing, Dallas Fed President Richard W. Fisher said that he probably would not support further quantitative easing after the end of QE2.

In September and December of 2012, the Fed announced it would embark on further quantitative easing, purchasing Treasury securities and mortgage-backed securities at a rate of \$45 billion and \$40 billion per month, respectively. Due to the open-ended nature of the programs, some have begun referring to the asset purchases as QE infinity.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:04 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Lucas, Luetkemeyer, Huizenga, Hayworth, Schweikert; Clay, Maloney, and Green.

Ex officio present: Representative Frank.

Also present: Representative Renacci.

Chairman PAUL. This hearing will come to order.

I want to welcome everybody today, our guests as well as our Members.

And I think we will go ahead and introduce our Members now, and those who aren't here, we can do it later on.

Before I introduce our side, the members on this side, I do want to ask unanimous consent for a statement to be inserted into the record from Spencer Bachus. He is not here today. He would have liked to have attended, but he had to attend a funeral.

Also, I would like to just mention those individuals who are here.

First, we have Congressman Lucas from Oklahoma. He is an old hand at this. And I think sitting next to him is Blaine Luetkemeyer from Missouri.

Welcome.

And I think we have a guest who is not a member of the subcommittee, and that is Jim Renacci from Ohio.

As others come in, we can recognize them.

I will defer at the moment here to the ranking member to introduce his Members who are here.

Mr. CLAY. Thank you, Mr. Chairman.

First, let me congratulate you on your election as chairman of the subcommittee. And I look forward to working with you in the 112th Congress.

Joining us today is the overall ranking member of the Financial Services Committee, the gentleman from Massachusetts, Mr. Barney Frank. And I want to thank him for being here today.

Also with us is a fellow Texan of yours, Mr. Al Green, who represents the City of Houston. And thank you for being here.

And, of course, I am William Lacy Clay of Missouri.

Chairman PAUL. Thank you very much.

I do want to also welcome the Congressman and ranking member from Massachusetts. We have worked in the past on many of these issues, to the surprise of some people at times. But I am glad he is attending today.

Mr. FRANK. Thank you, Mr. Chairman. I would add, to the surprise and occasional dismay of other people.

Chairman PAUL. But the reason I said kind words is I expect him to behave today. That is all.

I would like to ask unanimous consent that all the statements of any member can be admitted into the record. If there is no objection, they will be admitted.

Oh, and I do need to ask unanimous consent for Jim Renacci to sit with us today.

No objection is heard.

I would like to go ahead and start with an opening statement, and then I will defer to the other Members who care to make statements, as well.

Today, we are talking mainly about unemployment. And, to me, this is a very significant issue that we all care about. I have not yet met anybody in the Congress or anywhere who thinks we shouldn't do something about it, so it is unanimous. Unemployment is too high, and the goal is to keep unemployment low and employment high. And this would make everybody happy.

But the disagreement seems to come from trying to understand how we got unemployment and what we should do about it. And I have argued that if you don't know exactly why we have unemployment, it is very hard to come up with a solution.

That is the purpose of these hearings, at least initially, to try to understand the ramifications and especially the connection of unemployment to monetary policy. Because people are thinking more about the Federal Reserve policy today than ever before. And everybody does have opinions. Some people think there is too much easy

money and credit and interest rates are too low, and others complain on the other side and say that we need more of it, we need more expansion of credit and we need more spending.

So that is where the disagreements are. But I think there should be a lot of goodwill here in the goal of finding out just what causes our problems and what we can agree on and what we can do about it.

Between 2001 and 2010, we had a population growth of 26 million people. Yet, at the end of that decade, we had 2.3 million less people employed. So these numbers aren't very encouraging. It is terrible that there are 2.3 million people not employed, but I think it might even underestimate the problem since we had such a big population growth.

Just in the last 3 years, or between 2007 and 2010, we had 7 million jobs lost. I do know that we have had some increase in jobs in the last year, but we are still way behind the curve.

But even with the job increase, we here in Washington, the combination of the Fed and what the Congress has done, we probably have pumped in \$4 trillion. And if you look at the new jobs we have created, I would say they are very, very expensive jobs. I imagine we could have given everybody \$60,000 or \$70,000, maybe \$100,000—I haven't done the calculation—just given them the money and they would have been better off. And that, of course, would have satisfied the people who say we have to stimulate spending; the money would be there. But, instead, the money went in different places, and the unemployment rates haven't dropped.

Another problem I see when we deal with the unemployment is sometimes we get confused on how we measure it. The lead figure from the Bureau of Labor Statistics comes up every month, and they tell us that unemployment is 9 percent. And, oh, it is down from 9.5 down to 9; there is a great recovery going on. But the people don't feel that way. The unemployment rate is still very high.

And if you look to some of the private sources of measuring unemployment, you find out that unemployment may well be much higher. Even the government statistics reveal that if you count all the people who are just partially employed or working part-time on weekends, that number can jump to 16 or 17 percent. But then if you include all those individuals who have given up looking for work, there are some who report that the unemployment rate could be 22 or 23 percent, reaching almost the height of the Depression.

So I would encourage all of us to think more seriously about how we measure unemployment, and if this is a real problem, that we ought to do something about defining how to measure unemployment.

I think in this discussion today, certainly we will be thinking about the results, the inefficiency of the Federal Reserve, because they have had a mandate, and the Congress gave them a mandate, and the mandate is that we should have stable prices and high employment. I can produce some statistics, and maybe later on will, to show that prices really aren't all that stable. And, certainly, unemployment reflects a failure. If that is their job, they didn't do a very good job. They haven't been very efficient in producing jobs.

So these are the things we want to talk about and try to resolve and then see what needs to be done. Because, like I said, who wants high unemployment? Nobody wants high unemployment. We want to get people employed. I work from the assumption that there is a direct connection between monetary policy and the business cycle, and, therefore, we should pay more attention to it.

Now I would like to yield to the ranking member, Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman.

We were all privileged to witness President Obama's stirring State of the Union Address. And part of his uplifting message was an appeal for all of us to find common ground in order to move our Nation forward. That applies here at home and around the world, as well.

But I am amazed that some of my colleagues in the Majority may have taken that concept a little bit too far. I never thought that I would see the day when allegedly conservative members of the Republican Party would side with the People's Republic of China over the best advice of the Chairman of the Federal Reserve. The Republican assertion that the Fed's actions to infuse the money supply in order to hold down interest rates and lower unemployment will somehow harm our currency is absolutely wrong.

The congressional mandate for the Federal Reserve is really a two-sided coin. The Fed has a mission to both maintain stable prices and to foster conditions that promote job growth. If we expect this recovery to continue, we need to support both sides of that equation.

As Chairman Bernanke has testified previously, this recession was unlike other post-war economic downturns. And I am thankful that the President, along with our congressional leadership and in coordination with the Federal Reserve, acted courageously to prevent a second Great Depression and to preserve the American middle class.

Over the last 19 months, with the help of the Federal Reserve's wise monetary policy, corporate profits have soared, financial markets have stabilized and regained much of the value equities that was

lost, and the private sector has created more than 1 million new jobs. And we still have a long way to go, but that is more new job creation than during the entire two terms of the Bush Administration.

While we strive to restore our economic security, fear of future inflation is not today's most important problem. In fact, the core inflation rate is still near 1 percent. The real danger is if we impede the money supply; then deflation is next in the economic chain.

We see real growth and recovery in almost every sector of the economy, in part because of the Fed's actions. Manufacturing is up, orders for durable goods are up, and car sales are better than expected, although too few, which is why we cannot let up now. There is no doubt that the Fed's prudent actions to carefully expand the money supply were appropriate, and they are helping put Americans back to work.

I am not concerned about what the Chinese, the Brazilians, or the Europeans think about our monetary policy, especially when some of those who are complaining the loudest are guilty of manipulating their own currency to hamper American exports, which cost jobs here at home. The current monetary policy supports job creation here in America. Here in Congress, we have no higher priority.

I thank you, and I yield back the balance of my time.

Chairman PAUL. I thank the gentleman.

I would like now to yield to Congressman Luetkemeyer for his opening statement.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. Thank you for holding the hearing. And I am pleased to serve on the subcommittee and glad to see that we are focusing on the most important issues facing our constituents: jobs.

Since 1977, the Federal Reserve has been charged with two principal missions: controlling inflation; and maximizing employment. Despite recent attempts by the Fed, unemployment continues to hover at 9 percent for the 8th consecutive month, and the economy is still struggling, leaving one to wonder if the Fed is capable of affecting either or have they mismanaged the situation.

Then there is the question of whether the Fed should remain to have a dual mandate. And that one has been continually debated since 1977. It is unclear whether this dual mandate does much of anything to promote job growth.

Take, for example, Chairman Bernanke's quantitative easing plan. When first presented with the Fed's plan, Americans were told that this would be the vehicle to keep interest rates low in order to promote job growth and investment. By injecting hundreds of billions

into the American financial system, the Fed sought to promote affordable business investment and economic recovery. This was a bold step, one that could ultimately our recovery by contributing to inflation. It is my hope that the \$600 billion QE2 will promote lending and stimulate growth.

At the same time, I am concerned that the Fed and other Federal regulators seem to be ignoring a key problem: excessive regulation along the lines of a lack of forbearance among examiners. As a former bank examiner, I believe the lack of responsible forbearance practiced by our regulators is imprudent. Time after time, I have heard from Missouri bankers who are troubled by increasing pressure from examiners to shrink their portfolios, even when the loans are performing.

I fully support prudent financial regulatory oversight, but it is not in our best interest to promote economic policy that denies credit for viable projects and forces performing borrowers into insolvency.

Sound monetary policy will play a role in restoring our Nation's economic stability. We need to energize the private sector and get the government out of the way by creating a regulatory environment that protects the American people while promoting economic expansion.

With that, Mr. Chairman, I yield back. Thank you.

Chairman PAUL. I thank the gentleman.

I would now like to yield to the ranking member of the full committee, Mr. Frank, for an opening statement.

Mr. FRANK. Thank you, Mr. Chairman.

And I would begin by saying I agree with the comments just concluded. We have suffered from excessive rigidity on the part of the regulators. We have, on a bipartisan basis, over the past few years, the past year in particular, talked about the problem of mixed messages coming from Washington, of the top regulators saying they want to encourage lending but of our being told by bankers that they are encountering a great deal of excessive rigidity. And we will, I hope, continue to press for a reasonable approach on the part of the bank examiners.

And we also have been engaged in conversations with the accounting board so that banks are not forced to take steps that are artificial and lock in a temporary problem, with a reduction in lending.

But on the subject of today's hearing, I was, as the gentleman from Missouri was, surprised to see many of my Republican colleagues here and former members of Republican Administrations criticizing the Federal Reserve's quantitative easing partly because it

was unfair to foreign countries. As the gentleman from Missouri pointed out, we had people explicitly agreeing with foreign critiques, saying that, among other things, what was wrong with what the Federal Reserve was doing was it was damaging the currencies of other countries. And as he noted, the People's Republic of China, in particular, was helping organize opposition to the Federal Reserve.

Let's be very clear: Being accused of currency manipulation by the People's Republic of China is like getting a lecture on family planning from the Octomom. This is a country which has engaged in very serious and significant and systematic manipulation of its currency to our economic disadvantage.

In fact, with regard to what the Federal Reserve has done, the negative predictions haven't come true. We have not seen inflation. We have not seen a great set of losses. We now know more about what the Federal Reserve is doing. And I know the gentleman from Texas does not think we went far enough in what we did last year in the bill, but we did make several steps that improved the transparency of what the Federal Reserve does. And under the law that we now have in place, no transaction between the Federal Reserve and any private entity will remain secret forever. There will be a publication of every transaction that the Federal Reserve does with any private entity, although, in some cases, with a time lag to prevent there from being market distortion.

But to go back to this, yes, it is true that unemployment is still too high. But when you are dealing with economics, the question is not simply what the reality is but what the reality would have been in the absence of actions, what the economists call the "counterfactual." And I think it is very clear that, as part of an overall approach, what the Federal Reserve has done has helped bring unemployment down below what it otherwise would have been, although not to a satisfactory level.

But it is very clear that, with regard to the charge that it was going to lead to inflation, whether that was going to be very costly to the Federal Government, or that the Federal Reserve would be engaged in activities which it could not unwind, they have all been disproven by the facts. And we do have speculation—inflation may be coming later. But there has not been an inflationary problem. The problem continues to be the lack of employment to catch up with other aspects of growth in the economy.

And I believe that Mr. Bernanke has been doing, with the overwhelming support of the other members of the Federal Reserve, including—remember, this is not just Mr. Bernanke. There have been a

couple of dissents, but the Open Market Committee includes other appointees, and it includes Federal Reserve Bank presidents. They have most recently been unanimous on this. And I think that the effect has been a good one.

And I hope that we will, as a bipartisan approach, tell the rest of the world that any suggestion that America should be constrained in what we do to stimulate jobs in this country will be unaffected by their concerns that it might have some impact on their own currencies, particularly those whose manipulation of their own currencies has been to our disadvantage.

Chairman PAUL. I thank the gentleman.

Now, I would like to yield time for an opening statement to Mr. Lucas from Oklahoma.

Mr. LUCAS. Thank you, Mr. Chairman. And I appreciate the opportunity to offer an opening statement.

I would simply observe, I think, that we all realize that the Fed's, in effect, running the printing presses perhaps is the best policy alternative they have there right now in this situation. But if you believe that price stability ultimately is what the economy needs to be rational and make decisions and grow for the long-term period, then you have to ask the question: By dramatically increasing the supply of money—yes, the volatility, the circulation of the currency, of money through the economy slowed dramatically, so that increased supply has been offset by the reduced activity has provided price stability or close to it. But if the Fed didn't see this mess coming in the beginning, will they see the inflation side in time also? If they didn't see this mess coming, will they see the inflation cycle starting up in time, the recovery in time to turn off the printing press, to shrink the supply, to offset the increased speed of circulation before we get into inflation? I am not sure, based on past history, that their vision in the future is going to be any better than it was in the past.

That, I think, is the question. Not so much what other countries think, but will we, by the printing press, cause more problems in the future than we can overcome?

I appreciate the opportunity to hear our witnesses, Mr. Chairman.

Chairman PAUL. I thank you.

I would like to now yield for an opening statement to Mr. Green from Texas.

Mr. GREEN. Thank you, Mr. Chairman. I thank the ranking member, as well, and I thank the witnesses for appearing. And, of

course, I thank the ranking member of the full committee, the Honorable Barney Frank.

Mr. Chairman, I would like to start on a positive note and say that I concur with you 1,000 percent; we do have to ascertain what the cause was if we are to truly find a conclusion as to how to resolve the problem. We may differ on what the cause is, but I do agree that we have to know what the cause was.

And I would also concur with you that U6 is a good indicator of what the unemployment rate really is when you add all of those who are marginally employed. QE1 and QE2 are important because they have infused capital into the economy. But when we look at the cause and we connect these two, we find that we have to ask ourselves, was the cause a lack of regulation or was it overregulation? I suspect not, in terms of over. Was it a case of regulators not really regulating? Was it the exotic products? If it was the exotic products, why were the exotic products allowed to exist in the first place?

So there are plenty of questions to ask, and I plan to ask some of the witnesses today.

But with reference to the inflation, I believe that the chairman has embarked upon a path that is going to help us have a softer landing than we would have but for the QE1 and QE2. Without them, it is counterfactual, but there are economists that tell us that we would have a landing that may have been a crash, and it may have been devastating for the economy, much more so than where we are now.

I thank you for the time. I look forward to hearing from the witnesses. And I yield back.

Chairman PAUL. I thank the gentleman.

Now I would like to yield time to Congressman Huizenga from Michigan for an opening statement.

Mr. HUIZENGA. Thank you, Mr. Chairman. I appreciate the opportunity. In the interest of time, I have submitted my remarks, as well, and will try to shorten it up. And I appreciate you holding this subcommittee hearing today.

By trade, I am a small-business owner and involved in both real estate and construction. And I now represent a district currently suffering an unemployment rate well above the national average, in Michigan. And one of the hearing's topics—and this particular hearing holds special significance for us back in Michigan.

Earlier this month, the Bureau of Labor Statistics reported that the national unemployment rate fell from 9.4 percent to 9 percent. That does not include the hundreds of thousands who have, frankly,

stopped looking. That equates to 14 million people without a job. While this is a staggering number, in my home State of Michigan we are far worse off: 11.7 percent. And, again, that is not including those who have stopped looking. And in some of the areas in my particular district, along the lakeshore, it is well over double the national average.

As previously mentioned, I am a small-business owner at heart and believe such businesses are the backbone of the U.S. economy and provide more than two-thirds of American jobs. I understand the universal principles of successful business, and it is important that we recognize the appropriate role for government in that process. Simply put, the private sector creates jobs, not the public sector. And that is ultimately where that prosperity lies.

It is clear to all small-business owners that responsible fiscal policy includes reduced government spending and the implementation of friendly tax and regulatory environments. They go a long way in creating an atmosphere for success.

As we are having this discussion on QE1 and QE2, ultimately I believe that they have not proven to be an effective method in creating jobs. And I appreciate today us examining the effects that the Federal Reserve open market operations have on those long- and short-term unemployment rates. And, in addition, I look forward to carefully inspecting what potential role the Fed policies played in such artificial asset bubbles as that of the housing market between 2001 and 2008.

So I look forward to today's, I would guess, robust conversation on the short-term effects. And I appreciate your holding this hearing, Mr. Chairman. So thank you very much. I yield back.

Chairman PAUL. I thank the gentleman.

Now, I would like to yield time to Congresswoman Hayworth from New York, a new member to the committee.

Dr. HAYWORTH. Thank you, Mr. Chairman.

My home district is New York's 19th. It is the Hudson Valley. And we have a large portion of our constituency who have jobs in the financial services sector. And, frankly, all of our citizens are quite directly affected by what the Federal Reserve is doing and has done in the past. So I am honored to be working on this subcommittee, because examining the role of monetary policy in the financial crisis and in our response to it is crucial.

History shows that an independent central bank that is making monetary decisions free of political influence can certainly enhance economic growth. It stabilizes the currency. That is very important.

But that is very different from requiring a central bank to be held accountable for its decisions and to explain why it is making them. And it is certainly incumbent upon us to set that policy for monitoring and holding accountable.

So that is our role here. And we are in service of the far larger goal, as my colleague from Michigan has said, of getting Americans back to work throughout the country. So I look forward to your testimony regarding how monetary policy has affected unemployment. I am sure it has.

And I yield back the remainder of my time. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

The Congressman from North Carolina, Walter Jones, has arrived. He is the vice chairman of this committee.

Would you like to make an opening statement?

Mr. JONES. No.

Chairman PAUL. We would like to announce and celebrate the notion that Walter is going to have a birthday tomorrow. So we want to wish him a happy birthday.

Mr. JONES. Thank you.

Chairman PAUL. Okay. If we don't have any more opening statements, we are going to go to the guests that we have, those who are going to testify. I want to welcome all three of the individuals here today. And I will read a brief resume of each one, and then we will go to the discussion.

First, on the left, we have Professor Thomas DiLorenzo, professor of economics at the Sellinger School of Business at Loyola University in Baltimore, Maryland, and a senior fellow at the Ludwig von Mises Institute in Auburn, Alabama. He received his Ph.D. in economics from Virginia Polytechnic Institute and State University at Virginia Tech.

Next, will be Professor Richard Vedder, the Edwin and Ruth Kennedy Distinguished Professor of Economics at Ohio University and an adjunct scholar at the American Enterprise Institute. He received his B.A. in economics from Northwestern University and his M.A. and Ph.D. in economics from the University of Illinois. He is the author of, "Out of Work: Unemployment and Government in Twentieth-Century America."

And finally, we will hear from Dr. Josh Bivens, an economist at the Economic Policy Institute in Washington, D.C. He received his B.A. in economics from the University of Maryland and his Ph.D. in economics from the New School of Social Research. Each will be given

time for an opening statement, and their full statements will be put into the record. So I will first now defer to Dr. DiLorenzo.

**STATEMENT OF THOMAS J. DILORENZO, PH.D.⁴²
PROFESSOR OF ECONOMICS, SELLINGER SCHOOL OF BUSINESS
LOYOLA UNIVERSITY MARYLAND**

Mr. DiLorenzo. Thank you, Mr. Chairman, and members of the committee for giving me this opportunity to appear here.

To answer the basic question that has been posed by this hearing, can monetary policy really create jobs, as an academic economist, you are not surprised to hear from me that the answer is “yes and no.”

And the reason why I say “yes and no” is that the history of the Fed has been that it has created boom-and-bust cycles in the economy ever since it began its existence in 1914. And so, during the boom period, of course, it does create jobs, but the jobs that it creates, many of them are unsustainable jobs. I can recall hearing that Home Depot, when they laid off 7,000 people in 1 day, these were jobs that people had invested in, they invested their lives, their careers, and then the rug was pulled out from under them. That is the sort of thing that happens with what we call the artificial boom and bust created by the Fed’s monetary policies.

And the key to it is that the monetary expansion that the Fed creates, it sometimes produces price inflation, but that is not the only problem. Another part of the problem is that it artificially lowers interest rates and induces businesses to engage in especially long-term investments that end up being unsustainable.

In the latest boom-and-bust cycle, that was mostly in real estate and everything related to real estate. But it is not necessarily just real estate. And so, in this latest cycle then, you had people, mortgage bankers and insurance companies and everyone related in every way to housing construction investing years and years of their careers, and then they are out of work; they have to retool.

The lower interest rates are not necessarily an unmixed blessing to everyone because they tend to reduce savings, and savings and investment are the key to productivity growth and job creation. And so, the downside of the Fed policy of lowering interest rates lower and lower is that it deters savings. And savings investment is really the key to having sustainable economic growth and job creation.

The real damage occurs, then, during the boom cycle of the business cycle, where capital is misallocated. Too much of it goes into unsustainable areas, such as real estate in the latest bout here. And

⁴² [The prepared statement of Dr. DiLorenzo can be found on page 394.]

the best part, the good part, if you can say there is a good part to this boom-and-bust cycle, is now the bust is where the adjustments have to take place. And we have to get back to realistic prices, realistic interest rates.

One problem the Fed creates, though, is, with its constant manipulation of interest rates, it really is an attempt at price controls. And I think the economics profession is almost unanimous in opposition against price controls. And interest rates are prices. And so, when the Fed tries to manipulate interest rates, it is really engaging in a policy of price controls. And a lot of people in this room, I am sure, remember what a disaster that was in the 1970s, with price controls on oil and gas.

Now, government policies that bail out businesses, which we have seen, is really a contradiction of an age-old rule of economics with regard to monetary policy. The rule was, in the case of a recession like this, it is a good idea for the Fed to make credit available to sound businesses that have been responsible and made good decisions, but not make more credit available to those businesses who have made bad decisions. And it is better off to let them go bankrupt, out of business, and have those resources be picked up, reallocated by people who will make better use of them. But, of course, the Fed has done exactly the opposite of that in the recent years.

And so, as applied to today's situation, I think a very strong case could be made that the cause of the boom was the Greenspan Fed's low-interest policies. So the Fed did create some jobs with the boom; it is responsible for creating those jobs. But I think it is also responsible for the high unemployment that we now suffer to a very large extent because of the bust that has occurred.

It also has created mismatched unemployment, what economists used to call mismatched unemployment, which I referred to a minute ago, in terms of people investing in jobs and careers that ultimately are not sustainable for a long period of time.

Historically, the Fed, right from the very beginning, as soon as it started in 1914, it doubled the money supply by that date in 1920 and created the Depression of 1920. It was the worst depression in the first year of the Great Depression. And a strong case can be made—and I can refer any of the Members to literature if they would ask me for it, as to where you can read up on how the boom and bust of the 1920s was caused by the Fed, as was, I would even argue, the Great Depression was ignited by the expansionary monetary policy of the Fed, not the restrictive monetary policy of the Fed, that occurred from 1929 to 1932.

I see my time is about up. So, in summary, I will say that the Fed's monetary policies do create temporary but unsustainable increases in employment, while being the very engine of recession and depression, even, that creates unemployment in the long run. And it needs to step back, in my view, and let the market work and create a lot more stability by quitting its attempts to manipulate the price of credit, interest rates.

Thank you very much.

Chairman PAUL. I thank the gentleman.

I would like to now defer to Professor Vedder for his statement.

**STATEMENT OF RICHARD K. VEDDER, PH.D.⁴³
DISTINGUISHED PROFESSOR OF ECONOMICS
OHIO UNIVERSITY**

Mr. VEDDER. Thank you, Dr. Paul.

The one-word executive summary of my answer to the hearing's question, can monetary policy really create jobs, the one-word answer is "no." And I would agree with Dr. DiLorenzo, no, not in the long run, or no, not on a sustainable basis.

A little historical context: The first decade of this century had the lowest rate of economic growth of any decade since the Great Depression. Employment growth was the lowest in 6 decades. Inflation-adjusted equity prices fell sharply.

In large part, I think this reflects a multitude of faulty government policies, certainly on the fiscal side. Federal spending soared, increasingly financed by borrowing. The ratio of national debt to output is at a historic high for a relatively peaceful period. And on the monetary side, we had the worst financial crisis since the Depression, with many iconic financial institutions closing their doors or only surviving because of Federal bailouts. And despite all these huge Federal exertions on both the fiscal and monetary side, we have had the weakest recovery going on now in the lifetime of most persons in this room.

Moreover, I think the huge run-up in the ratio of Federal debt to output will be a significant drag on the economy for many years and may well lead the Fed to monetize this debt or part of this debt, unleashing a wave of inflation that can only undermine our economy.

Turning to the 2008 fiscal crisis, financial crisis, certainly private irrational exuberance may have occurred to some extent. The crisis largely resulted from three types of government policies, failures.

⁴³ [The prepared statement of Dr. Vedder can be found on page 397.]

First, as Tom DiLorenzo indicated, the Federal Reserve for years prior to the crisis pursued an easy money policy, reducing interest rates below levels justified by human behavior and market conditions. This led to the artificial boom in housing prices.

Second, the Feds encouraged imprudent lending practices through such things as the Community Reinvestment Act, HUD policies going back to the 1990s designed to promote homeownership.

Third, Fannie Mae and Freddie Mac, government-sponsored corporations, promoted totally inappropriate lending practices that contributed to the housing bubble and the foreclosure mess. Congress blocked attempts to rein in these companies, no doubt, frankly, because of the campaign contributions these companies made to Members of this body.

I am an economic historian. And both economics and historical experience demonstrate that Federal intrusions into economic activity are counterproductive. Some textbooks even talk about the “policy ineffectiveness theorem.” Aggressive deficit spending and Federal Reserve monetary expansion led to stagflation in the 1970s. Japan went on a huge binge of stimulus spending in the 1990s, and economic growth virtually ground to a halt. The excesses of the European welfare state and its funding are causing crises all over the European Union, from Ireland to Greece. The stimulus plans of the Obama Administration were accompanied by rising, not falling, unemployment. Bailouts and “too-big-to-fail” policies have created a huge moral hazard problem. The Federal Reserve has engaged in huge purchases of government long-term bonds and mortgages to keep interest rates low. But long-term interest rates are not falling, as concerns about potential inflation justifiably have risen.

So, by many indicators, this is the weakest post-war recovery, not because we have tried too little, but because we have tried too much. The Fed and the government have monetary and fiscal time bombs that are threatening both the short-term recovery but, more importantly, long-term financial and economic stability.

So what do you do? I would point out that our economy achieved economic supremacy in the world from 1871 to 1914, a period of the gold standard, near-stable prices, and no central bank. Consumer prices in 1914 were within 10 percent of what they were in 1871. We can learn from that experience.

To restore monetary stability, ideally we would ultimately consider retreating somewhat from the fractional reserve banking system we have, where even moderate declines in confidence potentially lead to devastating consequences. But more immediately, we need to

limit monetary growth. And, given human weaknesses, probably the best way to do this ultimately is having a gold standard or some variant that removes or dramatically reduces the discretion of central bankers.

But on the fiscal side, politicians, unfettered by rules, behave, I would say, like unsupervised alcoholics in liquor stores. We need some sort of constitutional restraints on government fiscal actions. Practically, changes of this magnitude

take time, but, in the short run, however, I think you could start holding the Fed's feet to the fire. Perhaps, for starters, you should establish price stability as the single monetary mandate for the Fed. Perhaps you should repeal the Humphrey-Hawkins Act and privatize or abolish Fannie Mae or Freddie Mac.

After that, you can rest on Sunday.

Chairman PAUL. I thank the gentleman.

We will move on now to Dr. Josh Bivens for his statement.

**STATEMENT OF JOSH BIVENS, PH.D.⁴⁴
MACROECONOMIST
ECONOMIC POLICY INSTITUTE**

Mr. BIVENS. Thank you. I would like to thank the committee and the chairman for inviting me here today.

The subject of this hearing is, can monetary policy really create jobs? I am going to say the answer is a barely equivocal “yes,” and the equivocation just being it can create jobs as long as the economy is performing below potential. And the economy is performing below potential today.

The argument—I am going to start with just a little bit of theory. Of course, theory alone can't end the discussion, so then I will talk about some evidence on monetary policy's effects.

So the theory—sometimes the cause of recessions are pretty hard to reconstruct. Not so in what we are now calling the “great recession.” The bursting of the housing bubble led to home builders waking up, realized they had massively overbuilt, so residential investment collapsed. The 30 percent fall in home prices also erased about \$7 trillion in wealth from household balance sheets, so they predictably radically curtailed their spending.

These initial shocks then cascaded throughout the economy. Businesses stopped investing because customers aren't coming in the door. Why would you build a new factory when the one you have can't even sell what it is producing?

⁴⁴ [The prepared statement of Dr. Bivens can be found on page 402.]

And so, in the jargon—and, for once, the jargon is kind of important—the economy suffered a shock to aggregate demand. The clear fact that this recession was the result of a shock to aggregate demand is key. American workers didn't lose their skills in December 2007. American factories didn't become obsolete in that month. American managers didn't forget how to organize production in that month. Nothing changed about the American economy's ability to supply goods and services. All that changed was the ability of households and businesses to purchase them. The erasure of all the wealth from the housing bubble was a shock to aggregate demand.

So what the Fed tried to do is stabilize economic activity by providing a countervailing spur to demand with the levers they have. The primary lever they have is short-term interest rates. By lowering these short-term rates, or policy rates, the hope is that interest rates up and down the term and risk structure fall in sympathy. That makes it cheaper for businesses to borrow to expand capacity. That makes it cheaper for households to borrow to buy new houses, and durable goods. It also provides a one-time boost to asset prices. And so this decline in policy interest rates is meant to provide a countervailing, positive spur to the aggregate demand that was quashed by the bursting of the housing bubble.

And all this happened as the great recession approached. The Fed started cutting these policy rates in August 2007. They provided extraordinary support to failing financial institutions early in 2008. And about halfway through the great recession, the policy rates they controlled had kind of run out of ammunition. They were sitting at zero.

They could have just stopped there. As the economy was in a complete free fall, as the primary parachute they have available to them obviously wasn't sufficient, they could have stopped there. They didn't. And it is a good thing they didn't. They continued to try to find other ways to provide support to the economy with the quantitative easing programs.

And these interventions worked. If you look at when the Fed introduced the Term Asset-Backed Securities Loan Facility, the day that was introduced, credit spreads on asset-backed securities started to rapidly fall. That was very good for the economy. It meant people could actually get credit again.

Researchers from the San Francisco Fed say that the announcements of both rounds of quantitative easing caused interest rates to fall up and down the term structure. Some of the members of the committee may have noticed that 30-year home mortgages fell to

something like 4 percent in the past couple of months. Some of us in this room may have even refinanced their mortgages. I actually did. It saved me a lot of money, and provided a spur to my spending power. That is very good for the economy. That is one channel that is supposed to work.

Just that channel alone, the ability to refinance, some researchers at JPMorgan Chase have estimated that, if all the mortgages guaranteed by Fannie Mae and Freddie Mac had been able to take advantage of those 4 percent rates we saw a couple of months ago and refinance, that would be a permanent \$50 billion spur to spending potential in the economy. That is just one channel through which monetary policy can help people start spending again, and businesses.

And if you look back, you look at studies of what ended the Great Depression, Christina Romer, eminent economic historian, the former CEA chair for the Obama Administration, she says that monetary easing was a key part of what ended the Great Depression. I would say she is actually criticized in this view by, say, Milton Friedman, probably the most famous conservative economist, only because he thinks the Fed should have done much more, loosened much more to fight the Great Depression.

If you look at Adam Posen, probably the closest observer of what happened in Japan in the 1990s, he points to the fact that Japan actually had a pretty good recovery from 2002 to 2008 when they finally started engaging in the unconventional monetary easing that the Fed has done during the great recession. It was the first time Japan had seen serious growth in decades.

The Japanese case is also instructive because they had a 20-year period where they kept the short-term interest rates that they controlled, the Bank of Japan, near zero. They engaged in lots of quantitative easing. The cumulative inflation rate over those 2 decades was less than 5 percent. The United States has seen inflation of over 5 percent, or close to 5 percent, in a single year in the 2000s. So this idea that monetary easing always leads to inflation, no matter what, is just not supported by the facts.

And so, my time is up, and I just want to say one thing. I would say that the Fed has been by far the policymaking institution most aggressive in its response to the job crisis caused by the great recession. It acted first, it acted most aggressively, and it continues to display a real sense of urgency about the need to support the economy and create jobs.

Thank you for your attention.

Chairman PAUL. I thank the gentleman.

[QUESTIONS & ANSWERS]

We will now go into our question session. Each Member gets 5 minutes to ask questions.

And just to let you know that if the discussion is still going on, we will have a second or even a third round of questions if you are interested in the subject and you want to hang around.

First, I will start off with asking Dr. Bivens a question, because you have talked a little bit about interest rates and how valuable it has been to the economy for the Fed to lower interest rates. But isn't it true that there comes a point where they can't accomplish that, where the effort to lower interest rates doesn't actually lower interest rates?

And we may be even entering that period right now. There is a lot of monetary inflation right now with QE2, and there are signs that bonds aren't doing as well and they may be shifting.

What happens to those who agree with your policy? What do they do if the more they inflate, the higher the interest rate goes? And, in a way, we had that in the 1970s, as well. Then what do you do? What is the policy that is necessary to counteract that when interest rates are going up when you don't want them to go up?

Mr. BIVENS. A couple of things—one, you mentioned the experience of the 1970s. To me, the experience of the 1970s, why interest rates were high was because inflation rates were high. And so, my best guess over the next couple of years—and it is a guess based on a firm historical relationship between how much slack is in the economy and inflation rates—we do not have to worry about spiking inflation in the economy any time in the next couple of years.

So your scenario where the Fed continues to ease, maybe undertakes even another round of quantitative easing and somehow interest rates in the long term start rising, I would say they would need to reassess the policy then. But my read of the evidence so far is that, with each announcement of the rounds of quantitative easing, you have seen a robust fall in interest rates across the risk and term structure, which was exactly the target. And it has filtered through to more spending in the economy.

Chairman PAUL. I thank you.

And I would like to get a comment from Dr. Vedder or Dr. DiLorenzo on that subject.

Mr. VEDDER. Let's first talk about—the QE2 was announced on November 3rd. It is now February 9th. What has happened to the interest rates on 10-year or 30-year Federal Government securities in

that interim? My read of the evidence—and I just look at the interest rate yesterday versus November 3rd—is that the interest rate on 30-year government bonds has risen somewhere between 65 and 70 basis points. The interest rates on 10-year notes has gone up more than 100 basis points. This has not moved down. It is not even staying still. It is going up.

Now, in that period, we are buying, what, \$50 billion of bonds a month? We bought several hundred billion—the Fed now owns a trillion dollars' worth of long-term securities, I believe, or close to it, the better part of that.

To me, that is just the evidence. And it suggests that your concern, Dr. Paul, is correct, that the increased inflationary expectations have overwhelmed the effects, the immediate effects the Fed has when it pushes up bond prices when it buys securities. So I think your concern is valid.

Mr. DiLORENZO. Yes, I agree, that is what we are seeing, is inflationary expectations driving up those interest rates. And it might not be hyperinflation, but we are beginning to see it. And you have seen some of the inflation around the world, too. A lot of the U.S. dollars that are in circulation end up overseas. And I think there is probably a connection between the high food prices that you are seeing in different places around the world with this inflation.

But that is not the only problem that can be created by monetary expansion. It is the misallocation of resources. The Fed is creating a different kind of boom with its quantitative easing. And no one can predict what will happen, but in the next couple of years we could see another bubble. And I think it is likely to be much bigger than the housing bubble was. And then we will really be in trouble.

Chairman PAUL. I would like to ask Dr. Bivens first about his statement on page 7. He says, in short, the Fed saw the economic downturn coming before any other major macroeconomic policymaker body. And there have been a lot of others. What do you do with the free-market Austrian economists? And there were more than a few. How do you dismiss them so easily? Because they did predict it correctly.

Mr. BIVENS. Yes, I would absolutely not say the Fed was the first to see it coming of any economist. I have colleagues who warned in 2002 that home prices were getting too high. I meant to say they were the first major macroeconomic policymaking institution. They acted first.

There are three big arms of macroeconomic stabilization: there is fiscal policy, Congress; there is monetary policy, the Fed; and there is

exchange rate policy controlled by the Treasury. And of those three institutions, the first one to start providing lots of easing to the U.S. economy was the Fed.

Chairman PAUL. Okay. My time is about up, but I just want to go on to the next speaker by quoting Mr. Bernanke, and this was in the fourth quarter of 2007: “We may see somewhat better economic conditions during the second half of 2008. This baseline forecast is consistent with our recently released projections, which also see growth picking up.”

He had no idea that it was coming. He was so reassuring, and he misled so many people. And I just think there is a lot—and if I had more time, I would get other comments, but maybe later on. But it just seems like the Fed was way behind on this whole issue. I would hate to think they were the first ones to warn us. I think they were the last ones to even recognize what was going on.

Okay. And I will now yield to the ranking member, Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman. And, again, let me commend you for calling this hearing. The causes of unemployment and how government and the private sector can respond to and mitigate this crisis are extremely important. And I thank you for your leadership on this issue right at the start of this Congress.

Dr. DiLorenzo, you belong to the Austrian school. And we don’t have time for a debate on various economic theories. However, the Austrian school is different from mainstream theories in its lack of a scientific method and rejection of empirical data. You don’t use the scientific method and instead employ deductive reasoning. You apply preconceived generalizations to your work. You are kind of asking us to take your word for it.

Without data, without providing verifiable results, it is difficult for others to evaluate the merits of your work, and we must rely on your body of work itself.

Doctor, you are here today representing yourself as an economist. However, it has been difficult for my staff to locate any recent work of yours as an economist. It seems that for the past 15 years or so you have published books, written many articles, and given lectures as an historian.

The lines among the social sciences can sometimes get blurry, and I am not going to quibble about academic distinctions. But if your work was on labor history, historical patterns of unemployment, even the history of the Federal Reserve on monetary policy, I can understand you being here today. But I am a little confused. It seems

to me that the bulk of your work has been in revisionist history about our 16th President, Abraham Lincoln, and the Civil War.

Also—and this is where my confusion deepens to concern—you work for a Southern nationalist organization that espouses very radical notions about American history and the Federal Government. This organization, The League of the South, has been identified as a hate group by the Southern Poverty Law Center.

Now, the Law Center is an organization that I deeply respect, and so naturally this concerns me. The League of the South is a neoconfederate group that advocates for a second Southern secession and a society dominated by European Americans. It officially classifies the U.S. Government as an organized criminal enterprise.

Dr. DiLorenzo, you are listed on their Web site as teaching for their League of the South Institute. A short list of your many articles includes: “More Lies About the Civil War”; “The First Dictator-President”, referring to Abraham Lincoln; “In Defense of Sedition”; “Libelist Leftist Lynch Mobs,” insensitively using a loaded term to refer to academic criticism of a White professor; “Abe the Mass Murderer”; “Hurrah for ‘Sweatshops’”—I guess you could sort of claim that the title at least is somewhat connected or something to do with economics; and “Hitler Was a Lincolnite.”

After reviewing your work and the so-called methods you employ, I still do not understand your being invited to testify today on the unemployment crisis, but I do know that I have no questions for you.

Let me go to Dr. Bivens.

And there are some factual errors in the testimony presented here today that I believe need to be corrected. First, even though it was suggested that it was the excessive expansionary monetary policy of the Fed that caused yet another boom-and-bust cycle that spawned the Great Depression, the facts do not bear this out.

And, according to congressional research, between 1925 and December of 1928, the money supply increased at a very modest rate of 3.4 percent. Even if we look at a larger timeframe from July of 1921 to July of 1929, it grew at a rate of 4.8 percent per year. There is nothing particularly rapid about these rates, much less anything approaching excessive expansion.

Dr. Bivens, can you confirm this for us?

Mr. BIVENS. The exact numbers, no. But they definitely comport with my sense of that period, which is there was no excessive monetary expansion before the Great Depression. And even again, Milton Friedman, conservative economist, if he has a criticism of the Fed during the Great Depression, it is that they did not ease quickly

enough, they did not provide enough monetary support to the economy. So they comport with my sense of what happened during that period.

Mr. CLAY. Thank you for responding.

Mr. Chairman, I yield back.

Chairman PAUL. I now yield to Congressman Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you very much, and thank you for holding this hearing.

I want to thank the panelists.

And, Mr. Chairman, about a week ago, I decided that the frustration of the American people in the 3rd District of North Carolina, which I represent, was so great and their disappointment in the United States Congress and things we have done—talking about both parties—that I would take it upon myself to say, if you will help me with questions for the panelists for this whole year—I am delighted to be on this subcommittee, by the way—that I will use some of your questions when my time comes.

So, Mr. Chairman, in a week's time, we got over a thousand e-mails from my district. I am going to read two; then I want to get to a point:

“Our Congress Members, for the most part, must be the most financially illiterate group of men and women on the planet. Why would they need a study group on domestic monetary policy and technology to figure out you don't print more money to create jobs that are backed by virtual money, or funny money? I believe we need to fire all these people and get a couple of housewives who have been managing their family budget over the years without credit cards, lines of credit, and other creative ways to rob Peter to pay Paul.”

This is a great example of how frustrated the American people are. That is why I do think this hearing today is important.

Let me read the next one; then I want to get to the question:

“As an owner of small businesses and a family borrower, I have not understood how the Federal Reserve can keep its interest rates at almost zero and then make lendable funds more available to the banks, while at the same time the banks have increased interest rates, decreased lines of credit, and restricted availability of loans to high-rated creditors like my businesses and other households. I can only see that the banks have improved their financial position on the backs of small businesses and families.”

That basically is going to be my question. I am very frustrated; I am sure my colleagues in both parties are, as well. What you hear

back home is this issue of how the banks have been empowered with the Federal Reserve and the other agencies so that they are able to swell their financial state and, at the same time, they are saying to those of us who are creditors, we are going to raise your interest rates on your credit cards, we are going to deny you loans because we have a certain criteria now.

And this is why this country is in deep trouble, and it is going to continue in deep trouble. And that is why I think it is important that we hold these hearings about monetary policy, because the average American is out there strangling to death because of things that we do and don't do here in Washington.

How would you answer the question to that constituent who wrote me that question? Anyone who would like to answer.

Mr. VEDDER. I think your constituent ought to be made a member of the Council of Economic Advisors or something of—it wouldn't be any worse than it is now, maybe a little bit better.

Why are interest rates for the ordinary—why are people not borrowing a lot of money now? Is it because—the reason, of course, is—why are businesses sitting on \$2 trillion in cash, roughly, right now? They are sitting on \$2 trillion. You can have interest—interest rates don't matter. I don't say they don't matter. They are not the key thing.

They are scared. People are scared. They are scared of a \$4 trillion increase in the Federal debt over the last 3 years. The housewife may not be sure why that is bad, but she knows that is basically not a good thing to do. She knows that printing money and dropping it out of airplanes, or the equivalent, which is what the Fed does, will not create jobs, will not create wealth. It might temporarily lead to some behavioral modifications that leave the appearance of some stimulus in the short run, but not in the long run.

I happen to like Abraham Lincoln, by the way, and I went to the Lincoln Memorial today to read the Gettysburg Address. And I noticed that they have torn up—that they have drained the reflecting pool. And there is a sign in front of it that says, this is part of the stimulus—whatever, the reinvestment—I don't remember the name of that thing—reinvestment act. And they also had a sign next to it that said, we are going to fill it back up again. We can drain the reflecting pool and fill it back up again and probably put a few people to work for a day or 2, but that doesn't create jobs.

People are scared. And banks have partly raised interest rates, to get more specific, on some types of credit because they feel they have to because of the Dodd-Frank bill. Another thing, when they see light

at the end of the tunnel, you add on more tunnel. Not you, personally, Congressman, but your colleagues add more tunnel. And we have added more tunnel.

So we have the Dodd-Frank bill that has all kinds of new restrictions on banks and financial institutions. They have to make up the money somewhere. They are not going to just simply say, oh, we are going to let our profits fall to zero, and we are going to become a charitable institution, a not-for-profit. That is not the way banks operate. So they have raised a lot of fees and so forth. So that has added to the frustration.

Mr. JONES. Would you like—

Mr. BIVENS. Yes, could I have a very quick response to that, as well?

I will say one thing. If you look at the survey of small businesses, the National Federation of Independent Business recently over the past year, you ask them, what is the number-one problem facing you, overwhelming highest response in history: sales; there are no customers.

And so then the question is, can monetary policy actually create some customers for those businesses? And it absolutely can. When you saw the ability to refinance mortgages at 4 percent, that freed up a lot of money for households. When you lower interests up and down the term and risk structure, you make it much cheaper for businesses who are on that razor's edge—"Should I borrow a little money to expand? It is uncertain out there"—but you make it much easier for them to do that.

And the idea that there are inflationary expectations driving up long-term rates, there just are not. The clearest indicator of inflationary expectations that economists use is the tip spread, the spread between inflation index treasuries and nominals. That was at historically low levels a couple of months ago. Now it is still below 2 percent lower than it was at any point during the 2000s. There is just no sign that inflationary expectations are out of line and that is what is driving anything like long-term rates rising.

And then just one last thing. I am no defender of the banks, but, actually, if you are worried the banks are having too easy of a time by borrowing cheap, short term from the Fed, and then raising long rates on what they are lending to their customers, quantitative easing actually squashes that spread. It actually makes it less hospitable for banks to do that. So if you don't like the banks, kind of, riding the easy term structure created by what the Fed is doing to short-term rates, you should like the quantitative easing program.

Mr. JONES. Thank you.

Mr. DiLORENZO. Is there time for one more comment on that?

Chairman PAUL. Go ahead.

Mr. DiLORENZO. I would add, since I have written three books that include a history of banking, so contrary to what Mr. Clay had to say about me, what we have been experiencing is what economists call “regime uncertainty.” With all the uncertainty of the Fed changing policy month by month—the threat of huge taxes for socialized medicine, the re-regulation of banking with the Dodd-Frank bill—businesses sit back and wait because there is so much great uncertainty about the future with all of these regulatory changes and tax changes.

And that is one of the things that is keeping them from lending to businesses. The businesses are putting a lot of their business plans on hold. And the economist Robert Higgs is best known for research on this whole area of regime uncertainty, and I think that is an important thing to factor in there.

Chairman PAUL. I now yield 5 minutes to the Congressman from Texas, Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman.

I thank the witnesses, as well, again.

What we have, apparently, is this philosophical debate about how jobs are created. Do millionaires create jobs, or do millionaires simply respond to demand and, as a result, they facilitate the creation of jobs because there is demand?

Smart money doesn't create jobs just because it exists. Smart money creates jobs when there is a demand to be met. Is that, in essence, what you are trying to say or have been saying, Dr. Bivens?

Mr. BIVENS. Yes, I think that is a fair summary.

Mr. GREEN. And is it true, sir, that jobs and employment, that these factors are considered lagging economic indicators, employment?

Mr. BIVENS. That is right. I think that is fair to say, as well. The last couple of recessions, you have seen GDP go up.

Mr. GREEN. Right. And while other things will come back at a relatively different pace—let's say it this way: Jobs will be among the last things that will return, especially when you have a sharp downturn in the economy. And it is also fair to say that, because of some of the structural changes in the economy, there are some jobs that won't return. Is this a fair statement?

Mr. BIVENS. I think we will have a different-looking economy coming out of this than we did. We are going to have fewer con-

struction jobs when we eventually get out of this and get out of the jobs hole. Hopefully we have some more manufacturing jobs. So, yes, I think there is something to that.

Mr. GREEN. Also, changes in technology. A few years ago, we had technology that was greatly different. Something as simple as developing film, the technology has changed. So you won't have those jobs. Record companies won't have jobs. The structure of the economy is changing as well.

So I would like for you, if you would, to just do this for me. Take a moment and explain, if you would, how the lagging indicator of jobs returning, employment, how that will manifest itself as we go forward. Is that something that will happen immediately, or will we see signs of it?

And, also, does it rise and fall based upon people who are out of the employment market coming back into the market? Does that then cause the job numbers to go up again? And then as more people are employed, it comes down again? Please talk about it.

Mr. BIVENS. Yes, you raise a lot of interesting points.

First, I will say that the observation that jobs are a lagging indicator should absolutely not be taken as "everything is fine, and the jobs will come back," even at the current pace of economic growth. That is not the case. If you want jobs to come back really quickly, you need to boost economic growth that much quicker. And so I would say monetary ease.

But, yes, then the other issue is, you are right. If you look at the number of jobs lost between 2007 and today, it is roughly 7 million. But we should have created well over 3 million in that time period just to keep pace with population growth. Those people who didn't join the labor force over the past 3 years will start joining it if jobs start becoming available again. And so that means the unemployment rate is going to be very, very stubborn in coming down over the next couple of years, even if we get some good output growth, some good employment growth.

But that said, if you look at the agonizingly slow recovery, the 2001 recession, or the very slow recovery of today compared to the quick recovery of the early 1980s; the thing that distinguishes them is that output grew much faster in the 1980s. And part of what explains that output growth, as I say in my written testimony, is the Fed had a lot of room to provide a lot of monetary support to the economy, and they did. They cut interest rates by 10 percent. That sparked both output and jobs growth.

So I think you are right. I think, even as jobs come back, the unemployment rate is going to be very, very stubborn because of all those jobs that were not created. But we really should say we cannot be satisfied with this pace of economic growth.

Mr. GREEN. Thank you.

Let me quickly respond to something that was said about the CRA, and Fannie and Freddie to a certain extent. We do have to make a distinction between causes and contributing factors. The CRA did not create 3/27s, 2/28s, teaser rates that coincided with prepayment penalties, no-doc loans. All of these exotic products were not created by the CRA. It may have been a contributing factor, Fannie may have been a contributing factor, as well as Freddie. But we shouldn't label contributing factors as causes.

These products that were created were created in an environment where you had either a lack of regulation or regulators that were not properly adhering to regulations, following the law, making others follow the law.

Mr. Bevins, could you just comment on this briefly?

Mr. BIVENS. Yes, I think I agree with all of that. The idea that especially Fannie Mae and Freddie Mac were prime drivers of the housing bubble just doesn't work when you look at the evidence.

As the housing bubble gets under way in the early 2000s, as home prices go through the roof, and as these exotic mortgages come online, Fannie and Freddie hemorrhage market share. They lose it to all of the private servicers.

They, unfortunately, start to try to get into the game a little later in the decade, and they shouldn't have. That is clear. But they were not—they were followers. They were absolutely not leaders. And so, the idea that the housing bubble can be laid at their feet, I think, is just wrongheaded.

Mr. GREEN. Thank you, Mr. Chairman.

Chairman PAUL. I now yield 5 minutes to Congressman Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

A while ago, Dr. DiLorenzo, you talked about another bubble coming. Can you elaborate on that just a little bit?

Mr. DiLORENZO. With all the so-called quantitative easing that the Fed is engaging in, it is more of the same policy that created the real estate bubble in the first place. And, at that time, it reallocated a lot of capital into housing and housing-related industries. And so, even if we are not seeing price inflation, we have all this credit out

there, the potential for lending. And, of course, the banks aren't lending as much as a lot of people would like to see them lend.

And so we can't really predict where the next bubble will be, but it was in the stock market—before the housing bubble, there was a stock market bubble. And the Fed responded to that bubble with the policy of low interest rates that created the housing bubble. And so I fear that we are going to have another one because of the amount of money that is being put in circulation is orders of magnitude greater than what the Greenspan Fed did.

But no one can forecast or predict what industry it is going to hit, and so I am afraid I can't help you there. But I am pretty confident that we should be worried about it.

Mr. LUETKEMEYER. What you are saying, though, is that, as a result of the money supply, there will be another bubble, because you are putting into the system some sort of an anomaly that will cause something else to happen somewhere else, such as—

Mr. DiLORENZO. Yes. What happened with real estate is the low interest rates made it much more profitable to invest in long-term investments when interest rates go down. And so, all that money and resources is poured into real estate especially, and it ended up not being sustainable.

Mr. LUETKEMEYER. Do you have a best guess as to where it may happen next?

Mr. DiLORENZO. We have some criteria. Like, one of the reasons why I think it happened in real estate and it was such a catastrophe was all these new products, new financial products, and there were a lot of people who really were confused by them.

And so, just as a general rule, in industries that are relatively new, where there is uncertainty on the side of the consumer, that is where the trouble can be. And so that might lead to a lot of possibilities. But I can't—I don't have any particular industry that I could—maybe Professor Vedder does. I don't.

Mr. VEDDER. I think economists who make predictions are foolish.

Mr. LUETKEMEYER. Are there a lot of Fed economists around?

Mr. VEDDER. A lot of failing economists?

Mr. LUETKEMEYER. No. Aren't there a lot of economists at the Fed?

Mr. VEDDER. There are a lot, and there are a lot of mistakes that are made. Dr. Bivens mentioned with great admiration Christina Romer, whose most famous quote in modern times was her quote early in 2009 when she said, "If the stimulus package passes, the unemployment rate will not go above 8 percent." It is at 9 percent now and has been to 10 percent.

And so, I agree with Tom that we have a ticking time bomb out there, and exactly what the shape of the disaster will be I don't know. We have these mammoth excess reserves at banks.

And Dr. Bivens is actually right, he is absolutely right, we haven't had a huge amount of inflation now. And it is true people aren't spending a lot of money now. Why aren't they spending money? Is it because interest rates are too high? No. It is because they are scared. They are just downright scared. They are scared because, "Oh, we don't know this Obamacare, what it is going to do to us." We have had a regime change. People are scared. We are not used to big changes all at once. And because of that—but we have the potential for a disaster.

Mr. LUETKEMEYER. Okay. Very good. Thank you.

Dr. Bivens, you made a comment a while ago—you were discussing Japan. And they have had many, many influxes of cash into their economic system, QE2, 3, 4, 5, 6, whatever. And you made the point that it was able, as a result of that, to sort of help keep inflation low and interest rates low.

My concern is that their economy still is struggling. And it has been that way for 15, 20 years. If QE2 is supposed to be the end-all, be-all to help us create jobs and get our economy going, how do you correlate those two?

Mr. BIVENS. If you look at Japan, it pretty much had a lost decade of the 1990s, and they were sort of riven with internal debate about just how aggressive to get with monetary policy. And they never actually did, sort of, the unconventional large-scale asset purchases that the Fed has been doing. And—

Mr. LUETKEMEYER. Yes, but didn't they put a lot of money into the system, though?

Mr. BIVENS. They kept interest rates very low, yes.

Mr. LUETKEMEYER. That is my point. My point is, if we go along with the Fed's mindset here and policy of throwing more money into the system and we look at Japan as an example, over many years and on many QE2s or QE1s or whatever, and it didn't really do what we are hoping that this QE2 over here is going to do, what is the thought process that would lead one to believe that ours is going to be different than theirs?

Mr. BIVENS. It won't be different. They only saw a real recovery between 2002 and 2008 when they started doing the QE2s. Before that, they sat at zero, but they did no more. They said, we can't do anything else unconventional, you just don't do that. Everyone— not everyone—many people said, no, the economy needs more.

When they finally started doing more on the monetary side, they actually saw a pretty decent recovery during 2002 to 2008. And then, of course, everybody, globally, went into the great recession.

Mr. LUETKEMEYER. Okay. I see my time is up. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I want to yield 5 minutes now to Congresswoman Hayworth from New York.

Dr. HAYWORTH. I yield my time at this time, Mr. Chairman. Thank you.

Chairman PAUL. Okay. Thank you.

I yield 5 minutes to Congressman Huizenga from Michigan. Is he not here?

Okay. I yield 5 minutes to Congressman Schweikert from Arizona.

Mr. SCHWEIKERT. Thank you, Mr. Chairman, committee members, and witnesses.

I may be one of those who is a little less interested in what is going on now or the last couple of years. I can grab a financial paper and read that. What I am trying to get my head around is a central bank and the monetary policy as we run it as a country for the last, let's call it, 100 years. Does it exacerbate the swings and, therefore, in many ways, unemploy more people and make the troughs much deeper?

For any of you, if someone like myself wanted to sit and read and get better educated, where in the literature do I find the best scholarly, fairest, and most detailed papers? Let's start from the left.

Mr. DiLORENZO. There are several treatises on the history of money and banking. One of them is authored by Richard Timberlake, who has taught economics at the University of Georgia for many years. He is retired now. There is another one by Murray Rothbard, "A History of Money and Banking in the United States." And those are both very good books.

And since you are a very busy Member of Congress, that sounds like a tall order to begin with, but—

Mr. SCHWEIKERT. One of the joys of being from Arizona is that I have a 5-hour flight both ways.

Mr. DiLORENZO. Okay, those are two books I would pick up.

But, also, this weekend there is a conference at Wake Forest University under the title, "The Fed Was a Mistake." And there is a professor from the University of Georgia named George Selgin who is giving a presentation based on an academic paper. And he has looked

at the last hundred years of the Fed's performance, the very question you are asking. And I can put you in touch with Professor Selgin, if you really would like to, for your next flight back to Arizona.

But he was actually at my university last week and gave this presentation, a PowerPoint. And he looked at all the Fed's ostensible goals—price stability, unemployment—and makes the case that the Fed has, in general, failed, although it has not been a dramatic failure, but it was a failure nevertheless to stabilize prices and unemployment.

Mr. SCHWEIKERT. I appreciate it. I know I have only 5 minutes, so I want to, sort of, drive through this.

Mr. VEDDER. Congressman, there is a new history of the Federal Reserve written by a very distinguished scholar, Allan Meltzer of Carnegie Mellon University. It is up through the 1980s or the 1990s. And it is not a complete history, but it is a second volume of a history. He is a very well-renowned monetary scholar. I haven't read the book entirely, but I sat in on a conversation with him and Chairman Volcker a couple of weeks ago at AEI, and it strikes me that it would be a very instructive kind of work, as well.

Mr. SCHWEIKERT. All right.

Mr. BIVENS. Just quickly, spanning the spectrum of ideology, "A Monetary History of the United States," Milton Friedman and Anna Schwartz.

Mr. SCHWEIKERT. Okay, which I actually have.

Mr. BIVENS. "Secrets of the Temple" by William Greider. What is that?

Mr. SCHWEIKERT. No, go on.

Mr. BIVENS. And I would say an absolute classic and very readable, "Manias, Panics, and Crashes" by Charles Kindleberger, formerly of MIT.

Mr. SCHWEIKERT. All right.

Mr. Chairman, witnesses, when I see monetary expansion in the way—let's just take the most current case scenario. And, at the same time, I have been spending tremendous amounts of time reading about the GSEs and the overhang and the mortgages and all the nonperforming debt we have at so many different levels.

Does this monetary policy end up creating a situation where we are not taking nonperforming assets and either writing them down or getting them off the books? And does this end up creating a huge overhang here that this monetization makes it so I can keep them on the books, basically sort of creating sort of a flat line?

Mr. DiLORENZO. Yes, that is exactly what has to happen, the liquidation of all of those bad assets and those bad investments. Historically, that is how recessions end. The bust period, as I said earlier, of the boom-and-bust cycles that we have is really the recovery period where businesses become stronger on the way out, at the end of the recession.

And the Fed seems to have been doing everything it can to delay that process of the liquidation of these bad assets. And I think that is a very bad idea.

Mr. VEDDER. I am going to defer an answer on this because—I think Tom is probably right, but I haven't studied the specifics of the nonperforming assets closely enough to make an informed—

Mr. SCHWEIKERT. All right.
Doctor?

Mr. BIVENS. I don't think it is—I think it is true that some writing down of bad assets is going to be part of a good recovery. I have to say, though, I think the Fed's actions by avoiding deflation, outright falling prices, is actually going to make people climbing out of their debt burdens over the next 5 to 10 years easier.

If you have a mortgage that is fixed at \$150,000, and every other price in the economy starts plummeting around it, then all of a sudden your mortgage payment has just gotten a lot more onerous for you. And so I think, by avoiding deflation, it is actually going to make the debt overhang less of an impediment to recovery in the next 5 to 10 years.

Mr. SCHWEIKERT. Okay.

Mr. Chairman, how much time do I have?

Chairman PAUL. I think your time has expired.

Mr. SCHWEIKERT. Oh. And I was just getting to the really good questions.

Chairman PAUL. If you hang around, you will get another 5 minutes.

Mr. SCHWEIKERT. All right. Thank you.

Chairman PAUL. I would like to yield 5 minutes now to Congressman Renacci from Ohio.

Mr. RENACCI. Thank you, Mr. Chairman.

I have been a small-business owner for 28 years, and I actually created jobs at the age of 24 with very little money in the bank. But I did have the opportunity to have banks willing to lend me money and the opportunity to create over 1,500 jobs in my career.

I want to ask all three gentlemen on the panel whether they believe the new duties given to the Fed in the Dodd-Frank Wall Street

Reform and Consumer Protection Act will have an effect on employment growth. Because I am a believer that the free-market system will create jobs. I am a little concerned about that. I wanted to hear all three of your opinions.

Mr. DiLORENZO. The Fed has a publication that has a title something like, "The Structure and Functions of the Federal Reserve." And it lists, I think, at least 30 or 40 different areas where it regulates different types of financial markets.

And for those of you who are businesspeople, you know that there is a very big cost involved in that. As Professor Vedder mentioned about the Dodd-Frank bill, it is not a free lunch. It is very costly to banks to enforce the provisions of that bill, and they are going to pass on some of the costs to their customers.

And so, expanding the prerogatives of the Fed is going to add more layers of regulation and make the banking business that much more costly. There may be benefits along, but it is going to make it more costly and more costly to consumers, as well, and more burdensome for businesspeople like yourself, in my view.

Mr. VEDDER. The cause of unemployment is too high a price for labor. When labor cost go up too much, employers hire fewer workers. It is the law of demand. It is very simple, not very complicated. I wrote a book about this, which a lot of people have praised to the skies. I thought it was the simplest concept in the world.

Dodd-Frank, other things being equal, does not lower the cost of labor. If anything, it raises costs generally to employers, making it difficult to employ workers. So the net effect of a mechanism like Dodd-Frank is probably to reduce, rather than increase, employment and, thus, increase unemployment in the United States.

Mr. BIVENS. I would say quickly, it is going to have little effect on what happens to unemployment.

I will make two distinctions here. One, I have been mostly talking about, sort of, monetary ease and interest rates and I think that the Fed has mostly gotten it right, at least in direction. It is true, I do think that the Fed and every other institution in the 2000s had too light a regulatory touch. And so I think booms and busts are caused by light regulatory touches.

I think the way that Dodd-Frank empowers the Fed to actually provide some tighter regulation, I think that is going to be a good thing, reduce boom-and-bust cycles in the future. And so I think it is an improvement.

Mr. RENACCI. Thank you, Mr. Chairman. I yield back.

Chairman PAUL. I thank you.

We will now go into a second round of questioning.

I would like to address this question to Dr. Bivens. This has to do with the debt that we have and its relationship to monetary policy. Even the Chairman of the Fed, Chairman Bernanke, has indicated that he thinks debt and deficits are a problem and has admonished the Congress to get their budget under control.

Do you have similar concerns? Is there a limit to how much debt we can have and how high these deficits should run? Or is that of no concern at all when we are in the midst of a recession?

Mr. BIVENS. I absolutely have concerns over, sort of, the long-run debt limits that are on the United States. And I think we should definitely move to, sort of, long-run, closer budget balance than is currently forecast.

I will say, it is not a concern of mine over the next, say, 2 years. To me, what the economy needs now is spending power, support from both the fiscal and monetary side. Some moving in the next couple of years to radically reduce deficits and debt would be very counterproductive.

But, absolutely, in longer-run periods, as unemployment returns to a tolerable level, that should absolutely be a concern.

Chairman PAUL. Thank you.

I would like to suggest to Dr. DiLorenzo and Dr. Vedder that there is a connection between monetary policy and deficits. Because if we didn't have the facilitator there, the ability of the Fed to buy debt and manipulate interest rates, wouldn't there be a self-mechanism where Congress would literally be unable to spend the money because interest rates would go up? And interest rates—of course nobody wants them high and they are bad politics, but wouldn't that be a way of holding a check on government?

And, really, it isn't just the Congress; it is the fact that the monetary system there accommodates the Congress because there is a lot of bipartisanship in the Congress. Sometimes, there are big-government conservatives who like to spend money, and sometimes, there are big-government liberals who like to spend money, and there is too much bipartisanship. They get together and they spend this money. And they figure, if we can get away with it, we are just going to allow the Fed to monetize this.

And, for a long time, they can get away with it. And they have done this, especially since 1971, until they finally got this huge bubble that finally burst, and we are in the midst of this great recession. For those who are employed, it is a depression.

But do you agree with that connection, that the Fed has something to do with encouraging the Fed to act irresponsibly?

Mr. DiLORENZO. I would. I think you hit the nail on the head. I would agree completely with that.

And, of course, when the Fed gets involved, it reduces the perceived cost of government. If you raise taxes to pay for government services, it is much more explicit and hits you in the face; you get a bill. But when the Fed prints money and expands the money supply, it has what economists call a “fiscal illusion effect.” And it makes it that much easier for this bipartisanship to occur that you referred to.

Chairman PAUL. Dr. Vedder?

Mr. VEDDER. I agree with Dr. DiLorenzo and with your analysis, Dr. Paul. And, indeed, in my statement, I was worried I was talking a little bit too much about fiscal policy and debt, but I was doing it for exactly the reasons you indicated. I think there is a real connection.

And throughout the history of the Fed, even going back before 1951, when the Fed was tied into the Treasury to keep interest rates down during the war, the Fed just keeping buying bonds and so forth. It was a deliberate policy to help the government manage its fiscal affairs. The Fed accommodated it by monetizing a lot of the debt.

This has been going on and on and on. And it will go on as long as Congressmen have to be re-elected every 2 years and as long as the Fed has some connection to the Federal Government. It is inevitable that it will go on.

Chairman PAUL. Thank you.

This is a question for Dr. Bivens. This has to do with a reference to what Dr. Vedder said earlier. He said that part of the reason we go into recessions is because labor costs get too high. Of course, nobody likes to hear that.

But if this is true—and I believe Keynes spoke to this at one time, because labor costs get too high, but you can't go and, say, cut your labor. You can't cut nominal costs. But he argued that real costs could go down by inflation. And you raise it and you lower the value of the dollar, so real cost goes down. And that helps you get out of the recession.

Do you buy into that argument? Or how would you look at that, on the need to get labor costs down?

Mr. BIVENS. I actually don't buy into that argument.

The way I read Keynes is, sort of, as follows: that the first shot fired against his idea, that the way to fight recessions is to try to have the Fed and to have fiscal policymakers add more support to the economy, the first shot was, no, no, you just need to get the price of

labor down. And he said basically, one, it is hard to get the price of labor down, even if all workers in the economy said, “Yes, we all agree to a 10 percent wage cut today, cut our wages,” all that would do is lead to a 10 percent fall in prices, as well. So the real wage actually would not fall much. It is actually very hard—

Chairman PAUL. Wouldn’t that be good? Wouldn’t that be good, to see prices come down?

Mr. BIVENS. No, because—

Chairman PAUL. It would help the consumer.

Mr. BIVENS. I am sorry?

Chairman PAUL. It would help the consumer, with prices going— what is so bad about prices going down?

Mr. BIVENS. Because their wages went down the exact same amount, and so their purchasing power has not changed at all.

Chairman PAUL. Yes, but—

Mr. BIVENS. What you would do is you would make the value of their debt more onerous. Basically, by increasing the value of debt, again, you have a \$150,000 fixed mortgage and all of a sudden your wage is 10 percent lower, all of a sudden you are more constrained by your nominal debt payments. And that will make the economy worse.

And so, Keynes is pretty clear, wage-cutting is absolutely not the way to get out of a recession.

Chairman PAUL. Okay.

I now will yield 5 minutes to Congressman Clay.

Mr. CLAY. Thank you, Mr. Chairman.

And, Dr. Bivens, we were told by Dr. Vedder that private markets handled mortgages and other lending for generations successfully without Federal intervention. Again, the data shows otherwise.

According to the Congressional Research Service, during the years 1920 through 1945, the last period of time when the Federal Government had a very small role in homeownership, rates were only between 40 and 50 percent of homeownership nationally. Now that rate, at a time when the Federal Government is supposedly inappropriately involved, is 67 percent. The homeownership rate was even higher within the last few years, as high as 69 percent.

So I don’t see how the numbers back up these claims about supposed excessive, expansionary policies on home lending. Can you help explain this error?

Mr. BIVENS. I think my assessment, sort of, agrees with yours, that I think the government support of homeownership played a key role in having that increase a lot in the post-war era. I am willing to quibble a bit that maybe some of the homeownership rates we saw in

2006, 2007 were bubble-inflated. But the trend is clear as day: With the introduction of Fannie and Freddie, with government support for homeownership, those rates rose pretty quickly.

Mr. CLAY. Thank you for that response.

Do you think there is value in having the Fed maintain a dual mandate for monetary policy?

Mr. BIVENS. I do, and especially if the alternative is to drop the full employment mandate. I think that would be a disaster.

To my mind, if there is a criticism of the Fed over a longer run, the last 30 years, it is that they have actually allowed that part of their dual mandate, the full employment part of it, to sort of go by the wayside and focused excessively on the price stability part.

And so, a Fed that actually took that dual mandate seriously, I think, would be a very good thing.

Mr. CLAY. Do you think that if the Fed were operating with a single price stability mandate, that its execution of monetary policy since the onset of the financial crisis of September of 2008 would have been materially different or would have led to significantly different outcomes in the economy?

Mr. BIVENS. It is a good question. I think where that single mandate of price stability would really be a bad thing is during expansions.

The irony here is that most people think the Fed have something like a 1 to 2 percent inflation target, seems to be—they are pretty consistently missing that, on the low side, these days. Inflation rates are coming in well below 1 percent.

So even if they only had a commitment to 1½ percent inflation—forget the employment side—if that was their only commitment, they should still loosen. And so that is how bad the economy is today. Even if all they had was a pretty conservative price target, they should still be providing all the support they are and maybe even a little more.

Mr. CLAY. Thank you for that response.

And, Mr. Chairman, I yield back the balance of my time.

Chairman PAUL. Thank you.

I now yield 5 minutes to Mr. Huizenga from Michigan.

Mr. HUIZENGA. Thank you, Mr. Chairman. I appreciate that.

And my colleague from Missouri just, actually, started going down a road that I wanted to explore a little bit.

Dr. Vedder, from the historical perspective, I think it would be helpful to have a very brief explanation about the dual mandate. How long has it been in place? Why was it really implemented?

And then, moving on to all three of you, is the dual mandate a proper mandate? I think Dr. Bivens was starting to talk a little bit about that, but I would like to hear the remainder of the panel's views on that.

Mr. VEDDER. The dual mandate—when I think of the history of this, I think first of the Employment Act of 1946, where the government committed itself to a policy of encouraging full employment. And even in that bill, price stability was mentioned, and it was part of the so-called mandate. Again, it was more a statement of intent rather than a prescriptive statement.

The Humphrey-Hawkins bill, which I think was, what, 1977 or something like that, was a more explicit widening of that mandate and made much more explicit.

And all of this precedes, sort of—there was almost implicit in some of this, a lot of this, as relates to what we might call the “Phillips curve” idea, that if you have price stability—can you have price stability and full employment? That is the empirical issue.

We can have that discussion. I do not think that the manipulation of prices in the long run impacts on employment, period. I think it does in the short run. I have written a book which indicates it does. There is a Phillips curve in the short run sometimes, but in the long run—higher inflation, lower unemployment. But in the long run, I don't see that that relationship exists.

Mr. DiLORENZO. In terms of the price stability, we have price indexes that go all the way back to the 1790s or even a few years before that. And the price level in 1913, when the Fed was created, was roughly the same as it was in 1790, with some ups and downs. But ever since the Fed was created, the price level is 22 times higher now. So when I hear the idea that the Fed has a mandate to stabilize prices, it is almost farcical.

And I don't think, overall, it has done a very good job in stabilizing employment either. You can mandate that is the Fed's job, but I think, historically, it hasn't done a very good job in either one.

Mr. BIVENS. Yes, in regards to that, I will say that I would much rather have average economic growth and the frequency of duration of recessions we have had post-1914 than in the 150 years prior. Basically, some moderate rate of inflation is the price you pay for having economic growth and fighting recessions in a serious way.

Again, to the degree that there has been a problem with the dual mandate over the past 25, 30 years, it has been that one-half of it, the full employment commitment, has really been sort of the neglected part.

Mr. HUIZENGA. So if I am hearing you, Dr. Bivens, you want to see the dual mandate remain, correct?

Mr. BIVENS. Yes.

Mr. HUIZENGA. Okay.

And I guess, the other two panelists, do you believe it is appropriate for that language to remain in there as goals and objectives? Dr. Vedder and Dr. DiLorenzo?

Mr. VEDDER. I think we ought to repeal the Humphrey-Hawkins Act, period, just do away with it.

Mr. DILorenzo. I agree with that. We have mentioned Christina Romer several times. One of her academic articles revises some data and shows that the business cycle was actually not more unstable in the pre-Fed era in the 19th Century than it was after the pre-Fed era. So you can't even make the case anymore, according to Christina Romer's research, that the Fed has done anything to stabilize the business cycle compared to the bad system we had, the admittedly bad, flawed system we had before the Fed came into being.

Mr. HUIZENGA. Dr. Bivens, do you care to address Humphrey-Hawkins at all or any of the other points?

Mr. BIVENS. First, it was my understanding that Humphrey-Hawkins was actually no longer in effect. Am I wrong on that? Did it lapse in 2005 or 2006?

Mr. HUIZENGA. I wasn't here.

Mr. BIVENS. Okay. Sorry. So I am not, you know—I think the dual mandate should absolutely be part of what the Fed is tasked to do.

Mr. HUIZENGA. Okay.

Thank you, Mr. Chairman. I yield back my time.

Chairman PAUL. Thank you.

I now yield 5 minutes to Congresswoman Maloney from New York, who has joined us.

Mrs. MALONEY. Thank you so much, Mr. Chairman, for this hearing.

And I thank all the panelists for their thoughtful testimony that they delivered to our offices.

I would like to ask Dr. Vedder to comment on some of the facts that were raised in Dr. Bivens's testimony. In his testimony, he cited a study estimating that the \$600 billion in Treasury asset purchases is likely to boost GDP by up to a full percentage point, which translates into roughly 1 million full-time jobs.

That same study also stated that the full effect of all large-scale asset purchases undertaken by the Federal Reserve probably supported nearly 3 million jobs and will have lowered measured unem-

ployment by 1.5 percentage points through the end of 2012. Other economists and researchers have supported this with similar studies and results.

And so my question to Dr. Vedder is, isn't this solid research, solid evidence that sound monetary policy does help create jobs?

Mr. VEDDER. I haven't read the studies, to be honest, Congresswoman.

But I will say this: Since the recession began in late 2007, the Fed has followed the most expansionary monetary policy in, I think, its history in a situation like this. It has created a trillion dollars in excess reserves. It has done a whole variety of efforts and exertions to bail out companies and so forth in distress. And yet, we have fewer people working today than we did when this effort began. We have the worst employment record of any major downturn since the Great Depression.

And so I can't see any positive association between Federal Reserve monetary policy and job creation based on the reading of the evidence in a period when we have a 9 percent unemployment rate and we have, what, 15 million—"X" number of people out of work. It is kind of hard to get warm and fuzzy about the Fed's success rate with its monetary policy in recent times.

Mrs. MALONEY. May I ask unanimous consent to place this study in the record?

Chairman PAUL. Without objection, it is so ordered.

Mrs. MALONEY. And also to state that Christina Romer and others, other economists, including major economists, have testified that the economic shocks that our country has suffered are 3 times worse than the Great Depression. As the daughter of parents who suffered through the Great Depression, no matter how horrible this recession is or has been, it is nothing like what our country went through in the Great Depression.

So I would like to ask Dr. Bivens, Dr. Vedder mentioned that he believes that there should be constitutional constraints placed on the Federal Reserve's authority. Can you comment on that? And do you agree?

Mr. BIVENS. First, I would just like to reiterate your point. It is bad out there in the U.S. economy; the great recession is really bad. The shock to the private sector that happened with the burst in the housing bubble is absolutely enormous. Like you say, researchers in many places say it was bigger than what led to, actually, the Great Depression. And I think it was the aggressive response of policymakers across-the-board that kept it from being so.

In terms of constitutional limits on the Fed, I would like a lot more detail. If those limits would impede them from fighting future recessions as aggressively as they fought this one, I think that would be a very bad thing.

I think it is one thing to say this has been the most aggressive response ever and we still have 9 percent unemployment. It is kind of like, imagine a town that is building a levee wall in response to a flood. You can say, "It is the biggest levee we ever built, but the water keeps coming over it. We should stop. It is bigger than we have ever built." You have to build a wall as big as the shock.

Mrs. MALONEY. Okay. Thank you.

Last week, Chairman Bernanke gave a speech at the National Press Club. I ask unanimous consent to place that speech in the record.

Chairman PAUL. Without objection, it is so ordered.

Mrs. MALONEY. And he stated that, although economic growth will probably increase this year, unemployment is expected to remain above and inflation below the levels that policymakers have judged to foster maximum employment and price stability.

Since the Fed's rate has been near zero since December 2008, the Fed has been using alternative tools to provide additional monetary accommodation. Specifically, the Fed has been purchasing longer-term securities on the open market, or in common speech it has been called quantitative easing. And the goal of this has been to put downward pressure directly on longer-term interest rates.

Chairman Bernanke—and I want to ask the panelists if they could respond to whether or not they agree with his statement. He stated that, "A wide range of market indicators supports the view that the Federal Reserve's securities purchases have been effective at easing financial conditions."

I would like the panel to comment on whether they agree or disagree. I think it is an important question.

Mr. DILORENZO. They have to have had an effect in some industries, of course, because wherever the money goes to first. But, obviously, it has had very little effect on overall unemployment, since the unemployment rate remains stuck around 9 percent or more, depending on how it is measured.

So, yes, it has had some effect on some industries. That is why the stock market is up, some of the big corporations have done well. But unemployment is not being very successful.

Mrs. MALONEY. Could you also comment on what would have happened if we had not engaged in quantitative easing with the Fed's fund rate close to zero? What would have happened?

Mr. DiLORENZO. Since you are, sort of, looking at me, it is not a coincidence, I don't think, that we have had somewhat of an explosion in government at all levels—the Fed printing money, government spending, government debt, and we are stuck at 9 percent unemployment or more. Because all of this diverts resources in the direction of government-directed spending in resource allocation away from the entrepreneurs and the business owners and the consumers, who know a lot better what to do with that money than government bureaucrats and politicians do.

And so I think we would be much worse off—as we said earlier before you came, Congresswoman, that we may be sowing the seeds of another bubble with all this quantitative easing.

Mrs. MALONEY. Dr. Bivens, would you comment briefly?

Mr. BIVENS. Yes, very briefly. If we had not done the quantitative easing, long-term interest rates would be higher, and we would have less business investment and consumer spending.

And I would just note, business investment has performed very well for the past 5 or 6 quarters, growing at about 15 percent at an annualized rate. So we would have less of that if we had not done the quantitative easing.

Mrs. MALONEY. My time has expired.

Chairman PAUL. Thank you.

I now yield 5 minutes to Congressman Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you again.

And I again want to start with an e-mail from my district and then get to a question.

This is Mr. Gordon Hansen from New Bern, North Carolina: “Thank you for requesting my opinion with regard to the Federal Reserve. My initial reaction to the Fed's policy to printing more money is, how is the Fed going to stop inflation? Since the beginning of this century, standard of living has decreased because fuel increased so rapidly, the middle-class wages could not keep up, and no one seems to notice or care.”

This is America talking, quite frankly. And we have been elected by the people from all over this country to represent their feelings and their needs in Washington, D.C.

I have great respect for each and every one of you. You are very learned men, much more than I.

The frustration that I see back in my district and I feel is that, when I was born in 1943—and thank you for recognizing my birthday tomorrow—when I was born in 1943, this country was in war and coming out of war. This country impressed the world with its greatness after the war, of how we were in a position where we were creating things, we were manufacturing things.

And that gets me to the point that I am one of the few Republicans—I am opposed to any trade agreement at this time. I am not adamantly opposed to trade agreements, but when you are in a deep recession, which everybody has acknowledged, why are we passing the Korean trade agreement so we can create 70,000 jobs, I believe has been said. I am trying to verify that, by the way. I don't believe it.

But the point is, this country is a debtor nation. Now, we can pump it up, from the Feds to everybody else can put money out here. But, as everybody is saying, the people understand what is happening. They fully understand what is happening.

So my point is this. My State of North Carolina, from 1999 until 2009, lost 376,000 manufacturing jobs. What would have happened, in your opinion—I have a two-part question—what would have happened, in your opinion, if we had not passed NAFTA, CAFTA, and all of these trade agreements that supposedly were going to create more jobs for the American people?

I think greed is probably the most dangerous thing affecting America. Greed will destroy an individual, it will destroy a family, it will destroy a country. And my humble opinion is that greed has put America in this position, not only because of trade agreements.

But, in your learned minds, give me an example of nations that at one time were economically strong and yet, because of some decision such as free trade, that these nations—and maybe it is not exactly the same comparison—but these nations, in my opinion—at one time, Spain ruled the world. At one time, France ruled the world. At one time, Rome ruled the world. At one time, America was the dominant power. Now it is China. And we are slaves to China. We owe them over \$900 billion.

From an economic standpoint, where do you see America? Are we at a point that America needs to understand that we cannot come back to be a strong power in the world? Are we at a point where, yes, we will have somewhat of a quality of lifestyle, but it is never going to go back, it is not even going to come close to going back to what it was?

I don't think you can continue to sell yourself out to other nations and expect to be strong economically or militarily.

Any response?

Mr. DiLORENZO. Sir, the countries you mentioned, the Spanish empire and so forth, they essentially bankrupted themselves with empire. And, in my view, we are a long way down that road with our military empire all around the world, too. And so I think that is a contributing factor.

And the only other thing I will say is, I am a free-market economist, but I opposed NAFTA at the time because when I first saw it, it was, like, a thousand pages of government regulations. And I didn't think it really constituted free trade at all, but government-managed trade. And I guess you would you have to do a careful study of how it has been managed over the past 15 years or so to really know its effects. But I wouldn't blame the problems on free trade, because I don't think NAFTA was a free-trade agreement, despite the words "free trade."

Mr. JONES. Thank you.

Mr. VEDDER. I more or less agree with Professor DiLorenzo. I do believe in free trade as a concept. I think most economists do. This is one thing economists of all persuasions more or less agree with, but we do put a lot of provisions in these bills that get far afield from the issue of trade. And I think that is a source of concern.

As an economic historian, I would have to note that nations have rises and falls in the way people work and what they do. We had a rise in manufacturing in the 19th and early 20th centuries because of what us economists say, we had a comparative advantage in manufacturing. We have lost some of that comparative advantage today. Some of it has to do with government policies. Some of it has to do with other things that have nothing do with what the

U.S. Government does.

I don't personally worry too much about the loss of manufacturing jobs per se. What I worry about is the loss of jobs in totality, the productivity of labor in its totality, and so forth. And that is, I think, a broader concern.

Mr. BIVENS. You asked a very big question, so let me just try to be very brief.

I think it is absolutely true that if we want different results, if we want living standards to continue to grow at a reasonable rate in the United States for the broad workforce, we better start doing lots of things differently. And one of those things we should do differently is our international economic policy.

I am a little shocked to agree; I also did not like NAFTA. I think we need to think about exchange rates very differently. And so we better start doing things differently if we want to continue to grow.

Mr. JONES. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I will yield 5 minutes now to Mr. Green from Texas.

Mr. GREEN. Thank you, Mr. Chairman.

Let's talk for just a moment about causal connections as opposed to coincidence. Last summer, when the American Recovery and Reinvestment Act was at its zenith, when it was providing maximum benefit, we also at that time saw the turnaround in terms of a recovery in the economy.

Mr. Bivens, was that just coincidence or is there a causal connection?

Mr. BIVENS. I definitely believe there is a causal connection. Like you say, the Recovery Act was providing a sort of maximal boost to the U.S. economy at that point. There are a lot of estimates that said, without the support provided by the Recovery Act, we would have seen zero growth for about 3 or 4 quarters even after the official recession ended.

Mr. GREEN. Let's move now to the FDIC.

Mr. DiLorenzo, do you, sir, believe that the FDIC serves a meaningful purpose with its ability to wind down banks that are failing?

Mr. DiLORENZO. With its ability to close down banks?

Mr. GREEN. That are failing. When they are failing, the FDIC moves in, usually on a Friday, they wind down the bank, and then on Monday there is a new bank that opens, perhaps under the same name, or a new name, but they do reopen, and they move the assets. And they have the ability to do this with a premium that is paid by banks so as not to interrupt the economy.

Do you agree with this?

Mr. DiLORENZO. I don't think we need a government institution to do that. That could be handled by the courts, I would think. But it is probably one of the least offensive things the FDIC—

Mr. GREEN. You would not have the FDIC, you would have the courts deal with the banks and the runs that would be created on banks? You would have multiple banks, as was the case when we were starting the great recession, that were challenged, and you would just simply let all of these banks go into bankruptcy? Do you not see that by doing this we would have runs, greater runs on banks that would create greater stress on the economy?

Mr. DiLORENZO. I am not sure—before we had an FDIC, I am not sure you could make the case that the bank runs were worse throughout history.

Mr. GREEN. They were. Before we had the FDIC, we had the Great Depression.

Mr. DiLORENZO. Yes, for a few short periods. But if you look at the long stretch of history, I don't think—you would have a much tougher time making that case.

Mr. GREEN. I would say to you that a few short periods that devastate the economy to the extent that the Great Depression did is something that would not go unnoticed.

Mr. Bivens, do you think the FDIC serves a meaningful purpose?

Mr. BIVENS. Absolutely, for the reasons you say. They make people secure in their deposits, and so you don't see the runs.

Mr. GREEN. Mr. Vedder, do you think the FDIC serves a meaningful purpose?

Mr. VEDDER. I wrote my doctoral dissertation on the FDIC. I think, generally, it has been one of the more successful government agencies. I do think it needs, however—

Mr. GREEN. Excuse me, since my time is limited. Thank you. Let me just follow up with this.

Mr. VEDDER. It needs—

Mr. GREEN. You will get an opportunity.

Let me follow up with this. Given that you think it serves a meaningful purpose—and I agree with you—let us then conclude something else. Do you think that we should be able to wind down these AIGs of the world when they can provide systemic risk to the economy? Or should they just be allowed to bring the economy down?

The AIGs of the world—you are familiar with AIG?

Mr. VEDDER. What do you mean by “wind them down?” Why don't we let them go into bankruptcy? What is wrong with bankruptcy?

Mr. GREEN. Why not let the banks go into bankruptcy? That is the point. You just said that the FDIC protects banks. If you are going to prevent banks from going into bankruptcy, why not try to salvage the economy and prevent the types of stress that can be caused by having these institutions that create systemic risk, by preventing them from just simply going into bankruptcy and creating all of these problems for us?

The point I am making is, Dodd-Frank deals with that. If you don't like Dodd-Frank, then you don't like a means by which we deal with “too-big-to-fail” institutions. Most people think that we need to do something about these institutions that were labeled “too-big-to-

fail.” Dodd-Frank addresses this. Dodd-Frank addresses other aspects.

You mentioned credit cards. Do you think there ought to be something called universal default? A lot of consumers are sitting in here. Are you familiar with that term, “universal default?”

Mr. VEDDER. I am familiar with the term, yes.

Mr. GREEN. Are you familiar with it? Do you think we ought to have universal default?

Mr. VEDDER. I haven't—I don't have a position on that.

Mr. GREEN. I do. I don't think consumers ought to be in a position such that, because they have problems in one place, credit card companies can simply decide, we are going to declare you in default with us because you had a problem someplace else, especially in this economy. Dodd-Frank deals with this.

Mr. VEDDER. Does it deal with Fannie Mae or Freddie Mac?

Mr. GREEN. Now, let me ask you one more. I have one more for you. I believe you are a gold standard person. Is that a fair statement, based upon your comments and your writings?

Mr. VEDDER. I think the gold standard—we did well when we were on the gold standard.

Mr. GREEN. And if we return to it, if we return to the gold standard, what would happen?

Mr. VEDDER. Pardon?

Mr. GREEN. What would happen if we returned to the gold standard?

Mr. VEDDER. It would be very—the return to the gold standard is not—if we did it and if the world did it, I think we would be a better place. I think we would be a better place. But I don't see it happening in the short term.

Mr. GREEN. Let's assume that you have made a prediction that we would be in a better place. Is that a fair statement?

Mr. VEDDER. Yes.

Mr. GREEN. Now, what did you say about people who make predictions earlier?

Mr. VEDDER. Economists are lousy predictors.

Mr. GREEN. What did you say about the people who make predictions?

Mr. VEDDER. So why are you sitting here listening to me, Congressman?

Mr. GREEN. I am listening to you because you are here as a person who merits some attention, given that you are before Congress.

Now, tell me, what did you say about people who make predictions?

Mr. VEDDER. What did I say?

Mr. GREEN. Yes, sir. You don't recall?

Mr. VEDDER. I said that some people, some economists make bad predictions, and some of them make good predictions.

Mr. GREEN. You had an "F" word that you used.

Mr. VEDDER. I did?

Mr. GREEN. Yes.

Mr. VEDDER. I don't remember.

Mr. GREEN. I do. You said they were foolish.

Mr. VEDDER. Foolish?

Mr. GREEN. Yes, sir.

Mr. VEDDER. Oh, okay.

Mr. GREEN. All right. Thank you for your prediction.

Mr. VEDDER. Okay.

Mr. GREEN. I yield back.

Chairman PAUL. I yield myself 5 minutes for closing remarks and anybody else who wants to have another question.

I do want to bring up the subject generally of QE2. There is a strong disagreement between those who object to it and Dr. Bivens, who thought that it really has helped a whole lot. And I don't think we will resolve that.

But, that was part of the program of injecting \$4 trillion into the economy, with the argument that it has done very, very little at all and, some of us believe, maybe harm in the long run. But the \$4 trillion, actually we can argue that it did help prevent a depression for some people, mainly Wall Street and the big bankers and some corporations. They were able to benefit. And who came out on the short end? The people who lost their jobs and lost their houses and lost their mortgages. So the whole thing didn't work if you were trying to help the poor people. I think you were destroying the poor people while it was nothing more than corporate welfare—\$4 trillion, and we have very little to show for it.

But the question I want to address is, there is a little bit of talk—I don't think it is serious—about unwinding this. We bought up all the trash, all the worthless assets. And the taxpayers own this now, and it is on the books. We can't fully audit the Fed. We can't find out what they are doing. And now they are talking about, maybe we ought to unwind this. That is, we are going to sell that trash. Who is going to buy it? How do we do it? And when do we do it?

Chairman Bernanke says it is not time yet, but he is really cocky about this. He knows when it is, and he is going to do it, and he is going to do it smoothly. And what did he say about problems coming? His anticipation, his whole idea that when a crisis comes and when there is a recession, I can take care of it, I know how to inject money in just unlimited amounts. And I tell you what, he did, unlimited amounts, the largest ever. And the jury may be still out on how bad a failure it is going to be, but the time will come.

But the question is, what are we going to do about unwinding? Are they really serious? And what would that do to employment? If they did it now—they are not going to dare do it now, with unemployment rates, real unemployment rates up to 22 percent, because it would do that horrible thing of raising interest rates. So that is not going to happen.

What they are going to do is continue to look at the CPI. That is where Bernanke is going to get his signal. When the CPI goes up and we have price inflation, that is when we have to unwind.

And he is so overconfident about this. You talk about predictions and braggadocio, “I can take care of it.” Like, he didn’t know it was coming, he would take care of it if it came, and now he says, “I know exactly when to turn it off.” I just think that is such dangerous talk.

By looking at the CPI, what does he do? He takes the CPI, he excludes food and energy, and says, gee, CPI isn’t going up, and he has price stability. There is no more price stability in this country when you look at what happens to the bond prices and the housing prices and commodity prices. There is nothing. What is this stuff about unwinding?

I would like a comment from each one of you on what is going to happen, or if it happens, and what are the abilities of truly unwinding this and really saving us from a calamity?

First, Dr. DiLorenzo.

Mr. DiLORENZO. Congressman, what you just said reminds me of what Friedrich Hayek won the Nobel Prize for in 1974. It is summarized in a book of his called, “The Fatal Conceit.” And it is essentially a critique of this whole idea that one man or one group or one committee could, sort of, essentially plan an economy, whether it is by manipulating interest rates or the price level or whatever else. And I see no reason why we Americans are better at central planning today than the Russians were in the 20th Century.

That is basically the mindset that you are talking about when you are talking about Chairman Bernanke claiming to be able to manipulate the economy in these ways. I don’t see any way out. If he

had a smooth exit strategy, I assume he would be taking it right now. And so I see nothing but bad things that could possibly happen from winding down, as you say.

Chairman PAUL. Dr. Vedder?

Mr. VEDDER. To me, the supreme irony of all of what you just said and what Professor DiLorenzo said is, why was the Fed created in the first place? I think if you read the history of the period, after the panic of 1907—the panic of 1907, there was no central bank. And so, what happened were a bunch of private bankers, led by J.P. Morgan, sort of organized an ad hoc committee to sort of save banks and prevent them from failing. And by the way, it achieved some success in doing that.

But afterwards, people said we can't have a single individual serve as sort of the guru to save our economy, like J.P. Morgan. We have to create a central bank and decentralize it into 12 banks and all, to keep the power diffuse.

And we moved away from that diffusion of power back to the centralization of power. Now it is Bernanke. At least J.P. Morgan had some skin in the game. He had some money in the game. When the banks failed, he failed. What does Bernanke have in the game? He gets his salary anyway and then goes off to work for Goldman Sachs.

So I think that is it. And I have no idea how it is going to be unwound. Because it is an historically unprecedented situation, I can't predict. But I am uneasy. And that is why markets are uneasy. And that is why prices—that is why we have the problems we have. That is why bond prices are starting to go up. That is why Moody's is starting to say, should we give AAA bond rating to the U.S. Government securities? Things like that. People are getting uneasy.

Chairman PAUL. Maybe Dr. Bivens will be more optimistic.

Mr. BIVENS. Slightly, yes. It is not a trivial challenge about how this is all going to be unwound. But I will say just two things quickly.

One, it is going to actually feel like a luxurious decision if we can start unwinding this and the unemployment rate is much lower. And so, to my mind, the proper focus now is on providing maximal support to job growth in the economy, not worrying so much about how this is unwound.

And two, I have to say, I am sure there will be mistakes made as we do it. I am sure there will be some targets missed. But he has actually—Ben Bernanke and the rest of the Fed has laid out a strategy for how this will be unwound. They have talked about the instruments they are going to use, the levers. Is it going to work perfectly? Are they going to hit forecasts to the decimal point?

Absolutely not. But, to my mind, the fact that they are focused much more on support and job growth in the near term says very good things about what they are doing.

Chairman PAUL. Thank you.

Mr. Clay, I yield to you for another 5 minutes. Or Mr. Green.

Mr. CLAY. Mr. Chairman, I will yield to Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman. And I thank the ranking member, as well.

I would close by reminding us that we have seen, I am sure many of you, the movie, “Back to the Future.” Based upon what I have heard today, there are some who would take us “forward to the past”—back to the past, or forward to the past, when we didn’t have a Fed, when we didn’t have FDIC, when we did not have VA, when we did not have many of the institutions that have helped people move into the middle class. Home ownership, 30-year mortgages—these things have made a difference in the lives of the American people.

And I would caution us, before we make decisions to eliminate institutions that have served us well, perhaps we should consider the unintended consequences of such a massive decision. And I think we ought to proceed with a great degree of caution when we say things like, we can live without the Fed, without the FDIC. I am indicating VA; no one said it. But when you are on this track, it appears to me that you may be talking about the VA, as well.

Many of these institutions have served a good many middle-class people well, and we ought to move with caution. I thank you for the time, and I yield back. Chairman PAUL. The hearing is adjourned.

{Whereupon, at 12:15 p.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

For the past three decades, the Federal Reserve has been tasked with a dual mandate: keeping prices stable and maximizing employment. Influenced by Keynesian economics and the supposed tradeoff between inflation and unemployment, the dual mandate relies on the idea that a handful of experts can successfully steer the American economy and create economic growth. This has forced upon us an interventionist monetary policy that believes that creation of money out of thin air is the cure for all that ails us.

This policy relies not only on the fatal conceit of believing in the wisdom of supposed experts, but also on numerical chicanery. Rather than understanding inflation in the classical sense as a monetary phenomenon-- an increase in the money supply- it has been redefined as an increase in the Consumer Price Index (CPI). The CPI is calculated based upon a weighted basket of goods which is constantly fluctuating, allowing for manipulation of the index to keep inflation expectations low. Employment figures are much the same, relying on survey data, seasonal adjustments, and birth/death models, while the major focus remains on the unemployment rate. Of course, the unemployment rate can fall as discouraged workers drop out of the labor market altogether, leading to the phenomenon of a falling unemployment rate with no job growth.

In terms of keeping stable prices, the Fed has failed miserably. According to the government's own CPI calculators, it takes \$2.65 today to purchase what cost one dollar in 1980. And since its creation in 1913, the Federal Reserve has presided over a 98% decline in the dollar's purchasing power. Recent news stories have offered numerous anecdotes of prices rising far faster than would be expected if official inflation figures were accurate. With commodities, oil, or food prices, speculation is that the Federal Reserve's quantitative easing is leading to hot money flooding world markets. The average American family sees the price of milk, eggs, and meat increasing, while packaged household goods decrease in size rather than price. People around the world are reacting against the specter of sharp price increases. While the focus of this hearing does not deal with inflation or even specifically with the dual mandate, this subcommittee undoubtedly will hold further hearings on these topics in the future.

Today's hearing focuses on jobs, and the inability of the Federal Reserve's monetary policy to create jobs or to achieve maximum employment. The stagflation of the 1970s should have taught us this lesson already. The Federal Reserve's loose monetary policy, rather than leading to a tradeoff between jobs and inflation, instead led to both high inflation and high unemployment. Hopefully we will learn the lesson this time around.

Of course loose fiscal policy has failed to create jobs too. Consider that we had a \$700 billion TARP program, nearly \$1 trillion in stimulus spending, a government takeover of General Motors, and hundreds of billions of dollars of guarantees to Fannie Mae, Freddie Mac, HUD, FDIC, etc. On top of those programs the Federal Reserve has provided over \$4 trillion worth of assistance over the past few years through its credit facilities, purchases of mortgage-backed securities, and now its second round of quantitative easing. Yet even after all these trillions of dollars of spending and bailouts, total nonfarm payroll employment is still seven million jobs lower than it was before this crisis began. Since employment levels bottomed out last year, the government reports that roughly one million jobs have been created. This means that each job created has cost upwards of five million dollars. We probably would have been better off just printing out these trillions of dollars and throwing them out the window of a helicopter.

In this same period of time that we lost seven million jobs, the total U.S. population has increased by nine million people. We would expect that roughly four million of these people should have been

employed, so we are really dealing with eleven million fewer employed people than would otherwise be expected. Let us put this figure in perspective. Eleven million people represents almost the population of Ohio, a figure greater than the population of 43 of the 50 states. Eleven million people is twice as many people as are currently employed in construction, 45% more people than are currently employed in financial activities, and almost as many people as are currently employed in manufacturing.

Unfortunately, numbers like these are often ignored or overlooked. Everyone pays attention to the unemployment rate, which has just recently declined. Part of this is due to discouraged workers who have given up looking for work and have taken themselves out of the labor force, but the employment numbers are rigged in such a way as to make it look as though the employment situation is improving.

Another curious anomaly in employment data relates to seasonal adjustments. Seasonal variations are understandable-- for instance workers hired for the Christmas season and laid off immediately afterward. But such statistical adjustments are easy to manipulate. When unemployment figures were released in February of 2010, non-seasonally adjusted figures showed an additional 1.4 million unemployed workers from December 2009 to January 2010, while the seasonally adjusted numbers showed 69,000 fewer unemployed. The most recent figures released in February of 2011 showed an additional 3.1 million unemployed workers from December 2010 to January 2011, yet the seasonal adjustment shows 367,000 fewer unemployed. Spinning a 22% increase in the number of unemployed workers into a statistical decrease should be met with a healthy dose of skepticism.

It should not be surprising that monetary policy is ineffective at creating jobs. For one thing, there are numerous other factors that affect employment, including taxes, labor laws, and other regulations that contribute to labor market rigidity and institutional unemployment. But it is the effects of monetary policy itself that cause the boom and bust of the business cycle that leads to swings in the unemployment rate.

By lowering interest rates through its loose monetary policy, the Fed spurs investment in long-term projects that would not be profitable at market-determined interest rates. The signal to businesses is that consumers are increasing savings and deferring consumption in order to consume more capital-intensive more in the future. If the Fed-mandated interest rate is in fact lower than the

market interest rate, the reality is that consumer preferences between consumption and savings have not changed, but businesses act as though they have. The result of lower interest rates is an economic boom which manifests itself as a bubble.

Everything seems to go well for awhile until businesses realize that they cannot sell their newly-built houses, their inventories of iron ore, or their new cars. Low interest rates have spurred production, but because the low interest rates resulted from Fed intervention and not through changes in consumption patterns, the result is overcapacity. Resources have been "malinvested," directed into sectors of the economy which are not truly in demand from consumers. These resources must be liquidated, and this is the corresponding bursting of the bubble. Until these resources are redirected, often with great economic pain for all involved, true economic recovery cannot begin.

Labor is one of these resources that can be malinvested. As inflation rises due to the Fed's monetary intervention, real wage rates decrease, increasing the demand for labor and leading to lower unemployment. Sectors into which this new money flows see hiring increases, as we recently saw in financial services, mortgage lending, and construction during the housing boom. When the bust comes, however, these workers end up being laid off. They find it difficult to find employment in other industries due to an inability to sell their houses and move, or to retrain for a new skilled labor position, or for any number of other reasons. However the result of that initial meddling in monetary policy is an eventual increase in the unemployment rate.

We find ourselves now in the midst of the worst economic crisis in decades. Unemployment remains persistently high, and the United States cannot afford increased meddling by the Federal Reserve. Over \$4 trillion in bailout facilities and outright debt monetization, combined with interest rates near zero for over two years, have not and will not contribute to increased employment. I shudder to think of what the Fed might do if the unemployment rate were to continue to increase.

By falsely diagnosing the cause of the crisis, the Fed's solution is fatally flawed. What is needed is liquidation of debt and of malinvested resources. Pumping money into the same sectors that have just crashed merely prolongs the crisis and ensures that the day of financial reckoning that eventually will come will be far more severe than otherwise. Until we learn the lesson that jobs are produced through real savings and investment and not through the

creation of new money, we are doomed to repeat this boom and bust cycle.

STATEMENT FOR THE RECORD
HON. SPENCER BACHUS
REPRESENTATIVE, 6TH DISTRICT OF AL
CHAIRMAN, FINANCIAL SERVICES COMMITTEE
U.S. HOUSE OF REPRESENTATIVES

**ENTREPRENEURS AND WORKERS OF AMERICA WILL LEAD US TO
ECONOMIC RECOVERY, NOT GOVERNMENT**

Financial Services Committee Chairman Spencer Bachus prepared statement for the Domestic Monetary Policy Subcommittee hearing entitled “Can Monetary Policy Really Create Jobs?” follows:

“I commend Chairman Paul for choosing this topic for the first hearing of this subcommittee.

“The nation’s unemployment rate has been consistently at or above 9 percent for the longest period of time since World War II. Last week, the chairman of the Federal Reserve predicted we will have unacceptably high unemployment for several more years.

“There are reasons for this dearth of employment. Yes, we had a major economic catastrophe. But throughout our history, American businesses and American workers have proven themselves strong and resilient. In just our recent past, the economy was able to shrug off the S&L crisis and the bursting of the dot-com bubble relatively quickly. So what’s different this time? Unlike now, we didn’t have out-of-control spending and trillion dollar deficits as far as the eye can see. We did not have a Congress and a White House issuing an ever increasing and endless flurry of confusing statutory and regulatory mandates. We were not confronted by a Federal Reserve printing money at an alarming rate nor regulators and the White House arbitrarily deciding which private businesses would survive and which would perish. We didn’t have, with the exception of the Hoover and FDR administrations, the Executive Branch attempting to micromanage the private sector with a barrage of new regulations, commands or directives.

“All this has created higher costs and a level of uncertainty that is causing American businesses to hunker down rather than hire.

“Restoring confidence and certainty is essential for restoring our long-term growth, and I and many others are concerned that the Federal Reserve’s so-called QE2 action introduces more uncertainty which could lead to higher inflation and generate artificial asset bubbles that cause further economic harm.

“It will be the entrepreneurs and workers of America who will lead us to economic recovery, not government stimulus or

micromanagement. However, the private sector will do so only if we refrain from burying them in a blizzard of burdensome and overreaching regulatory constraints.

“The Financial Services Committee and House Republicans are committed to sweeping away unnecessary, repetitive or intrusive government-imposed obstacles to recovery and hiring. We will look to remove the confusing impediments the Dodd-Frank Act places in the way of a freely operating and safe financial services industry. And, through the focus of Dr. Paul’s subcommittee, we will look towards a more consistent Fed monetary policy -- as discussed at last week’s hearing by Dr. John Taylor -- without in any way compromising the central bank’s independence.”

STATEMENT FOR THE RECORD

HON. BILL HUIZENGA

REPRESENTATIVE, 2ND DISTRICT OF MI
U.S. HOUSE OF REPRESENTATIVES

Good morning and thank you Chairman Paul and Ranking Member Clay for holding this important hearing today.

By trade, I am a small business owner involved in both the real estate and construction. I now represent a district currently suffering an unemployment rate well above the national average and one in which this hearing's topic holds special significance. Earlier this month, the Bureau of Labor Statistics reported that the national unemployment rate fell from 9.4 percent to 9.0 percent. That equates to roughly 14 million Americans without a job. While this is a staggering number, in my home state of Michigan, the unemployment rate is an astonishing 11.7 percent and in some areas of the Second District, it is nearly double the national average.

This past fall, the American public made their voices heard loud and clear. The most vital issue facing this Congress is jobs, jobs, jobs, and I thank you Chairman Paul for demonstrating that it is this subcommittee's number one priority by making it the subject of your first hearing.

The Federal Reserve Board of Governors is congressionally mandated to enact monetary policy with the goal of maximizing employment. However, after witnessing the Obama administration's attempts over the previous two years to increase employment through failed policies, I am pleased that we are now spending some time exploring the role of monetary policy in the area of job growth.

As I previously mentioned, I am a small business owner at heart. Such businesses are the backbone of the U.S. economy and provide more than two-thirds of American jobs. I understand the universal principles of successful businesses, and it is important that we recognize the appropriate role for government in the process. Simply put, the private sector, not the public sector, creates prosperity. It is clear to all small business owners that responsible fiscal policy including reduced government spending and the implementation of friendly tax and regulatory environments go a long way in creating an atmosphere for success.

In recent years, the FED has taken unprecedented action to provide liquidity to the financial markets; yet month after month, unemployment remains at historic levels. Most recently, due to the fact that the federal funds rate sits near zero percent, the FED

decided to purchase an additional \$600 billion of Treasury securities commonly referred to as “quantitative easing” or “QE2.” This strategy was undertaken despite the fact that the first round of quantitative easing (QE1) – the FED purchase of \$1.2 trillion in Treasury and Agency securities in March 2009 – has not proven to be an effective method of creating jobs.

Today we will examine as a whole what effect the Federal Reserve’s open market operations have on long and short term unemployment rates. In addition, I look forward to carefully inspecting what potential role FED policies played in such artificial asset bubbles as that of the housing market between 2001 and 2008. As a Member of the 112th Congress and a member of this important subcommittee charged with overseeing operations at the Federal Reserve, I take my responsibility for strict oversight of taxpayer dollars with the utmost seriousness. I look forward to today’s robust discussion on the short-term effectiveness of monetary policy on job growth, the appropriateness of the FED’s dual mandate, and potentially negative long-term consequences from the FED’s most recent unparalleled intervention in the markets.

Mr. Chairman, thank you again for holding this important hearing, and I look forward to hearing from our witnesses.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF THOMAS J. DILORENZO, Ph.D.

PROFESSOR OF ECONOMICS
SELLINGER SCHOOL OF BUSINESS
LOYOLA UNIVERSITY MARYLAND

Mr. Chairman and members of the committee, I thank you for the opportunity to address the issue of today's hearing: "Can Monetary Policy Really Create Jobs?" Since I am an academic economist, you will not be surprised to learn that I believe that the correct answer to this question is: "yes and no." Monetary policy under the direction of the Federal Reserve has a history of creating *and destroying* jobs. The reason for this is that the Fed, like all other central banks, has always been a generator of boom-and-bust cycles in the economy. Why this is so is explained in three classic treatises in economics: *Theory of Money and Credit* by Ludwig von Mises, and two treatises by Nobel laureate economist F.A. Hayek: *Monetary Theory and the Trade Cycle* and *Prices and Production*. Hayek was awarded the Nobel Prize in Economic Science in 1974 for this work. I will summarize the essence of this theory of the business cycle as plainly as I can.

When the Fed expands the money supply excessively it not only is prone to creating price inflation, but it also sows the seeds of recession or depression by artificially lowering interest rates, which can ignite a false or unsustainable "boom" period. Lower interest rates induce people to consume more and *save less*. But *increased* savings and the subsequent business investment that it finances is what fuels economic growth and job creation.

Lowered interest rates and wider availability of credit caused by the Fed's expansionary monetary policy causes businesses to invest more in (mostly long-term) capital projects (primarily real estate in

the latest boom-and-bust cycle), and there *is* an accompanying expansion of employment in those industries. But since the lower interest rates are caused by the Fed's expansion of the money supply and not an increase in savings by the public (i.e., by the free market), businesses that have invested in long-term capital projects eventually discover that there is not enough consumer demand to justify their investments. (The reduced savings in the past means consumer demand is weaker in the future). This is when the "bust" occurs.

The economic damage done by the boom-and-bust policies of the Fed occur in the boom period when resources are misallocated in the ways described here. The "bust" period is actually a necessary cure for the economic miscalculations that have occurred, as businesses liquidate their unsound investments and begin to make decisions on realistic, market-based interest rates. Prices and wages must return to reality as well.

Government policies that bail out businesses that have made these bad investment decisions will only delay or prohibit economic recovery while encouraging more of such behavior in the future (the "moral hazard problem"). This is how short recessions can be turned into seemingly endless ones. Worse yet is for the Fed to create even more monetary inflation, rather than allowing the necessary economic adjustments to take place, which will eventually set off another boom-and-bust cycle.

As applied to today's economic situation, it is obvious that the artificially low interest rates caused by the policies of the Greenspan Fed created an unsustainable boom in the housing market. Thousands of new jobs were in fact created – and then destroyed – giving an updated meaning to Joseph Schumpeter's phrase "creative destruction." Many Americans who obtained jobs and pursued careers in housing construction and related industries realized that those jobs and careers were not sustainable after all; they were fooled by the Fed's low interest rate policies. Thus, the Fed was not only responsible for causing the massive unemployment that we endure today, but also a great amount of what economists call "mismatch" unemployment. The skills that people in these industries developed were no longer in demand; they lost their jobs; and now they must retool and re-educate themselves.

The Fed has been generating boom-and-bust cycles from its inception in January of 1914. Total bank deposits more than doubled from 1914 to 1920 (partly because the Fed financed part of the American involvement in World War I) and created a false boom that turned to a bust with the Depression of 1920. GDP fell by 24% from

1920-1921, and the number of unemployed more than doubled, from 2.1 million to 4.9 million (See Richard Vedder and Lowell Galloway, *Out of Work: Unemployment and Government in Twentieth-Century America*). This was a more severe economic decline than was the first year of the Great Depression.

In *America's Great Depression* economist Murray N. Rothbard demonstrated that, once again, it was the excessively expansionary monetary policy of the Fed – and of other central banks – that caused yet another boom-and-bust cycle that spawned the Great Depression. It was not the Fed's subsequent restrictive monetary policy of 1929-1932 that was the problem, as Milton Friedman and others have argued, but its previous *expansion*. The Fed was therefore guilty of contributing greatly to the massive unemployment of the Great Depression.

In summary, the Fed's monetary policies tend to create temporary and unsustainable increases in employment while being the very engine of recession and depression that creates a much greater degree of job destruction and unemployment.

**WRITTEN TESTIMONY OF
RICHARD K. VEDDER, Ph.D.**
DISTINGUISHED PROFESSOR OF ECONOMICS
OHIO UNIVERSITY

Dr. Paul and committee members, thank you. The first decade of this century had the lowest rate of economic growth of any decade since the Great Depression. Employment growth was the lowest in six decades. Inflation-adjusted equity prices fell sharply. In large part, this reflects faulty government policies. On the fiscal side, federal spending soared, increasingly financed by borrowing. The ratio of national debt to output is at a historic high for a relatively peaceful period. On the monetary side, we had the worst financial crisis since the Depression, with many iconic financial institutions closing their doors or surviving only because of federal bailouts. And, despite huge federal exertions on both the fiscal and monetary side, we have the weakest recovery going on now in the lifetimes of most persons in this room. Moreover, the huge run-up in the ratio of federal debt to output will be a significant drag on the economy for many years, and may well lead the Fed to monetize debt, unleashing a wave of inflation that can only undermine our economy.

Let me add some more factual detail. Between December 2007 and December 2010 –three full years--employment fell by over seven million in the United States, despite a first \$160-180 billion stimulus package in early 2008, a supersized second one of nearly \$800 billion in early 2009 and the subsequent addition of four trillion dollars in debt through massive deficit spending. On the monetary side, the monetary base more than doubled as the Federal Reserve gave banks literally a trillion dollars in excess reserves. The Fed pushed real interest rates into the negative territory in an attempt to provide monetary stimulus. Yet job formation was persistently negative, and we had the worst downturn in post-war history. Far from providing stimulus, the combined easy money monetary policy and wildly expansionist fiscal policy scared the heck out of business persons and investors who were further scared by all the President's bashing of capitalists, the government takeover of iconic private corporations like General Motors, the passage of an unpopular, costly, and exceedingly inefficient health care bill, the restrictions imposed by Dodd-Frank, and so on. Businesses literally accumulated two trillion dollars in cash, and the price of gold rose by about 80 percent from Election Day 2008 as investors increasingly worried about inflation.

Turning to the 2008 financial crisis, while private irrational exuberance no doubt occurred, the crisis largely resulted from three types of government failure. First, the Federal Reserve for years prior to the crisis pursued an easy-money policy that reduced interest rates below levels justified by human behavior and market conditions. This led to an unsustainable and artificial inflation in housing prices. Second, the Feds encouraged imprudent lending practices through such things as the Community Reinvestment Act and HUD policies going back to the 1990s designed to promote home ownership. Third, Fannie Mae and Freddie Mac, government sponsored corporations, promoted totally inappropriate lending practices that contributed to the housing bubble and foreclosure mess. Congress blocked attempts to rein in these companies, no doubt because of the campaign contributions they generated.

You might say that the wildly expansionary policies of the Federal Reserve have not harmed the economy; we averted a meltdown of the financial system, the economy is beginning to recover, and the much talked about inflation threat has not occurred. But I think that is too optimistic. The recovery is by many measures the weakest since the Depression amidst the most aggressive fiscal and monetary policy stimulus of any in American economic history save that surrounding World War II. Inflation has been averted in large part because a frightened consuming and investing public has been hoarding cash rather than spending. The election results of 2010 have forced some moderation or led to anticipated moderation in the policies frightening consumers and investors, so economic activity is increasing a bit. At some point, banks will start to lend some of their huge excess reserves, increasing the money stock and unleashing inflationary forces. Fed Chairman Bernanke says “don’t worry; I will not let that happen,” but the markets are not overwhelmingly trusting of this former academic, with good reason. The king size federal deficit is increasingly raising interest costs on the debt, and the Fed will feel pressures to monetize that debt and try to keep interest rates low to minimize debt service costs. All of this will increase inflationary fears that can only be restrained by the Fed selling bonds and doing other things to reduce excess reserves and the monetary base, something that seems exceedingly unlikely as we approach a presidential election year. It is revealing that the dollar has generally fallen against an equally challenged currency, the Euro, itself under attack because of the fiscal and monetary excesses of European governments. The price of gold was \$740 an ounce on Election Day in 2008 and is now over 80 percent higher. Scared

people run to gold. How long will it be that before ratings on U.S. government bonds will be reduced?

I am an economic historian, and both economics and historical experience demonstrate that federal incursions into economic activity are counterproductive; some textbooks talk about the Policy Ineffectiveness Theorem. Aggressive deficit spending and Federal Reserve monetary expansion led to stagflation in the 1970s. Japan went on a huge binge of stimulus spending in the 1990s and economic growth virtually ground to a halt. The excesses of the European welfare state and its funding are causing crises all over the European Union, from Ireland to Greece. The Obama Administration engaged in stimulus plans accompanied by rising, not falling unemployment. Bail outs and “too big to fail” policies have created a huge moral hazard problem. The Federal Reserve has engaged in huge purchases of government long term bonds and mortgages to keep long term interest rates low, but long term interest rates are *not* falling as concerns about potential inflation justifiably have risen. By many indicators, this is the weakest postwar recovery. The Fed and the government have monetary and fiscal time bombs threatening both short term recovery and long term financial and economic vitality.

Lowell Gallaway and I have reviewed the 20th century from the standpoint of explaining variations in unemployment in our book *Out of Work: Unemployment and Government in Twentieth-Century America*. Variations in unemployment rates can be explained by changes in the productivity-adjusted real wages received by labor. Other things equal, rises in productivity or prices tend to have the impact of lowering unemployment, as does falling money wages. This implies inflationary monetary policies will increase employment and lower unemployment –the Phillips Curve phenomenon. But consistent inflation changes expectations, and reduces the willingness of workers to supply their services at any given price, typically leading to increases in unemployment. Unemployment during the highly inflationary 1970s, for example, was higher on average than in the less inflationary 1950 and 1960s. Government attempts to manipulate wages and prices have employment effects. Wage enhancing policies like minimum wage laws or pro-union legislation typically raise unemployment rates, for example. Monetary policy that increases an expectation of price stability is usually associated with relatively robust employment conditions, as we observed in the 1920s, 1950s, most of the 1960s, and, to a somewhat lesser extent, in the period from about 1985 to 2000. Monetary and fiscal activities that promote productivity advances likewise increase employment

opportunities and tend to reduce unemployment. Nearly every major spike in unemployment in the 20th century is associated with some government actions that led to temporary wage-price-productivity dis-coordination: the depression of 1920-22 was an outgrowth of explosive monetary expansion followed by deceleration and reversal of that growth in the World War I era. The 1929-41 Great Depression reflected a downturn prompted by a consumption bubble arising in large part from excessive monetary growth, and then various strategies designed to raise wages, ranging from moral suasion under President Hoover to laws such as the National Industrial Recovery Act and the Wagner Act under President Roosevelt. The downturns of the mid-1970s and 1981-82 are related first to the ineffectiveness of monetary and fiscal expansion in the midst of rising inflationary explanations, and then to the effects that the reversal of monetary expansion had temporarily on real wages and thus labor markets.

As an economic historian, I am alternatively amused and saddened by a richly ironic fact. The Federal Reserve Act was in large part a consequence of concerns growing out of the 1907 banking crisis. In that crisis, bank runs in New York City imperiled major institutions at a time when many country banks kept enormous reserves in New York. An ad hoc group of private bank officials, dominated by J.P. Morgan, put together a fund that was used to head off runs on some key institutions, moderating the banking crisis. The feeling grew that it is not appropriate to have a single man, even one like J.P. Morgan, have so much discretionary power over the banking system and the economy. Yet today, a single man, Ben Bernanke, backed by a small number of others, makes huge decisions about responding to the current crisis. Ben Bernanke is the new J.P. Morgan, but at least Morgan's behavior was constrained by the fact that he, personally, had a good deal of wealth at stake as a consequence of his actions, whereas Bernanke gets paid the same whether he succeeds or fails.

What to do? Our nation achieved economic supremacy from 1871 to 1914, a period of a gold standard, near price stability and no central bank. Consumer prices in 1914 were within 10 percent of what they were in 1871. We can learn from that experience. To restore monetary stability, ideally we would ultimately consider retreating from fractional reserve banking where even moderate declines in confidence potentially lead to devastating consequences. But more immediately, we need to limit monetary growth, and given human weaknesses, probably the best way to do that ultimately is by having a gold standard or some variant that removes or dramatically

reduces the discretion of central bankers. On the fiscal side, politicians unfettered by rules behave like unsupervised alcoholics in liquor stores. Thus we need some sort of constitutional constraints on governmental fiscal actions. Practically, changes of this magnitude take time. In the short run, however, you can start holding the Fed's feet to the fire; perhaps, for starters, you should establish price stability as the single monetary mandate for the Fed, repeal the Humphrey-Hawkins Act, and privatize or abolish Fannie Mae and Freddie Mac. Private markets handled mortgages and other lending for generations successfully without federal intervention, and they can do it again. Thank you.

WRITTEN TESTIMONY OF
JOSH BIVENS, Ph.D.
MACROECONOMIST
ECONOMIC POLICY INSTITUTE

MONETARY POLICY AS MACROECONOMIC STABILIZER
DURING THE GREAT RECESSION

What we now call the Great Recession was a long time in coming. The economic expansion of 2001 to 2007 was dependent to a historically unprecedented degree on a huge increase in private sector debt. This debt was, largely, used to buy homes, which saw historically large price increases. These price increases were borrowed against by homeowners who then used this equity to support consumption – consumer spending as a share of the overall economy rose to its highest level on record during the housing boom of the 2000s.

The bursting of the home-price bubble had straight-forward effects on the economy – residential investment (the act of building homes) inflated to 6% of overall GDP at the peak of the boom then quickly shrank back down below its 3% of GDP average as home-builders realized that they had overbuilt and faced an enormous inventory of unsold homes. This contraction of residential investment reduced overall demand for goods and services in the economy by roughly \$420 billion. A similar (though less extreme) dynamic in commercial real estate reduced economy-wide demand by another \$140 billion. Further, as households saw their net worth decimated by falling home-prices and realized that they would now have to start saving out of current income to meet long-run wealth targets like providing a comfortable retirement or sending kids to college, consumer spending collapsed. The 30% fall in home prices erased roughly \$7 trillion of wealth from American households. The best research indicates that each \$1 fall in housing wealth leads (conservatively) to a \$0.06 fall in consumer spending through a “wealth effect” on consumption; translating into a \$420 billion annual decline in consumer spending.

This \$960 billion negative shock to annual demand for goods and services (\$420+\$140+\$420) is the Great Recession. **Figure 1** [Figure 7] below shows the path of home prices, residential investment as a share of the economy and mortgage equity withdrawals (just one way that households could increase spending through greater housing wealth) during and after the bubble.

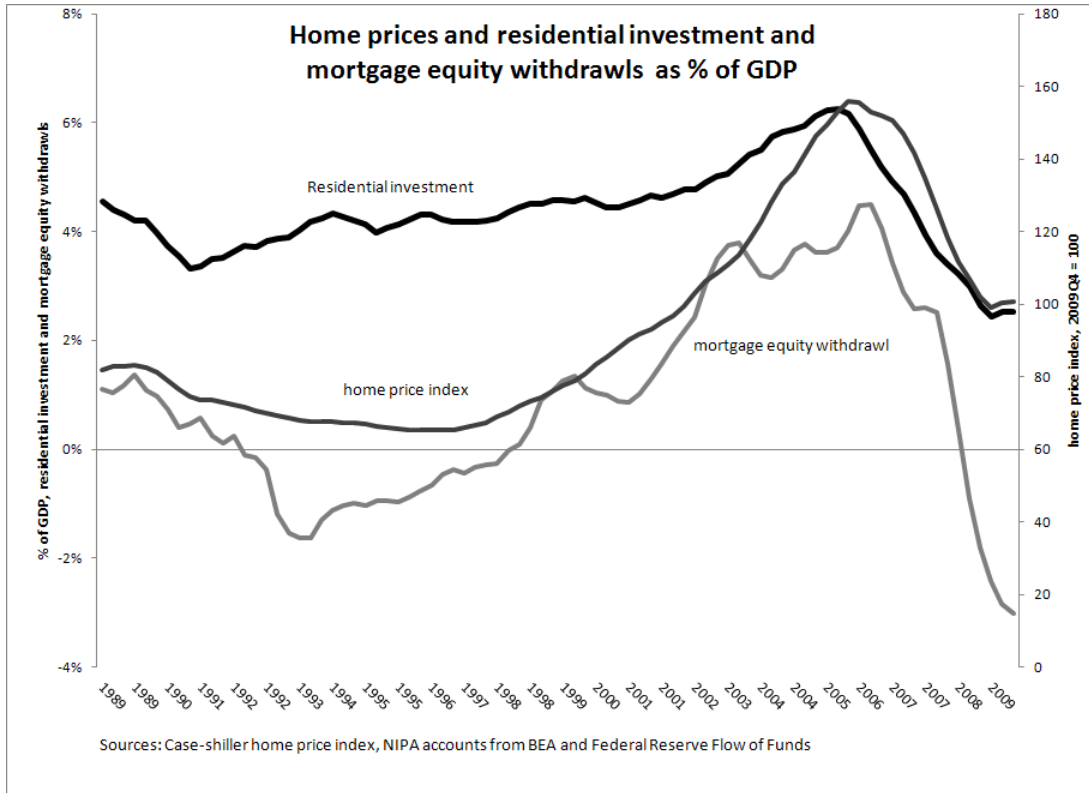


Figure 7

How Monetary Policy Fights Recessions, in Theory

There are three policy levers that can be used to stabilize an economy that has suffered such a shock to aggregate demand: exchange-rate policy, fiscal policy, and monetary policy. This hearing is about the last, so I'll focus my attention here. As with fiscal and exchange-rate policies, the goal for monetary policymakers is to stabilize economic activity after a negative shock to aggregate demand by providing a countervailing *positive* spur to demand with the levers they have available to them. The primary lever the Federal Reserve (or Fed, henceforth) has available to them is control over short-term interest rates.

By lowering these “policy” interest rates (generally the Federal Funds Rate, the rate at which banks can lend each reserves at the Fed), the hope is that interest rates up and down the term- and risk-structure will fall through arbitrage. Then, as interest rates on longer-term and riskier debt fall, it becomes cheaper for firms to borrow to finance new expansions to their capital stock and for households to borrow to purchase new homes or durable consumption goods or to pay outstanding credit card balances - freeing up purchasing power for other kinds of consumer spending. Further, lower interest rates may provide a one-time boost to asset prices – directly to bonds as the Fed begins buying bonds to increase their price and hence lower the interest rates paid on them, and indirectly as lower interest rates on bonds, for example, may increase demand for other types of assets like equities. The boost to asset prices can ease firms’ borrowing constraints and allow them to finance new investments that they would otherwise be constrained from doing and can also provide a boost to household wealth that may spur new spending.

In recent decades, it has become the overwhelming consensus in the economics profession that the Federal Reserve is best-placed to fire the first shot in the fight against recessions. The “inside lag” of monetary policy – ie, the lag between when a developing problem is recognized and policymakers act – is much shorter for monetary policy than either of the other stabilization tools. The Fed is, by constitution, as cognizant of upcoming developments in the economy as any other institution and the relative smallness of the decision-making body makes rapid discussion, debate and action possible.

How the Fed Policy Acted as a Shock Absorber Against the Fallout From the Bursting Housing Bubble

This rapid decision-making and action began as the Great Recession approached – the Fed began lowering interest rates in August 2007 and began providing support to failing financial institutions early in 2008 – well before the blowup associated with the fall of Lehman Brothers.

Barely halfway through the Great Recession, however, the Fed had run out of the conventional ammunition it generally uses to stabilize the economy – policy rates were sitting at less than 1% by October 2008. It has been observed often enough to be a cliché, but having an economy mired in a deep recession with policy interest rates sitting just above zero is a very dangerous place to be – the U.S. economy during the Great Depression and Japan in its lost decade of the 1990s are two of the only historical episodes where this has happened. The danger is that zero constitutes a firm lower-bound on interest rates – as nobody would ever accept a negative return on their wealth-holdings (it would essentially be like *paying* the bank to store your money) – yet the economy might “need” short-term rates below zero for a time to generate the spending necessary to keep unemployment from rising.

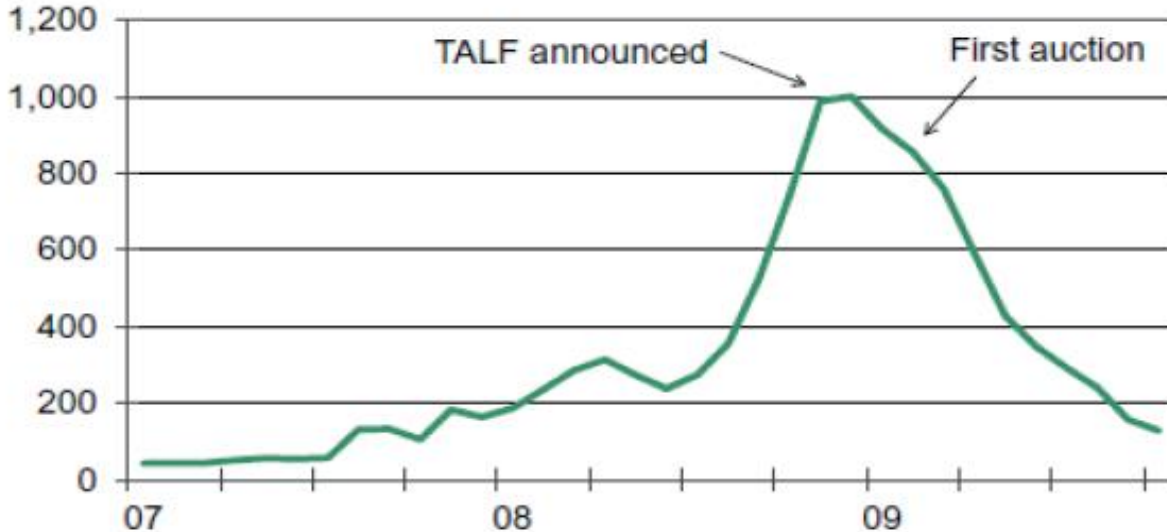
Luckily, the Fed found ways to provide support through the economy through other means than just its short-term interest rates. First, it began providing extraordinary support for the liquidity of financial institutions through its “alphabet soup” of lending programs. These programs clearly worked to reduce credit-spreads on private-sector debt, largely calming the financial market chaos of late 2008 – see **Figure 2** [Figure 8] below for the reduction in credit spreads for automobile asset-backed securities following the beginning of the Term Asset –Backed Securities Loan Facility, or TALF.

Second, the Fed undertook two rounds of “quantitative easing”—attempting to lower long-term interest rates directly through the purchase of long-term assets. The first round of quantitative easing was focused on mortgage-backed securities (MBS)—largely through purchases of agency bonds (the debt of Fannie Mae and Freddie Mac). This first round of quantitative easing had the desired effect and established clearly that when it wanted to, the Fed could indeed lower long-term interest rates – as shown in **Figure 3** [Figure 9].

The second-round of quantitative easing was announced in November of 2010 and focused on the debt of the U.S. government instead of MBS. Again, strong anticipation of this move, based on

Chart 2: TALF Caused ABS Spreads to Narrow

Automobile ABS, option-adjusted spread, bps



Source: BofA Merrill Lynch

Figure 8

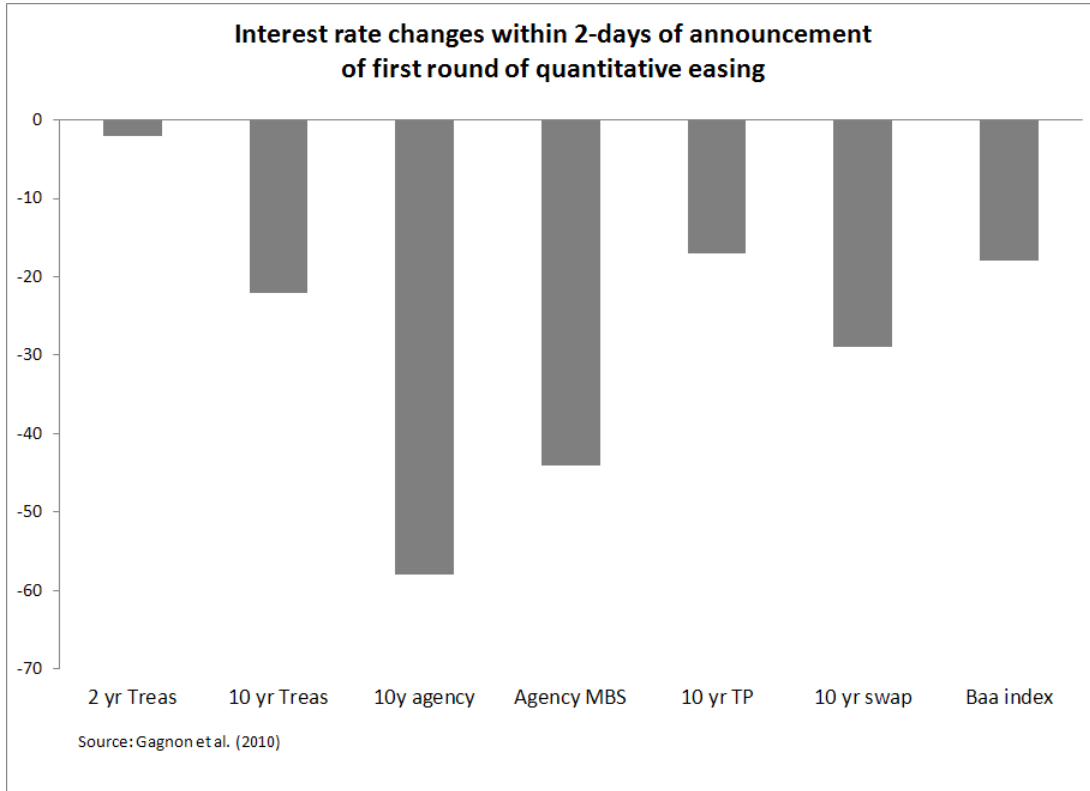


Figure 9

transparent communications from the Federal Open Market Committee (FOMC), led to clear downward movements in the interest rates of not only U.S. government debt, but other interest rates as well. Some on this committee may have noticed that 30-year rates on fixed home mortgages fell to almost 4% a couple of months ago – that was clearly a symptom of this second round of quantitative easing (or as it was popularly dubbed, QE2). **Figure 4** [Figure 10] shows that again returns on a range of securities fell with the announcement of QE2.

Just to give a sense of the potential of this quantitative easing for spurring purchasing power in the U.S. economy, analysts at JPMorgan Chase have estimated that if all mortgage holders guaranteed by the federal government (through Fannie Mae and Freddie Mac) had been able to refinance when 30-year rates dropped to nearly 4%, this could have added an economic stimulus of more than \$50 billion per year to the economy. Further, since this stimulus would be effectively permanent (the lower mortgage payments would be faced for the life of each holder's mortgage after refinance), the extra economic output it would have likely spurred would have been very large.

Have the Fed's Actions Propped Up Output and Employment?

There is no doubt at all that the Great Recession would have been worse, perhaps much worse, had the Fed kept interest rates at the 5.26 percent that characterized July 2007 – the last month before it was clear that a global financial crisis was in the making. There was, as far as I know, *not a single economist* arguing between July 2007 and June 2009 (the official end of the recession) that the Fed should *not* have lowered its conventional policy rate as the recession approached.

There is a school of thought (to which I'm sympathetic) that argues that while the Fed has great power to rein in an overheating economy through interest rate increases it actually has far less power to spur spending in an economy that is deflating – the vivid metaphor often used to explain this asymmetry is “pushing on a string”. And there are reasons to think the Fed's conventional tools were especially ill-suited to the fallout of the most current recession. For example, increased housing activity is a key tradition channel through which interest rate cuts spur economic activity. Given the massive overbuilding and plummeting home prices resulting from the burst housing bubble, it was always very unlikely that increased activity in the housing sector – regardless of what the Fed was doing – was

**Table 2: Responses of U.S. Interest Rates
to News about the Second Round of Asset Purchases**

Date	10-Year Treasury Yield	10-Year TIPS Yield	30-Year MBS Yield	10-Year BBB Corporate Bond Yield
Aug. 10, 2010	-7	-9	-2	-1
Aug. 11 to Nov. 2, 2010	-11	-47	-9	-23
Nov. 3, 2010	3	2	-2	2

Note: The table displays basis point changes from close of business on the day before the announcement to close of business on the day of the announcement, with the exception of Aug. 11 to Nov. 2, 2010, which shows the interperiod change. Changes in the 10-year nominal Treasury yield are computed using a smoothed yield curve estimated by staff from off-the-run Treasury coupon securities. Changes in the yield on 10-year Treasury inflation-protected securities (TIPS) are computed by staff using a smoothed inflation-indexed yield curve. Changes in the yield on 30-year mortgage-backed securities (MBS) are computed using Bloomberg data on securities issued by Fannie Mae. Changes in the yield on 10-year BBB corporate bonds are computed using a smoothed yield curve estimated by staff using Merrill Lynch data.

Figure 10

going to be a primary channel for pulling the U.S. economy out of recession.

However, noting this asymmetry in the Fed's power does not argue that interest rate loosening cannot work at all or is somehow the *wrong* thing to do. As households, for example, look to pay down debt in the wake of lost housing wealth, low interest rates can provide immediate space for them to do by lowering auto, credit card, and even some mortgage loans (and often can afford the possibility of re-finance).

And in the past, monetary loosening has clearly been a key ingredient in spurring rapid economic recovery, even from severe recessions. Romer (1992), for example, finds that expansionary monetary policy was a key ingredient in helping the U.S. economy escape from the Great Depression in the 1930s. Posen (2009) similarly argues that the strong performance of the Japanese economy between 2002 and 2008 was a result of loosening monetary policy as well. **Figure 5** [Figure 11] below shows the performance of economic growth in the year following a change in the federal funds rate. The precise statistical link between these variables is tough to pin down outside of careful econometrics because the Fed changes these rates precisely in reaction to changing economic conditions. Yet, the figure shows that large increases in the federal funds rate over a year tends to lead to slower growth in the subsequent year and vice-versa.

More recently in U.S. history, an examination of the very sharp (though thankfully very brief) recession of 1981-1982 also provides clear evidence of the efficacy of expansionary monetary policy. The unemployment rate in December 1982 actually peaked at 10.8% - higher than at any point in the Great Recession.⁴⁵ Yet 12 months later payroll employment was back to its pre-recession level. What contributed to this extraordinarily rapid recovery in jobs and unemployment? The simplest answer is very rapid output growth - GDP grew in the 2 years following the trough in 1982 at an annual average rate of 6.7% - in the 6 quarters since the trough of the most recent recession growth rates have averaged well under half this pace.

⁴⁵ Of course, the labor force in 1982 was younger and less-educated so should have, all else equal, had higher unemployment rates in general. Baker and Schmitt (2009) have pointed out that age-adjusting the U.S. workforce to match the 1982 age distribution results in higher unemployment rates being reached during the most recent recession.

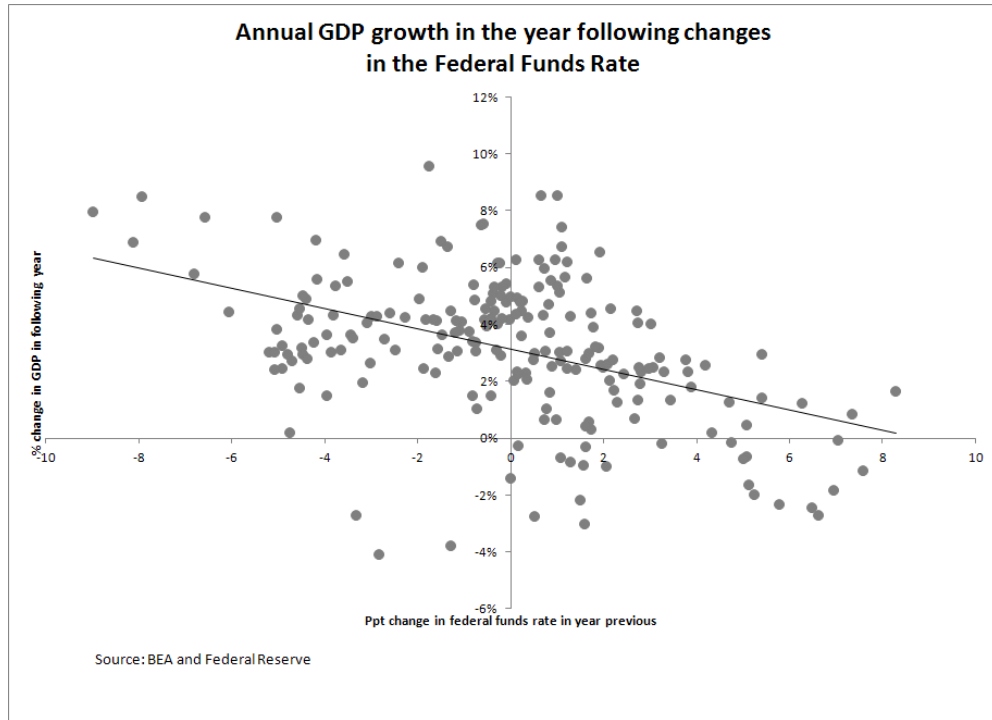


Figure 11

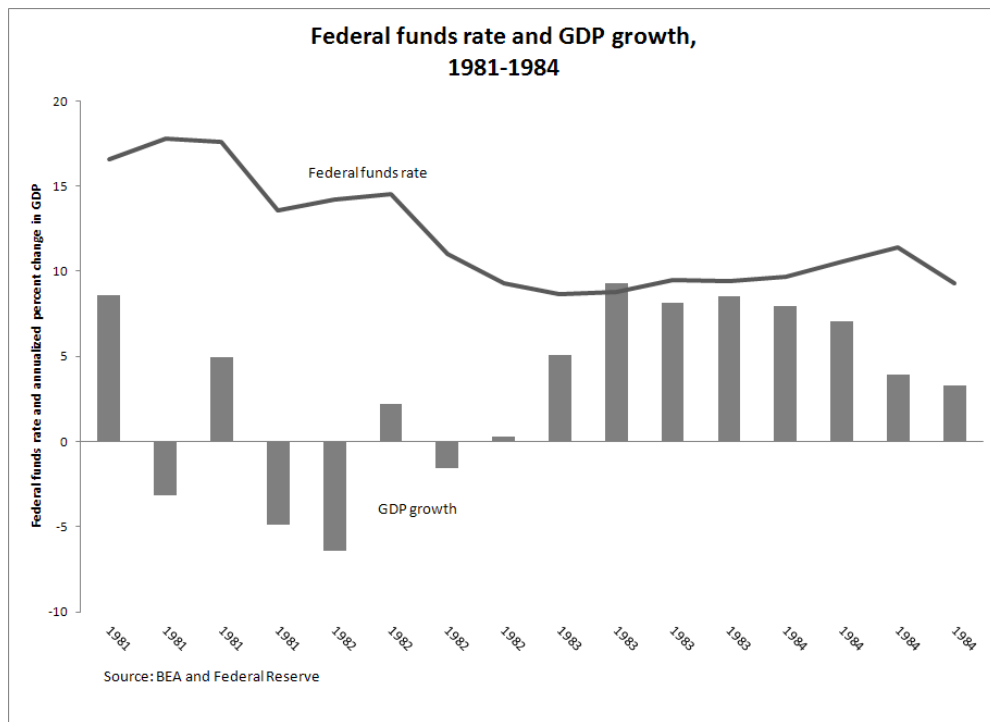


Figure 12

This rapid output growth, in turn, was driven by an extraordinary degree of monetary easing – the policy rate controlled by the Fed fell nearly 10 percentage points between the business cycle peak of 1981 and the recession’s trough of November 1982. The Fed continued cutting rates for the next 6 months following this trough – and by November 1983 payroll employment had completely recovered its pre-recession level. **Figure 6** [Figure 12 above] below shows the path of the federal funds rate and economic growth between 1981 and 1984 – the reduction in the federal funds rate at the end of 1982 is clearly associated with a return to growth, while the slight uptick in these rates in 1984 sees these growth rates moderating.

It’s true that there was also a large fiscal stimulus injected into the economy in those years, but this stimulus was particularly ill-suited for spurring output growth, as most of it took the form of tax-cuts aimed at a[t] group[s] (high-income individuals and businesses) that were likely to have lower propensities to consume out of current income than others. In short, it is clear that the very rapid monetary easing was largely responsible for “morning in America”.

While there was less scope for this degree of *conventional* easing in the latest recession (because interest rates were lower going into it), the unconventional actions of the Fed have been able to provide a spur to spending even over and above what was provided by the move of federal funds rates to zero. Gagnon et al. (2010) argue that the unconventional actions of the Fed lowered interest rates across the term and risk-structure. Chung et al. (2011) then undertake a simulation exercise based on the historical relationships between these interest rates and components of GDP. They find that the \$600 billion in Treasury purchases recently undertaken by the Fed is likely to boost GDP by up to a full percentage point, which translates into roughly 1 million full-time equivalent jobs supported by these actions. It should again be noted that this is just the effect of the most recent Fed asset purchase – not the full range of effects spurred by their conventional easing in the early parts of the recession and the first round of quantitative easing – Chung et al. (2011) estimate that the full effect of all large-scale asset purchases undertaken by the Fed probably supported nearly 3 million jobs and will have lowered measured unemployment by 1.5 percentage points through the end of 2012.

Has the Fed Done Enough?

All this said, I don’t have to remind anybody on this panel that the U.S. economy is far from healed – unemployment was 9.0% as of

January 2011 (and will almost surely reach over 9.5% again before the labor-market recovery is complete) and if most private and public-sector forecasts are to be believed, will only fall slowly over the next couple of years – reaching a level comparable to its immediate pre-recession peak in 2015.

This begs the question – did the Fed do enough?

My short-answer to this is not yet, but it is on the right track. For one, the jobs-crisis is far from over and the economy far from stabilized. Until unemployment returns to tolerably low levels and the economy is much closer to producing at its potential level, the Fed should remain very aggressive in its policy stance: keeping policy-rates low, following through with the full round of QE2 and preferably engaging in more asset purchases after the initial \$600 billion is exhausted. However, absent support from the other levers of macroeconomic stabilization – fiscal and exchange-rate policies, the Fed is limited in how much it can contribute to recovery. If, for example, Congress acted to provide a new, significant round of effective fiscal support to the economy, the Fed could act to enhance the effectiveness of this support as well as keeping it from adding to the national debt held by the public by simply buying the new debt issues and holding them on its balance sheet.

This action should ameliorate the concerns of those worried that more fiscal support to the economy would lead to high debt burdens for the U.S. government in the future – if the Fed owns the newly-created debt that that provides fiscal support, interest on this debt would be paid to the Fed and recycled back to the U.S. Treasury. This is not a strategy that can be continued when the economy is near full-employment – it would surely lead to inflation. But there is no danger of that happening today, with vast numbers of unused resources available to match new production to new money creation.

Again, the Fed has clearly acted with more urgency than any of our other macroeconomic policymaking institutions to the Great Recession and continues to treat the jobs-crisis as the number one priority in setting its policy; this is to its great credit. It should continue with this aggressive pro-growth stance until a full economic recovery is reached. However, unless more support is forthcoming from *other* levers of macroeconomic stabilization, its ability to do much more than continue its current stance is limited.

In short, the Fed (a) saw the economic downturn coming before any other major macroeconomic policymaking body, (b) acted more aggressively than any other, and (c) continues to attack the problem of sluggish recovery in both output and employment with greater

urgency than any other team of economic policymakers. If our fiscal and exchange-rate policies were as aggressive as our monetary policy in historical terms, we could well have an unemployment rate 2-3 percentage points lower today and hundreds of billions of dollars of additional economic output.

Criticisms of the Expansionary Monetary Policy I: Did Low Interest Rates Cause the Bubble?

Given the absolutely central role played by the housing price bubble in generating the Great Recession and given as well that some critics of the current aggressively pro-growth stance taken by the Fed have tried to blame accommodative monetary policy on the *creation* of this bubble, it seems worthwhile to examine the case for and against the role of too-low interest rates in inflating home-prices in the 2000s.

The argument that low interest rates are a prime suspect in creating the bubble rests simply on the fact that as the bubble inflated in the early 2000s, these interest rates were kept unusually low by historical standards. As low interest rates should (all else equal) encourage borrowing, and mortgage debt is by far the single largest category of household borrowing, the case continues that easy credit engineered by the Fed pumped up the demand for homes and inflated the bubble. The corollary to this argument is often presented that it is obvious that the Fed should have considerably tightened monetary policy very quickly after the 2001 recession ended.

There are a number of reasons to reject this diagnosis and the proposed cure.

First, interest rates *should* have been low in the early 2000s – employment growth following the 2001 recession was, by far, the weakest of any recovery since the Great Depression. Between 1948 and 1990, it took an average of 13 months from the end of a recession to fully regain all employment losses. Yet it took 38 months following the 2001 recession (see **Figure 7** [Figure 13] below). In fact, employment growth did not even turn consistently *positive* until August 2003, 21 months after the official end of the recession. The notion that interest rates should have been sharply increased even while jobs were still being shed in the economy is hard to credit.

This can be seen more formally by invoking a standard “Taylor Rule” of prescriptive Fed behavior. The Taylor rule argues that policy rates should be changed based on a weighted average of expected inflation and productive slack in the economy. As expected inflation rises, the Taylor rule argues for rates to rise in response to cool the economy; when productive slack (or, the measured “output gap”)

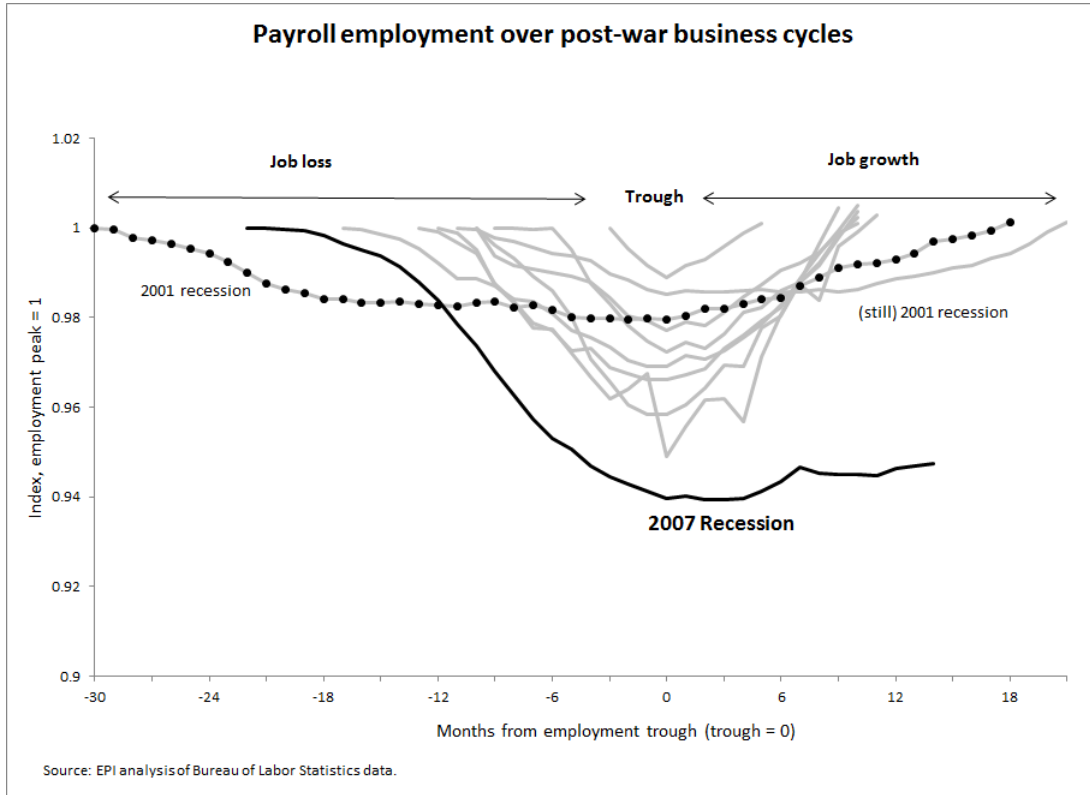


Figure 13

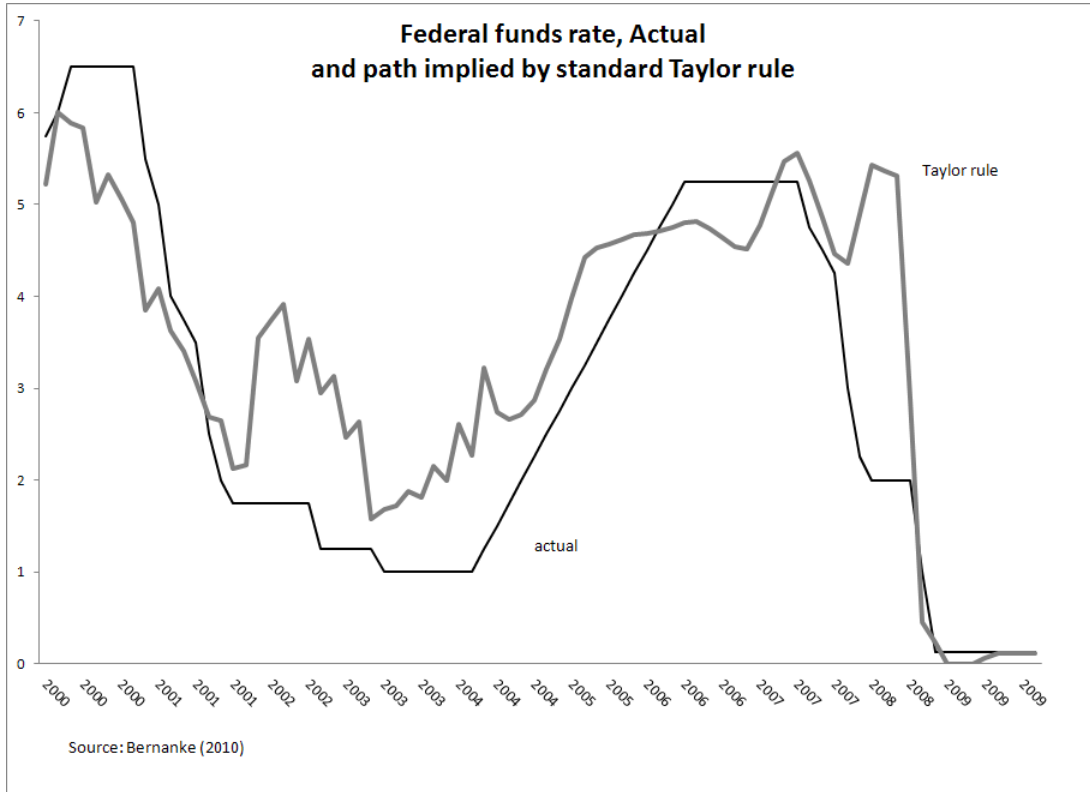


Figure 14

rises, rates should be lowered to spur spending to tighten this slack. Applying a Taylor rule that weights inflationary expectations every bit as heavily as concerns over the economy underperforming potential actually would have led to a path of policy interest rates *very much like* what was actually pursued by the Fed in the early 2000s, as shown below in **Figure 8** [Figure 14 above].

Second, the timing of rising home-prices and low interest rates is much less clear than proponents of the “it was too-low interest rates” theory of bubble-inflation generally admit. Home prices began rising in the late 1990s – as *interest rates were being increased*. The pace of price-growth did rise in the early 2000s as interest rates were lowered, but, then the pace of growth remained torrid between 2004 and 2006 – as interest rates were being sharply *increased*. In short, the sharp rise in prices began in a period of rising rates and persisted nearly undiminished during a period of rising rates; this makes it hard to sustain the argument that low rates were the key driver of the housing price bubble. **Figure 9** [Figure 15] shows this by displaying the change in the federal funds rate and annual home-price appreciation for periods of rising and falling rates.

Third, the bubble in equity markets in the 1990s in the U.S. accelerated just after a sharp increase in policy interest rates beginning near the end of 1993. The bubble got larger and larger even as rates stayed generally steady throughout the late 1990s (see **Figure 10** [Figure 16] below).⁴⁶ Very few (I could find none) argued in real-time that the Fed had *caused* the equity-price bubble (some argued that they should have raised interest rates to smother it, but that’s a different question) – leading one to conclude at least that excessively low interest rates are not a necessary condition for asset-price bubbles.

Fifth, we can use the fact that the housing bubble of the 2000s was not unique to the U.S. economy to see if there is a durable connection between rising home prices and interest rates. France, Denmark, and the UK (among others) all saw home-price appreciation faster than the U.S. from 2001 to 2006. Yet these nations also saw monetary policy that was tighter than in the U.S. relative to what should have been expected from a Taylor rule based on their national inflation and output-gap indicators. In short, these countries more closely followed the diagnosis of interest rate tightening (relative to current economic conditions) yet still saw

⁴⁶ There was a dip in policy rates in 1998, largely in reaction to crises in East Asia and the Russian bond defaults. This dip was quickly reversed, however.

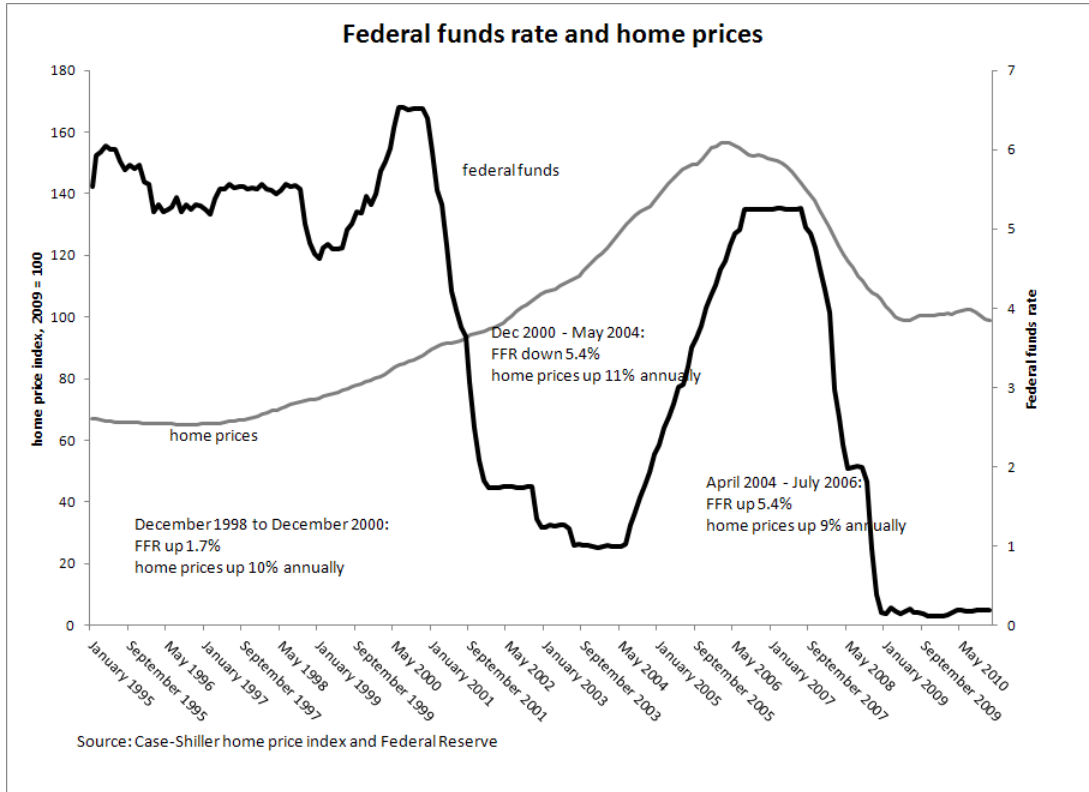


Figure 15

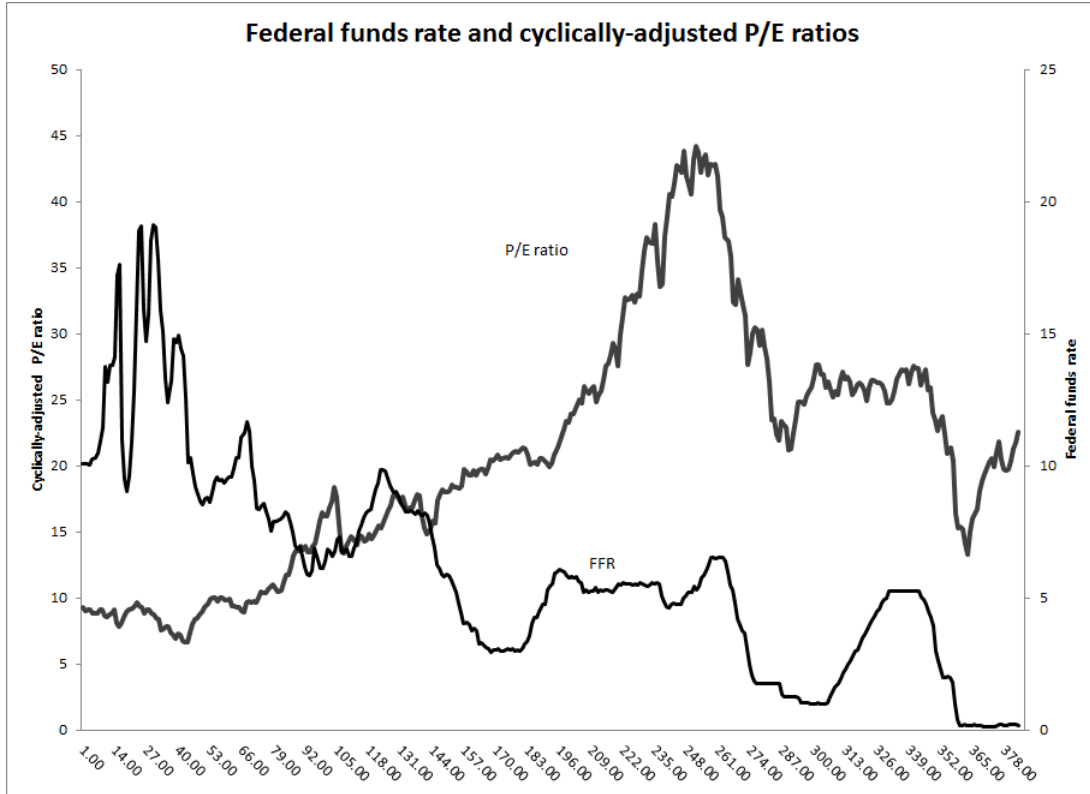


Figure 16

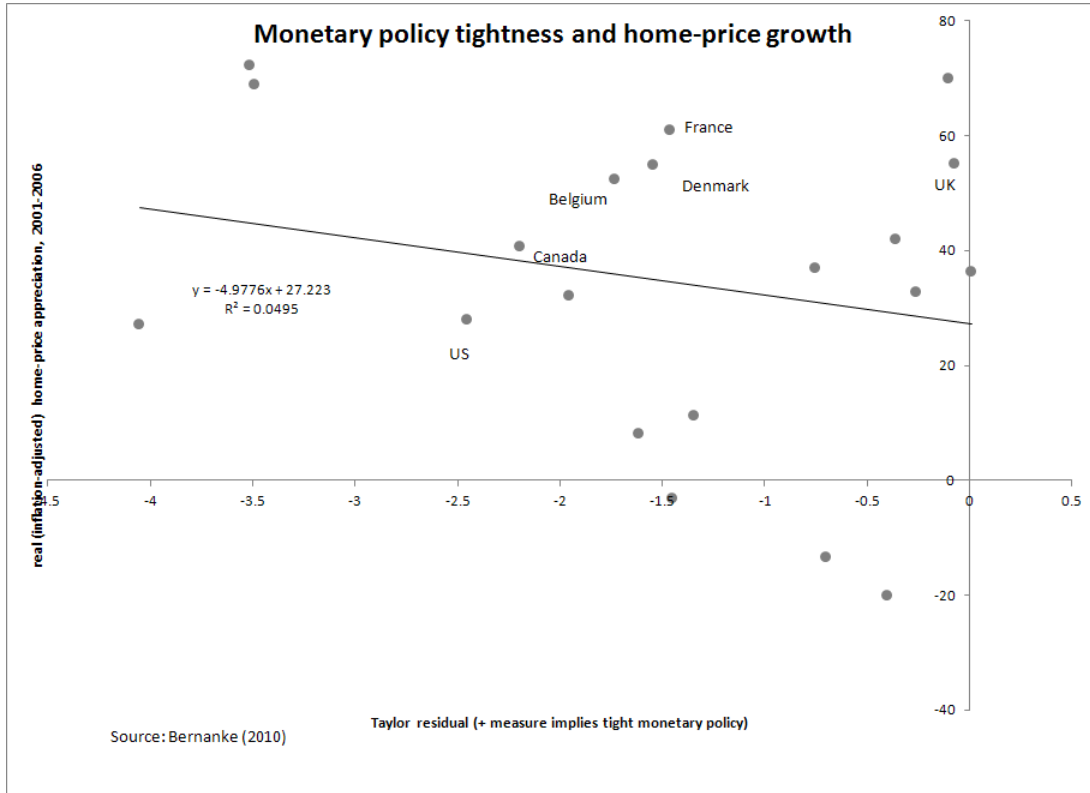


Figure 17

larger increases in home-price growth during the 2000s (see **Figure 11** [Figure 17]).

Criticisms of Expansionary Monetary Policy II: It Will Cause Inflation and That's Bad

Lastly, there is commonly-voiced concern that the Fed's current aggressive actions to spur growth and jobs in the economy will instead give rise to rapid inflation. It is true that large-scale money creation would indeed translate mostly into higher prices and not higher output in an economy characterized by no productive slack (with no productive slack, output could not, by definition, be increased in the short-term). This is why the short-hand definition for inflation is often stated as "too much money chasing too few goods".

However, the key phrases in the formulations above are "no productive slack" and "too few goods". There is significant productive slack in the U.S. economy right now, as evidenced by very high rates of unemployment of labor and non-utilization of productive capacity. Given this, it seems hard to frame the problem of "too few goods" being chased by "too much" money – if there is excess demand for ("too much money chasing") new goods and services, *we should make more of these goods and services* to solve concerns over inflation.

The simplest way to assuage fears of incipient inflation is just to look at the price-data. We should be clear here what data we're looking at and why. Inflation is, by definition, a *generalized* rise in prices. The prices of individual goods or services rise and fall all of the time. Cherry-picking a single good (or select basket of goods) to "prove" that prices overall are falling or rising makes no sense – it is, by definition, not a measure of inflation.

Additionally, it is the overwhelming consensus in empirical macroeconomics that measures of "core" inflation are the proper ones to examine when gauging the impact of monetary policy on price growth. The simplest forms of these "core" measures exclude the costs of food and energy. As food and energy prices are volatile and change often and are often dramatically affected by idiosyncratic supply-side influences (bad weather, closing of shipping lanes, refinery fires), they are a very bad measure of the inflation *momentum* building up in an economy.

When firms set those prices that are less volatile than food or energy (wages in the case of workers), they take the overall state of inflationary expectations into account. For example, if a worker desires real (i.e., inflation-adjusted) wage stability, if she expects overall inflation to run at 2 percent for the forthcoming year, she'll

need to ask for a 2% raise to insure this real (inflation-adjusted) wage stability. And when a grocer wants his sales to finance the same living standard he purchased for himself last year, he needs to raise his prices by 2% if he expects overall prices in the economy to rise this much. If rapid money creation does occur during times of little productive slack, this could well lead to increases in prices across-the-board and hence to rising expectations of inflation, which become self-fulfilling.

Scare-stories (sometimes true) about central banks unleashing inflation upon their economies are about this inflationary momentum, not about discrete jumps in single-prices.

Further, because it is not just food and energy prices that are volatile and non-informative about the embedded state of inflationary expectations, there are a number of measures of “core” inflation. Import prices can rise or fall sharply based on movements in the value of the dollar. In some countries, changes in national sales taxes (or value-added taxes) can lead to large one-time jumps in the price-level without causing permanently higher inflationary expectations. In short, good measures of “core” inflation seek to exclude those prices that do not convey much useful information about the real inflationary momentum in the economy.

Luckily, *all* measures of core inflation are telling the same story – the last couple of years have seen rapid disinflationary pressures in the U.S. economy (see **Figure 12**⁴⁷ [Figure 18] for a range of commonly-used core measures of inflation). In short, the data from the recent past argues that worrying about rampant price-growth is profoundly misguided.

Further, forward-looking measures of inflationary expectations used by forecasters and market participants are telling largely the same story. The spread between real and nominal 10-year Treasury securities is one commonly-used proxy for inflationary expectations – this spread has shown no upward trend in the past couple of years (see **Figure 13**⁴⁸ [Figure 19] below).

Importantly, the data showing disinflation and very low rates of expected inflation in coming years are not a surprise – they are in fact exactly what conventional macroeconomic theory would lead one to expect. High unemployment rates and large output gaps (again, measures of productive slack) are historically correlated with low

⁴⁷ [In the original testimony the information described in the text as Figure 12 was depicted in the chart labeled Figure 14.]

⁴⁸ [In the original testimony the information described in the text as Figure 13 was depicted in the chart labeled Figure 15.]

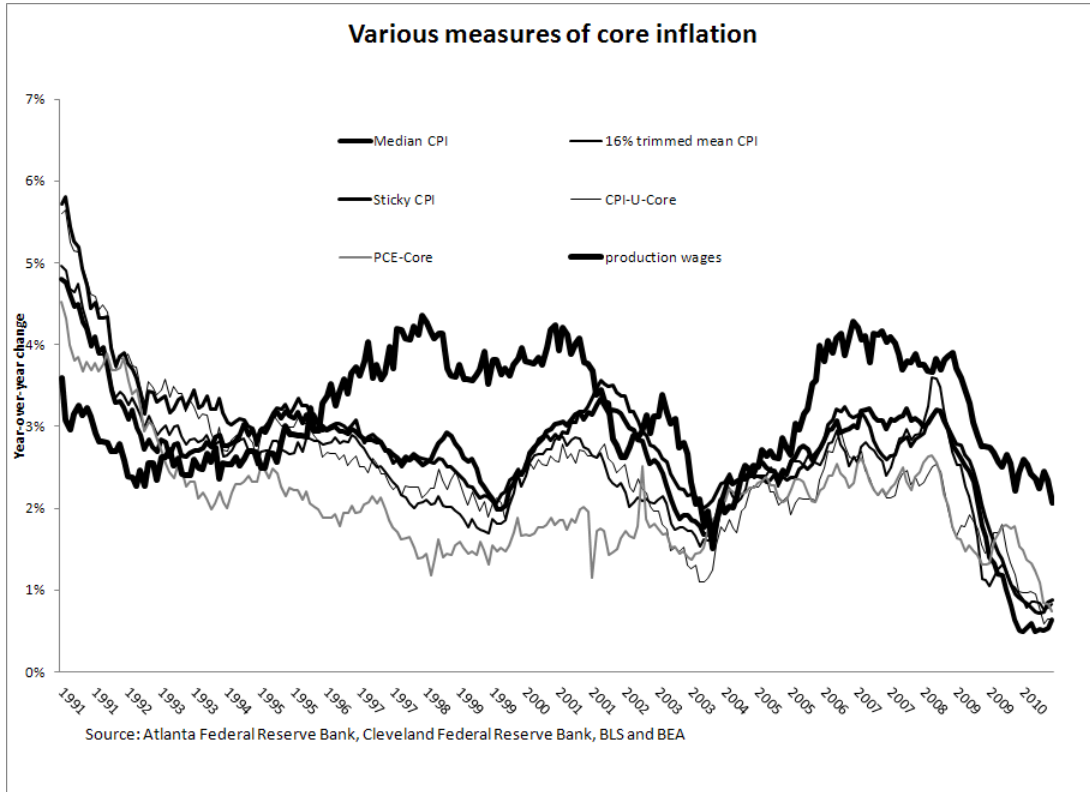


Figure 18

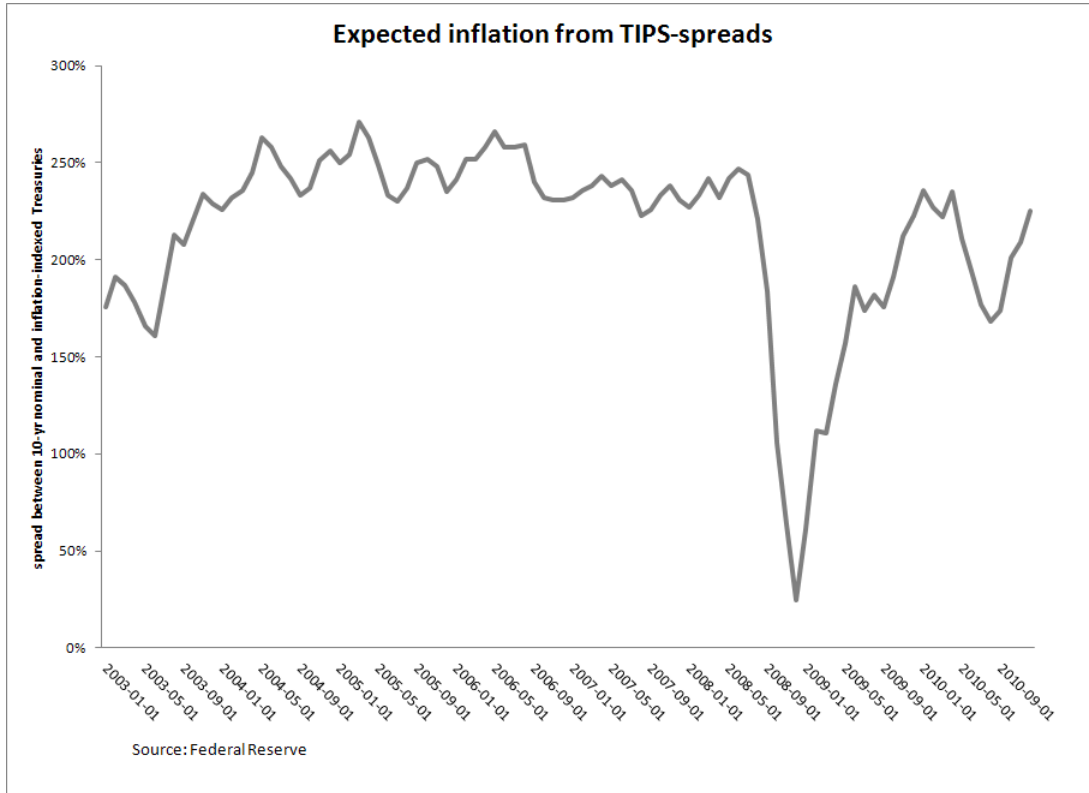


Figure 19

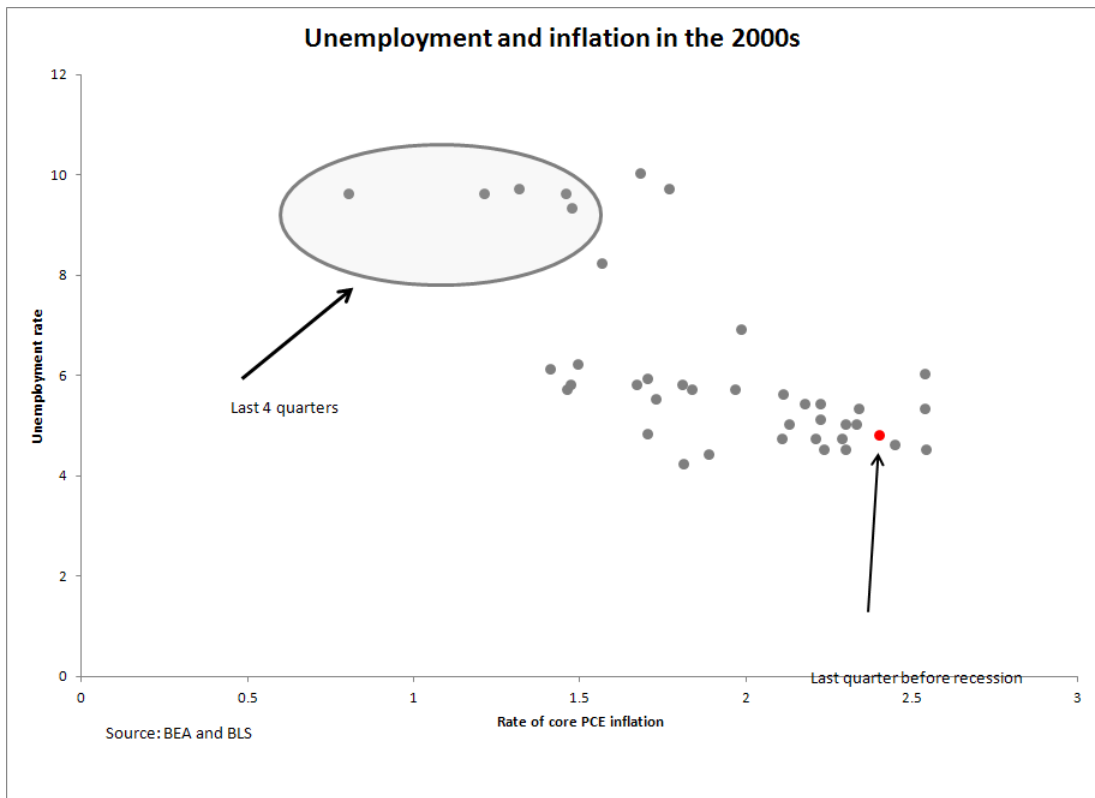


Figure 20

rates of inflation. The reason is simple; as the economy cools and consumers and businesses stop spending, firms see output piling up unsold and hence lose the ability to raise prices and workers lose the ability to demand large wage-increases when they see many of their peers out of work.

Figure 14⁴⁹ [Figure 20 above] below shows the relationship between unemployment and inflation in the U.S. over the 2000s – with the last 4 quarters highlighted. This short-run relationship between prices and unemployment replicates a common pattern within business cycles – periods of high unemployment rarely see growing price pressure. The one recent historical counter to this trend, the “stagflation” of the 1970s (high unemployment accompanied by high inflation) can be largely explained developments on the supply-side of the economy – an oil price-shock combined with very rapidly decelerating trend productivity growth in the economy.

We can reassure ourselves that there is little evidence of a similar fall in productivity that could lead to upward price-pressures on the horizon. Another key predictor of inflation is a rise in unit labor costs – the labor cost of each additional unit of output. This cost rises as labor compensation rises, but falls as productivity increases (as each worker can now produce more output). **Figure 15**⁵⁰ [Figure 21] below shows a plot of inflation versus unit labor costs for the U.S. economy since 1959, with the most recent quarters highlighted. As can be seen, a price-push from the supply-side looks very unlikely.

Lastly, it should be noted that the current rates of inflation are undesirably low for the U.S. economy. For example, the price deflator for core personal consumption expenditures rose by less than 1% over the past year – the first time in the history of this indicator that it has fallen under 1%. Disinflation is bad because as inflation falls, real interest rates tend to rise – and given that the economy needs more spending from households and businesses right now, rising interest rates will not help this.

Further, the debt-driven nature of the Great Recession would make higher inflation rates desirable right now. Both households and businesses are operating underneath a very large overhang of debt accumulated during the last 15 years. Over time, debt fixed in nominal terms (like mortgage debts) actually becomes less and less burdensome relative to other prices and wages in the economy so long

⁴⁹ In the original testimony the information described in the text as Figure 14 was depicted in the chart labeled Figure 13.]

⁵⁰ In the original testimony the information described in the text as Figure 15 was depicted in the chart labeled Figure 16.]

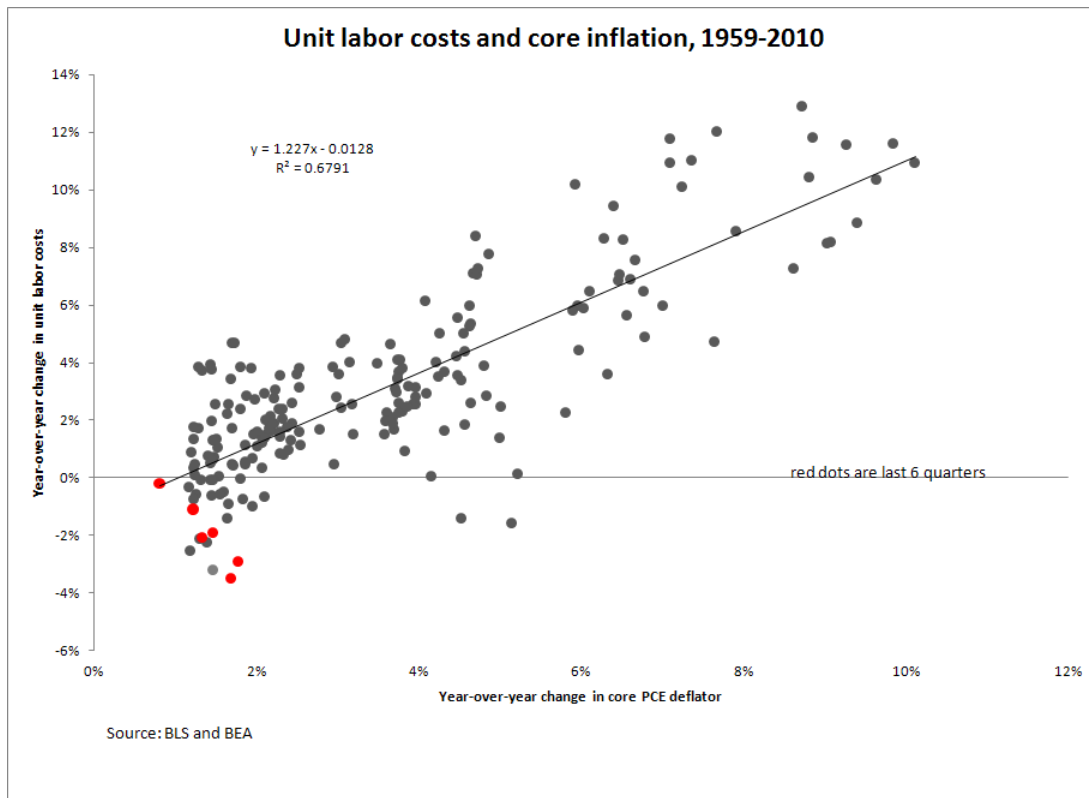
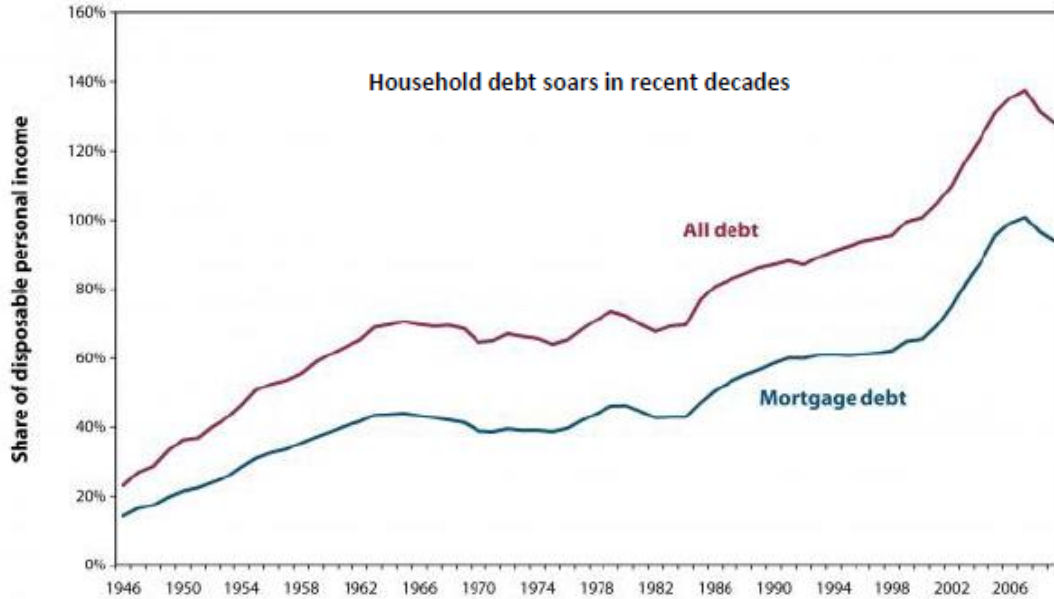


Figure 21



Source: EPI analysis of U.S. Federal Reserve Board, Flow of Funds Accounts of the United States.

Figure 22

as there is positive inflation. For example, if your mortgage payment is \$1,000 per month and inflation runs at 4% per year, by the 30th year your mortgage payment has actually shrunk by just under 70% relative to all other prices and wages in the economy. If, instead, inflation only rises by 1%, then the mortgage payment will only have only shrunk by 25% by the 30th year (and deflation, falling prices, would actually cause one's mortgage burden *to rise*). Given the very high debt burden currently afflicting American households and business (see **Figure 16**⁵¹ [Figure 22] below for household debt measures), inflation rates of under 1% will allow them to dig out of this debt overhang very slowly indeed.

Conclusion

What we now call the Great Recession can be described simply in the terms of macroeconomics – it was a huge negative shock to economy-wide demand for goods and services caused by the bursting of the housing bubble. Since this shock, the Federal Reserve has, as would be recommended by the vast majority of professional macroeconomists, attempted to lean against this negative shock to demand and spur spending with its policy levers. It has done this through conventional (lowering the short-term policy interest rates it controls) and unconventional (direct purchases of longer-term securities) means.

Its actions have clearly helped. They have also clearly *not* been accompanied with the same degree of urgency on the part of policymakers in charge of the other levers of macroeconomic stabilization policy (fiscal and exchange-rate policy). Because of this, we remain today at intolerably high levels of unemployment. However, blaming the Fed for this is quite odd – they have been by far the policymaking institution that has responded most forcefully and in the timeliest manner to the crisis.

Arguments that the Fed actions have been in the *wrong direction* are even odder. Here a (strained) analogy might help. Say that the economy in the midst of the housing bubble burst is akin to a man who has fallen out of a third-story window. The actions by Fed in response can be thought of as throwing a mattress underneath him to break the fall; the mattress will surely help but may not be thick enough to prevent all damage from the fall. Criticizing the Fed for flirting with inflation with its actions during the current crisis would be like arguing that the mattress thrown under our falling man is *too*

[⁵¹ In the original testimony the information described in the text as Figure 16 was depicted as the second of two charts labeled Figure 16..]

thick and *too* plush: if slept on for a long time our falling man may eventually develop an achy back.

Going into the recession, the overwhelming consensus among professional macroeconomists was that the Fed could be an effective part of stabilization policy and through forceful actions could make recessions shallower and shorter. Absolutely nothing that has happened in the past three years has shaken that belief.

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*H*EARING III.

MONETARY POLICY AND THE DEBT CEILING: EXAMINING THE RELATIONSHIP BETWEEN THE FEDERAL RESERVE AND GOVERNMENT DEBT

Wednesday, May 11, 2011

WITNESSES

Ebeling, Richard M., Ph.D., Professor of Economics, Northwood
University

Ely, Bert, Ely & Company, Inc

Slaughter, Matthew J., Ph.D., Dean, Tuck School of Business,
Dartmouth College

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Monetary Policy and the Debt Ceiling: Examining the Relationship between the Federal Reserve and Government Debt” at 10:00 a.m. on Wednesday, May 11, 2011 in Room 2128 of the Rayburn House Office Building.

The hearing examined the fundamental role that federal government debt plays in the monetary system of the United States. It discussed the relationship between the U.S. Treasury, the Federal Reserve System, and the primary dealers in issuing and purchasing Treasury securities. The hearing also examined the integral role of U.S. Treasury securities in the conduct of monetary policy and how federal budget deficits are exacerbated by the special treatment of government debt throughout the monetary system.

This was a one-panel hearing with the following witnesses:

- Richard M. Ebeling, Ph.D., Professor of Economics, Northwood University
- Bert Ely, Principal, Ely & Company, Inc.
- Matthew J. Slaughter, Ph.D., Dean, Tuck School of Business, Dartmouth College (Witness for the Minority)

The Fed’s Monetary Policy Authority

The Federal Reserve System was established in 1913 as the central banking system of the United States. The Federal Reserve formulates the monetary policy of the nation, supervises and regulates banks, and provides financial services to depository financial institutions and the federal government. The Federal Reserve was given the authority by Congress to issue Federal Reserve notes, which have been designated as legal tender and as obligations

of the United States. Congress has empowered the Fed to engage in monetary policy, abdicating any authority or responsibility it had over monetary policy.

Although the Federal Reserve is supposed to remain nominally independent and to refrain from directly purchasing new issuance of government debt, the current monetary system is largely built on government debt, and monetary policy itself is conducted through the purchase and sale of government debt.

Structure of Monetary Policy Operations

The Federal Reserve System conducts monetary policy through open market operations, in which it buys and sells Treasury debt (Treasuries) on the open market to reach a targeted federal funds rate, the rate at which banks lend funds to each other overnight. Open market operations expand and contract the money supply. When the Federal Reserve purchases Treasuries on the open market it does so by electronically increasing the amount of money that a primary dealer has in its reserve account at the central bank, which expands the money supply. When the Fed sells Treasuries, it electronically decreases the amount of money that the primary dealer has in its reserve account, effectively retiring the dollars that the Fed receives in exchange for Treasuries, thus contracting the money supply.

Treasuries are perceived as an ideal instrument for conducting monetary policy because they are widely traded, with plenty of investors both buying and selling them, making the market place for Treasuries highly liquid. Treasuries are also heavily traded, accounting for more than half of U.S. bond market trade volume over the last decade. The popularity of Treasury securities in the bond market can be attributed to their status as a debt instrument backed by the full faith and credit (i.e. power of taxation) of the U.S. government.

The Federal Open Market Committee (FOMC) sets monetary policy by establishing the target federal funds rate, also known as the overnight rate. The FOMC consists of up to twelve voting members at a time: the seven members of the Board of Governors of the Federal Reserve System and five of the twelve regional Federal Reserve Bank presidents. Of these five regional bank president members, four rotate off the FOMC every year. The president of the Federal Reserve Bank of New York, however, is a permanent voting member of the FOMC.

Open market operations are conducted by the Federal Reserve Bank of New York (the New York Fed) by means of its counterparty relationships with twenty or so primary dealers.⁵² These primary dealers are required to participate “consistently” in auctions of U.S. government debt and to provide the New York Fed with market information and analysis helpful in the formulation and implementation of monetary policy. Although other dealers may participate in Treasury debt auctions, primary dealers often purchase the bulk of offered Treasury debt. Among the primary dealers are Barclays Capital; Citigroup Global Markets; Deutsche Bank Securities; Goldman, Sachs & Co.; J.P. Morgan Securities; and UBS Securities.⁵³

When the U.S. Treasury issues new debt, the primary dealers and other banks purchase the new Treasuries at auction. Because primary dealers are required to participate “consistently,” there is always a purchaser of government debt. However, banks, including the primary dealers, generally do not maintain excess liquidity for the purchase of additional assets, but rather loan out funds up to the limit of their reserve requirements. In order to facilitate the purchase of new Treasury debt and conduct effective monetary policy, the Federal Reserve in some instances may purchase old Treasury debt from the dealers in the market, providing them additional liquidity with which to purchase newly issued Treasury debt at auction.

Monetary Policy Since 2007

Since the first indications of the financial crisis in July of 2007, the Federal Reserve began to examine new ways of conducting monetary policy. The Federal Reserve’s first attempt at stabilizing markets was its Term Auction Facility, which began operations in late 2007. By the time Bear Stearns collapsed in March of 2008, the Federal Reserve had opened an additional credit facility, the Primary Dealer Credit Facility (PDCF). As the crisis worsened in September of 2008, traditional monetary policy operations played a minor role compared to the Fed’s newly created credit facilities. The Federal Reserve’s balance sheet mushroomed in size as a result of their unconventional programs.

⁵² As of December 2012 there were twenty-one primary dealers while there were only twenty in May 2011, at the time this hearing took place.

⁵³ A full list of primary dealers can be found on the New York Fed’s website at http://www.newyorkfed.org/markets/pridealers_current.html. Last accessed December 11, 2012.

While total Reserve Bank credit averaged just over \$880 billion in August of 2008, by November of 2008 it had risen to over \$2 trillion. During that same period the monetary base had risen to nearly \$1.5 trillion as total excess bank reserves increased from \$2 billion to over \$600 billion.

“Permanent” Open Market Operations

As the Federal Reserve began to phase out the credit facilities created to respond to the financial crisis, it began large-scale asset purchase programs such as the Mortgage-Backed Securities Purchase Program. The Fed's typical short-term monetary policy operations gave way to these new “permanent” open market operations, as the Fed described them, in which assets were bought and held by the Federal Reserve for longer periods of time.

The New York Fed began these “permanent” operations in early 2009, encompassing the Mortgage-Backed Securities Purchase Program and the Federal Reserve's large-scale purchases of Treasury debt, which became popularly known as QE1 and QE2, respectively, referring to the popularly-named quantitative easing (QE) policy. The rationale behind these large-scale asset purchases was to drive down long-term interest rates in order to try to facilitate economic growth. Fed Chairman Ben Bernanke maintained that the programs achieved that goal, pointing to a decline in interest rates on Treasury and Agency (Fannie Mae and Freddie Mac) securities, lower longer-term interest rates for other securities that were not part of the purchase program and a rise in equity prices. Critics of these programs say that they have resulted in higher consumer and commodity prices.

U.S. Government Debt, the Monetary System, and the Deficit

Given the pivotal role that the U.S. government's debt plays in the monetary system, the debate over the federal government's budget deficits is more complicated than just balancing revenues and expenditures. The political cost of issuing U.S. government debt is typically far lower than the costs of raising taxes or cutting spending. This reality resulted in the nation's overall debt level reaching \$14.3 trillion at the time of this hearing. By December 2012, the debt of the United States government had increased to \$16.4 trillion.

Unlike businesses or households that face market constraints on the amount they can borrow, such as prohibitively high interest rates, the U.S. government has been able to sustain high debt levels for an extended period of time. The highly liquid market and high demand

for government debt, brought about by both the guaranteed purchase of government debt and its subsequent use by the Federal Reserve in conducting monetary policy, and the backing of the full faith and credit of the U.S. government, has insulated the U.S. government from typical market discipline.

Developments prior to this hearing indicated, however, that investors other than the Federal Reserve were beginning to reconsider their willingness to buy Treasuries. China had said that it may begin to reduce its holdings of Treasury debt, and indicated that its \$3 trillion total foreign exchange reserves were excessive. The global investment manager PIMCO completely divested itself of Treasuries in early 2011, and its co-founder, Bill Gross, publicly warned of a U.S. debt default. If foreign governments and large institutional investors begin to shy away from Treasuries, the Federal Reserve could face increasing pressure to monetize new debt.

Even as the total level of government debt continues to exceed an ever-increasing statutory debt ceiling, political discussions have maintained a focus almost solely on the spending or taxing elements of the federal budget. The integral role of the nation's monetary policy has to date not been a central topic of discussion.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, McHenry, Luetkemeyer, Huizenga, Schweikert; Clay, Maloney, and Peters.

Ex officio present: Representative Frank.

Chairman PAUL. This hearing will come to order. Without objection, all members' opening statements will be made a part of the record.

I would like to go ahead and start with our opening statements and then get to our introductions.

Today's hearing deals with monetary policy and the debt ceiling and examining the relationship between the Federal Reserve and government debt. The government debt, the national debt now is a big issue mainly because the debt limit has once again been met, and the Congress has to go through the process of raising the debt limit.

The question is whether or not monetary policy is in any way related to the debt increase. Some say it is related; some say it is not. And the statistics are available to us to study that issue.

But to me, it looks like there is a relationship. It seems like the Federal Reserve System provides a moral hazard, and that as long as Congress knows that Treasury bills will be bought and interest rates will not be allowed to rise, therefore the Congress is more careless.

If we had no monetization of debt, which would annoy a lot of people, I am sure, who think the world would come to an end if that happened, the Congress would be self-regulated in many ways, because if we in the Congress spent excessively and we taxed excessively and borrowed excessively and we still didn't have enough

money to keep interest rates reasonably low, interest rates would rise.

And it would be Congress that would have to respond and not be bidding for so much capital out of the market, and therefore wouldn't be tempted to say, "Well, it really doesn't matter. We have an emergency. We have a war going on. We must finance the war. We have an entitlement system that depends on this, so therefore if we print the money, this will take care of things."

It may well take care of things for a while, but ultimately, this process will run up against a stone wall. And I think that is where we are today.

We have raised the debt limit many times over the years, and it has been generally a non-event. It used to be that when you passed a budget resolution, the only part that was actual law was raising the debt limit. It wasn't even debated. It was just generally done.

But things have been moving along rather rapidly, and I cannot believe that what we are doing is sustainable. Right now, we are accumulating obligations. When you look at the deficit plus what we borrow from our trust funds plus our increase in our entitlement obligations, there are good estimates made that this amounts to about \$5 trillion a year. And that, obviously, is unsustainable when we have a weak economy, jobs are going overseas, we are not producing, and we are in the midst of a slump.

The solution hardly seems to be just more debt and depending on the Federal Reserve to come to our rescue while devaluing the currency, which means that many people that some of this deficit financing is supposed to help will actually be hurt by it, because they are the ones who lose their jobs, and then they end up with the prices going up because of the debasement of the currency. So this deficit financing seems like it can't last forever.

When the Fed was started, we didn't have the same type of monetary statistics that we have today. But the base at that time, the monetary base at that time, was probably around \$4 billion. By 1971, at the time when we lost the last leak of our dollar to gold, it was about \$67 billion. But with the removal of any restraint on the Fed to buy debt, the monetary base went up to \$616 billion.

Now, in this last decade, which has been a decade of economic weakness, real income has not gone up. Good jobs have not been added; they have been leaving our country because of our economic problems. But in these last 10 years, the monetary base has jumped

from 616 billion to \$2.5 trillion, so there is a lot of activity going on there.

I also find that if you look at the debt during this period of time, of course, in 1913 the debt was practically irrelevant, a couple of billion dollars, but by 1971, incrementally, on a weak economy, the debt went up to \$398 billion. Ten years ago, it was \$5.8 trillion, but in this weakened economy, it has jumped up to \$14 trillion.

And I think what is interesting is that if you still pay a little bit of attention to M3, which we are not allowed to see any more from the Fed, because it costs too much money to produce those statistics, M3 is \$14 trillion, and the national debt is \$14 trillion. I don't know how coincidental that is, but I just think there is a relationship to that.

We have the statistics from the Fed that tell us about how many Treasury bills they are buying, and they are buying routinely. But what we don't know is whether or not—because we don't have a full audit of the Fed—we extend loans to other foreign banks with the quid pro quo for them to buy Treasury bills, because foreigners are still buying a lot of our debt.

But, it is interesting to see how passionate this whole argument about raising the debt limit is. It was a former Secretary of the Treasury who just recently said that if we don't bow down, immediately raise this level, it will be so destructive that it would actually be equivalent to a terrorist act. That is how serious it is.

The whole thing is they said, "Well, we can't default." But we started our country by defaulting. I don't endorse this idea, but we started it. We defaulted on the continental dollar. We defaulted in the Civil War period. We refused to pay what we promised to pay in gold. They just unleashed unlimited spending.

We defaulted in the 1930s, took the gold from the people, and didn't pay off the gold to the people. We took it from them. And then in 1971, we defaulted again. We said to foreigners, "No." We said we would honor our dollar at \$35 an ounce, and we just quit.

So we have defaulted many times. Sure, there are going to be problems if we don't raise our national debt, but I think if we don't cut the spending, that kind of a default is going to be much, much worse.

And now I yield to Mr. Clay, the ranking member.

Mr. CLAY. Thank you, Chairman Paul. And thank you for holding this hearing regarding the Federal Reserve's role in United States monetary policy and the responsibility to address the U.S. budget deficits.

To address this issue of the Federal Reserve's role in the economy, we have to address the Federal Reserve's dual mandate it has to maintain stable prices and full employment. And we also have to have an adult conversation here in Washington about this credit card mentality we have of putting big-ticket items on a national credit card.

I think that has to stop, when you think about the last decade, how we conducted two wars without having a way to finance those wars. We had a prescription drug benefit instituted without a way to pay for that.

Those are just two examples of what is wrong with the Washington mentality, so I agree with you. We have to have an adult conversation. Hopefully, this hearing can be the start of it.

Mr. Chairman, I yield back.

Chairman PAUL. I thank the gentleman.

I now yield 5 minutes to Congressman Huizenga.

Mr. HUIZENGA. Thank you, Mr. Chairman. I appreciate the opportunity and I appreciate our panel of witnesses coming and speaking to us today. And I, too, Mr. Chairman, appreciate your willingness to hold this hearing and leading this conversation in so many ways.

My constituents—I am from Michigan, the west side of Michigan, so I am very familiar with our friends over on the other side of the State at Northwood, but my constituents in the 2nd District have made it very, very clear that the debt and our spending is one of the most vital issues that is facing not just this current Congress, the 112th Congress, but us as a nation and to us as a people and our way of life.

And they are asking us to rein our spending in, reduce our massive debt. And that is why I think it is so important that we are holding this hearing.

The Federal Reserve Board of Governors is congressionally mandated, as we all know, to maximize employment as well as to hold down inflation. But after witnessing this massive debt load that has been accumulated by other Administrations, but has ramped up in this current Administration, it seems to me that those are really failed fiscal policies.

And I am pleased that we are now spending some time exploring the role of monetary policy and the national debt. I am very concerned about the liquidity that has been put into markets by the Fed. And through the purchase of those debts and most recently through the fact that Federal funds rates sit at basically zero, we have had to

go through, or haven't had to go through—the Fed made the decision to go through by purchasing an additional \$600 billion in Treasury securities with utilizing the philosophy of quantitative easing.

And we have gone through QE1 and now QE2, and despite purchasing \$1.2 trillion previously in March of 2009, it seems to me it has not proved to be an effective method of creating jobs. And I would love to have your input on that.

Today, we will examine what effect the Fed's government debt plays on the Federal Reserve's open market operations. In addition, I look forward to inspecting how that role affects our yearly deficits when compared to the more costly tax-and-spend fiscal policies that we have had.

And I take my charge here as a Member, as a freshman Member of this 112th Congress and as a member of this important subcommittee, I take my responsibility for strict oversight of taxpayer dollars with the utmost seriousness. And I know that has to be done.

We have been irresponsible in the past, I believe, with the trust that we have been given by the American people. And it is time that we step up and take care of that.

I look forward to a robust conversation today. I am sure that there are a number of differing opinions here. And as we are exploring sort of the Fed's unparalleled intervention in the markets, I am looking forward to hearing from you.

So again, Dr. Paul, Chairman Paul, I appreciate the opportunity to be a part of this committee and a part of this hearing and I look forward to that. Thank you.

Chairman PAUL. I thank the gentleman.

Does anybody else care to make an opening statement?

Thank you.

Without objection, the written statements of our witnesses will be made a part of the record, and each of you will be granted 5 minutes to summarize what you have to say, and then we will go into the questions. I will go ahead and introduce the panel now.

The first panelist is Dr. Richard Ebeling, a professor of economics at Northwood University in Midland, Michigan. He is recognized as one of the leading members of the Austrian School of Economics.

He is a former president of the Foundation of Economic Education and author of, "Political Economy, Public Policy and Monetary Economics." Dr. Ebeling earned his Ph.D. in economics from Middlesex University in London.

Also with us today is Mr. Bert Ely. He is the principal of Ely & Company. He has consulted on banking issues since 1981 and has

focused in recent years on banking problems, housing finance, and the crisis in the entire U.S. financial system.

Mr. Ely frequently testifies before Congress on banking issues and continuously monitors conditions in the banking industry, as well as monetary policy. Mr. Ely received his MBA from Harvard business school.

Also with us today is Dr. Matthew Slaughter. He is associate dean of the MBA program at the Tuck School of Business at Dartmouth. He is also a research associate at the National Bureau of Economic Research and a member of the State Department's Advisory Committee on International Economic Policy.

During the George W. Bush Administration, he served as a member of the President's Council of Economic Advisors. Dr. Slaughter is co-author of, "The Squam Lake Report: Fixing the Financial System." Dr. Slaughter received his doctorate from MIT.

And we will go ahead and recognize Dr. Ebeling at this time.

**STATEMENT OF RICHARD M. EBELING, Ph.D.⁵⁴
PROFESSOR OF ECONOMICS
NORTHWOOD UNIVERSITY**

Mr. EBELING. Mr. Chairman, I would like to thank you and the other committee members for this opportunity to testify on our current fiscal crisis and the issue of raising the government's debt ceiling.

The current economic crisis through which the United States is passing has given heightened awareness of the country's national debt problem. Between 2001 and 2008, the national debt doubled from \$5.7 trillion to \$10.7 trillion and has grown by another \$3.6 trillion in the last 3 years to a total of \$14.3 trillion.

As I point out in my written testimony, this addition to the national debt since 2008 represents a huge sum. It is 2 times as large as all private sector manufacturing expenditures and nearly 5 times the amount spent on non-durable goods in 2009. The interest payments alone during the first 6 months of the current fiscal year are equal to 40 percent of all private-sector construction spending in 2009.

This highlights the social cost of government spending above what it already collects in taxes from the American public. Every dollar borrowed by the United States Government and the real resources that dollar represents in the marketplace is one dollar less that could have been available for private sector investment, capital

⁵⁴ [The prepared statement of Dr. Ebeling can be found on page 484.]

formation, consumer spending, and other uses that could have been put to work to improve the quality and the standard of living of the American people.

The bottom line is that over the decades, the government, under both Republicans and Democrats, has promised the American people, through a wide range of redistributive and transfer programs and other ongoing budgetary commitments, more than the U.S. economy can successfully deliver without seriously damaging the country's capacity to produce and grow for the rest of the century.

To try to continue to borrow our way out of this dilemma will be just more of the same on the road to ruin. The real resources to pay for all the governmental largesse that has been promised would have to come out of either significantly higher taxes or crowding out more private sector access to investment funds to cover continuing budget deficits.

Whether from domestic or foreign lenders, the cost of borrowing will eventually and inescapably rise. There is only so much savings in the world to finance both private investment and government borrowing, particularly in a world in which developing countries are intensely trying to catch up with the industrialized nations.

Interest rates on government borrowing will rise, both because of the scarcity of savings to go around and lenders' concerns about America's ability to tax enough in the future to pay back what has been borrowed. Default risk premiums need not only apply to countries like Greece.

Reliance on the Federal Reserve to print our way out of this dilemma through more monetary expansion is not and cannot be the answer. Printing paper money or creating it on computer screens at the Federal Reserve does not produce real resources.

It does not increase the supply of labor or capital, the machines, tools and equipment out of which desired goods and services can be manufactured or provided. That only comes from work, savings, and investment, not from more green pieces of paper with Presidents' faces on them.

As I point out in my written testimony, monetizing the debt refers to the creation of new money to finance all or a portion of the government's borrowing. Since 2007–2008, the Federal Reserve, through either buying U.S. Treasuries or mortgage-backed securities, has in fact increased through the money multiplier of fractional reserve an amount already equal to about two-thirds of all of the government's new deficit spending over the last 3 years or so.

The fact is the Federal Reserve has more or less monetized—that is, created paper money—to cover a good portion of what the government has borrowed. The bottom line is that government is too big. It spends too much, taxes too heavily, and borrows too much.

For a long time, the country has been treading more and more in the direction of increasing political paternalism. The size and scope of the Federal Government has to and must be reduced dramatically to a scale that is more consistent with the limited government vision of our founding fathers, as is outlined in the Declaration of Independence and formalized in the Constitution of the United States.

The reform agenda for deficit and debt reduction, therefore, must start with the promise of cutting government spending and having a target downsizing of the government. As I suggested in my remarks, the Federal budget should be cut 10 to 15 percent each year across-the-board to get government down to a more manageable, traditional constitutional size.

As a first step in this fiscal reform, it is necessary to not increase the national debt limit. The government should begin now living within its means—that is, the taxes currently collected by the Treasury.

In spite of much of the rhetoric in the media, the United States need not run the risk of defaulting or losing its international financial credit rating. Any and all interest payments and maturing debt can be paid out of tax receipts. What will have to be reduced are other expenditures of the government.

The required reductions and cuts in various programs should be viewed as a necessary wake-up call for everyone in America that we have been living beyond our means. And as we begin living within our means, priorities will have to be made and trade-offs will have to be accepted as part of the transition to a smaller and more constitutionally limited government.

In addition, we have to rein in the power of the Federal Reserve. As I point out in my comments again, the power of discretionary monetary policy must be removed from the hands of the Fed.

They have too much authority to manipulate the supply of money in the economy, to influence the purchasing power of the monetary unit, and to distort interest rates, which influences the savings and investments in the economy that easily set in motion the boom and bust of the business cycle.

It is necessary first to think of seriously returning to a monetary system as a transition first that is a commodity-backed system, such as a

gold standard. And we should in the long run seriously consider the possibility of even a monetary system completely privatized and competitive without government control and management.

In conclusion, the budgetary and fiscal crisis right now has made many political issues far clearer in people's minds. The debt dilemma is a challenge and an opportunity to set America on a freer and potentially more prosperous track.

And in conclusion, Mr. Chairman, I would just like to give the following quote from a former President of the United States, with your permission:

"I place the economy among the first and most important virtues and public debt as the greatest of dangers to be feared. To preserve our independence, we must not let our leaders load us with public debt. We must make our choice between economy and liberty or confusion and servitude. If we run such debts, we must be taxed in our meat and drink and our necessities and comforts and our labor and in our amusements. If we can prevent the government from wasting the labor of the people under the pretense of caring for them, they will be happy."

Whose words are those, Mr. Chairman? Thomas Jefferson, the third President of the United States. Thank you very much.

Chairman PAUL. I thank the gentleman.

And I will now recognize Mr. Ely.

STATEMENT OF BERT ELY⁵⁵
[PRINCIPAL]
ELY & COMPANY, INC.

Mr. ELY. Chairman Paul, Ranking Member Clay, and members of the subcommittee, I appreciate this opportunity to testify today.

The first two charts attached to my written testimony show the tremendous growth of the Fed balance sheet September 2008, which reached an all-time high of \$2.7 trillion in assets last Wednesday. How much more will grow is anyone's guess.

As my testimony shows, almost all the growth in the Fed's liabilities has occurred in deposits in the Treasury Department and banks. Initially, the Treasury borrowed funds to lend to the Fed that the Fed then lent and invested in the financial markets. The later jump in bank deposits enabled the Treasury to reduce its deposits and borrowing. Bank deposits at the Fed rose to \$1.54 trillion last month.

⁵⁵ [The prepared statement of Mr. Ely can be found on page 495.]

Exhibit 2 also has faced the steady growth of the Fed's other major liability, currency. The Fed has no control over the amount of currency outstanding, though. It is totally demand-driven.

Turning to the Fed's income statement, the Fed has been extremely profitable since 2008. Exhibit 6 shows how the Fed earned a \$52.9 billion profit for taxpayers last year. Over the 2008–2010 period, the Fed earned almost \$90 billion, more than all FDIC-insured institutions, and 2011 will be another extremely profitable year for the Fed.

A key public policy question is whether the Federal Government, through the Fed, should play such a substantial role in the credit intermediation business.

Turning to the Fed's independence, that independence in fact is a myth. The Fed is a creature of Congress, and it operates with the full faith and credit backing of the Federal Government. Key to understanding the linkage of the Fed to the rest of the Federal Government is to consolidate the Fed and Treasury Department's balance sheet. There are several merits in viewing this balance sheet on a consolidated basis.

First, the asset side of the balance sheet shows the extent to which the Federal Government, through the Treasury and the Fed, is supplying credit to the private sector, notably to finance housing and higher education.

Second, the liability side of this consolidated balance sheet shows that private sector funds, principally deposits by banks in the Fed, currently provide substantial funding to the Federal Government.

Third, the liability side of the consolidated balance sheet shows at the end of March currency outstanding accounted for 10.4 percent of the total Federal debt held by the public. This non-interest-bearing portion of the Federal debt has declined as budget deficits have forced the issuance of substantial amounts of interest-bearing debt.

Given the magnitude of Federal budget deficits for the foreseeable future, the currency portion of the Federal debt will continue to decline. The printing press will not be a cure for funding unseen future deficits.

In sum, the Fed could be folded into the Treasury Department tomorrow. Doing so would permit a unified management of the Federal Government's balance sheet. The Treasury could also assume the role of lender of last resort. Since the Fed, when acting as an emergency lender, is lending taxpayer dollars, it is not doing anything that Treasury itself could not do. Treasury's assumption as

lender of last resort would bring much greater political accountability to such lending.

Since folding the Fed into the Treasury will not occur any time soon, Congress should mandate that the Treasury Department periodically produce a consolidated balance sheet of the Fed and the Treasury. This would present a more complete picture of Federal finances and the impact of the Federal Government on the U.S. economy.

Finally, the fundamental premise of central bank independence is that monetary policy should be free of political interference. Leaving aside the merits of that premise, the key question is what constitutes monetary policy.

Today, it consists solely of the Fed trying to influence interest rates through its open market operations, specifically to hold the overnight Fed funds rate as close as practical to the Federal Funds Rate Target, or FFRT, that is set by the FOMC.

The Fed does not control the money supply. The amount of currency in circulation is totally demand-driven. Money, however defined, is merely that portion of the credit supply which serves as media of exchange.

Inflation in the modern industrialized economy is to a great extent a function of the price of credit. If credit is underpriced, inflation may emerge as increased demand stimulated by underpriced credit causes the economy to overheat and asset prices to soar, as we saw in the recent years' housing bubble. Overpriced credit has the opposite effect.

Given that monetary policy is all about interest rates, the question is, who can better set interest rates: a committee of government bureaucrats; the FOMC; or the financial market? The experience of recent years certainly does not support the notion that bureaucrats can do a better job than the financial markets in pricing credit.

This question could be posed another way. What is it about credit that makes it desirable for government to determine its price? Somehow, either the central bank must provide a so-called nominal anchor for the credit market, a pricing benchmark, if you will. In the United States, that would be for the Federal funds rate target.

In my opinion, a good case has never been made that the financial markets cannot set interest rates across the entire yield curve that will promote stable, non-inflationary economic growth while minimizing the emergence of asset bubbles. More specifically, there certainly is no reason why the interbank lending market cannot es-

establish and vary the overnight interest rate, which the FOMC now establishes through its open market operations.

I encourage the subcommittee to address the question of why interest rates need a nominal anchor, why it is in the public interest to have a government committee signaling what its members consider to be the appropriate level of interest rate, and why the Fed should try to enforce that signal through open market operations.

If that case cannot be made, then the primary *raison d'être* for the Fed disappears, which would lead to folding the Fed into the Treasury Department.

Mr. Chairman, thank you for this opportunity to testify. I welcome the opportunity to answer questions.

Chairman PAUL. Thank you very much.

And finally, we will go on to Dr. Slaughter.

**STATEMENT OF MATTHEW J. SLAUGHTER, Ph.D.⁵⁶
ASSOCIATE DEAN OF THE TUCK SCHOOL OF BUSINESS
DARTMOUTH COLLEGE**

Mr. SLAUGHTER. Chairman Paul, Ranking Member Clay, and members of the subcommittee, thank you very much for inviting me to testify on these important and timely issues regarding America's monetary and fiscal policies.

In my remarks, I will make two points regarding the relationship between the Federal Reserve and Federal Government debt. I will then make two broader points regarding the debt ceiling.

First, it is important to emphasize that the Federal Reserve purchases of Federal Government debt has for decades been standard operating procedure for how the Fed conducts monetary policy. In pursuit of its dual mandate of both price stability and full employment, in the normal course of operations the Fed has long bought or sold Treasury securities to increase or decrease supply of what is commonly called high-powered money, or the monetary base.

In turn, through rounds of lending in the private financial system, these changes of the monetary base affect the broader U.S. economy. Indeed, for many years before the world financial crisis, the Fed executed monetary policy almost exclusively by transacting Treasury Securities. There is nothing inherently nefarious or worrisome about the Fed owning a large amount of Federal Government debt.

⁵⁶ [The prepared statement of Dr. Slaughter can be found on page 525.]

Second, it is important to emphasize that the current fiscal challenges facing America have not been caused or abetted by the historic interventions the Federal Reserve undertook amidst the world financial crisis. The Fed's efforts to restore liquidity and stability to America's capital markets required it to expand both the size and asset composition of its balance sheet in unprecedented ways.

This historic expansion of Federal Reserve monetary policy did not somehow cause the commensurate historic fiscal expansion. Rather, massive Federal fiscal deficits were triggered by a combination of sharp downfalls in Federal tax receipts and especially sharp increases in Federal spending.

Thus, historically, monetary and fiscal expansion coincided, but neither directly caused the other. Rather, both have been directed at containing the damage to the real economy of the world financial crisis.

Let me now turn to the broader issue of America's looming debt ceiling. Here I would like to make two points, the importance of which it is difficult for me to overstress.

First, the decision to lift the debt ceiling is a necessary consequence of previous decisions on taxes and spending. If America does not want to default, then raising the debt ceiling is mandatory, not optional. Pick whatever deficit reduction plan you like— that of the bipartisan deficit reduction panel, that of Congressman Paul Ryan, that of President Obama. No matter which plan you like, that plan will expand total Federal debt outstanding by several trillion dollars over the next decade.

This means that no matter which plan you like, to see it become a reality without the United States defaulting, you must support increasing the debt ceiling.

My second and final point is to implore you to understand that America is tempting a crisis of unknowable proportions if we default on our Federal Government debt. In many ways, global capital markets today remain deeply impaired. Housing prices in the United States continue to decline. Several sovereign debtors in Europe are struggling to remain liquid and solvent. Central banks continue to provide extensive support to the global financial system.

At the same time, economic recovery remains tentative in the United States and in many other countries, as Chairman Paul indicated in his opening remarks. About 25 million Americans remain unemployed or underemployed. Today's 108.9 million private sector jobs is the same number that America had nearly 12 years ago.

Amidst all this fragility and uncertainty, the prospect of a U.S. Government default is truly frightening. As the recent past so painfully demonstrated, financial crises often arise from unexpected sources and metastasize in unknowable ways. And a default in U.S. Treasuries, rather than on some other debt security in the world, would be especially worrisome for two important reasons.

One is that U.S. Treasuries are the one asset that world investors generally regarded to be free of default risk. But there is no law of physics that states the world's risk-free asset will always be

U.S. Treasuries. Indeed, it was not always so.

The other reason is that America's creditors are increasingly foreign, not domestic. Thanks to ongoing low saving rates by U.S. households, the foreign holdings of U.S. Government debt are likely only to rise beyond the recently crossed the 50 percent threshold.

History shows that deeply-in-debt sovereign powers are more likely to encounter sudden loss of confidence, the larger is the share of their outstanding debt held by foreign creditors. These fiscal crises have often come sharply and with little warning. All is okay, all is okay, all is okay. And then one day, all is catastrophically not okay.

America's fiscal challenges are grave. We need the understanding of our creditors to overcome these challenges. As such, America should be doing everything in its power not to cast doubt on the pledge to honor our debt. Time is running short, and what America needs most of all is leaders, such as those of you on this committee, to raise America's debt ceiling as part of meeting our fiscal challenges.

Thank you again for your time and interest in my testimony. And I look forward to answering any questions that you may have.

Chairman PAUL. Thank you.

[QUESTIONS & ANSWERS]

I will start the session for questioning. I want to follow up on Dr. Slaughter's position, on what would happen if we don't raise the national debt.

I concede it will be a problem and there would be some consequences, but the reason I come down on the side of saying that we shouldn't continue to do this is that we have embarked on a course that will lead us to such a consequence that will be much worse than not facing up to the fact that we just can't continue to do this constantly. There has to be some pressure put on the system that we can't depend on the creation of new money to accommodate the deficits that we come up to.

And I would like to ask Dr. Ebeling and Mr. Ely and let Dr. Slaughter respond, if he would like to, how bad is that if this debt

limit is raised? And is there an argument made that it might not be nearly as bad as they suggest? They were panicking us now and saying that anybody who would suggest this is the equivalent to a terrorist suggesting that. And that came from a Republican.

So can you comment on that, Dr. Ebeling?

Mr. EBELING. Yes. I don't think that it has the danger that has been suggested. As I said in my comments, both in my opening remarks and in my written remarks, the U.S. Government certainly takes in enough tax revenue far and above the tax revenue necessary to meet interest and rollover costs of existing debt.

What would be required, if one is going to maintain one's international creditworthiness in that manner, is to start cutting back on other domestic spending other than one's debt obligation.

Will that necessarily require trimming, cutting, reducing a variety of current expenditures that the U.S. Government is committed to? Yes. But the fact is that the same thing applies to households.

If a household finds itself in the situation where it cannot afford, because it has reached its credit card limit, to add to this debt without serious problems, and is threatened with default if you can't meet its minimum payment, it then tightens its belt, and to decide maybe not to buy the flat screen TV for the extra bedroom for a while, maybe not to go out to the restaurant 2 or 3 times a month, and maybe to watch more on Netflix for the \$14 a month as opposed to going to the movie theater for \$15 a ticket.

And that is how it will have to be managed. Now, as I say, this is an important—

Chairman PAUL. Excuse me. I want to follow up, because you have emphasized the need to cut back, and you suggested where it would have to be.

Mr. EBELING. Right.

Chairman PAUL. And it would not be all that much comfort for the people who have to cut back. But can't you include in there how rapidly could we cut some of the spending that we do overseas and some of this foreign policy adventurism? Wouldn't that be a place that we could save some money as well?

Mr. EBELING. I totally agree with you. The fact is that even in the post-Cold War era, the United States has dozens upon dozens of military bases and facilities around the world. Tens of thousands of American servicemen—Army, Navy, Air Force, Marine Corps—are stationed in various numbers in many, many countries around the world.

I see no reason why we could not significantly cut back on this overreach in our foreign policy and bring those soldiers home, reduce our expenditures for those bases, and make the countries that have for decades had this umbrella of military security from the United States shoulder these expenses themselves.

The fact is the United States still provides a huge military umbrella for the European Union, which they have had a free ride on practically since the beginning of NATO. I see no reason why we couldn't cut back and expect them to defend themselves more effectively. And the same thing applies to Korea or Japan.

Chairman PAUL. Let me get Mr. Ely's comments, too.

Mr. ELY. Mr. Chairman, I am clearly concerned by what the present trajectory of spending is and, more importantly, what this means in terms of the ratio of Federal debt to GDP. It is reaching astronomical heights.

And the challenge that Congress faces is basically not only trimming the spending, but getting the economic growth we need to help bring down the relationship of Federal debt to the current GDP. And, of course, as everybody knows, entitlements are a key aspect of that problem.

I am one who draws Social Security and is a beneficiary of the Medicare program, which, of course, are two of the really serious long-term problems facing the Federal Government. And they have to be addressed.

As much as I am—as I say, I am a beneficiary of those two programs. I fully appreciate, and I think even many of my fellow seniors do, that this cannot continue indefinitely. I do not envy the 30-year-olds and the 25-year-olds and so forth just now coming into the workforce because of the accumulation of these debts.

So it is going to have to be addressed, but it has to be more than cutting at the margin. It has to be some really fundamental changes and trimming back of the basic entitlement program.

Chairman PAUL. My 5 minutes is up, but I hope to be able to give you a chance to respond as well in time, so I am going to move on and recognize Congressman Frank.

Mr. FRANK. I agree on the need to cut back America's overcommitment internationally. I would say to Mr. Ebeling that, one, you said NATO has been getting a free ride practically since the beginning. No, not practically, no—since the very beginning.

Look, in 1949 we had countries in Western and Central Europe that were poor and devastated—enabled by his method to mobilize it all into military. And so the United States stepped in.

Two of those elements have changed. Western and Central Europe is no longer poor and weak and defenseless. There is no more Soviet Union menacing them. The only thing that hasn't changed is the American military protection. So, yes, there is a lot that could be done to shave that.

But—and I think this is true elsewhere in the world—Afghanistan. We are being told by some we should stay in Iraq another year to be the political and religious referee for Iraqi—but that is one of the points I want to make first of all.

The way this debt limit issue has been framed, I have had people acting—frankly, some of my Republican colleagues—as if they would be doing me a favor by raising the debt limit. The Federal Government doesn't owe me any money. I am not involved here.

I didn't vote for the war in Iraq. I didn't vote for the tax cuts of 2001 and for their renewal. I didn't vote for an unfunded prescription drug program. If everybody voted the way I did, we would have another couple of years before we would have to raise the debt limit.

Now, I lost. We incurred those debts. So that doesn't mean they don't pay them. But this notion that somehow I am responsible, that people on our side are responsible, no, there was a joint responsibility.

Let me just ask, though, Mr. Ely, in your response, the chairman had asked, and Mr. Ebeling responded, about what the consequences would be of not raising the debt limit. You didn't get to that. Would you tell me what is your view? Should we raise the debt limit? What if we are unable to come to a formula and don't raise the debt limit and run into the problem of not being able to— what do you think the consequences of that are?

Mr. ELY. I think it depends on how long things would go on before there was either resumption of the payment of the debt or at least the interest on the debt. If it is something that lasted a couple of days, I think—

Mr. FRANK. Okay. But if it is a couple of weeks or longer?

Mr. ELY. A couple of weeks or longer, I think could create some very serious longer-term negative consequences for the Federal Government in terms of leading to higher interest rates on Treasury debt. Again, I think it comes back to how does the financial—

Mr. FRANK. Yes, I am sorry, but I only have 5 minutes. I appreciate, but you—so you do think an indefinite problem. I agree that 1 or 2 days is never much of a problem. But if there is real uncertainty about how we are going to do that and it goes on for a while, there are negative consequences.

Mr. ELY. Oh, there is no question that there will be. And those negative consequences will mean higher interest rates on the Federal debt, and that will add to the budget deficit, if it goes on for a long time. A couple of days—

Mr. FRANK. Yes, if you don't have a resolution, yes, again, nobody thinks 1 or 2 days is a problem. We can do anything around here for 1 day except maybe hold our breath. But if you start getting into a deadlock, it is a different story.

Mr. Slaughter, you served in a very important position during the previous Administration, the Bush Administration. Again, on the debt limit, I appreciate your coming here and sharing your view.

What was the general view in the Bush Administration of the President and other high financial officials at Treasury and elsewhere, about the consequences if we were unable to come to an agreement on raising the debt limit?

Mr. SLAUGHTER. I think there was a variety of views, but I think almost everyone recognized that the unique position the United States has in global capital markets where Treasuries are regarded as the risk-free asset, everyone reasonably knew to have the humility to not know what would happen if we jeopardized that.

If we were to breach the debt ceiling and not have a resolution for some period of time, it is really difficult to know what is going to happen to demand for Treasuries around the world. We have never lived in that world. And again, today, now of the roughly \$10 trillion in U.S. Federal debt that is in public hands, slightly over half of it is foreign-held.

Mr. FRANK. Let me just a quick question, because you have been to business school. What about American businesses that operate internationally? Is there some negative impact for them, the multi-nationals that have to operate across national—

Mr. SLAUGHTER. There absolutely is. The global corporations, they have long time horizons, and when they discuss seeking certainty for the key investment and job creation decisions they make, the kind of uncertainty that we create in not resolving the debt issue makes them look outside of the United States to create those jobs.

Mr. FRANK. Mr. Paul and I can persuade our colleagues that we are spending hundreds of billions over time unnecessarily. By the way, we are defending wealthy nations against nonexistent threats. If we just started to bring some of that home, we can do some good work.

I thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

And I now recognize Mr. Huizenga for 5 minutes.

Mr. HUIZENGA. Thank you, Mr. Chairman. And I wanted to continue your line of questioning.

Dr. Slaughter, if you care to comment briefly on what Chairman Paul was asking before he ran out of time.

Mr. SLAUGHTER. Sure, I would add just a little bit of data. Again, there is about \$5 trillion of the \$10 trillion in U.S. debt outstanding in public hands that is now held by foreign entities. We don't have great data on who is holding U.S. Treasuries and what the source of their demand is. That is the reality of how data is collected globally.

Most people think that the People's Bank of China, which is the Chinese central bank, is the single largest entity holding U.S. Treasuries outside of the United States at about \$1.5 trillion. A lot of both the private and public institutions are holding Treasuries, we think, because of the perceived safety of that asset.

And safety is not something you can measure like you can measure things in the physics laboratory. What is saved in the eyes of these international investors is up to them, in large part. And so whether it is a 2-day breach, whether it is a 2-week breach of the debt ceiling, what is sort of mandated or chosen liquidations of holding U.S. Treasuries, it is hard to predict.

And it is hard to predict, then, as Bert said, what is going to be the impact on interest rates in the United States and that stress more generally on world capital markets that in many ways remain quite strained. And frankly, I think it is important to keep in mind financial crises are almost by definition hard to predict what would be the exact causes of them and hard to predict how they will evolve through time.

Mr. HUIZENGA. I appreciate that. And I wish our former chairman hadn't left. I was scarily going to say that we might be coming from a similar spot here. I am a freshman. I haven't been involved here on the run-up on our debt either, as his claim was, but we certainly have a position here—I have a position here of my desire to stop spending.

And that, I think, is how, if we hear from some of our friends on the other side of the aisle, who argue, "I wasn't part of that problem, because I didn't vote for this or that," I am here now, and I believe that part of that solution, exactly as Dr. Ebeling is talking about, is stopping our spending.

So it seems to me that is a fiscally responsible thing to do, as we are moving ahead, because I have a fear that, too, also, Dr. Slaughter, if we are going to put our currency as the reserve currency of the world at risk and we are going to be looking at much of what has

happened to many of our constituents, where they have had issues with their own personal credit and then had to go back and try to borrow more money, what has happened?

They are a greater credit risk, and they have had greater interest rates. We have seen this in Portugal recently. But I think our first and foremost focus needs to be on the stop-spending part. And I am curious to hear a comment there.

And then also, if anybody cares to comment on the value of the U.S. dollar, as opposed to the other currencies of the world and what we have seen in the rise of those other currencies or maybe more accurately a fall of our value.

Mr. ELY. If I could jump in here, again, I think a key aspect of the attack on spending has to be on the entitlements, has to be on money that people my age and older and even younger now are getting under Social Security and Medicare. And particularly, as the boomers come onto Social Security and Medicare, the problem is going to grow. And I think that is a very tough political issue that you have to deal with.

There is also the question that I know came up before, and that is about the savings rate. America is the world's largest debtor nation, somewhere in the range of \$3 trillion. And I think a key aspect of our poor financial situation isn't just the Federal debt, but it is the overall position of the United States with the rest of the world.

I know there are folks in the Pentagon who are concerned about our net debtor position, because the key reason why foreign interests hold so much in Treasury is because as a country, as a whole, we are so deeply in hock to the rest of the world.

So domestic savings and trying to encourage a greater level of domestic savings is, I think, a very important element of dealing with our global situation.

Mr. HUIZENGA. Dr. Ebeling?

Mr. EBELING. Yes, if I can just make a couple of comments, the concern has been expressed, and I don't disagree that if the United States were to default on its debt, its interest payment, this would have significant ramifications for our creditworthiness, interest rates at which the Treasury could borrow and so on.

But let us think of the alternative. If, as the Secretary of the Treasury has recommended, the debt limit is increased by \$2 trillion, then that will mean that between now and the beginning of 2013, the United States is likely, given the current trajectory, to need to borrow additional \$2 trillion.

Now, it is very hard to believe that if the Federal Reserve does not increase the money supply, that will not eventually have an effect

of rising interest rates anyway because of the amount of money that is going to be sucked into the government's deficit spending either domestically or from the international financial market.

There is also the fact that if the Fed monetizes it, as could happen as well, and as I was suggesting it has already done to a great extent, that will start having even more inflationary effects as the money starts percolating through the economy. And eventually, as people develop inflationary expectations, interest rates will rise anyway as they put an inflation premium on the rate of interest. So the fact is that it is between a rock and a hard place.

Mr. HUIZENGA. It is inevitable, is what you are saying?

Mr. EBELING. But in the long run, the important thing is that the government's budget has to be put under control. And the starting point, in my view, is that we do not raise the debt limit. We get our financial house in order now and start cutting and trimming spending so as to meet our financial obligations, but start taking our medicine to get on a sound financial course.

Mr. HUIZENGA. Dr. Slaughter, would you like to comment on that?

Mr. SLAUGHTER. I agree with many of the previous comments on the need for the United States to address both its medium- and long-term fiscal challenges. Our fiscal trajectory is completely unsustainable. I don't anticipate getting any Social Security, quite frankly.

Mr. HUIZENGA. I am 42, and I will be shocked if I get any.

Mr. SLAUGHTER. I am also 42, and my wife is the house accountant. I am the household trash recycling guy, but that is how we do it.

But that said, with no disrespect to anyone here or the broader

U.S. Congress, I just don't see how these deep challenges of spending and savings choices both for America overall and for the Federal Government can be addressed, frankly, in the next few days or few weeks without having major damage done to the credit-worthiness of the United States if it breaches—

Mr. HUIZENGA. Are you implying that maybe we don't have the political will to go out and do some of the things that we need to do?

Mr. SLAUGHTER. I am saying it is a really complicated set of issues and trade-offs that our country faces about what—

Mr. HUIZENGA. Because I would say I don't believe we have the political will to go out and do what probably most people believe we need to do.

Mr. SLAUGHTER. In which case, I am just very concerned about how the policy conversation proceeds and what happens in global

capital markets. That timetable of global capital markets is not one that anyone in the United States controls.

Mr. HUIZENGA. Would anybody care to comment?

My time has expired. So thank you, Mr. Chairman.

Chairman PAUL. The gentleman's time has expired. And if you hang around, we might be able to get some more questions later.

Now, I recognize the ranking member, Mr. Clay.

Mr. CLAY. Thank you, Chairman Paul.

Dr. Ebeling, the President's deficit reduction commission recommended numerous items of reining in spending. Also, they addressed a fair tax proposal. You have mentioned several times that we need to reduce spending. Should some type of tax reform be a part of that equation also?

Mr. EBELING. With all due respect, Congressman Clay, I think there needs to be tax reform, but the reform has to be taking the longer view—cutting taxes, not raising them. I believe that all across the income spectrum, Americans are paying more than enough taxes for what government does.

The fact is, it is not a taxing problem. True, the taxes have fallen because of the recession, but it is not a taxing problem. It is a spending problem.

The Congress, the President, too many special interest groups, and the general environment of the country have become addicted to the idea that the U.S. Government can afford and has the ability to hand out more and more largesse to society in general, to various special interest groups, for which the money and the resources are not there.

It is a spending problem, not a taxing problem. You don't want to raise taxes—

Mr. CLAY. Right. We have—

Mr. EBELING. —and create disincentives for work, savings, and investment, which in the long run doesn't make the economic pie get bigger. If you raise taxes, you slow down the pie's growth potential.

Mr. CLAY. You have mentioned the accumulation of U.S. debt over the past 3 years. What was the accumulation of the U.S. debt over the past decade?

Mr. EBELING. I am here at one level as someone who is not wearing a political hat. I am an academic economist. That means I try to look at the truth. And the Republicans were unbelievably irresponsible.

As I mentioned in my written testimony, between 2001 and 2008, our national debt doubled from approximately \$5 trillion to \$10

trillion. And therefore, they were as responsible, as I think the present situation is, with an unwillingness to cut government spending to bring this danger to a close.

Mr. CLAY. Okay.

Mr. EBELING. So, no. Both hands have a little bit of dirt on them.

Mr. CLAY. There are no clean hands. You are correct.

Dr. Slaughter, has the Fed policy of quantitative easing helped to improve the economy over the past 18 months?

Mr. SLAUGHTER. Yes, I think it has. I think both phase one and phase two were an attempt to continue to stabilize U.S. and global capital markets. I think they largely succeeded in that.

In particular, quantitative easing two was put into place at a time in mid- to late 2010 when there were a number of signs that the U.S. economy's rate of growth was slowing and that the general level of prices was coming close to being flat to falling, and so the need to try to avoid deflation, which can be very corrosive and as the Japanese experience over the past many years has demonstrated can be very difficult to overcome, it was important to avoid that outcome.

That said, as Chairman Bernanke himself said in his press conference recently, the Fed can't solve all the systematic challenges that face the United States, and in particular trying to get economic growth going again and get the job creation and income growth that America needs.

The Fed, simply over the medium- and long-term, can't create those jobs and can't create those rising incomes. That largely comes from the private sector. And so the policy conversations we need to have, I think, need to focus on what it is to incite job creation in the private sector.

Mr. CLAY. Earlier this week, Speaker John Boehner offered up a \$2 trillion cut in exchange for raising the debt ceiling. And with the conditions being as they are on Capitol Hill, with a split Senate and a House, what is the likelihood of actually resolving this, if we have a protracted battle over this, over raising the debt ceiling? Or what would be the consequences of it?

Mr. SLAUGHTER. Again, part of the challenge I would stress is I don't exactly know how and where the consequences will arise. But if we miss an interest payment or we miss a principal repayment because the United States is not able to re-channel some of the incoming tax revenue away from current spending obligations to making good on interest and/or principal payment, it is difficult to say how credit rating agencies will respond.

It is difficult to know what both domestic and foreign creditors to the United States, how that might cut back on their demand for U.S. Treasuries.

I would stress again that financial crises by definition are hard to know how they arise and hard to know how they develop, so I think it is incumbent on people to realize as fragile as the world's financial system and the U.S. economy remain today, going in that direction carries great risk.

Mr. CLAY. Thank you for your responses.

Mr. Chairman, I am out of time.

Chairman PAUL. I thank the gentleman.

I recognize Mr. Luetkemeyer for his 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

I would like to ask a question of Mr. Ebeling, probably, with regards to interest rates and the end of QE2 this summer. What do you think is going to happen when we quit absorbing all of our debt? Do you think that the rest of the world has enough liquidity in it to purchase our debt? And if so, at what interest rate do you think would be able to have that done?

Mr. EBELING. I am not sure if there is enough liquidity in the global economy to make up the difference of what the Fed has been doing in increasing the money supply to help finance the government borrowing. I think that inevitably when the Fed ends its QE2, as it is saying in June formally, that means we are going to be relying upon what the financial markets—what the fixed amount of funds in the financial markets can do at home and any money that might be lent to us from abroad.

I will be surprised if looking over the next year, the Federal Reserve does not go on a monetary expansionary policy again if we don't start seeing interest rates rise.

Of course, there could be political crises in other parts of the world where everyone runs to the United States as a traditional shelter to park their money. But presuming that does not occur, I would be very surprised if the Fed does not become accommodative again, if interest rates don't start nudging up.

It was pointed out earlier by Mr. Slaughter, and I agree with him—or I believe it was Mr. Ely—that savings rates have been very low in the United States. The fact is, according to the St. Louis Federal Reserve in their monthly monetary trend publication, since the last quarter of 2009, when adjusted for inflation, the Federal Reserve has pushed interest rates so low, such as the 1-year

Treasuries and the Federal funds rate, that real interest rates are in the negative range, -2 percent.

It is not surprising, then, that when interest rates in whole are so low that you don't create much of an incentive for people to save. The fact is we have to allow the financial markets to tell us how much real savings is in the domestic economy and how much of the world economy has savings to share with us. And then on that basis, we can know what real interest rates should be.

And the United States, as I say, should cut back, eliminate its deficit spending so that the savings that is available, either domestically or from foreign sources, can help the recovery in the United States.

MR. LUETKEMEYER. Okay. So it is your contention that the Fed, in order for us to continue to spend at a deficit level, will have to have a QE3?

MR. EBELING. Whether they call it that or not, I don't see how \$2 trillion more of borrowing over what amounts to the next year-and-a-half is going to be successfully provided by the global or the domestic economy alone.

MR. LUETKEMEYER. And if it is provided, it would definitely be at a higher interest rate, I would assume. Would you agree with that?

MR. EBELING. If it is accommodated by the Fed, interest rates may temporarily stay low. But as I was suggesting in response to an earlier question, the fact is that inflation will start nudging up even further, and inflation premium will go on the rate of interest, and we will not get away from it. And in addition, the value of the dollar will continue to fall on foreign exchange markets.

MR. LUETKEMEYER. And there is another problem here as well. As interest rates go up, the cost of our monies go up, the deficit that we have is going to go up, which means all of the cuts that we make, all those stays we make in our budget are going to be eaten up by increased interest rates.

MR. EBELING. Correct. This is the dilemma that is facing those peripheral European countries, as they are called, such as Greece and Portugal. On the one hand, they are trying to carry out what they call austerity programs, but the international creditors don't have confidence in them, so it is time for them to rollover or pay off debt, and the new interest rates are even higher, which immediately reverses or cuts into the attempt to get their budget under control.

MR. LUETKEMEYER. Okay. Let us leave it at—

MR. EBELING. It has to be believable.

MR. LUETKEMEYER. I agree with you.

Mr. ELY. If I could just interject in here—

Mr. LUETKEMEYER. Yes, sir.

Mr. ELY. —there are many, myself included, who are concerned that interest rates, that nominal interest rates are too low and that what may happen is that before we know it, we will start to see asset bubbles emerge again and that the Fed will not respond quickly enough. And so what we will do is we will get an overshoot in terms of rising asset prices.

Now, that doesn't seem like much of a concern today, particularly when we look at where housing prices are, but in fact the Fed can't turn on a dime, in part because we don't know in a real-time basis what is happening out there in the market. So I—

Mr. LUETKEMEYER. I have one more quick question, if I can interrupt.

Mr. ELY. Okay.

Mr. LUETKEMEYER. Just with regards—I see my time is up. Okay. Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

And I recognize the gentlelady from New York, Mrs. Maloney.

Mrs. MALONEY. Thank you.

And welcome. I would like to ask each of your perspectives on this question: Isn't it true that the real drivers of U.S. debt are not the Federal Reserve's monetary policy, but fiscal policy decisions that we have to face about congressional policy on entitlements, taxes, and spending?

I recognize that there has been controversy surrounding monetary policy decisions like the QE2 program, keeping the Federal funds rate at nearly zero percent to access to the Federal Reserve's lending window. But all of these programs are really temporary. And once the economy turns around, the Fed will exit from them.

And so I would like your comment on it. The title of the hearing, of course, is about the Federal Reserve policies and the debt ceiling, but I am asking whether you see it as Federal Reserve policies or really congressional decisions on spending and fiscal policy.

Mr. ELY. If I could jump in here, I think it is basically focused on fiscal policies. I am not going to blame the Fed for the situation that we are in. But this is going to be that tough issue of what do we do about fiscal policy.

I am not in favor of raising taxes. I think the entitlements have to be addressed, although I think in the context of tax reform, there should be greater incentives in place to not only save, but also not to borrow.

One of the problems we have in the economy is that the Federal Government, through the Tax Code, effectively subsidizes borrowing, and borrowing in the private sector did a lot to get us in the mess we are in now. But I think the key longer-term focus has to be on the spending side, and particularly on entitlements.

Mrs. MALONEY. Any other comments?

Mr. SLAUGHTER. I would agree with Mr. Ely. Yes, the debt problem we face today with the debt ceiling has been driven by fiscal policy choices, not by monetary policy choices. And again, as they go to the medium- and long-term, it is the projected increases in Social Security, Medicare, and Medicaid spending that are going to present the largest charges to the United States.

On the tax side, the one thing I would say is I agree raising tax rates is not great. When you are raising tax rates on income, that creates disincentives for work and effort. But there are a lot of inefficiencies in our Tax Code today. We could raise tax revenues without raising tax rates with simplifying the Tax Code in a lot of ways.

One example is the mortgage interest deduction. Another example is the tax advantage that is given currently to health care spending. The cost of both of those tax advantages in our current Tax Code are currently estimated to be north of \$200 billion per year.

So as we think about innovative solutions to address these challenges, I think that is one thing to keep in mind is tax reform can be a great way to try to incent job creation and a lot of great things in the private sector, while also helping address the tax revenue challenge.

Mr. EBELING. It is a fiscal problem fundamentally. In this process, the Federal Reserve has been an accomplice during the fact in the sense that it has supplied the money to fund a lot of what the government has been borrowing.

But the bottom line is the burden is here in the House of Representatives, in the Senate, and in the White House. You are the ones who have the authority to tax. You are the ones who also have, more importantly, the authority to spend. And it is the spending side more than anything else that has to be handled.

This gap between revenues and expenditures, this deficit each year, has to do with the fact that you are promising the American people, in entitlements or other current annual expenditures, more than the economy is generating in the tax revenues, given the code that you have, and the economy's ability to generate wealth in the long run.

So the fact is it is a fiscal problem. And as I have suggested, the bottom line is—there is nothing wrong with, obviously, introducing

efficiencies in the Tax Code in principle, depending upon the content and the specific character of it—but the bottom line is it is the spending that is out of control, not the taxing.

Chairman PAUL. I thank the gentlelady.

I recognize Mr. Schweikert, from Arizona.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

A slightly different question and what I have been trying to watch, as we go through this summer, and let us assume that we will call it quantitative easing goes into an unwind. Japan, being what, they hold about 20 percent of our foreign-held U.S. sovereign debt, has to do some unwind there to pay for infrastructure. Some of the tells coming out of China are true that they intend to do more moving of foreign reserves into commodity or commodity-based currency.

What happens at the end of the summer if we were to go just raise the debt ceiling, not having a series of triggers and mechanics and tells to the market that we are serious about this explosion of

U.S. sovereign debt, and at the same time the very people who have been buying and financing our debt are not as big a participant in the market?

First, am I being realistic? Am I just being a “Chicken Little?” And if there is any truth in that scenario, what happens to interest rates on our debt? Anyone who wants to answer?

Mr. SLAUGHTER. That kind of scenario is eminently plausible. Again, there are a lot of investors around the world that hold U.S. Treasuries today for a lot of complicated reasons, but they have a lot of other assets that they can choose from. That is true for the government-related entities, the central banks, and some fiscal authorities, but also the private savers in other countries as well, sovereign wealth funds, individual pension funds, things like that.

So their demand for Treasuries would depend, as you rightly say, a lot on whether they perceive the United States leadership as credibly addressing the fiscal challenges we face. So the sooner that we can credibly signal to our creditors that we are on that, the less likely it is that bond rates in the United States will go up with damages to the United States.

And the one thing I would add is I am struck at the heterogeneity in opinions that you see out there from a lot of the key investors in asset markets. To single out one particular gentleman, Bill Gross, head of PIMCO, publicly announced in the past couple of months that a lot of their key bond funds have totally divested of U.S. Treasuries.

Mr. SCHWEIKERT. And just a little bit of trivia on that, if you noticed their latest disclosure, they have actually increased their hedge again. They are basically hedging on the downturn.

Mr. SLAUGHTER. Yes, so that uncertainty, I think, is symptomatic of why I would urge caution and prudence on all these fiscal things, but especially get on not breaking the debt ceiling.

Mr. ELY. The key thing is that what you are suggesting and what is implied in your question is that there will be reduced demand for Treasuries from outside the United States. That has to have an upward effect on Treasury rates. And given the fact that we have so much in the way of short-term and medium-term Treasury debt outstanding, that starts to bite pretty quickly in terms of higher interest costs. So we are in a very dicey situation.

Mr. SCHWEIKERT. Mr., is it pronounced "Ely?"

Mr. ELY. "Ely."

Mr. SCHWEIKERT. "Ely," like the coffee?

Mr. ELY. Yes.

Mr. SCHWEIKERT. Okay. Are we also under a common understanding that our WAM is what, about 4.25 years?

Mr. ELY. I am not sure what it is right now. It has shortened up, I know, and, of course, the shorter the weighted average maturity of the debt, the sooner an increase in rates is going to whack the Federal budget.

Mr. SCHWEIKERT. It makes us very interest rate sensitive, which is—

Mr. ELY. Yes, it is. It is increasingly interest rate sensitive because of the shortening up. In fact, it is a very significant question as whether or not Treasury has properly managed debt, our Federal debt, so it is actually extend the maturity during this time of historically low interest rates.

Mr. SCHWEIKERT. You are actually hitting one of the things I was going to pitch at the end is maybe we should also in this environment, even though the outer end of the curve is a little bit steeper, but maybe we really need to start pushing out our maturities to insulate ourselves from shock.

Mr. ELY. I would agree, and actually we have gone the wrong way.

Mr. SCHWEIKERT. I want to pounce on just my scenario. Am I pitching a doomsday scenario? Am I pitching just a realist's on what essentially will drive up our interest rate?

Mr. ELY. In my opinion, your scenario is very realistic.

Mr. EBELING. I don't think it is unrealistic. I think the very points that you raise—the Japanese are going to have a huge financial cost to rebuild the destruction from the earthquake and the tsunami. The Chinese might very well lose their taste or their desire for U.S. Government securities. There is the question of the amount of savings to come into the United States to fund U.S. Treasuries, given the financial crisis in the European Union.

All of these things are creating serious problems looking over this year. But I think that this concern about what is the signal or the message that foreign creditors, either the private sector or others, sovereign wealth funds, for example, will read from this.

What will they read from it if you raise the debt limit by, for example, Secretary Geithner's request of \$2 trillion, and this basically puts aside virtually any debate, discussion or decision about what to do for the budget between now and the next election cycle—that is, to 2013—and the uncertainty, to be honest, who is going to be the next President of the United States? Will it be the continuing current President or someone else?

Mr. SCHWEIKERT. Doctor—

Mr. EBELING. That will create a huge amount of further uncertainty on the financial markets and hesitancy about maintaining the value of the dollar in those markets.

Mr. SCHWEIKERT. Thank you.

And, Mr. Chairman, I know I am out of time, but one interesting conversation, I spent a couple of days in New York—actually, Monday and Tuesday—and I had a couple of folks who are huge buyers, are marketers in U.S. sovereign debt issues. And they said, "Look, we are going to punish you if you go and raise the debt ceiling and don't communicate to the markets that you are taking this seriously."

And every single point is what, \$100+ billion bleeding. So even just moving back to normalized interest rates is devastatingly ugly to this budget. Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman. And we will have a chance for a follow-up, if you care to stay.

I have a follow-up. I want to talk a little bit more about the consequences of not raising the debt limit. And I think even Dr. Slaughter admitted that he is not exactly sure—it wouldn't be good, but not precisely sure exactly what will happen, because it is unknown territory.

The question I have, Dr. Slaughter, is how do you answer the argument that others say why don't we, Treasury, just use priorities, pay the most important bills, pay the debt? Does that raise a lot of

questions about our credit rating, if we always honored the commitment to pay the interest?

And, of course, we would still have a problem. We would have to pay our other bills slower. But wouldn't that protect the integrity of the credit?

Mr. SLAUGHTER. So that has a couple of costs, I think. One important cost is you are implicitly turning into creditors, involuntarily, Social Security recipients or government contractors. They are being made unwanted creditors to the U.S. Government to make good on outstanding—

Chairman PAUL. Maybe farm subsidies.

Mr. SLAUGHTER. Whatever it is, but the principle that I think a lot of holders of Treasuries look at is a sudden, on-the-fly change in priority of payments by the U.S. Government. That is going to introduce uncertainty and risk.

And I am not a legislative expert, but I just don't know. My understanding from what I have read up to learn about this is we simply don't have a set of rules and laws or executive orders in place to prioritize payments coming out of the U.S. Treasury when there isn't any existing law or regulatory structure in place to make those priorities—

Chairman PAUL. But okay, let us assume they can do it and they always honored the commitment to pay it. Would that mean that it would be less drastic than you anticipate? Wouldn't that soften the concern, if you knew that they put it into a form of a law and they said that you could do it? Would that soften your concern?

Mr. SLAUGHTER. No, not necessarily. The other issue I want to raise is the economic concern—again, the fragility of the recovery right now.

If we are talking about truly not raising the debt ceiling at all, the implied fiscal contraction that would come in the coming months from that, without offsetting policy support for economic growth of the private sector, so things like trade liberalization and other things, would have a very bad impact on jobs and the labor market in the broader U.S. economy.

Chairman PAUL. A concern I have sometimes is the crisis is very often overblown. In 2008, it was a major crisis. We didn't do it. We are going to have a grand depression.

But what we did was we had TARP funds and we had the Federal Reserve pumping trillions, and everybody said, "See? We saved ourselves from a depression." Maybe Wall Street didn't get their

depression, but the people got the depression. They lost their jobs and they lost their houses.

So I can't see how ringing the alarm bells and doing it just because something terrible might happen—maybe doing it will make things worse. And I think what we are doing will eventually make it worse. You had another comment on it?

Mr. SLAUGHTER. I guess my concern is I would express again the unknowability of how capital markets are going to react to a breach of our debt ceiling.

And I would stress again part of the challenge in the fall of 2008 was how quickly the crisis with Lehman Brothers and AIG and capital markets metastasized to the General Electrics and other firms that were not able to rollover their commercial paper. And we were looking at layoffs several million more potentially than what we actually saw.

Chairman PAUL. But we don't know. It might even boost confidence to say, "Hey, they are going to get their house in order." It might even give more integrity to the dollar, and then we wouldn't have the crashing dollar.

Bert?

Mr. ELY. If I could just add something to that, there has been this discussion of we will pay the interest, but not repay the principal. In effect, what that is is a forced rollover of the debt.

Now, if you take Treasury bills, bills get paid off because the government sells new bills. If you say, "Okay, we are not going to pay off the bills as they are maturing," effectively, that has the same cash flow effect for the Federal Government as paying them off and rolling them over. So nothing is gained, in my opinion, by delaying the payment of maturing debt.

But the effect of paying on the markets, of not paying off maturing debt I think would be catastrophic, because people, particularly institutional investors, have cash flow programs that are based on known maturity dates for their debt.

If they don't get it, it may actually cause severe financial problems in some circumstances, but certainly really rattle the market. So I think one option that is, as a practical matter, not on the table is not paying debt as it matures.

Chairman PAUL. Of course, the other side of the argument is what we are looking at is something even more catastrophic with an inflationary blow-off, and that can be very, very tragic.

Dr. Ebeling, did you want to make a comment on that?

Mr. EBELING. I do. I think that the soundest policy, the one that would send the right signals to our international creditors, to set a tone in the United States, is precisely to say we will meet our financial obligations as interest and securities become due and that we are going to adjust our domestic spending to assure that.

The fact is, obviously, nobody wants their ox to be gored while others don't. But it seems to me that if we had the political will, which means the Members of the Congress make these decisions, to say that we are going to meet our financial obligations on the debt as they come due, but we are going to be reducing spending across the board by 5, 10 percent to see that it is covered without getting an increase in the debt limit, certainly, that sends the right signals internationally.

And it makes every American realize that nobody is getting a cut that they are not—well, that another person is, and that everyone has to bear the burden of this precisely because the promises have been greater than the tax structure and the economy can sustain.

I think that if it is across-the-board, it is very difficult to say that someone is getting something of a deeper cut or burden compared to someone else.

That requires political commitment and willingness to do it as well, but what else are you going to do? Do you want to be in this situation, maybe not today? You could raise the debt limit. You could put it off 2, 3, 4 years. But do you want to be put in the position in our own circumstances of a Greece or a Portugal? Eventually, you cannot keep this going.

Chairman PAUL. Right. My time has expired.

Now I am going to recognize the gentleman, Mr. Luetkemeyer, from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

The reason for my question a while ago was we had a discussion with Chairman Bernanke in this committee at one point, and, obviously, you gentleman answered the question the opposite of the way he did, which is not surprising.

Another question for you with regards to the discussion we had with him with regards to the Fed and their policy, he made the point during the discussion that with QE2, look at how great the stock market is. It has all gone up.

And my concern is, I am not sure you can use the stock market as an indication of the strength of the economy, when you are looking at 9 percent unemployment.

Can you tell me the relationship between the stock market and our economy, the jobs, Fed policy? Can you kind of put it into—that is a broad thing to talk about in just a 30-second sound bite, but it would seem to me that I think the stock market is an institute unto itself. It is a daily reaction to what is going on in the world versus a long-term thought process or process on long-term thinking about really where our economy is going.

Would you care to comment or give me some thoughts on it? And we will go right down the line. I would like to have everybody's comment.

Mr. EBELING. I think that what we have seen for the last 2½ years with this huge run-up in the stock market has basically been due to Fed policy. It is not due to anything of a natural and normal recovery in the economy, which has been delayed by, as I also mentioned in my written remarks, regime uncertainty.

The fact is the economy was thrown out of the severe imbalance due to the monetary expansion and interest rate manipulations of the bubble years from 2002 to 2007. And it is necessary for these misallocations of resources, investment mistakes, to sort themselves out.

But the fact is that instead of allowing the market to properly correct, the Fed bought up these mortgage-backed securities and distorted the housing market. What are houses worth? Nobody knows. We think they are at the bottom. But what do we know about the real supply and demand?

So there is uncertainty in the housing market. This has affected the construction industry. The fact is the ones who have benefited are some people in the stock market and in the financial market.

If you break down the government statistics that have been coming out every month about GDP and employment figures to sectors of the economy, as 2008 and 2009 rolled on, you saw falling employment in virtually every sector of the economy except the one. If you look at the little sectoral breakdowns, that was the financial market.

It seems that no one from the top to the teller in the retail bank office lost their job. And that is because the Fed basically bolstered the financial market for their bad decisions, which they felt confident would be bolstered because of expected bailouts. And it has fallen upon the rest of the economy while the economy has not been left alone to properly adjust.

Mr. LUETKEMEYER. Thank you.

Mr. Ely?

Mr. ELY. The stock market is based on—and values in the stock market are based, as much as anything else, on expectations. What are future earnings going to be and future dividend levels? And so the market tends to be a leading indicator in a crude way of where the economy is going.

But the market doesn't always get it right. It tends to undershoot and overshoot. And the real question is, how has the market gotten ahead of itself, given some of the factors that you pointed out, such as the very high unemployment rate?

Ultimately, the stock market has to reflect the real economy, and the fact is we have a weak economy. The unemployment rate is still at very high levels. We are running these huge deficits, as we have been talking about here. So it may be a situation where the market is ahead of itself, and that is why I don't think we ought to place too much emphasis on where the market is and focus more on what is happening in the real economy.

Mr. SLAUGHTER. That is a great question. There is a positive effect from stock market valuations to the broader economic performance, but it is not lockstep, and it is not what drives economic performance overall.

You can look at the balance sheets of households. Only about half of households own any equities directly or indirectly. And for the median household, the single biggest asset on its balance sheet is the equity it may have in its home. The home prices matter a lot more for the typical family. And for income statements for most households, it is to have a job and what is their earnings for that job.

If you look at the recovery, a lot of the publicly traded companies, a lot of them, the revenue growth such as they are realizing, if any, is coming from outside the United States. It is the Caterpillars and the Deeres and companies like that reporting huge revenue growth around the world, especially in emerging markets.

So I think the challenge that you rightly point to is how can we get job creation in America? We need it from all kinds of companies now, U.S.-based and foreign-based. We need it from big and little companies, but creating jobs linked especially to exports and investment opportunities around the world, not as much as we have been discussing, the things like consumption spending in the United States.

But if you look at—that comes back to, in part, the fiscal conversations we are having in this hearing. If you look at recent surveys of small business owners in the NFIB, the single biggest problem that a lot of these firms cite is there is some combination of poor sales, but

also government uncertainty, uncertainty over tax rates and government regulation.

Mr. LUETKEMEYER. Okay. I see my time is up, but I want to thank you gentlemen for being here.

It seems as though there is an underlying theme through all of this, and it is confidence in the ability to get our economy going. It is confidence in the ability of the Fed to manage. It is confidence in the ability of financial institutions to work back and forth and believe that they are going to be able to get their money back when invested.

As somebody in the financial industry, the whole thing is held together by confidence, believing that we can do business with each other and be able to get our money back. I think we have a huge confidence problem right now.

Thank you, gentlemen.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now recognize the gentleman from Arizona, Mr. Schweikert.

Mr. SCHWEIKERT. I love this, where I can get another question this quickly, Mr. Chairman.

Back in sort of the circle I was trying to—and I appreciate you indulging me, because I have been trying to get my head wrapped around some of this—how much of a benefit do you believe we have had? Because I am looking at the short end of our interest rate curve right now and we basically have free money. And if you look at also throw a little inflation on top of that, it is almost people are giving us money and almost taking a hit on it.

How much of that, though, is because of the world situation around us? With turmoil in the Middle East, is there a flight of capital? I read stories about how much capital is actually leaving countries like Russia, even the things we have seen in the EU. Are we just really lucky right now? Let us start from Doctor—yes, no?

Mr. EBELING. I think there has been a degree of luck. You might have read in the press like I did that the Russian government is thinking of imposing more export controls on capital leaving the country, precisely because people earn money in the Russian economy from resources and raw materials, etc., and then they also want to park their money outside of Russia. That is very much the case, yes.

Mr. ELY. But I, whether or not it is lucky is a matter of where you sit. If you are a saver, if you are a senior citizen, you are getting killed from an income standpoint by these very low interest rates. And for people in their working years, what is the incentive to save when you

go to a bank and maybe it was 75 basis points or a percent on your CDs?

So for the debtor, these low rates are a great idea and a great benefit, but for the creditors, who are as much owed as is owned, they are really taking a beating on this. And it looks like it is going to continue for a while. So again, a matter of whether we are lucky depends so much on where you sit.

Mr. SCHWEIKERT. Understood. When I ask that question, I am actually asking for a series of my concerns of what happens when we start to get real pricing of risk.

Mr. Slaughter?

Mr. SLAUGHTER. You are definitely right that if you look at the fall of 2008, despite the crisis that we are having here in America, demand for Treasuries surged in part because of the fear and uncertainty about some of the other countries at the financial crisis there and what was happening to their sovereign debtors.

And so I think you hit upon an important point, which is our fiscal conversations we need to increasingly see in a global context. It is not just what we do here. There is a limited pool of savings in the global economy, and where those savers choose to allocate what assets they want to buy of U.S. Treasuries relative to other assets in the world, it is not just what we do, it is what other countries are doing.

And to the extent that if they can continue to make progress—the U.K. is having some serious fiscal conversations today and how that plays out, I think, will be very instructive for our country—the more other countries are able to address their fiscal challenges and we aren't, that compounds the problems that we have been talking about today.

Mr. SCHWEIKERT. Okay. And, Mr. Chairman, Dr. Slaughter, my understanding, and you shared with me over the last 12 months, or 11 months as it may be, the Fed has consumed what percentage and how much of U.S. sovereign debt issue?

Mr. SLAUGHTER. Meaning of the United States?

Mr. SCHWEIKERT. Yes.

Mr. SLAUGHTER. One of my fellow panelists may know the numbers better than me, but it is a pretty high fraction of the net new debt that Treasury has issued—has a net been bought by the Fed.

Mr. SCHWEIKERT. Is it close to 80? What percentage of new issuances have been financed through the Fed?

Mr. EBELING. The figure that I found was that just U.S. Treasuries, they have bought about \$1.2 trillion.

Mr. SCHWEIKERT. Okay. What percentage of all issuance is that?

Mr. EBELING. The total issuance of debt, let us say, since 2007–2008, has been an additional 3.6—

Mr. SCHWEIKERT. I am just trying to do the QE2 math in my head.

Mr. ELY. Can I interject something here? When you talk about how much the Fed's Treasury holdings have increased, that is only looking at one side of the equation. The other side is, where did the Fed get the funds to buy those Treasuries?

And where they have come from is basically a tremendous increase in the funds, up to now roughly \$1.5 trillion, that banks have on deposit in the Fed. So then, arguably, it is the banking industry through the Fed that has financed much of the increase that we have seen in outstanding Federal debt. The Fed is just kind of a middleman.

Mr. SCHWEIKERT. Mr. Chairman, Mr. Slaughter, isn't this sort of right, because in many ways you just closed the circle, because I was going to make the argument that the Fed is a huge, huge buyer of new issuances. They are not as interest rate sensitive, where your banks may say, "Look, I am not going to buy this. I am going to buy an agency product." And is that one of the things that has helped push down these interest rates in the short term of the curve?

Mr. SLAUGHTER. So, again, I had stressed for many, many years, the Fed on its balance sheet, a sizable fraction of its total assets have been Treasury securities at different maturities. That has been in part because of the liquidity and transparency of Treasury markets. They value being able to conduct monetary policy in their open market operation.

So I think the larger challenge for the United States you have hit upon, which is it is the demand from other savers in the United States and, importantly, demand from the rest of the world for U.S. Treasuries that increasingly will shape what happens with interest rates that we have to pay as a country.

Mr. ELY. And if I could add to that, and the reason that will be the case that other foreign countries, foreign investors become more important is because the United States continues to get deeper into debt to the rest of the world. And so as an economy as a whole, we are sucking in more and more of the world's savings.

Just imagine that the United States was not in that debtor position. In effect, we would owe the money to ourselves in terms of the economy as a whole. But we are in hock to the rest of the world, ultimately, because of our low savings rate in this country that has led to this \$3 trillion-plus net debtor position that we have.

Mr. EBELING. If I can add just one more point here, there is a bit of a musical chairs situation here. The Fed goes in and buys up all of these Treasury securities and mortgage-backed securities out of bank portfolios. Then they pay these banks an interest rate higher than market rates to park the money that they have created with the Federal Reserve.

It still ends up being money that the Federal Reserve created out of thin air. It may have this appearance on the ledger book, assets and liabilities—

Mr. SCHWEIKERT. It is a three-legged—

Mr. EBELING. It is still funny money.

Mr. SCHWEIKERT. It is a three-legged stool, where there is a premium paid within it, Mr. Slaughter.

And thank you for tolerating my rambling, Mr. Chairman.

Mr. SLAUGHTER. I was just going to echo Mr. Ely's insight. Japan is a good example. Japan's debt outstanding as a share of GDP is now approaching 200 percent. A major reason we have not had an international financial crisis related to the yen is because the large majority of that debt outstanding is held by Japanese households due to their high savings rate.

Mr. SCHWEIKERT. The internal, yes.

My last statement, and I will share this with you, Mr. Chairman, because you and I have had this conversation on the side, is one of my great, great fears is with the Fed intervention in U.S. sovereign debt and some of the other mechanics out there, we have no real pricing for risk.

We are approaching a debt ceiling. We are approaching a lot of these untenable numbers, but yet the old days when we used to look at bond futures and say, "The market is starting to price risk," in many ways the Fed's actions now, it is hard to know what is reality in the market anymore. Thank you, Mr. Chairman.

Chairman PAUL. And I thank the gentleman.

This hearing is now finished. The Chair notes that some members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

{Whereupon, at 11:40 a.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

I am very pleased to hold this hearing today. For far too long, monetary policy and fiscal policy have been viewed as completely separate issues. Congress controls fiscal policy, the Federal Reserve controls monetary policy, and never the twain shall meet.

The truth, however, is that fiscal and monetary policy have always been tightly intertwined. In fact, the Federal Reserve has served as the enabler of bad economic policy for many decades. Without the Fed's relentless expansion of the money supply during both the Greenspan and Bernanke eras, the U.S. Treasury never would have been able to issue the staggering sums of debt that now threaten our economic well being. This Treasury debt is the very lifeblood of deficit spending, permitting one Congress after another to spend far more than the Treasury collects in taxes. It is precisely this unholy alliance between the enabling Fed and a spendthrift Congress that I hope our witnesses will address today.

Until 1971 the United States operated on a gold exchange standard, meaning dollars could be redeemed in gold by foreign governments. The dollar was thought to be "as good as gold" because the U.S. would never renege on its gold exchange commitment. The U.S. had to keep that commitment or risk gold outflows that presumably would keep the government from engaging in loose fiscal and monetary policy.

Unfortunately, the system did not in fact keep government spending in check. The federal government ran large budget deficits throughout the 1960s, with the Federal Reserve duly covering the gap and inflating the money supply. Foreign creditors understood that the dollar was being devalued, and increasingly began to exchange their dollars for gold. Rather than bring monetary and fiscal policies back into balance, however, the federal government under President Nixon defaulted on its obligations by closing the gold window in August of 1971.

Despite this, the United States' position as the world's largest economy and the de facto leader of the Western world enabled the dollar to maintain its position as the world's major reserve currency. We've also enjoyed having OPEC price oil in dollars, creating enduring worldwide demand for our currency. But without any effective structural restraints on Congressional spending or Fed monetary expansion, our unchecked fiat paper money system has led to an explosion of debt over the last 40 years.

Yet foreign governments (especially those that have large trade surpluses with the United States) continue to purchase Treasury debt in order to keep their excess U.S. dollar reserves from losing value to relentless inflation. Because of the dollar's continued status as the world's reserve currency, there is still a highly liquid market for Treasury securities. These Treasury securities are backed by the full faith and credit of the U.S. government, meaning they are backed by the government's power to levy taxes.

Not surprisingly, the increase in U.S. national debt over the past several years and the likelihood of continued trillion-dollar deficits has caused many of our creditors to rethink their position on Treasury debt. China slowly has begun to reduce its holdings, and indicated that its \$3 trillion total foreign exchange reserve is excessive. The investment firm PIMCO completely divested itself of Treasuries, and its co-founder Bill Gross publicly warned of a U.S. debt default. If foreign governments and large institutional investors begin to shy away from U.S. Treasuries, the Federal Reserve will face increasing pressure to monetize new Treasury debt issues.

The recent increases in fiscal deficits have been unprecedented. The \$1.4 trillion dollar deficit in FY 2009 was almost as large as the previous five years combined, and FY2010's deficit was not much smaller. Half a decade's worth of new debt could not possibly have been absorbed by the financial markets, at least not without a significant increase in interest rates. The Fed, however, absorbed this deficit by inflating the money supply. Since summer of 2008 the

Fed's balance sheet has tripled to \$2.7 trillion, while the monetary base has tripled to \$2.5 trillion.

The fundamental problem is that Congress cannot and will not cut federal spending and balance the budget. When Congress cannot balance the budget, it must cover the shortfall by raising taxes or borrowing money. Because the burden of taxes falls on current voters, while the burden of interest payments on debt falls largely on future voters, borrowing money has always been the politically favored method of funding.

Both the public and most members of Congress do not understand the mechanics of how the Fed and the Treasury Department work together to create new money and new debt. It's a circular process, but one that affects all Americans perhaps even more than the actions of their elected Congress.

In order to borrow money the Treasury department creates new debt securities, which it sells at auction to banks. However, banks generally do not maintain excess liquidity for the purchase of additional assets, but rather loan out funds up to the limit of their reserve requirements.

In order to facilitate the purchase of new Treasury debt, the Federal Reserve creates money out of thin air to purchase old Treasury debt from the dealers in the market. Banks then find themselves holding excess reserves, which they wish to get rid of by purchasing new assets—in this case newly issued Treasury debt.

These new excess reserves have an expansionary effect on the banking system. Given a reserve requirement of 5% and thus a money multiplier of 20, \$1 billion of asset purchases by the Fed can result in \$20 billion of new credit creation, as the initial \$1 billion is loaned out through the banking system. This entire system is purely inflationary and causes prices to rise and the purchasing power of the dollar to fall.

As price levels increase and the value of the dollar falls, holders of existing dollar-denominated assets see depreciation in the value of their holdings. This makes them both less willing to continue to hold dollar-denominated assets, as well as less willing to purchase more dollar-denominated assets in the future. But the continued operation of the profligate federal government is contingent upon finding purchasers for new Treasury debt.

Given the anxiety of institutional and government investors, the Fed increasingly must act—in effect—as the buyer of last resort for U.S. Treasury debt. Of course the Fed is prohibited from purchasing Treasury debt directly from the Treasury, as this outright

monetization would indicate that the nation's fiscal situation is so bad that the Treasury could not find sufficient debt purchasers to fund its fiscal deficit. So while the Fed does not directly purchase Treasury debt, the number of instances in which it has purchased freshly issued debt directly from primary dealers has begun to gain public attention. This is merely a step away from direct monetization.

Direct debt sales to a central bank are always seen as the last resort of a failed regime, as the central bank at that point acts merely as a rubber stamp for the government's fiscal profligacy. History teaches that the next step is severe inflation, if not hyperinflation, with investors and savers completely wiped out. The only reason we have not experienced hyperinflation so far is that the Fed has managed to keep the monetary base increases in check by paying interest on excess reserves held by banks. If these excess reserves begin to be loaned out, however, all bets are off.

We are told that Congress must raise the debt ceiling limit or else the financial markets and the U.S. economy will suffer great harm. In reality, raising the debt ceiling will allow the government to continue its fiscal profligacy. Fed financed deficits will continue; foreign investors will continue to divest their holdings of Treasury securities; the Fed will be forced to monetize new debt issuances, and prices will continue to rise as the standard of living of the average American continues to plummet. If we have learned anything from history, we should know that printing money out of thin air cannot lead to prosperity. It can only lead to penury.

I believe Congress should refuse to raise the debt ceiling. It would be one of the best things that could happen to this country. Congress finally would be forced to address the spending issue once and for all. Outlays would have to be covered by receipts, and Congress would have to get serious about eliminating unconstitutional government departments and programs. It is my hope that this hearing will help to examine the symbiotic relationship between the Federal Reserve's monetary policy and the Treasury's debt issuance, and I look forward to the testimony of our witnesses.

STATEMENT FOR THE RECORD

HON. BILL HUIZENGA

REPRESENTATIVE, 2ND DISTRICT OF MI
U.S. HOUSE OF REPRESENTATIVES

Good morning and thank you Chairman Paul and Ranking Member Clay for holding this important hearing today.

My constituents in West Michigan continue to make it clear. One of the most vital issues facing this Congress is reigning in spending and reducing our massive debt, and I thank you Chairman Paul for demonstrating that it is a priority by holding this hearing.

The Federal Reserve Board of Governors is congressionally mandated to enact monetary policy with the goal of maximizing employment as well as minimizing inflation. However, after witnessing the load of debt accumulated by the Obama administration's recent attempts to reach such goals through failed *fiscal* policies, I am pleased that we are now spending some time exploring the role of *monetary* policy and the national debt.

In recent years, the FED has taken unprecedented action to provide liquidity to the financial markets through the purchase of government debt. Most recently, due to the fact that the federal funds rate sits near zero percent, the FED decided to purchase an additional \$600 billion of Treasury securities commonly referred to as "quantitative easing" or "QE2." This strategy was undertaken despite the fact that the first round of quantitative easing (QE1) – the FED purchase of \$1.2 trillion in Treasury and Agency securities in March 2009 – has not proven to be an effective method of creating jobs.

Today we will examine what affect the federal government's debt plays in the Federal Reserve's open market operations. In addition, I look forward to inspecting how that role affects our yearly deficits when compared to the more costly tax and spend fiscal policies.

As a Member of the 112th Congress and a member of this important subcommittee charged with overseeing operations at the Federal Reserve, I take my responsibility for strict oversight of taxpayer dollars with the utmost seriousness. I look forward to today's robust discussion on the relationship between monetary policy and the debt, as well as the potentially negative long-term consequences from the FED's most recent unparalleled intervention in the markets.

Mr. Chairman, thank you again for holding this important hearing, and I look forward to hearing from our witnesses.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF RICHARD EBELING, Ph.D. PROFESSOR OF ECONOMICS NORTHWOOD UNIVERSITY

Government Debt and Deficits

The current economic crisis through which the United States is passing has given a heightened awareness to the country's national debt. After a declining trend in the 1990s, the national debt has dramatically increased from \$5.7 trillion in January 2001 to \$10.7 trillion at the end of 2008, to over \$14.3 trillion through April of 2011. The debt has reached 98 percent of 2010 U.S. Gross Domestic Product.

The approximately \$3.6 trillion that has been added to the national debt since the end of 2008 is more than double the market value of all private sector manufacturing in 2009 (\$1.56 trillion), more than three times the market value of spending on professional, scientific, and technical services in 2009 (\$1.07 trillion), and nearly five times the amount spent on nondurable goods in 2009 (\$722 billion). Just the interest paid on the government's debt over the first six months of the current fiscal (October 2010-April 2011), nearly \$245 billion, is equal to more than 40 percent of the total market value of all private sector construction spending in 2009 (\$578 billion).⁵⁷

⁵⁷The 2011 Statistical Abstract: The National Data Book (Washington, D.C., U.S. Census Bureau, 2011), Table 669. <http://www.census.gov/compendia/statab/2011/tables/11s0669.pdf>.

This highlights the social cost of deficit spending, and the resulting addition to the national debt. Every dollar borrowed by the United States government, and the real resources that dollar represents in the market place, is a dollar of real resources not available for use in private sector investment, capital formation, consumer spending, and therefore increases and improvements in the quality and standard of living of the American people.

In this sense, the government's deficit spending that cumulatively has been increasing the national debt has made the United States that much poorer than it otherwise could have and would have been, if the dollar value of these real resources had not been siphoned off and out of use in the productive private sectors of the American economy.

What has made this less visible and less obvious to the American citizenry is precisely because it has been financed through government borrowing rather than government taxation. Deficit spending easily creates the illusion that something can be had for nothing. The government borrows "today" and can provide "benefits" to various groups in the society in the present with the appearance of no immediate "cost" or "burden" upon the citizenry.

Yet, whether acquired by taxing or borrowing, the resulting total government expenditures represent the real resources and the private sector consumption or investment spending those resources could have financed that must be foregone. There are no "free lunches," as it has often been pointed out, and that applies to both what government borrows as much as what it more directly taxes to cover its outlays.

What makes deficit spending an attractive "path of least resistance" in the political process is precisely the fact that it enables deferring the decision of telling voter constituents by how much taxes would otherwise have to be increased, and upon whom they would fall, in the "here and now" to generate the additional revenue topay for the spending that is financed through borrowing.⁵⁸

But as the recent fiscal problems in a number of member nations of the European Union have highlighted, eventually there are limits to how far a government can try to hide or defer the real costs of all

⁵⁸ Richard M. Ebeling, "Why Government Grow: The Modern Democratic Dilemma," *AIER Research Reports*, Vol. LXXV, No. 14 (Great Barrington, MA: American Institute for Economic Research, August 4-18, 2008); James M. Buchanan and Richard E. Wagner, *Democracy in Deficit: The Political Legacy of Lord Keynes* (New York: Academic Press, 1977); and earlier, Henry Fawcett and Millicent Garrett Fawcett, *Essays and Lectures on Social and Political Subjects* (Honolulu, Hawaii: University Press of the Pacific, [1872] 2004), Ch. 6: "National Debts and National Prosperity," pp. 125-153.

that it is providing or promising through its total expenditures to various voter constituent groups. Standard & Poor's recent decision to downgrade the U.S. government's prospective credit rating to "negative" shows clearly that what is happening in parts of Europe *can happen here*.

And given current projections by the Congressional Budget Office, the deficits are projected to continue indefinitely into future years and decade, with the cumulative national debt nearly doubling from its present level.⁵⁹ In addition, whether covered by taxes or deficit financing, these debt estimates do not include the federal government's unfunded liabilities for Social Security and Medicare through most of the 21st century. In 2009, the Social Security and Medicare trust funds were estimated to have legal commitments under existing law for expenditures equal to at least \$43 trillion over the next seventy-five years.⁶⁰ Others have projected this unfunded liability of the United States government to be much higher – possibly over \$100 trillion.⁶¹

The Federal Reserve and the Economic Crisis

The responsibility for a good part of the current economic crisis must be put at the doorstep of America's central bank, the Federal Reserve. By some measures of the money supply, the monetary aggregates (M2M or M-2) grew by fifty percent or more between 2003 and 2007. This massive flooding of the financial markets with huge amounts of liquidity provided the funds that fed the mortgage, investment, and consumer debt bubbles in the first decade of this century. Interest rates were pushed far below any historical levels.

For a good part of those five years, according to the St. Louis Federal Reserve Bank, the federal funds rate (the rate of interest at which banks lend to each other), when adjusted for inflation – the "real rate" – was either negative or well below two percent. In other words, the Federal Reserve supplied so much money to the banking sector that banks were lending money to each other for free for a good part of this time. It is no wonder that related market interest rates were also pushed way down during this period.⁶²

⁵⁹ *The Budget and Economic Outlook: Fiscal Years 2011 to 2021* (Washington, D.C.: Congressional Budget Office, January 27, 2011)

⁶⁰ Richard M. Ebeling, "Brother, Can You Spare \$43 Trillion? America's Unfunded Liabilities," *AIER Research Reports*, Vol. LXXVI, No. 3 (Great Barrington, MA: American Institute for Economic Research, March 2, 2009), pp. 1-3.

⁶¹ Michael D. Tanner, "The Coming Entitlement Tsunami." April 6, 2010. http://www.cato.org/pub_display.php?pub_id=11666 (accessed May 5, 2011).

⁶² For more details, see, Richard M. Ebeling, "The Financial Bubble was Created by Central Bank

Market interest rates are supposed to tell the truth. Like any other price on the market, interest rates are supposed to balance the decision of income earners to save a portion of their income with the desire of others to borrow that savings for various investment and other purposes. In addition, the rates of interest, through the present value factor, are meant to limit investment time horizons undertaken within the available savings to successfully bring the investments to completion and sustainability in the longer-term.

Due to the Fed's policy, interest rates were not allowed to do their "job" in the market place. Indeed, Fed policy made interest rates tell "lies." The Federal Reserve's "easy money" policy made it appear, in terms of the cost of borrowing, that there was more than enough real resources in the economy for spending and borrowing to meet everyone's consumer, investment and government deficit needs far in excess of the economy's actual productive capacity.⁶³

The housing bubble was indicative of this. To attract people to take out loans, banks not only lowered interest rates (and therefore the cost of borrowing), they also lowered their standards for credit worthiness. To get the money, somehow, out the door, financial institutions found "creative" ways to bundle together mortgage loans into tradable packages that they could then pass on to other investors. It seemed to minimize the risk from issuing all those sub-prime home loans, which we now see were really the housing market's version of high-risk junk bonds. The fears were soothed by the fact that housing prices kept climbing as home buyers pushed them higher and higher with all of that newly created Federal Reserve money.

At the same time, government-created home-insurance agencies like Fannie Mae and Freddie Mac were guaranteeing a growing number of these wobbly mortgages, with the assurance that the "full faith and credit" of Uncle Same stood behind them. By the time the Federal government formally had to take over complete control of Fannie and Freddie in 2008, they were holding the guarantees for half of the \$10trillion American housing market.⁶⁴

Policy," American Institute for Economic Research, November 5, 2008, <http://www.aier.org/research/briefs/667-the-financial-bubble-was-created-by-central-bank-policy> (accessed on May 5, 2011).

⁶³ See, Richard M. Ebeling, "Market Interest Rates Need to Tell the Truth, or Why Federal Reserve Policy Tells Lies," in Richard M. Ebeling, Timothy G. Nash, and Keith A. Pretty, eds., *In Defense of Capitalism* (Midland, MI: Northwood University Press, 2010) pp. 57-60; <http://defenseofcapitalism.blogspot.com/2009/12/marketinterest-rates-need-to-tell.html>

⁶⁴ Thomas Sowell, *The Housing Boom and Bust* (New York: Basic Books, 2010); Johan Norberg,

Low interest rates and reduced credit standards were also feeding a huge consumer-spending boom that resulted in a 25 percent increase in consumer debt between 2003 and 2008, from \$2 trillion to over \$2.5 trillion. With interest rates so low, there was little incentive to save for tomorrow and big incentives to borrow and consume today. But, according to the U.S. Census Bureau, during this five-year period average real income only increased by at the most 2 percent. Peoples' debt burdens, therefore, rose dramatically.⁶⁵

The easy money and government-guaranteed house of cards all started to come tumbling down in the second half of 2008. The Federal Reserve's response was to open wide the monetary spigots even more than before the bubbles burst.

The Federal Reserve has dramatically increased its balance sheet by expanding its holding of U.S. government securities and private-sector mortgage-back securities to the tune of around \$2.3 trillion. Traditional Open Market Operations plus its aggressive "quantitative easing" policy have increased bank reserves from \$94.1 billion in 2007 to \$1.3 trillion by April 2011, for a near fourteen-fold increase, and the monetary basis in general has expanded from \$850.5 billion in 2007 to \$2,242.9 trillion in April of 2011, for a 260 percent increase. The monetary aggregates, MZM and M-2, respectively, have grown by 28 percent and 21.6 percent over this same period.⁶⁶

In the name of supposedly preventing a possible price deflation in the aftermath of the economic boom, Fed policy has delayed and retarded the economy from effectively readjusting and re-coordinating the sectoral imbalances and distortions that had been generated during the bubble years.⁶⁷ Once again interest rates have been kept artificially low. In real terms, the federal funds rate and the 1-year Treasury yield have been in the negative range since the last quarter of 2009, and at the current time is estimated to be below *minus* two percent.

This has prevented interest rates from informing market transactors what the real savings conditions are in the economy. So,

Financial Fiasco (Washington, D.C.: Cato Institute, 2009).

⁶⁵ Richard M. Ebeling, "Is Consumer Credit the Next Bomb in the Economic Crisis?" American Institute for Economic Research, October 22, 2008, <http://www.aier.org/research/briefs/599-consumer-credit-the-next-qbombq-in-the-economic-crisis> (accessed May 5, 2011).

⁶⁶ *Monetary Trends* (St. Louis, MO: St. Louis Federal Reserve, May 2011)

⁶⁷ See, Richard M. Ebeling, "The Hubris of Central Bankers and the Ghosts of Deflation Past" July 5, 2010, <http://defenseofcapitalism.blogspot.com/2010/07/hubris-of-central-bankers-andghosts-of.html> (accessed May 5, 2011)

once again, the availability of savings and the real cost of borrowing is difficult to discern so as to make reasonable and rational investment decisions, and not to foster a new wave of misdirected and unsustainable private sector investment and financial decisions.

The housing market has not been allowed to fully adjust, either. With so much of the mortgage-backed securities being held off the market in the portfolio of the Federal Reserve, there is little way to determine any real market-based pricing to determine their worth or their total availability so the housing market can finally bottom out with clearer information of supply and demand conditions for a sustainable recovery.

This misguided Fed policy has been, in my view, a primary factor behind the slow and sluggish recovery of the United States economy out of the current recession.

Federal Reserve Policy and Monetizing the Debt

Many times in history, governments have used their power over the monetary printing press to create the funds needed to cover their expenses in excess of taxes collected. Sometimes this has led to social and economic catastrophes.⁶⁸

Monetizing the debt refers to the creation of new money to finance all or a portion of the government's borrowing. Since the early 2008 to the present, Federal Reserve holdings of U.S. Treasuries have increased by about 240 percent, from \$591 billion in March 2008 to \$1.4 trillion in early May 2011, or a nearly \$1 trillion increase. In the face of an additional \$3.6 trillion in accumulated debt during the last three fiscal years, it might seem that Fed policy has "monetized" less than one-third of government borrowing during this period.

However, the Fed's purchase of mortgage-backed securities, no less than its purchase of U.S. Treasuries, potentially increases the amount of reserves in the banking system available for lending. And since 2008, the Federal Reserve had bought an amount of mortgaged-backed securities that it prices on its balance sheet as being equal about \$928 billion.

The \$1.4 trillion increase in the monetary base since the end of 2007, from \$850.5 billion to \$2.2 trillion, has increased MZM measurement of the money supply by \$2,161.1, or an additional \$769

⁶⁸See, Richard M. Ebeling, "The Lasting Legacies of World War I: Big Government, Paper Money, and Inflation," *Economic Education Bulletin*, Vol. XLVIII, No. 11 (Great Barrington, MA: American Institute for Economic Research, November 2008), for a detailed example of the German and Austrian instances of monetary-financed inflationary destruction following the First World War.

billion dollars in the economy above the increase in the monetary base. This is an amount that is 83 percent of the dollar value of the \$927 billions in mortgage-backed securities.

Due to the “money multiplier” effect – that under fractional reserves, total new bank loans are potentially a multiple of the additional reserves injected into the banking system – it is not necessary for the Fed to purchase, dollar-for-dollar, every additional dollar of government borrowing to generate a total increase in the money supply that may be equal to the government’s deficit.

Thus, it can be argued that Fed monetary policy has succeeded, in fact, in generating an increase in the amount of money in the banking system that is equal to two-thirds of the government’s \$3.6 trillion of new accumulated debt.

That the money multiplier effect has not been as great as it might have been, so far, is because the Federal Reserve has been paying interest to member banks to *not lend* their excess reserves. This sluggishness in potential lending has also been affected by the general “regime uncertainty” that continues to pervade the economy. This uncertainty concerns the future direction of government monetary and fiscal policy. In an economic climate in which it is difficult to anticipate the future tax structure, the likely magnitude of future government borrowing, and the impact of new government programs, hesitancy exists on the part of both borrowers and lenders to take on new commitments.

But the monetary expansion has most certainly has been the factor behind the worsening problem of rising prices in the U.S. economy and the significant fall in the value of the dollar on the foreign exchange markets.

The National Debt and Monetary Policy

It is hard for Americans to think of their own country experiencing the same type of fiscal crisis that has periodically occurred in “third world” countries. That type of government financial mismanagement is supposed to only happen in what used to be called “banana republics.”

But the fact is, the U.S. is following a course of fiscal irresponsibility that may lead to highly undesirable consequences. The bottom line truth is that over the decades the government – under both Republican and Democratic leadership – has promised the American people, through a wide range of redistributive and transfer programs and other on-going budgetary commitments, more than the U.S. economy can successfully deliver without seriously damaging the

country's capacity to produce and grow through the rest of this century.

To try to continue to borrow our way out of this dilemma would be just more of the same on the road to ruin. The real resources to pay for all the governmental largess that has been promised would have to come out of either significantly higher taxes or crowding out more and more private sector access to investment funds to cover continuing budget deficits. Whether from domestic or foreign lenders, the cost of borrowing will eventually and inescapably rise. There is only so much savings in the world to fund private investment and government borrowing, particularly in a world in which developing countries are intensely trying to catch up with the industrialized nations.

Interest rates on government borrowing will rise, both because of the scarcity of the savings to go around and lenders' concerns about America's ability to tax enough in the future to pay back what has been borrowed. Default risk premiums need not only apply to countries like Greece.

Reliance on the Federal Reserve to "print our way" out of the dilemma through more monetary expansion is not and cannot be an answer, either. Printing paper money or creating it on computer screens at the Federal Reserve does not produce real resources. It does not increase the supply of labor or capital – the machines, tools, and equipment – out of which desired goods and services can be manufactured and provided. That only comes from work, savings and investment. Not from more green pieces of paper with presidents' faces on them.

However, what inflation can do is:

- Accelerate the *devaluation of the dollar* on the foreign exchange markets, and thereby disrupting trading patterns and investment flows between the U.S. and the rest of the world;
- *Reduce the value, or purchasing power, of every dollar* in people's pockets throughout the economy as prices start to rise higher and higher;
- *Undermine the effectiveness of the price system* to assist people as consumers and producers in making rational market decisions, due to the uneven manner in which inflation impacts of some prices first and effects others only later;
- *Potentially slow down capital formation or even generate capital consumption*, as inflation's uneven effects on prices

makes it difficult to calculate profit from loss;

- *Distort interest rates in financial markets, creating an imbalance between savings and investment that sets in motion the boom and bust of the business cycle;*
- *Create incentives for people to waste their time and resources trying to find ways to hedge against inflation, rather than devote their efforts in more productive ways that improve standards of living over time;*
- *Bring about social tensions as people look for scapegoats to blame for the disruptive and damaging effects of inflation, rather than see its source in Federal Reserve monetary policy;*
- *Run the risk of political pressures to introduce distorting price and wage controls or foreign exchange regulations to fight the symptom of rising prices, rather than the source of the problem – monetary expansion.*

What is To Be Done?

The bottom line is, government is too big. It spends too much, taxes too heavily, and borrows too much. For a long time, the country has been trending more and more in the direction of increasing political paternalism. Some people argue, when it is proposed to reduce the size and scope of government in our society, that this is breaking some supposed “social contract” between government and “the people.”

The only workable “social contract” for a free society is the one outlined by the American Founding Fathers in the Declaration of Independence and formalized in the Constitution of the United States. This is a social contract that recognizes that all men are created equal, with governmental privileges and favors for none, and which expects government to respect and secure each individual’s right to his life, liberty, and honestly acquired property.

The reform agenda for deficit and debt reduction, therefore, must start from that premise and have as its target a radical “downsizing” of government. That policy should plan to reduce government spending across the board in every line item of the federal budget by 10 to 15 percent each year until government has been reduced in size and scope to a level and a degree that resembles, once again, the Founding Father’s conception of a free and limited government.⁶⁹

⁶⁹See, Richard M. Ebeling, “The Cost of the Federal Government in a Freer America,” *The Freeman: Ideas on Liberty* (March 2007), pp. 2-3;

A first step in this fiscal reform is to *not* increase the national debt limit. The government should begin, *now*, living within its means – that is, the taxes currently collected by the Treasury. In spite of some of the rhetoric in the media, the U.S. need not run the risk of defaulting or losing its international financial credit rating. Any and all interest payments or maturing debt can be paid for out of tax receipts. What will have to be reduced are other expenditures of the government.

But the required reductions and cuts in various existing programs should be considered as the necessary “wake-up call” for everyone in America that we have been living far beyond our means. And as we begin living within those means, priorities will have to be made and trade-offs will have to be accepted as part of the transition to a smaller and more constitutionally limited government.

In addition, the power of monetary discretion must be taken out of the hands of the Federal Reserve. The fact is, central banking is a form of monetary central planning under which it is left in the hands of the members of the Board of Governors of the Federal Reserve to “plan” the quantity of money in the economy, influence the value or purchasing power of the monetary unit, and manipulate interest rates in the loan markets.

The monetary central planners who run the Federal Reserve have no more or greater knowledge, wisdom or ability that those central planners in the old Soviet Union. The periodic recurrence of the boom and bust of the business cycle demonstrates that there is no way for them to get it right – in spite of them saying, again and again, that “next time” they will get it right.

It is what the Nobel Prize-winning, Austrian economist, Friedrich A. Hayek, once called a highly misplaced “pretense of knowledge.” That is why in a wide agenda for reform, the goal should be to move towards a market-based monetary system, the first step in such an institutional change being a commodity-backed monetary order such as a gold standard.⁷⁰

And in the longer-run serious consideration must be given the possibilities of a monetary system completely privatized and

<http://www.thefreemanonline.org/from-the-president/the-cost-of-the-federalgovernment-in-a-freer-america/> (accessed May 5, 2011).

⁷⁰See, Richard M. Ebeling, “The Gold Standard and Monetary Freedom,” March 30, 2011, <http://defenseofcapitalism.blogspot.com/2011/03/gold-standard-andmonetary-freedom-by.html>

competitive, without government control, management, or supervision.⁷¹

The budgetary and fiscal crisis right now has made many political issues far clearer in people's minds. The debt dilemma is a challenge and an opportunity to set America on a freer and potentially more prosperous track, if the reality of the situation is looked at foursquare in the eye.

Otherwise, dangerous, destabilizing, and damaging monetary and fiscal times maybe ahead.

⁷¹ See, Richard M. Ebeling, "Real Banking Reform? End the Federal Reserve," January 22, 2010, <http://defenseofcapitalism.blogspot.com/2010/01/real-banking-reformend-federal-reserve.html>

WRITTEN TESTIMONY OF
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ELY & COMPANY, INC.

Mr. Chairman Paul, Ranking Member Clay, and members of the Subcommittee, I very much appreciate the opportunity to testify to you today about the relationship between the Federal Reserve and government debt, specifically as that relationship relates to monetary policy and the federal debt ceiling. After first discussing the Fed's balance sheet and financial results in recent years, I will address policy questions related to the relationship of the Fed to the Treasury Department and the wisdom of monetary policy.

The Federal Reserve's Balance Sheet

I begin by presenting two charts (attached) which illustrate the components of the Fed's balance sheet over the last four years – Exhibit 1 [Figure 23] shows the components of the asset side of the Fed's balance sheet and Exhibit 2 [Figure 24] shows the components of the liability side of its balance sheet.⁷² These two charts show the extremely rapid growth of the Fed balance sheet – it more than doubled in size, with total assets rising from \$907 billion on September 3, 2008, to \$2.26 trillion on December 17, 2008. After shrinking in early 2009, the Fed balance sheet resumed growing, reaching an all-time high of \$2.72 trillion just last Wednesday, May 4, 2011. How much more it will grow is anyone's guess.

As the Fed balance sheet has grown, the composition of its assets has changed significantly. In 2008 and through 2009, most the growth in the Fed's assets was related to the Fed's support of the financial system through programs such as its Term Auction Credit, loans to banks and others, such as AIG, and portfolio investments, principally three Maiden Lane LLCs. The Fed also engaged in liquidity swaps with other central banks to help ease international monetary pressures. To finance these new activities, the Fed first shrank its holdings of Treasury securities – they declined from a peak of \$791 billion on August 8, 2007, to a low of \$475 to \$480 billion between June of 2008 and March of 2009.

⁷² The data presented in these two charts are taken from Table 9 in the Federal Reserve's weekly H.4.1 statistical release. That table presents the statement of condition (balance sheet), as of the Wednesday of that week, for each of the twelve Federal Reserve banks and a consolidated balance sheet for all twelve banks.

About two years ago, Fed assets began a second transformation which continues to this day. While its balance sheet has continued to grow, Fed lending to and investments in the credit markets and private-sector institutions has declined significantly while all of its central bank liquidity swaps have expired, reflecting the increased stability of the international financial markets. At the same time, the Fed's investment in federal agency debt, i.e., debt issued by government-sponsored enterprises (GSEs), and mortgage-backed securities (MBS)⁷³ has grown dramatically – from an initial \$10 billion on September 24, 2008, to \$1.05 trillion last Wednesday; that amount is down from a peak of \$1.294 trillion on June 23, 2010. The Fed now owns about 14% of the total debt and MBS issued or guaranteed by the three housing-finance GSEs and Ginnie Mae.

The other element of the second transformation in the Fed's asset composition has been the growth of its holdings of Treasury securities. From March 2009 to October 2009, they rose to a new plateau, in the range of \$775 billion, which held until August 2010. Since then, the Fed's holdings of Treasury securities have nearly doubled, to \$1.442 trillion as of last Wednesday. This tremendous growth in the Fed's Treasury securities reflects in large part the consequence of the Fed's Quantitative Easing program to bring down longer term interest rates.

As Exhibit 2 shows, almost all of the growth in the Fed's liabilities has occurred in its deposits – from the Treasury Department and from banks. Treasury deposits started rising in late September 2008 and peaked at \$615 billion on October 22, 2008, as the Treasury borrowed funds to effectively lend to the Fed so that the Fed could lend and invest those funds in the financial markets.

As the proceeds from the Fed's lending and investing began flowing into banks, banks deposited those funds in the Fed. On October 9, 2008, the Fed began paying interest on reserve balances, which gave banks an incentive to hold cash balances at the Fed. Consequently, as Exhibit 2 shows, bank deposits at the Fed grew dramatically in late 2008 and early 2009, rising from \$11 billion on September 3, 2008, to \$860 billion on December 31, 2008.

The jump in bank deposits permitted the Treasury to begin to reduce its deposits at the Fed, a trend that, with ups and downs, has continued to this day. That reduction in its deposits at the Fed has permitted a corresponding reduction in Treasury borrowings. After

⁷³ Fannie Mae and Freddie Mac debt and MBS, Federal Home Loan Bank System debt, and Ginnie Mae MBS.

remaining relatively flat through 2010, bank deposits at the Fed began rising during the first quarter of this year, reaching \$1.54 trillion on April 13, 2011. Bank deposits at the Fed now account for more than 10% of total banking-industry assets.

Exhibit 2 also illustrates the relatively steady growth of the Fed's other major liability – currency outstanding. Over the last four years, from May 2, 2007, to May 4, 2011, currency outstanding (much of which circulates outside the United States) has grown at a compound annual rate of 6.02%.⁷⁴ Currency (along with coins issued by the Treasury) represents the non-interest-bearing portion of the federal debt. Although pieces of currency are labeled as Federal Reserve Notes, they are in fact just as much a liability of the federal government as are the interest-bearing bills, notes, and bonds issued by the Treasury Department. That is, each piece of currency represents a zero-interest Treasury bill with no fixed maturity date.

Currency outstanding, i.e., currency actually in circulation versus currency sitting in Fed vaults, is the one element of the Fed balance sheet over which the Fed has no control as to the amount outstanding. That is, the amount of currency outstanding is totally demand-driven. The Fed cannot force currency into circulation – Americans and others will hold only as much currency as they desire, and no more. That is why the Fed could not look to currency as a funding source for its tremendous balance-sheet growth in recent years. Instead, the Fed has had to borrow from the Treasury, in the form of Treasury deposits, and from the banking industry, in the form of deposits banks have placed at the Fed. If inflation emerges again in the United States, it will not be because the government literally cranked up the printing press to force more paper currency into circulation.

Exhibit 3 [Figure 25] illustrates the symbiotic relationship between the Fed and the Treasury by showing the extent to which the Net Treasury Position (NTP) at the Fed has varied over the last four years. The NTP is merely the total amount of Treasury securities owned by the Fed at any point in time minus the amount the Treasury has on deposit at the Fed on that day. In effect, the NTP measures the extent to which the Fed is using liabilities largely held in the private sector – currency and bank deposits at the Fed – to finance the federal government's accumulated deficit.

Normally, the NTP is positive because the Fed invests the proceeds of its currency issuance in Treasury securities. However, in

⁷⁴ The annual growth rates within that four-year period (measured from the Wednesday closest to May 2) were as follows: .64%, 11.42%, 3.65%, and 8.71%.

late 2007, as the Fed began to support the private credit markets and global financial stability, the NTP started to decline before falling off the cliff in the fall of 2008. From December 5, 2007, to October 22, 2008, the NTP dropped \$913 billion, reaching a negative position of \$138 billion on the latter date. The Treasury had to access the capital markets to fund that drop in the NTP. Fortunately, rates on Treasury debt remained relatively stable during that time. It then took over two years, until January 12 of this year, for the NTP to reach its former level. Since then, the NTP has grown another \$524 billion as bank deposits at the Fed have grown and as the Fed has steadily liquidated its non-traditional loans and investments.

Exhibit 4 [Figure 26] further illustrates changes in the Fed balance sheet over the last four years. The left column (June 6, 2007) illustrates a typical pre-crisis Fed balance sheet, with Fed-issued currency intermediated into Treasury securities and both of those items comprising approximately 90% of their side of the Fed balance sheet.

The middle column (June 3, 2009) shows the Fed just past the peak of the credit-market crisis but as it is ramping up its support of the housing-finance GSEs. The bracketed numbers, totaling \$1.213 trillion, show the amount of non-traditional support the Fed was providing to the credit markets and the GSEs at that time.

The right column summarizes the most recently available Fed balance sheet – May 3, 2011. Although almost \$650 billion larger than the June 3, 2009, balance sheet, it shows a substantial increase – \$836 billion – in Treasury securities as the NTP was rebuilt but only a modest \$80 billion decline in non-traditional credit support. However, all but \$81 billion of that non-traditional activity represented Fed support of the housing GSEs – over \$1 trillion.

The Fed has become an Extremely Profitable Bank

There has been insufficient recognition that the Fed has become an extremely profitable bank since 2008. Exhibit 5 [Figure 27] illustrates the Fed income statement for 2007 – the last “normal” Fed year in which it sent back to the Treasury \$5.7 billion less than it received as interest on Treasury securities. That is, Fed activities cost taxpayers \$5.7 billion for calendar year 2007.

Exhibit 6 [Figure 28], which illustrates the Fed income statement for 2010, shows how the Fed earned a \$52.9 billion *profit* for taxpayers last year as it assumed substantial credit and market risks. That is, the Fed returned \$52.9 billion more to the Treasury than the Treasury paid the Fed as interest on its Treasury securities

– \$79.27 billion paid to the Treasury by the Fed minus \$26.37 billion paid to the Fed by the Treasury.

Exhibit 7 [Figure 29] shows changes in the Fed’s income statement from 2007 to 2010. Three items are of particular note in this exhibit. First, the decline in the amount of interest the Fed earned on its Treasury securities reflects the decline of the average yield on the Fed’s Treasury securities offset to a small degree by a 3.3% increase in the average amount of the Fed’s Treasury securities in 2010 relative to 2007. Second, the tremendous increase – from \$575 million in 2007 to \$53.02 billion in 2010 – in interest the Fed earned other than on loans and its Treasury securities. Third, largely as a result of that jump in “other interest income,” the huge increase in the monies the Fed returned to the Treasury.

The Fed’s 2010 profitability follows Fed profits of \$24.5 billion in 2009 and \$4.2 billion in 2008.⁷⁵ Over 2008 to 2010 period, the Fed increased its Surplus account (in effect, Fed earnings not turned over to the Treasury) by \$8.07 billion. Therefore, over 2008-2010 period, the Fed earned almost \$90 billion – \$89.681 billion to be exact. By contrast, the total after-tax profit for the 2008-2010 period for all FDIC-insured institutions was less, \$81.39 billion.

The Fed’s profitability in recent years has been due to, one, the tremendous growth in its income-producing assets, specifically GSE debt and MBS; two, its extremely low cost of funds – zero on the currency it issues and .25% on deposits banks have placed with it; and three, the relatively modest increase in its operating expenses since 2007. Given that all three trends have continued into 2011, there is every reason to believe that 2011 will be another extremely profitable year for the Fed. A key public-policy question, though, is whether the federal government, through the Fed, should play such a substantial role in the credit-intermediation business.

The Fed should be Viewed as an Extension of the U.S. Treasury

Although Congress chartered the Fed as an independent entity, specifically to operate independently of the Executive Branch, that independence should be questioned from two perspectives – the management of the federal government’s finances and the efficacy and desirability of monetary policy. This section of my testimony will

⁷⁵ For 2009, the Fed earned \$22.89 billion on its Treasury securities and returned \$47.43 billion to the Treasury. For 2008, the Fed earned \$27.52 billion on its Treasury securities and returned \$31.69 billion to the Treasury.

examine Fed independence from a financial perspective while the next section will address monetary policy.

Federal Reserve independence is a myth in one crucial regard – the Fed is a creature of Congress and it operates with the full-faith-and-credit backing of the federal government and therefore of the federal taxpayer. The Fed has no creditworthiness of its own – its creditworthiness stems strictly from being an instrumentality of the federal government and therefore from the financial backing of American taxpayers. In this regard, the Fed is no different than all other central banks. The Fed has independent decision-making power only to the extent that Congress has granted that power. Likewise, the Fed's ability to issue currency, and to earn interest on investments funded by that currency, was authorized by Congress, and could be retracted by Congress.

Key to understanding the linkage of the Fed to the rest of the federal government is to consolidate the Fed and Treasury Department balance sheets. Exhibit 8 [Figure 30] places these two balance sheets side-by-side. Exhibit 9 [Figure 31] presents an accounting consolidation of the two balance sheets so as to present a more complete picture of the federal government's finances.⁷⁶

There are important merits in viewing the Treasury and Fed balance sheets on a consolidated basis. First, the asset side of this balance sheet shows the extent to which the federal government – through the Treasury and the Fed – is supplying credit to the private sector, notably to finance housing and higher education. That amount of credit as well as other assets financed by the Fed and the Treasury totaled to \$2.12 trillion at the end of March 2011, as shown in Exhibit 10 [Figure 32]. This government-supplied credit has been funded entirely by Treasury debt, pushing the outstanding federal debt \$2.12 trillion closer to the federal debt ceiling.⁷⁷

Second, the liability side of this consolidated balance shows in Exhibit 10 that private-sector funds – principally deposits by banks in the Fed – provided \$1.676 billion of financing to the federal

⁷⁶ The Treasury balance sheet is derived from Table 6 of the Monthly Treasury Statement; the most recent statement is as of March 31, 2011. The nearest Federal Reserve balance sheet is as of March 30, 2011. The difference in Treasury deposits at the Fed is due to the effect of March 31, 2011, transactions on the Treasury cash balance at the Fed. Other transactions on March 31, 2011, would affect the amounts shown in Exhibit 9, but the effect of those transactions is not considered to be material for the purposes of this discussion.

⁷⁷ For the purpose of calculating the amount of federal debt subject to the federal debt ceiling, outstanding federal debt includes debt held by the public and the Federal Reserve as well as intragovernmental holdings of Treasury debt securities (such as Treasuries held by the Social Security Trust Fund), but excludes currency outstanding.

government as of the end of March 2011. These non-Treasury-debt liabilities effectively funded 79% of the federal government's financial assets at March 31 (\$1.676 trillion/\$2.12 trillion). One of the big financial challenges the federal government (i.e. the Fed and the Treasury) faces going forward is winding down both of these components of the government's balance sheet as the economy continues to recover.

Third, the liability side of the consolidated balance sheet shows that at the end of March currency outstanding accounted for 10.4% of the total federal debt held by the public – \$964 billion in currency plus \$8.313 trillion of interest-bearing Treasury debt. This non-interest-bearing portion of the total debt held by the public has declined in recent years as budget deficits have forced the issuance of substantial amounts of interest-bearing debt. At the end of 2007, currency accounted 15.3% of the federal debt held by the public.⁷⁸

Given the magnitude of federal budget deficits for the foreseeable future, the currency portion of the federal debt will continue to decline unless the federal government adopts the practice of third-world countries and, one, begins to pay its bills in currency and, two, refuses to permit banks to exchange currency deposited with them for interest-bearing Treasury debt. Given the evolution of the federal government's payment mechanisms from currency⁷⁹ to checks to direct deposit, it is highly unlikely that the federal government can finance future deficits with currency, except to the extent that Americans and non-Americans are willing to hold U.S. currency. *The printing press will not be a cure for financing future deficits.*

In sum, the Fed could be folded into the Treasury Department tomorrow with no adverse effects (except for the jobs that would be eliminated and the Fed buildings which could be sold). Doing so would permit a unified management of the federal government's balance sheet and the Treasury Department could directly issue currency, as it did in pre-Fed days. Because of current payment technology, there would be no danger, as a practical matter, of Treasury over-issuance of U.S. currency. To further protect against over-issuance, Congress could provide a statutory guarantee of the convertibility of U.S. currency into interest-bearing Treasury debt.

⁷⁸ At December 31, 2007, Treasury debt held by the public and the Fed was \$5.122 trillion, including \$741 billion held by the Fed. Currency outstanding on that date was \$792 billion. Therefore, the total federal debt held by the public was \$5.173 trillion (\$5.122 trillion - \$741 billion + \$792 billion); \$792 billion/\$5.173 trillion = 15.3%.

⁷⁹ In 1966, this witness was paid in currency while he was on active duty for training in the U.S. Army. Presumably no federal employee is paid in currency today.

The Treasury also could assume the role of lender-of-last-resort. Since the Fed, when acting as an emergency lender, is lending taxpayer dollars and using its federal backing to support any guarantees it issues, it is not doing anything that the Treasury itself could not do. Put another way, the Fed has no resources or powers at its disposal that the Treasury Department does not also have or could have, if Congress so provided. Treasury's assumption of the lender-of-last-resort role also would bring much great political accountability to such lending. The need for greater accountability was quite evident during the recent crisis.

Since folding the Fed into the Treasury is unlikely to occur in the near future, Congress should take the next best step and mandate that the Treasury Department periodically produce, say monthly, a consolidated balance sheet of the Fed and the Treasury, as I present in Exhibits 9 and 10. Such a consolidation would present a much more complete picture of federal finances and the impact of the federal government on the U.S. economy.

Does America benefit from Monetary Policy?

The fundamental premise of central-bank independence is that monetary policy must be free of political interference. Leaving aside the merits of that premise, the key question is: What constitutes monetary policy?

As a practical matter, monetary policy today consists solely of the Fed trying to influence interest rates through its open-market operations. That activity consists of the New York Fed, as agent for the Federal Reserve System, buying and selling Treasury securities or engaging in repurchase transactions involving Treasuries. The purpose of these transactions is hold the overnight Fed Funds rate as close as practical to the Federal Funds Rate Target (FFRT)⁸⁰ set by the Fed's Federal Open Market Committee, or FOMC.⁸¹ The Fed also has used open market operations to carry out its Quantitative Easing initiatives and to accumulate its inventory of GSE debt and MBS.

Fed management of the money supply has no relevance today, from a monetary-policy perspective, because, one, the amount of currency in circulation is totally demand-driven and two, money

⁸⁰ The FFRT is the interest rate the Fed would like to see in the overnight Fed Funds market; i.e., the interest rate at which banks lend to each other on an overnight basis. The FFRT is viewed as the "anchor" for longer-term interest rates.

⁸¹ The FOMC has twelve members – the seven Fed governors, the president of the New York Fed, and four of the presidents of the other eleven Fed banks, who serve on a rotating basis as voting members of the FOMC.

(however defined) is merely that portion of the credit supply which also can efficiently serve as media of exchange. Inflation in a modern industrial economy – whether of assets or consumption goods – is to a great extent a function of the price of credit. If credit is underpriced – interest rates are too low – inflation may begin to emerge as increased demand stimulated by underpriced credit causes the economy to overheat and asset prices to soar, as we saw in the recent U.S. housing bubble. Overpriced credit – interest rates are too high – has the opposite effect. Demand for goods, services, and assets declines, increasing the potential for an economic downturn and price deflation.

Given that monetary policy is all about interest rates, the question is who can better set interest rates – a committee of government bureaucrats (which the FOMC is) or the financial markets? The experience of recent years certainly does not support the notion that bureaucrats can do a better job than the financial markets in determining the price of credit. This question can be posed another way – what is it about credit that makes it desirable for government to determine its price, or at least to try to do that, when it is well known that government price-fixing of other services is highly undesirable?

Some argue that a central bank must provide a “nominal anchor” for the credit markets – a pricing benchmark, if you will. In the United States, that would be the FFRT. Quite possibly, the interest rate the Fed now pays on the reserves (i.e., deposits banks have placed at the Fed) will emerge as another component of the Fed’s interest-rate price-fixing activity.

In the opinion of this witness, a strong case has never been made that the financial markets cannot set interest rates across the entire yield curve that will promote stable, non-inflationary economic growth while minimizing the emergence of asset bubbles.⁸² More specifically, there certainly is no reason why the interbank lending market cannot establish and vary the overnight interest rate which the FOMC now establishes through its open-market operations.

I encourage this subcommittee to address the question of why interest rates need a “nominal anchor,” why it is in the public interest to have a government committee signaling what its members consider to be the appropriate level of interest rates, and why the Fed should try to enforce that signal through open-market operations? If the

⁸² This witness discussed the role that monetary policy played in helping to cause the recent U.S. financial crisis in “Bad Rules Produce Bad Outcomes; Underlying Public-Policy Causes of the U.S. Financial Crisis,” *Cato Journal*, Vol. 29, No. 1 (Winter 2009), pages 93 to 114.

case cannot be made that the Fed's interest-rate signaling is beneficial to the U.S. economy, then the primary *raison d'être* for the Fed disappears, which would open the door to folding the Fed into the Treasury Department.⁸³

Mr. Chairman, I thank you for this opportunity to testify to the Subcommittee today. I welcome the opportunity to answer questions posed by its members.

The Federal Reserve's Balance Sheet

I begin by presenting two charts (attached) which illustrate the components of the Fed's balance sheet over the last four years – Exhibit 1 [Figure 23] shows the components of the asset side of the Fed's balance sheet and Exhibit 2 [Figure 24] shows the components of the liability side of its balance sheet.⁸⁴ These two charts show the extremely rapid growth of the Fed balance sheet – it more than doubled in size, with total assets rising from \$907 billion on September 3, 2008, to \$2.26 trillion on December 17, 2008. After shrinking in early 2009, the Fed balance sheet resumed growing, reaching an all-time high of \$2.72 trillion just last Wednesday, May 4, 2011. How much more it will grow is anyone's guess.

As the Fed balance sheet has grown, the composition of its assets has changed significantly. In 2008 and through 2009, most the growth in the Fed's assets was related to the Fed's support of the financial system through programs such as its Term Auction Credit, loans to banks and others, such as AIG, and portfolio investments, principally three Maiden Lane LLCs. The Fed also engaged in liquidity swaps with other central banks to help ease international monetary pressures. To finance these new activities, the Fed first shrank its holdings of Treasury securities – they declined from a peak of \$791 billion on August 8, 2007, to a low of \$475 to \$480 billion between June of 2008 and March of 2009.

About two years ago, Fed assets began a second transformation which continues to this day. While its balance sheet has continued to grow, Fed lending to and investments in the credit markets and private-sector institutions has declined significantly while all of its central bank liquidity swaps have expired, reflecting the increased

⁸³ The Fed's non-monetary-policy functions, such as banking supervision, could be placed elsewhere in the government or, in the case of some of its payment-system activities, privatized.

⁸⁴ The data presented in these two charts are taken from Table 9 in the Federal Reserve's weekly H.4.1 statistical release. That table presents the statement of condition (balance sheet), as of the Wednesday of that week, for each of the twelve Federal Reserve banks and a consolidated balance sheet for all twelve banks.

stability of the international financial markets. At the same time, the Fed's investment in federal agency debt, i.e., debt issued by government-sponsored enterprises (GSEs), and mortgage-backed securities (MBS)⁸⁵ has grown dramatically – from an initial \$10 billion on September 24, 2008, to \$1.05 trillion last Wednesday; that amount is down from a peak of \$1.294 trillion on June 23, 2010. The Fed now owns about 14% of the total debt and MBS issued or guaranteed by the three housing-finance GSEs and Ginnie Mae.

The other element of the second transformation in the Fed's asset composition has been the growth of its holdings of Treasury securities. From March 2009 to October 2009, they rose to a new plateau, in the range of \$775 billion, which held until August 2010. Since then, the Fed's holdings of Treasury securities have nearly doubled, to \$1.442 trillion as of last Wednesday. This tremendous growth in the Fed's Treasury securities reflects in large part the consequence of the Fed's Quantitative Easing program to bring down longer term interest rates.

As Exhibit 2 shows, almost all of the growth in the Fed's liabilities has occurred in its deposits – from the Treasury Department and from banks. Treasury deposits started rising in late September 2008 and peaked at \$615 billion on October 22, 2008, as the Treasury borrowed funds to effectively lend to the Fed so that the Fed could lend and invest those funds in the financial markets.

As the proceeds from the Fed's lending and investing began flowing into banks, banks deposited those funds in the Fed. On October 9, 2008, the Fed began paying interest on reserve balances, which gave banks an incentive to hold cash balances at the Fed. Consequently, as Exhibit 2 shows, bank deposits at the Fed grew dramatically in late 2008 and early 2009, rising from \$11 billion on September 3, 2008, to \$860 billion on December 31, 2008.

The jump in bank deposits permitted the Treasury to begin to reduce its deposits at the Fed, a trend that, with ups and downs, has continued to this day. That reduction in its deposits at the Fed has permitted a corresponding reduction in Treasury borrowings. After remaining relatively flat through 2010, bank deposits at the Fed began rising during the first quarter of this year, reaching \$1.54 trillion on April 13, 2011. Bank deposits at the Fed now account for more than 10% of total banking-industry assets.

Exhibit 2 also illustrates the relatively steady growth of the Fed's other major liability – currency outstanding. Over the last four years,

⁸⁵ Fannie Mae and Freddie Mac debt and MBS, Federal Home Loan Bank System debt, and Ginnie Mae MBS.

from May 2, 2007, to May 4, 2011, currency outstanding (much of which circulates outside the United States) has grown at a compound annual rate of 6.02%.⁸⁶ Currency (along with coins issued by the Treasury) represents the non-interest-bearing portion of the federal debt. Although pieces of currency are labeled as Federal Reserve Notes, they are in fact just as much a liability of the federal government as are the interest-bearing bills, notes, and bonds issued by the Treasury Department. That is, each piece of currency represents a zero-interest Treasury bill with no fixed maturity date.

Currency outstanding, i.e., currency actually in circulation versus currency sitting in Fed vaults, is the one element of the Fed balance sheet over which the Fed has no control as to the amount outstanding. That is, the amount of currency outstanding is totally demand-driven. The Fed cannot force currency into circulation – Americans and others will hold only as much currency as they desire, and no more. That is why the Fed could not look to currency as a funding source for its tremendous balance-sheet growth in recent years. Instead, the Fed has had to borrow from the Treasury, in the form of Treasury deposits, and from the banking industry, in the form of deposits banks have placed at the Fed. If inflation emerges again in the United States, it will not be because the government literally cranked up the printing press to force more paper currency into circulation.

Exhibit 3 [Figure 25] illustrates the symbiotic relationship between the Fed and the Treasury by showing the extent to which the Net Treasury Position (NTP) at the Fed has varied over the last four years. The NTP is merely the total amount of Treasury securities owned by the Fed at any point in time minus the amount the Treasury has on deposit at the Fed on that day. In effect, the NTP measures the extent to which the Fed is using liabilities largely held in the private sector – currency and bank deposits at the Fed – to finance the federal government's accumulated deficit.

Normally, the NTP is positive because the Fed invests the proceeds of its currency issuance in Treasury securities. However, in late 2007, as the Fed began to support the private credit markets and global financial stability, the NTP started to decline before falling off the cliff in the fall of 2008. From December 5, 2007, to October 22, 2008, the NTP dropped \$913 billion, reaching a negative position of \$138 billion on the latter date. The Treasury had to access the

⁸⁶ The annual growth rates within that four-year period (measured from the Wednesday closest to May 2) were as follows: .64%, 11.42%, 3.65%, and 8.71%.

capital markets to fund that drop in the NTP. Fortunately, rates on Treasury debt remained relatively stable during that time. It then took over two years, until January 12 of this year, for the NTP to reach its former level. Since then, the NTP has grown another \$524 billion as bank deposits at the Fed have grown and as the Fed has steadily liquidated its non-traditional loans and investments.

Exhibit 4 [Figure 26] further illustrates changes in the Fed balance sheet over the last four years. The left column (June 6, 2007) illustrates a typical pre-crisis Fed balance sheet, with Fed-issued currency intermediated into Treasury securities and both of those items comprising approximately 90% of their side of the Fed balance sheet.

The middle column (June 3, 2009) shows the Fed just past the peak of the credit-market crisis but as it is ramping up its support of the housing-finance GSEs. The bracketed numbers, totaling \$1.213 trillion, show the amount of non-traditional support the Fed was providing to the credit markets and the GSEs at that time.

The right column summarizes the most recently available Fed balance sheet – May 3, 2011. Although almost \$650 billion larger than the June 3, 2009, balance sheet, it shows a substantial increase – \$836 billion – in Treasury securities as the NTP was rebuilt but only a modest \$80 billion decline in non-traditional credit support. However, all but \$81 billion of that non-traditional activity represented Fed support of the housing GSEs – over \$1 trillion.

The Fed has Become an Extremely Profitable Bank

There has been insufficient recognition that the Fed has become an extremely profitable bank since 2008. Exhibit 5 [Figure 27] illustrates the Fed income statement for 2007 – the last “normal” Fed year in which it sent back to the Treasury \$5.7 billion less than it received as interest on Treasury securities. That is, Fed activities cost taxpayers \$5.7 billion for calendar year 2007.

Exhibit 6 [Figure 28], which illustrates the Fed income statement for 2010, shows how the Fed earned a \$52.9 billion profit for taxpayers last year as it assumed substantial credit and market risks. That is, the Fed returned \$52.9 billion more to the Treasury than the Treasury paid the Fed as interest on its Treasury securities – \$79.27 billion paid to the Treasury by the Fed minus \$26.37 billion paid to the Fed by the Treasury.

Exhibit 7 [Figure 29] shows changes in the Fed’s income statement from 2007 to 2010. Three items are of particular note in this exhibit. First, the decline in the amount of interest the Fed

earned on its Treasury securities reflects the decline of the average yield on the Fed's Treasury securities offset to a small degree by a 3.3% increase in the average amount of the Fed's Treasury securities in 2010 relative to 2007. Second, the tremendous increase – from \$575 million in 2007 to \$53.02 billion in 2010 – in interest the Fed earned other than on loans and its Treasury securities. Third, largely as a result of that jump in “other interest income,” the huge increase in the monies the Fed returned to the Treasury.

The Fed's 2010 profitability follows Fed profits of \$24.5 billion in 2009 and \$4.2 billion in 2008.⁸⁷ Over 2008 to 2010 period, the Fed increased its Surplus account (in effect, Fed earnings not turned over to the Treasury) by \$8.07 billion. Therefore, over 2008-2010 period, the Fed earned almost \$90 billion – \$89.681 billion to be exact. By contrast, the total after-tax profit for the 2008-2010 period for all FDIC-insured institutions was less, \$81.39 billion.

The Fed's profitability in recent years has been due to, one, the tremendous growth in its income-producing assets, specifically GSE debt and MBS; two, its extremely low cost of funds – zero on the currency it issues and .25% on deposits banks have placed with it; and three, the relatively modest increase in its operating expenses since 2007. Given that all three trends have continued into 2011, there is every reason to believe that 2011 will be another extremely profitable year for the Fed. A key public-policy question, though, is whether the federal government, through the Fed, should play such a substantial role in the credit-intermediation business.

The Fed Should be Viewed as an Extension of the U.S. Treasury

Although Congress chartered the Fed as an independent entity, specifically to operate independently of the Executive Branch, that independence should be questioned from two perspectives – the management of the federal government's finances and the efficacy and desirability of monetary policy. This section of my testimony will examine Fed independence from a financial perspective while the next section will address monetary policy.

Federal Reserve independence is a myth in one crucial regard – the Fed is a creature of Congress and it operates with the full-faith-and-credit backing of the federal government and therefore of the federal taxpayer. The Fed has no creditworthiness of its own – its

⁸⁷ For 2009, the Fed earned \$22.89 billion on its Treasury securities and returned \$47.43 billion to the Treasury. For 2008, the Fed earned \$27.52 billion on its Treasury securities and returned \$31.69 billion to the Treasury.

creditworthiness stems strictly from being an instrumentality of the federal government and therefore from the financial backing of American taxpayers. In this regard, the Fed is no different than all other central banks. The Fed has independent decision-making power only to the extent that Congress has granted that power. Likewise, the Fed's ability to issue currency, and to earn interest on investments funded by that currency, was authorized by Congress, and could be retracted by Congress.

Key to understanding the linkage of the Fed to the rest of the federal government is to consolidate the Fed and Treasury Department balance sheets. Exhibit 8 [Figure 30] places these two balance sheets side-by-side. Exhibit 9 [Figure 31] presents an accounting consolidation of the two balance sheets so as to present a more complete picture of the federal government's finances.⁸⁸

There are important merits in viewing the Treasury and Fed balance sheets on a consolidated basis. First, the asset side of this balance sheet shows the extent to which the federal government – through the Treasury and the Fed – is supplying credit to the private sector, notably to finance housing and higher education. That amount of credit as well as other assets financed by the Fed and the Treasury totaled to \$2.12 trillion at the end of March 2011, as shown in Exhibit 10 [Figure 32]. This government-supplied credit has been funded entirely by Treasury debt, pushing the outstanding federal debt \$2.12 trillion closer to the federal debt ceiling.⁸⁹

Second, the liability side of this consolidated balance shows in Exhibit 10 that private-sector funds – principally deposits by banks in the Fed – provided \$1.676 billion of financing to the federal government as of the end of March 2011. These non-Treasury-debt liabilities effectively funded 79% of the federal government's financial assets at March 31 (\$1.676 trillion/\$2.12 trillion). One of the big financial challenges the federal government (i.e. the Fed and the Treasury) faces going forward is winding down both of these

⁸⁸ The Treasury balance sheet is derived from Table 6 of the Monthly Treasury Statement; the most recent statement is as of March 31, 2011. The nearest Federal Reserve balance sheet is as of March 30, 2011. The difference in Treasury deposits at the Fed is due to the effect of March 31, 2011, transactions on the Treasury cash balance at the Fed. Other transactions on March 31, 2011, would affect the amounts shown in Exhibit 9, but the effect of those transactions is not considered to be material for the purposes of this discussion.

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Third, the liability side of the consolidated balance sheet shows that at the end of March currency outstanding accounted for 10.4% of the total federal debt held by the public – \$964 billion in currency plus \$8.313 trillion of interest-bearing Treasury debt. This non-interest-bearing portion of the total debt held by the public has declined in recent years as budget deficits have forced the issuance of substantial amounts of interest-bearing debt. At the end of 2007, currency accounted 15.3% of the federal debt held by the public.⁹⁰

Given the magnitude of federal budget deficits for the foreseeable future, the currency portion of the federal debt will continue to decline unless the federal government adopts the practice of third-world countries and, one, begins to pay its bills in currency and, two, refuses to permit banks to exchange currency deposited with them for interest-bearing Treasury debt. Given the evolution of the federal government's payment mechanisms from currency⁹¹ to checks to direct deposit, it is highly unlikely that the federal government can finance future deficits with currency, except to the extent that Americans and non-Americans are willing to hold U.S. currency. *The printing press will not be a cure for financing future deficits.*

In sum, the Fed could be folded into the Treasury Department tomorrow with no adverse effects (except for the jobs that would be eliminated and the Fed buildings which could be sold). Doing so would permit a unified management of the federal government's balance sheet and the Treasury Department could directly issue currency, as it did in pre-Fed days. Because of current payment technology, there would be no danger, as a practical matter, of Treasury over-issuance of U.S. currency. To further protect against over-issuance, Congress could provide a statutory guarantee of the convertibility of U.S. currency into interest-bearing Treasury debt.

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Since folding the Fed into the Treasury is unlikely to occur in the near future, Congress should take the next best step and mandate that the Treasury Department periodically produce, say monthly, a consolidated balance sheet of the Fed and the Treasury, as I present in Exhibits 9 and 10. Such a consolidation would present a much more complete picture of federal finances and the impact of the federal government on the U.S. economy.

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Fed management of the money supply has no relevance today, from a monetary-policy perspective, because, one, the amount of currency in circulation is totally demand-driven and two, money (however defined) is merely that portion of the credit supply which also can efficiently serve as media of exchange. Inflation in a modern industrial economy – whether of assets or consumption goods – is to a great extent a function of the price of credit. If credit is underpriced – interest rates are too low – inflation may begin to emerge as increased demand stimulated by underpriced credit causes the

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economy to overheat and asset prices to soar, as we saw in the recent U.S. housing bubble. Overpriced credit – interest rates are too high – has the opposite effect. Demand for goods, services, and assets declines, increasing the potential for an economic downturn and price deflation.

Given that monetary policy is all about interest rates, the question is who can better set interest rates – a committee of government bureaucrats (which the FOMC is) or the financial markets? The experience of recent years certainly does not support the notion that bureaucrats can do a better job than the financial markets in determining the price of credit. This question can be posed another way – what is it about credit that makes it desirable for government to determine its price, or at least to try to do that, when it is well known that government price-fixing of other services is highly undesirable?

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⁹⁴ This witness discussed the role that monetary policy played in helping to cause the recent U.S. financial crisis in “Bad Rules Produce Bad Outcomes; Underlying Public-Policy Causes of the U.S. Financial Crisis,” *Cato Journal*, Vol. 29, No. 1 (Winter 2009), pages 93 to 114.

Fed disappears, which would open the door to folding the Fed into the Treasury Department.⁹⁵

Mr. Chairman, I thank you for this opportunity to testify to the Subcommittee today. I welcome the opportunity to answer questions posed by its members.

⁹⁵ The Fed's non-monetary-policy functions, such as banking supervision, could be placed elsewhere in the government or, in the case of some of its payment-system activities, privatized.

Components of Federal Reserve assets

May 2, 2007, to May 4, 2011 – dollars in trillions

Exh. 1

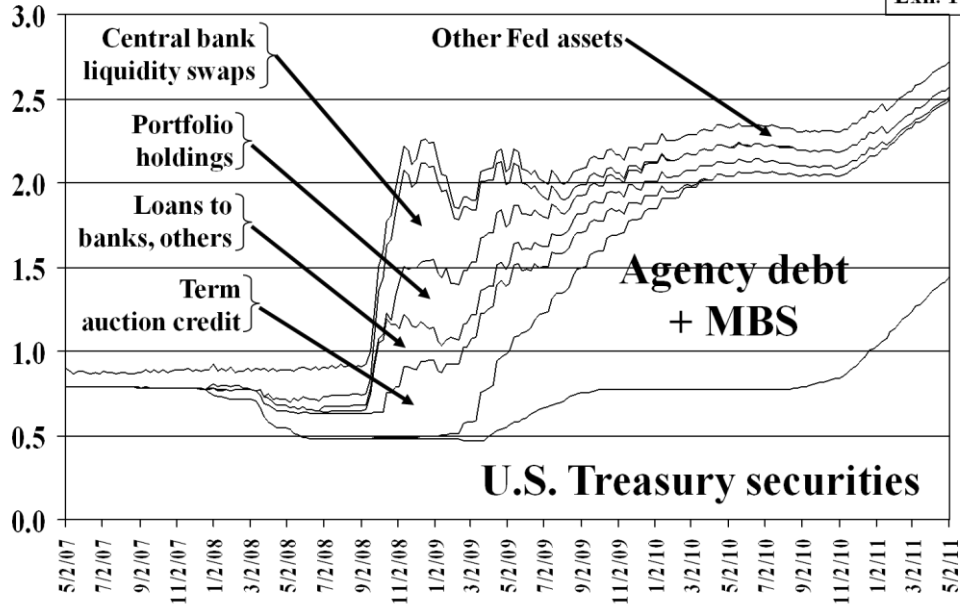


Figure 23

Components of Federal Reserve liabilities

May 2, 2007, to May 4, 2011 – dollars in trillions

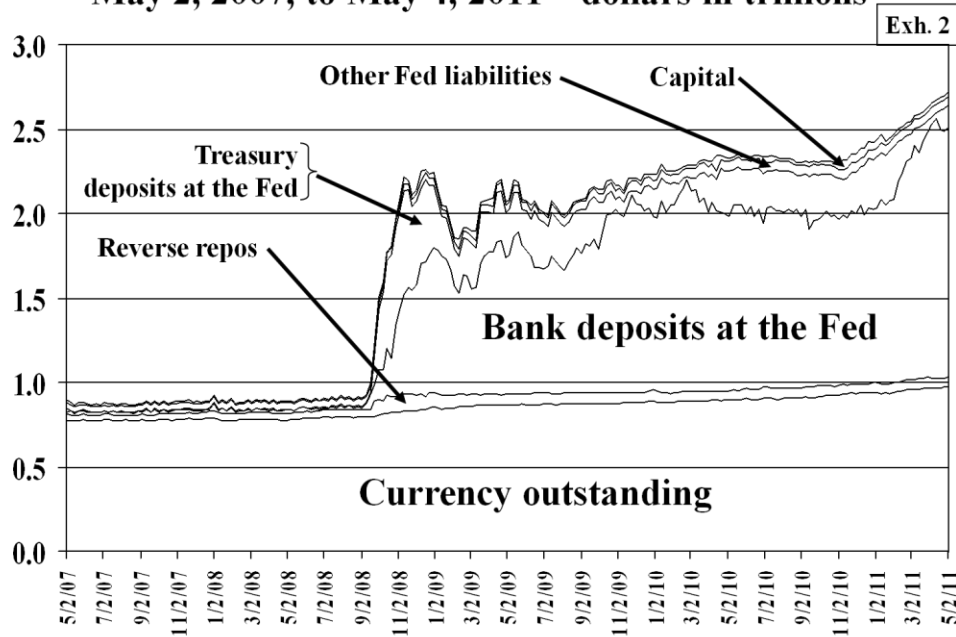


Figure 24

Net Treasury Position (NTP) at the Fed

Treasury securities owned by the Fed
minus Treasury deposits at the Fed
May 2, 2007, to May 4, 2011 – dollars in trillions

Exh. 3

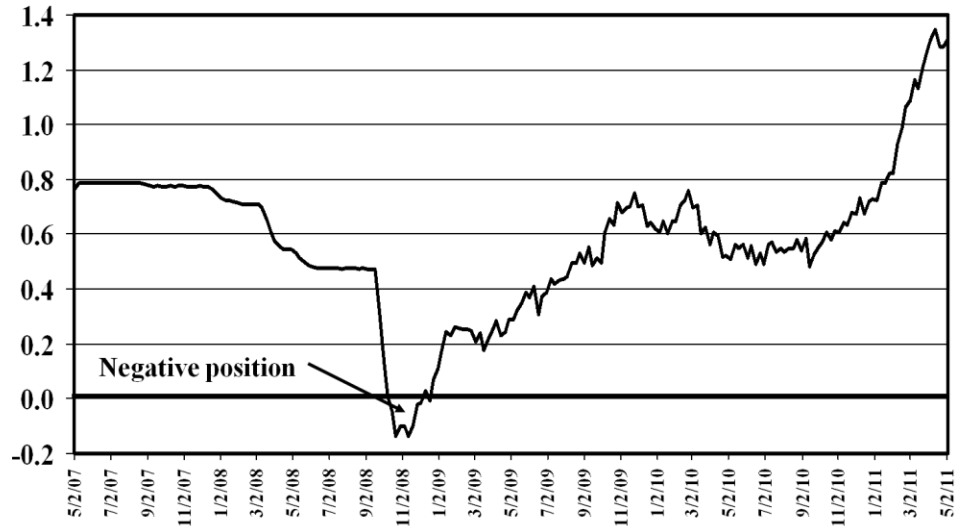


Figure 25

The Fed balance sheet grew enormously as it intermediated private-sector credit risk

Dollars in billions

	<u>6-6-07</u>	<u>6-3-09</u>	<u>5-3-11</u>
Treasury securities	790	606	1,442
Agency debt, MBS	0	510	1,052
Term auction credit	0	373	0
Other loans	.154	124	16
Commercial paper	0	143	0
Maiden lane portfolio holdings	0	63	65
Other assets, repo agreements	<u>78</u>	<u>261</u>	<u>148</u>
Total assets	<u>878</u>	<u>2,080</u>	<u>2,723</u>
Currency outstanding	776	869	976
Bank deposits (reserves)	19	845	1,481
Treasury deposits	5	238	130
Other liabilities, reverse repos	45	82	83
Capital	<u>33</u>	<u>46</u>	<u>53</u>
Total liabilities and capital	<u>878</u>	<u>2,080</u>	<u>2,723</u>

Exh. 4

}

}

Figure 26

Taxpayers historically subsidized Fed activities The Fed's 2007 subsidy equaled \$5.7 billion

Exh. 5

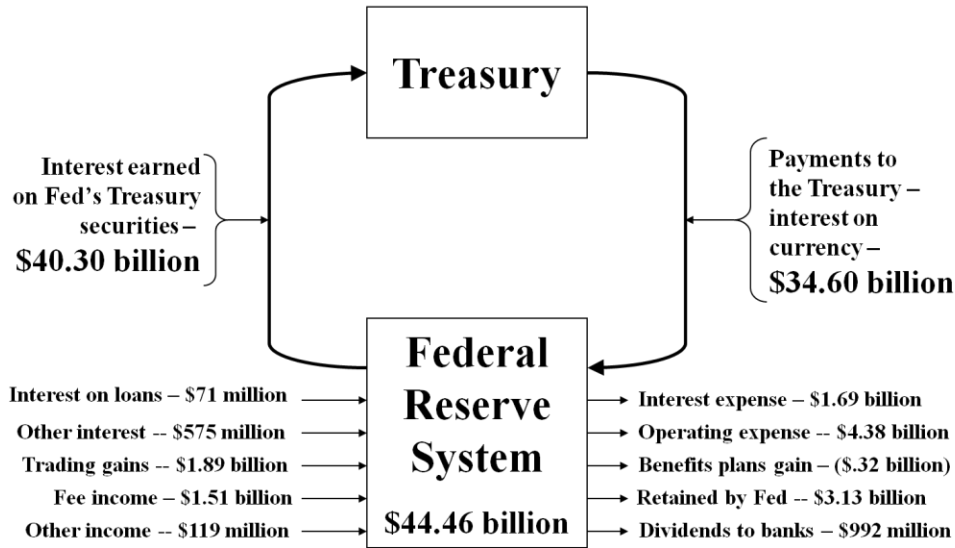


Figure 27

The Fed made \$52.9 billion in 2010 because of credit, market risks it (taxpayers) assumed

Exh. 6

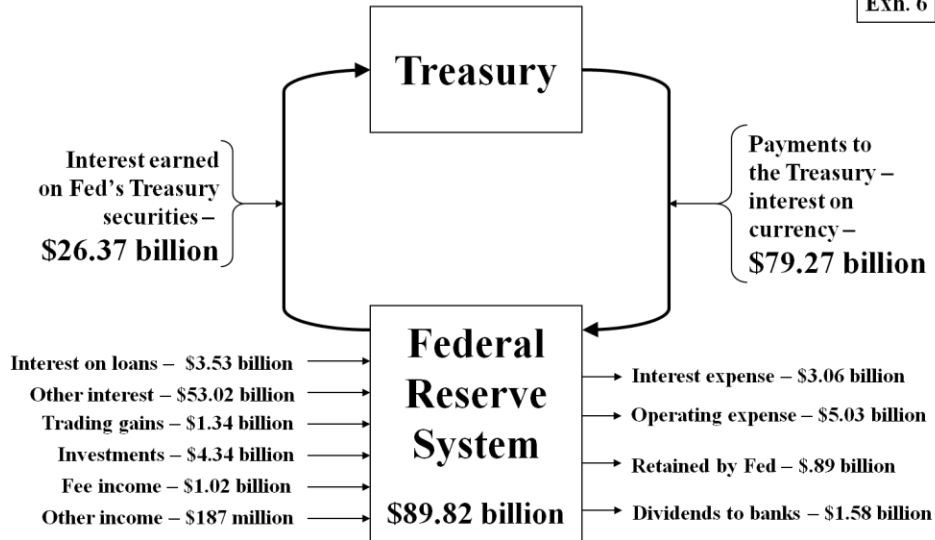


Figure 28

Changes in the Fed's income statement from 2007 to 2010

Exh. 7

(Dollars in billions)

Income side	Interest income earned on Treasury securities	- 13.93
	Interest earned on loans	+ 3.46
	Other interest income	+ 52.45
	Trading gains	- .55
	Investments	+ 4.34
	Fee and other income	- .42
Expense side	Interest expense	+ 1.37
	Operating expenses (including benefit plans)	+ .97
	Retained by the Fed as capital surplus	- 2.24
	Dividends paid to banks	+ .59
	Payment to the Treasury	+ 44.67

Figure 29

Fed and Treasury balance sheets

(As of March 30, 2011, for the Fed and March 31, 2011, for the Treasury – Not to scale)

Exh. 8

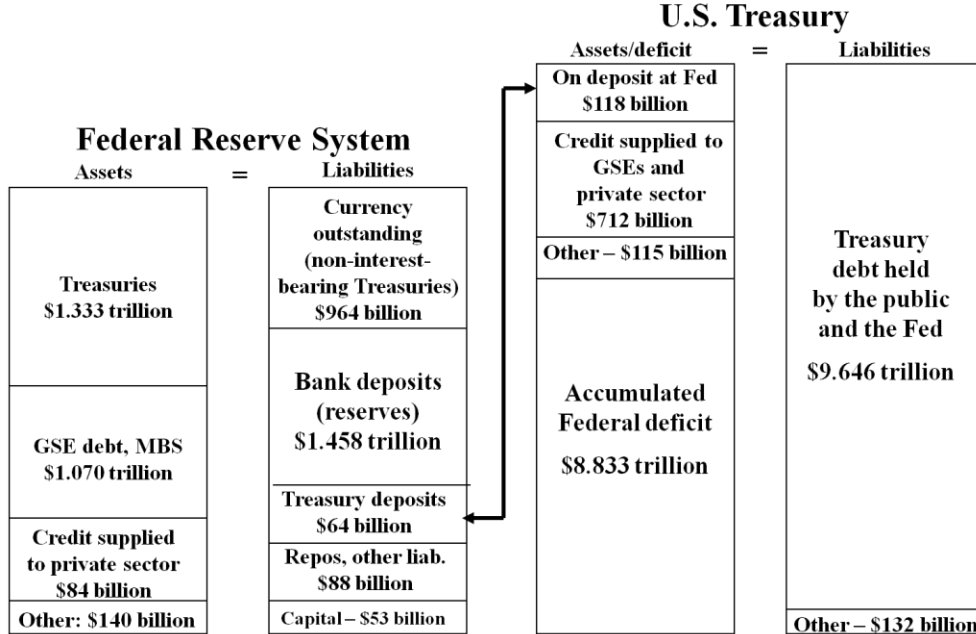


Figure 30

Consolidated Fed/Treasury balance sheet

(As of March 30, 2011 [Fed] and March 31, 2011 [Treasury] – Not to scale)

Exh. 9

Assets	=	Liabilities
GSE debt, MBS \$1,212 trillion		Bank deposits (reserves) \$1.458 trillion
Student loans – \$407 billion		Repos, other liabilities \$165 billion
Other credit supplied to private sector \$247 billion		Fed capital – \$53 billion
Other assets – \$254 billion		Currency outstanding (non-interest-bear: Treasuries) \$964 billion
 Accumulated Federal deficit \$8.833 trillion		<hr style="border-top: 1px dashed black;"/> Interest-bearing Treasury debt held by the public \$8.313 trillion

Figure 31

Consolidated Fed/Treasury balance sheet

(As of March 30, 2011 [Fed] and March 31, 2011 [Treasury] – Not to scale)

Exh. 10

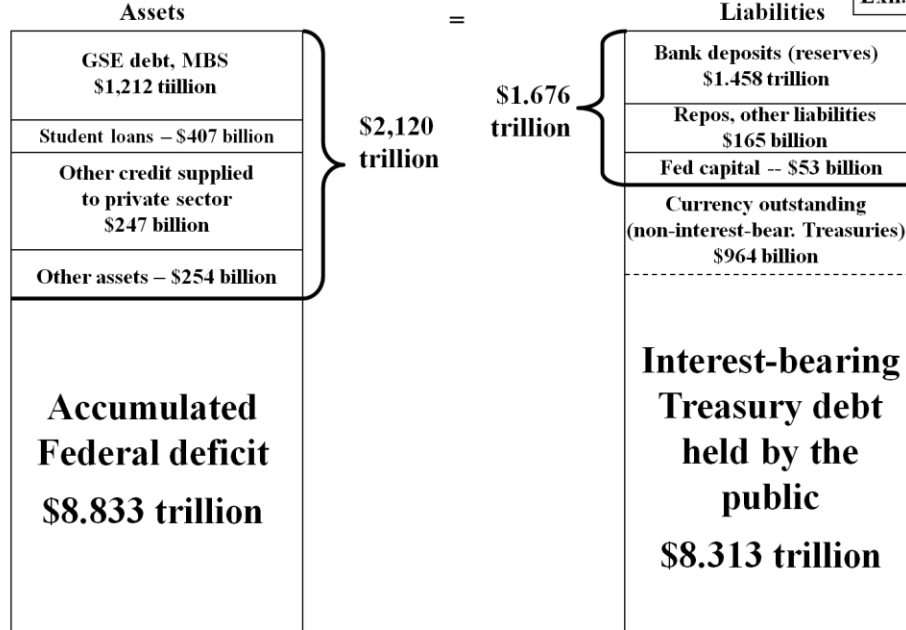


Figure 32

**WRITTEN TESTIMONY OF
MATTHEW J. SLAUGHTER, Ph.D.**

DEAN, TUCK SCHOOL OF BUSINESS
DARTMOUTH COLLEGE

Committee Chairman Bachus, Committee Ranking Member Frank, Subcommittee Chairman Paul, Subcommittee Ranking Member Clay, and fellow members, thank you very much for inviting me to testify on these important and timely issues regarding America's monetary and fiscal policies.

My name is Matt Slaughter, and I am currently Associate Dean and Signal Companies' Professor of Management at the Tuck School of Business at Dartmouth, Research Associate at the National Bureau of Economic Research, and Senior Fellow at the Council on Foreign Relations. From 2005 to 2007 I also served as a Member on the Council of Economic Advisers, where my international portfolio spanned topics on the competitiveness of the American economy.⁹⁶

For today's hearing, you requested that I comment on "the relationship between the Federal Reserve and Federal government debt, including how the Federal Reserve finances portions of government debt and how Federal Reserve purchases of Treasury debt are used as a basis for conducting monetary policy."

In my remarks, I will make two points regarding the relationship between the Federal Reserve and Federal government debt. I will then make two broader points regarding the debt ceiling.

First, it is important to emphasize that Federal Reserve purchases of Federal government debt has for generations been standard operating procedure for how the Fed conducts monetary policy. In pursuit of its dual mandate of both price stability and full employment, in the normal course of operations the Fed has long bought or sold Treasury securities to increase or decrease the supply of what is commonly called "high powered money" or the "monetary base." In turn, through rounds of lending in the private financial system, these changes in the monetary base expand into changes in

⁹⁶ Currently and in the past two years, I have not received any Federal research grants. Currently, in addition to the affiliations listed above I serve as a member of the academic advisory board of the International Tax Policy Forum; an academic advisor to the Deloitte Center on Cross-Border Investment; an academic advisor to the Organization for International Investment, and a member of the U.S. State Department's Advisory Committee on International Economic Policy. For many years I have consulted both to individual firms and also to industry organizations that support dialogue on issues of international trade, investment, and taxation. For a listing of such activities, please consult my curriculum vitae posted on my web page maintained by the Tuck School of Business at Dartmouth.

the broader U.S money supply and thus in economic activity.

Indeed, for many years before the World Financial Crisis the Fed executed monetary policy almost exclusively by transacting Treasury securities—and so Treasurys accounted for a very large share of the Fed's balance sheet. Thus did the Fed report that as of January 23, 2008, 82.1% of all the Fed's assets—\$723.3 billion of \$881.0 billion—were Treasury securities. There is nothing inherently nefarious or worrisome about the Fed owning such a large amount of Federal government debt. Rather, the deep liquidity of Treasurys has long supported the Fed's ongoing policy efforts.

Second, it is important to emphasize that the current fiscal challenges facing America have not been caused or abetted by the historic interventions the Federal Reserve undertook amidst the World Financial Crisis. The Fed's efforts to restore liquidity and stability to America's capital markets required it to expand both the size and asset composition of its balance sheet in several unprecedented ways. As of last week, the Fed's holdings of U.S. Treasury securities stood at approximately \$1.442 trillion: about double the amount of Treasurys it held on the eve of the Crisis. But the overall Fed balance sheet has more than tripled during this time, standing today at about \$2.763 trillion.

This historic expansion of Federal Reserve monetary policy did not somehow cause the commensurate historic fiscal expansion. Rather, massive fiscal federal deficits were triggered by a combination of sharp downfalls in federal tax receipts and especially sharp increases in federal spending. Tax receipts fell precipitously because of declines in labor income, in corporate profitability, and in asset returns of many kinds. Spending increased sharply both because of automatic stabilizers built into existing law (e.g., unemployment insurance) and because of new spending authorized by, for example, the 2009 American Recovery and Reinvestment Act. Thus, historic monetary expansion has coincided with historic fiscal expansion. But neither has directly caused the other. Rather, both have been directed at containing the damage to the real

U.S. economy of the World Financial Crisis. History does offer grim examples where central banks have excessively monetized runaway fiscal deficits when too few buyers of government debt materialized—and thus spawned hyperinflation: Germany in the early 1920s or Zimbabwe in recent years. Thanks in large part to the ongoing sound leadership of Federal Reserve Chairman Ben S. Bernanke and his colleagues, such a catastrophe remains a near-impossibility in America today.

Let me turn now to the broader issue of America's looming debt ceiling. Here I want to make two points, the importance of which it is difficult for me to over-stress.

First, the decision to lift the debt ceiling is a necessary consequence of previous decisions on taxes and spending. If America does not want to default on its existing debt obligations, then raising the debt ceiling is mandatory, not optional. Pick whichever deficit-reduction plan you like: that of the bi-partisan Deficit Reduction Panel, that of Congressman Paul Ryan, that of President Obama. No matter which deficit-reduction plan currently being floated you like, that plan will expand the total federal debt outstanding by several trillion dollars over the next decade. This means that no matter which plan you like, to see it become reality without the United States defaulting on its outstanding debt you must support increasing the debt ceiling.

Some might ask, couldn't a deficit-reduction plan be crafted and implemented that would create fiscal balance and thus prevent America from breaching its looming debt ceiling? Speaking practically, the answer is no. As of May 3 the total amount of federal debt outstanding was about \$14.28 trillion. The debt limit is \$14.294 trillion. Even if America wanted to do so, there simply is not enough calendar time for America to rewrite its spending and taxing laws to prevent reaching this limit. Speaking economically, the answer should also be no. There is no doubt that America must soon control its massive fiscal deficits. But doing so immediately would require such a massive combination of spending cuts and/or tax increases that it would almost surely throw America back into a deep recession. This real economic hardship on American workers and families would not be worth enduring for the sake of immediate fiscal balance.

My second and final point is to implore you to understand that America is tempting a crisis of unknowable proportions if we default on our Federal government debt. In many ways, global capital markets today remain deeply impaired by the World Financial Crisis. Housing prices in the United States and other countries continue to decline towards an unclear bottom—while in other countries such as Canada and China escalating housing prices are raising worries of new bubbles. Several sovereign debtors in Europe are struggling to remain liquid and solvent amidst widening concern among creditors. Central banks such as the Federal Reserve continue to provide historic support to the global financial system.

At the same time, economic recovery remains tentative in the United States and in many other advanced countries. About 25 million Americans—nearly one in six in the entire labor force—

remain unemployed or under-employed. Today's 108.9 million private-sector jobs is the same number America had nearly 12 years ago, in August 1999. And the last time America had just 11.7 million manufacturing jobs, like we do today, was in April of 1941. Median household income in 2009, at \$49,777, was barely above where it was in 1997. All forecasts are that it will take several years of economic growth for the American labor market to fully recover.

Amidst all this fragility and uncertainty, the prospect of a U.S. government default is truly frightening. As the past few years have so painfully demonstrated, financial crises often arise from unexpected forces and metastasize in unknowable ways. And a default on U.S. Treasuries, rather than on some other debt security in the world, would be especially worrisome for two important reasons.

One is that, at least to date, U.S. Treasuries remain the one asset that world investors generally regard to be free of default risk. But there is no law of physics that states the world's risk-free asset will always be U.S. Treasuries. Indeed, it was not always so. Over much of the 19th century the world's risk-free asset was widely regarded to be the debt securities of the British government. Over time, in part because of how the U.K. economy lost ground to the U.S. economy, world perceptions shifted and U.S. Treasuries came to hold that special position. This position is not a right of nature, however. A default on Treasuries would almost surely upset this position, with unknowable consequences for the function of global capital markets.

The other is that creditors holding U.S. government debt are increasingly foreigners, not domestic savers. Today the amount of Federal debt held by the public is approaching \$10 trillion. It is now widely estimated that the United States has recently crossed the threshold at which foreign savers hold at least 50% of this public debt. Thanks to ongoing low saving rates by U.S. households, this foreign share of U.S. government debt is likely only to rise. The single largest foreign creditor appears to be China's central bank, the People's Bank of China, with a current holding of Treasuries of about \$1.5 trillion. Other major foreign creditors include other central banks, such as the Bank of Japan, and sovereign wealth funds. All of this matters because history shows that deeply indebted sovereign borrowers are more likely to encounter sudden losses of confidence the larger is the share of outstanding debt held by foreign creditors.

In response to all these warning signs, some scoff and point to today's low Treasury interest rates: "The full faith and credit of the U.S. government remains on display in today's low interest rates. Markets are not worried about a possible default. Why should we?"

My reply to this argument is history. Fiscal crises have often come sharply and with little warning. All is okay; all is okay; all is okay. And then, one day, all is catastrophically not okay. Markets are not omniscient. Low interest rates today do not guarantee against interest rates spiking tomorrow if our creditors lose confidence in America's leaders. Do we really want to risk all the damage this might cause—to asset prices, to capital markets, to the jobs and well-being of American workers and their families?

America's fiscal challenges are grave. We will need the understanding of our creditors— domestic and, increasingly, foreign—to overcome these challenges. As such, America should be doing everything in its power to not cast doubt on the pledge to honor our debts. Time is running short. What America needs most of all is leaders—such as those of you on this committee—to raise America's debt ceiling as part of meeting its fiscal challenges: by acknowledging the problems, by imagining solutions to these problems, and by manufacturing the tangible steps needed to realize these solutions.

Let me close by thanking you again for your time and interest in my testimony. I look forward to answering any questions you may have.

*H*EARING IV.

**THE PRICE OF MONEY: CONSEQUENCES OF THE
FEDERAL RESERVE'S ZERO INTEREST RATE
POLICY?**

Friday, September 21, 2012

WITNESSES

Grant, James, Editor, Grant's Interest Rate Observer
Lehrman, Lewis E., Senior Partner, L.E. Lehrman and Company

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “The Price of Money: Consequences of the Federal Reserve’s Zero Interest Rate Policy” at 9:30 a.m. on Friday, September 21, 2012 in Room 2128 of the Rayburn House Office Building.

This hearing examined the role that interest rates play in resource allocation, economic growth, and economic crises; the effects of interest rates on inflation and the purchasing power of the dollar; and the impact of the Federal Reserve’s zero interest rate policy on investors, savers, and the economy. This was a one-panel hearing with the following witnesses:

- Mr. James Grant, Editor, Grant’s Interest Rate Observer
- Mr. Lewis E. Lehrman, Senior Partner, L.E. Lehrman & Co

The Time Element of Money

Interest rates are the price of money over time. Like all prices, in a free market economy they would be subject to the laws of supply and demand. When the forces of supply and demand are allowed to function, the preferences of consumers and producers are coordinated through prices. As supply and demand change, the price adjusts, which signals to consumers and producers the optimal amounts to produce and consume. In the market for money and credit, supply is produced by savers while demand comes from borrowers.

Unlike the market for many other goods and services, the element of time is critical in influencing the behavior of both lenders and borrowers. The market for borrowing and lending money is different from that of other goods and services because money is not exchanged for goods or services; instead, money now is exchanged for money in

the future. The market for money and credit thus coordinates not only the transfer of money from lenders to borrowers, but also the time preferences of individuals. This element of the market for money plays an important role in the allocation of resources in the economy.

Money is not necessarily useful in and of itself; instead, individuals demand money as a medium of exchange to buy goods and services. All other things being equal, individuals prefer to consume goods and services in the present rather than in the future; therefore they prefer money in the present rather than money in the future. When individuals choose not to expend all their money satisfying their present needs and wants, they have shifted their preferences from present consumption to future consumption. They save in the present in order to increase their ability to consume in the future.

When an individual borrows money, he or she does so in order to consume more in the present. Individuals borrow not only to consume present goods such as food, but also to invest in the production of more time-intensive capital goods, such as houses and machinery. Capital goods bring about productivity gains and overall increases in the amount of future consumer goods; in other words, capital goods generate economic growth.

Because resources are finite, the production of time-intensive capital goods requires the use of present consumer goods. Therefore savings are necessary not only to provide money to be borrowed, but also to forego personal consumption so that present goods can be used in capital formation. Interest rates coordinate such saving and borrowing.

Pricing Mechanism of Interest Rates

The interest rate is the amount charged to a borrower for the use of money for a period of time and is compensation to a saver for not spending that money in the present. Like any other price, interest rates make economic calculation possible. They allocate, coordinate, and signal the best uses of scarce resources.

Higher interest rates imply a low supply of savings relative to the amount of borrowing demanded; as rates rise, more people are motivated to save and more would-be borrowers forego borrowing. *Lower* interest rates imply a high supply of savings relative to the amount of borrowing demanded; as rates fall, saving is deterred while borrowing is spurred. Additionally, prevailing high interest rates indicate a preference for present consumption while lower interest rates indicate a preference for future consumption.

Lower interest rates tend to favor longer-term, more capital-intensive projects that increase the amount of consumer goods that will be available in the future. For example, a project that takes five years to complete might not be profitable if the borrowing to finance the project is priced at eight percent interest. But a drop in the interest rate to three percent makes financing the project cheaper, while also signaling that consumers have become more future-oriented and will want the product once the project is completed five years later, thus making the venture profitable.

The economic calculations needed to coordinate the preferences of savers and borrowers are made possible by the information transmitted in the price signal of the interest rate. The prevailing market interest rate is the equilibrium point that coordinates saving and borrowing.

Interest Rates and Central Banks

Interest rates today are heavily influenced by central banks. Rather than relying on the market interest rate to coordinate savings and borrowing, central banks influence the interest rate by adjusting the supply of credit in the market. Credit is added to the economy by creating an entry on the central bank's balance sheet and using the newly created funds to purchase assets, thus increasing the supply of credit available in the market and lowering the interest rate. Credit is drawn out of the economy by selling the assets on the central bank's balance sheet, thereby retiring the credit the central bank created and raising the interest rate. The supply of central bank credit, and the resulting high or low interest rates, is determined by the policy objectives of the issuing central bank.

The Federal Reserve System, the central bank of the United States, attempts to manage interest rates in order to influence economic activity and stabilize the economy. When the economy is judged to be expanding too quickly, the Federal Reserve contracts the supply of credit to raise interest rates and decrease economic activity. When the economy is judged not to be expanding quickly enough or is judged to be contracting, the Federal Reserve increases the supply of credit to decrease the interest rate and spur economic activity.

Consequences of Non-Market Interest Rates

Because the interest rate is a price, the efforts of central banks to manage interest rates have adverse effects. When interest rates are set by central banks rather than the market, the interest rate is a price control rather than a pricing mechanism and no longer efficiently allocates resources.

For example, when the Federal Reserve decides on a policy of low interest rates, it sends a signal to the market to borrow more and save less. The lower interest rate tells investors that individuals are saving in order to consume more in the future. This makes investors' time- and capital-intensive projects seem profitable and indicates that consumers are deferring present consumption in order to consume more in the future. On the other hand, low interest rates can deter savings, causing present consumption to increase and diminishing the amount of savings available for future consumption.

Because these lower rates result from the Federal Reserve's policy decision rather than changed economic behavior, the policy cannot continue indefinitely. At some point, capital projects funded by this new credit are completed: houses are put up for sale, mines begin producing ore, and factories start manufacturing goods. But because consumers' consumption patterns have either remained unchanged or have become more present-oriented, by the time these new capital projects are completed producers find no market for their goods. The coordination between savings and consumption was severed through the Federal Reserve's decision to lower interest rates, which induced savers and borrowers into unsustainable patterns of economic activity. Resources that could have been used in productive endeavors under market-determined interest rates are instead used in endeavors that turn out to be unprofitable. An economic correction becomes necessary in order to free up malinvested resources and put them to more productive use elsewhere in the economy.

Another effect of injecting new credit into the system is that prices rise. Increasing the amount of credit increases the buying power of borrowers, which increases the demand for goods produced in the market. The additional demand brought about by newly created credit puts upward pressure on prices as more money chases the same amount of goods. Newly created credit benefits those who receive it first, since they are able to use the new credit before prices rise. Savers, those on fixed incomes, and the poor tend to suffer because they experience a reduction in the purchasing power of the dollar; they see prices increase before they receive any of the newly-created credit.

Federal Reserve's Zero Interest Rate Policy (ZIRP)

In December 2008, the Federal Reserve set the target federal funds rate at 0-0.25%. The Federal Reserve announced in mid-September 2012 that it plans to maintain this zero lower bound

target until mid-2015. The zero federal funds rate policy is intended to maintain low short-term interest rates. The Federal Reserve also announced a third round of quantitative easing by purchasing an additional \$40 billion of mortgage-backed securities (MBS) per month, with no definitive end date. It also announced a continuance of its policy of extending the average maturity of its security holdings, through the end of 2012. In December 2012, the Fed announced it would purchase Treasuries at a rate of \$45 billion per month, again without an end date. The Federal Reserve's quantitative easing and maturity extension programs have been aimed at reducing longer-term interest rates through the purchase of MBS and long-term Treasury securities. By forcing market interest rates as low as possible, the Federal Reserve hopes to ease credit conditions and spur economic growth and job creation to bolster economic recovery.

The Federal Reserve's accommodative monetary policy, by holding interest rates at zero for a prolonged period of time, negatively impacts the economy. Because interest rates can no longer function as a pricing mechanism, zero interest rates will lead to unsustainable patterns of economic behavior that will require eventual correction and impede recovery. Zero interest rates also encourage investors to move into riskier assets in a search for yield, potentially increasing economic instability. While ZIRP favors borrowers, savers are deprived of returns on their investments. Low returns are especially harmful to retirees and those on fixed incomes who rely on interest income as a primary means of financial support. In addition, the unprecedented amounts of liquidity that result from the Federal Reserve's accommodative monetary policy may result in inflationary or even hyperinflationary price increases if economic activity picks up as the Federal Reserve hopes.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 9:33 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Lucas, Luetkemeyer, Huizenga, and Schweikert.

Chairman PAUL. This hearing will come to order. And without objection, all Members' opening statements will be made a part of the record.

I want to welcome our two witnesses here today, and I will now recognize myself for 5 minutes to make an opening statement.

Today, we are emphasizing the importance of interest rates. In a free market, interest rates are crucial. It is a crucial bit of information that tells a lot of people what to do, whether it is the investors, the savers, the spenders, consumers, whatever.

But once it is interfered with and interest rates are artificial, it tends to mess things up.

We talk a lot about monetary policy and the soundness of the dollar and the spending and monetizing of debt. Today, we are more or less concentrating on that aspect of monetary policy that deals with interest rates—how important is it—and has that whole emphasis on interest rates and this concession through the Federal Reserve (the Fed) that they have a duty and sometimes an unregulated duty to pretend they know what the interest rates should be.

This opens up a lot of questions. Who benefits and who suffers from this? Has it done any good? Is it a worthy effort even to try to pretend that we know what interest rates should be? And figure out exactly how much difficulty it has caused.

From my viewpoint, I think that, from the viewpoint of the marketplace—just as all prices, I want the market to set these prices.

And we have been living now with a Federal Reserve for 100 years, and early on, they were manipulating interest rates.

It is hard to manipulate the supply of money or be the lender of last resort without getting involved in interest rates. And it is usually done with either trying to prevent a problem or to solve a problem.

But if we look at history, especially in our last 100 years, we have had a lot of ups and downs. It hasn't been smooth sailing. The Federal Reserve is supposed to be providing for a sound dollar and making sure that prices are stable and that there is high employment.

And yet the results that we see today, because they have pursued this almost obsession on believing that they can leap over into a central economic planning through the manipulation of money and credit, and in particular interest rates, we have ended up with some pretty poor results.

So I am working under the assumption that we are in a period of time probably unparalleled in our history, possibly unparalleled in the history of the world, because we have never had quite the global economy involved like we have today and we have never had a single fiat currency for 30, 40 years being used as the reserve currency of the world. So I think the distortions now are so great.

And if it is indeed true that the concentration on interest rates might be the culprit, it would be good to get it exposed, so that when the time comes when it becomes an absolute necessity to try to correct this problem, we might be able to put a better system together.

So I am delighted today that we have been able to bring two individuals who are very well-versed on this subject to talk about this, and other members of the committee, to emphasize the importance of price fixing of money.

Some people don't like to call it price fixing and they refer to it as something in interest. But in a way, it is easy to understand it is a price fixing.

Price fixing is bad when we have wage and price controls. Not many people are advocating wage and price controls at the moment, even though there is a lot of that going on in a subtle way, if money is one-half, the currency is one-half of every transaction and you have some price fixing involved in the price of money, it can be a fairly significant event that should be exposed, and we certainly ought to recognize that as we move into that period of time when there is a necessity for monetary reform.

So I am delighted that we have had this opportunity to further this discussion.

I would now like to yield 5 minutes to the gentleman from North Carolina, Walter Jones.

Mr. JONES. Mr. Chairman, thank you. And I won't take but 1 or 2 minutes. I want to thank you again for your national leadership on this area of monetary policy and concerns of where this country is going.

And to our witnesses today, thank you very much. I look forward to listening to your comments.

I don't think there is a better time, when we are going home for the next 5 weeks, all of us in the United States Congress, to be with the people. And knowing that I am from eastern North Carolina and the concern about the actions of the Federal Reserve, I think the topic today is absolutely fascinating and critical.

So I just want to say to you, Mr. Chairman, thank you very much for holding this hearing, and I look forward to listening to the witnesses and thank them for being here. And just thank you for your service to our Nation.

I yield back.

Chairman PAUL. I thank the gentleman.

I now yield time to Mr. Lucas from Oklahoma.

Mr. LUCAS. Thank you, Mr. Chairman. And as all of the hearings that you have called in your tenure as a subcommittee chairman reflect, this is an important subject matter and something on which we all need to focus. Perhaps not quite as exciting to the membership, as one can tell, as it should be, but nonetheless it cuts to the very basis of how our free market system works in this country.

That said, let me reminisce for just a moment, since this session of Congress is beginning to wind down, and there is always a possibility this might be the last hearing of this subcommittee. I suspect we might be around after Election Day, but a lame duck session is to be avoided if it is humanly possible.

I would just simply note that—having sat next to you on this dais on the full committee and served on your subcommittee for almost a decade now—we have had many a good policy discussion, and not just monetary policy, but we have discussed the intricacies of farm policy, agricultural economics.

It might surprise some of you to know that Dr. Paul and I, while we agree on many, many, many things, we are not exactly in sync on agricultural economics. But we have had some lovely, very thoughtful, to-the-point discussions, and you have opened my mind in an area or two, and I appreciate that. And I hope perhaps even on an

occasion or two, I have offered a thought for you to think about. But you have just been a pleasure.

And if Congress is about free elections, and an open and thoughtful debate process where policies can be formulated in the best interest of the country, then I think you have done more than your part, and we will all be ever so appreciative of that for many, many years to come.

And with that, thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

And now, I yield time to Mr. Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. I add my congratulations and empathies from Chairman Lucas as well. It has been an honor to serve with you these past 2 years.

The subject we have today I think is extremely important from the standpoint that the Fed continues to tinker around with our economy through the money supply, and, from all things that I see, it is having minimal success. I am concerned about the direction that they are going, the situation that they are putting us in.

If you look at the global situation, other entities, central banks around the world, they are struggling. And is this the proper path to take? I don't know, I am not an economist, and I think there is a general disagreement even with good economists on whether it is a good policy or a bad policy.

But I think that the discussion is pertinent, extremely important to today's economic welfare from the standpoint that we are in an economic stagnation period here, and how we get out of this is everybody's concern.

And I think monetary policy by the Fed and their money-supply policy is an extremely important subject to discuss.

So with that, I thank you for the subject today, Mr. Chairman, and I yield back.

Chairman PAUL. I thank the gentleman.

Now, I yield time to Mr. Schweikert from Arizona.

Mr. SCHWEIKERT. Thank you, Mr. Chairman. I will be very quick.

You do realize that you letting me on this subcommittee has really screwed up my subjects of reading over the last 2 years. All of a sudden, I find myself reading more about monetary policy than I ever thought I would want to touch. And I have learned a lot. I have also worked through a series of things that I realize are just sort of complete folklore out there.

And, Mr. Chairman, I am hoping also in our testimony and in some of the discussion, I am one of those who is absolutely fixated on

the concept that interest rates ultimately are the pricing of risk and where interest rates and capital flows, and then that interest rate charged to where that capital flowed is sort of an allocation and a management of risk.

Do you end up moving large amounts of capital, or even sometimes, us as individuals, capital to places that it shouldn't be because it is misallocated and mispriced? And what are the ultimate consequences for what we have done here when we have basically destroyed what should have been the historical pricing mechanism or risk mitigation, risk analysis system, which is interest rates and our economy.

And with that, Mr. Chairman, I look forward to the testimony.

Chairman PAUL. I thank the gentleman.

We will now proceed to our witnesses.

First, Mr. James Grant is a noted investor and founder and editor of Grant's Interest Rate Observer, a widely circulated bimonthly newsletter on finance that accurately foresaw the financial crisis.

A former columnist from Barron's, he is the author of five books on finance and financial history. Mr. Grant has appeared on television programs such as "60 Minutes" and "The Charlie Rose Show" to share his expert knowledge of finance, and his journalism has been featured in numerous publications, including The Wall Street Journal, the Financial Times, and Foreign Affairs.

Second, Mr. Lewis Lehrman is a senior partner of the investment firm L.E. Lehrman & Co., and is chairman of the Lehrman Institute, a public policy organization he founded in 1972, where he heads up the Gold Standard Now Project.

As a member of President Ronald Reagan's Gold Commission, Mr. Lehrman helped write the Commission's minority report entitled, "The Case for Gold."

Over the years, he has written widely about economic and monetary policies and has been featured in Harper's, The Washington Post, and The New York Times, among others.

Without objection, your written statements will be made a part of the record. You will each now be recognized for a 5-minute summary of your testimony.

Mr. Grant?

**STATEMENT OF JAMES GRANT⁹⁷
FOUNDER & EDITOR
GRANT'S INTEREST RATE OBSERVER**

⁹⁷ [The prepared statement of Mr. Grant can be found on page 291.]

Mr. GRANT. Mr. Chairman, and members of the subcommittee, good morning. It is an honor and a pleasure, and may I underscore honor to be here.

The price mechanism is our indispensable contrivance, and without it, the store shelves would be stocked with things we don't want, if they would be stocked at all. Our economy is wondrously complex, and what coordinates the moving parts is Adam Smith's invisible hand.

For a superb critique of the perils of price control, look no further than Ben Bernanke's own lectures last March to the students of George Washington University. "As you know," the chairman reminded his charges, "prices are the thermostat of an economy; they are the mechanism by which an economy functions. So putting controls on wages and prices," here Mr. Bernanke was referring to the disastrous Nixon experiment of the early 1970s, "meant that there were all kinds of shortages and other problems throughout the economy."

Yet this same observant critic is today leading the Fed in a policy of financial price control, to call the thing by its name. Interest rates are, after all, prices. They convey information, or are intended to. Market-determined interest rates are the prices that balance the supply of savings with the demand for savings.

These, however, are not our interest rates. Actually, we hardly have any. They are so small you can hardly see them. They are tiny. Today, the Federal Reserve imposes interest rates, and those rates it does not impose, it heavily influences.

Mr. Bernanke's bank fixes at zero percent the basic money market interest rates called the Federal funds rate that manipulates the alignment of rates over time, the yield curve, and it has its fingerprints all over the relationship between government yields on the one hand, and the yields attached to private claims on the other.

The Federal Reserve has decreed that ultra-low interest rates are a necessary if not sufficient condition for economic recovery. It says that miniature interest rates will boost hiring and another aspiration of the central bank, keep consumer prices rising by just enough; "a decent minimum, say, of 2 percent a year," so says the Fed.

Now, every market intervention has consequences, but not necessarily the consequences that the intervening authority intended. In the nature of things, there can be no predicting exactly what will come of today's radical and indeed unprecedented monetary policies.

Mr. Bernanke himself makes no bones about it in his widely scrutinized speech at Jackson Hole, Wyoming, on August 31st. He

used the phrase, “learning by doing.” Indubitably the Fed is doing, nobody can doubt its manic energies, but it seems not to be learning.

Artificially low interest rates must inevitably subsidize speculation at the expense of saving. It must raise up the prices of stocks and commodities, but only temporarily. It must enrich the asset holders and inadvertently punish the wage earner. It must advantage one class of financial institutions—say, banks—over another—say, life insurance companies. It must disturb the currency markets, and therefore interfere with international trade, and it must conflate our understanding of the strength of the Treasury’s own finances.

This year, in the just-ending fiscal year—or the soon to end—the interest cost in the debt will run to an estimated \$125 billion. That happens to be slightly lower than the outlay the Treasury bore in 2006 when the debt was 58 percent smaller than it is today, but when the average interest rate was a towering 4.8 percent as opposed to the current average of 2.1 percent.

Ultra-low rates flatter the Nation’s credit profile, yet that credit profile remains the same.

Mr. Chairman, millions of Americans are earning nothing on their savings. Having nowhere else to turn, they are investing in richly priced corporate debt, some of that speculative grade. The Fed author of this interest-rate famine of ours has inadvertently created a paradox that would be funny if it weren’t dangerous.

Mr. Bernanke’s bank has created a high-yield bond market, junk bonds to the cognoscenti, but a market lacking one customary attribute of high-yield security. That is, the Fed has created a high-yield bond market without the yield.

I thank you.

Chairman PAUL. Mr. Lehrman, go ahead.

**STATEMENT OF LEWIS E. LEHRMAN⁹⁸
SENIOR PARTNER
L. E. LEHRMAN AND CO.**

Mr. LEHRMAN. So, Mr. Grant and I like to switch one sentence to express how much we honor the extraordinary record of the chairman in his 30 years plus, perhaps, service in the Congress. It has been a heroic effort on behalf of the authentic Constitution, and on behalf of the liberties which we have inherited from our forefathers, and of course, for sound money.

⁹⁸ [The prepared statement of Mr. Lehrman can be found on page 272.]

Now, Mr. Grant is about six feet, five inches tall. I am only five feet, 10 inches tall, and he determined the protocol of our presentation. So, he established that he would focus on the problem, and I should spend a moment or two on the solution.

Indeed, Jim has described the consequences of Federal Reserve quantitative easing and interest rate manipulation and suppression.

From Mr. Grant's analysis, one concludes that the Fed's unlimited power to purchase Treasury debt and financial market securities not only funds the Treasury deficit with newly printed money, but the Fed's market intervention process also makes of the financial class a special interest group of privileged investors and speculators, because of their special access to subsidized funds at near zero interest rates, while middle-income families depend upon their credit card balances and pay upwards of 20 percent or more.

A well-connected financial class subsidized by the Federal Reserve is a crucial cause of increasing inequality of wealth in America. In this regard, I would cite only one fact for the Monetary Policy Subcommittee to contemplate. Since the termination of dollar convertibility to gold in 1971, a mere generation, the financial sector has doubled in size as a share of the American economy, but the manufacturing sector has been cut in half.

Only comprehensive reform of the Fed and termination of the Reserve currency role of the dollar will arrest this trend. For example in 2002, Mr. Bernanke described the Fed's extraordinary power to create new money and credit in our present financial regime of inconvertible paper money and inconvertible bank deposit money.

I quote Mr. Bernanke, "Under a fiat paper-money system, a government, the central bank in cooperation with other agencies, should always be able to generate increased nominal spending and inflation. Even when the short-term nominal interest rate is at zero, the U.S. Government has a technology," Bernanke continues, "called a printing press, or today its electronic equivalent that allows it to produce as many U.S. dollars as it wishes at essentially no cost."

Reading this, I don't know whether to laugh or to cry. In effect, as James Grant wrote elsewhere, "The Fed is not only the American central bank, but with this exalted power to print money, the Fed is now the government's central planner."

During the Volcker years, from 1979 to 1987, Fed interest rate manipulation was justified as the means to end inflation. By 1994, employment as a Fed target had all but disappeared from the minutes of Fed meetings.

Now, in 2012, despite inflation being again on the rise, employment is as a practical matter the sole target of quantitative easing. The Fed and its apologists in the media and the academy justify quantitative easing and its unlimited scope and duration as the way to restore economic growth—surely, an extra-Constitutional form of fiscal spending through Federal Reserve capital allocation reserved for the Congress of the United States.

But as soon as one examines that Federal Reserve balance sheet, which if I may say so, few politicians do, one sees that the Fed primarily buys Treasury securities and mortgage-backed securities. In effect, a subsidy by which to finance the government deficit, and to refinance bank balance sheets that is to say the promotion of more financial and consumption sector growth. In a word, quantitative easing is the most pernicious form of trickle-down economics.

Now, the problem of the American economy is neither under-consumption nor is it under-banking. The problem is the lack of rapidly growing investment in domestic production and manufacturing.

The investment is the necessary means by which to enable our producers to lead in both domestic and global markets. It is rapidly increasing investment and production growth which begets employment growth and with it healthy unsubsidized consumption growth, not by means of transfer payments.

It is a truth of economic theory and practice that rising personal and family real income grows from increasing per capita investment in innovative businesses; new plant, new equipment. So the question is, in reforming the Fed, how can our runaway central bank be harnessed by the financial markets to target the goal of economic growth through increased productive investment, not the promotion of consumption and Treasury deficit financing by means of interest rate manipulation and quantitative easing?

The answer, I believe, is transparent. The Congress of the United States has the exclusive constitutional power under Article I, Sections 8 and 10, not only to establish the definition of the dollar, but Congress also has the power to define by statute the eligible collateral that the Federal Reserve may buy and hold against the issue of new money and credit.

Thus, a simple congressional statute defining sound commercial loans as the primary eligible collateral for discounts and new credit from the Fed would have two primary defects. First, it should rule out Fed purchases of Treasuries, thus requiring the government to finance its deficits not with newly printed Fed money, but instead in the open market away from the banks.

Second, the Fed would then become a growth-oriented central bank by which to finance productive business loans, encouraging thereby commercial banks themselves to make banks to solvent businesses in order to sustain economic and employment growth.

Now, why is this the case? Commercial banks would focus on production and commercial loans because solvent loans, instead of Treasury debt, could then be used by commercial banks as the primary eligible collateral by which to secure credit from the Fed as the lender of last resort. In a word, Treasury subsidies by the Fed should be displaced by productive business loans oriented toward economic and employment growth.

Mr. Chairman, this simple proposed reform of Fed operations was the very monetary policy insisted upon by Carter Glass, a leading Democrat who was the chief sponsor of the Federal Reserve Act of 1913. The congressional legislative leaders who created, indeed founded, the Federal Reserve System of 1913 designed the Fed by law to enable steady commercial investment and employment growth.

The Federal Reserve Act was also designed explicitly to uphold and maintain dollar convertible to gold in order to maintain a reasonably stable general price level. Now, such a congressional Federal Reserve reform today, consistent with the original Federal Reserve Act, would require no further legislative mandate to sustain employment growth and to rule out systemic inflation and deflation.

Just a word more—so today, the Fed reiterates at every meeting that it, the central bank, must manage and manipulate interest rates to fulfill a congressional mandate to maintain reasonable price stability and reasonably full employment. But the best way to do this is to remobilize the express intent and the techniques of the original Federal Reserve Act, namely the statutory requirement that the Fed uphold the classical gold standard and, as was intended by the original Federal Reserve Act, to substitute commercial market credit for Treasury debt as the primary eligible collateral for bank loans from the lender of last resort, the Federal Reserve System.

Mr. Chairman, may I say with respect, Congress has defaulted to the Federal Reserve System its sole and solemn constitutional authority to define and to regulate the value of the dollar and to define the vital economic use of eligible collateral by which to obtain productive business loans from the Federal Reserve System. It does not have to be this way.

Thank you very much.

Chairman PAUL. Thank you.

[QUESTIONS & ANSWERS]

We will go into the questioning session right now. I yield myself 5 minutes.

I want to ask both of you the same question. In 1979, and the 1980s, we had a bit of a crisis, quite different than we have today because interest rates were very, very high and even made higher. At that time, as I recall, not too many people were happy and claiming they were getting benefits from the higher interest rates. I don't think the markets—the higher the rates went, I don't think the markets were saying “wonderful, wonderful.”

But today, even with this most recent announcement of the accelerated quantitative easing, there is almost an immediate response—as a matter of fact, instantaneous response. We are going to print a lot more money and those individuals who are holding stocks seem to be delighted with that and bonds rally.

My question is: Under today's circumstances, with this constant effort to keep lowering interest rates, now that they are down to essentially zero, below zero when you talk about real interest rates, who benefits from this? Who is really benefiting? And who are the people who are suffering? Can you divide it up and find out if there are some groups who have no benefit whatsoever and some people actually get punished? And other people are rewarded, whether it is temporary or not, at least they think they are being rewarded.

And if there is a case where somebody benefits, and somebody else is hurt, is this done on purpose? Or would you want to make a stab at it to say is this sort of a consequence of just bad policy? Or what might be the motivation here if there are winners and losers?

Mr. Grant?

Mr. GRANT. Mr. Chairman, the great French economist Frederic Bastiat talked about that which is seen and that which is not seen. There are many obvious beneficiaries. There are many obvious victims. Let me suggest a subtler distortion that these policies are responsible for, and then I will touch on some of the ones that are perhaps as important or more so.

Capitalism is a little like the forest floor. There is life. There is death. There is regeneration. There is movement. The famous phrase “creative destruction” defines the inevitable ebbing of economic power that was once constructive and now has passed its prime.

One of the consequences of these subsidized interest rates is that organizations that perhaps ought not to be around are given new life. The financial markets on Wall Street are increasingly welcoming to

the most marginal credits because there is a stampede for interest income. People are starving for it and Wall Street is providing for it.

When nearly anyone can get a new loan—when nearly anyone can get a pass in the public market that means there are not enough bankruptcies. It is a problem, albeit a paradoxical one. We need new enterprise and we need the exit of unprofitable or over-the-sell-by date enterprise; so ultra-low interest rates perpetuate the status quo.

Interest rates, as someone mentioned, are among other things, great sources of information. When interest rates are pressed to the floor, the credit markets provide less and less information. The information is there, but it is not to be intuited by prices.

So, as to the other beneficiaries and losers, some of them are painfully obvious. The Fed talks more or less nonstop about inflation, but then I think is troubled by the lack of it. It wants to see more of it. Well, one department of American finance in which there is rampant inflation is the cost of obtaining a dollar of income. One might say the cost of retirement is in a terrific inflationary crisis.

A friend of mine and of Lew's, a Wall Street figure of wonderful renown and of some mordant future, said a while ago, before he passed away, "You know," he said, in all seriousness, "you really can't get by today without \$100 million."

The point survives the exaggeration. You need more and more capital to maintain a decent income as a saver. That, to me, is not the least of the cost of these policies.

Chairman Bernanke, in Jackson Hole, spoke to try to put our collective minds at ease about the unintended consequences of quantitative easing. And he said, "I can enumerate four possible pitfalls"—four. There are 400,000 possible pitfalls.

The Chairman, I think, is in error when he implicitly tells us that for every monetary cause A, there is a predictable monetary effect B. There are effect B, C, D, N, Z, and myriad effects that are so weird that no proper letter in the English language can describe them.

What we are now embarked on is one of the great monetary experiments of all times and, Mr. Chairman, we are the lab rats.

Chairman PAUL. Mr. Lehrman?

Mr. LEHRMAN. Mr. Chairman, you mentioned the period of 1979, 1980—that period of high interest rates over which Mr. Volcker presided. I was there and I remember it, just as you do. One of the remarkable things about a review of the history of the Federal Reserve System from 1914 until the present is that the techniques that have been used either to suppress interest rates or the use of vaulting

interest rates to bring about changes in economic activity has seen no reform.

That is to say, Paul Volcker, you will remember in 1979, said his goal was to target the bank reserves; that is to say, to control the stock of money in circulation. This was another new experiment on interest rate manipulation, of course, with a noble intent.

But this was just another form of interest rate manipulation which ultimately wound up putting the prime rate at 21 percent and market rates for a long-term Treasury at the highest level that they would be in American history, approximately 15 percent.

It is forgotten in the dreamlike remembrance of that period that from 1979 to 1982 the American economy was in recession, the unemployment rate in New York State in 1982 in November—I remember that date very well for personal reason—was 11.2 percent, higher even than the unemployment rate at the peak of the “Great Recession,” which we have undergone since 2008.

It was not a halcyon period. President Reagan’s first years of the Administration were almost impeached economically because of that.

So as the French say, the more it changes, the more it is the same way; that is to say, Federal Reserve interest rate manipulation and management for one purpose or another.

Who benefits and who suffers? In each period, under each of the Federal Reserve Chairmen who exercised this extraordinary power, it was different.

Today, I want to point out only in response to the question the technique and its effect by which the Federal Reserve actually does operate in open market operations at the New York Federal Reserve System and has done so since the First World War.

The Federal Reserve enters the market and purchases outright or on a match sale or on a repurchase agreement Treasury securities from the market against which they issue new money.

That new money is made available only to the banks because— or the today 16 authorized dealers. So their portfolios are reduced and substituted with new money, which they then are in a position either to lend out to dealers and brokers or speculators or Wall Street investors who can post collateral, liquid collateral, by which they then can satisfy the lend that they can repay the loan.

So the very first effect and the dominant effect, the generalized effect is commodity dealers and equity dealers who have first access to the money which is created anew by the purchase of Treasuries, which themselves cannot be repaid as they are refinanced with renewal bills.

This is a prescription and has been in effect for a very long time, but especially since the end of the Second World War and even more dynamically since the end of Bretton Woods in 1971, to enrich the investor class.

I cannot incriminate them because to a certain extent I am a member of that class, but one does not have to be a rocket scientist to see that the Federal Reserve's process of monetizing the U.S. Treasury debt, providing new credit to the banking system to lend to their preferred clients divorces supply from demand, creating a monetary demand unassociated with the production of new goods and services.

When total monetary demand exceeds supply, which is the prescription and the technique of the Federal Reserve, inflation must get under way.

Now, that inflationary process today is hidden by the vast unemployed resources which we now have. And as a result, the new credit money immediately goes into the commodity and equity markets as well as into speculative vehicles like farmland, for example, which is the most exotic investment today of a sort of inside Wall Street investors.

No change can occur in such a process without a full reform of the Federal Reserve System and a reform of the monetary system.

Chairman PAUL. Thank you very much.

I now recognize Mr. Luetkemeyer for 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

I appreciate your comments, Mr. Lehrman. They are interesting. You called farmland an "exotic" investment.

I am looking to try and buy the farm next to mine, and I wouldn't think it would be an exotic investment. But I understand where you are coming from.

I am just kind of curious, if the Fed would not purchase all of the government's debt, would there actually be a market out there, in your judgment, for our debt because of the size of the debt that we have, the amount of money that it would take to service that debt? Is there enough capital out there to service that debt? Is there enough capital out there to purchase that if we don't run the printing presses here at the debt and pick it up, in your judgment?

Mr. LEHRMAN. May I first say, Congressman, that I am the owner of a 1,600-acre farm—corn, soybeans. And it is exotic from the standpoint of speculators who have never set foot in a cornfield, but certainly not from those—

Mr. LUETKEMEYER. That is who I am bidding against on the farm right now, are those guys.

Mr. LEHRMAN. So then you understand what—

Mr. LUETKEMEYER. Yes, I do.

Mr. LEHRMAN. —I was getting at.

Mr. LUETKEMEYER. But to me, it is not exotic. I would like to buy my neighboring farm, but to those folks, it brings the price up. I understand, but go ahead.

Mr. LEHRMAN. So the question is: What would happen if, as the founders of the Federal Reserve System intended, the Congress of the United States and the budget of the Treasury were not able to finance its deficit by selling securities ultimately to the Federal Reserve System? Is the open market substantial enough to accommodate the vast sums presently required by the Treasury in order to finance its current spending?

The answer to that is we would find that out, and it would be the ultimate discipline, which would require Congress on notice to the public that the financing of the Treasury was forcing interest rates higher and higher and excluding businesses and commercial firms from access to the credit markets because at the present level of deficits—let us call it all in about \$1.5 trillion, including the credit financing bank—it would absorb almost all the net national savings available in the market, which gets right to the point of this hearing. What is the effect of the suppression of interest rates and their manipulation and the financing of 77 percent of the Federal Reserve's budget deficit in Fiscal Year 2011; what is the effect of that?

It disguises from the public, the sovereign people, the effects of the fact that only 60 percent of the revenues which Congress decides to spend are financed through taxes, and 40 percent of them through printed money either through the banks, the commercial banks, for foreign central banks.

Mr. LUETKEMEYER. I think there is another point to be made here too, which is the fact that because they are driving rates so low they are also disguising or hiding the fact—the exposure that we have when you go to \$16 trillion worth of debt in just—an additional \$4 trillion, \$5 trillion, \$6 trillion in the last 3 or 4 years—the amount of exposure we have to interest rate fluctuation. Right now, the cost of interest to our government is rather low compared to what it has been in the past because of driving interest rates down.

If that would not happen the rates would go back—it would be very easy to double or triple the rates, because they are so low right

now. Imagine what it would do to our budget if you doubled or tripled our cost of funds.

Mr. LEHRMAN. We dealt with that issue at the last hearing, Congressman. We dealt with that issue. And were you to normalize the long-term interest rates—let us say for 30-year Treasury bonds—were you to normalize them consistent with the past history of the generation and given the scale of the direct debt of Treasury right now at \$16 trillion, the total amount of the Federal budget devoted to interest payments could rise to as high as \$800 billion, even towards a \$1 trillion if the deficit were to continue.

That puts, I think, a number on the effect.

Mr. LUETKEMEYER. Very good.

Very quickly, how do we unwind this? What happens when we unwind this thing?

Mr. Grant?

Mr. GRANT. We don't know. The Fed is—

Mr. LUETKEMEYER. We are still going to be a laboratory even for that.

Mr. GRANT. Yes. That, too, will be a learning-by-doing experience.

Mr. LUETKEMEYER. How painful will it be, do you think?

Mr. GRANT. Sorry?

Mr. LUETKEMEYER. How painful do you think it will be? Because—until interest rates rise, will inflation take place or will we go into a depression? Will it be runaway glory, everything going to be hunky-dory here? Or where are we going? If the Fed has to unwind this thing and get rid of the 2-point whatever—\$8 trillion now—

Mr. GRANT. Congressman, we can rule out hunky-dory.

As for the rest, we will see.

Imagine a day in which the Treasury, to finance another \$1.5 trillion deficit is raising, say, \$15 billion in 2-year notes in the morning; and in the afternoon the Fed is holding a special auction to liquidate the remaining excess portion of those balance sheets. So they will be one auction on top of another.

We simply don't know the outcome, but we do know, I think, that the Fed's assurances must be discounted. The Fed is remarkably complacent with regard to its capacity to form financial judgments. This is the outfit that panicked in front of the prices of computer clocks in 1999—neglected to see or to take due measure of the speculative mania in technology stocks that ended in the early aughts. And that positively saw not one aspect of the greatest credit crisis in three generations looming before it in the mid-2000s.

And we are meant to believe that the perspicacity of the judgment of the Fed will now help them anticipate the end of the necessity for this Q.E. and to unburden themselves of the excess security.

So I don't doubt that they mean to have the techniques to affect the exit. What I do doubt—and I think there is evidence in support of doubt—is that they have the judgment to mark the time and the need.

Mr. LEHRMAN. May I say a word on that question, Mr. Chairman?

Every Thursday, at about 4 p.m., the Federal Reserve System publishes its balance sheet. That balance sheet as of Thursday night, last night—I looked at it—shows that to do it in round numbers, the Fed owns approximately \$3 trillion of securities, primarily Treasury securities and mortgage securities, mortgage-backed securities and agency bonds.

If you look further into the detail and the footnotes you will observe that the largest fraction of the balance sheet of the Federal Reserve System is in long-term securities.

The historic practices of central banks during long periods of stable prices was only to own short-term securities so that were inflation to arise, they could, to use your phrase, unwind their portfolios selling securities, or letting them run off into the market in order to reduce the quantity of money and credit in circulation and stabilize the price level.

The Federal Reserve is now faced not only with the daunting task of unwinding the enormous monetization of Treasury and mortgage-backed securities, but they have encumbered the balance sheet with long-term securities which will not run off on a regular basis the way short-term commercial bills do with 90-day maturities.

They have the largest fraction of—far and away the dominant fraction in 10-to-30-year securities. So the only way they can get rid of them is to sell them into the open market.

If the economy is running full-tilt at full employment, and let us say the employment rate might be at 5 percent, it could have nothing less than, as you implied, a very dynamic effect on interest rates in general, not just in the United States, but worldwide in as much as the United States dollar is the world reserve currency.

Mr. LUETKEMEYER. Thank you.

I yield back. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

We are going to a second round now of questioning.

The first question I have I would like to get sort of a short answer for, because I have another question that follows and we will be

voting on the Floor pretty soon. But what is your concept of the current situation now and whether or not we have a bubble? Most of us recognize a NASDAQ bubble. Others recognize the housing bubble. Do you see a bubble right now that could suddenly change and change the markets and all perceptions?

Mr. Grant?

MR. GRANT. Yes, Mr. Chairman, I do. I see a bubble in Treasury securities. I see a bubble in sovereign debts worldwide. The world has come to believe that the promises to pay of sovereign governments are intrinsically safe—not everyone—but Northern European governments are meant to be intrinsically safe. Australia, I think there are seven or eight AAA-rated governments left on the face of the Earth. People are crowding into the claims of these governments, not least into our own.

These are interest rates that have not been seen in modern times in Northern Europe. There are plenty of governments borrowing at negative interest rates. And as was the case in every single market bubble in history, there are wonderfully persuasive stories circulated to rationalize what on the face of it is an abuse of common sense.

So I nominate bonds themselves as our looming bubble.

Chairman PAUL. Mr. Lehrman, any additional comments?

MR. LEHRMAN. The number of bubbles—even with vast unemployed resources in nations around the world, not just in the United States—is legion. And Jim has just mentioned some, but the Congressman and I were talking about farmland.

The value of farmland, as one vehicle for speculation, not only among well-positioned farmers, but I mean to say the investor class, the price of farmland, high-quality, let us say 160-bushel-per-acre, non-irrigated farmland from Central Pennsylvania all the way to the foothills of the Rockies, that is to say the great corn belt, has doubled just in the past 4 years.

This has never been experienced at quite this rate of change; or I should say this bubble has never occurred on this scale in the past. It is one more example.

Chairman PAUL. My follow-up question is to you, Mr. Lehrman. I would like Mr. Grant to comment as well. You talked about a long-term solution, more about the monetary reform and the use of gold. I want to concentrate more on that shorter-range solution or something you suggest that could help. And that is to look to the original Federal Reserve Act and not to allow the Fed to buy Treasury bills, but to allow the Fed to be the lender of last resort to sound commercial loans.

Did I state that correctly?

Mr. LEHRMAN. Exactly.

Chairman PAUL. Okay. If the Fed buys a commercial loan, they could buy this with money creation. Would this be expanding the money supply? Would this be monetizing a debt? And could it lead to a problem as well? Or would you argue that this is not monetary inflation?

Mr. LEHRMAN. I would argue it would not be monetary inflation. The difference is profound. The purchase of commercial bills for the purpose of production by the Federal Reserve or by commercial banks against the issue of new money goes to solvent firms who, in the process of production, then sell their output and they repay the loans.

And as a result, the new credit which has been advanced against the commercial bill or against the productive loan expands the money supply during that particular market interval. But 90 days later or 120 days later, the goods that were produced as a result of that financing realize their value and then those loans are liquidated, restoring equilibrium to the money market.

Chairman PAUL. So do you separate this from being the lender of last resort? Or would you put it in that category?

Mr. LEHRMAN. I use the phrase "lender of last resort" because that is, of course, the rationalization that everybody uses to give the Fed the privileges to create money without limit. As the lender of last resort, the Fed would have the possibilities of buying solvent commercial loans in the open market, which themselves would be liquidated in a windup naturally in the course of economic activity.

Whereas, in the case of the Treasury, the Treasury is never able, under present circumstances, and has not been since pretty much the end of the Second World War, to liquidate the bills or the bonds which they are selling. And it leads to a permanent expansion of the money supply never to be unwound by the natural course of production.

Chairman PAUL. Would doing this interfere with interest rates?

Mr. LEHRMAN. In the case of commercial bills or productive loans, which the Fed would then discount when they were offered by the commercial banks against the desire for new credit, this would, in the same sense, lead to a rise in interest rates when credit demands were higher, and a fall in interest rates when the commercial loans were being repaid to the commercial banks, and the commercial banks repaying the central bank for the loans that they obtained against commercial lending collateral.

Chairman PAUL. Okay. And our voting has started, but I would like to get Mr. Grant to make a comment on that, if he could.

Mr. GRANT. I would vote. I am with Lew.

Chairman PAUL. Pardon me?

Mr. GRANT. I said I would go vote; I am with Lew on this. I can't add to this or shouldn't take your time in adding to it.

Chairman PAUL. Okay. Mr. Huizenga from Michigan, would you like to ask some questions?

Mr. HUIZENGA. I would. Also, Mr. Chairman, I want to say thank you for your service to our country and your time here in Congress, as well as your service to the philosophy, the battle that we have going on.

And the question I have is, I am curious if we can touch on the dual mandate of the Fed and what you believe that may have done to get us in the current situation. And would you suggest us changing that dual mandate of having them pursue low inflation and high employment? And any time I have, I would like to give back to the Chair if he so desires to do a follow up.

Mr. GRANT. Congressman, I think that one might, again, go back to the founding concepts of the Fed. The Fed got into business, if you read the opening paragraphs of the Federal Reserve Act, the Fed was to create a market in commercial bills and to exchange paper for gold in such a way as to support the working of the gold standard.

And the phrase added was, "and for other purposes"—pregnantly, it was added. But I would keep the mandate even simpler than one. I would say that the Fed ought to be in business to support an objective definition of the value of the dollar.

In this day and age, we could not have anything resembling industrial commerce as we know it without the most precise specifications of material weights and measures. And somehow, we have neglected this in money.

Money is what someone thinks it should be in some particular public institution like a central bank or a Treasury Department. The lead article of the Financial Times this morning was a plaint by the finance minister of Brazil against quantitative easing on the grounds that the willful depreciation of the dollar—or I might say the willful redefinition of the dollar—would certainly lead to the interruption of trade and to frictions that did not exist previously.

The gentleman to my left has written a fabulous book on this, and I think it is his view as well that what is wanted is the restoration of objective value in the dollar. And if the Fed could do that and maintain it, it seems to me that good things would follow.

As it is, we have arrived at the most peculiar point in which people have come to think that if the Fed can raise up the value of stocks,

bonds, farmland and commodities, somehow prosperity will follow. It seems to me that is a very peculiar horse in front of a very odd cart.

Mr. HUIZENGA. I appreciate that.

And Mr. Chairman, I am happy to yield my time to you.

Chairman PAUL. I thank you.

I will recognize Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Just very quickly, I only have a couple of questions.

Mr. Grant, what do you believe would be the ideal interest rate or the ideal range that the Fed should shoot for, that our rates should be for, say, our T-bills or Fed funds rates or home loans or somewhere in there? Use some of those figures.

Mr. GRANT. Sir, I think the Fed should not be shooting at those rates. I think that they should be determined in the marketplace. If you look back on history, kind of a normal mortgage rate was

4.5 to 5 percent; T-bill rate, maybe 3 to 4 percent; long-dated securities, yielding perhaps 6, 7 percent depending on the credit; and higher with regard to junk or speculative grade credits.

But I would let the wonderfully invisible forces of the marketplace into this line of work and let them do their thing—

Mr. LUETKEMEYER. Okay, if that is the case then, do you get rid of the Fed, or do you think there is a place for it?

Mr. GRANT. Sir?

Mr. LUETKEMEYER. Would you get rid of the Fed then or do you believe there is a place for it?

Mr. GRANT. I believe that the Fed ought to be doing much less than what it is doing, and it could do with many fewer economists. They could be doing with a much narrower mission statement and as long as we are talking about reforming this outfit, we should not fail to institute the Fed's first office of unintended consequences.

Mr. LUETKEMEYER. Mr. Lehrman, would you like to comment on that?

Do you believe we need to have a Fed or do you believe—

Mr. LEHRMAN. I have made the case in my book and in previous books that if we are going to have a Federal Reserve system—for it should be said it is not an indispensable necessity—but if we are going to have a mere agency of the Congress maybe with the stature, so to speak, of the Interstate Commerce Commission or the Federal Communication Commission, then it must be circumscribed by very careful rules, whereby it conducts its policy such that it is consistent with the activities of a free market and a free people.

So, that yes, I can embrace the Federal Reserve Act of 1913, and the very few moments in which it conducted itself according to Article I of the Constitution, Sections 8 and 10, namely, to define the value of the dollar, regulate the—

Mr. LUETKEMEYER. So you could live with it as long as it went back to its original intentions and functions?

Mr. LEHRMAN. I think we can go forward. We can't go backward, but I think we can go forward to a restoration of a Federal Reserve System which operates with some restraints imposed by Congress, the definition of the collateral, which is eligible at the Federal Reserve for discount against new money to encourage economic growth as opposed to encourage Treasury budget deficit.

Mr. LUETKEMEYER. Thank you.

Mr. Chairman, I yield back.

Chairman PAUL. Thank you.

I wanted to thank our Members who are here today, and our witnesses. And I appreciate very much you being here.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for Members to submit written questions to these witnesses and to place their responses in the record.

This hearing is now adjourned.

{Whereupon, at 10:36 a.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

One of the most enduring myths in the United States is that this country has a free market, when in fact nothing could be further from the truth. In reality, government has pervaded so many aspects of the market that what we see as a free market is merely the structural shell of formerly free institutions, while government pulls the strings behind the scenes. No better illustration of this can be found than in the Federal Reserve's manipulation of interest rates.

The Fed has interfered with the proper functioning of interest rates for decades, but perhaps never as boldly as it has in the past few years through its policies of quantitative easing. In Chairman Bernanke's most recent press conference he stated that the Fed wishes not only to drive down rates on Treasury debt, but also rates on mortgages, corporate bonds, and other important interest rates. Markets greeted this statement enthusiastically, as they realize that this means trillions more newly-created dollars flowing directly to Wall Street.

What almost no one realizes, however, is that interest rates are a price, the price of money. Like any other price, interest rates perform both a signaling and a coordination function. Interest rates coordinate the actions of savers and borrowers: higher interest rates attract savers, lower interest rates attract borrowers, and the market interest rate provides an equilibrium between saving and borrowing.

The interest rate also signals the availability of funds: lower interest rates signal an abundance of loanable funds, while high interest rates signal a paucity of funds. As interest rates rise, more people save and fewer people borrow; as interest rates fall, fewer people save and more people borrow. Lower interest rates also tend to favor longer-term, more capital-intensive projects. Projects which might not be profitable at eight percent interest rate may suddenly become profitable if the interest rate drops to three percent.

In order to lower the interest rate, more loanable funds must be available. But if individual saving habits remain unchanged, the only way to lower interest rates is to inject additional money or credit into the financial system. This new injection of credit, which has its origins not in savings but merely through a new bank balance sheet entry, results in a lowering of the rate of interest. The lower rate of interest signals the availability of additional loanable funds, which spurs additional borrowing. These borrowed funds are then put to use to fund capital projects. Additionally, as the interest rate lowers some savers may judge that their funds are now better off being used to fund present consumption, rather than continuing to be saved for future consumption.

Because the interest rate is the price of money, manipulation of interest rates has the same effect in the market for loanable funds as price controls have in markets for goods and services. Since demand for funds has increased, but the supply is not being increased by the market, the only way to match the shortfall is to continue to create new credit. But this process cannot continue indefinitely. At some point the capital projects funded by the new credit are completed. Houses must be sold, mines must begin to produce ore, factories must begin to operate and produce consumer goods.

But because consumption patterns have either remained unchanged or have become more present-oriented, by the time these new capital projects are finished and begin to produce, the producers find no market for their goods. Because the coordination between savings and consumption was severed through the artificial lowering of the interest rate, both savers and borrowers have been signaled into unsustainable patterns of economic activity. Resources that would have been used in productive endeavors under a regime of market-determined interest rates are instead shuttled into endeavors that only after the fact are determined to be unprofitable. In order to return to a functioning economy, those resources which have been malinvested need to be liquidated and shifted into sectors in which they can be put to productive use.

Another effect of the injections of credit into the system is that prices rise. Because credit functions as money, the effect of creating new credit is the same as printing new money. More money chasing the same amount of goods results in a rise in prices. And that rise in prices affects different groups of people in different ways. Wall Street always is the first to benefit from the new credit, because it is injected by the Fed directly into the financial system. From there it trickles down through the economy, but Wall Street and the banking system gain the use of the new credit before prices rise. Main Street, however, sees the prices rise before they are able to take advantage of the newly-created credit. The purchasing power of the dollar is eroded and the standard of living of the American people drops.

We live today not in a free market economic system but in a “mixed economy”, marked by an uneasy mixture of corporatism; vestiges of free market capitalism; and outright central planning in some sectors. The folly of central planning that should have been learned after the fall of the Soviet Union never took hold in Washington. Each infusion of credit by the Fed distorts the structure of the economy, damages the important role that interest rates play in the market, and erodes the purchasing power of the dollar. Markets see the interest rate and assume that the price is functioning as it should, when in fact it is being manipulated by a select few bureaucrats in Washington. Fed policymakers view themselves as wise gurus managing the economy, yet every action they take results in economic distortion and devastation.

The concept of the free market suffers as a result, since markets see a façade of market-determined prices as well as the reality of economic crisis. Wall Street makes out like bandits, while Main Street continues to suffer. The negative effects of manipulated interest rates are readily apparent in the economic malaise we are suffering now, but the real cause of this crisis, the Fed's centrally planned mismanagement, remains artfully concealed. Unless Congress gets serious about reining in the Federal Reserve and putting an end to its manipulation, the economic distortions the Fed has caused will not be liquidated; they will become more entrenched, keeping true economic recovery out of our grasp and sowing the seeds for future crisis.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF JAMES GRANT FOUNDER & EDITOR GRANT'S INTEREST RATE OBSERVER

WHAT THE CHAIRMAN DIDN'T MENTION

An undramatic reading of 19 pages of double-spaced text lifted stocks, bonds, commodities and non-dollar monetary assets on the Friday before Labor Day. In a few short hours, the price of gold rallied by more than the \$35 per ounce at which it was officially valued between the mid-1930s and the early 1970s. The text, "Monetary Policy since the Onset of the Crisis," and the mind of the man who recited it, the chairman of the Federal Reserve Board, are the subjects at hand.

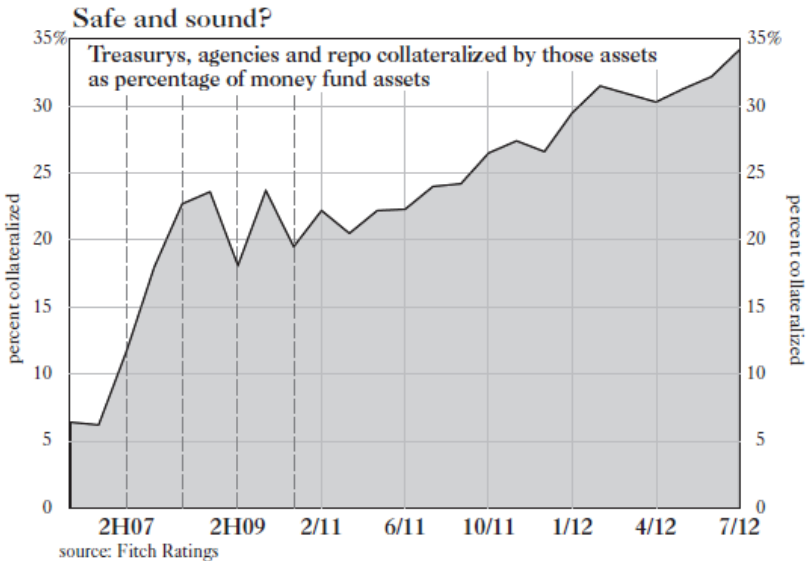
"Self-parody and self-plagiarism, neither intentional, are the bugbears of the aging author," wrote Whitney Balliett, the late, great jazz critic at *The New Yorker*. The readers of *Grant's* don't need to be told. The aging Ben Bernanke has been saying one thing, your aging editor another for a decade. We persist because he persists, and because monetary ideas have consequences. If we're right about the chairman's message, danger and opportunity are staring the holders of dollar-denominated assets right in the face. We write to try to sort out risk and reward.

It's old news, though worth repeating for emphasis, that the Jackson Hole, Wyo., address broadly hinted at a further radical monetary stroke. "The stagnation of the labor market in particular is a grave concern," warned Bernanke, "not only because of the enormous suffering and waste of human talent it entails, but also because persistently high levels of unemployment will wreak structural damage on our economy that could last for many years.

Over the past five years, the Federal Reserve has acted to support economic growth and foster job creation, and it is important to achieve further progress, particularly in the labor market. Taking due account of the uncertainties and limits of its policy tools, the Federal Reserve will provide additional policy accommodation as needed to promote a stronger economic recovery and sustained improvement in labor market conditions in a context of price stability.”

For a trade, the market seized on the phrase, “will provide additional policy accommodation as needed.” For an investment, it may profitably consider the more important and revealing words, “[t]aking due account of the uncertainties and limits of its policy tools.” It makes all the difference that the chairman does not, in fact, take due account of the “uncertainties and limits” of his “policy tools.” He may pay them lip service, as he did in his speech. But he does not really weigh the costs and benefits of doing what no other American central banker has done before. With Bernanke, as with Adm. David Farragut, it’s “[d]amn the torpedoes, full speed ahead,” though Farragut’s aggression, unlike Bernanke’s, got quick and quantifiable results.

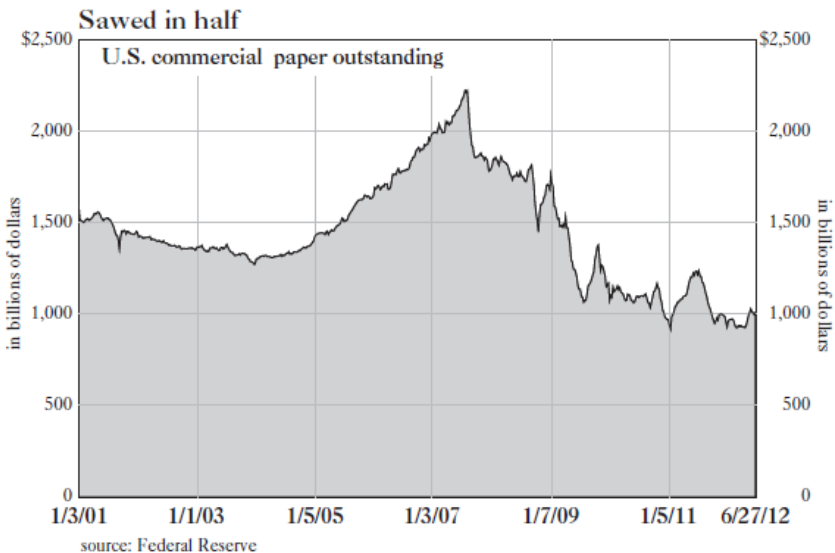
Shining through the chairman’s text is the conviction that economic problems are susceptible to a monetary solution. For every monetary-policy action, Bernanke all but said out loud, there is a



predictable reaction. That is, for policy A, you may bet your boots on outcome B. For ourselves, we have come to believe—the past five years have decided us on the question—that while policy A may deliver outcome B, it may alternatively serve up outcomes J or Q or Z—or, not inconceivably, some other result too strange to be classified under a known English letter. Especially are surprises in store for the makers of “nontraditional” policy—and for the millions on the receiving end of those inventions.

Bernanke makes no bones that he is improvising. “Large scale asset purchases,” a.k.a. QE, and the “maturity extension program,” a.k.a. Operation Twist, are, if not absolutely novel in concept, then unprecedented in scale. “[W]e were guided by some general principles and some insightful academic work but—with the important exception of the Japanese case—limited historical experience,” the chairman admitted. “As a result, central bankers in the United States, and those in other advanced economies facing similar problems, have been in the process of learning by doing.”

All of us learn by doing. To learn how to ride a bicycle, we pedal. But money has been circulating for millennia, and there is a voluminous monetary record. It is there to be read. Did the chairman or his staff consult the wisdom of the ages before deciding to muscle around the yield curve, manipulate asset values, materialize dollars by the hundreds of billions and, in general, to short-circuit the price mechanism? Not on the evidence of the four-and-a-half-page



bibliography appended to the Bernanke text. To judge by this reading list, the chairman consulted no authority published before 1965. He cites relatively few sources published before the onset of the 2007 financial cave-in. His favorite authors are his employees at the Federal Reserve Board.

Perhaps not surprisingly, Bernanke and his authorities are in broad agreement on the post-2007 policy record of U.S. monetary policy. It is swell, they conclude. “After nearly four years of experience with large-scale asset purchases,” said Bernanke, “a substantial body of empirical work on their effects has emerged. Generally, this research finds that the Federal Reserve’s large-scale purchases have significantly lowered long-term Treasury yields.”

And not only Treasury yields, he goes on. QE has tamped down mortgage rates and corporate bond yields and firmed up stock prices: “it is probably not a coincidence that the sustained recovery of U.S. equity prices began in March 2009, shortly after the [Federal Open Market Committee’s] decision to greatly expand securities purchases. This effect is potentially important because stock values affect both consumption and investment decisions.”

So you didn’t build that, Mr. Market. The Federal Reserve got the rally rolling—and much to the advantage of the macroeconomic situation, too, Bernanke judged. Granted, the chairman told his audience, there’s no telling how the economy might have fared in the absence of these improvised measures. But, “if we are willing to take as a working assumption that the effects of easier financial conditions on the economy are similar to those observed historically, then econometric models can be used to estimate the effects of [QE] on the economy.” The Fed’s own models rate the Fed’s monetary policy a winner, the chairman again noted: “as of 2012, the first two rounds of LSAPs may have raised the level of output by almost 3% and increased private payroll employment by more than two million jobs, relative to what otherwise would have occurred.”

Striking the pose of a disinterested scholar, the chairman next sought to persuade his listeners that he had considered the risks, not just the rewards, of monetary experimentation. He mentioned four potential pitfalls, of which the first was the risk that the Fed’s interventions might impair the “functioning” of the securities markets. Second was the chance that QE might frighten the uninitiated into doubting the Fed’s ability to normalize policy without seeding a new inflation. Third was the risk to “financial stability” presented by the temptation to reach for yield in these times of pygmy interest rates. Fourth was the possibility that the Fed might

suffer a mark-to-market loss “should interest rates rise to an unexpected extent” (a slightly disingenuous point given the 2011 accounting change that shifts the burden of absorbing financial losses away from the Fed and onto the Treasury; on this little-reported innovation, so handy for an activist and leveraged central bank, the chairman was silent). All these risks the chairman discounted.

Omissions from the Bernanke checklist of unintended consequences and undesirable side effects, though they received no press, deserve the attention of every investor. He said nothing about the distortions wrought by the so-called zero-percent interest rate policy on the allocation of capital or on the analysis of investment value. Neither did he acknowledge how the whisking away of interest income has punished savers and nudged them into unsuitable risk taking. Though quick to claim credit for the decline in mortgage rates or the rise in stock prices, Bernanke was characteristically mute on the Fed's contribution to resurgent prices of commodities and farmland. We commend to the chairman the cover story in the August 18 issue of *The Spectator*, published in London. “Hunger strikes,” says the headline: “Rising food prices will mean more revolutions.”

With a lot more time and a little more candor, Bernanke could have held forth for hours in this vein. The crisis-era money market alone could have afforded him all the material he needed. Zero-percent interest rates and blanket FDIC guarantees of bank deposits have reconfigured what used to be a market in short-dated IOUs of the private sector. Today's money market is increasingly a market of short-dated IOUs of the public sector.

Before the rains came in 2007, money market mutual funds earmarked just 6.2% of their assets for Treasury securities, agency obligations and repurchase obligations collateralized by the same. As of last report in July, according to an Aug. 29 bulletin from Fitch Ratings, such holdings weighed in at 34.2% of money-fund assets. Midway in 2007, \$2.2 trillion of commercial paper—unsecured corporate promissory notes—was outstanding. Less than half of that amount is outstanding today. As Bernanke did not get around to saying in Jackson Hole, zero-percent money market interest rates obviate the value of credit analysis. When a given claim yields nothing, the prudent investor will roll Treasury bills or—functionally the same thing—lay up deposits at a too-big-to-fail bank.

Zero-percent interest rates may impart no credit information, but that doesn't mean they're inexpressive. “Be afraid, Mr. or Ms. Investor, because the government is afraid,” is the subliminal message. It's a suggestion that the post-crisis regulatory regime

powerfully reinforces. The 2010 amendments to Rule 2a-7 of the Investment Company Act of 1940, for instance, slap tough new liquidity tests on money market mutual funds. They require that 10% of the assets of a taxable fund be held in cash, U.S. Treasuries or securities that convert to cash the next business day. And they require that 30% of the assets of a taxable fund be placed in securities that mature within 60 days or that convert to cash within five days. Pre-crisis, the money-fund managements decided such matters for themselves.

Post-crisis, the government has its knives out, and the new rules push the funds into the least remunerative spots on the nearly barren money market credit and liquidity curves. Thus, the smaller funds face starvation, the biggest funds malnutrition. Nancy Prior, president of Fidelity's Money Market Group, the nation's largest, told readers of the June issue of *Money Fund Intelligence* that "we monitor every single dollar, every hour," and that there are no fewer than 80 Fidelity money market credit analysts on the case, some of whom "can hop on a plane or a train and be in Germany, Brussels or France in an hour." It is, however, travel, overhead expense and man-hours expended in the service of delivering a .01% return, pretax, to the investors in Fidelity Cash Reserves.

That ultra-low interest rates tend to beget even lower—and more dysfunctional—rates is another side effect of zero-percent rate policy that the chairman didn't get around to mentioning. He could have cited the example of the European Central Bank, which in July shaved the rate it pays on bank deposits to zero percent from 25 basis points. By this adjustment, Mario Draghi, president of the ECB, presumably expected to drive money out of his vaults and into the receding European economy. But the funds have stayed put while other yields have actually turned negative. It stands to reason that repurchase rates on the highest quality collateral would be quoted at less than zero if that collateral itself—short-dated notes issued by the governments of Germany, Denmark and Switzerland, for instance—yields zero percent or less. As optimism has a life of its own, so does pessimism, and the central bankers are having a hard time cheering up the glum and broken-spirited. Maybe they're pushing the wrong nostrums.

In June 2011, Jamie Dimon asked a question of Bernanke at a banking conference in Atlanta. The CEO of JPMorgan Chase & Co. asked the chairman of the Federal Reserve if it weren't possible that the sum total of the monetary and regulatory reforms undertaken since 2007 was thwarting financial and economic recovery rather

than advancing it. "Has anyone bothered to study the cumulative effect of all these things?" Dimon posed.

Bernanke replied that he, for one, was gratified by how thoroughly the government had scoured the system. As to Dimon's question, he answered that no one had attempted to study the cumulative effect of so much rule and policy making and that, in truth, "it's just too complicated, we don't really have the quantitative tools to do that." And the chairman had a most revealing afterthought. He had a "pet peeve," he said, about people insisting that "the single cause of the crisis was 'x.' There was not a single cause of the crisis," Bernanke went on. "There were many, many different causes, and they interacted in a way that was in many ways unpredictable, and led to the disaster that we experienced."

So, after all, the chairman was prepared to concede that outcomes are unpredictable, that financial systems are complex and that policies implemented for one purpose can wind up serving another. Yet the very same Bernanke, speaking at Jackson Hole, talked up the new federal crisis-prevention bureau, the Financial Stability Oversight Council, as if it had powers of divination never before available to the federal bureaucracy. "We have seen little evidence thus far of unsafe buildups of risk or leverage," he said, "but we will continue both our careful oversight and the implementation of financial regulatory reforms aimed at reducing systemic risk."

Market economies excel at identifying and repricing error. Regimented economies, in contrast, are ill suited to making mid-course corrections, as the only thing the Dear Leader despises more than error is the messenger who tells him about it.

America's Dear Leaders are the functionaries who, with the best of intentions, are busily substituting bureaucracy for the price mechanism. Nowadays, when things go pear-shaped, Chairman Bernanke is front and center with broad hints to print enough money or suppress enough prices or inflate enough assets to make us forget our troubles. Don't worry that QE or Twist or ZIRP will end in inflationary tears, Bernanke said at Jackson Hole: "The FOMC has spent considerable effort planning and testing our exit strategy and will act decisively to execute it at the appropriate time."

But, of course, Mr. Market doesn't hand out wristwatches. It isn't the Fed's efforts or good intentions one doubts, but its judgment. As for our judgment, as fallible as anyone's, we expect that our drugged bond markets will give no helpful signal that the central banks of the world have over-cranked the printing presses. The radical monetary experiments of 2012 will strike posterity as the most obvious setup to

a virulent inflation there ever was, except that our monetary mandarins had no clue it was happening.

In 1921, O.M.W. Sprague, author of “History of Crises under the National Banking System,” contributed an essay on the Federal Reserve, then just seven years young, to *The American Economic Review*. In it, Sprague, a Harvard professor, warned against the temptation to print one’s way out of cyclical trouble. The Fed had hugely expanded the nation’s money and credit to help the Treasury finance America’s participation in World War I. There had been a rip-roaring inflation. And now came the time to undo the inflationary damage. What, if anything, could the new central bank do to smooth the process of adjustment?

“If we insist upon using such power as a means of temporary relief and stimulation,” wrote Sprague, “ultimate disaster is the certain consequence. Past experience shows that it is dangerous for governments to issue paper money. There is a constant temptation to overissue when confronted by real or imaginary emergencies. The same danger arises in the case of the [R]eserve system—that public opinion and perhaps legislative action will compel the employment of its resources in a vain endeavor to cure evils which are mainly due to credit already granted in excess.”

Now comes Chairman Bernanke, a Harvard man himself, doing exactly what Sprague warned against, and with the support of the 21st-century economics establishment. We are betting on a new inflation with a flight of investable funds from the assets that are today deemed safe (notably, sovereign debt) to assets deemed infra dig or permanently impaired (for instance, precious metals and equities—at least until interest rates push significantly higher). Anyway, central banking is a short sale.

WRITTEN TESTIMONY OF
LEWIS E. LEHRMAN
SENIOR PARTNER
L.E. LEHRMAN AND COMPANY

I. Preface: The Problem of Federal Reserve Manipulation of Interest Rates: What is the Solution?

The Federal Reserve System has in fact manipulated interest rates since the first year of Federal Reserve operations in 1914. Professor Allan Meltzer's magisterial, three-volume history of the Fed is the definitive witness to unrestrained Federal Reserve credit operations and their consequences. The problems created by Fed interest rate manipulation are very similar to the problems of government wage and price controls.

During the 1920s the Federal Reserve collaborated with the Bank of England in suppressing interest rates, leading to the worldwide stock market boom and 1929 crash. Excessive Fed credit expansion and interest rate manipulation between 1996 and 1999 led to the wild tech-stock market boom during those years, and the subsequent collapse of the stock market between 2000 and 2002. The Fed suppression of interest rates between 2002 and 2005 led to the stock market, commodity, and real estate boom during those years; then the rise of interest rates, engineered by the Fed, causing an inverted yield curve; followed by the financial and economic collapse of 2008.

The extravagant and unprecedented Fed credit policy of Quantitative Easing, now intensified by QEIII announced Thursday, September 13, is one more extraordinary experiment in central bank interest rate and credit manipulation (money printing). These episodes of interest rate suppression and excessive Fed credit expansion -- with effects similar to wage and price controls -- have well-studied precedents in earlier economic and financial history. For example, the effects of the President Nixon-Arthur Burns (chairman of the Fed) credit expansion (1970-1973); and their wage and price controls of 1972 led to the collapse of financial markets in 1973 and 1974, and the worst economic decade in American history since the Great Depression. Indeed, during the late 1970s, the highest interest rates and inflation in American history were the ultimate result of previous Federal Reserve credit expansion, and government wage and price controls. The effects of substantial Fed interest rate suppression and credit expansion have, in the end, led to inflation of food prices -- or oil, or natural resources, or real estate, or equities; or in the 1970s consumer price inflation -- followed by a fall.

The most important economic and monetary issue before the Congress is how, through institutional reform of the Fed and the monetary system, to solve this Fed-created monetary problem of cyclical booms and busts -- largely the results of unrestrained Fed interest rate manipulation and quantitative easing (money printing).

In my oral testimony and statement, I shall briefly focus on the problems caused by Federal Reserve interest rate manipulation and quantitative easing -- moreso on the solution to the problem.

Herewith, in my longer, written testimony, I shall concentrate on a detailed solution to the problem.

Lewis E. Lehrman
September 21, 2012

II. Oral Statement for the Record

Mr. Chairman:

James Grant has described the consequences of Federal Reserve quantitative easing and interest rate suppression and manipulation. From Mr. Grant's analysis, one concludes that the Fed's unlimited power to purchase Treasury debt and financial market securities not only funds the Treasury deficit with newly printed money; but the Fed's market intervention process also makes of the financial class, with special access to the Fed, privileged investors and speculators. A well-connected financial class, subsidized by the Federal Reserve, is a crucial cause of increasing inequality of wealth in America. In this regard, I cite only one fact for the Monetary Subcommittee to contemplate: -- Since the termination of dollar convertibility to gold in 1971, the financial sector has doubled in size as a share of the American economy; but the manufacturing sector has been cut in half.

In 2002 Mr. Bernanke described the Fed's extraordinary power to create new money and credit in our present financial regime of inconvertible paper money and inconvertible bank deposit money. I quote Bernanke:-

"Under a fiat (that is, paper) money system, a government (in practice, the central bank in cooperation with other agencies) should always be able to generate increased nominal spending and inflation, even when the short-term nominal interest rate is at zero. The

U.S. government has a technology, called a printing press (or, today, its electronic equivalent), that allows it to produce as many U.S. dollars as it wishes at essentially no cost."

In effect, as James Grant wrote, the Fed is not only the American

central bank but, with this exalted power to print money, the Fed is now the government's central planner.

During the Volcker years from 1979 to 1987, Fed interest manipulation was justified as the means to end inflation. By 1994, employment as a Fed target had all but disappeared from the minutes of Fed meetings. Now in 2012, despite inflation being again on the rise, employment is, as a practical matter, the sole target of quantitative easing. The Fed and its apologists in the media and the academy, justify Quantitative Easing and its unlimited scope and duration, as the way to restore economic growth -- surely an extraconstitutional form of fiscal spending through Federal Reserve capital allocation. But so soon as one examines the Fed balance sheet, which few politicians do, one sees that the Fed primarily buys Treasury securities and mortgage-backed securities, in effect a subsidy by which to finance the government deficit and to refinance bank balance sheets, that is to say, the promotion of more financial and consumption-sector growth.

The problem of the American economy is neither underconsumption, nor underbanking. The problem is the lack of rapidly growing investment in domestic production and manufacturing. Investment is the necessary means by which to enable our producers to lead in both domestic and global markets. Rapidly increasing investment and production growth begets employment growth, and with it, healthy, unsubsidized consumption growth.

It is a truth of economic theory and practice that rising personal and family real income grow from increasing per capita investment in innovative businesses, new plant, and equipment. So, the question is: in reforming the Fed, how can our runaway central bank be harnessed by the financial markets to target the goal of economic growth through increased productive investment, not the promotion of consumption and Treasury deficit funding by means of quantitative easing? The answer is transparent: - the Congress of the United States has the exclusive constitutional power (under Article I, Sections 8 and 10) not only to establish the definition of the dollar; but Congress also has the power to define by statute the eligible collateral that the Federal Reserve may buy and hold against the issue of new money and credit. Thus, a simple congressional statute - - defining sound commercial loans as the primary eligible collateral for discounts and new credit from the Fed -- would have two primary effects.

First, it should rule out Fed purchases of Treasuries, thus

requiring the government to finance its deficits not with newly printed Fed money, but instead in the open market away from the banks. Second, the Fed would then become a growth-oriented central bank by which to finance productive business loans, encouraging thereby the commercial banks, themselves, to make loans to businesses in order to sustain economic and employment growth. Commercial banks would focus on production and commercial loans because solvent business loans could then be used by commercial banks as the primary eligible collateral by which to secure credit from the Fed as the lender of last resort. In a word, Treasury subsidies at the Fed should be replaced by productive business loans oriented toward economic and employment growth.

Mr. Chairman, this simple, proposed reform of the Fed was the very monetary policy insisted upon by Carter Glass, a leading Democrat, who was the chief sponsor of the Federal Reserve Act of 1913. The congressional legislative leaders who created the Federal Reserve Act of 1913 designed the Fed to enable steady commercial investment and employment growth. The Federal Reserve Act was also designed explicitly to uphold and maintain a dollar convertible to gold in order to maintain a reasonably stable, general price level. Such a Fed reform today, consistent with the original Federal Reserve Act, would require no further legislative mandate to sustain employment growth and to rule out systemic inflation and deflation.

Today, the Fed reiterates at every meeting that the central bank must manage interest rates to fulfill a congressional mandate to maintain reasonable price stability and reasonably full employment. The best way to do this is remobilize the express intent and techniques of the original Federal Reserve Act, namely the statutory requirement that the Fed uphold the classical gold standard; and, as was intended by the original Federal Reserve Act, to substitute commercial market credit for Treasury debt as the primary eligible collateral for bank loans from the lender of last resort, the Federal Reserve System.

May I say, with respect Mr. Chairman, Congress has defaulted to the Federal Reserve System, its sole constitutional authority to regulate the value of the dollar and to define the vital economic use of eligible collateral to obtain productive business credit from the Federal Reserve System.

It does not have to be this way.

Lewis E. Lehrman
September 21, 2012

III. A Road to Prosperity: The Case for a Modernized Gold Standard

Gold, a fundamental, metallic element of the earth's constitution, exhibits unique properties that enabled it, during two millennia of market testing, to emerge as a universally accepted store of value and medium of exchange, not least because it could sustain purchasing power over the long run against a standard assortment of goods and services. Rarely considered in monetary debates, these natural properties of gold caused it to prevail as a stable monetary standard, the most marketable means by which trading peoples worldwide could make trustworthy direct and indirect exchanges for all other articles of wealth.

The preference of tribal cultures, as well as ancient and modern civilizations, to use gold as money was no mere accident of history. Nor has this natural, historical, and global preference for gold as a store of value and standard of measure been easily purged by academic theory and government fiat.

Gold, by its intrinsic nature, is durable, homogenous, fungible, imperishable, indestructible, and malleable. It has a relatively low melting point, facilitating coined money. It is portable and can be readily transported from place to place. Gold money can be safely stored at very low cost, and then exchanged for monetary certificates, bank deposits, and notes -- convertible bills of exchange that efficiently extended the gold standard worldwide.

Like paper money, gold is almost infinitely divisible into smaller denominations. But paper money has a marginal production cost near zero. Producing gold money, like other articles of wealth, requires real labor and capital.

This investment of real labor and capital gives gold an objectively grounded value on which to base proportional exchanges -- a value that can be compared to that invested in producing a unit of any product or service. Prices for goods and services always vary with subjective preferences. But the real costs of production persist as an underlying market-price regulator. Despite subjective preferences, a mutual exchange of real money -- a gold monetary unit -- for a good or service is a transparent, proportional, equitable exchange, grounded by real costs of production, namely labor, capital, and natural resources.

In contrast, almost no marginal labor or capital is required to produce an additional unit of paper money. Thus, legal tender paper money is subject only to quantitative control and the discretion of political authorities. Historical evidence shows that inconvertible

paper money is overproduced, tending always toward depreciation and inflation, interrupted by bouts of austerity and deflation. Over the long run, government-forced and spurious paper money has not maintained equitable exchanges between labor and capital. Market exchanges based on depreciating paper money and floating paper currencies issued through the banking system always lead to speculative privilege of insiders, generally the financial class.

Because of its imperishability and density of value per weight unit, gold can be held and stored (saved) permanently at incidental carrying costs. Precious metal monetary tokens (gold and silver) survived millennia of experiments with inferior alternatives such as shells, grains, cattle, tobacco, base metals, and many others. These alternatives are consumable, perishable, bulky, or of insufficient value for large-scale commercial exchange over long distances. For example, perishables like wheat or cattle are not storable for long periods at very low cost; nor are they portable cheaply over long distances to exchange for other goods; nor are they useful and efficient to settle short- and long-term debts promptly.

Through a process of long-term economic evolution in tribal, interregional, and national trading markets, gold's natural properties were discovered and utilized in almost all cultures. Gold thus became universally marketable and acceptable as the optimum long-term store of value, uniform standard of commercial measure, and durable medium of exchange. Universal marketability and acceptability is a hallmark of global money. Silver, with its much lower value per unit of weight, was the suboptimal monetary metal of modern civilization, exhibiting many but not all of the properties required for large-scale international exchange.

Merchants, bankers, farmers, and laborers may not have consciously considered these facts, but over the long run, they behaved as if they did. Thus gold became an unimpeachable, universally accepted currency, to be held as reserves and passed on as a reliable store of future purchasing power. People, even hostile nations, freely accepted gold, a non-national currency, from one another in exchange for other goods, even as they rejected the sovereign risk of holding national currencies as their exclusive reserves. All who cherished the value of their saved labor -- pensioners, working people, those on fixed incomes -- came to rely on the gold monetary standard as a stable, long-term proxy for goods and services to be purchased later, perhaps much later.

Today's global stock of aboveground gold in all its forms is approximately 5 to 6 billion ounces, perhaps more -- close to one

ounce per capita of the world population. Because of gold's lasting value from time immemorial, and the human incentive to conserve all scarce resources, these 5 to 6 billion ounces represent most of the gold ever produced. Yet the aboveground gold stock today may be enclosed in a cube of approximately 70 feet on each side. Gold may be easily converted to substantial amounts of monetary coin to underwrite convertible paper money and bank deposits or convenient exchange in the market.

Moreover, the empirical data demonstrate that the stock of aboveground gold has grown for centuries in direct proportion to the growth of population and output per capita. The average, annual, long-run growth of the stock of gold in the modern world is approximately 1.5 percent. This remarkable fact accounts for the unique, long-run stability of its purchasing power. New output of gold money, joined to its rate of turnover, is sufficient for both economic growth and long-run stability of the general price level, as modest but regular output of gold does not affect the relative value of the large existing stock.

This hidden but crucial commercial equation of the social order was a fundamental reason why the true gold standard, i.e., gold-based money, became the foundation of the monetary institutions of modern civilization. Gold-based money not only stabilized the long-term price level, but its network effects also integrated and compounded the rapid growth of the advanced, competitive trading nations of the Western world during the Industrial Revolution. For the purpose of global trade, exchange and investment currencies convertible to the universally acceptable gold monetary standard had engirdled the earth by the beginning of the 20th century.

As the technology and productivity of the payments mechanism evolved, banknotes and checking account deposits (among other credit and transfer systems), came into modern circulation as substitutes for physical, monetary tokens. But these banknotes and checks derived and sustained their value from the fact that everyone knew they were credit instruments convertible to gold. Still, actual gold transfers were used to settle residual balance-of-payments deficits among nations, a necessary and efficient international adjustment mechanism by which to rebalance domestic and international trade and exchange.

Despite legal tender inconvertible paper money and the disabilities presently imposed on gold by the political authorities, gold retains the same inherent properties that make it the least imperfect monetary standard. Indeed, all inconvertible paper money systems,

based on contemporary fractional reserve banking, use the vestigial forms but not the substance of their original convertible currency systems.

In sum, gold is natural currency, not least because it provides in a single, indestructible substance the primary functions of money -- i.e. a standard unit of account, a stable medium of exchange, a stable store of value, and a stable deferred means of payment. By reason of these facts, the market guided the authorities over time to bestow on gold coin the status of an official monetary standard. Gold money was, moreover, endowed by nature with profound but simple national and international networking effects, the digital standard by which free prices could be communicated worldwide. Thus, the gold standard exhibited natural economies of global information scale, a necessary virtue in the present electronic age. The adoption of the gold standard by the major trading nations in the 19th century led to a radical reduction in the settlement costs of international trade and transactions, a crucial confidence and reliability factor stimulating an unparalleled boom in trade that was constantly and promptly rebalanced by residual deficit settlements in gold.

A Just Social Order and Economic Growth

To choose or to reject the true gold standard is to decide between two fundamental options: on the one hand, a free, just, stable, and objective monetary order; and on the other, manipulated, inconvertible paper money, the fundamental cause of a casino culture of speculation and crony capitalism, and the incipient financial anarchy and inequality it engenders.

Restoration of a dollar convertible to gold would rebuild a necessary financial incentive for real, long-term, economic growth by encouraging saving, investment, entrepreneurial innovation, and capital allocation in productive facilities. Thus would convertibility lead to rising employment and wages. Economic growth would be underwritten by a stable, long-term price level, reinforced domestically by a rule-based, commercial and central banking system subject to convertibility, and internationally by exchange rates mutually convertible to gold. Consider the past decade of hyper-managed paper currencies and manipulated floating exchange rates wherein American annual economic growth fell to an anemic 1.7 percent. Under the classical gold standard (1879–1914), U.S. economic growth averaged 3 to 4 percent annually, the equal of any period in American history.

Different growth rates are not mere accidents of history. The gold

dollar, or true gold standard, underwrites, among other things, just and lasting compensation and purchasing power for workers, savers, investors, and entrepreneurs. It prevents massive, recurring distortions in relative prices created by manipulated paper currencies and floating exchange rates, which misallocate scarce resources. It suppresses the incentives for pure financial speculation, everywhere encouraged under manipulated paper currencies and floating exchange rates. It rules out the “exorbitant privilege” and insupportable burden of official reserve currencies, such as the dollar and the euro. It limits and regulates, along with bankruptcy rules, the abuse of fractional reserve banking that is commonplace under inconvertible paper-money systems. It minimizes the enormous premium exacted by the banker and broker establishment in the purchase and sale of volatile foreign exchange.

Moreover, the lawfully defined gold content of a stable currency encourages long-term lending and investment, stimulating more reliance on equity, less on leverage and debt. With currencies convertible to gold, long-term lenders receive in turn, say after 30 years, similar purchasing power compared to the capital or credit they surrendered to the borrowers. (Convertibility thus encourages stable long-run domestic and international growth, not the austerity engendered by deficits.)

A dollar legally convertible to gold, reinforced by effective bankruptcy law, sustains economic justice, regulating and disciplining speculative capital, and restraining political and banking authorities such that they cannot lawfully depreciate the present value or the long-term purchasing power of lagging dollar wages, savings, pensions, and fixed incomes. Nor under the sustained, legal restraint of convertibility can governments ignite major, long-run, credit and paper money inflations with their subsequent debt deflations. Under the gold standard, the penalty for excessive corporate and banking leverage is insolvency and bankruptcy. As the profits belong to the owners, so should the losses. Bankruptcy of insolvent firms shields the taxpayer from the burden of government bailouts. Under the rule-based gold standard in a free-market order, managers, stockholders, and bondholders must bear the responsibility for insolvency.

A stable dollar, convertible to gold, leads to increased saving not only from income, but also from dishoarding, a fact often neglected by economists. Disharding means releasing a vast reservoir of savings previously held in hedges such as commodities, antiques, art, jewelry, farmland, or other items purchased to protect against the ravages of

inflation. These trillions of savings, imprisoned in hedging vehicles by uncertainty and inflation, are induced out of hedges, and the capital is then supplied in the market to entrepreneurs, business managers, and households who would create new income-generating investment in production facilities, thereby leading to increased employment and productivity. On the other hand, central bank subsidies to government and subsidized consumption, both enabled by inconvertible paper and credit money, lead -- through deficit financing, transfer payments, paper money fiscal and monetary stimulation -- to disinvestment, debt financing, speculative privilege, and growing inequality of wealth.

It is rarely considered by conventional academic opinion that the long-term stability of a rule-based currency convertible to gold brings about a major mutation in human behavior. In a free market every able-bodied person and firm must first make a supply before making a demand. This principle effectively alters human conduct. It encourages production before consumption, balances supply and demand, rules out inflation, maintains balanced international trade, and upholds the framework for economic growth and stable money. In a free market and its banking system, grounded by the rule of convertibility to gold, new money and credit may be prudently issued only against new production or additional supply for the market, thus maintaining equilibrium between total demand and total supply. Inflation is thereby ruled out. Moreover, worldwide hoarding of real assets, caused by government overissue of paper money, would come to an end.

The irony of the gold standard and currency convertibility is that it ends speculation in gold. It restores the incentive to use and hold convenient, convertible paper currency and other gold-convertible cash balances. Thus can the road to economic growth, rising real wages, and growing employment be rebuilt on the durable foundation of a free monetary order -- that is, money free from government manipulation.

Rebalancing the Global Economy

The overall balance-of-payments of a country, or a currency area, is in deficit when more money is paid abroad than received; a surplus occurs when more money is received than paid abroad. The United States, because of the dollar's role as the reserve currency of the world, has experienced an overall balance-of-payments deficit most of the past half-century and, over that full period, systemic inflation.

Under both the Bretton Woods agreement (1944–71) and the

subsequent floating, dollar-based, global reserve currency system, the U.S. budget and balance-of-payments deficits have been financed substantially by U.S. government trust funds, the Federal Reserve, and foreign purchases of dollars abroad. Since 2008, these deficits have been accompanied by unprecedented quantitative easing, a euphemism for large-scale central bank money and credit creation (or “money printing”). By this means the Fed finances not only the government budget and balance-of-payments deficits, but also overleveraged banks, insolvent debtors, and other wards of the state. The issue of new money by the central bank unaccompanied by the production of new goods and services leads ultimately to inflation because total demand in the market will exceed total supply.

With the dollar as the reserve currency, the U.S. balance-of-payments deficit causes Fed-created dollars to rush abroad, directed there by relative price differences. In foreign countries, many of these excess dollars are monetized by foreign authorities and held as official foreign exchange reserves. But these reserves are not inert. They do not lie around in bank vaults. They are in fact reinvested in the U.S. dollar market -- especially in U.S. government securities sold to finance the federal budget deficit. In effect, the United States exports its debt securities, thus receiving back the dollars it created and used to settle its balance-of-payments deficits abroad. Everything goes on as if the deficits didn't exist. No adjustment is required of the United States to settle its debts, or to rebalance the deficits with surpluses. Thus again, total demand is enabled to exceed total supply. In a word, the world dollar standard enables America to buy without really paying, a fundamental cause of inflation. But when the Federal Reserve slows or ends quantitative easing, or money printing, total monetary demand declines and deflation threatens.

Rebalancing world trade is impossible under an official reserve currency system. (The International Monetary Fund and the central banks are pathetic shadows of “all the king's men” trying to put Humpty Dumpty -- that is, global rebalancing -- back together again.) This perverse international monetary system, whereby the reserve currency country issues its own money to finance and refinance its increasing deficits and debts, augments global purchasing power and potential worldwide inflation, because the newly issued central bank money is not associated with newly produced goods and services. Total demand has been divorced from supply. When total demand exceeds total supply, inflation usually occurs first in marketable, scarce commodities, equities, and inflation hedges (2009–2012); other

more general price level effects may be deferred because of unemployed labor and other unutilized resources in excess supply. But ultimately, the general price level will rise as the economy approaches full employment. (The worldwide panic demand for the dollar over the past two years, during the European crisis, has mitigated the general price level effect of quantitative easing. The desire to hold the dollar in cash equivalents rather than to spend or invest it defers inflation.)

Under the rule-based gold standard, the regular settlement of balance-of-payments deficits eliminates a root cause of global imbalances, re-establishing equilibrium among trading nations. Under the true gold standard, residual payments deficits could no longer be settled in newly issued national paper and credit monies, such as the reserve currencies of the dollar or euro. Instead, these deficits would be settled with an impartial, non-national monetary standard: gold. The requirement to settle in gold rules out the exponential debt increases of flawed reserve currency systems. A famous example of this is the flawed gold-exchange-reserve currency system of the 1920s, the collapse of which turned a recession into the Great Depression. Another case is the financial bubble and its collapse during the past decade (2002–2012).

Moreover, it is very much in the American national interest to terminate the reserve currency role of the dollar. This role is an insupportable burden borne by the United States since the end of World War II (even since the great powers' Genoa agreement of 1922). The U.S. taxpayer should no longer go further into debt in order to supply the world with dollar reserves denominated in U.S. debt. Terminating this burdensome "privilege," combined with the restoration of dollar convertibility to gold, will gradually end the long era of extreme global trade imbalances, secular debt accumulation and inflation, and currency depreciation. Furthermore, because the reserves of monetary authorities will be held only in gold and domestic currency claims, the exchange-rate risk will be eliminated in all national banking systems.

The rule-based, true gold standard not only would end the official reserve currency role of the dollar, but also limit arbitrary Federal Reserve money issuance secured by spurious, defective, and illiquid collateral. Unstable mutations in the gold standard of the past -- including the failed reserve currency-based "gold-exchange" system of Bretton Woods and the collapse of its predecessor, the reserve currency-based "gold-exchange system" of the 1920s and 1930s -- must be ruled out. So, too, must floating exchange rates. For almost a

century, policymakers, politicians, historians, and economists have confused the flawed, interwar gold-exchange standard, based on official reserve currencies, with the true or classical gold standard. They have mistakenly blamed the Great Depression on the gold standard, instead of on the liquidation of the official reserve currencies underpinning the gold-exchange system established at Genoa in 1922, which, like Banquo's ghost, reappeared in 1944 in the form of the Bretton Woods system.

The Bretton Woods pegged exchange rate system, based on the official reserve currency role of the dollar, collapsed in 1971 because the United States had accumulated more short-term debt to foreigners than it was willing to redeem in gold. Its collapse ushered in the worst American economic decade since the 1930s. The unemployment rate in 1982 was higher even than the unemployment rate occasioned by the collapse of the Fed-induced real estate bubble of 2007–09. Similarly, the recession of 1929–30 became the Great Depression of the 1930s because of the collapse and liquidation of the interwar official reserve currency system, based as it was on the pound and the dollar. The liquidation of official sterling and dollar currency reserves deflated the world banking system: Without these foreign currency reserves the banks were forced to deleverage, call in loans, or go bankrupt. They did all three.

Since 1971, the floating exchange rate system, or the world dollar standard, has been even more perverse and crisis-prone than Bretton Woods and the Genoa interwar system. The dollar's role as the reserve currency has caused not only extreme inflation and the subsequent threat of deflation, but also industrial and manufacturing displacement in the United States. It has resulted in declining American competitiveness, one witness of which is the collapse of the international net investment position of the United States (essentially, U.S. assets held abroad, less foreign assets held in the United States). In 1980, the U.S. net international investment position was 10 percent of GDP. In 2010 it was negative 20 percent of GDP. The difference was equal to the increase of foreign-held official dollar reserves, arising from continuous U.S. balance-of payments deficits under the dollar-based official reserve currency system.

Under the present system, the perennial U.S. balance-of-payments deficit will, more often than not, continue to flood foreign financial systems and central banks with undesired dollars, followed by brief periods of dollar scarcity, the threat of deflation, and a cyclical rise of the dollar on foreign exchanges. Foreign authorities may continue to purchase excess dollars against the issue of new

domestic money. This duplicates potential purchasing power unassociated with the production of new goods, causing total demand to exceed total supply -- thus tending to sustain worldwide inflation, generally followed by recession and the threat of deflation. So-called sterilization techniques designed to neutralize central-bank money printing are not fully effective. Without monetary reform, the excess dollars purchased by foreign central banks, reinvested in U.S. government securities and other dollar debt, will continue to finance excess consumption and rising government spending in the United States.

Today inflation of the general price level (or CPI) proceeds gradually in the United States because of unemployed resources, combined with the panic demand worldwide to hold the dollar rather than spend it, or to repay debt with the money rather than to consume. At full employment, inflation will pick up. Because the reserve currency system generally leads to a rapid increase in global purchasing power, without a commensurate increase in the supply of goods and services, the systemic tendency of the reserve currency system is monetary expansion or inflation. Yet the process can work dangerously in reverse, causing deflation, especially when the Fed tightens, or there is panic out of foreign currencies into the dollar (the Asian crisis, 1996–2002, and the euro crisis, 2012). Illiquidity abroad can cause foreign official dollar reserves to be resold or liquidated in very large quantities, reducing the global monetary base, as occurred in 1929–33 and recently in 2007–09.

In the absence of government rules that favor inconvertible paper and credit money, the historical evidence shows that gold, or paper and credit money convertible to gold, was preferred and accepted in trade and exchange from time immemorial. Until recent times the gold standard also underwrote, indeed required, global trade rebalancing, now the subject of empty exhortations by the International Monetary Fund and political authorities. But to desire a goal without the effective means to attain it -- namely, the true gold standard -- is to court political and financial disaster. In the absence of prompt balance-of-payments settlements in gold, the undisciplined official reserve currency systems have immobilized the international adjustment mechanism. The result has been increasing trade imbalances, ever-rising debt, and credit leverage at home and abroad. Under the world dollar standard, other nations have gained desired dollar reserves only as the United States becomes an increasingly leveraged debtor through balance-of-payments deficits. Whereas under the gold standard, the global economy may actually attain

balance-of-payments surplus as a whole vis-à-vis worldwide gold producers.

Among its monetary virtues as the least imperfect monetary system of civilization, the true gold standard, without official reserve currencies, is the sole rule-based monetary order that reliably and systematically rebalances worldwide trade and exchange among all participating nations.

How to Get From Here to There

Step 1. The president announces unilateral resumption of the gold monetary standard on a date certain, not more than four years in the future. Unilateral resumption means that the U.S. dollar will be defined by law as a certain weight unit of gold. The Treasury, the Federal Reserve, and the entire banking system will be obligated to maintain the gold value of the dollar. On the date of resumption, Federal Reserve banknotes and U.S. dollar bank demand deposits will be redeemable in gold on demand at the statutory gold parity. Further use by foreign governments of the dollar as an official reserve currency will entail no legal recognition by the United States.

Step 2. The president issues an executive order eliminating all taxes imposed on the buying, selling, and circulating of gold. Another executive order provides for the issuance of Treasury bonds backed by a proportional weight of gold. Since Federal Reserve notes and bank deposits (money) are not taxed by any jurisdiction, the executive order specifies that gold, being legal tender, is to be used as money and thus to go untaxed. Gold can be used to settle all debts, public and private. The Treasury and authorized private mints will provide for the creation and wide circulation of legal tender gold coin in appropriate denominations, free of any and all taxation.

Step 3. Shortly after announcing the intent to go forward to a modernized gold standard, the United States calls for an international monetary conference of interested nations to provide for the deliberate wind-up of the dollar-based, official reserve currency system and the consolidation and refunding of foreign official dollar reserves. The international agreement to be negotiated will inaugurate the reformed international monetary system of multilateral convertibility of major countries' currencies to the gold monetary standard. Stable exchange rates would be the result. The value of each participating currency would be a function of its stipulated gold parity.

Step 4. The conference, attended by representatives of the Bank for International Settlements, International Monetary Fund, World

Trade Organization, and the World Bank, would establish gold as the means by which nations would settle residual balance-of-payments deficits. The agreement would designate gold, in place of reserve currencies, as the recognized international monetary reserve asset. Official foreign currency reserves, to a specified extent, would be consolidated and refunded.

Step 5. A multilateral, international gold standard -- the result of the conference convertibility Agreement -- would effectively terminate floating and pegged-undervalued exchange rates. The reformed monetary system without official reserve currencies, the true international gold standard, would establish and uphold stable exchange rates and free and fair trade, based upon the mutual convertibility to gold of major national currencies.

Now we are able to formulate an authentic, bipartisan program to restore 4 percent American economic growth over the long term. Tax rate reductions with an enlarged tax base, government spending restraint aimed at a balanced budget, simplification of business regulation designed to empower entrepreneurial innovation -- these reforms can be made effective for America and the world by a modernized gold standard and stable exchange rates. This is the very same platform which uplifted 13 impoverished colonies by the sea in 1789 to leadership of the world in little more than a century.

Lewis E. Lehrman
September 21, 2012

EXPERT COMMENTARY

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THE FED AND BUSINESS CYCLE

Dr. Ron Paul has arguably done more than any other person to educate Americans on the perverse connection between the Federal Reserve and the business cycle. Dr. Paul's understanding is based on the explanation of business cycles set forth by Austrian economist Ludwig von Mises and elaborated most famously by Nobel laureate Friedrich Hayek.⁹⁹

I am an economist with a Ph.D. in economics from New York University, where I studied under the Austrian economists Israel Kirzner and Mario Rizzo. I taught economics (including courses specifically on Austrian economics) at Hillsdale College for three years, but I also have experience working in the financial sector. Further, I have written several study guides on the works of Mises and his disciple Murray Rothbard, for the Ludwig von Mises Institute.

In this essay I will explain (for the lay audience) the basics of Austrian business cycle theory in the context of the United States. I will then show how the theory can explain the Fed's role in the unsustainable housing bubble of the 2000s, and refer the reader to

⁹⁹ Mises originally laid out his "circulation credit theory of the trade cycle" in *The Theory of Money and Credit* (English translation of the title of the 1912 German work). A succinct exposition is contained in his 1949 English language magnum opus, *Human Action*. These two works are available in free PDF form at <http://mises.org/document/194/The-Theory-of-Money-and-Credit> and <http://mises.org/document/3250>.

other Austrians who explain the Fed's role in the stock market bubble of the 1920s. Thus the Fed was an accomplice in both the Great Depression and the Great Recession.

I. HOW THE FED “SETS” INTEREST RATES

When reporters say the Fed did such-and-such to “interest rates,” they are specifically referring to the Fed's target for the federal funds rate. The Federal Reserve itself is neither a borrower nor a lender in this market; the fed funds rate is the interest rate that banks charge *each other* for overnight loans of reserves. In our fractional reserve banking system, the Fed mandates that banks keep a certain amount of reserves (either cash in the vault or deposits with the Fed itself) in order to “back up” their total outstanding deposits. At any given time, so banks have more reserves than they need, while others have less. The banks with excess reserves can thus loan them to those with deficient reserves, and the (annualized) interest rate is the fed funds rate.

A further complication is that the Fed itself *does* lend reserves to banks, but it does this at the so-called discount window, and the relevant interest rate is the discount rate. In modern times the Fed has typically maintained a margin between the fed funds target and the discount rate, in order to encourage banks to borrow from each other, rather than coming hat in hand to the (more expensive) Fed. As the housing bubble collapsed the Fed slashed the discount rate and encouraged banks to borrow from it, in an effort to restore liquidity and calm to the credit markets.

It is clear enough how the Federal Reserve can set the discount rate—since the Fed is the one loaning these reserves, it can insist on any rate it wants. (Of course if the rate were too high it might not get any takers.) But how does the Fed influence the federal funds rate, if it doesn't directly participate in this market? Is the target enforced the way, say, the government in some areas controls apartment rents or minimum wages?

The process is much more complicated. To put it briefly: The Fed can control the quantity of reserves held by banks, and thus indirectly can control the price the banks charge each other for lending out reserves. If the Fed thinks banks are charging each other too much for reserves—in other words, if the actual fed funds rate is higher than the target—then the Fed will engage in an “open market operation,” buying assets such as U.S. Treasury bonds from banks. The Fed pays for these purchases by adding numbers to the accounts the selling banks have with the Fed.

This is the precise point of entry for the new money that the Fed creates out of thin air. To repeat: When the Fed buys (say) \$1 million in bonds from Bank XYZ, Bank XYZ surrenders ownership of the bonds but sees that its deposits of reserves at the Fed go up by \$1 million. But the Fed didn't transfer this money from some other account. No, it simply increased the electronic entry representing Bank XYZ's total reserves on deposit. There is no offsetting debit anywhere in the banking system. Bank XYZ now has \$1 million more in reserves, while no other bank has less. Bank XYZ is now free to go out and loan more reserves to other banks, or to make loans to its own customers. (In fact, due to the fractional reserve system, the bank legally could make up to \$10 million in new loans to customers.) The money supply has increased, putting upward pressure on prices measured in dollars.

But back to our original theme, the injection of reserves obviously increases their supply and thus (other things equal) pushes down the rate Bank XYZ will charge other banks who might want to borrow reserves from it. The open market operation has thus achieved the Fed's goal of pushing the actual fed funds rate down to the desired target. Of course, going the opposite way, if the actual fed funds rate were too low, the Fed would sell assets to the banks, thereby destroying some of the total reserves in the system.

II. AUSTRIAN BUSINESS CYCLE THEORY

According to Ludwig von Mises and his followers, the boom-bust cycle is *not* inherent in the free market, but is rather caused by the government's interference in the credit markets, specifically its manipulation of interest rates. The government causes the boom period when it injects new credit into the system (pushing down rates), and then the unsustainable, non-economic investment projects put into motion necessitate a bust at some future date. Interest rates serve a genuine economic function, effectively telling firms how "impatient" consumers are and therefore how long their projects can tie up scarce resources, waiting for the finished products or services to be delivered to the customer. By pushing rates down to artificial levels, the Fed can certainly "stimulate" the economy, but the boom is unsustainable because people have not saved and acquired the real resources to carry society through a longer production period.

The following chart [Figure 33] illustrates the Misesian explanation over a long stretch of postwar U.S. history.

Generally speaking, the chart indicates an inverse relationship between the two series. This accords with the commonsense view

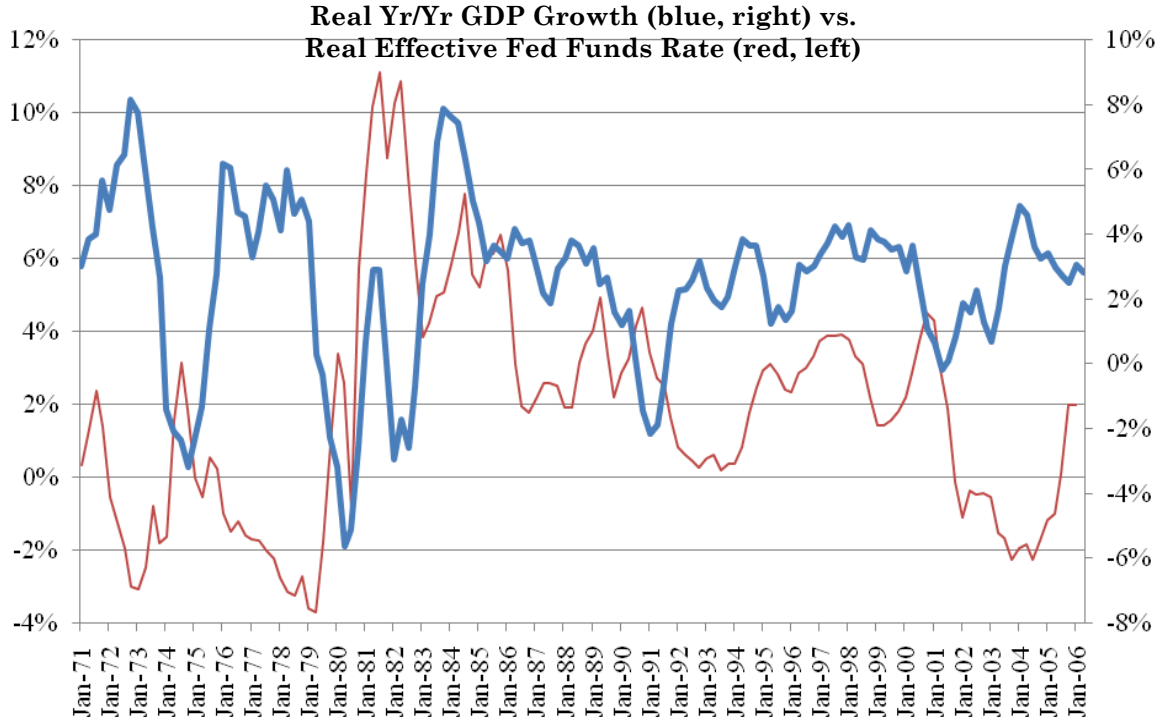


Figure 33

that cutting interest rates provides a stimulus while hiking them is contractionary. However, what the Austrian approach provides is the understanding of the real forces behind the boom-bust cycle. In other words, most financial commentators think that today's interest rates inadequate capital structure to complete).

To put it another way, many commentators seem to believe that if the Fed held interest rates low indefinitely, then we'd never have high unemployment, just rampant price inflation. And yet, the collapse of the housing bubble shows that this is dead wrong. The Fed didn't cause the problems by "responsibly" hiking interest rates. No, rates had been steady at 5.25% for some time, and then the housing bubble burst and the mortgage market faltered, thus "forcing" the Fed to take action.

Looking back at the chart above, we can see why the Great Recession has been so severe. In (price) inflation-adjusted terms, the early-2000s levels of the actual fed funds rate is the lowest since the Carter years. And many readers may recall the severe recessions of 1980 and 1982 that followed that period.

Many students of Austrian economics (including Dr. Ron Paul and also the present writer) used the Mises-Hayek business cycle theory to predict that the housing and stock markets were in a bubble before this was common knowledge—certainly before Ben Bernanke acknowledged the dire situation. We believed that interest rates serve a vital function in a market economy, and that the Fed's artificial manipulation of them gives false signals to entrepreneurs to expand their operations and start unsustainable projects.

III. FURTHER EVIDENCE OF THE FED'S ROLE IN THE HOUSING BUBBLE

Many critics of the Austrian explanation argued that the Fed under Alan Greenspan had little to do with the housing bubble and bust. In this section I present some simple graphs to show that the Mises-Hayek theory fits the facts quite well.

Some apologists for Greenspan's Fed claim that nominal interest rates are misleading, because he had done such a good job containing price inflation expectations. Yet as the below graph indicates [Figure 34], even if we adjust the federal funds rate for the (forward-looking) actual annual rates of price inflation that occurred, rates were still remarkably low after the dot-com crash. One has to go back to the 1970s to see an "easier" monetary policy.

In addition to looking at interest rates, we can also add plots of money growth rates over time. The figure below [Figure 35] contrasts

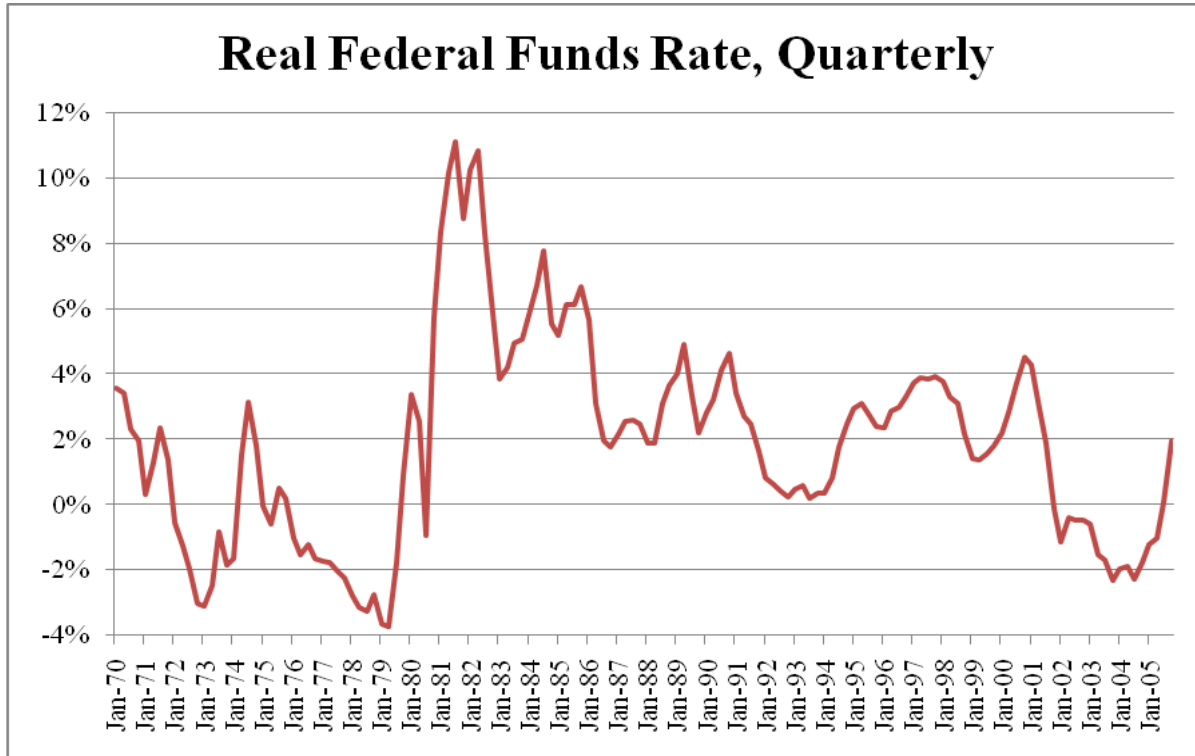


Figure 34

Year/Year Monetary Base Growth Versus Federal Funds Target Rate, Monthly

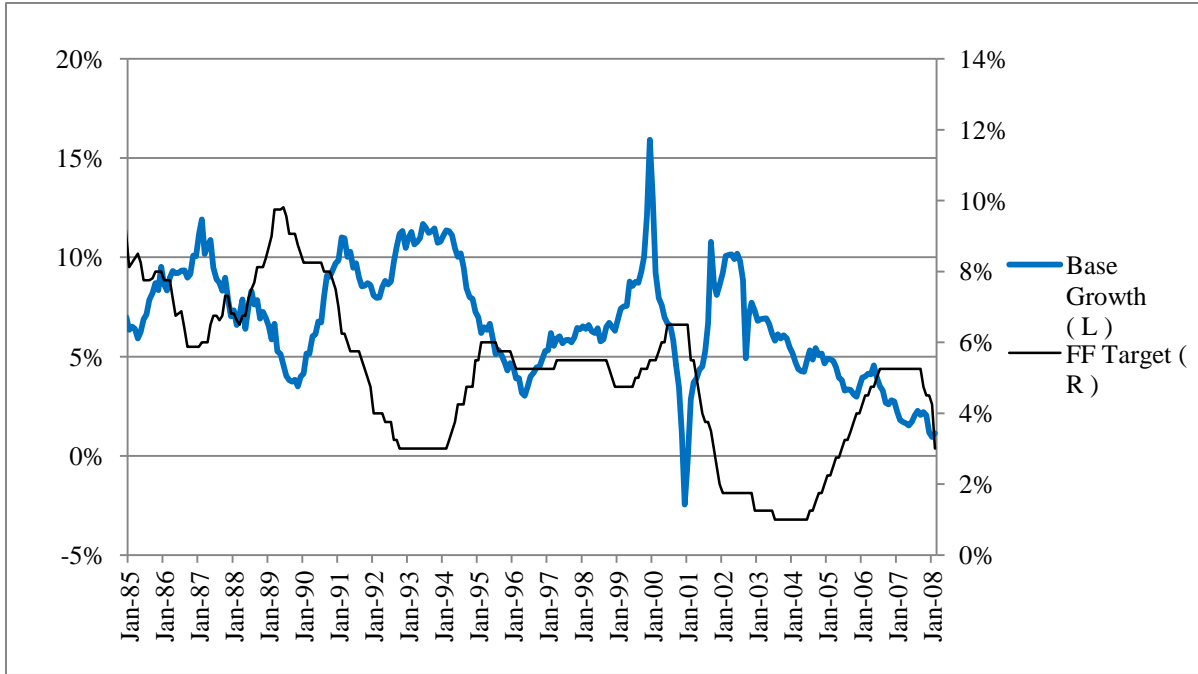


Figure 35

the federal funds target rate with the annual growth rate in the monetary base (i.e. total bank reserves plus currency).

The figure above [Figure 35] seems to be the textbook illustration of how the Federal Reserve conducts its open market operations: When it cuts the federal funds target rate, it pumps reserves into the system, i.e. expands the monetary base. On the other hand, when the Fed raises interest rates, it slows the rate of monetary expansion. Except for the large blips due to the Y2K scare—when the Fed flooded the system with liquidity and then sucked it right back out—the early 2000s fit the pattern perfectly. That is, when Greenspan cut the target rate from January 2001 through June 2003, the monetary base grew rapidly. Eventually the base growth came back down to moderate territory, but that was when the Fed was ratcheting up interest rates, just as we would expect.

Indeed, to see just how inflationary the Fed's monetary policy was during the early 2000s, we can consult the next figure below [Figure 36]. This shows a longer plot, this time of annual growth rates in both the monetary base and M1 (i.e. monetary base plus demand deposits).

Studying this latest figure [Figure 36], it is hard to make sense of the claim that Greenspan exercised restraint in the early 2000s. When the Fed was (I allege) irresponsibly fueling the housing boom from 2000 to 2004, both the monetary base and M1 grew at annual rates that were comparable to the experience of the 1970s. (In addition to the Y2K blips up and down, there was also a sharp injection and pullback due to the September 11, 2001 attacks that make the black line bounce around.) Unless Greenspan apologists want to argue that the Fed conducted a tight policy throughout the 1970s, it seems their defense of the chairman falls apart.

Finally let's address the objection that the Greenspan Fed either had nothing to do with low mortgage rates, or that the mortgage rates couldn't be responsible for the housing bubble. The following chart [Figure 37] plots the 30-year conventional mortgage rate against year-over-year increases in the S&P/Case-Shiller Home Price Index.

Thirty-year mortgage rates plummeted from about 8.5% in mid-2000 to below 5.5% three years later. The connection certainly isn't robotic, but this period also saw a spike in monetary base growth (thus leading us to suspect Greenspan's influence, not just Asian savers as many allege) and the acceleration in the housing boom. On this last point, consider that mortgage rates dropped from about 7% down to about 5.5% from April 2002 to April 2003. Even with

Monetary Base and M1 Yr/Yr Growth Rates, Monthly

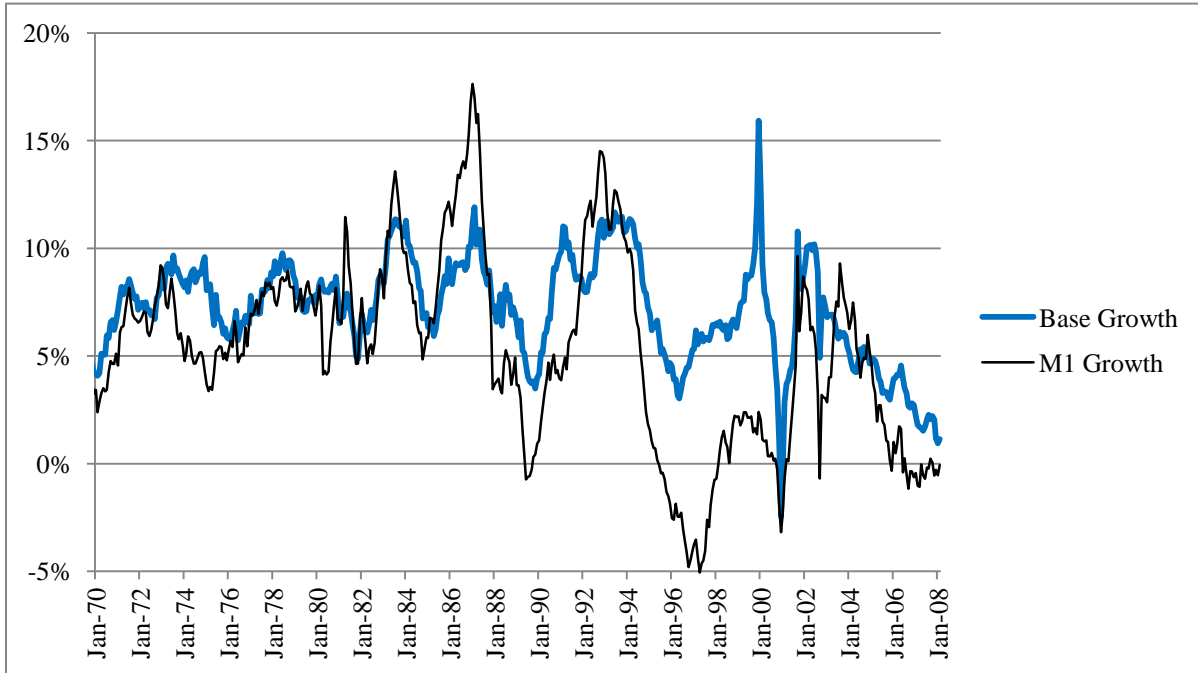


Figure 36

**Conventional 30-Year Mortgage Rates (Blue, Left) vs.
Year/Year Percentage Growth in Home Prices (Red, Right)
(monthly data)**

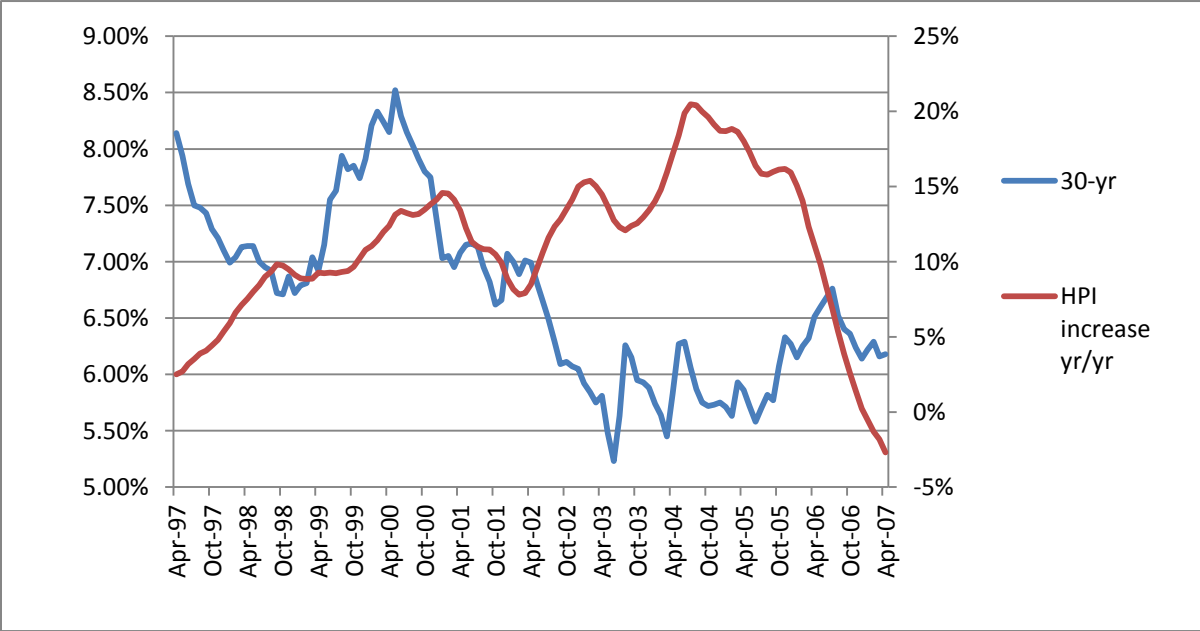


Figure 37

“perfectly rational” consumers—where people start with a desired monthly mortgage payment and then look at 30-year mortgage rates to figure out “how much house” they can buy—that would be expected to raise home prices about 17%. And lo and behold, over this same period the home price index rose about 14.5%.

IV. CONCLUSION

Dr. Ron Paul has been a tireless champion of sound money and education of the true nature of central banking. He understands that not only price inflation but the business cycle itself ultimately stems from government intervention into money and banking, two areas that were initially handled by the market. In this essay I have discussed the theoretical and empirical connection between the Fed and the housing bubble, while other Austrian economists have explained the Fed's role in the famous Crash of 1929 (and ensuing Great Depression).¹⁰⁰ If Americans wish to preserve the purchasing power of their money and escape from the recurring boom-bust cycle, they must heed Dr. Paul's advice and learn at least the principles of Austrian economics.

☆☆

¹⁰⁰ The classic reference here is Murray Rothbard's *America's Great Depression*, available in free PDF at <http://mises.org/document/694>.

P
ART 2.

MONETARY REFORM

- V. IMPROVING THE FEDERAL RESERVE SYSTEM:
EXAMINING LEGISLATION TO REFORM THE
FED AND OTHER ALTERNATIVES

- VI. FRACTIONAL RESERVE BANKING AND THE
FEDERAL RESERVE: THE ECONOMIC
CONSEQUENCES OF HIGH POWERED MONEY

- VII. ROAD MAP TO SOUND MONEY: A
LEGISLATIVE HEARING ON H.R. 1098 AND
RESTORING THE DOLLAR

- VIII. SOUND MONEY: PARALLEL CURRENCIES
AND THE ROADMAP TO MONETARY
FREEDOM

*H*EARING V.

IMPROVING THE FEDERAL RESERVE SYSTEM: EXAMINING LEGISLATION TO REFORM THE FED AND OTHER ALTERNATIVES

Tuesday, May 8th, 2012

WITNESSES

- Brady, Hon. Kevin, a Representative in Congress from the State of Texas
- Frank, Hon. Barney, Ranking Member of the Financial Services Committee and a Representative in Congress from the State of Massachusetts
- Herberner, Jeffrey M., Ph.D., Professor of Economics and Chairman, Department of Economics, Grove City College
- Klein, Peter G., Ph.D., Associate Professor, Applied Social Sciences and Director, McQuinn Center for Entrepreneurial Leadership, University of Missouri
- Taylor, John B., Ph.D., Mary and Robert Raymond Professor of Economics, Stanford University and George P. Schultz Senior Fellow in Economics, Hoover Institution
- Galbraith, James K., Lloyd M. Bentsen, Jr. Chair in Government/Business Relations, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin
- Rivlin, Alice M., Senior Fellow, Economic Studies, Brookings Institution

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Improving the Federal Reserve System: Examining Legislation to Reform the Fed and Other Alternatives” at 10:00 a.m. on Tuesday, May 8, 2012 in Room 2128 of the Rayburn House Office Building.

The informal working title of the hearing was: “The Federal Reserve System: Mend It or End It?” This hearing examined six legislative proposals to either reform or abolish the Federal Reserve System. This was a two-panel hearing with the following witnesses:

Panel I

- Representative Kevin Brady (R-TX)
- Representative Barney Frank (D-MA)

Panel II

- Jeffrey M. Herbener, Ph.D., Chairman, Economics Department, Grove City College
- Peter G. Klein, Ph.D., Associate Professor, Applied Social Sciences and Director, McQuinn Center for Entrepreneurial Leadership, University of Missouri
- John B. Taylor, Ph.D., Mary and Robert Raymond Professor of Economics, Stanford University and George P. Schultz Senior Fellow in Economics, Hoover Institution
- James K. Galbraith, Ph.D., Lloyd M. Bentsen, Jr. Chair in Government/Business Relations, LBJ School of Public Affairs, University of Texas at Austin (joint witness)

- Alice Rivlin, Ph.D., Senior Fellow, Economic Studies, Brookings Institution, and former Vice Chair, Federal Reserve Board of Governors (witness for the Minority)

History

The Federal Reserve System is the central bank of the United States. It was created in 1913 “to provide for the establishment of Federal reserve banks, to furnish an elastic currency, to afford means of rediscounting commercial paper, to establish a more effective supervision of banking in the United States, and for other purposes.”¹⁰¹ The Federal Reserve sets monetary policy, supervises and regulates banks, and provides a variety of financial services to depository financial institutions and the federal government. The Federal Reserve has been ceded authority over money supply and monetary policy. It also issues Federal Reserve Notes which are legal tender currency in the United States.

The Federal Reserve System consists of three parts: (1) the Board of Governors of the Federal Reserve, a government agency whose Governors are appointed by the president and confirmed by the Senate; (2) the twelve regional Federal Reserve Banks, which are owned by nationally- and state-chartered banks that are members of the Federal Reserve System; and (3) the Federal Open Market Committee.

Established in 1933, the Federal Open Market Committee (FOMC) is the monetary policy-making body of the Federal Reserve System. It was created in order to centralize the policymaking while retaining the input of the regional Reserve Bank presidents, who are supposed to be attuned to the needs of their districts. The FOMC consists of up to twelve voting members: the seven members of the Board of Governors, the President of the Federal Reserve Bank of New York, and, on a rotating basis, four of the remaining 11 regional Federal Reserve Bank Presidents. The FOMC meets at least eight times a year to establish monetary policy. Its decisions are implemented by the Federal Reserve Bank of New York through its transactions with a network of private financial institutions known as primary dealers.

Monetary Policy

Congress has charged the Federal Reserve with three objectives in its conduct of monetary policy: (1) maximum employment, (2) stable prices, and (3) moderate long-term interest rates. The first two

¹⁰¹ Federal Reserve Act, Statement of Purpose

are commonly referred to as the Federal Reserve’s “dual mandate,” and have existed in statute since 1978.

The Federal Reserve has several tools at its disposal to effect the monetary policy adopted by the FOMC. Its primary tool is the target federal funds rate, which is the rate at which banks lend to one another on an overnight basis. To achieve the target federal funds rate, the Federal Reserve conducts open market operations in which the Federal Reserve Bank of New York buys and sells assets—typically government bonds—on the open market through its primary dealers. These open market operations change the amount of liquidity in the system—the money supply—which in turn raises or lowers the federal funds rate, affecting interest rates throughout the economy. The purchase of assets is supposed to stimulate economic activity by increasing the money supply and lowering interest rates; selling assets is supposed to slow economic activity by decreasing the money supply and raising interest rates.

Calls for Monetary Policy Reform

Calls for reforming various aspects of the Federal Reserve System have existed since its inception. However, with the onset of the financial crisis of 2008-2009 and during the prolonged recession, calls for reform have escalated. During the financial crisis of 2008-2009, the Federal Reserve responded with unconventional monetary policy tools such as emergency lending facilities in an attempt to provide credit to the marketplace, since the federal funds rate was already at or near zero. Publication of the recipients and amounts of those loans fueled public controversy and led to Congressional hearings.

The Federal Reserve’s balance sheet grew by nearly \$2 trillion since 2008, while the monetary base increased from \$800 billion to over \$2.6 trillion, leading some to claim that the Federal Reserve is doing too much to stimulate economic growth and setting the stage for sustained inflation when the economy recovers. Slow economic growth, however, has led others to claim that the Federal Reserve is not doing enough and must be more accommodative in its conduct of monetary policy. Despite the differences on how the Federal Reserve should be reformed, the proposals which the Committee is examining fall into four broad categories: (1) reforming the structure of the FOMC; (2) ending the Federal Reserve’s dual mandate; (3) adopting a rules-based monetary policy; and (4) abolishing the Federal Reserve.

Reforming the Structure of the FOMC

As the monetary-policy making arm of the Federal Reserve, the FOMC exerts significant influence over the economy. Because the FOMC consists of both the members of the Board of Governors (who are appointed by the president and confirmed by the Senate) and regional Federal Reserve Bank presidents (who are selected by the Reserve Bank's private member banks), some reformers have called for changes to the FOMC's composition. Some reform proposals have called for all of the FOMC's members to be appointed by the president and confirmed by the Senate, to make the FOMC more accountable to elected representatives as well as to avoid the possibility that private interests represented by regional Federal Reserve Bank presidents can influence monetary policy in their favor. By contrast, those who are concerned that monetary policy suffers from a Washington-centric focus that is not responsive to the concerns and needs of the nation as a whole would prefer greater regional representation on the FOMC. Some reformers also believe that the permanent voting seat held by the Federal Reserve Bank of New York gives undue influence to Wall Street interests, to the detriment of the rest of the country.

Ending the Dual Mandate

Some reformers seek to remove the full employment mandate and focus the Federal Reserve on price stability. These reformers believe that by focusing solely on price stability, the Federal Reserve can limit inflation (or deflation), thus ensuring a stable money supply and a more constant purchasing power for the dollar. This monetary policy focus is seen as providing more stability to the economy and generating long-term growth. In addition, those who have called for ending the dual mandate have pointed out that the level of employment is determined by nonmonetary factors that affect the structure and the dynamics of the labor market.

Those opposed to ending the dual mandate think the Federal Reserve should be able to respond to changing employment conditions in setting monetary policy. Some proponents of retaining the dual mandate believe that there is a trade-off, at least in the short term, between inflation and unemployment. This inverse relationship between inflation and unemployment is known as the Phillips curve, and some believe that the Federal Reserve should be permitted to raise inflation targets in response to economic shocks that result in high unemployment. Those who favor retaining the full employment mandate believe that the Federal Reserve should be granted the discretion to engage in accommodative (inflationary) monetary policy to spur employment and generate economic growth and stability.

Because inflation and employment often move in tandem, some have maintained that the price stability and full employment mandates are complementary. During economic downturns, inflation and employment both fall; the orthodox response is to pursue an expansionary monetary policy. During booms, inflation and employment both rise; the orthodox response is to pursue a contractionary policy. In the 1970s and 1980s, however, the economy was beset by both high inflation and high unemployment, which demonstrated that the Phillips curve did not accurately describe the relationship between inflation and unemployment in all circumstances, and that tolerating higher inflation did not necessarily lead to higher employment. As a result, most economists have rejected simpler versions of the Phillips curve, and have concluded that over the long term, monetary policy has little or no effect on employment. Nonetheless, many mainstream economists still maintain that there exists a relationship among inflationary monetary policy, economic activity, and employment in the short term, and continue to believe that accommodative monetary policy is beneficial when the economy is not at full employment.

Rules-Based Monetary Policy

The Federal Reserve has been given independent discretionary authority over the nation's monetary policy. To evaluate the Federal Reserve's conduct of monetary policy, some economists have called for the adoption of a rules-based system in which the outcomes of monetary policy can be judged against specific metrics or indices. Some economists have also recommended constraining the Federal Reserve's discretion by means of a rule, such as the "Taylor rule," which determines interest rates according to a formula that uses objective measures of changes in inflation, gross domestic product, and potential output. The intent of a rules-based monetary policy is to provide parameters for setting interest rates, using econometric modeling that supposedly balances the goals of economic growth and price stability. Reformers who favor a rules-based policy believe that greater economic and price stability can be achieved by replacing the Federal Reserve's discretionary authority over monetary policy with a rules-based authority. Such reforms are often called for in conjunction with creation of a single mandate for price stability.

Federal Reserve Abolition

Those who have called for the abolition of the Federal Reserve fall into two camps: (1) those who want to abolish the Federal Reserve but maintain government control over monetary authority; and (2)

those who favor both abolishing the Federal Reserve and ending government control over monetary authority.

Those who wish to maintain government control over monetary authority have called for the abolition of the Federal Reserve and the transfer of its functions to the Treasury Department. Under such a regime a new monetary unit would be issued by the Treasury Department, which issued its own notes from 1862 to 1971, in place of Federal Reserve Notes. Proponents of this structure believe that the federal government should retain control over the creation and issuance of currency, rather than the banking system or a partially private central bank like the Federal Reserve.

Those who favor abolishing the Federal Reserve and ending government control of monetary policy believe that there is no need for a central bank, and that the government's conduct of monetary policy itself is detrimental to the economy. Central banks engage in monetary policy through manipulation of interest rates, which are the price of credit. When central banks target an interest rate that is below the market rate of interest, the subsequent credit expansion distorts the structure of production in the economy. As a result of this distortion, capital that would have been put to use in meeting consumer demand is instead diverted into less productive uses, which is known as malinvestment. Credit expansion forms the boom of the business cycle, while revelation of malinvestment forms the bust. Until those malinvested resources are put to better use, economic hardship will ensue. Because credit expansion inflates the money supply and devalues the purchasing power of the monetary unit, consumers are harmed by a reduction in their standard of living. Many proponents of abolishing the Federal Reserve propose a free market monetary system: one that they believe allocates resources, including money and credit, to their best and most productive uses through the pricing mechanism of the free market, thus generating economic stability and growth.

Legislative Proposals

H.R. 245

Introduced by Rep. Mike Pence, H.R. 245 amends the Federal Reserve Act to remove the full employment mandate.

H.R. 1094: "Federal Reserve Board Abolition Act"

Introduced by the Chairman of the Domestic Monetary Policy and Technology Subcommittee, Rep. Ron Paul, H.R. 1094 abolishes the Board of Governors of the Federal Reserve System and the regional

Federal Reserve Banks, and repeals the Federal Reserve Act one year after enactment of the bill, during which time the affairs of the Board and the Reserve Banks are to be wound down. All remaining assets and liabilities of the Federal Reserve System are then transferred to the Department of Treasury.

H.R. 1401: “Democratizing the Federal Reserve System Act of 2011”

Introduced by Rep. Marcy Kaptur, H.R. 1401 reduces the terms of the members of the Federal Reserve Board of Governors from fourteen years to seven years. The regional Federal Reserve Bank representation on the FOMC is increased from five to six members, and the rotation schedule is revised to ensure that each Reserve Bank president serves on the FOMC every other year, with the New York Fed president no longer holding a permanent seat. The Vice Chairman of the Board of Governors must be chosen from a member currently on the Board who has served at least one year on the Board. The Chairman is chosen in the same manner, but must have served at least two years on the Board.

H.R. 2990: “National Emergency Employment Defense Act of 2011”

H.R. 2990, the “National Emergency Employment Defense Act of 2011,” or NEED Act, was introduced by Rep. Dennis Kucinich. The bill replaces the Federal Reserve Note with United States Money (USM), which is to be legal tender. The creation of USM through fractional reserve banking is criminalized. The Treasury Secretary is prohibited from borrowing money, and federal agencies and departments may borrow money only from the Treasury Secretary. Any funding shortfalls are to be met with the issuance of USM. All U.S. debt instruments are to be retired by redeeming them with USM. The Treasury Secretary is directed to purchase all net assets in the Federal Reserve System. A new Monetary Authority is created within the Treasury Department, which is to establish monetary supply policy and monitor the nation’s monetary status. A Bureau of the Federal Reserve is to be created within the Treasury Department to administer the origination and circulation of USM. The Monetary Authority will also instruct the Treasury Secretary to disburse monetary grants to states for public infrastructure, education, health care and rehabilitation, pensions, and paying for unfunded federal mandates. H.R. 2990 also sets a ceiling on interest rates.

H.R. 3428

Introduced by Financial Services Committee Ranking Member Barney Frank, H.R. 3428 replaces the five Reserve Bank presidents who sit on the FOMC with FOMC members appointed by the president and confirmed by the Senate. FOMC members are to be selected with due regard to a fair representation of financial, agricultural, industrial, commercial, consumer, and labor interests, and the geographical diversity of the U.S. No more than one additional member may be appointed from any particular Federal Reserve district.

H.R. 4180: “Sound Dollar Act of 2012”

Introduced by Rep. Kevin Brady, H.R. 4180 establishes long-term price stability as the Federal Reserve’s single mandate. The Federal Reserve Board and the FOMC are directed to define long-term price stability and establish metrics by which to measure the achievement of long-term price stability—in consideration of or with respect to various indices and asset prices. The Federal Reserve is to establish a clear lender of last resort policy. Voting membership of the FOMC is expanded to include a representative from each of the 12 regional Federal Reserve Banks. Transcripts of FOMC meetings are to be released no later than three years after each meeting. Asset purchases by the Federal Reserve are limited to government bonds only, and only those with a maturity of less than six months; other assets may be purchased in unusual and exigent circumstances upon a vote of two-thirds of the FOMC members. The Exchange Stabilization Fund is divested of all non-Special Drawing Right (SDR) assets so that it holds only SDRs and no other assets for foreign exchange. The Consumer Financial Protection Bureau is subjected to the Congressional appropriations process.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Luetkemeyer, Huizenga, Hayworth, Schweikert; Clay, Maloney, and Green.

Also present: Representatives Garrett and Ellison.

Chairman PAUL. This hearing will come to order.

Without objection, I ask unanimous consent that those nonsubcommittee members who are present be recognized if they wish to give opening statements or ask questions.

I now recognize myself for 5 minutes for an opening statement.

First, I want to thank our two colleagues for being here today, and they will be recognized shortly.

But as many Members know, the subject of the Federal Reserve (the Fed) and monetary policy is something I have been interested in for a long time, believing that it has a great deal of significance with regards to a healthy economy. Today, we will be discussing the various proposals to address the subject of some of the shortcomings of the monetary system.

I think what has happened here in these last 5 years is that it has been recognized by many that monetary policy and the Federal Reserve has a lot to do with the creation of some of our problems and their shortcomings when it comes to solving these problems. The Federal Reserve has been around for almost 100 years—100 years next year—and, of course, it has gone generally under the radar. Not too many people have talked precisely, because it was always said that it should not be interfered with by the Executive Branch or the Legislative Branch.

But lately, there has been more concern. With the help of Congressman Frank, we were able to get some transparency of the Fed, and he was obviously quite helpful in moving that along. From my viewpoint, we still have more to do on that, but it is very clear whether we decide exactly what constitutional money is and how it comes about. I don't think many people reject the idea that the Congress does have responsibility of oversight and figuring out exactly how to handle that.

So with the crisis that came about in the last 5 years ago, I think an attitude changed dramatically. I think this is the reason that we had strong support in the last session for auditing the Fed and more information has come out because of the lawsuits.

But the way I see the monetary policy, and I think it is generally neglected, is most people realize how big the economy is and they know by supply and demand of all products and goods and services and labor—but, generally, they don't talk a whole lot about the other half of the equation, and that is the monetary issue. The monetary issues are one half of all the transactions. So to duck the issue and pretend it is not important, I think, has been a mistake.

I personally believe that over these many decades, the Federal Reserve has gotten a free pass because if we had good times, if they were able to stimulate the economy and have easy credit, and we had good times, they got the credit. Then if the predictable slumps would arrive and something had to be done, Congress would generally act and the Federal Reserve would act, and they would get the credit for getting us out of this slump.

But I think that has changed in the last 5 years because of the seriousness of the crisis, how global it is, and how—one of the consequences has been this excessive debt, and then the bailing out that occurred.

And so what the Congress did on the bailouts was significant but minor compared to how much the Federal Reserve was able to do. For this reason, so many people want to know a lot more about what is going on.

Not only do we want to know about policy—and a lot will be discussed today about the particular policies and how to guide that policy—but one thing we should not forget about is the nature of money. If we are trying to describe how we manage a monetary system, it seems to be most difficult, in my view—you have to be able to define money, and define the dollar, which has not been done for a long, long time. We use the Federal Reserve note as the unit of

account, but there is no legal definition of a Federal Reserve note, and that is a pledge to pay something.

So a note being something precise, and then you have to have management and it doesn't work well, then we think, we just need more regulations and everything will work out smoothly. I have a lot of reservations about that because I think we have a lot of inflation, we have a lot of instability in prices. And even when the reports come out that the prices are rather stable, they seem to ignore the fact that the cost of living for many is going up significantly. The price of energy goes up, the price of medical care goes up, the price of education goes up.

So even when the CPI and the PPI might not be revealing what is happening, there still is a lot of destruction of the value of money. For this reason, now, we have been in a decade or so where the real wages have not been able to keep up, which really is the bottom line, I believe—the unemployment factor and keeping up with the cost of living and keeping up with real wages.

So I am very pleased to have the various Members here today, as well as the second panel of witnesses to discuss what I consider to be a very, very important issue.

Now, I would like to yield 5 minutes to Mr. Clay.

Mr. CLAY. Thank you, Chairman Paul, especially for holding this hearing on improving the Federal Reserve System and examining today six pieces of legislation to reform the Federal Reserve System. One piece to abolish the Federal Reserve, sponsored by our chairman, Mr. Paul, and another one, as sponsored by Mr. Kucinich, would make the Federal Reserve an arm of the Treasury.

The other bills would make various changes either to the mandate or to the Federal Open Market Committee's governance. As ranking member of this subcommittee, I want to focus on the Federal Reserve's dual mandate of maintaining stable prices and full employment for monetary policy.

The Full Employment and Balanced Growth Act of 1978, better known as the Humphrey-Hawkins Act, set four benchmarks for the economy: full employment; growth and production; price stability; and the balance of trade and budget.

To monitor progress towards these goals, the Full Employment and Balanced Growth Act of 1978 mandated that the Board of Governors of the Federal Reserve System present semiannual reports to Congress on the state of the U.S. economy and the Nation's financial welfare. The Humphrey-Hawkins Act charges the Federal Reserve

with a dual mandate, both maintaining stable prices and full employment.

Currently, the unemployment rate is 8.1 percent. Since President Obama took office in January of 2009, the unemployment rate has gone from 7.8 percent around the Inauguration, to 10 percent as the impact of the financial crisis spread, to 8.1 percent today. I do believe that the U.S. economy is heading in the right direction. With the proper nudge, it could probably improve even more.

As of March, the consumer price index was 2.7 percent over the past year, a decline from February of this year of 2.9 percent. During the same period, the energy index had risen 4.6 percent, and the food index had increased 3.3 percent.

Both increases are smaller than last month. In contrast, the year change in the index for all items, less food and energy, which was 2.2 percent in February, edged up to 2.3 percent in March.

All of these factors play a very important role in getting America back to economic growth and prosperity, and I look forward to the witnesses' testimony.

Mr. Chairman, I yield back.

Chairman PAUL. I thank the gentleman.

Now, I yield 5 minutes to Dr. Hayworth.

Dr. HAYWORTH. Thank you, Mr. Chairman. It is with great pleasure that I anticipate the testimony from our distinguished colleagues, and we have a great challenge before us because obviously a central bank—our central bank, the Federal Reserve, has—we have cherished its independence in implementing monetary policy and yet at the same time, obviously the Congress has to establish monetary goals and hold the Federal Reserve responsible, and we have obviously, as a Congress, the express power to coin money and regulate the value thereof.

There is this dynamic tension, obviously, between the independence of the Fed and its accountability to us. So it is going to be very interesting to hear your proposals as to how we make that—reach that balance.

But in specific, with regard to the dual mandate, Chairman Bernanke has said many times that he does not perceive—in effect, he said he does not perceive an inherent conflict, if you will, in the dual mandate because, as I have understood him, serving the goal of price stability clearly works favorably toward having an economy that will work and that will enhance the employment prospects for all those who need work.

Yet we see that his warning, which he has expressed very diplomatically regarding our fiscal policy, having implications for monetary policy that it cannot overcome forever and ever by accommodation, we see that his warnings seem to be borne out in the fact that several years of accommodating monetary policy have not resulted in the kind of enhancement in our economic statistics that we would like to see.

So I look forward to your testimony and thank you for all the work that you have done on this very crucial topic. Thank you, Mr. Chairman. I yield back.

Chairman PAUL. I thank the gentlelady.

Mr. CLAY. Mr. Chairman, if I may, I would like to ask unanimous consent that the gentleman from Minnesota, Mr. Ellison, be allowed to sit in.

Chairman PAUL. We already asked for that unanimous consent, but without objection, it is so ordered.

Now, if the gentleman from Minnesota would like to make an opening statement, he can do that right now.

Mr. CLAY. Thank you.

Mr. ELLISON. Very briefly, Mr. Chairman, thank you for your chance to make an opening statement and to address this really important topic.

I really don't have so much of a statement as I have some questions that I would like to just put out on the table for discussion, and I hope we can resolve them during the course of our afternoon.

Is the dual mandate the problem? The fact is, to the degree that we have had challenges to monetary policy, has the dual mandate been responsible? If not, why the focus? I am curious, if anybody could point to an instance in the last 30, 40 years when the dual mandate required the Fed to downplay their preferred anti-inflation approach to concern about unemployment?

It seems to me that these are perfect. The dual mandate has been working. If it hasn't, I would be curious to know when it has let us down and when the dual mandate has been the cause of flawed monetary policy.

I am also curious to know, how have we have been doing with the dual mandate? Have we really been pursuing both, and to the degree that the statute would call for? Has unemployment gotten a short shrift?

I am concerned that we live in a time when we are getting used to an unemployment rate of about 8 percent, and that might be all we can ever aspire to get down to. I think this is a national disgrace and

an outrage, and I think our country needs to do much more to pursue both prongs of the dual mandate. I am concerned that unemployment has not been getting its full due.

So these are some questions that I have, some concerns that I would like to see addressed. And even though I am not on the subcommittee, I am grateful to be allowed to be on it today, and I hope that we can explore these important topics. Thank you, Mr. Chairman. I yield back.

Chairman PAUL. I thank the gentleman.

I now yield time to Mr. Schweikert from Arizona for an opening statement.

Mr. SCHWEIKERT. Thank you, Mr. Chairman, I will try to do this very quickly.

Since being placed on your subcommittee, this has actually become an area of great interest to me. One of the sides you are trying to get your head around—and as we walk through the pieces of legislation—is what the Fed does in regard to monetary policy. Has this, as part of unintended or intended consequences, allowed those of us here in Congress to engage in really bad fiscal policy? In many ways, is it an institution through its actions that allows us to get away with bad acts?

And secondly, even though this is one off, but in the discussions—the Fed is heading, their holdings are heading towards what, \$2.9 trillion? What is the plan? At some point, when do they move back to normalization of their portfolio, and what are the potential cascade effects when moving back to a normalized portfolio?

With that, I yield back.

Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman. Now, I want to move to our first panel.

[PANEL I]

First, I want to introduce Representative Kevin Brady from Texas, an 8-term Republican Congressman representing the Eighth District. He is the sponsor of H.R. 4180, the Sound Dollar Act of 2012. He is also the vice chairman of the Joint Economic Committee.

Also with us today is the ranking member of the Financial Services Committee, Representative Barney Frank, a 16-term Democratic Congressman representing the Fourth District of Massachusetts. He is the sponsor of H.R. 3428.

I will now recognize Congressman Brady for his opening statement.

**STATEMENT OF THE HONORABLE KEVIN BRADY¹⁰²
REPRESENTATIVE, 8TH DISTRICT OF TX
U.S. HOUSE OF REPRESENTATIVES**

Mr. BRADY. Thank you, Chairman Paul, Ranking Member Clay, and members of the subcommittee. Before discussing the Sound Dollar Act, I would like to acknowledge the work that Dr. Paul has done on this subcommittee. He is a long-time former member of the Joint Economic Committee who has worked to bring sound dollars to the forefront of the public debate.

Inflation has been called many things, a hidden tax, a government-sponsored reduction in workers' paychecks or, as Dr. Paul often says, theft, and more and more Americans understand the absurdity of a monetary policy that ultimately devalues our own currency.

We agree on three key points: preserving the value of the dollar is essential to economic growth and prosperity in America; the Federal Government must not be allowed to monetize its debt; and our financial system should serve the interests of all Americans, not just the interests of Washington and Wall Street.

Again, I would like to thank the chairman for your steadfast commitment to bringing those issues to the forefront of the public debate.

I am pleased to testify on behalf of the Sound Dollar Act. I want to thank the members of this subcommittee who have already co-sponsored this important legislation: Mr. Jones; Mr. Lucas; Mr. Luetkemeyer; Mr. Huizenga; and Mr. Garrett.

The problem today is that according to some, the 1800s was the British century, the 1900s was the American century, and the 2000s, the 21st Century, may well be China's century. Well, not so fast. But, for America to continue its preeminence in the global economy, it is important that we get the role of the Federal Reserve right.

As we know, the Federal Reserve veered from the successful rules-based policies that brought the great moderation of the 1980s and the 1990s and instead, adopted an interventionist approach and helped to inflate the unsustainable housing bubble and led ultimately to a global economic crisis during the last decade. This interventionist approach, justified by the unemployment half of the dual mandate, continues today, and I believe it is a contributing factor to this anemic recovery.

¹⁰² [The prepared statement of Representative Brady can be found on page 670.]

The Federal Reserve's interventionist policies are felt by the single mom who goes to the grocery store and finds her paycheck doesn't go as far because inflation is robbing her of the value of the hard-earned dollar, and she also finds the same thing as she fills her gas tank.

These interventionist policies are also felt by the unemployed. The uncertainty generated by the Fed's unprecedented intervention is discouraging business investment in new buildings, equipment, and software, which drives job creation in America.

If you look at the fact of the numbers, government spending is where it was before the recession, and consumer spending is where it was before the recession, but business investment is not and the Fed has played a role in that.

For America to remain the world's leading economy in the 21st Century, Congress must give the Fed a single mandate for price stability, ensure that it is independent from political pressure, and hold it accountable for results.

Critics charge that focusing on a sound dollar implies the Fed will ignore the unemployment needs of America. They are wrong. America can only maximize our real output in employment with long-term price stability. Protecting the purchasing power of the dollar over time provides the strongest foundation for lasting economic growth and job creation.

Critics also react as if a single mandate is a shocking proposal, because we know the United States won World War II, enjoyed 3 decades of prosperity, and put a man on the moon without the dual mandate. It is not a fundamental part of our constitutional fabric.

It is a 1977 policy directive based on discredited Phillips curves and Congress can change it.

While it may be politically appealing, the current dual mandate asks the Fed to do something that it simply cannot do. Chairman Ben Bernanke has testified before JEC that in the long run, the only thing the Fed can control is inflation. In the long run, low inflation is the best thing we can do for growth. In a Federal Open Market Committee statement, he said basically the same thing, that the maximum level of employment is largely determined by nonmonetary factors. Further, using monetary policy as a short-term tool—the speed growth may actually harm the economy in the long term.

Let me skip to the end and make the point here that among other provisions in the Sound Dollar Act, we grant a permanent vote to all the regional Federal Reserve bank presidents. Because as important as important as New York and Washington are, there is much more

to America's economy, and therefore, FMC should better reflect our geographic diversity.

We require the Fed for the first time to articulate this lender of last resort policy in order to reduce uncertainty and instance of moral hazard and speed the release of the transcripts from 5 years to 3 years to create more timely information and transparency, and we make sure the new Consumer Financial Protection Bureau is accountable to hardworking Americans by funding it the same way as other agencies do during Congress.

Mr. Chairman, I have included my full testimony for the record as well.

Chairman PAUL. I thank the gentleman.

Now, Mr. Frank is recognized.

**STATEMENT OF THE HONORABLE BARNEY FRANK¹⁰³
RANKING MEMBER OF THE FINANCIAL SERVICES COMMITTEE
AND REPRESENTATIVE 4th DISTRICT OF MASSACHUSETTS
US HOUSE OF REPRESENTATIVES**

Mr. FRANK. Thank you, Mr. Chairman. I appreciate your acknowledgment of the work we did together. It actually was work, as you know, that began with one of your Texas colleagues, Mr. Gonzalez, who works down with us who was a pioneer in forcing the Federal Reserve to be open. He made them release information that they claimed didn't exist. It was kind of a magical feat.

But one of the things that ought to be noted, in every instance, beginning with Mr. Gonzalez and maybe before I was here and the work we did, as the information flow has increased, it has been beneficial. There have been none of the negative effects on people they are worried about.

At the same time, it ought to be clear that the release of all this information has, I think, helped dispel the notion that there were nefarious things going on. We have gotten a lot of information out under the legislation we have. There will be no transactions the Federal Reserve engages in with private companies that won't, at some point, be made public. I think that has reflected well on what they have done and again, suggestions that there was something untoward going on haven't been proven true.

I filed legislation to remove the regional presidents from the voting power that they have. It was pointed out to me that that would have a problem of diminishing geographic representation. So I submitted an amended version that would have appointees to the board

¹⁰³ [Representative Frank did not submit a prepared statement.]

wanted by the President, confirmed by the Senate from the various regions.

The problem you have now is this: The regional Federal bank presidents are picked by bankers. It is an extraordinary power that the FOMC has, and I think everyone agrees. And I cannot think of another element in American government where there is formal, binding, legal power given to the representatives of the industry that is in question.

I don't think the American people are unaware of the undemocratic nature of this, to have bankers pick the regional president, who, in turn, picks boards which are primarily from industry and with the financial industry dominate them. The statistics show that. To have them setting the policy seems to me to be greatly mistaken. So I think you can get to a presidential set of appointments without diminishing geographic diversity, and that is what we have done.

Beyond that, I do feel somewhat compelled to come to the defense of the Bush Administration. The single most important economic appointment made by President Bush was, of course, Chairman Bernanke.

Mr. Bernanke was his economic adviser, chairman, and then he became head of the Fed. And frankly, I think people have been unfairly critical of Mr. Bernanke. He obviously has been reappointed and reconfirmed by the Senate.

But once again, there have been predictions that haven't been borne out. The interventions by the Fed to deal with the problems that we had from the financial crisis have not led to inflation. Inflation is not at the point where it has become a serious problem for people.

The loans that they have made, the intervention they have made, have actually made money for the Federal Government; they have not added to the deficit. And as I said, the openness shows they haven't caused problems in terms of any kind of conflict of interest.

Now, we did make some changes in the legislation that was passed. We mandated much more openness. We repealed that part of the law which said the Fed could give money whenever it thought it was important to do so if they thought they might get paid back, and of course, the best example of that was AIG, a unilateral intervention by the Federal Reserve in 2008. We still are owed some money. We have replaced that with some other ways to go.

Finally, I think it would be a grave error to repeal the dual mandate. Yes, it is true that in the long run, monetary policy means what people have said. But as we know, the fact that something means

something in the long run does not mean that is the only run, that there are not times in the shorter run and the intermediate run when a balance is necessary.

And I would say this: I can make a procedural point. I have a bill dealing with the presidents. I would be content to see that put aside because I think we have a central issue here in the bill that my colleague from Texas has put forward, and I will agree with him on one point, when he said that the dual mandate is not in the Constitution. I agree, even with the Federal Reserve.

We made up, in about 1912—it wasn't in the Constitution. In fact, Alexander Hamilton tried to put it in there, and got his brains beat out a couple of time.

But the question is this: There are very big differences, and to some extent, they are partisan. Partisan differences can be carried too far and they can become embittering, but they are also at the heart of democracy. It is entirely legitimate to have contending groups with different views, and there is clearly a major party difference in that those of us on the Democratic side think that unemployment is a very serious problem that deserves being addressed explicitly.

And so I would urge you, Mr. Chairman, let's take the bill of the gentleman from Texas. Let's put it out there, let's have a committee markup. Let's bring it out, and let's debate that one before the election. Let's have it be a stealth presence to the American people to take away the concern with employment after the election.

Chairman PAUL. I thank the gentleman.

I thank both Members for their opening statements.

I ask unanimous consent to include in the record written statements from the sponsors of the legislation being considered by the subcommittee today. Without objection, it is so ordered.

[PANEL I: QUESTIONS & ANSWERS]

I will now yield myself 5 minutes for questions. The first question I have is for Congressman Brady, and I love the title of your bill, the Sound Dollar Act. That is something I think is so important, but it seems to get a sound dollar, we need to have something we can define. Do you have a definition in order to give us an idea what our goals are, divorced, maybe, from the policy? How do we define the unit of account, because it was precisely defined for a good many years.

As a matter of fact, up until 1971 in a relative way it always had a precise definition. So do you have, in your own mind, a definition for a sound dollar?

Mr. BRADY. I do, in my mind. We didn't include it in the legislation. Right now, the Fed has identified a 2 percent inflation, split inflation target, which seems reasonable over time. But the truth of the matter is we want a rules-based inflation targeting.

We want the Fed to stop, the go-stop policies, the interventionist policies and to focus on staying within the lines, both on inflation and deflation. Your point that is the strongest foundation for economic growth.

Mr. Frank likes to point out this is an either/or. It is not. The Fed does not do and cannot do a good job at job creation, as the chairman and the members agree. But over time, in fact, preserving the purchasing power of the dollar does create the strongest economy for the United States, or at least the opportunity for it, the strongest job creation so, no, there is not an explicit target in the bill itself.

Chairman PAUL. So in a way, you defined the dollar by achieving a price level or price stability?

Mr. BRADY. We don't choose a strong dollar or a weak dollar, a sound one.

Chairman PAUL. Consider that there are many free market economists who don't concentrate on that. They, as a matter of fact, want a flexible pricing level, not a fixed pricing level.

For instance, how would this have been interpreted, or how would the monetary policy have been altered, say, in the 1920s because a lot of people say that there is no inflation because prices are relatively stable because productivity goes up. So if prices are relatively stable and due to productivity, but then there still are distortions in the stock market, say the stock market that, of course, led to the 1930s, can't you be deceived if you concentrate on prices rather than looking at the total picture of the amount of investment?

I know you did mention about not monetizing debt, so how would you adjust for the fact that the price level doesn't give you the information because even today, a lot of prices, in spite of the monetary inflation, some prices are going down like in electronics. At the same time, the cost of an education skyrockets. So how would you adjust for that?

Mr. BRADY. Thank you. One, I have, long ago, learned never to discuss Fed history with you, Dr. Paul, since you are as knowledgeable as anyone on the planet about it.

But looking a little closer in history the last 40 years, what we saw in the 1970s was a great lesson. We were told we couldn't have high unemployment and high inflation at the same time; it couldn't happen. As we know, not only did it happen, but the Fed's inter-

vention go-stop, go-stop actually created a very volatile economy with very deep and frequent recessions.

When the Fed focused back on a single mandate of price stability in 1979, that changed. And for almost 20 years, we had not only strong economic growth, but we had very short, very shallow recessions. So we saw the benefits of that focus on price stability.

In the 2000s, we saw the Fed keep interest rates too low for too long. It helped to inflate a credit-fueled housing bubble and helped create a global financial crisis; and, to sort of wrap that up to your immediate question, within the Sound Dollar Act, not only do we focus on rules-based inflation targeting, but we require the Fed to monitor and report back on these potential asset bubbles, to monitor the price of gold, other commodities, equities, bonds, commercial real estate, agriculture, real estate industrial, real estate as well—and we don't force them to act on that because that circumstance will vary.

But we want to ensure to your point that not just the price index of the goods and services, but those potential asset bubbles would not only be monitored but reported to you and to me and to the public as well.

Chairman PAUL. I have a question for Mr. Frank, but I am out of time. I think there is going to be a second round, so hopefully I can get my question asked. I now yield to Mr. Clay.

Mr. CLAY. Thank you so much, Mr. Chairman.

Let me ask both witnesses, currently, the unemployment rate, according to the Labor Department, is 8.1 percent. What can the Federal Reserve and Congress do to put Americans back to work? Mr. Brady, do you have any thoughts or views on that?

Mr. BRADY. I do. One, I think the Fed is trying to do too much. They are trying to make up for, I think, some failed economic policies, in my view, from the White House. And I also believe they are sort of like the doctor who gives you a pill every 5 minutes and say how are you feeling? Take another one. How are you feeling? Take another one, as a result of actually creating uncertainty.

I believe the more the Fed does, the less responsibility Congress and the White House are taking for getting the right fiscal decisions, getting the right tax policy, to balance regulations, ensuring the right spending levels and entitlement reforms that actually create that uncertainty.

So I really believe as the Fed does more, Congress is doing less, and in the long term, that slows our recovery.

Mr. CLAY. Don't you think that Congress could be doing something now as far as passing a transportation bill, which would be a job starter?

Mr. BRADY. Mr. Chairman, Ranking Member Clay, I think it is important, especially long term to get our transportation policy right. I think that would be helpful. I also think taking off the table this discussion of higher taxes, just a tsunami of regulations hitting these businesses.

The President's health care plan, in my view, is right now a real deterrent to new job creation in America. So, yes, there are a lot of things Congress can do right. And there is a reason the Fed said in the end, we are not setting an employment target, because in the end we can't control employment.

Mr. CLAY. Mr. Frank, what do you think the Federal Reserve and Congress could do to put Americans—

Mr. FRANK. The Federal Reserve cannot do a great deal more. I think they have been very helpful, and the policy that I think Mr. Brady still would prohibit in the future, we would have been worse off if it hadn't have been for them.

I think the interventions the Fed has taken in two levels have been helpful to us, first of all in helping to provide the funding that has helped our economy. Secondly, and I think this is a real point of difference between the parties, I was surprised by it, I think the role of the Federal Government, is the Federal Reserve has been working with the European Central Bank, has been helpful in avoiding the kind of serious downturns in Europe which will have negative effects on us.

I think the Federal Reserve—

Chairman PAUL. Check your microphone.

Mr. FRANK. Thank you, Mr. Chairman. With the European Central Bank, have been very helpful and to have prevented the Federal Reserve from that kind of cooperation, increasing the chances of trouble in Europe would have been, I think, a very grave error.

Secondly, as far as Congress is concerned, we have the major activity. We should be following a two-step procedure, long-term deficit reduction with some shorter-term stimulus. The fact is that the employment rate is higher than it would have been if we had not forced, by a variety of fiscal policies, State and local governments to fire 600,000-plus teachers and firefighters and public works employees and police officers.

I think that has been a very, very grave error. They have been hurt because many of them are financed primarily by property taxes.

Property values went down. I think forcing those reductions by inappropriate Federal policy is a great mistake. Yes, it is important for us to reduce a deficit long term.

Unlike many of my Republican colleagues who think the President wants to get out of Afghanistan too quickly, I think he wants to stay there too long. I think there is a great deal of room for reduction in the military budget.

I think that we should be—and we will be fighting about this in the budget. Do we cut the military or restrain the military or do we cut our Medicare and Medicaid? So I would be for a short-term increase in spending and stimulus at the Federal level here, including primarily to the States. You give money to the States, and they are going to hire some people who, in turn, will be spending money.

As for taxes, I heard the argument that higher taxes were going to kill the economy in 1993 when I voted for the tax proposal put forward by President Clinton. And in the years afterward, we had a very good economy. I don't have to claim that the higher taxes, and marginal rate increase, a fairly small amount, caused that good economy, but it clearly didn't interfere with it.

I think if you talk about people who are making more than a million dollars a year, that for every thousand dollars they make over that, tax them \$56, it is inconceivable to me, and I think it has been proven by economic history, that it has no negative effect and it allows us to do a long-term deficit reduction with some short-term help for the economy.

Mr. CLAY. Thank you so much.

Chairman PAUL. I yield 5 minutes to Mr. Schweikert from Arizona.

Mr. SCHWEIKERT. Mr. Chairman, would you like me to yield you a couple of minutes to finish your previous question?

Chairman PAUL. Pardon me?

Mr. SCHWEIKERT. Would you like me to yield you a couple of minutes to finish where you are at?

Chairman PAUL. Oh, thank you, yes, absolutely, thank you very much.

Mr. BRADY. Mr. Chairman, I would rather be grilled by Mr. Schweikert than yourself, if that is okay.

Chairman PAUL. No, I saved this one for the ranking member.

Mr. BRADY. Okay, go ahead.

Chairman PAUL. The big argument is, dual mandate or one mandate. I am pretty much of a skeptic on what we get from the Fed, and I think they generally can find an excuse to do whatever they want to

do, so I know that is an important argument, and it is going to go on for a while. But I am not hopeful that, in itself, will solve the problem, because I think they are rather independent in what they do.

And I want to ask—I asked you a question, Mr. Frank, about the appointees, whether they are approved by the Senate or not, because a lot of people that I talked to are very interested in this subject. They are very concerned about the fact that this isn't a government operation. This is a private operation and they don't like the private.

Now, do you think you fully answer that, or do you partially answer the questions by saying people have to be approved by the Senate? Does this become less private and less sinister? Or how would you, frankly—

Mr. FRANK. Actually, I wouldn't say that, sir. I wouldn't say "sinister." I don't think the people on the Federal Reserve regional boards who are predominantly from the financial industry in terms of influence, when they pick a president, who in turn picks the new people, it is not sinister. They are people of good will, but it has an obvious bias.

Yes, I diminish the sector, which is the private sector, by not having a vote.

There is another thing we can do, Mr. Chairman. You were absent—understandably, you had a couple of other things on your mind when we voted here during the reconciliation markup on whether or not to subject the Federal Reserve to the appropriations process, not monetary policy.

But there was a proposal, as you know, to subject the Consumer Financial Protection Bureau to the appropriations process. It would seem to be another step that could be taken. I am not for it myself, but for those who are worried, I would think consistency would say, why not subject the Federal Reserve, including the regional entities to the appropriations process?

So I think that if you said that—now, there is an alternative in terms of the regional presidents, which would have them Senate-confirmed, I think that might be worse. So, yes, I think I partially—I diminish the private sector element. I think except for people who are concerned about it more than me, would subject them to appropriations.

Chairman PAUL. I am sorry, I don't want to use all of Congressman Schweikert's time. I yield back my time to David.

Mr. FRANK. You aren't going to comment on the appropriations process, Mr. Chairman?

Chairman PAUL. Tomorrow.

Mr. SCHWEIKERT. He is just sorry he wasn't here. Thank you, Mr. Chairman.

One of the things I have been trying to get my head around is with the dual mandate, and this is for both of our honored Members here, does it ultimately, do you think, because—okay, here we are chasing inflation, here we are chasing unemployment, but through the back door, does that also allow us, as Members of Congress, often to avoid tough decisions, whether they be on, particularly on fiscal policy?

Mr. FRANK. I don't see how it does. First of all, I reject the notion that we, as elected officials, should be blaming the Fed, oh, it is the Fed's fault. No, it is our fault if we don't step up.

To be honest, I don't think, in fairness to us, that we are avoiding those. The problem is we have very different views about how to do it. That is democracy. Some people want to raise taxes on the wealthy and restrain the military and make some domestic restraints. Others want to do other things. I literally don't know anybody who doesn't have views on this. But, no, I don't see the fact that there is a responsibility somewhere else in any way allows us to avoid anything. Our responsibility is the same.

Mr. SCHWEIKERT. Ranking Member Frank, thank you. I did say one truism and that is ultimately, it is our responsibility.

Mr. FRANK. Yes.

Mr. SCHWEIKERT. And in my, what, 16 months here, I find policy-wise, we do lots of trying to push it off to regulators and others. You do the work and that way we have sort of this plausible deniability.

Mr. FRANK. But let me just say, I think that is especially the case with regard to military activity. In my 32 years here, when I have seen, I said, get involved in military activity without congressional authorization, it has been not been so much executive overreach as congressional ducking.

Mr. SCHWEIKERT. Okay. I am going actually agree with you on that one.

Mr. BRADY. The answer is yes, absolutely. As the Fed tries to do more, Congress, frankly, is using that and the White House as an excuse not to take the key steps necessary to create the business climate for recovery.

If, in fact, the dual mandate is the right answer, and the Fed is in charge of the economy, it is certainly not doing a good job—the weakest recovery since the Great Depression, lowest number of workers in the workforce, we, despite the stimulus, the bailouts, auto bailout, housing bailout, stimulus to Cash for Clunkers, there are

actually fewer Americans working today than when President Obama took office. At the end of the day, it is our responsibility.

Mr. SCHWEIKERT. Mr. Chairman, thank you for yielding back to me.

Chairman PAUL. I thank the gentleman.

I now yield 5 minutes to Congresswoman Maloney from New York.

Mrs. MALONEY. Thank you very much, and thank you for calling this hearing.

I would like to ask Mr. Brady to respond to a statement from Alan Blinder and Mark Zandi. In their paper of 2010, they argued that the Federal Reserve's actions in the area of monetary policy during the economic crisis were more powerful and effective than anything that Congress did fiscally through the stimulus, and I would argue that the Fed's pursuit of the dual mandate contributed to avoiding an all-out economic collapse and helped fuel our economy.

So I would specifically like to ask my colleague, can you cite any example of how the dual mandate in any way hindered the recovery? Most economists believe that it was helpful in the recovery.

Mr. BRADY. I think that there are a couple of key issues here. One, the Fed's actions in the mid-2000s, keeping interest rates too low for too long helped bring about the crisis in which they later intervened.

Secondly, I do think—

Mrs. MALONEY. But that happened during Chairman Greenspan's days.

Mr. BRADY. We are talking the Fed as it is today and its actions over the last 4 decades, truly.

Secondly, I think the Fed—

Mrs. MALONEY. But we are discussing it, just because I want to make sure you are answering the question. On this point, if I could make it clear, what we are looking at now is the recovery, the actions that took place by Chairman Bernanke and others in response, and you were saying the interest rates were too low. Would keeping interest rates high to avoid inflation have been a sensible policy during the crisis when we were looking for recovery in 2008 and 2009?

That is the time that we are looking at, how the dual mandate responded to the economic crisis, and I would argue that it was helpful.

But my question specifically—

Mr. BRADY. I actually wanted to give you a "yes" answer to your question.

Mrs. MALONEY. Oh, really.

Mr. BRADY. During the financial crisis, I think the Fed frankly helped fuel it. Some of the actions they took during the financial crisis truly did calm those waters, but stop there and look at the economic recovery since. In my view, you were pursuing the dual mandate, in some ways for the first time, identifying it as a way to not only intervene, for example, in the housing market and then continuing to intervene as well rather than allowing exiting of that market, continuing to allocate credit around the United States, creating this uncertainty on what will the Fed do next has actually, in my view, hindered the recovery.

So if you look at three points: Did they help fuel the financial crisis? Yes. Were they helpful during it? Yes. Is the recovery on in truth? No.

In my view, we are not at the job levels we should be, in part, because it is Congress' role to set the fiscal policy to create the business climate so recovery can occur.

Mrs. MALONEY. If the Fed had been constrained because they did not have the dual mandate in moderating inflation only, and would the recovery be what we are experiencing now, they were able to keep the—if all they had to do was look at inflation, they would have been raising interest rates.

They lowered them in 2008 and 2009, which was very important because they had the dual mandate. And if they were constrained and moderating only inflation, if that was the only thing they could have looked at, then they wouldn't have been lowering the rates. Having the dual mandate, most economists are arguing, gave them the flexibility to react quickly to the marketplace.

I would also like to hear from the ranking member, Mr. Frank.

Mr. BRADY. At some point, I would like to respond to that, because I think I can shed a little light on it.

Mr. FRANK. First, I want to talk about the comment about the Fed's role in inflating things during the Greenspan years. I agree, but not by keeping interest rates in general down, but by explicitly refusing to follow the mandate this Congress gave the Federal Reserve in 1994 in the Home Ownership and Equity Protection Act.

And in subsequent efforts, many of us did believe that loans were being made imprudently to people who couldn't pay them back.

There were two ways to deal with that. One was, some argued, to deflate the economy as a whole. I think that would have been a mistake. There was an option. It was to use the authority the Fed was given to ban imprudent loans to people who couldn't afford them, and

Mr. Greenspan flatly refused to do that, and lately acknowledged that was an error in front of Mr. Waxman's committee. And then in that period, in 2004 and 2005, some of us on this committee—myself, Mr. Watt, and Mr. Miller—tried to re-legislate that.

So, yes, I do think that there was a problem from the Fed, but it wasn't for not causing a deflation in the economy or less economic activity in general. It was refusing to use a specific tool they were given to stop the bad loans from being made.

Mrs. MALONEY. My time has expired. Thank you.

Chairman PAUL. I thank the gentlewoman.

I now recognize Mr. Luetkemeyer from Missouri for his 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Congressman Brady, thank you for your efforts on this Sound Dollar Act. I really like some of the things that you have in there.

I am just kind of curious, do you believe that we need the Federal Reserve as a lender of last resort? Do we need a lender like that, some entity that can be the entity that puts the finger in the dike when something starts to happen?

Mr. BRADY. The answer is yes, and your question, in some regards, addresses Mrs. Maloney's question, which is under a single mandate, focused on the purchase power of the dollar, could the Fed intervene in times of emergency? The answer is absolutely yes. They would still be the lender of last resort, still provide liquidity to those banks that just have a liquidity problem but are solvent. And, of course, they have the ability to increase or decrease the interest rates to tighten or loosen the money supply.

So they would still be under a single mandate, and have the ability to intervene in very unusual and exigent situations. What they would not be allowed to do is to continue to intervene far beyond that financial crisis which, again, is contributing to the uncertainty today.

Mr. LUETKEMEYER. It would seem that, looking at the last 20, 30 years, their ability to impact our economy is greatly exaggerated on both ends. It would seem to me that they can nibble around the edges on these things, but if they actually had the ability to control unemployment, we wouldn't have the situation we have today.

If they control inflation, I don't think that we would have had some of those situations we have had over the last several years. As long as we have an economy that is rolling along very stable, it seemed like they can tweak it around the edges, but it doesn't appear they can do much more than that. So I really liked your approach here.

One of the questions that I had with regards to title 4 of your bill, with regard to exchange rate responsibility, can you explain just a little bit about that section and why you put it in here and what you want to try to accomplish with that?

Mr. BRADY. Is this dealing with the special drawing rights ending that that slush fund?

Mr. LUETKEMEYER. Yes, the exchange rate policy, bringing in the exchange, to exchange stabilization fund.

Mr. BRADY. We have, unfortunately, over time created, in effect, a slush fund within the Federal Reserve, both from historical— about \$100 billion in there, half of that about from historical dollars here and the other half, more recent. And unfortunately, Mr. Luetkemeyer, what has happened is that both Republican and Democrat Administrations related to the Fed have used that, in effect, to circumvent the power of Congress.

The Clinton Administration used those dollars to provide a bailout to Mexico after Congress rejected it. The current Fed uses the guaranteed money market funds. Those may have been the appropriate efforts, but those decisions should have been made by Congress, not by the Federal Reserve.

So under this bill, we end that as a slush fund. We apply the \$50 billion to reduce the deficit and we, in effect, return the Fed to what the Fed should do and retain for Congress, our constitutional role, to act in those matters of emergency.

Mr. LUETKEMEYER. So what you are trying to do is rein them in and go back to establish principles or mission of what they originally should have been and get it more in line with what most people think the Fed's mission should be?

Mr. BRADY. Yes, sir.

Mr. LUETKEMEYER. Thank you. Congressman Frank, just quickly with regard to the bill that you have, why do you believe that it is important to have—I am kind of curious, all of the Fed members, the appointees versus the Fed regional president is going to replace those with appointees. Why do you think that is important?

Mr. FRANK. First, let me just say one thing in response to your previous question, the biggest power the Federal Reserve had to intervene freely with Section 13.3 of the Federal Reserve Act, which actually came from the early 1930s under the Hoover Administration, and we repealed that in the financial reform bill. So they can no longer do what they did with AIG on an entity-by-entity basis.

Secondly, the chairman asked me did I think it should be less privatized? Yes. I understand the importance of geographical rep-

resentation. I think we should have people who live in the regions be the appointees, but I can't think of a comparable case of formal governmental power, the right to set interest rates, and the impact they can have on regulation where the entity primarily concerned picks its own people.

Mr. LUETKEMEYER. Yes, but you are assuming from your comment there that this is a government entity when it really is a quasi-government—

Mr. FRANK. Oh, I think it should be a government entity.

Mr. LUETKEMEYER. —and has a lot of private implications from its independence. Don't you think it should be more independent in its structure as well?

Mr. FRANK. Independence, independence from the—I think you get independence with 7-year terms and 14-year terms, but I don't think that the financial industry, which really dominates the selection of the regional presidents, should be independent from the whole society in setting the policy which governs it. And, no, I think when you talk about setting interest rates, that is a governmental function, yes.

And I didn't say, by the way, that they don't exist to the extent that they have some local economic functions; they would still be there. I specifically say they shouldn't be voting to set interest rates to the Federal Open Market Committee, and I would be very surprised if someone thought that was not a governmental function.

Mr. LUETKEMEYER. I see my time is up. Thank you, Mr. Chairman.

Chairman PAUL. Thank you. I now recognize Mr. Ellison from Minnesota for his 5 minutes.

Mr. ELLISON. Thank you, Mr. Chairman.

Congressman Frank, could you describe—and you already have alluded to it a little bit—but could you elaborate further on what benefit you see from ensuring greater representation of people of diverse experience on the Federal Reserve's Open Market Committee?

Mr. FRANK. I have a fundamental belief in the electorate ultimately making the decisions, and it is very anomalous. There is nothing comparable.

As a matter of fact, today, with there being some vacancies on the Board of Governors, half the votes, I think, on the Open Market Committee are cast by people, and we did a check of who are the members of the boards? It is a kind of a closed system.

The board members are selected to—with a great input from the presidents—they, in turn, pick the regional presidents, and it is

private sector governance of an important part of what we do. And, again, I am not talking about what they do in their regions and their economic activity.

The bill says they should not vote on monetary policy, and I just don't understand what the rationale is for letting private sector people with the financial industry generally, not in every case, being the predominant influence, pick the people who come to Washington and vote on one of the most important governmental policies. That has been the whole premise of much of what we have been talking about.

Mr. ELLISON. Congressman Frank?

Mr. FRANK. Yes.

Mr. ELLISON. I have some information on the board, by profession.

Mr. FRANK. The regional boards?

Mr. ELLISON. Yes. One person from labor. You have four academics, you have 41 people from banks, and 47 people from other for-profit corporations.

Mr. FRANK. I think that is just a mistake, and it is not that bankers are bad people or others. It is that we generally don't say it is kind of a corporatism. It is kind of let the profession govern itself, and I think that is a mistake when you have a large number from the financial industry, and they tend to be very influential in all of this. There ought to be a broader representation.

Again, in voting on monetary policy, not what is done in terms of regional economic activity. These people come to Washington.

Now I understand people want some geographic diversity. We should do that, but it is very surprising to me, we don't do that for any other Federal agency.

We don't say that the people in the energy industry, or we don't say that votes on labor policy are set by boards where unions are the predominant influence. The President appoints people to the NLRB. A Republican President will appoint people differently than a Democratic President, but they are Presidential appointees subject to Senate confirmation.

And I have picked—half the notes on the NLRB don't come from groups that are dominated by labor unions. That is the analog to the FOMC votes from the presidents.

Mr. ELLISON. Mr. Frank, I have a little time left.

On this issue of more diversity on the board, you just talked about professional diversity, but also, it seems like there has been some lack of ethnic and racial diversity too.

Do you think that including more voices from consumers who are from urban areas, rural areas, people who have dealt with hard-hit neighbors, neighborhoods with foreclosure, do you think some, these kinds of experiences are—

Mr. FRANK. I think that would be good on the boards. But even with that, even if I picked the boards personally, I wouldn't want them voting on Federal Government policy. I do not think that private citizens should pick other private citizens with no intervention from any electoral process. There is no appointment by someone who was elected. There is no confirmation by the Senate. It is really, as I said, anomalous for people who believe in democratic self-governance. And, yes, I would like to have more—better representation on these local boards, but even with that, I would not want them—and by the way, they tend to be sort of self-selected. I wouldn't want them, again, voting to set important national policy. Everybody acknowledges the monetary policy is very important. Some people think it has been too loose. I don't understand the justification for that.

I would say, and I would say again to the chairman, I know he wasn't here when we were voting on it, but you also have this situation about whether or not they should be subject to appropriation.

I think if you had all Presidential appointees and Senate confirmation, that would be okay. But I think others might say, well, gee, shouldn't they be subjected to the appropriations process? But in any case, as I said, I cannot think of a comparable situation where the people in the industry most affected by public policy get to pick a significant number of the formal official policymakers with no intervention by anybody who is elected to anything.

Mr. ELLISON. I yield back

Chairman PAUL. Thank you.

I now recognize the gentleman from New Jersey, Mr. Garrett.

Mr. GARRETT. Thank you, and I will just run down a series of questions. Start at the very beginning.

Mr. Brady, the question I'm not sure I heard the answer to, in my mind, your definition under the bill—I am the cosponsor—of a sound dollar, is that just the language of saying that if we hit our 2 percent inflationary, as opposed to anything else?

Mr. BRADY. It doesn't set an explicit target of 2 percent. It does not.

Mr. GARRETT. Is that something that should be looked at and clarified in the bill before it goes forward?

Mr. BRADY. I am very open to that. I would like to see Congress set that type of target in a rules-based system.

Mr. GARRETT. Does the ranking member have a comment on that point by any chance?

Mr. FRANK. No. You mean to define what is the sound—I don't know how—I would be concerned about how you would do that statutorily. We are in a world where the dollar has several roles. It has a domestic role and an international role. The international role of the dollar is very significant, especially since we are confronting competitors in the world, the People's Republic of China primarily, who use the currency.

Mr. GARRETT. For other purposes.

Mr. FRANK. And I would not want to disable ourselves from dealing with that aspect.

Mr. GARRETT. So that goes to the next question, I guess, for both of you. If you did pass legislation similar to this, how do we know whether they are meeting the standard if we don't set a standard?

And then, secondly, is there a consequence of not meeting the standard we haven't set?

Mr. FRANK. That is a very good question and proves why we shouldn't pass the bill.

Mr. GARRETT. Now, the rest of the story.

Mr. BRADY. Yes, for the rest of the story. I think setting a clear mandate, whether we set the explicit target or not and it is certainly open to that and then holding them accountable to that, I think, is key.

And, Mr. Garrett, one point I would like to make, that going forward, and I think it is a terrible mistake to require all of the Federal Reserve Bank presidents to be appointed and confirmed by the Senate. One, it will further politicize the Federal Reserve Board, including leading to vacancies as we have today, and it will concentrate more power on Wall Street and Washington.

I think it will be less independent as a Fed, because as you know, the regional bank presidents have an independent staff so they can actually not rely just on the chairman's staff, but on their own to assess economic policy.

And then, as you know, finally, the Board of Governors actually approves these regional reserve bank presidents. So we already have accountability within the system.

Mr. GARRETT. I guess I could sit here and wonder, maybe as the chairman does, what our role is under either one of your scenarios. You are saying the reason you don't have that appointment—under the ranking member's position, it would go through Presidential appointment. I can see some benefit to that. But then I can also see

we in Congress if that is all up in the Senate as far as monetary policy, we are sort of left out, except to hear the chairman occasionally come and testify and say, this is what they are doing and we have no standing—

Mr. FRANK. I understand that, but I assume that is what you wanted when you voted not to subject them to the appropriations process—may I respond?

Mr. GARRETT. Reclaiming my time. On that, I just wanted to delve into a little bit more than what we just did in the few minutes that we had there.

Mr. FRANK. I did offer an amendment—which I wasn't for because I wasn't concerned, but you voted against subjecting it to the appropriations process that would seemingly to have dealt with the issue you just raised—

Mr. GARRETT. I am open to the idea.

Mr. FRANK. Open to the idea in the sense that the roof is off. I mean, open to the idea, I think there is going to be very much openness for a very long time.

Mr. GARRETT. We are just trying to do things a little bit differently from the last session where we moved hundreds of pages at a time of a piece of legislation—

Mr. FRANK. I move, Mr. Chairman—

Mr. GARRETT. Reclaiming my time, Ranking Member Frank, you did raise one other question that I thought the chairman would raise in here. You said with regard to the process, and that is the constitutionality of it. And you had made, I think, a good point saying that it would make it perhaps more constitutional if we had the Presidential appointment here that it becomes not in the private sector but more public sector. But it raises the fundamental question that I thought the chairman would raise, which is where is the constitutionality for either one of the proposals that are before here?

Mr. FRANK. First, Mr. Garrett, the suggestion that we rushed things through 2 years ago, I think we had dozens of roll calls, a lot of meetings. I gather you have some concerns about your own vote. But I don't think you should ever be concerned about the process.

Mr. GARRETT. I was never concerned about my own vote, but rather I was concerned about legislation being dropped in at 3 a.m. in a conference committee that we obviously did not have any hearings on. That is not the debate we are having here—

Mr. FRANK. I understand you don't want to talk about your vote against subjecting it to appropriations. Let me say this to the constitutionality—

Mr. GARRETT. I only want to discuss what we are supposed to be discussing here and not the way that things were held in the past. That is part of the reason why we are here today.

Mr. FRANK. I will answer your question. The constitutionality of my provision is what it says in the Constitution, that important government officers should be appointed by the President, subject to confirmation by the Senate. And I think that voting on monetary policy is indisputably an important public policy and ought to be executed by public officers in the constitutional manner.

Mr. GARRETT. Mr. Brady, for the last word, do you care to chime in?

Mr. BRADY. Congress holds the constitutional responsibility for monetary policy. We have, through history, contracted that out to the Federal Reserve Bank with a clear mandate, now, lately, a more muddled mandate. And to make the point, first, I don't think we want to envision a day where 535 Members of Congress are setting monetary policy in America. Second, America is really an outlier here. Of the 47 central banks and monetary authorities around the world, only two give equal weight to unemployment, only two have, in effect, a muddled mandate. The others have set price stability as either the primary or the hierarchically the single mandate for their central authority.

Mr. FRANK. Mr. Chairman, may I have one sentence?

I thought my Republican colleagues were in favor of American exceptionalism.

Mr. BRADY. And I wish we would have dealt with that on Fannie Mae and Freddie Mac years ago. And I do thank Chairman Garrett for his efforts to actually solve the problem—

Mr. FRANK. Would the gentleman yield?

Mr. BRADY. To this crisis—

Mr. FRANK. If the gentleman would yield—

Mr. BRADY. —in history—

Mr. FRANK. The Republicans have been in power since January 2011 and have done zero on Fannie and Freddie. What is holding you back?

Chairman PAUL. I would like to reclaim the Chair's time.

Mr. BRADY. You have been in power.

Mr. GARRETT. I wish that you wouldn't.

Chairman PAUL. But I do. This will conclude the first panel, and I do want to thank our two colleagues for a lively discussion. I appreciate you very much for being here. I now ask the second panel to be seated.

[PANEL II]

I would like to introduce the witnesses on our second panel: Dr. Jeffrey Herbener is the chairman of the Department of Economics at Grove City College; Dr. Peter Klein is associate professor of applied social sciences, and director of the McQuinn Center for Entrepreneurial Leadership at the University of Missouri; Dr. John Taylor is the Mary and Robert Raymond Professor of Economics at Stanford University, and the George P. Schultz Senior Fellow in Economics at the Hoover Institution; Dr. James Galbraith is the Lloyd M. Bentsen, Jr. Chair in Government/Business Relations, and professor of government at the Lyndon B. Johnson School of Public Affairs at the University of Texas at Austin; and Dr. Alice Rivlin is the senior fellow in economic studies at the Brookings Institution and is a former Vice Chair of the Federal Reserve Board of Governors.

Without objection, your written statements will be made a part of the record. You will now each be recognized for a 5-minute summary of your testimony.

And we will begin with Dr. Herbener.

**STATEMENT OF JEFFREY M. HERBENER, PH.D.¹⁰⁴
PROFESSOR OF ECONOMICS
GROVE CITY COLLEGE**

Mr. HERBENER. Chairman Paul, Ranking Member Clay, and distinguished members of the subcommittee, it is an honor to appear before you.

Left to the market, the production of all goods, including money, passes the profit and loss test of socially beneficial production. Like all private enterprises, a gold mining company produces if the revenue from the sale of its output exceeds the cost of buying its inputs. Its production is socially beneficial because the value of inputs in producing the output to satisfy its customers exceeds the value of those inputs in producing other goods to satisfy other customers.

In the market, money production is regulated by profit and loss. Changes in demands bring forth more production. If the demand for money increases, making the value of gold coins rise, then minting companies would increase production to capture the profit. As the supply of gold coins increase, their value would decline, and as the demands for resources increase, their prices would rise. The profit

¹⁰⁴ [The prepared statement of Dr. Herbener can be found on page 680.]

would dissipate and resource allocation into and production of money would be optimal for society at large.

The production of fiat paper money and fiduciary media cannot be regulated by profit and loss. It is always profitable for a central bank to produce more fiat paper money since larger denomination bills have the same production cost as smaller denomination bills. It is always profitable for a commercial bank to issue more fiduciary media through credit creation since the interest it earns on the loan made always exceeds the nominal cost of issuing fiduciary media. Although the production of fiat money and fiduciary media cannot be justified by passing the market test of optimal production, it is claimed that an elastic currency will render an outcome superior to that of a monetary system of commodity money and 100 percent reserve money substitutes.

Let me address three such claims for an elastic currency. First, that it can keep the price level stable. There is no social benefit from a stable price level. Entrepreneurs earn profits and avoid losses by anticipating changes in prices of all goods, including money, and elastic currency makes the entrepreneurial task more difficult by adding another dimension of uncertainty to the purchasing power of money.

Second, it is claimed that an elastic currency can prevent price deflation. There is no social benefit from preventing price deflation. Faced with lower prices for their outputs, entrepreneurs reduce their demands for inputs, and their prices fall also. This leaves profit production and real incomes intact.

Looking at the evidence across 17 countries over 100 years, Andrew Atkinson and Patrick Kehoe in a 2004 American Economic Review article demonstrated that there is no correlation between price deflation and economic downturns.

The third claim for an elastic currency is that it can accelerate economic growth. There is no social benefit from attempting to accelerate economic growth beyond the rate people prefer. Instead of building up the capital structure of the economy more fully, monetary inflation through credit expansion generates the boom-bust cycle. In the research on the performance of the Fed published in Cato Working Papers in 2010, George Selgin, William Lastrapes, and Lawrence White concluded that under the Fed, the economy has suffered more instability than in the decades before the Fed's establishment, and that even its post-World War II performance has not clearly surpassed that of its predecessor, the National Banking System. Economic theory and historical evidence demonstrate that an

elastic currency system confers no benefit on society at large. Instead, it causes financial instability and business cycles.

The Fed should be abolished, and a market monetary system of commodity money and money certificates should be established. A direct route to achieve this end is to convert Federal Reserve Notes into redemption claims for gold with a 100 percent reserve of gold and to redeem the portion of reserve deposits banks hold at the Fed into cash so that banks hold 100 percent cash reserves against their checkable deposits. At that point, production of money and money substitutes should be done by private enterprises under the general laws of commerce. Thank you.

Chairman PAUL. I thank the gentleman.

I now recognize Dr. Klein for his 5-minute opening statement.

**STATEMENT OF PETER G. KLEIN, PH.D.¹⁰⁵
ASSOCIATE PROFESSOR OF APPLIED SOCIAL SCIENCES
AND DIRECTOR OF THE MCQUINN CENTER FOR
ENTREPRENEURIAL LEADERSHIP
UNIVERSITY OF MISSOURI**

Mr. KLEIN. Thank you, Mr. Chairman, and members of the subcommittee for the opportunity to discuss such an important topic.

My testimony analyzes the Fed and the reforms considered today from the perspective of an organizational economist. How does the Federal Reserve system measure up as an organization? Are its objectives, as mandated by current law, achievable and appropriate for a government agency? Are these objectives consistent with a healthy and growing economy? Is the Fed effectively structured, managed, and governed? Do key decisionmakers have the information and the incentives to make good decisions? Are they penalized for making mistakes?

My answers to these questions are very strongly negative. The Fed has been given a task, managing and stabilizing the U.S. economy, that is impossible for any government planning board. The Fed has vast authority and very little accountability. The Fed can take actions that do enormous harm to the U.S. economy.

Since 2008, the Fed has done exactly that. It has pumped money into the financial system at unprecedented rates. It has kept interest rates near zero, thus discouraging prudent behavior among consumers, entrepreneurs, and government actors, while encouraging

¹⁰⁵ [The prepared statement of Dr. Klein can be found on page 693.]

reckless spending and the accumulation of vast public and private debts.

The Fed has done everything it can to prevent the market adjustments needed for recovery from the financial crisis. All of this has happened without oversight, without external checks and balances, and without public discussion and debate. This kind of set-up is a recipe for disaster.

Everything we know about organizations with vast authority and without external checks and balances tells us that they cannot possibly work well.

Industrial planning fails because planners cannot, and should not, pick winners and losers among firms and industries. Likewise, monetary planners lack the incentives and information to make efficient decisions about open market operations, the discount rate, and reserve requirements. The Fed simply does not know the optimal supply of money or the optimal intervention in the banking system. No one does.

Add the problems facing any public bureaucracy—inefficiency, waste, mission creep—and it is increasingly hard to justify giving so much discretion to a single unaccountable independent entity.

Mismanagement of the money supply not only affects the general price level, it also distorts the relative prices of goods and services. This makes it more difficult for entrepreneurs to weigh the costs and benefits of alternative actions, encouraging them to invest in the wrong activities, that is, to make investments that are not consistent with what consumers are willing and able to buy.

Devaluing the currency and raising prices by injecting liquidity into the financial system rewards debtors while punishing savers, just as artificially low interest rates reward some market participants at the expense of others. Instead of winner-picking, we should allow market forces to determine the value of money, the price of loans, the levels of borrowing and saving, and the direction of investment.

I do support eliminating the dual mandate, getting the Fed out of the full employment business. But I would drop the price stability requirement also.

The belief that we need a central bank to fight inflation is based on a misunderstanding of the nature and causes of inflation. Price levels rise because the central bank has created too much money, not because the economy is somehow overheating, needing the government to cool it off. Central banks don't fight inflation; they create it.

Nor do we need a lender of last resort, which protects not mom-and-pop savers and investors but incompetent bank executives and their financial partners.

I agree with Mr. Brady that a discretionary bailout policy encourages moral hazard. But an explicit, transparent, and evenhanded lender-of-last-resort policy has the same result. If you know the government stands ready to bail you out, you will take risks you should not take. Instead, we should allow banks to compete with each other and succeed or fail based on their ability to satisfy their customers.

Reforms such as increasing the number of Fed Governors, shortening their terms, or changing how they are selected are fine but do not get at the root of the problem. Instead, we should replace the old-fashioned central bank with a modern, progressive, market-based alternative, such as a commodity standard or competition among currencies. A market-based system would free entrepreneurs from the unpredictable and seemingly arbitrary whims of government planners, unleashing entrepreneurs to invest, innovate, and grow the economy, not only in the long run, but now when we so desperately need it. Thank you.

Chairman PAUL. Thank you.

I recognize Dr. Taylor for 5 minutes.

**STATEMENT OF JOHN B. TAYLOR, PH.D.¹⁰⁶
MARY & ROBERT RAYMOND PROFESSOR OF ECONOMICS
STANFORD UNIVERSITY
AND GEORGE P. SCHULTZ SENIOR FELLOW IN ECONOMICS
STANFORD'S HOOVER INSTITUTION**

Mr. TAYLOR. Thank you, Mr. Chairman, and Ranking Member Clay for the opportunity and thanks for bringing these important issues for public discussion.

In your opening remarks, Mr. Chairman, you mentioned that we have nearly 100 years of Federal Reserve history to learn from, and it seems to me the lesson is very clear. Highly discretionary policy leads to problems and poor performance. More systematic, rules-based policies, steady-as-you-go policy, leads to far superior performance.

In the Great Depression, the Federal Reserve cut the growth rate of the money supply. That raised unemployment to unprecedented levels.

¹⁰⁶ [The prepared statement of Dr. Taylor can be found on page 707.]

In the 1970s, a discretionary go-stop policy led to double-digit unemployment, eventually double-digit inflation, low economic growth, and double-digit interest rates.

In the 1980s and 1990s, a more focused policy, more systematic, more rules-based, in my view, led to long expansions, low inflation, declining unemployment, and eventually, higher economic growth.

And, unfortunately, more recently, we have moved back to a more interventionist, discretionary policy, much less systematic, and the results have been a major financial crisis, a major recession and now an abysmally low-growth recovery.

So you can look at the details, but it seems to me the evidence is pretty clear that we need to improve the degree to which monetary policy is rules-based rather than discretion.

I think the legislation to change the dual mandate and focus on price stability, which is in Congressman Brady's bill, and also in Congressman Pence's bill, would help in this regard. So many of these interventions have been based on an effort to address unemployment, and the result has been exactly the opposite. It created these discretionary actions, which has been harmful.

So for those who are worried that removing the dual mandate will actually increase unemployment, I think the historical evidence is exactly the opposite. You can look at the 1970s: This highly interventionist policy, very little systematic behavior, led to very high unemployment.

You looked at the period in the 1980s and 1990s was less interventions, less focus, and the Chairman of the Federal Reserve, at that point Paul Volcker, explicitly tried to interpret the dual mandate in a way that focused more on price stability. The results were dramatically better unemployment.

And of course, now you have the Federal Reserve citing the dual mandate more than it has ever had before to justify these interventions.

So I think the evidence is clear, and the idea is this unemployment rate is unacceptable. It is way too high, and I think part of the reason for that is monetary policy.

Now I agree, Mr. Chairman, that the dual mandate is not the whole answer. So I would also encourage the Congress to require that the Federal Reserve go back to the reporting requirements that were removed in 2000. There were requirements that the Fed had explicitly to report its goals for money growth and credit growth. And those were removed for whatever reason. But things like that could be replaced, a requirement that the Federal Reserve explicitly report

its strategy for setting the instruments of policy, whether it is money growth or interest rates, whatever they want to do.

It is their job to determine that strategy, of course, not yours. And in fact, if there is an emergency, and they want to deviate from it, that is their business. But they need to explain why. They need to come back here and say why we deviated from the strategy which we told you we would follow earlier.

There seem to be these kinds of changes in addition to the restrictions that the Federal Reserve not purchase vast quantities of private securities, or the idea that we balance the voting responsibility among all the presidents, not just give special voting responsibility to some of the presidents, I think those reforms in Congressman Brady's bill would also help a lot.

And in general, it seems to me these kinds of reforms go a long way to having the Congress exercise its responsibility for oversight of an independent agency and at the same time not get involved in the day-to-day operations, micromanaging that agency.

Thank you very much, Mr. Chairman.

Chairman PAUL. I thank you.

And I now recognize Dr. Galbraith for his statement.

STATEMENT OF JAMES K. GALBRAITH, PH.D.¹⁰⁷
LLOYD M. BENTSEN, JR. CHAIR
IN GOVERNMENT AND BUSINESS RELATIONS
LYNDON B. JOHNSON SCHOOL OF PUBLIC AFFAIRS
THE UNIVERSITY OF TEXAS AT AUSTIN

Mr. GALBRAITH. Chairman Paul, Ranking Member Clay, it is an honor to be here, especially given that I am a former member of the staff of this committee and I served on the team who drafted the Humphrey-Hawkins Full Employment and Balanced Growth Act.

I wish to speak mainly today in defense of the dual mandate, the plural mandate, the flexible and practical language of present law. That law was drafted at a time of acute theoretical conflict in economics.

And on the staff. I was a young full employment liberal. One of our colleagues, James Pierce, former Federal Reserve Research Director, was a mainstream Keynesian at the time. Two other colleagues, Robert Auerbach and Robert Weintraub, were Chicago monetarists trained by Milton Friedman.

We compromised on language that gave clear reporting transparency and accountability requirements to the Federal Reserve in

¹⁰⁷ [The prepared statement of Dr. Galbraith can be found on page 713.]

the presence of ultimate objectives but that did not impose anyone's theoretical views. Had we done so, I fear the oversight process would have failed long ago, perhaps when mainstream economics adopted the concept of a natural rate of unemployment in the early 1980s, perhaps when classical monetarism and the relationship between money and prices fell apart shortly after that.

Instead, being flexible, the process has survived for over 35 years, even though the theories come and go.

Now price stability is written into current law as an objective of monetary policy. It is the presence of the maximum employment objective, alongside price stability, in my view, that gives the Federal Reserve leeway to pursue inflation targeting at some rate other than zero if it chooses to do that.

Similarly, if in some alternate universe, the Federal Reserve were to pursue a full employment strategy at all costs, the presence of the price stability language would give you legitimate cause to question its policy and the reasoning behind it.

Having price stability alone in the charter would put the Federal Reserve in the position presently occupied by the European Central Bank, a very difficult position, obliged to pretend to ignore unemployment, even as that issue becomes increasingly important in the politics of the region that it is responsible for; obliged to pretend to respect its charter when circumstances dictate that, in fact, it deviate from it; and it would put the Federal Reserve in a perpetually difficult, I think false, position before Congress, really make it very difficult for the Federal Reserve to report forthrightly on what it is doing; and I think it would equally put the Congress in an extremely difficult position as, unlike the European Central Bank, which is an independent entity, the Federal Reserve is not and cannot be independent of Congress. It is a creature of Congress under the Constitution.

I think also that creating a single rigid price stability mandate would bring back the technical difficulties that we experienced in the 1970s and 1980s over the definition of money. The definition of price stability would become similarly problematic. If one looked at the notional definitions of inflation presently in use, I think you would find that the Federal Reserve did not, in fact, violate its price stability mandate in the run up to the great crisis. It would be very hard to know before the fact when it was doing something that was not consonant with that mandate.

Finally, this is a time of ferment in economics, once again, as the 1970s were. The profession fell into complacency before the great

crisis, and the crisis delivered a shock from which economics has not recovered. Issues of the cost of resources, of the as yet I think unfinished project of financial reform, remain unresolved. Unemployment is not going away as many prominent forecasters believed it would have by now. And there are limits to what the Federal Reserve can achieve.

Reasonable price stability, which was the language in the Humphrey-Hawkins preamble, as I recall, is an important objective, but so is full or maximum employment. And I think Congress would be well advised not to commit to either one at the sacrifice of the other.

I do urge Congress to continue to pursue the goals of oversight, accountability, and to probe deeply what the Federal Reserve is doing but within the framework of present law. Thank you very much.

Chairman PAUL. I thank you.

Now, I recognize Dr. Rivlin

**STATEMENT OF ALICE M. RIVLIN, PH.D.¹⁰⁸
SENIOR FELLOW, ECONOMIC STUDIES,
BROOKINGS INSTITUTION AND
FORMER VICE CHAIR, BOARD OF GOVERNORS OF
THE FEDERAL RESERVE SYSTEM**

Ms. RIVLIN. Thank you, Mr. Chairman.

I am happy to have this opportunity to testify before this subcommittee as you consider the diverse set of bills about the Federal Reserve.

I will concentrate my remarks on the dual mandate. I believe that the dual mandate has served the United States well and that it would be a mistake to restrict the Fed's policy actions to fostering stable prices alone.

I would like to make clear at the outset, Mr. Chairman, that I believe in a strong, independent central bank. Without a strong, independent central bank functioning to mitigate economic and financial instability, I believe the United States would have a weaker, far more chaotic economy, and would lose its leadership position in the global economy.

The objective of economic policy, including monetary policy, should be a rising standard of living for most people over the long run. Controlling inflation is a crucial element of the larger objective because high and especially rising inflation is a serious threat to sustained growth.

¹⁰⁸ [The prepared statement of Dr. Rivlin can be found on page 726.]

I believe the dual mandate is simply a reflection of what average citizens ought to expect their central bank to do: Let the economy create as many jobs as possible, but don't let inflation interfere with that job growth.

Economists translate that commonsense exhortation into a monetary policy aimed at keeping the economy as close as possible to its long-run potential growth without seriously overshooting in either direction. This concept is enshrined in Professor Taylor's famous rule.

The problem for the Federal Reserve decisionmakers is that the potential growth is not observable because it depends on trends and productivity growth, which can shift unexpectedly. In the stagflation of the 1970s, hindsight indicates that monetary policy-makers overestimated potential growth and did not tighten soon enough to avoid the acceleration of inflation at the end of the decade.

In the 1990s, when I was at the Fed, we faced a happier version of the same uncertainty. We had unemployment that was very low but no inflation. We held off tightening the presumption, which proved correct, that accelerating productivity growth had raised potential growth and reduced the risk of inflation.

Partly thanks to the Fed, we had a very good decade in the 1990s. We also balanced the budget. The sooner we get back to those conditions, the better.

But the late 1990s also illustrated the inadequacy of the Fed's tool kit in response to asset price bubbles. The dot-com bubble, if the Fed had raised interest rates to deal with the dot-com bubble, I think it would have tipped the economy into recession, punishing workers and companies across the country for no good reason.

Influencing the Federal funds rate through open market operations is simply not an effective way of calming an asset price bubble. We learned that lesson again in the early 2000s.

While we should not have needed a catastrophe to learn this lesson, the Dodd-Frank Act gives the Fed and the Financial Stability Oversight Council responsibility for financial stability and new tools with which to help achieve it.

The dual mandate is not inconsistent with strong emphasis on controlling inflation when appropriate and even with an explicit target for inflation. Indeed, last January, the Fed confirmed a long-run inflation goal of 2 percent.

Operating under the dual mandate, the Fed has successfully controlled inflation for 3 decades. To change the language of the law to imply that the Fed's only concern should be inflation would send a misleading signal to a public rightly concerned with jobs and growth

as well as inflation. It would imply that inflation is a serious current threat to American prosperity, which seems to me unwarranted.

What we need now is a continuation of accommodative monetary policy plus fiscal policy that combines additional investment in long-run growth in jobs with credible long-run action to stabilize the debt.

In short, monetary policy, as executed by the Fed under the dual mandate, has a positive track record and is currently appropriate. I would urge the Congress not to tamper with legislative language that has served us well. Thank you.

[QUESTIONS & ANSWERS]

Chairman PAUL. I thank the panel, and I now yield myself 5 minutes for questioning.

First off, I would like to address my question to Dr. Herbener and Dr. Klein.

Today, with our previous panel and this panel, we have heard a lot about the dual mandate, and it seems like that is what we have spent most of our time on today.

Could you put that in perspective? How crucial is that? How much difference would it make? I know you have a different opinion about the overall picture and the monetary system, but if we are—we are not on the verge of having a commodity standard and restraint on the authorities, but how crucial do you think this debate is, and how much difference does it make whether there is a single or a dual mandate?

Dr. Herbener?

Mr. HERBENER. I don't see too much evidence—

Chairman PAUL. Make sure I can hear you.

Mr. HERBENER. I don't see too much evidence that in the performance of the Fed, the concentration on one wing of the mandate or another has changed their actual performance. So the Fed was in the 1980s concentrating on price stability more than the unemployment mandate, and yet they inflated to the extent of creating the bubble, the stock market bubble of 1987 that burst and gave us a recession in 1990, 1991.

In other eras where they have concentrated more on unemployment, their performance likewise has not been spectacular. It has been somewhat similar, I think. And so, I don't think in practice that the dual mandate has been effective in restraining the Fed's monetary policy or improving it one way or the other.

Chairman PAUL. Dr. Klein, do you have anything to add on that?

Mr. KLEIN. I agree with that.

I would add that if you look at the incentives of the central bank, the central bank always has a stronger incentive to increase, to be accommodative and increase credit rather than to be contractionary. So I would be more concerned about an emphasis on full employment, which sort of encourages the Fed to go in the direction that it wants to go anyway, and I would be less concerned about it, relatively speaking, on an emphasis on price stability, which would tend to constrain the Fed and go against the direction that it naturally wants to go.

Chairman PAUL. Of course, the argument that it didn't restrain them is precisely the reason they like the mandate because it allows them to expand money at will and of course we see this as a problem.

Quick question for Dr. Taylor, you are emphasizing some of these monetary rules, and even more monetary statistics, would you be in favor of the Fed once again issuing a report on the size and growth of M3?

Mr. TAYLOR. I would be in favor of the Fed doing that. I think the more emphasis on money statistics, the better, in my view. They didn't pay enough attention to that.

But I would say from the point of view of the Congress, it seems to me you want the Fed to report on its strategy, not to dictate exactly what the strategy should be. So that is the Fed's job. You come to this hearing and report the strategy explicitly like they did about the M3, which was I think constructive. But it also requires the Congress, this committee, to ask the questions about the strategy. I think that dialogue is very important. I wish we would go back to that.

Chairman PAUL. Dr. Galbraith, I tend to agree with you about the constitutionality of appointments to the Federal Reserve Board. We always have a different opinion about what we should be doing, monetary policy and the Federal Reserve. But where does this authority come from, constitutional authority, since you addressed the Constitution, the constitutional authority to actually emit the bills of credit, which is prohibited by the Constitution, the creation of a fiat monetary system. Where does that authority come from exactly?

Mr. GALBRAITH. I believe, Mr. Chairman, and I would be cautious about tangling with you on this, but the authority for the Federal Reserve Act simply comes from the authority given to Congress to coin money and regulate the value thereof and that the Federal Reserve Act has been a functional piece of American law for over a century now, so it would be a surprise to me if it were, per se, unconstitutional on that ground.

Chairman PAUL. Of course, if there is a prohibition in the Constitution, you can't change the Constitution by the Federal Reserve Act.

But Dr. Rivlin, I think the removal of the report on M3 came after you left the Fed, I am not sure. But why was that dropped?

What would it have harmed us to know a little bit about the broad money supply? It seemed like it emphasizes a point of money growth and many believe still that the true price inflation is a consequence of money growth. Is there any reason that we shouldn't have that figure presented to us? Why was it canceled out?

Ms. RIVLIN. I don't know. I believe that was after I left. But I am always in favor of more information rather than less.

But the emphasis on the monetary aggregates was declining, for a good reason. They weren't stable with respect to anything, and we have had all sorts of different kinds of money created in the last few decades, and the idea that it was mostly checking accounts and savings accounts has just disappeared.

Chairman PAUL. I, of course, would like to see more attention given to the stableness or the definition or explanation or defining what the monetary unit is rather than trying to concentrate on the consequences of an unstable currency. But we don't have much time to get into that, so now I am going to yield 5 minutes to Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman.

Welcome back, Dr. Rivlin.

Dr. Rivlin, at any time during your tenure on the Board of Governors, did the dual mandate interfere with the Board's ability to set monetary policy?

Ms. RIVLIN. No, I don't believe it did, Mr. Clay.

Setting monetary policy is really difficult. And you are always weighing different considerations. But we were very focused, when I was there, on what was happening to productivity growth, which was something of a mystery. We weren't very worried about inflation because it was falling, and so we continued, I think, thinking we were in conjunction with both mandates to keep interest rates relatively low.

Mr. CLAY. And inflation was falling because the economy was robust. It was growing jobs, and that was because the Administration was working with Congress to help the economy along. Is that correct?

Ms. RIVLIN. We had strong growth in the economy. We had a restrictive fiscal policy in that period. We were trying to get back to a balanced budget, which sounds like a fantasy now, and we did it. So

the Fed's job was easier at that moment because the fiscal policy was quite restrictive.

Mr. CLAY. Thank you for that response.

And Dr. Galbraith, as an architect of the dual mandate, can you share with this committee the vision and the need that the two legislative authors had for the dual mandate then, back then, Senator Humphrey and Congressman Hawkins?

Mr. GALBRAITH. Yes, Congressman. I had the privilege of working directly with Congressman Hawkins at that time. Of course, an economic policy mandate was not a new thing for the United States. We had the Full Employment Act of 1945, which stipulated maximum employment production and purchasing power as the goals of United States economic policy for the whole of the government.

The Humphrey-Hawkins Full Employment and Balanced Growth Act sought to modernize and to make a little more ambitious and a little clearer the objective, particularly with respect to employment. And it also ended up clarifying what was meant by purchasing power, that is where the reasonable price stability came into the preamble. So it was a way of broadly specifying economic policy objectives for the entire government. But also with respect to the Federal Reserve, this was the moment that codified what we had set up through H. Con. Res. 133, in 1975, a process of dialogue with the Federal Reserve, regular oversight hearings, which goes on. And the Humphrey-Hawkins Act Federal Reserve provisions placed those into law and set a regular procedure, and that included, of course, as Professor Taylor said, goals for the growth of various monetary aggregates, which over time, as Dr. Rivlin has just said, became less useful because the relationship between those objectives or those statistics and anything you ultimately cared about became much noisier and less reliable.

Mr. CLAY. Thank you for that response.

Dr. Klein, being from Missouri, my home State, let me ask you about something that Americans are concerned about, and that is the rise in gasoline prices at the pump, especially the working class.

What measures could the Federal Reserve take to stabilize the recent rise in gas prices? Any suggestions?

Mr. KLEIN. The price of gasoline and the price of oil fall a little bit outside the mandate of the monetary authority. So certainly rising energy prices is one manifestation of a monetary policy that is overly accommodative. But on the whole, energy prices, especially for oil, gas, and so forth are set primarily in global energy markets over which U.S. policymakers have relatively little control. There are

measures about increasing supply and so on that might be within the purview of Congress or the Executive Branch, but in my view, there is not much that the Federal Reserve System can or should be doing about that.

Mr. CLAY. Thanks for your response.

I yield back.

Chairman PAUL. I now recognize the gentlelady from New York, Dr. Hayworth.

Dr. HAYWORTH. Thank you, Mr. Chairman, and thank you again for holding this hearing and for your leadership on this crucial question.

I would like to ask this question of the panel: Is it fair to say that we probably would not have to debate as vigorously and as urgently as we do, and legitimately so, under these circumstances, the role of the Fed were it not for the fact that the Fed has, as our central bank, had to contend over the decades with an increasingly incontinent Federal fisc? To me, it strikes me that we talk about the mandates for the Fed and the way in which it operates, and again thinking about our conversations with Chairman Bernanke, that so much of what the Fed has felt compelled to do, if you will, I realize I am using a somewhat loose interpretation, has been in response to the fact that we have a Federal Government that fundamentally has continued, and at an accelerating rate over the past few years, to mismanage, if you will, large segments of the economy.

Dr. Klein, perhaps you could start with that, please?

Mr. KLEIN. I certainly think it is the case that the job that is given to the Fed becomes more difficult under the circumstances that you describe. But I am not sure it is right to think of other branches of the Federal Government, the Treasury, Congress and so on, and the Fed as being sort of antagonists, competing against each other or playing off each other.

One of the major functions performed by, in open market operations, is, as has already been discussed earlier this morning, monetizing the debt, so the Fed facilitates government expenditures and government borrowing that otherwise would not be politically feasible if the Fed were not there to monetize the debt.

I think the Fed and the rest of the Federal Government are much more likely to be seen as working hand-in-hand than opposing each other.

Dr. HAYWORTH. Which actually, is exactly what I meant. The Fed has been the government's enabler to a certain extent, the Federal Government's enabler, and that is part of our problem. It is very

difficult to use monetary policy to endlessly accommodate what we have taken on.

Mr. KLEIN. Yes, I agree with that.

Dr. HAYWORTH. Thank you sir. Dr. Herbener?

Mr. HERBENER. Yes, I agree, as well. It creates a certain type of moral hazard to be able to appeal directly to a printing press or to some agency that would monetize debts that are issued. I would be profligate as well, anyone would, relative to not having that kind of accommodation.

Dr. HAYWORTH. Absolutely.

Dr. Taylor. Thank you.

Mr. TAYLOR. Yes. I think, if you hold out your shingle and say you are open for business, then people will come. I think that is what basically has happened. The Federal Reserve has provided what you describe as an alternative to some actions. It bought 77 percent last fiscal year of the debt issued by the government. That is a big, big intervention.

I think monetary policy is itself part of the problem now, given what it has done, but fiscal policy obviously is a problem, as is regulatory policy. So there is a whole gamut of policies. I think each of those should be addressed separately. Monetary policy can be improved and so can fiscal policy and regulatory policy. But the idea of working hand-in-hand, I think, leads to the kind of problems we have seen already. That is why I think questions about the mandate are important.

Dr. HAYWORTH. That indeed is why I myself have become a co-sponsor of Representative Pence's bill, because of that moral hazard issue.

I am eager to hear from Dr. Galbraith and Dr. Rivlin.

Mr. GALBRAITH. I think many of our problems now are due to a disastrous deregulation and desupervision of the financial sector which led to a catastrophic meltdown of that industry and of the solvency of much of the American middle class, and the consequences, the effects that we see in the Federal budget are largely a consequence, not a cause, of that phenomena—tax revenues fall. Unemployment payments go up. Other kinds of stabilizing payments go up. We are much better off actually for having a large Federal Government, a Federal budget that can stabilize the economy in this situation than we would be if we didn't have it.

We didn't have it in the 1930s, and our output fell by about one-third. The overall decline was much less this time around, and that

was because incomes were substantially stabilized by the fiscal actions of the government.

Dr. HAYWORTH. Wow, we have a lot of food for thought there, Dr. Galbraith. You have defined the crux of the contrast between the two sides of this dais, and I realize we are out of time.

Thank you, Mr. Chairman, very much. I yield back.

Chairman PAUL. I now recognize the gentleman from Arizona, Mr. Schweikert.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

First, forgive me, but this is sort of an esoteric question, and no pointing and laughing, particularly for all of you with Ph.D.s. We take a look back over the last 30 years at many of the different asset bubbles, whether it be real estate or even certain commercial bubbles, whether it be the Internet bubble, where it was often large amounts of resources going in and inflating value beyond.

Is it theoretically possible to have a bubble on the Fed's balance sheet by acquiring so much U.S. sovereign paper, so much mortgage backed, MBS? At some point, does it create a type of distortion in the market, either by creating dramatically artificially low interest rates over here, and at some point, that is a bond bubble—it is a cascade effect—or actually on their own holdings itself? And is that just as—right now, we have the discussion about, are we heading towards a student loan bubble because we are \$1 trillion there? We are heading to \$3 trillion on the Federal balance sheet. It is a little esoteric, and it is not as—but is it one off?

Dr. Herbener, please, share with me, is my concern just sort of unfounded?

Mr. HERBENER. I think the Fed balance sheet, of course, exhibits the source of the bubbles that manifest in the economy. So when we see the Fed's balance sheet, they engage in open market operations, or they buy mortgage-backed securities from the banks and so on and generate reserves in the banking system, then it creates the possibility of the banks just creating credit on the basis of these reserves and channeling this credit into particular lines of activity where the bubbles arise. And so this is the very process by which the asset-priced bubbles are generated in the economy. We can't always tell exactly what lines they will be generated in just by looking at the Fed's balance sheet because the banks, of course, can generate credit in different lines.

Mr. SCHWEIKERT. Dr. Rivlin, I owe you—you will not remember, but many years ago, I ran into you walking down the street and you were very, very kind to me. You spent literally 10, 15 minutes just

talking to me on the street about a couple of esoteric issues, so I have always been very appreciative of your time.

Ms. RIVLIN. Thank you. I am glad you have that memory.

I think asset bubbles are a real problem for the Fed, but not because of the balance sheet effect. Because monetary policy is not a good tool for dealing with asset price bubbles. It is a good tool for dealing with general price inflation.

So the Fed needs different tools, credit, specific credit controls and controls on excessive leverage to deal with bubbles. And the Dodd-Frank Act does put them in that business, and I think that is good.

Mr. SCHWEIKERT. Could current Fed action, and I would like Dr. Galbraith's opinion, could the current Fed sheet balance sheet, the mechanics there, could it also be leading to a bond bubble right now if we start to move toward more normalized interest rates, have we created so much paper that that is in many ways artificial rates? Does it create a cascade when we start to move?

Ms. RIVLIN. I don't think it has to. I think the Fed can get its balance sheet down quickly. It is always much easier for the Fed to be less accommodative than more. And I am not worried about this astonishing balance sheet. It is very big, but right now, the reason to worry would be to, that we had general inflation, and we don't.

Mr. GALBRAITH. I think it would be very hard for the Federal Reserve to raise interest rates rapidly. And I don't think it is likely to do so. One way to interpret your question is to ask whether there is a situation in which the markets might sell off U.S. bonds rapidly without that being controllable by monetary policy action. I think that is also unlikely under present conditions.

What the markets have shown us is that in adversity, people want to hold U.S. bonds. They want to hold U.S. bonds over practically any other asset because we are the largest, most liquid, and completely reliable market in the world for safe liquid asserts.

Mr. SCHWEIKERT. I am sorry, but how much more capacity do you believe is pragmatic for the Fed to continue to grow at? Do they go to \$4 trillion, \$5 trillion? How big do these balance sheets get?

Mr. GALBRAITH. That is a very interesting question for which, Congressman, I have to tell you, I don't have an answer.

Mr. SCHWEIKERT. Thank you for yielding to me, Mr. Chairman.

Chairman PAUL. We are going to have a brief second round if you are able to stay.

But I have a question for Dr. Rivlin and also for Dr. Klein. I don't want to get into so much on the cause, but I am trying to get an

assessment of how serious you think the world financial crisis is? A lot of us put a lot of blame on monetary policy and the Federal Reserve and the dollar reserve standard and excessive debt and these issues. We are not going to resolve that today, who is to blame.

But do you consider the world financial situation to be a mess or just something that will be taken care of soon and there is not that much to worry about?

Ms. RIVLIN. I am very worried about Europe. I think the austerity policies are the wrong policies at the moment, that they— and they will make the situation worse, and that could be bad for us. The long-run debt situation in Europe is serious, but at the moment, I would focus attention on their getting out of the recession.

For us, I think we have to get out of this recession too, but we have to get our long-run debt under control. I think we can, but we haven't.

Chairman PAUL. Could you follow up, Dr. Klein, give me your assessment?

Mr. KLEIN. I think it is a huge crisis, both in Europe and in the United States, with tremendous consequences, not only the crisis itself but in my view, the response to the crisis by the monetary authority. The hugely accommodative policy, the zero interest rates and so on have taken a bad situation and sown the seeds for making that situation much, much worse. Of course, we haven't seen substantial rises in the overall price level since 2008. But if you look at the amount of money that has been pumped into the system, the increase in bank reserves and so on, there is simply no theoretical model of which I am aware, no empirical study that I can cite, in which those kinds of actions do not have very serious, long-run consequences on price inflation. So I think we haven't seen the worst of the results that our current policy is bringing about.

Chairman PAUL. Thank you, and I yield to Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman. I would like to start with a panel-wide question. Perhaps you can briefly try to answer it, starting with Dr. Herbener, do you think the Federal Reserve's monetary policy execution would be more effective if it set explicit inflation targets and was held accountable to those targets?

Mr. HERBENER. Not really. I think when the Fed engages in any kind of expansionary monetary policy, they always generate the same ill effect in the economy. They always generate some kind of credit expansion, which leads to a pattern of malinvestments, even when they keep overall price levels stable. They generate asset price inflation within the general price level, and these lines of

malinvestment is the sort of thing that we saw in the 1920s, very similarly also in the 1980s.

So even if there were stable price-level targets that the Fed could hit, they would still generate the same kind of financial instability and patterns of malinvestments and then the necessary liquidation that we see in the bus.

Mr. CLAY. How about, Dr. Klein, your opinion?

Mr. KLEIN. Yes, sir, I think posing the problem as a trade-off between, say, inflation targeting as opposed to targeting nominal income is sort of a false dichotomy. Something that Representative Paul mentioned in the first round was the idea of increased productivity resulting in decreases in prices as, of course, we see in many industries, computers, information technology and so on.

There is no reason that we should expect or desire, “stable price level” of 2 percent a year or whatever. In a growing economy, we might easily expect the price level to fall. That is exactly what happened during the 19th Century in the United States, which is the period of the strongest sustained economic growth in U.S. history, that increased growth, which was driven by productivity improvements resulted in a decreasing, and decreasing average price levels. There is no reason for policy to try to prevent that.

Mr. CLAY. Thank you, Dr. Taylor.

Mr. TAYLOR. We already have an inflation target that is announced, 2 percent. But in the meantime we continue to do this highly interventionist policy, so it seems to me that is not enough, and that is why people are talking about the dual mandate. That is why I am talking about returning to reporting about the strategy of the Fed. So I think you need more than that to get out of the terrible situation we are in now.

Mr. CLAY. Thank you. Dr. Galbraith?

Mr. GALBRAITH. I think explicit targets can be useful. In the Humphrey-Hawkins law, there was an interim target for 4 percent unemployment, 3 percent inflation to be achieved after 4 years. It took 22 years until Alice Rivlin was running things and it actually happened. But the difficulty, I think, was in setting too ambitious a target and allowing too long a timeframe for there to be real accountability.

If you are going to set targets, it should be on an interactive basis and something where you can come back in a year and say, look, how did you do in relation to those targets, and what have you learned about the world from your experience? That would make a useful contribution, it seems to me.

Mr. CLAY. Dr. Rivlin, your opinion?

Ms. RIVLIN. I would agree with that. I think that the 2 percent target is about right. I wasn't a big enthusiast of setting an explicit target, but 2 percent is about right as long as you don't take it too seriously, because there might be reasons to deviate in one direction or another.

Mr. CLAY. Thank you so much.

Mr. Chairman, I yield back.

Chairman PAUL. I now recognize the gentleman from Arizona for a follow-up.

Mr. SCHWEIKERT. Thank you. We were sort of heading on the question, I was going to start with Dr. Taylor and then move to Dr. Klein. How big can the balance sheet get?

Mr. TAYLOR. I already think it is too big. I think the quantitative easings, QE-1 and QE-2, are not appropriate, and that is why the balance sheet is as big as it is. If we had just done the interventions during the panic period, the balance sheet would already be back to normal.

I don't think see any evidence that those have been helpful, I have done research on QE-1, and I think that it is already too big. I do worry about the size of it already because it has to be pulled out, or there will be a bubble. In fact, right now we are already running the risk of a bubble because of the commitment to hold rates so low for so long.

I think, when you talk about bubbles, and we talk about the Fed's efforts to stop bubbles, I think the problem really is more is the Fed causing bubbles rather than the responsibility to deal with them.

So that, I see that concern in the housing bubble, I see some other bubbles in the past, and when you think about bubbles, let's not forget the fact that the Fed itself can and, in fact, has in the past caused bubbles and it may be doing that again right now.

Mr. SCHWEIKERT. Dr. Klein?

Mr. KLEIN. Yes. I agree strongly with what Dr. Taylor has said about the Fed being the cause of bubbles and the idea that the Fed needs additional tools to be able to pop bubbles when they emerge is taking the wrong view of the nature and sources of those bubbles. But as to your question about the balance sheet, I agree with Dr. Taylor, but would add that it isn't just the overall size of the balance sheet that matters, it is the composition of the balance sheet.

And my concern, as a microeconomist in looking at quantitative easing and other interventions by the Fed, is not so much their effect on the Fed's overall balance sheet, but the effect on particular firms

and industries. The winner picking, preventing restructurings that are needed to get the economy back on the right track is just as important as looking at the overall size of the balance sheet.

Mr. SCHWEIKERT. Dr. Galbraith, and then we are going to bounce back. Do you have a comment on, first, how big the balance sheets can get, and second, does the mix or the size or both create a distortive effect on the allocation of capital?

Mr. GALBRAITH. As I said earlier, I don't have a clear view on how big the balance sheet might get. I do think that as one looks at the composition of the balance sheet, what is in the portfolio, one has to evaluate the quality of the assets. And that is a process which has ramifications for the financial structure going forward. There comes a point when you do need to address those questions.

Mr. SCHWEIKERT. Okay. Dr. Herbener?

Mr. HERBENER. I would just add one thing. I think most of us would agree that the real problem is how exactly is the Fed going to unwind the balance sheet, not how big is it going to get, but what will be the process by which they take these assets off of their books, and what will the repercussions be in the markets when they begin this process seriously of unwinding things?

Mr. SCHWEIKERT. There goes my bond bubble concern. That is, what do I know. Dr. Rivlin, you also have been outspoken both on fiscal policy and that has always been appreciated to have other voices out there saying we are—we have some great difficulties.

Has the fact that the Fed has been able to grow its balance sheets to such extraordinary levels, has, in many ways, has that been a way to help Congress avoid fiscal policy?

Ms. RIVLIN. I don't think so. I think the Congress has not wanted to face up to the hard choices.

Mr. SCHWEIKERT. It is the same thing.

Ms. RIVLIN. And the Fed's buying bonds is a small part of the whole world buying bonds. As Dr. Galbraith said, counter to reality, the world believes that we are a very safe investment.

Mr. SCHWEIKERT. But in U.S. sovereign debt issues over the last 24 months, hasn't the Fed represented close to half?

Ms. RIVLIN. I don't know exactly what the figure is, but right now, we can't have a rapid reduction in our national borrowing because it would derail the recovery.

So I don't think the Fed has much of a choice. I would be cautious about increasing the balance sheet much further. I don't think there is an answer to your very good question about how big can it get, but right now, I think we need a double kind of fiscal policy.

It shouldn't be too severe in the short run, but we have to get the long run debt under control.

Mr. SCHWEIKERT. Mr. Chairman, thank you so kindly.

Chairman PAUL. I now recognize Mr. Green from Texas.

Mr. GREEN. Thank you, Mr. Chairman. I thank you and the ranking member for calling this hearing today, and I thank the witnesses for being in attendance.

Mr. Chairman, I also want to thank you because I am one of the Members who signed the letter requesting such a hearing, and I thank you for honoring the request to the witnesses.

Let's start with something very basic.

The bills that we have range from tweaking to the abolishing of the Fed, and I am curious as to how many of you are of the opinion that we should totally eliminate the Fed? Is there anyone who thinks that it should be abolished, one, two persons think we should abolish the Fed. And, if you could, just give me a quick, if you can, summary of why you think the Fed should be abolished. And then I would like to hear from your colleagues as to why you think we should maintain it, just quickly, because obviously time is of the essence.

And I will start with you, Dr. Herbener.

Mr. HERBENER. The Fed should be abolished because the conduct of monetary policy under the Fed can bring no benefit to society at large, as I mentioned in my previous remarks.

Mr. GREEN. The Fed will make bad decisions every time? There will be no good decisions made? It just can't have the positive impact on the economy?

Mr. HERBENER. Yes. I would say that there is no other instance where the government has completely monopolized the production of something on the market to impact society at large.

Mr. GREEN. All right. I am going to take that as your answer and move on to the next person. Dr. Klein?

Mr. KLEIN. Yes. We can talk about the Federal Reserve System per se as an example of the central bank or the institution of central banking more generally. And in my written testimony, I give some reasons why the institution of central banking is not only unneeded, but is also harmful to a market economy.

Mr. GREEN. But in your opinion, there should not be a central bank in the United States of America?

Mr. KLEIN. Yes, sir, we don't have a central automobile manufacturer or a central dairy or a central computer company.

Mr. GREEN. How do you juxtapose that with the central banks around the world, where major countries in the world all have central banks?

Mr. KLEIN. What I am expounding is certainly not the majority view among policymakers, but that hardly makes it incorrect.

Mr. GREEN. I think that is a fair statement. Dr. Taylor?

Mr. TAYLOR. Continuing, I think we should reform the Fed. I think the evidence, especially in the last few years, is that the policy is not working. I look back in history, and I see the 1980s and 1990s, a part of the time where Alice Rivlin was on the Fed and things worked pretty well.

They had—it wasn't intervening like it is doing now. It had a more steady-as-you-go policy. It had a lot of focus on the overall stance of policy, and it worked.

So I think we need to get back to that. I call it a rules-based policy, not a more systematic policy, and I think some of the reforms we are discussing today will help us get back to that.

Mr. GREEN. Dr. Galbraith?

Mr. GALBRAITH. I think on the whole, Congressman, that the 20th Century was better than the 19th Century, and that having a central bank was a modest, useful part of the institutional structure that gave us a very successful century.

I am very cautious about taking radical institutional steps when there is very little going on in the world that would give us confidence that they would be stabilizing rather than destabilizing.

Mr. GREEN. Dr. Rivlin?

Ms. RIVLIN. I feel strongly that we need a strong and independent central bank. I think the evidence of the 19th Century is not as encouraging as some would think, and the idea that the world's greatest economy could make due without a central bank, without a lender of last resort, without a monetary policy seems to me quite bizarre.

Mr. GREEN. Thank you. Let me go back now in reverse order. I will start with you, Dr. Rivlin, first.

The question is, would we be at a disadvantage if we had no central bank and other major economic powers have central banks?

Ms. RIVLIN. I think we would be, and I think we would lose our preeminence as a great—

Mr. GREEN. Currency supremacy. The dollar, as you know, is a fairly well-accepted currency around the world. Would it have an impact on the dollar?

Ms. RIVLIN. Yes. I think it would.

Mr. GREEN. Okay. Let me go to the next person please.

Mr. GALBRAITH. Yes, I think it would clearly have an impact. It would make the dollar, U.S. Treasury bonds much riskier.

Mr. GREEN. Mr. Taylor, and then I am going to go quickly because my time is about up.

Mr. TAYLOR. I don't recommend abolishing the Fed, I would recommend reforming the Fed.

Mr. GREEN. Would we be at a disadvantage, sir, Mr. Klein, if we had no central bank and other countries did?

Mr. KLEIN. Of course, it would depend on how such a reform would be implemented but, look, right now people are fleeing from the dollar and heading toward hard assets, like precious metals.

Mr. GREEN. Dr. Herbener?

Mr. HERBENER. If the dollar was backed by gold, I don't see how that could harm our—

Mr. GREEN. But you would back the dollar with gold?

Mr. HERBENER. Yes, sir.

Mr. GREEN. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now recognize the gentlelady from New York.

Dr. HAYWORTH. Thank you, Mr. Chairman.

I have a thought for us as we conclude, and I thank you so much for your insights, each of you. It strikes me that the size of the Fed's balance sheet is going to be largely determined given the structure of our representative democracy by the will of the American people to take in hand what we have created for ourselves at this juncture in our history.

Is there any sense that it is really going to take a lot of political will, if you will, to get our fisc in order for us really to, unless there is some significant change in the role of the Fed or the structure of the Fed. I think so much of it is going to lie in how we manage our Federal budget going forward.

Dr. Rivlin, since I missed you last time?

Ms. RIVLIN. I strongly agree with that. I served on the Simpson-Bowles Commission and the Domenici-Rivlin Commission and there have been other groups that have all come to the conclusion that we really need to get our fiscal house in order so that the debt is not rising faster than our economy can grow, and that is going to take hard decisions, but we have to do it.

Dr. HAYWORTH. Thank you, Dr. Rivlin. Thank you for your service. It is much appreciated.

Dr. Klein, I will flip back around.

Mr. KLEIN. Of course, I agree, this is a tremendous political challenge. Whether it takes a major crisis to bring, call forth the political will to make the necessary changes, I don't know, but I would hope that this body and others would be able to push things in the right direction without waiting for the bottom to fall out.

Dr. HAYWORTH. Right. Now, Dr. Herbener, do you think what we are viewing in Europe, we should take as a portent of things to come if we don't do something?

Mr. HERBENER. I think our situation is perhaps even more precarious than theirs, given what the Fed has done in the wake of the crisis to bail out the banking system. So, again, it is going to take strong action against some of the political interests that exist here to turn things around before. As Dr. Klein said, there is a crisis, and then we have to do something.

Dr. HAYWORTH. All right. Dr. Taylor, your thoughts?

Mr. TAYLOR. Fiscal policy is certainly a mess right now, and it has to be fixed, or we will be like Europe. But please don't forget about monetary policy. It tends to be arcane, it tends to be too narrow, it is difficult, but it is essential right now to get it right.

I don't want to see a future where quantitative easing becomes the new monetary policy. When the economy slows down, we do gigantic quantitative easings. We don't even know their effect. We don't even know how large it should be; it is very dangerous. I think it will take some oversight exercise by Congress to prevent that in the future.

Dr. HAYWORTH. In view of what you have said, Dr. Taylor, regarding the Fed's purchase of Treasuries and the proportion of Treasuries that have gone to the Fed, is there a certain crowding-out effect that we might also be witnessing.

Mr. TAYLOR. Eventually, of course, but in the meantime, actually, the figure is 77 percent.

Dr. HAYWORTH. Yes.

Mr. TAYLOR. The amount of debt increase in Fiscal Year 2011, 77 percent of that was the Fed and that is a gigantic amount. And so crowding out, I believe there is crowding out about that, even though the economy is weak. Yes, crowding out in a weak economy.

Dr. HAYWORTH. So there are Federal budget concerns and the Federal investments are crowding out the private markets.

Mr. TAYLOR. Crowding out occurs because of the deficits and the borrowing. And even in a weak economy, I believe it occurs, but as the economy picks up, it will be even more of a concern.

Dr. HAYWORTH. And more so artificially, if you will, in a sense because of what the Fed is endeavoring to do or artificially making the picture for Treasuries look perhaps a bit rosier than it would be if we had a real marketplace for them.

Mr. TAYLOR. Actually, the way I think about what the Fed is doing now with respect to oversized balance sheets and effectively dictating what the short-term interest rate will be, it doesn't set it in the market. It dictates by telling what the Reserve's interest rates will be on reserves.

So it is effectively, as the Fed has replaced the entire money market with itself, and I tell you, we just don't know all the implications of that. Nobody on this panel knows the implications of that.

So the sooner we get back to normal where the supply and demand for money is dependent to determine that interest rate, and the interest rate is set according to reasonable methodology and reported to the Congress, the strategy for doing that, the better off we will be.

Dr. HAYWORTH. It is not really a central bank, it becomes an uber bank in a sense.

Mr. TAYLOR. Yes.

Dr. HAYWORTH. Thank you. Thank you all. Thank you again, Mr. Chairman.

Chairman PAUL. Thank you very much. I want to thank the panel today for your time and your testimony. I found the hearing very fascinating because even though we might not agree on the cause and exactly what we have to do, it seemed like there was a general consensus that we do have a problem and we have to deal with it. It is not just the United States; it is worldwide.

And my guess is that someday we will seriously not only look at the management of a central bank or whether or not we really need a central bank, but ultimately I think what we will have to do is talk about the nature of money, the definition of money, because it is pretty hard to manage something you can't even define. But, once again, thank you very much for coming today.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for Members to submit written questions to these witnesses and to place their responses in the record.

[Whereupon, at 12:30 p.m., the hearing was adjourned.]

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL¹⁰⁹
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Although it has taken nearly a century, it seems that the entire spectrum of the American political establishment has finally realized the destructive power of the Federal Reserve System. Whether left, right, or libertarian, politicians are lining up to attack Ben Bernanke and the Fed's destructive monetary policy. Where there is disagreement or lack of understanding, however, is on why the Fed's monetary policy is destructive, how it harms the economy, and what should be done about it. Today's hearing will examine the various proposals that have been put forth both to mend and to end the Fed. It is my hope that this hearing will spur a vigorous and long-lasting discussion about the Fed's problems, a discussion which will lead to concrete actions once and for all to rein in the Fed.

Much confusion exists over what the Federal Reserve System actually is. Some people claim that is a secret cabal of elite bankers, while others claim that it is part of the federal government. In reality it is a bit of both. The Federal Reserve Board is a government agency, while the Federal Reserve Banks are privately-run government-chartered institutions, and monetary policy decisions are made by the

¹⁰⁹ Attached to Representative Paul's statement for the record were excerpts from the *The Minority Report of the Gold Commission*, also published separately as *The Case for Gold*. Those excerpts, Chapters 2 & 3 on the history of money in the U.S., can be found in Appendix A.

Federal Open Market Committee, which has members from both the Board and the Reserve Banks.

The Federal Reserve System is the epitome of crony capitalism. It exemplifies the collusion between big government and big business to profit at the expense of the taxpayers. The Fed's bailout of large banks during the financial crisis propped up poorly-run corporations that should have gone under, giving them an advantage that no other business in the United States would have received. The bailouts continue today, as banks maintain \$1.5 trillion worth of excess reserves at the Fed, reserves which were created through the Fed's purchase of worthless securities from banks. The trillions of dollars that the Fed has injected into the system have the goal of forcing down interest rates. But the Fed fails to realize that interest rates are a price, the price of money and credit, and that forcing interest rates down will only create an even bigger bubble and an enormous economic depression when this entire house of cards comes falling down.

The Federal Reserve is statutorily required to focus on three aims when engaged in monetary policy: full employment, stable prices, and moderate long-term interest rates. In practice, only the first two have received any attention, the so-called "dual mandate." Some reformers have called for the full employment mandate to be repealed, in order to allow the Fed to focus solely on stable prices. But these critics ignore the fact that stable prices are not a desirable goal. After all, with increasing productivity and technological innovation, the natural trend for most goods is for prices to decrease. By calling for the prices of goods to remain stable, the Fed would have to inflate the money supply in order to counteract this trend towards price declines, pumping new money into the system and creating economic distortions. This is exactly what happened during the 1920s, as the Fed's monetary pumping was masked by rising productivity. The result was stable prices, but the malinvestment caused by the Fed's loose monetary policy became evident by 1929. There is no reason to expect that focusing on stable prices today would have a dissimilar outcome.

Other reformers have called for changes to the composition of the Federal Open Market Committee, the body which sets the Fed's monetary policy objectives. On Constitutional grounds, the FOMC is undoubtedly problematic, as government appointees and the heads of the private Federal Reserve Banks work together to set monetary policy objectives that directly impact the strength of the dollar. While all of the members of the FOMC ought to be confirmed by the Senate,

debates about the size of the FOMC or whether Reserve Bank Presidents should make up a majority of the members or whether they should even serve at all are largely a sideshow. While the only dissent to monetary policy decisions in recent years has come from Reserve Bank Presidents, there is no reason to think that expanding the FOMC to include more Reserve Bank Presidents would lead to any greater dissent or to any substantive changes to the conduct of monetary policy.

Another proposal for reform is for outright nationalization of the Fed or its functions. No longer would the Fed create money; that function would be taken up by the Treasury, issuing as much money as it sees fit. No longer would the Treasury issue debt to cover fiscal deficits, it would just issue new money to cover budget shortfalls. If what the Fed does now is bad, allowing the Treasury to print and issue money at will would be even worse. These types of proposals harken back to the days of the first greenbacks, which the U.S. government began issuing in 1863. A pure fiat paper currency, unbacked by silver or gold, the greenbacks were widely reviled. Only once the greenbacks were made redeemable in gold were they accepted by the American people. The current system of Federal Reserve Notes is even worse than the greenback era in that there is no hope that they will ever be redeemable for gold or silver. The only limiting factor is that the Federal Reserve System only creates new money when purchasing assets, normally debt securities. Allowing the federal government to print money without at least a nominal check on the amount issued would inevitably lead to a Weimar-like hyperinflation.

So what then is the solution? The Fed maintains that a paper standard can be adequately managed without causing malinvestment, inflation, or other economic distortions. If the Fed were omniscient and knew the wishes, desires, and future actions of all Americans, this might be possible. But the Fed cannot possibly aggregate or act on the information necessary to engage in monetary policy. The actions of hundreds of millions of individuals, all seeking to better their position in life, acting purposefully towards that aim, cannot possibly be compiled into aggregates or calculated through mathematical equations or econometric models. Neither a single person, nor the members and staff of the FOMC, nor millions of people with millions of computers working in a new Goskomtsen will ever be able to accumulate, analyze, and act upon the information required to create a centrally planned monetary system. Centrally

planned fiat paper standards such as the one currently in place in this country are doomed to failure.

This brings us to the question of the gold standard. The era of the classical gold standard was undoubtedly one of the greatest eras in human history. For a period of several decades in the late 19th century, largely uninterrupted by war, the West made enormous advances. Economic productivity increased, art and culture flourished, and living standards rose so that even the poorest citizens lived a life their forebears could have only dreamed of.

But the problem with the gold standard is that it was run by the government, which exercised a monopoly over monetary affairs. The temptation to suspend gold redemption, so often resorted to by governments throughout history, reared its head again with the outbreak of World War I. Once the tie to gold was severed and fiscal restraint thrown to the wind, undoing the damage would have required great fiscal austerity on the part of governments. Emancipated from the shackles of the gold standard, the Western world proceeded to set up a gold-exchange standard which lasted not even a decade before the easy money policies it enabled led to the Great Depression. While returning to the gold standard would certainly be far better than maintaining the current fiat paper system, as long as the government retains the power to go off gold we may end up repeating the same mistakes that occurred from 1934 to 1971 as the government went first off the gold coin standard and finally off the gold bullion exchange standard.

The only viable solution for monetary stability is to get government out of the money business permanently. The way to bring this about is through currency competition: allowing parallel currencies to circulate without any one currency receiving any special recognition or favor from the government. Fiat paper monetary standards throughout history have always collapsed due to their inflationary nature, and our current fiat paper standard will be no different. The Federal Reserve is currently sowing the seeds of its own destruction through its loose and reckless monetary policy. The day of reckoning may still be many years in the future, but given the lack of understanding on the part of the Federal Reserve's decision makers, it is quickly coming upon us.

It is imperative that the American people be educated on the dangers of the Fed and the importance of restoring sound money. Now that nearly 50 years have elapsed since silver was removed from circulation, fewer and fewer Americans have firsthand familiarity with real money. The laying of the groundwork must begin today, so

that the American people will be prepared for the day when the mirage the Fed has created evaporates completely.

WITNESS TESTIMONY

**WRITTEN TESTIMONY OF
HON. KEVIN BRADY¹¹⁰**
REPRESENTATIVE, 8TH DISTRICT OF TX
U.S. HOUSE OF REPRESENTATIVES

Thank you, Chairman Paul, Ranking Member Clay, and Members of the Subcommittee.

Before discussing the *Sound Dollar Act*, I would like to acknowledge the work that Dr. Paul has done on this subcommittee and as a long-serving former Member of the Joint Economic Committee to bring sound money to the forefront of the public debate. Inflation has been called many things—a hidden tax, a government-sponsored reduction in workers' paychecks, or "theft" as Dr. Paul often says. The American people understand the absurdity of a monetary policy that is designed to debase our currency.

We agree on three key points:

- (1) Preserving the value of the dollar is essential to economic growth and prosperity;
- (2) The federal government must not be allowed to monetize its debts; and
- (3) Our financial system should serve the interests of all Americans, not just the interests of Washington and Wall Street.

Again, I would like to thank you, Mr. Chairman, for your

¹¹⁰ [Attached to Rep. Brady's testimony was a Joint Economic Committee staff commentary titled "United States Monetary History in Brief," which can be found in Appendix A.]

steadfast commitment to bringing these issues to the forefront of the public debate. Your voice will be missed.

I am pleased to testify on behalf of the *Sound Dollar Act*, H.R.4180, and want to thank the Members of this Subcommittee who have already cosponsored this important legislation: Mr. Jones, Mr. Lucas, Mr. Luetkemeyer, and Mr. Huizenga.

When it comes to the global economy, some have characterized the 1800's as the British century, the 1900's as the American century and the current one as China's century. I reject that prediction.

It is clear though, that to ensure the 21st century is another American century we must renew our commitment to what works well—our free market system—and reform what does not—our inefficient federal government.

Looking to our economic future, our goal should be clear: ensuring that America has the world's strongest economy throughout the 21st century. To do that, we have to get our monetary policy right and our fiscal policy right so that our free market system can flourish.

A sound dollar is the sure and strong foundation for long-term economic growth. A sound dollar creates certainty and facilitates new business investment and long-term job creation. I believe the focused role of the Federal Reserve should be to protect the purchasing power of the dollar by maintaining long-term price stability.

Are there many other actions that Congress and the President must take to retain America's economic preeminence for the next 100 years? Of course—we must:

- Make our tax system simpler and more internationally competitive by lowering marginal tax rates and eliminating distortions that pick winners and losers;
- Reform important entitlement programs—including Social Security, Medicare, and Medicaid—to make them sustainably solvent so that they can continue to serve those Americans dependent upon them;
- Transform our regulatory system so that we can achieve our common goals—including a clean environment and safe workplaces—in more efficient, balanced, and less destructive ways; and
- Aggressively pursue trade agreements to open foreign markets to sell more American goods and services to the 95 percent of the world's population that lives outside of our borders.

However, these reforms by themselves will be insufficient if the

Federal Reserve fails to maintain the purchasing power of the dollar over time. You only need look to the Great Depression of the 1930's and the Great Inflation of the 1970's to see that price deflation and price inflation are twin evils that reduce real output and employment.

Learning from the past and looking to the future, Congress must select the right monetary policy mandate, maintain a Fed independent of political pressure, and hold the Fed accountable for the results.

So let us examine what monetary policy should be going forward.

In 1977, Congress mandated that the Federal Reserve pursue monetary policy “so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”¹¹¹ Since inflationary expectations affect long-term interest rates, the goals of stable prices and moderate long-term interest rates are interrelated. This is why the Federal Reserve is described as having a dual mandate for both price stability and full employment.

The employment half of the dual mandate reflects the *Employment Act of 1946*, which required

the federal government to pursue economic policies that “promote maximum employment, production, and purchasing power.”¹¹² The price stability half of the dual mandate reflects the rising public concerns about price inflation in the 1970's.

Given the experiences of the past forty years and the unprecedented Fed actions of the past four, it is time for Congress and policy-makers to have a thoughtful, constructive debate about the dual mandate and the role of the Fed in our economic future.

Nobel Laureate economist Robert Mundell observed: “To achieve a policy outcome, you must use the right policy lever.”

In the Federal Open Market Committee (FOMC) statement of January 25th of this year, Chairman Ben Bernanke and the other members recognized that monetary policy is the

right lever to maintain the purchasing power of the dollar by declaring, “The inflation rate over the longer run is primarily determined by monetary policy.”

In contrast, the FOMC acknowledged that monetary policy is the wrong lever to promote job creation by declaring “The maximum level of employment is largely determined by nonmonetary factors.” The

¹¹¹ *The Federal Reserve Reform Act of 1977*, Pub.L. 95-188, 91 Stat. 1387, enacted November 16, 1977 as modified by the *Full Employment and Balanced Growth Act of 1978*, Pub.L. 95-523, 92 Stat. 1887, enacted October 27, 1978.

¹¹² Pub.L. 79-304, ch. 33, Sec. 2, 60 Stat. 23, enacted February 20, 1946.

FOMC is right on both counts: inflation is influenced by monetary policy and long-term employment is not.

While the dual mandate may be politically appealing, it makes no sense for Congress to charge the Federal Reserve with controlling what it cannot. Except in the very short term, monetary policy cannot boost real output and job creation.

Instead, using monetary policy as a short-term tool to speed growth may actually harm the economy in the long run. As Richard Fisher, President of the Federal Reserve Bank of Dallas, recently warned, the U.S. economy does not need any more “monetary morphine” that temporarily eases pain but does nothing to cure the underlying disease.

His point – and I agree – is that the President and Congress, not the Federal Reserve, can and should control the budget, tax, regulatory, and trade policies that create the business climate which drives sustainable economic growth and job creation.

Our global competitors already recognize this. Since Congress gave a dual mandate to the Fed, governments in many other countries have revised the charters of their central banks to focus either on a single mandate for price stability or a primary mandate for price stability with other goals clearly subordinated. Among the 47 central banks and monetary authorities in major countries surveyed by the Bank for International Settlements, only the Bank of Canada and the Federal Reserve have organizational laws that give other goals equal weight to price stability.¹¹³

Getting the mandate right is only half the job. How the Federal Reserve pursues its mandate is equally important.

According to Stanford University economist John Taylor, the key choice is between a discretionary regime and a rules-based regime. A discretionary regime generates uncertainty because it relies upon the subjective assessments of central bank policymakers. By contrast, a rules-based regime reduces uncertainty because it follows well-established rules, based on observable economic data, with a clear focus on a long-term goal.

Inflation-targeting is a rules-based regime under which a central bank establishes a target inflation rate expressed in terms of a broad-based price index of goods and services. A central bank tightens monetary policy when the actual inflation rate rises above its target and loosens monetary policy when the actual inflation rate falls below its target.

¹¹³ Ortiz, Guillermo and Yam, Joseph (Chairs of the Central Bank Governance Group), *Issues in the Governance of Central Banks*, Bank of International Settlements (May 2009).

The last four decades of U.S. monetary policy demonstrate the advantages of a rules-based regime over a discretionary one. During the 1970's, the Federal Reserve had “go-stop” policies, in which monetary policy quickly swung from ease to tightness and back again. This incoherence produced a highly volatile real economy and a rising inflation rate.

A sea change occurred with the appointment of Paul Volcker as Fed Chairman in 1979. Under Volcker the FOMC aggressively tackled price inflation by controlling the growth of the money supply. This successful strategy was a significant step forward toward a rules-based monetary policy. While the economy did suffer back-to-back recessions,¹¹⁴ inflation dropped from 13.3 percent in 1979, the year Volcker became Chairman, to 3.8 percent in 1982.¹¹⁵

Between 1983 and 2000—the period known as the Great Moderation—the Federal Reserve continued to pursue price stability through an increasingly rules-based monetary policy, effectively ignoring the second half of its dual mandate. Two long economic booms resulted, with very low inflation. The booms were only interrupted by a short, shallow recession related to the first Persian Gulf War.

Unfortunately, between 2002 and 2005, the FOMC deviated from this successful rules-based regime, moving to a discretionary regime by keeping interest rates too low for too long. This loose monetary policy contributed to the inflation of an unsustainable housing bubble that eventually triggered a global financial crisis.

Since the height of the financial crisis in the fall of 2008, Washington has increasingly become dependent on the Federal Reserve to take unusual, interventionist actions—such as tripling the size of its balance sheet under QE1 and QE2 by purchasing the debt and residential mortgage-backed securities (RMBS) issued by Fannie Mae and Freddie Mac as well as Treasuries. Indeed, the FOMC justified these extraordinary actions by invoking—for the first time ever in late 2008—the employment half of the Federal Reserve’s dual mandate.

Ultimately the FOMC took these actions, in part, to compensate for President Obama’s failure to

establish a strong, sustainable recovery. And just as low borrowing costs continue to mask the true pain of our nation’s

¹¹⁴ The back-to-back recessions were January 1980 to June 1980 and July 1981 to November 1982.

¹¹⁵ The annual inflation rate as measured by the consumer price index.

historically high federal budget deficits, the Federal Reserve's monetary experimentation has allowed the White House and Congress to shirk their responsibility to enact fiscal policies that create a competitive business climate which unleashes investment and spurs job creation.

The Federal Reserve's monetary experimentation of the last decade must end. Congress should give the Federal Reserve a single mandate for price stability, and the Federal Reserve should return to a rules-based system of inflation targeting to achieve that mandate.

To provide a foundation for long-term economic growth, I recently introduced the *Sound Dollar Act*, H.R.4180, in the House of Representatives. Senator Mike Lee of Utah, an articulate and studious member of the Joint Economic Committee, has introduced a companion bill, S.2247, in the Senate. The measure was introduced after many months of vetting with interested economists, current and former Fed staff as well as current and former members of the Federal Reserve Board of Governors – including discussions with Chairman Bernanke.

The *Sound Dollar Act* seeks to reform the Federal Reserve in several important ways. Specifically, the *Sound Dollar Act* replaces the dual mandate with a single mandate for long-term price stability; increases the Federal Reserve's accountability and openness; diversifies the FOMC; ensures credit neutrality for future FOMC purchases; and institutes congressional oversight of the Consumer Financial Protection Bureau.

As expected, critics have quickly charged that focusing on a sound dollar implies the Federal Reserve will ignore the employment needs of Americans. They are wrong. America can only maximize its real output with long-term price stability. Protecting the purchasing power of the dollar over time provides the strongest foundation for lasting economic growth and job creation.

Others have reacted as if a single mandate is a shocking proposal—an affront to all that is right and good. But as we know, the United States won World War II, enjoyed three decades of prosperity, and put a man on the moon without a dual mandate. It is not a fundamental part of our constitutional fabric or carved in granite—it is a 1977 policy directive based on the discredited “Phillips Curve” that Congress can and should change to ensure the future prosperity of our nation.

A mandate for price stability gives the Federal Reserve the right goal. Moving away from a discretionary regime and back toward a rules-based regime will help ensure the Fed achieves price stability.

In January 2012, the FOMC announced an inflation target of 2 percent defined in terms of the price index for personal consumption expenditures. I strongly applaud Chairman Bernanke and the other members of the FOMC for this step toward a rules-based, inflation-targeting regime.

However, this is merely a policy statement that could be reversed. Therefore, the *Sound Dollar Act* mandates that the FOMC continue inflation targeting over the long term.

Accurately measuring inflation is not easy. In the last decade, we clearly saw that price indices of goods and services do not always record all of the price movements in our economy, allowing asset bubbles to inflate undetected. The FOMC's current inflation target relies only upon the price index for personal consumption expenditures.

This index is the primary indicator that the Federal Reserve uses for measuring inflation. However, to identify incipient asset bubbles before they inflate to dangerous levels, the *Sound Dollar Act* also requires that the FOMC monitor and report to Congress on: (1) the prices of, and returns on, broad classes of assets including equities, corporate bonds, state and local government bonds and agricultural, commercial, industrial and residential real estate; (2) the price of gold; and (3) the foreign exchange value of the U.S. dollar.

To be clear, the *Sound Dollar Act* does not prescribe any specific action that the Federal Reserve must take if it detects an asset bubble. The appropriate responses are highly dependent upon circumstances. They might include a tightening of monetary policy, supervisory suasion, or regulatory actions to reduce the flow of credit to fund purchases of the bubbling asset.

Discretion with respect to the best response should be left to the FOMC. However, identifying potential asset price bubbles earlier may help to avoid the overinvestment and the malinvestment that must eventually be liquidated at a heavy cost in terms of lower real output and lost jobs.

Some supporters of the *Sound Dollar Act* concept express a concern that the FOMC could misinterpret monitoring asset prices as a mandate to control asset prices. To address that concern, we have made the legislative language clear and will make it clearer if need be. To quote the bill's language, the FOMC will merely observe asset prices to determine whether such price indices "are comprehensively reflecting price movements in the economy; and whether any

price movements not captured by the price indices of goods and services are causing a significant misallocation of capital in the

United States economy.”

Simply put, monitoring asset prices is intended as a check against inflation slipping through the cracks.

Another reform broadens input and geographic diversity in FOMC decision-making. The *Sound Dollar Act* grants a permanent vote on the FOMC to the presidents of each regional Federal

Reserve Bank. As important as New York and Washington are, there is much more to America’s economy and the FOMC should better reflect that.

Today—as a result of a decision seventy years ago—only the Federal Reserve Governors and the President of the Federal Reserve Bank of New York have permanent votes. While all of the regional Federal Reserve Banks participate in the discussions, just four of the remaining eleven presidents vote at any one meeting—rotating on and off the FOMC.

There may be other ways to achieve this diversity—and I am open to them—but I am seeking change that will provide Main Street with a greater voice in determining monetary policy.

I am firmly committed to the independence of the Federal Reserve in conducting monetary policy. Expanding the voting membership of the FOMC is one method the *Sound Dollar Act* uses to insulate the Fed from political forces. But, I am particularly troubled by the FOMC decision in September 2011 to reinvest the proceeds from maturing federal agency debt and RMBS into new federal agency RMBS—instead of allowing these holdings to decline as originally intended. This policy reversal occurred amid intense pressure from special interest groups for federal actions to support the ailing housing market.

When the FOMC deals in securities other than Treasuries, repurchase agreements, and reverse repurchase agreements for the System Open Market Account, the Federal Reserve is allocating credit among different sectors of our economy. Credit allocation exposes the Federal Reserve to political interference. And in Washington, D.C. subsidies die hard.

To maintain the independence of the Federal Reserve, the *Sound Dollar Act* requires the FOMC to deal only in Treasuries, repos, and reverse repos for the System Open Market Account unless the FOMC finds by a 2/3 vote that “unusual and exigent circumstances” exist. The FOMC could then purchase other securities for the account so long as they are liquidated within five years after the end of the emergency.

Next, the *Sound Dollar Act* requires the Federal Reserve to

publish its lender-of-last-resort policy. In nearly a century of existence, the Federal Reserve has never articulated this critical policy.

Dr. Allan Meltzer, author of *A History of the Federal Reserve*, describes the problems this void creates:

*The absence of a [lender-of-last-resort] policy has three unfortunate consequences. First, uncertainty increases. No one can know what will be done. Second, troubled firms have a stronger incentive to seek a political solution. They ask Congress or the administration for support or to pressure the Federal Reserve or other agencies to save them from failure. Third, repeated rescues encourage banks to take greater risk and increase leverage. This is the well-known moral hazard problem.*¹¹⁶

Each of these problems became manifest in 2008. And while some believe the *Dodd-Frank* legislation provided the solution to the next crisis, I do not believe that is the case.

To be reasonable, the bill does not call for a precise tactical plan. As President Dwight D.

Eisenhower observed regarding the complicated engagements of war: “Plans are worthless, but planning is everything.”¹¹⁷ Similarly, while the Federal Reserve cannot anticipate every nuance of the next financial crisis, publishing a lender-of-last-resort policy has merit and could help reduce market uncertainty.

Next, I applaud Chairman Bernanke for his steps to increase transparency in monetary policy decision-making, but there is an additional step that the Federal Reserve should take. The *Sound Dollar Act* speeds the release of transcripts of FOMC meetings from five years to three years. Currently, if a President nominates a Fed Chairman for a second four-year term, Senators cannot review any of the FOMC transcripts during his or her tenure.

Some have expressed concerns that this would inhibit free discussion at FOMC meetings. But in a time when information flows globally in the blink of an eye, three years is an eternity.

Given the quality of the individuals serving on the FOMC, I am not concerned about legacy building in FOMC meetings. What I am concerned about is a future Senate being asked to confirm a second

¹¹⁶ Ciorciari, John D. and Taylor, John B. (Eds.), *The Road Ahead for the Fed*, Hoover Institution (November 2009).

¹¹⁷ Dwight David Eisenhower, *Remarks at the National Defense Executive Reserve Conference*, November 14, 1957. For complete context, see the full text of the speech, third paragraph, in Public Papers of the Presidents <http://www.presidency.ucsb.edu/ws/index.php?pid=10951&st=&st1=#axzz1nuPphFqo>.

term for the Fed Chairman with no real insight into the critical decision-making of that Chairman in FOMC deliberations. Results matter, and so does the thought process behind them.

The *Sound Dollar Act* also eliminates a slush fund that has been misused by Secretaries of the Treasury in both Democratic and Republican administrations. In 1934, Congress placed the profits from the nationalization of privately owned gold and the subsequent devaluation of the

U.S. dollar in the Exchange Stabilization Fund and authorized its use to intervene in foreign exchange markets.¹¹⁸ In 1968, Congress placed the special drawing rights (SDRs) issued by the International Monetary Fund into the Exchange Stabilization Fund.¹¹⁹ After the Bretton Woods system of pegged exchange rates collapsed in 1971, the Treasury has used the non-SDR assets in the Exchange Stabilization Fund for purposes that Congress never intended, such as bailing out Mexico in 1995 and guaranteeing money market mutual funds in 2008. To prevent misuse in the future, the *Sound Dollar Act* transforms the Exchange Stabilization Fund into a Special Drawing Rights Fund; liquidates all of the \$50 billion of non-SDR assets over three years; and uses the proceeds to reduce federal debt.

Finally, the *Dodd-Frank Act* funded the Consumer Financial Protection Bureau (CFPB) by diverting Federal Reserve profits, which would otherwise be paid to the Treasury, to the CFPB. This is a dangerous precedent, leaving the CFPB unaccountable to Congress and ultimately hardworking American taxpayers. Nothing other than the operating costs of the Federal Reserve should be paid out of its revenue. Thus, the *Sound Dollar Act* ends this diversion and requires that the CFPB seek annual appropriations from Congress—just as other federal agencies do.

In summary, the *Sound Dollar Act* helps the United States retain its economic preeminence by preserving the purchasing power of the U.S. dollar, charging the Federal Reserve to pursue a single mandate for price stability and strengthening the Federal Reserve's independence even as the *Act* increases the Federal Reserve's accountability.

¹¹⁸ *Gold Reserve Act of 1935*, Pub.L. 73-87, 48 Stat. 337, enacted January 30, 1934.

¹¹⁹ *Special Drawing Rights Act of 1968*, Pub.L. 90-349, 82 Stat. 188, enacted June 19, 1968.

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Production of Money on the Market

In a seminal article published in 1920, Ludwig von Mises demonstrated that there is only one test of whether or not production of something conveys a benefit on society at large.¹²⁰ It must be shown that resources have greater value when used to produce a good to satisfy the preferences of some people than when they are used to produce a different good to satisfy the preferences of other people. Production left to the market satisfies the profit and loss test of socially beneficial production. For Tim Cook to obtain computer chips, glass screens, labor and other resources to produce iPads, he must bid them away from other entrepreneurs who would have used them to produce other goods. By incurring the costs of production, Apple Inc. compensates the owners of resources for the value of the other goods they could have produced to satisfy a different group of consumers. Apple then uses the resources to produce iPads, which consumers of its products value more highly as demonstrated by their generating enough revenue for Apple Inc. to more than cover its costs.

The profit and loss test applies to all production in the market, including mining gold and minting coins. A gold mining company will produce when the revenues from the sale of its output exceed the costs of buying its inputs. The company moves labor, mining equipment, land, and other resources away from uses consumers find less valuable into gold mining, which consumers find more valuable. A minting company will produce when the revenues from the sale of its service in certifying gold exceed the costs of buying its inputs. The company moves labor, minting equipment, land, and other resources away from uses consumers find less valuable into minting coins, which consumers find more valuable.

Like the production of all other goods, production of money left to the market is regulated by profit and loss. Additional money is produced when demand for money increases or demand for other

¹²⁰ This is an implication of Mises's famous argument that central planners cannot economize the use of resources in society. See Ludwig von Mises, *Economic Calculation in the Socialist Commonwealth* (Auburn, Ala.: Mises Institute, 1990 [1920]) and Mises, *Human Action*, scholar's edition (Auburn, Ala.: Mises Institute, 1998 [1949]), pp. 685-711.

goods produced by the same resources decreases. If the demand for money increased, the value of gold coins would rise. Minting companies would increase production to capture the profit. As they increased the supply of certification service, its price would decline and as they increased their demands for resources to certify gold, resources prices would rise and the profit would dissipate. If demand for other goods declined, input prices would fall. Minting companies would increase production to capture the profit and, by doing so, eliminate profit from further production. In this way production of money in the market is socially optimal.¹²¹

The profit and loss test also applies to the production of money certificates in the market.¹²² Money certificates are titles of ownership to money issued by banks that serve as money substitutes. People may find convenience and safety in using checking account balances instead of commodity money when making trades. Banks will produce and maintain checking accounts for customers if they are willing to pay fees to banks that generate revenues sufficient to cover the costs of managing the accounts. If the demand for checking accounts increased, then banks would expand them to capture the profit. As they increased their supply of checking account services, the fees would decline. And as they increased their demand for the resources to manage checking accounts, their prices would rise. As a consequence, profit would dissipate and additional production would cease at the socially optimal point.

The profit and loss test also applies to financial intermediation. Banks perform a middleman function in credit markets by borrowing from savers and lending to investors. They provide the services of pooling the savings, checking the credit worthiness of investors, and bearing the risk of loan defaults. If customers of banks find these services valuable, they will be willing to accept lower interest rates for lending to banks than investors will be willing to pay banks to borrow. Banks will provide financial intermediation services, if the revenues earned from the interest rate differential are large enough to cover the costs of producing the services. If demand for these services increases, banks will increase production of them. Their increased demand to borrow from savers and supply to investors will reduce the interest rate differential. Their increased demand for the

¹²¹ Mises wrote that making money production conform to profitability and not politics, "is not a defect of the gold standard; it is its main excellence," *Human Action*, p. 471.

¹²² On bank production of money certificates and credit intermediation, see Jesús Huerta de Soto, *Money, Bank Credit, and Economic Cycles*, trans. Melinda Stroup (Auburn, Ala.: Mises Institute, 2006 [1998]), pp. 1-36.

resources will raise their prices. Profit will dissipate and additional production will cease at the socially optimal point.

By subjecting all production, including that of money and banking, to the test of profit and loss, the market renders an integrated system of production that economizes the use of all resources for society at large.

Monetary Inflation and Credit Expansion

An elastic currency breaks the integration of production on the market by being an element foreign to the test of profit and loss. An elastic currency has two characteristics: a central bank empowered to issue fiat paper money and commercial banks empowered to issue fiduciary media.¹²³ The production of fiat paper money cannot be regulated by profit and loss. It is always profitable to produce more. In 2011, the average cost of the 5.8 billion Federal Reserve Notes produced was \$0.091.¹²⁴ So a profit of around \$4.90 is made by printing and spending a \$5 bill. If the Fed continued order the printing of FRNs as long as it was profitable, then eventually prices of inputs would rise so that it cost more than \$5 to print a \$5 bill. Then the Fed could order the printing of \$50 bills instead and so on indefinitely as we have witnessed in hyperinflations like Zimbabwe's. To avoid destruction in hyperinflation, production of fiat paper money must be regulated by policy, by a rule that is arbitrary with respect to economizing production for society at large.

The production of fiduciary media cannot be regulated by profit and loss.¹²⁵ Fiduciary media are redemption claims for money which are fractionally backed by a reserve of money. Banks issue fiduciary media by creating loans. For example, a customer applies at his local bank for an auto loan of \$25,000. If the bank agrees to extend the loan, it just writes a \$25,000 balance into the customer's checking account. The loan generates interest revenue for the bank while the cost of issuing fiduciary media is nominal. It is always profitable for the bank to create another loan by issuing fiduciary media. If a bank issues more fiduciary media by creating credit as long as it is profitable, it will become illiquid and insolvent and end in collapse. To avoid such destruction, a bank must regulate its issue of fiduciary

¹²³ On elastic currency, see Murray Rothbard, *The Case against the Fed* (Auburn, Ala.: Mises Institute, 1994).

¹²⁴ Bureau of Engraving and Printing.

(moneyfactory.gov/uscurrency/annualproductionfigures.html). April 27, 2012.

¹²⁵ On fiduciary issue and credit creation, see Murray Rothbard, *The Mystery of Banking* (Auburn, Ala.: Mises Institute, 2008 [1983]).

media via credit creation by policy, by a rule that is arbitrary with respect to economizing production for society at large.

Advocates of an elastic currency realize that its production cannot even be subjected to, let alone pass, the profit and loss test. As F.A. Hayek wrote, “There is no justification in history for the existing position of a government monopoly of issuing money. It has never been proposed on the ground that government will give us better money than anybody else could.”¹²⁶ Advocates of an elastic currency merely assert that it can achieve a desirable outcome that a system of commodity money and money certificates cannot. There are three such claims for an elastic currency. First that it can keep the price level stable. Second, that it can prevent price deflation. And third, that it can accelerate economic growth.

Maintaining Price Stability

There is no social benefit from keeping the price level stable. The alleged benefit is that price stability prevents wealth transfers between creditors and debtors and between workers and capitalists. But such transfers assume that entrepreneurs fail to anticipate changes in money’s purchasing power. Entrepreneurs can earn profits and avoid losses by anticipating these changes just as well as changes in prices of other goods. If they anticipate rising prices for goods overall, then they will increase their demands for resources today bidding up wages today. Likewise, lenders will insist on higher interest rates today. An elastic currency adds another dimension of uncertainty to changes in money’s purchasing power. It makes the task of entrepreneurs more, not less, difficult. In extreme cases, an elastic currency can result in wildly unstable prices that paralyze entrepreneurial decision making and destroy production on the market. Being regulated by profit, production of commodity money responds only to changes in people’s demands. If money demand rises, the resulting increase in money’s purchasing power would bring forth more production of money and moderate falling prices. The modest price deflation over time in a market economy is integral part of its economizing production.

Moreover, in practice the advocates of price stability aim at price inflation of around two percent per year. But, if entrepreneurs can adjust their expectation to cope with a two percent per year price inflation in an elastic currency system, then certainly they can

¹²⁶ F.A. Hayek, *Denationalization of Money*, 2nd edition (London: Institute of Economic Affairs, 1978 [1974]), p. 7.

properly anticipate and deal with a two percent per year price deflation under a commodity money system.¹²⁷

Finally, two of the periods of most rapid economic growth in U.S. history were from 1820-1850 and 1865-1900. In each of these periods, the purchasing power of the dollar roughly doubled.¹²⁸

Preventing Price Deflation

There is no social benefit from preventing price deflation. There are two claims to the contrary. The first alleged benefit is that if prices begin to fall, then people form expectations that they will fall further and they put off spending today which pushes prices down even further which re-enforces deflationary expectations. The collapse of spending discourages production and employment. But, the downward spiral of prices is merely the logical implication of assumptions about expectations within formal economic models. If you assume that the agents operating in an economic model suffer from expectations that are self-reinforcing, then the model will produce a downward spiral. But, people in the real world can only obtain the services of goods by buying them. They choose at some point, to buy a good even if they expect its price to fall further. This happens every day in markets for consumer electronics as people buy tablet computers, cell phones, and so on knowing that prices will be lower and quality higher in the future.

Because there is demand for goods and hence prices, whether people expect prices to increase, decrease, or stay the same, speculation earns profit and avoids loss by accurately anticipating the level of future prices. If people anticipate a significantly lower price for a good in the future and withhold their demands for it today, the price quickly falls to the level they anticipated and then they buy the good. Speculation moves prices before they would move without speculation, but not further than they would move without it. This happens every day in financial markets as speculators move prices up and down without generating upward or downward spirals.

The second alleged benefit is that price deflation pushes down output prices but input prices are sticky; therefore, profits evaporate and entrepreneurs cut production and fire workers. But entrepreneurs choose the degree of price stickiness that their customers and employees prefer. In many cases consumers prefer prices of goods to remain more stable from day to day or hour to hour

¹²⁷ The annualize rate of increase in the purchasing power of the dollar from 1815-1850 was 2.24 percent and from 1865-1900 was 1.75 percent.

¹²⁸ Murray Rothbard, *A History of Money and Banking in the United States* (Auburn, Ala.: Mises Institute, 2002), pp. 42-179.

or minute to minute instead of fluctuating with every increase and decrease in demands. In other cases, buyers prefer complete flexibility in prices. Entrepreneurs can earn profits and avoid losses by catering to these preferences. In many cases, workers prefer to have their wages set over a period agreed upon with the entrepreneurs instead of having them move daily or hourly with the movements in demand for the goods they help produce. In cases where workers desire more flexibility in their compensation, an entrepreneur will make stock in the enterprise part of their compensation. When circumstances change, it is in everyone's interest to modify the normal arrangements. Entrepreneurs offer deep discounts of their goods when demand permanently falls. They renegotiate contracts with workers and other input suppliers when losses accumulate. In this way, the degree of price stickiness in markets can be changed to avoid adverse effects.

Moreover, entrepreneurs earn profits and avoid losses by anticipating these changes. If they anticipate falling prices of their outputs, they will reduce their demands for inputs today pushing their prices down. When output and input prices fall together, profit and production are maintained. The symmetric process occurs during price inflation. If entrepreneurs anticipate higher output prices, they will increase their demands for inputs today pushing their prices up. As a result, output and input prices move up together and profit and production are maintained.

Even if the prices of inputs entrepreneurs buy remain sticky downward, the effect on their profit and production is cushioned by the decline in the value of the assets they own. The market value of their assets adjusts downward with the decline in the prices of their outputs as investors reduce their demands to hold claims to these assets in financial markets. A decline in the value of their assets restores the profitability of production. Entrepreneurs with superior foresight in anticipating declines in the prices of their output will invest sufficient equity in their enterprises to cushion the blow and provide time for adjustments in the prices of their inputs.

UCLA economist, Andrew Atkinson, and Minneapolis Federal Reserve Bank economist, Patrick Kehoe, in a 2004 *American Economic Review* article, have shown that there is no correlation between deflation and depression.¹²⁹ Looking at the evidence across

¹²⁹ Andrew Atkinson and Patrick Kehoe, "Deflation and Depression: Is There an Empirical Link," *American Economic Review Papers and Proceedings* 94 (May 2004): 99-103. They define deflation "as a negative average inflation rate" and depression "as a negative average real output growth rate." *Ibid.*, p. 99.

17 countries over more than 100 years, they concluded, “A broad historical look finds more periods of deflation with reasonable growth than with depression, and many more periods of depression with inflation than with deflation. Overall, the data show virtually no link between deflation and depression.”¹³⁰ Even for the Great Depression, they find that while all 16 countries for which there were data experienced deflation only 8 of them had a depression. And the relationship between deflation and depression was not statistically significant. For all other periods, beginning in 1820 for some countries, 65 of 73 deflation episodes had no depression and 21 of 29 depressions had no deflation. They wrote, “In a broader historical context, beyond the Great Depression, the notion that deflation and depression are linked virtually disappears.”¹³¹ When all periods are put together, they found that “a 1-percentage-point drop in inflation is associated with a drop in the average real growth rate of just 0.08 of a percentage point, say, from 3.08 to 3.00.”¹³² Finally, when they break the data into Pre-WW II and Post-WW II, they find a stronger correlation between deflation and depression for the early period, but a correlation between inflation and depression in the later period.

Stimulating Economic Growth

There is no social benefit from attempting to accelerate economic growth. The alleged benefit is that monetary inflation through credit expansion builds-up the capital structure of the economy more fully than otherwise. Monetary inflation and credit expansion generate the boom-bust cycle, however, not economic growth.¹³³ The capital structure of the economy is the stages of production from extraction of raw materials to the production of intermediate capital goods to the production of consumer goods. Iron is mined out of the ground, then steel is made, then fenders for an automobile, then the automobile is assembled. In a market economy, not only is each production process justified by passing the profit and loss test, but the entire capital structure satisfies people’s inter-temporal, or time, preferences. The degree to which they desire to postpone their current consumption by saving and investing to build up capital capacity across the capital structure in order to enjoy more and better consumer goods in the

¹³⁰ *Ibid.*, p. 102.

¹³¹ *Ibid.*, p. 101.

¹³² *Ibid.*, p. 102.

¹³³ On the boom-bust cycle, see Mises, *Human Action*, pp. 535-583; de Soto, *Money, Bank Credit, and Economic Cycles*, pp. 265-395; F.A. Hayek, *Prices and Production and Other Works* (Auburn, Ala.: Mises Institute, 2008 [1931]); and Murray Rothbard, *America's Great Depression* (Auburn, Ala.: Mises Institute, 2000 [1963]).

future is satisfied in the market. If people intensely desire present consumption over future consumption, then the premium they place on the present, that is, the interest rate, will be high and the amount of their saving and investing will be small and their consumption will be large. Only a small number of investment projects will be profitable; therefore, the capital structure will not be built up extensively. If people lower their time preferences, then the interest rate will fall and they will save and invest more and consume less in the present. With more resources at their command, entrepreneurs will build up the capital structure more extensively. The greater productivity of the expanded capital structure results in the production of more and better consumer goods. This is the process of economic growth. And, as with other aspects of production in a market economy, people get the amount of economic growth that they prefer.

Credit expansion suppresses interest rates below the levels determined by people's time preferences and increases funds for investment beyond the amount determined by people's preferences for saving. When the borrowers spend the additional money, they bid up the prices of the goods they are buying. Prices of houses and cars, for example, are pushed up by the additional demand of consumers made possible by credit creation. Prices of producer goods are also bid up by the additional demand of entrepreneurs made possible by credit creation. Prices for auto factories, lumber mills, are pushed up and the capital goods across the capital structure used to produce goods in the expanding areas, iron mines, timber lands, and so on. Monetary inflation through credit expansion makes it possible for borrowers to demand more assets without lenders reducing demands for other goods. Therefore, rising asset prices increase the profitability of their production while the profitability of other goods need not decline. Not enough resources are released from the production of other goods to complete all of the projects made profitable by the credit expansion. With a market monetary system, the proper amount of resources are made available because an increase in the supply of credit can only be brought about by people saving more and consuming less. The additional investment projects made profitable by the increase in saving are balanced by the projects no longer profitable because of the reduced consumption. But with an elastic currency system, the build-up of capital capacity and other investment projects financed with created credit do not wind up satisfying people's time preferences. The build-up of the capital structure during the boom is unsustainable. It ends in the liquidation of the build-up in the bust.

What brings the boom to an end is the re-establishment of people's time preferences and preferences for saving. People do this through the disbursement of their incomes. The credit created during the boom is spent by the borrowers to buy goods, houses, factories, etc. The entrepreneurs who produce these goods then receive the new money as revenues for selling the goods. They pay producers to buy the resources used to produce the goods. The new money is then income for the producers. People disburse their income to satisfy their preferences, including their time preferences. They prefer to save only a fraction of their incomes. Although the entire amount of the new money issued starts out increasing the supply of credit, only a fraction of it winds up as supply of credit. Monetary inflation and credit expansion runs counter to people's time preferences and market economies operate to satisfy people's preferences.

Another factor working against the sustainability of the boom is that the further credit expansion extends the riskier the projects and the less credit worthy the borrowers become. As financial intermediaries, banks economize credit, lending to the highest return, most secure projects and the highest interest rate, most credit-worthy borrowers. Additional credit must be extended to lower return, less secure projects and lower interest rate, less credit-worthy borrowers. If monetary inflation and credit expansion go on far enough, investors refuse to accept the additional risk and sell out of the lines of production expanded during the boom. Since the prices of assets in the more sound projects have been bid up along with the prices of projects in the less sound projects, investors in the more sound projects will also lose wealth if they continue to hold their investments.

Once people restore interest rates and asset prices to the levels that reflect their preferences, the particular lines of production in which mal-investments have been made in building-up the capital structure during the boom are revealed. The bust consists of reconfiguring the malformed capital structure to best satisfy people's preferences. Mal-invested assets must be sold to entrepreneurs in lines of production that will prove to be profitable. Labor must be re-allocated away from boom lines into production supported by people's preferences. As with all production decisions, these can be made in the most economizing fashion by entrepreneurs earning profits from their superior foresight in satisfying preferences and suffering losses for their inferior foresight.

An elastic currency is the cause of financial crises and economic downturns. Supplant it with a market system of commodity money

and money certificates and there would be no crises and downturns. The residual business fluctuations would not justify government intervention to solve the social problems associated with crises and downturns.

As the monetary system has become more elastic in American history, booms and busts have worsened. George Selgin, William Lastrapes, and Lawrence White conclude, in their 2010 *Cato Working Paper*, that recent research demonstrates that the Fed has not lived up to its original promise.

Selgin, Lastrapes, and White summarize their findings on the performance of the Fed in these words: “Drawing on a wide range of recent empirical research, we find the following: (1) The Fed’s full history (1914 to present) has been characterized by more rather than fewer symptoms of monetary and macroeconomic instability than the decades leading to the Fed’s establishment. (2) While the Fed’s performance has undoubtedly improved since World War II, even its postwar performance has not clearly surpassed that of its undoubtedly flawed predecessor, the National Banking system, before World War I. (3) Some proposed alternative arrangements might plausibly do better than the Fed as presently constituted. We conclude that the need for a systematic exploration of alternatives to the established monetary system is as pressing today as it was a century ago.”¹³⁴

I concur with their conclusion. Economic theory and historical evidence demonstrate that a central bank confers no benefit on society at large. The Fed should be abolished and a market monetary system of commodity money and money certificates should be established.

Monetary Reform

The goal of monetary reform is to make money production subject to the profit and loss test of socially beneficial production. Money production must become an integral part of the market economy. There may be several viable paths of transition to a system of market production of money, but any such path must take account of Carl Menger’s famous demonstration that an item can only arise as money consistently with what people are actually using as the most widely

¹³⁴ George Selgin, William Lastrapes, Lawrence White, “Has the Fed Been a Failure?,” *Cato Working Paper* Dec. 2010, p. 1.

traded good.¹³⁵ After the transition, a monetary system integrated into the market economy could begin.¹³⁶

Federal Reserve Notes are money in the American economy. Thus, the most direct way to establish a market monetary system is to reestablish FRN as redemption claims for commodity money. The most widely-recognized commodity money today is gold coins. The primary step in monetary reform, then, is to turn FRNs into 100-percent-reserve redemption claims for gold coins.

The other step along this path to a market monetary system is to establish a 100 percent reserve of money against bank issued fiduciary media. The Fed's tripling of its balance sheet in response to the crisis of 2008 makes this part of the transition easier. Banks now hold reserves against their checkable deposits in excess of 100 percent. In early April, banks held \$1,587 billion in total reserves against \$1,204 billion in total checkable deposits. Fifty billion dollars of their total reserves consisted of vault cash and \$1,537 billion reserve balances in accounts with the Fed. Therefore, banks would need to build their cash reserves up to 100 percent of their checkable deposits of \$1,204 by redeeming \$1,154 billion of their reserve balances at the Fed for cash. The Fed could acquire the cash needed by selling some of the more than \$2 trillion in assets it built up on its balance sheet during the crisis or by printing more FRNs or some combination of the two. Whatever the total value of FRNs was at the point where checkable deposits are 100 percent backed by a reserve of cash, the redemption value of all FRNs could be set by calculating the ratio of FRN to the gold holdings of the Fed. If no change in the stock of FRNs outstanding was necessary to accomplish the transition, then the calculation would be as follows. The Fed is showing on its balance sheet of April 18, \$11.041 billion in gold holding. Valued at \$42.22 per ounce, this is 261.5 million ounces of gold. On the same balance sheet, the Fed shows \$1,100,160 million in currency in circulation. Thus, the redemption ratio would be \$4,207 per ounce of gold. The actual calculation, however, could only be done after an audit of the Fed and

¹³⁵ Carl Menger, "On the Origin of Money," *Economic Journal* 2 (1892): 239-55; Peter G. Klein and George A. Selgin, "Menger's Theory of Money: Some Experimental Evidence," in John Smithin, ed., *What Is Money?* (London: Routledge, 2000), pp. 217-34.

¹³⁶ On such monetary reform, see Rothbard, *Mystery of Banking*, pp. 247-268; Salerno, *Money, Sound and Unsound*, pp. 333-363; and de Soto, *Money, Bank Credit, and Economic Cycles*, pp. 736-745.

the process of establishing a 100 percent cash reserve, described above, were completed.¹³⁷

Once this transition was accomplished, the government should permit private production of money and money certificates according to the general laws of commerce. Mining and minting companies would produce commodity money that people made profitable by their demands. To earn profit, entrepreneurs would produce coins from the metals, in the weights, and with the designs people preferred. They would keep their costs down and invest and innovate when people's demands made it profitable. Scholars have chronicled many historical episodes of private production of coins. Recently, George Selgin, in his book *Good Money*, has recounted the production of private coinage in England in the late 18th and early 19th centuries. As he shows, private coinage thrived until the British government outlawed it in 1821.¹³⁸

Banks, too, should be put under the general laws of commerce including those relating to warehousing money by holding a 100 percent reserve of money against their money substitutes. Banks would earn profit by producing the amounts and types of money substitutes that satisfied people's demands. To earn profit, they would keep their costs down and invest and innovate when people's demands made it profitable. The operation of 100 percent reserve banking is described in Jesús Huerta de Soto's book, *Money, Banking, and Economic Cycles*. As he documents, money warehouse banks thrived in Amsterdam for over a hundred years in the 17th and 18th centuries.¹³⁹

Conclusion

No one can describe today the configuration of commodity money and money certificates that entrepreneurs would bring about if permitted to operate private enterprises in their production any more than one could have predicted in 1900 the development of the 21st century automobile industry or predicted in 1950 the 21st century consumer electronics industry. What we do know is that their production would be regulated by profit and loss and therefore, would result in the satisfaction of people's preferences. The monetary inflation and credit expansion of our elastic currency system would be

¹³⁷ Data from Federal Reserve Statistic Releases: H.3 Aggregate Reserves of Depository Institutions; H.6 Money Stock Measures; and H.4.1 Factors Affecting Reserve Balances. April 19, 2012.

¹³⁸ George Selgin, *Good Money: Birmingham Button Makers, the Royal Mint, and the Beginnings of Modern Coinage, 1775-1821* (Ann Arbor: University of Michigan Press, 2008).

¹³⁹ De Soto, *Money, Bank Credit, and Economic Cycles*, pp. 37-114.

eliminated and with it the booms and busts that have plagued our history.

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Introduction

I specialize in the economic theory of organizations—their nature, emergence, boundaries, internal structure, and governance—a field that is increasingly important in economics and was recognized with the 2009 Nobel Prize awarded to Oliver Williamson and Elinor Ostrom. (Ronald Coase, founder of the field, is also a Nobel Laureate). Much of my recent research concerns the economics of entrepreneurship and the entrepreneurial character of organizations, both private and public. Like business firms, public organizations such as legislatures, courts, government agencies, public universities, and government-sponsored enterprises seek to achieve particular objectives, and may innovate to achieve those objectives more efficiently.¹⁴⁰ Public organizations, like their for-profit counterparts, may act entrepreneurially: They are alert to perceived opportunities for gain, private or social, pecuniary or not. They control productive resources, both public and private, and must exercise judgment in deploying these resources in particular combinations under conditions of uncertainty. Of course, there are important distinctions between private and public organizations—objectives may be complex and ambiguous, performance is difficult to measure, and some resources are acquired by coercion, not consent.

In the remarks below I evaluate the Federal Reserve System—and the institution of central banking more generally—from the perspective of an organizational economist. While I strongly disagree with many of the key policies of the Federal Reserve Board both before and after the Financial Crisis and Great Recession, my argument does not focus on particular actions taken by this or that Chair and Board. The problem is not that the Fed has made some mistakes—perhaps addressed by restating its statutory mandate, scrutinizing its behavior more carefully, and so on—but that the very

¹⁴⁰ Peter G. Klein, Anita M. McGahan, Christos N. Pitelis, and Joseph T. Mahoney, "Toward a Theory of Public Entrepreneurship," *European Management Review* 7 (2010): 1-15.

institution of a central monetary authority is inherently destabilizing and harmful to entrepreneurship and economic growth.

A central bank is a government entity in charge of the monetary system—an entity that “controls the money supply,” in layman’s terms—with the task of maintaining “price stability,” achieving a “full employment” of the economy’s resources, and other national economic performance objectives. (The Federal Reserve System is charged explicitly with achieving both price stability and full employment, the so-called “dual mandate” now challenged by proposals from Representatives Pence and Brady.¹⁴¹) The Fed, like other modern central banks, also serves as a “lender of last resort” tasked with protecting the financial system from bank runs and other panics by standing ready to make loans to commercial banks, using funds that are created instantly, from nothing, at the click of a mouse.

The central bank’s job, in short, is to “manage” the monetary system. As such, it is the most important economic planning agency in a modern economy. Money is a universally used good and the loan market, through which newly created money enters the economy, is at the heart of the investment process. Ironically, though economics clearly teaches the impossibility of efficient resource allocation under centralized economic planning, as demonstrated (theoretically) in the 1920s and 1930s by economists such as Ludwig von Mises and F. A. Hayek,¹⁴² and (empirically) by the universally recognized failure of centrally planned economies throughout the twentieth century, many people think that the monetary system is an exception to the general principle that that free markets are superior to central planning. When it comes to money and banking, in other words, it is essential to have a single decision-making body, protected from competition, without effective oversight, possessing full authority to take almost any action it deems in the best interest of the nation. The organization should be run by an elite corps of apolitical technocrats with only the public interest in mind.

And yet, everything we know about organizations with that kind of authority, without oversight, or any external check or balance, tells

¹⁴¹ H.R. 245 and H.R. 4180, respectively. Some observers refer to a “triple mandate” that also requires “moderate long-term interest rates.”

¹⁴² Ludwig von Mises, “Economic Calculation in the Socialist Commonwealth” [1920], in Hayek, ed., *Collectivist Economic Planning* (London: Routledge and Sons, 1935); F. A. Hayek, “Economics and Knowledge,” *Economica* NS 4(13): 33–54; Hayek, “The Use of Knowledge in Society,” *American Economic Review* 35(4): 519–30.

us that they cannot possibly work well. Just as economy-wide central planners lack the incentives and information to direct the allocation of productive resources, monetary planners lack the incentives and information to make efficient decisions about open-market operations, the discount rate, and reserve requirements. The Fed simply does not know the “optimal” supply of money or the “optimal” intervention in the banking system; no one does. Add the standard problems of bureaucracy—waste, corruption, slack, and other forms of inefficiency well known to students of public administration—and it becomes increasingly difficult to justify control of the monetary system by a single bureaucracy.¹⁴³ This is especially true when the good in question is money, the only good that exchanges against all other goods, meaning the good in which all prices are quoted. Mismanagement of the money supply not only affects the general price level, but distorts the relative prices of different goods and industries, making it more difficult for entrepreneurs to weigh the benefits and costs of various forms of action, leading to malinvestment, waste, and stagnation. Price inflation rewards debtors while punishing savers, just as artificially low interest rates reward homeowners while punishing renters. Instead, market forces should determine levels of borrowing and saving, owning and renting, and entrepreneurial activity. Put differently, the monetary system is so important that it cannot be entrusted to a government agency—even a scientifically distinguished, nominally independent, prestigious organization like the Federal Reserve System.

Critics of discretionary monetary policy have argued for fixed rules, such as Milton Friedman’s famous recommendation of a fixed rate of money-supply growth, or Professor Taylor’s more accommodating set of countercyclical rules.¹⁴⁴ Others debate whether inflation targeting or nominal-income targeting is a more straightforward and realistic policy for the Fed.¹⁴⁵ However, none of these proposals is as effective as eliminating the monetary authority

¹⁴³ Anthony Downs, *Bureaucratic Structure and Decision-making*. Rand Corporation: Santa Monica, Calif.: 1966; William A. Niskanen, *Bureaucracy in Representative Government*. Aldine-Atherton: New York, 1971); Peter G. Klein, Joseph T. Mahoney, Anita M. McGahan, and Christos N. Pitelis, “Capabilities and Strategic Entrepreneurship in Public Organizations,” *Strategic Entrepreneurship Journal*, forthcoming.

¹⁴⁴ Milton Friedman, *A Program for Monetary Stability* (New York: Fordham University Press, 1960); John B. Taylor, “Discretion versus Policy Rules in Practice,” *Carnegie-Rochester Conference Series on Public Policy* 39 (1993): 195–214.

¹⁴⁵ Christina D. Romer, “Dear Ben: It’s Time for Your Volcker Moment,” *New York Times*, October 29, 2011.

altogether, and relying on the voluntary decisions of market participants to determine the money supply and interest rates. A commodity standard, for example, removes even the possibility of central government intervention in the monetary system. If rules are better than discretion, the best policy is to eliminate all discretion, and to achieve a monetary standard that is wholly independent of political or technocratic interference.

The Fed's Performance Before and After 2008

My own views on monetary theory and policy derive from the “Austrian school” of Ludwig von Mises, F. A. Hayek, Murray N. Rothbard, and other important scholars and analysts.¹⁴⁶ From this perspective, the cause of the housing bubble was not irrational exuberance, corporate greed, or lack of regulation but the highly expansionist monetary policy of the Fed under Chairmen Greenspan and Bernanke.¹⁴⁷ After the dot-com crash the Fed turned on the printing presses, increasing the monetary base by 5.6% in 2001, 8.7% in 2002, and 6.3% in 2003, while MZM rose by 15.7%, 13.0%, and 7.3% during those years. Greenspan slashed the federal funds rate from 6.5% in January 2001 to 1% by June 2003, keeping it at 1% until late 2004, a level not seen since 1954. This infusion of credit led to overinvestment in housing and other capital-intensive industries, aided by federal government policies designed to increase the rate of home ownership by relaxing underwriting standards.¹⁴⁸

The correct response to the collapse of Lehman Brothers on September 16, 2008, and Washington Mutual ten days later, would have been to let these insolvent institutions fail and to encourage a

¹⁴⁶ Ludwig von Mises, *The Theory of Money and Credit* (New Haven: Yale University Press, [1912] 1953); F. A. Hayek, *Prices and Production* (London: Routledge & Sons, 1931); Murray N. Rothbard, *America's Great Depression* (Princeton, N.J.: D. Van Nostrand, 1963); Douglas W. Diamond and Raghuram G. Rajan, “Illiquidity and Interest Rate Policy,” NBER Working Paper No. 15197, July 2009.

¹⁴⁷ The monetary and financial system is one of the most regulated sectors of the US economy, and there hasn't been any “deregulation” since the Gramm-Leach-Bliley Act of 1999, which if anything mitigated the harm of the financial crisis by allowing acquisitions, such as Bear Stearns by JP Morgan Chase and Merrill Lynch by Bank of America, that shielded bondholders from losses.

¹⁴⁸ Marek Jarocinski and Frank R. Smets, “House Prices and the Stance of Monetary Policy,” *Federal Reserve Bank of St. Louis Review* (July 2008): 339–66; Stanley J. Liebowitz, “Anatomy of a Train Wreck: Causes of the Mortgage Meltdown,” in Randall G. Holcombe and Benjamin Powell, eds., *Housing America: Building Out of a Crisis* (Oakland, Calif.: Independent Institute, 2009); Johan Norberg, *Financial Fiasco: How America's Infatuation with Home Ownership and Easy Money Created the Economic Crisis* (Washington, D.C.: Cato Institute, 2009).

massive de-leveraging of the economy and an increase in savings and investment. An economic crisis represents a misallocation of productive resources, and the best policy response is to allow market participants to redirect resources from lower- to higher-valued uses. In short, once investments are revealed to be mistakes, it is critical to let the market *liquidate the bad investments as quickly as possible* to make them available for other purposes.¹⁴⁹ Of course, physical and human resources cannot be instantly and costlessly reallocated to alternative uses. However, contracting parties should be allowed to renegotiate resource use without central banks getting in the way. Existing mechanisms for liquidating existing investments and organizations, such as bankruptcy, should be used where appropriate.

The Fed, working hand-in-hand with the Treasury department under the Bush and Obama Administrations, has done precisely the opposite, bailing out insolvent financial institutions and industrial concerns, driving interest rates to zero, and injecting trillions of dollars into the financial system—increasing the monetary base, for example, by an average of 33.7% per year between 2008 and 2012, a cumulative increase of 198%. In short, the Fed’s philosophy has been *to prevent, as much as possible, entrepreneurs from liquidating any bad investments*—indeed, to perpetuate those bad investments as long as possible. Insolvent financial institutions, rather than go through bankruptcy and reorganization, with poorly performing executives replaced by better ones, have received billions of dollars of free money. Incompetent executives remain at the helm.

The Fed Has Too Much Power

The Fed’s defenders acknowledge that its recent actions are controversial. But, they say, that is the nature of the beast. Someone has to be in charge of the monetary system, and during a crisis, leaders have to make tough decisions. If not the Fed chairman and staff—intelligent, competent, well-trained economists—who else? Who better than the distinguished Princeton macroeconomist Ben Bernanke?

Economist Lawrence Ball produced an interesting paper in February of this year on the psychology of the chairman.¹⁵⁰ Ball

¹⁴⁹ Rajshree Agarwal, Jay B. Barney, Nicolai Foss, and Peter G. Klein, “Heterogeneous Resources and the Financial Crisis: Implications of Strategic Management Theory,” *Strategic Organization* 7, no. 4 (2009): 467–84.

¹⁵⁰ Lawrence M. Ball, “Ben Bernanke and the Zero Bound,” NBER Working Paper No. 17836, February 2012.

traced the evolution of Bernanke's thinking between 2000 and 2012, arguing that, since 2008, "the Bernanke Fed has eschewed the policies that Bernanke once supported." Ball attributes to the change in Bernanke's thinking to groupthink and to the chairman's own personality, which Ball describes as shy, withdrawn, and unassertive.

Without intending to, Ball makes powerful arguments against discretionary monetary policy itself, which relies on a small, elite group of powerful technicians, interest-group representatives, and political advisers to design and implement rules and procedures that affect the lives of millions, that reward some (commercial and investment bankers, homeowners) while punishing others (savers, renters), that shape the course of world events. Under central banking, there are no rules, only discretion. Do we really want a system in which one person's personality type has such a huge effect on the global economy?

Yes, the Fed's defenders insist. It is vital, they say, that the Fed not be constrained in any way from pursuing whatever policies it deems best. Federal Reserve officials are regarded as Plato's philosopher-kings. When a group of distinguished economists expressed skepticism in 2008 about what became the Troubled Assets Relief Program—the government rescue of inefficient, badly managed financial firms, Harvard's Gregory Mankiw offered the following response:

I know Ben Bernanke well. Ben is at least as smart as any of the economists who signed that letter or are complaining on blogs and editorial pages about the proposed policy. Moreover, Ben is far better informed than the critics. The Fed staff includes some of the best policy economists around. In his capacity as Fed chair, Ben understands the situation. . . . If I were a member of Congress, I would sit down with Ben, privately, to get his candid view. If he thinks [the bailout] is the right thing to do, I would put my qualms aside and follow his advice.¹⁵¹

One can hardly imagine a more dangerous perspective on government decision-making. It ignores differences in theoretical frameworks between, say, Keynesian, Austrian, monetarist, new classical, and other economists. It ignores differences in the interpretation of data, which is a matter of *judgment*, not intelligence. It ignores the possibility that key decision-makers, including Fed and Treasury officials, have private and conflicting interests. And of

¹⁵¹ N. Gregory Mankiw, "If I Were a Member of Congress," Greg Mankiw's Blog, September 26, 2008 (<http://gregmankiw.blogspot.com/2008/09/if-i-were-member-of-congress.html>).

course it ignores normative concerns—some citizens may oppose rewarding incompetent managers with taxpayer funds, regardless of the efficiency consequences. More generally, Mankiw’s argument would seemingly apply to any and all forms of government economic planning. Why have markets at all, if we can have smart, well-informed planners directing the allocation of resources?

Sadly, Mankiw is hardly alone in holding to this worldview.¹⁵² It is the implicit philosophy underlying the institution of central banking. And, to be sure, “Ben” did exactly the wrong things. Contrary to a popular storyline that the Fed and other central banks prevented financial catastrophe, and made the Great Recession less harmful than it otherwise would have been, the Fed’s actions have made a bad situation much worse, by perpetuating the very structural imbalances that brought about the Recession in the first place. The problem with the US economy today is hardly a lack of effective aggregate demand, as Keynesian economists like to say, but a structural imbalance brought about by two decades of cheap credit, imbalances the Fed is working hard to make permanent (e.g., keeping the discount rate close to zero, and promising to do so through the end of 2014). And needless to say, the issue here is not Chairman Bernanke himself, but the impossible situation he faces as Fed chair.

Fed Independence

In 2009 a group of economists circulated a petition in support of Federal Reserve “independence,” and against Congressional attempts to exercise increased oversight and governance.¹⁵³ The idea that the Fed must be independent of any external constraint and must not be audited, governed, or supervised in a serious manner has become a shibboleth of contemporary macroeconomic policy. But it should be challenged. I declined to sign the petition, for two reasons:

First, proponents of Fed independence focus exclusively on monetary policy, as if the Fed’s Congressional critics simply want to know how the Federal Funds Rate is set. But the Fed conducts not only monetary policy but fiscal policy as well, increasingly so since 2008. If the Fed can buy and hold any assets it likes,¹⁵⁴ if it works

¹⁵² Alan Blinder recently dismissed concerns about inflation resulting from the massive increase in the money supply since 2008: “To create the fearsome inflation rates envisioned by the more extreme critics, the Fed would have to be incredibly incompetent, which it is not.”

¹⁵³ “Petition for Fed Independence,” *Wall Street Journal*, July 15, 2009 (<http://blogs.wsj.com/economics/2009/07/15/petition-for-fed-independence/>).

¹⁵⁴ While the Fed primarily holds US Treasuries, it is legally permitted under Section 13(3) of the Federal Reserve Act to hold other assets under “unusual and exigent circumstances,” a

hand-in-hand with the White House and the Treasury to coordinate bailouts in the hundreds of billions of dollars, if it facilitates trillion-dollar deficits by buying all the treasuries the federal government wants to sell, isn't it reasonable to have a bit more oversight? (And don't forget bank supervision. Even the Fed's defenders recognize a need to separate its monetary-policy and bank-supervision roles. But as long as the Fed continues as a bank regulator, shouldn't someone should be watching the watchmen?)

Second, and more generally, the Fed is a national economic planning agency, and it performs about as well as every national economic planning agency in history. Have we learned nothing from the collapse of centralized economic planning in the Eastern Bloc, its demise in China, and its crippling hold on places like North Korea? "Independence," in this context, simply means the absence of external constraint. There are no performance incentives and no monitoring or governance. There is no feedback or selection mechanism. There is no outside evaluation. Why would we expect an organization operating in that environment to improve overall economic performance? The Fed is run by men, not gods.

Supporters of independence argue that Congressional or other oversight will pressure the Fed to pursue short-term goals (boosting output) at the expense of long-term performance (controlling inflation).¹⁵⁵ But these arguments ignore what economists, following Ronald Coase and Harold Demsetz, call "comparative institutional analysis."¹⁵⁶ Of course, there are potential hazards associated with Congressional oversight, but also potential benefits of stronger governance and greater transparency. For instance, exposing monetary policy (and the Fed's other controversial actions, e.g. bailing out foreign central banks) to Congressional scrutiny could put pressure on the Fed to service short-term political goals, but under the present system, the Fed can make trillion-dollar bets without any monitoring and feedback system. Unfortunately, cost-benefit analysis is usually forgotten where the Fed is concerned. Consider Mark Thoma's defense of independence: "The hope is that an independent

provision liberally exploited under the Bernanke Fed. See Christian A. Johnson, "Exigent and Unusual Circumstances: The Federal Reserve and the U.S. Financial Crisis," *European Business Organization Law Review* (forthcoming).

¹⁵⁵ See, for example, Anil K. Kashyap and Frederic S. Mishkin, "The Fed Is Already Transparent," *Wall Street Journal*, November 9, 2009.

¹⁵⁶ Ronald H. Coase, "The Regulated Industries: Discussion," *American Economic Review* 54 (1964): 194–97; Harold Demsetz, "Information and Efficiency: Another Viewpoint," *Journal of Law and Economics* 12, no. 1 (April 1969): 1–22.

Fed can overcome the temptation to use monetary policy to influence elections, and also overcome the temptation to monetize the debt, and that it will do what's best for the economy in the long-run rather than adopting the policy that maximizes the chances of politicians being reelected.”¹⁵⁷

This naive wish is simply that, a hope. Where is the argument or evidence that a wholly unaccountable Fed would, in fact, “do what's best for the economy in the long-run”? What are the Fed officials' incentives to do that? What monitoring and governance mechanisms assure that Fed officials will pursue the public interest? What if they have private interests? Maybe they are influenced by ideology. Suppose they make systematic errors. Maybe they are unduly influenced by the banking industry or other special-interest groups. To make a case for independence, it is not enough to demonstrate the potential hazards of political oversight. You have to show that these hazards exceed the hazards of an unaccountable, unrestricted, ungoverned central bank. A naive faith in the wisdom of central bankers to do what's right just isn't good enough.

Do We Need a Central Bank?

Without a central bank, how can a monetary system work? Don't we need a central bank to create bank reserves? Isn't the Fed necessary to maintain stable prices? Don't we need the government to create and regulate money? Actually, the reverse is true.

One of the first scientific analyses of the nature and origin of money, Carl Menger's 1892 essay “On the Origin of Money,” explains how money—a generally accepted medium of exchange—emerges from the trading patterns of individual market participants.¹⁵⁸ Menger was challenging the then-dominant “state theory of money,” which held that money must be created, *ex nihilo*, by benevolent central planners. Rather, as decades of research in monetary theory and history have shown, there is no need whatsoever for government participation in the monetary and financial system. Money—whether a physical commodity like gold or silver or their paper equivalents—is essentially a commodity that is selected and “governed,” so to speak, by the choices of entrepreneurs and consumers in the market. This is

¹⁵⁷ Mark Thoma, “Why The Federal Reserve Needs To Be Independent,” *CBS Moneywatch*, November 12, 2009 (http://www.cbsnews.com/8301-505123_162-39740151/why-the-federal-reserve-needs-to-be-independent/).

¹⁵⁸ Carl Menger, “On the Origin of Money,” *Economic Journal* 2 (1892): 239–55; Peter G. Klein and George A. Selgin, “Menger's Theory of Money: Some Experimental Evidence,” in John Smithin, ed., *What Is Money?* (London: Routledge, 2000), pp. 217–34.

as true today, in an era of paper currencies and electronic payments, as it was under the international gold standard. There is no need for a government agency to increase or decrease the supply of money. Indeed, according to the Austrian school, government attempts to control the money supply create distortions in the economy by interfering with relative prices and warping the capital structure, encouraging the bad investments that manifest themselves over the course of the business cycle. Rather, the value of money should be determined on the market, as part of the normal, day-to-day process of exchanges between money and goods and services.

How, then, is price stability to be maintained? The answer is that the economy doesn't need "stable" prices, just market prices. Some of the proposals discussed at this hearing suggest removing the Federal Reserve Act's language about "maximum employment," keeping just the part about "stable prices." Eliminating the dual mandate would be a step in the right direction, as it would reduce the Fed's incentive to increase the money supply when unemployment rates rise beyond some arbitrary threshold. But the requirement of price stability should be removed as well. The idea that a central bank is needed to maintain a stable or modestly rising price level—to prevent high levels of inflation, in other words—is based on a misunderstanding of inflation. In a growing economy, with a stable or slightly growing money supply (as under a commodity standard), prices will tend to fall, as in the US during the 19th century, when the US experienced dramatic increases in production and living standards. Price levels rise because the real economy is shrinking or—as is almost universally the case in practice—because the money supply is increasing faster than the increase in real production. Inflation is not caused by an "overheated" economy that the government needs to somehow cool off. Inflation, as Milton Friedman famously put it, is everywhere and always a monetary phenomenon. Central banks don't fight inflation; they create it.

But isn't it vital that a government agency try to control interest rates, keeping interest rates sufficiently low to generate economic growth? Not at all. Interest rates are prices, prices that clear the markets between suppliers and demanders of loans. Increasing the money supply in an attempt to lower interest rates can indeed give the economy a short-term "boost," but at the cost of channeling resources into areas—housing, for instance—where the market does not want them to go. Driving down interest rates below their market-clearing rates does not create real economic growth, but only distortions, by making it more difficult for entrepreneurs to

anticipate the future goods and services that consumers will want to purchase, and thus be profitable.¹⁵⁹ Credit expansion shifts wealth from savers to borrowers (and, in the case of mortgage lending, from renters to owners), from less time-sensitive investment projects to more time-sensitive ones; and from those who are last to receive the new money to those who are first in line.¹⁶⁰ In short, activist monetary policy always, whether intentionally or not, picks winners and losers, increases uncertainty, and destroys real wealth.¹⁶¹ We don't want a government agency setting the price of tomatoes or shoes or forklifts or computer software; why do we want a government agency setting the price of loans?

What about the need for a lender of last resort? Even proponents of central banking recognize that the lender-of-last-resort function encourages what economists call “moral hazard”: banks take on more risk than they would if they had to bear the full consequences of their portfolio decisions. The presence of a central bank, armed with an infinite supply of “liquidity,” ready to supply liquidity to any bank in financial distress, discourages prudent behavior.¹⁶² Diamond and Rajan link the Financial Crisis to “the actions of the Federal Reserve earlier in the decade, not only in convincing the market that interest rates would remain low for a sustained period following the dot-com bust because of its fears of deflation, but also in promising to intervene to pick up the pieces in case of an asset price collapse—the so-called Greenspan put.”¹⁶³

More generally, a dynamic, wealth-creating market economy relies on the power of competition—what Joseph Schumpeter famously called “creative destruction”—to sort between high-valued and low-valued use of resources, including the displacement of less

¹⁵⁹ In Mises's terminology, credit expansion that lowers interest rates, increases price levels, and alters relative price ratios “falsifies economic calculation.” Ludwig von Mises, *Human Action: A Treatise on Economics* (New Haven: Yale University Press, 1949), pp. 549 and 553.

¹⁶⁰ Mark Spitznagel, “How the Fed Favors the 1%,” *Wall Street Journal*, April 19, 2012.

¹⁶¹ Robert A. Higgs, “Regime Uncertainty: Why the Great Depression Lasted So Long and Why Prosperity Resumed after the War,” *Independent Review* 1, no. 4 (1997): 561–90; Scott R. Baker, Nicholas Bloom, and Steven J. Davis, “Measuring Economic Policy Uncertainty,” Working paper, Chicago Booth School of Business, 2011.

¹⁶² Indeed, programs such as the Troubled Assets Relief Program are forms of corporate welfare that redistribute resources from the more prudent financial institutions—for example, banks that stayed out of the market for mortgage-backed securities—to the more reckless ones.

¹⁶³ Diamond and Rajan, p. 33.

efficient firms by their more efficient rivals. The banking industry is no different. If a bank, like any other business, cannot profitably produce goods and services that its customers demand, it should be liquidated and its assets made available to entrepreneurs who can do a better job. Bailouts, subsidies, and other forms of special privilege for particular entrepreneurs hinder the market process of directing productive resources to their highest valued uses. As Luigi Zingales reminds us, the price of bailouts is “billions of dollars in taxpayer money and, even worse, the violation of the fundamental capitalist principle that she who reaps the gains also bears the losses.”¹⁶⁴ Besides explicit bailouts, implicit subsidies from “too-big-to-fail” guarantees stymie the entrepreneurial selection process, not only by protecting unsuccessful entrepreneurs and entrepreneurial ventures, but also by rewarding lobbying and other forms of rent-seeking, directing investment toward subsidized activities (at the expense of consumer preferences), and discouraging entry by nascent entrepreneurs who lack political connections.

These principles apply fully to the banking industry. Of course, financial firms are closely linked through complex transactions and instruments such as derivatives and other contracts. The failure of a particular financial institution imposes costs on various counterparties, including other financial institutions. But the production of virtually every good and service in a mature industrial economy is characterized by a complex, interlocking web of transactions, mutual obligations, and contractual relationships. Banking is not unique in this regard. Yet we do not worry about contagion effects sweeping the computer hardware or retail clothing or dairy industry should one or two leading firms go bankrupt. Moreover, the extent to which parties expose themselves to counterparty risks, in banking or any other industry, depends on the protections offered by the regulatory system. If a computer hardware company knows that it is Too Big to Fail, or that a Computer Industry Resource Provider of Last Resort stands ready to supply labor, machines, and raw materials in case of trouble, that company will engage in all kinds of risky behaviors it would have otherwise avoided.

¹⁶⁴ Luigi Zingales, “Why Paulson is Wrong,” VoxEU, September 21, 2008 (<http://www.voxeu.org/index.php?q=node/1670>).

Alternatives to Central Banking

Many scholars and practitioners support the Federal Reserve System, and central banking more generally, because they cannot conceive of any alternative. “If we got rid of the Fed,” they ask, “who would control the money supply?” Of course, to ask the question that way is to answer it: the market would control the money supply, just as it “controls” the tomato supply, the shoe supply, the forklift supply, and the Angry Birds supply.

Exactly how a market-based monetary system would function, what form it would take, and how an economy can transition from government-controlled to market-based money, are interesting and important subjects that have stimulated large and growing academic and practitioner literatures.¹⁶⁵ Most proponents of market-based money favor a commodity standard, though competing paper currencies have been suggested as well.¹⁶⁶ All these schemes have the basic advantage of taking the value of money out of the hands of government planners, allowing it to be determined by supply and demand, as with every other good and service in a market economy.

Another advantage of a commodity standard is that it prevents allowing a central bank to monetize the government’s debt by purchasing government bonds (and reducing debt payments by generating price inflation). In the interest of transparency, it is far better to require that federal government spending be financed through taxation or borrowing from the public. Wouldn’t this constrain the federal government’s ability to “stimulate” the economy with increased spending during times of recession? Yes, and that’s exactly the point—a commodity standard imposes fiscal discipline, something the US economy desperately needs. Such discipline would rescue entrepreneurs from the unpredictable and often arbitrary whims of monetary planners, freeing them to invest, innovate, and create economic growth—not just in the long run, but in the short run as well.

¹⁶⁵ Murray N. Rothbard, “The Case for a 100 Per Cent Gold Dollar,” in Leland Yeager, ed., *In Search of a Monetary Constitution* (Cambridge, Mass.: Harvard University Press, 1962), pp. 94–136; Friedman, *A Program for Monetary Stability*, pp. 4–8; George A. Selgin and Lawrence H. White, “How Would the Invisible Hand Handle Money?” *Journal of Economic Literature* 32, no. 4 (1994): 1718–49; Rothbard, *The Case Against the Fed* (Auburn, Ala.: Ludwig von Mises Institute, 1994), pp. 146–51.

¹⁶⁶ F. A. Hayek, *Denationalization of Money*. London, Institute of Economic Affairs, 1974.

Conclusion

There is an old joke about a central bank official picking up a pizza. (Perhaps it's Chairman Bernanke, on his way home after a long day of quantitative easing.) The clerk asks, "Do you want it cut in six slices, or eight?" The central banker responds: "I'm feeling extra hungry today; better make it eight."

Of course, dividing the stock of goods and services by a larger quantity of money does not create wealth. One of the most important lessons of economic theory is that the only way for a society to generate economic growth is to consume less than it produces. The surplus (real savings) can be invested in the production of capital goods (and innovation) that allows for greater production in the future. Conversely, one of the oldest economic fallacies is the idea that the economy sometimes gets "stuck" with low production and high unemployment due to a shortage of money, and that the way to get it unstuck is to print more money to increase "total spending"—to consume more than the economy produces. Some sixty years ago Ludwig von Mises ridiculed this as the "spurious grocer philosophy" (the merchant's view that his products aren't selling because buyers lack enough currency), noting that this fallacy is essentially the philosophy of Lord Keynes, the twentieth-century apostle of central banking and macroeconomic stabilization policy.

Keynes was wrong. Cheap credit does not help bring an economy out of recession (particularly when it was cheap credit that caused the recession in the first place). More generally, a monetary system controlled by an all-powerful central bank is inherently destabilizing and harmful to economic growth. The mistakes made by the Fed before and after 2008 are not isolated incidents, mistakes that can be corrected by making minor changes to the Fed's charter, structure, or independence. They are the predictable result of giving control of the monetary and financial system to a government agency. The best option is to replace the central bank and let the market be in charge of money.

The position advocated here is often dismissed as radical or extreme, a kind of "market fundamentalism" (to use a derogatory term). But it is a reasonable, pragmatic, realistic view. Economics and management scholarship teach that monopoly providers are inefficient and ineffective, and a government monopoly on money is no different. Markets are not perfect, but neither are Fed chairs. It's time to make the supply of money independent of political interference.

**WRITTEN TESTIMONY OF
JOHN B. TAYLOR, Ph.D.**

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Chairman Paul, Ranking Member Clay, and other members of the subcommittee, I thank you for the opportunity to testify at this hearing on improving the Federal Reserve System. I especially appreciate the efforts of this subcommittee to bring these crucial monetary policy issues to a prominent place in the public debate. As you requested, I will first explain why there is a need for improvement and then consider whether this need is addressed by six reform bills:

- *H.R. 245* introduced by Rep. Mike Pence,
- *H.R. 1094* introduced by Rep. Ron Paul,
- *H.R. 1401* introduced by Rep. Marcy Kaptur,
- *H.R. 2990* introduced by Rep. Dennis Kucinich and John Conyers,
- *H.R. 3428* introduced by Rep. Barney Frank, and
- *H.R. 4180* introduced by Rep. Kevin Brady and others.

A Need for Improvement

Nearly a century of experience under the Federal Reserve Act has provided plenty of evidence that more systematic rules-based monetary policies work and more unpredictable discretionary policies don't. The Fed's well-known mistake of cutting money growth in the Great Depression which led to very high unemployment is now part of a much larger body of evidence. From the mid-1960s through the 1970s, the Fed intervened with discretionary go-stop changes in money growth that led to frequent recessions, high unemployment, low economic growth, and high inflation. In contrast, through the 1980s and 1990s and until recently the Fed ran a more predictable, systematic policy with a clear price stability goal, which eventually led to lower unemployment, lower interest rates, longer expansions, and stronger economic growth.

Recently, however, the Fed has returned to unpredictable discretionary policies with disappointing results. Starting in 2003-

2005 it departed from the more systematic policies it followed in the 1980s and 1990s. It held interest rates too low for too long and thereby encouraged excessive risk-taking and the housing boom. It then overshot the needed increase in interest rates which worsened the bust. Since then the interventions have been truly extraordinary, even if you ignore actions during the 2008 panic—including the bailouts of the creditors of Bear Stearns and AIG—and consider only quantitative easing—the large scale purchases of mortgage-backed securities and longer term treasuries in 2009 and later.

In fact, the Fed's discretion is virtually unlimited. To pay for its large-scale securities purchases, it simply credits banks with electronic deposits—called reserve balances. The result has been an explosion of reserve balances. Before the 2008 panic, reserve balances were about \$10 billion. Now they are \$1,493 billion. If the Fed had stopped with the emergency responses of the 2008 panic, instead of embarking on quantitative easing, reserve balances would now be back to normal levels. This large expansion of reserve balances creates risks. If it is not undone, then the bank reserves will eventually pour out into the economy, causing inflation. If it is undone too quickly, banks may find it hard to adjust and pull back on loans.

The very existence of quantitative easing as a policy tool creates unpredictability, as traders speculate whether and when the Fed will intervene and guess what the impact will be. That the Fed can intervene without limit into any credit market—not only mortgage-backed securities but also securities backed by automobile loans or student loans—creates more uncertainty and raises questions about why an independent agency of government should intervene in these areas at all. In the spirit of the Constitution, they are best left to the Congress and the president through the appropriations process.

Reform Proposals

For all these reasons, there is a great need for improvement in the degree to which the Federal Reserve follows rules rather than discretion. To achieve this end, some argue that we should abolish the Fed, as does *H.R. 1094*, repeal the Federal Reserve Act, and perhaps replace it with a commodity standard. The goal of such legislation is to move American monetary policy away from discretion and toward rules. However, a more practical and effective approach, in my view, is to reform the Federal Reserve and create strong incentives for rule-like behavior.

The starting place for such a reform is the recognition that a clear well-specified goal usually results in a consistent and effective strategy for achieving that goal. Too many goals blur responsibility and accountability, causing decision makers to choose one goal some times and another goal at other times in an effort to chart a middle course. In the case of monetary policy, multiple goals enable politicians to lean on the central bank to do their bidding and thereby deviate from a sound money strategy. More than one goal can also cause the Federal Reserve to exceed the normal bounds of monetary policy—moving into fiscal policy or credit allocation policy—as it seeks the additional instruments necessary to achieve multiple goals.

Despite these obvious pitfalls, a multiple mandate for the Fed swept in during the great interventionist wave of the 1970s, when Congress passed the Federal Reserve Reform Act of 1977. This law explicitly gave the Federal Reserve the goals of promoting both “maximum employment” and “stable prices.” This was the wrong remedy for the inflationary boom-bust economy at the time, and monetary policy worsened for a while.

Paul Volcker reversed policy when he became chairman in August 1979, focusing on inflation like a laser beam. Of course he had to interpret the law in a way consistent with this reversal. To achieve maximum employment, he argued that he had to reduce inflation even if that increased unemployment in the short run. While that approach eventually worked well, it also set a precedent that the dual mandate was open to interpretation by Fed officials. In recent years the dual mandate has been used by the Fed to justify massive interventions on the questionable grounds that these will reduce unemployment in the short run.

Thus, an important step toward a more rule-like policy would be to remove the dual mandate and bring focus to a single goal as does *H.R. 4180*, introduced by Rep. Kevin Brady and others, in which the goal is “long-run price stability” or *H.R. 245*, introduced by Rep. Mike Pence, in which the goal is “stable prices.” In my view, the adjective “long-run” is useful because it clarifies that the mandate does not mean that the Fed should overreact to minor short-run ups and downs in inflation from month to month or even quarter to quarter. The single mandate wouldn't stop the Fed from providing liquidity when money markets freeze up as they did after the 9/11 terrorist attacks, or serving as lender of last resort to banks during a panic, or reducing the interest rate in a recession.

Some worry that a focus on the goal of price stability would lead to more unemployment. But history shows just the opposite. One

reason the Fed kept its interest rate too low for too long in 2003-05 was the concern that higher rates would increase unemployment, contrary to the dual mandate. If the single mandate had prevented the Fed from keeping interest rates too low for too long, then it would likely have avoided the boom and bust which led to very high unemployment.

Recent history shows that a single mandate would help to avoid excessive discretionary interventions. Since 2008 the Fed has explicitly cited the dual mandate to justify its unusual interventions, including the quantitative easing from 2009 to 2011. During the 1980s and 1990s, Fed officials rarely referred to the dual mandate, even during the period in the early 1980s when unemployment rates were as high as today. When they did so, it was to make the point that achieving price stability was the surest way for monetary policy to keep unemployment down. In fact, until the recent interventionist period, written policy statements and directives from the Fed did not mention the “maximum employment” part of the dual mandate in the Federal Reserve Act. There was not a single reference from 1979 until late 2008, just as the Fed was about to embark on its first bout of quantitative easing. It increased its references to maximum employment in the fall of 2010 as it embarked on its second bout of quantitative easing.

While a single mandate would reduce excessive discretionary interventions and encourage more rule-like policy, it would be wise to supplement the existing legislative proposals with additional incentives for the Fed to place greater emphasis on the strategy or rule for setting the monetary policy *instruments* (the interest rate or the monetary aggregates). Until the year 2000 the Federal Reserve Act had a specific reporting requirement about the growth of the monetary aggregates. It called for the Fed to submit a report to Congress and then testify about its plans for money growth for the current and next calendar years.

The reporting requirement was fully repealed in 2000, because the data on money growth had become less reliable as people found alternatives to money—such as credit cards or money market mutual funds—to make payments. The Fed thus focused more on the interest rate, but the problem was that nothing about reporting on its interest rate policy was put in its place of its reporting about money growth.

In order to further encourage more rule-like monetary policy, the Congress could reinstate the reporting requirements. But rather than focus only on money growth, it would also focus on the

systematic response of the interest rate that changes in money growth bring about. In doing so, it would not require that the Fed choose any particular rule for the interest rate, only that it establish some rule and report what the rule is. But if the Fed deviates from its chosen strategy, it must provide a written explanation and testify at a public congressional hearing.

In addition to the change in the mandate and enhanced reporting requirements, overall restraints on the composition and the size of the Federal Reserve's portfolio would reduce monetary policy uncertainty. It is therefore appropriate, in my view, to limit asset purchases by the Fed to U.S. Treasury securities, as called for in **H.R. 4180** with exceptions as provided in that bill. This would also clarify that the Fed's responsibility is monetary policy not credit allocation policy, and thus strengthen the independence of the Fed. In contrast **H.R. 2990**, introduced by Rep. Kucinich, would effectively reduce the independence of monetary policy decisions by creating a new monetary authority under the general oversight of the Secretary of the Treasury.

Improving the balance of voting rights on the Federal Open Market Committee (FOMC) would also reduce the likelihood of harmful discretionary actions. Giving all Federal Reserve district bank presidents voting rights at every FOMC meeting, as called for in **H.R. 4180**, would better balance voting power across the entire economy and reduce the tendency for policy decisions to favor particular regions, sectors, firms, or groups over others. **H.R. 1401**, introduced by Rep. Marcy Kaptur, also improves the balance among the district banks and Federal Reserve Board members by having the voting authority of all the presidents rotate on and off in the same manner and by reducing the length of terms of the members of the Board of Governors. **H.R. 3428** introduced by Rep. Barney Frank would worsen the balance, in my view, by replacing the district bank presidents who vote on the FOMC with additional Fed Board members thereby concentrating more power in Washington and likely increasing the discretionary power of the Federal Reserve.

In sum, legislative reforms which clarify the Fed's mandate, enhance reporting requirements about its strategy or rule for the monetary instruments, restrict the nature of the its purchases of securities, and balance voting rights on the FOMC would allow Congress to exercise appropriate political control without becoming involved in day-to-day monetary policy operations or otherwise micromanaging the Fed. In my view the reforms would enhance the independence of the Fed by adding reassuring accountability

appropriate for an independent agency of government and clarifying that its overall responsibility is monetary policy not fiscal policy or credit allocation policy. History and basic economics tells us that such reforms would greatly improve employment and price stability and would help restore America's prosperity.

**WRITTEN TESTIMONY OF
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Chairman Paul, Ranking Member Clay, Members of the Subcommittee, it is always an honor as a former member of the Banking Committee staff to appear before you. Today I feel particularly privileged as I was on the staff from 1975 through 1980 and on the team that drafted the Humphrey-Hawkins Full Employment and Balanced Growth Act of 1978. I drafted the Federal Reserve oversight sections of that act, and it was my responsibility to organize the hearings on the Conduct of Monetary Policy in those years, beginning with the enactment of H. Con. Res. 133 in 1975.

Let me join in the frustration that underlies the bills before you. The Constitution gives to Congress the right “to coin money, regulate the value thereof.” The Congress correctly delegates the exercise of that power, but it also maintains its authority to set goals and to supervise the execution of policy. It has been a long struggle to establish the right relationship between Congress and the Federal Reserve, and to bring the right degree of openness, responsiveness and accountability to that relationship.

I endorse H.R. 3428, which would remove the Presidents of the District Federal Reserve Banks from voting status on the Open Market Committee. The Presidents are not duly constituted “Officers of the United States” under the appointments clause of the Constitution. Their status as monetary policy-makers is anomalous, and as the Supreme Court ultimately declined to grant certiorari when the issue was litigated by Chairman Reuss and Senator Riegle many years ago, the only remedy is legislation. HR. 3428 would take a useful step along the path to a better central bank.¹⁶⁷

¹⁶⁷ HR 1401 would shorten the terms of the Governors and rearrange the memberships of Presidents on the FOMC; it offers improvement over current arrangements but it does not address the constitutional issue. For this reason I would prefer the solution proposed in HR 3428. Another solution would be to vest the entire voting power on monetary policy in the Board of Governors, and constitute the Presidents as a non-voting Advisory Committee. This would solve the constitutional question while making the smallest adjustment to present arrangements, since all the Presidents (or their representatives) attend the FOMC meetings in any event. In comparison, I can see no compelling reason to create full-time positions at the Board of Governors for functionaries whose entire job would be to contemplate a short-term interest rate that may not deviate from zero for years and years. On the history of

That said, we cannot escape the need for a central bank. The United States before the Federal Reserve Act suffered from chronic deflation and financial panics; for this reason the period from 1873 to 1896 was known as the Great Depression, until the 1930s got that title. In the past century only the communist countries dispensed with central banks and private banking firms, and this arrangement did not serve them well.¹⁶⁸ For this reason, I cannot join in supporting bills that would repeal the Federal Reserve Act or bar lending by commercial banks.¹⁶⁹

The key issue on which I would like to comment today is not whether to have a central bank or who should vote on policy. It is what mandate Congress should give to the central bank. This is an issue fraught with politics and ideology – and worse, with economic theory.

When I served on this staff, my colleagues included the Chicago monetarists Robert Weintraub and Robert Auerbach. We worked together under Chairman Reuss to develop the “dual mandate,” which was expressed as “to promote full employment, production, and real income, balanced growth, adequate productivity growth, proper attention to national priorities, and reasonable price stability” in the

congressional lawsuits against voting participation by the District Bank Presidents on the FOMC, see Robert D. Auerbach: <http://tinyurl.com/7bw93cs>, especially this paragraph: *“...during the 1980s, four lawsuits were brought to require the presidents of the twelve Federal Reserve Banks to be Constitutional officers: Presidential nomination and Senate confirmation. The complainants believed that individuals who vote on the nation's money supply -- and also vote on loans to foreign governments and warehousing funds for the Treasury, both bypassing Congress -- should not be internally selected without displaying their views and credentials in a public Senate confirmation hearing. The complainants were House Banking Chairman Henry Reuss, (Democrat, Wisconsin), Senate Banking Chairman Donald W. Riegle Jr. (Democrat, Michigan), Senator John Melcher (Democrat, Iowa) and The Committee for Monetary Reform (President and Chairman Randall E. Presley of a coalition of 95 corporations and 779 individuals). Two former staffers on the Democratic staff of the House Banking Committee assisted: Grasty Crews argued these cases and I was an expert advisor. The lawsuits failed and the use of internally appointed people to make government policies is still a contentious issue as is exemplified in the 2010 Reform Act's provision for the Inspector General of the new Bureau of Consumer Financial Protection.”*

¹⁶⁸ The case of Hong Kong is celebrated by opponents of monetary discretion, but Hong Kong was a colony before it was returned to China in 1997. I also pass over such countries as Panama and Ecuador which have adopted the US dollar, and the zone franc countries of West Africa, which rely on Paris. All major industrial countries in the world today have central banks and private banking systems; to depart from this norm would be, at least, a substantial experiment.

¹⁶⁹ I confess I do not yet fully understand the thrust of HR. 2990, which I received only this past Friday. The bill accurately calls attention to the dire conditions faced by many Americans and calls appropriately for action. But the apparent direction of action, to forbid “lending against deposits,” seems to overlook the fact that bank loans create deposits in the first place. However, I have not had time to study the later sections of this bill in detail.

preamble of the Humphrey-Hawkins Act and as “maximum employment, stable prices and moderate long-term interest rates” in the Federal Reserve Act.

My staff colleagues were committed monetarists. They believed that the Federal Reserve should pursue a policy of monetary control, to contain inflation. But they did not try to dictate that to the Federal Reserve. Nor would I have tried to dictate the pursuit of full employment over all other policy goals. Writing economic theory into law is dangerous and we steered clear of it as best we could.

The purpose of the Full Employment and Balanced Growth Act in this area was instead to open a sustained dialog between the Federal Reserve and Congress, with honest and forthright reporting on economic conditions, on the outlook and on the goals and instruments of policy at any given time. We understood that conditions change. We realized that economic ideas flow in and out of fashion. We felt that the goals of Congress were best served by stressing the element of dialog and oversight, within a broad framework of agreed objectives.

The Humphrey-Hawkins Act did require the Federal Reserve to specify the range of growth rates of the major monetary aggregates that it believed consistent with its economic goals and objectives. This provision was not intended to impose a strategy of monetary control on the Federal Reserve. The intent was to permit the Banking Committees to monitor the Federal Reserve's forecasting and modeling. We felt that to allow the Federal Reserve to report in terms of economic forecasts alone would make it too easy to evade discussion of what might and should be done under differing conditions.

To stipulate an intermediate target range in terms of interest rates would, at that time, have been highly controversial. Money-growth target ranges were something conservatives could accept, because of monetarism, and that the Federal Reserve could tolerate because they were not the operational tool of open market policy. Then in the mid-1980s the relationship between money growth and prices collapsed and so did the idea that target ranges for money growth were a useful indicator of Federal Reserve policy. However, because the law had been drafted to be intellectually flexible, the congressional oversight procedures survived this statistical and academic upheaval.

This system has been in place for 37 years since H. Con. Res 133; 34 years since Humphrey-Hawkins. It has been used effectively on some occasions, less so on others. But it has stood the test of time. It

has withstood changes in the wording of the law governing the hearings and reporting process. It is a robust procedure because it serves the interests of Congress, of the central bank, and of the public.

Two bills before you would now strike the employment objective presently found in the Federal Reserve Act, leaving only “price stability” and (in the case of HR 245) “moderate long-term interest rates” as statutory goals. In this they would emulate the model of the European Central Bank, whose charter stipulates price stability as the predominant mandate for that institution. HR. 4180 would be less flexible than the charter of the ECB, which permits the pursuit of other goals so long as the primary objective of price stability is met.

The presence of “price stability” among monetary policy objectives is established law; the question is whether it should be (apart from “moderate long-term interest rates”) the sole stated objective. The case that this is so rests on a technical hypothesis, known as the “natural rate of unemployment” or “nonaccelerating inflation rate of unemployment” (NAIRU). This hypothesis was advanced by Milton Friedman and by Edmund S. Phelps in 1967, and it has been a staple of textbooks, but also of controversy, ever since.

In a nutshell, the Friedman-Phelps natural rate hypothesis held that the labor market would settle the rate of employment and output, that money is “neutral” in the long run, and that any effort to create jobs with expansionary monetary policy would lead to runaway inflation. (The theory has bells and whistles, including “adaptive” or “rational” expectations and a “vertical Phillips Curve,” but that is the essence of it.) From this it follows that the best strategy for monetary policy is to pursue a steady rate of inflation; other matters will take care of themselves. And from there one can argue that the best steady rate of inflation is a zero rate. It is this that HR 4180 and HR 245 would now write into law.

A variant on this position is called “inflation targeting,” which has been supported by Chairman Bernanke, at least in academic work. The theoretical target under inflation targeting is a *stable* rate of inflation, not necessarily a *zero* rate. Advocates argue that inflation targeting is consistent with the dual mandate, because (in their view) that rate of employment at which inflation is stable is the maximum sustainable rate. If that is correct, then the employment part of the dual mandate causes no harm and there is no cause to remove it. In a sense, under this view, the presence of “maximum employment” in the mandate is what *permits* non-zero-inflation targeting to be an accepted policy.

“Price stability” is a stricter standard. To remove “maximum employment” from the mandate would seem to imply a directive from Congress to pursue *zero inflation at whatever cost to jobs*. In a world where wages normally vary with the changing age structure of the population (they tend to rise as workers get older) and where some important prices are set outside the country, this is a mandate to generate unemployment, so as to force internal devaluation, in response to practically any form of internal change or external stress.

We can see a policy of this type at work in Europe, where there is a two-percent inflation standard. It is producing a relentless debt-deflation, under which unemployment rises, social institutions such as education, health care and transport are destroyed, and yet public deficits and the ratios of debt to GDP continue to soar. The unemployment rate in Spain today is twenty-five percent. At a meeting in Berlin in April, a high official of the European Central Bank stated that the ECB had been “fully faithful” to its mandate. Members of Congress might not be happy, should the Federal Reserve say the same thing at a moment when twenty-five percent of Americans were out of work. Unlike the ECB, the Federal Reserve is a statutory agency for which, ultimately, Congress is responsible.

HR 4180 makes an explicit commitment to certain ideas, including the NAIRU¹⁷⁰, the “neutrality” of money in the long run¹⁷¹ and the accelerationist hypothesis. It makes debatable empirical assertions about the efficacy of a price-stability mandate; I attach for the record a book review from *Foreign Affairs*, showing that not even Ben Bernanke and his distinguished co-authors could make this case with conviction¹⁷². HR 4180 also admits that the concept of “price stability” is not easily measured; it sets out an array of statistical issues that would have to be resolved. This recalls the “definition of money” problem that bedeviled us when monetarism was in

¹⁷⁰ See my article, “Time to Ditch the NAIRU” *Journal of Economic Perspectives*, Vol 11, Number 1, Winter 1997, 93-108. Available at: <http://tinyurl.com/7cf8jer>

¹⁷¹ HR 4180 thus denies the possibility of hysteresis, or path dependency, a concept that long-term outcomes are influenced by the course of short-term decisions. Hysteresis is fundamental to an evolutionary (which is to say scientific) view of economic process. It has been widely debated, and substantially accepted by many leading economists in recent years, undermining the concept of a long-run equilibrium for employment determined by non-monetary matters. However, these properly remain academic issues; Congress would be wise to avoid interjecting itself into debates of this kind.

¹⁷² “The Inflation Obsession: Flying in the Face of the Facts” a review of Ben S. Bernanke, Thomas Laubach, Frederic S. Mishkin and Adam S. Posen, [Inflation Targeting: Lessons from the International Experience](#), *Foreign Affairs*, January-February 1999, 152-156.

fashion¹⁷³, calling to mind Goodhart's Law, which holds that as soon as an economic statistic is used for policy purposes, the meaning of the statistic will change.

Welcome to Hamelin, in other words. Economists do not know as much as some assert. The recent record of the profession, which massively failed to anticipate the great financial crisis, especially does not inspire confidence. But let me now try to step outside the narrow parsing of terms in statutes and textbook economics, to say a few words about the real world.

Back in the 1970s, we economists did feel that the Federal Reserve held vast powers over inflation and employment. That was a legacy of the post-war American self-image, of our power, wealth and influence, combined with the influence of brilliant polemicists such as John Maynard Keynes and Milton Friedman on many people.

Many economists hold a more reserved view now. Given the financial crisis and our deplorably slow recovery from it, many recognize that having honest, well-regulated banks is important – and that the damage done by catastrophic deregulation and desupervision cannot be repaired easily. So jobs will not easily recover, simply because interest rates to banks are low. To us, the fact that quantitative easing has been a disappointment is no surprise.

Many economists also now recognize that when inflation disappeared in the early 1980s it was not simply because of the powerful personality of Paul Volcker or the fact that Congress started transmitting the Federal Reserve's views to the public via the Humphrey-Hawkins hearings. Disinflation was global. The high dollar, world debt crisis, collapse of commodity and especially oil prices, collapse of the Soviet Union and rise of manufacturing in China were part of the reason. Once these causes were set in motion, the Federal Reserve had little control over the course of events. Statements by Federal Reserve officials in recent decades on their anti-inflation vigilance look silly now. Here we had a reverse King Canute, standing on the beach at low tide, congratulating himself.

The global economy is a fact. The financial debacle is a fact. We cannot escape from either one. In years ahead we may well face continuing trouble with resource prices. We surely face a future of fewer jobs, especially so long as we do nothing about debts and banks.

These are matters over which monetary policy, as such, has little

¹⁷³ The economist Kenneth Boulding summarized this in verse: "We must have a good definition of money/For if we have not/Then what have we got/But a Quantity Theory of no-one-knows-what?"

influence. They cannot be fixed by fiddling with interest rates. They could not be fixed by returning to money-growth targets. We are in a realm where the appropriate response of monetary policy is not clear; it will depend, in part, on what happens in the world and on the decisions that Congress takes on other matters, such as financial sector reform, bank supervision, energy policy and job creation.

This reality should make us a bit less inclined to play King Canute, even if today there is a risk the tides may rise again. It should make us more inclined to study, learn, discuss and review, between Congress and the Federal Reserve, both the prevailing situation and the many lines of policy that will bear on the outcome. Whether to pay the cost of achieving any particular policy goal – including price stability – should depend on what that cost actually is. And that will depend on circumstances, which, as a point of notorious fact, you cannot rely on economists to predict.

Today in economics our pressing need is for a fresh look at theory, and a thorough revision of doctrines that have dominated the subject for decades. In view of this, any law prescribing a single line of thought for the Federal Reserve would be a serious step in the wrong direction.

Were we writing today the preamble of the Humphrey-Hawkins Act, or Section 2a of the Federal Reserve Act, it's likely that we would choose different language. But the language that is there, with its multiple goals and objectives, is flexible and pragmatic; it permits discussion to continue in times of uncertainty, when learning is needed. It does not lock either side into a rigid formula that it will then become necessary to evade. It is serviceable. That is the enduring value of the process now in place.

I close therefore by reminding you of the words of the immortal American poet, Ogden Nash:

“If there is one principle to Americans unknown, It is: leave well enough alone.”

Thank you for your time and attention.

THE INFLATION OBSESSION
BY JAMES K. GALBRAITH

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Ben S. Bernanke, Thomas Laubach, Frederic S. Mishkin and

Adam S. Posen, *Inflation Targeting: Lessons from the International Experience*, Princeton: Princeton University Press, 1999, 365 pp., bibliography, \$24.95.

Should a central bank address a broad agenda of economic growth, price stability and full employment? Or should it focus single-mindedly on controlling inflation? This debate is mounting in Europe, where calls from social democratic governments for lower interest rates are growing louder as the continent prepares for a central bank. In the United States, where federal law stipulates full employment as a policy goal, Republican proposals to require that the Federal Reserve focus only on inflation surface regularly in Congress.

Ben Bernanke and his colleagues, each a veteran of the Federal Reserve Bank of New York research staff, make the case for inflation targeting, in a book that is a manifesto in everything but its tone. The tone is, rather, the worried one familiar to followers of the recurrent debates over competitiveness, which cater to national vanity in similar terms:

... the United States has lagged behind other industrial countries in considering monetary policy frameworks and institutions that might help ensure good economic performance in the long term.

One might say that we face a frameworks-and-institutions gap.

Since the early 1980s, a handful of countries have declared formally that low and stable inflation should be the overriding objective of monetary policy. These countries, which include New Zealand, Canada, the UK and Sweden, are the main focus of this book. *Inflation Targeting* uses them as examples, to argue that inflation targeting would also enhance American “economic performance in the long term.”

The authors have a curious view of the phrase “economic performance in the long term.” They do not use it to refer to rising living standards, full employment, declining inequality in pay, or similar recent improvements in American well-being. Indeed, they explicitly deny that monetary policy should be praised for these blessings, since, they argue, such gains of an expansionary monetary policy are temporary and unsustainable. Hence, they cannot be counted as among the benefits of monetary policy “in the long term.”

In other words, America’s present affair with full employment is sure to end badly, in accelerating inflation followed by recession. The right strategy is to keep unemployment high enough all the time -- at the natural rate -- to prevent inflation from emerging. A central bank which allows itself to be distracted by the pursuit of economic growth

and full employment is therefore to be condemned. A central bank that achieves price stability but with chronic high unemployment -- as in Germany -- has done its highest duty. The European Central Bank, charter-bound to price stability whatever the cost, represents the pinnacle of monetary policy architecture. Next to it our own Federal Reserve -- unmentioned in the Constitution, subservient to Congress, obliged to report on unemployment -- seems a pathetic weakling among central banks.

Off Target?

The case for inflation targeting, as Bernanke and his colleagues present it, rests on a theory that links monetary policy exclusively to inflation control and denies central banks any important role in determining economic growth or employment. They favor inflation targeting not simply as the better choice among strategies, but as the *only* strategy consistent with sound economics.

But are their principles correct? Oddly, this book does not provide an answer. Bernanke and his colleagues merely tell us that these truths were presented by Milton Friedman in 1967, refined by Robert Lucas in 1976, and consequently accepted by most economists. The theme of consensus crops up time and again. We read that “most macroeconomists agree” that the inflation rate is the only variable that monetary policy can affect in long run (because unemployment will tend always to return to the natural rate), that there is “by now something of a consensus that even moderate rates of inflation are harmful,” that there “is a growing belief among economists and central bankers” that low inflation is good for efficiency and good for growth. For Bernanke and his colleagues, this case is closed; a consensus of economists has settled the issue.

But in fact, no such consensus exists and none has ever existed. To take just a few examples, Robert Eisner, a former President of the American Economics Association and a renowned macroeconomist, has never accepted the Friedman/Lucas view. Neither has James Tobin, Paul Samuelson or Robert Solow, or the late William Vickrey, all Nobel Laureates. Neither did Ray Fair at Yale, James Medoff at Harvard, William Dickens at Brookings. Bernanke and his colleagues maintain the illusion of consensus by simple silence about the actual debate, which has grown more intense, not less so, in recent years.

There are two basic reasons why controversy persists. First, while the Friedman/Lucas doctrine has enjoyed academic dominance, the theory rests on a very peculiar philosophical position, which regards the future as only differing by purely random error from the

past. This point of view, for instance, would require us to see the Asian financial crisis not as a failure of policies but as merely a bad lottery outcome -- tough luck, nothing to be done. Many thoughtful economists reject this starting point. Second, the real world has been openly contradicting the theory for years now. Three years ago, every advocate of the natural rate of unemployment doctrine firmly held that unemployment below six percent would spark inflation. Unemployment then fell, but contrary to theory it not only remained below the supposed natural rate but failed to produce inflation. The Friedman/Lucas arguments received a clear empirical rebuke.

Indeed, deflation, not inflation, has reared its head in much of the world this year as the financial crisis spun out of control. The adherents of the natural rate theory were never able to see this threat. They were still arguing for an anti-inflation policy when the Asian crisis broke in 1997, and they were still clinging to it in the summer of 1998, as U.S. financial markets began to crack under the strain. As the case for urgent action grew evident to everyone else, including Federal Reserve Chairman Alan Greenspan, the diehard natural raters inside the Federal Reserve obstructed forceful action. The concrete result: interest rate reductions were at first too slow, and too small, to impress the financial markets or to affect the economy itself, and so the crisis deepened.

Can one have inflation targeting without the natural rate doctrine? Although Bernanke and his co-authors make no effort to separate the two, it would be quite possible to base inflation predictions on something other than the unemployment rate. An inflation-targeter could have argued, at the Fed last August, that the Asian crisis had eliminated inflation risk and that large cuts in interest rates were essential to ward off the threat of price *deflation*. Indeed some of the old-line supply-siders, such as Jude Wanniski, have taken this very position.

This supply-side view may be an improvement. But it is still much less sensible than current practice. Economists opposed to rate cuts would have countered, correctly, that deflation outside the United States will probably not produce general price deflation inside the country. Most American wages, on which most prices still depend, are unlikely to fall in money terms. The serious danger of the Asian crisis is not falling U.S. price levels but falling employment, recession, and rising inequality. A doctrine of inflation targeting, even if not tied to natural rate dogma, would have weakened the argument for interest rate reductions meant to stabilize employment and output, not to mention the financial markets and the banking

system.

A Case for Cuts

In any case, events have already overtaken our authors. The only potentially effective response to the global slump available to the Fed is a sharp drop in U.S. interest rates and concomitant depreciation of the dollar. These measures would slow the flight of capital to the United States, return some confidence to Asian markets, and help to restore the balance sheets of otherwise insolvent Japanese banks. Inflation-targeting would have delegitimized these policy goals, which were, in fact, partly pursued as the crisis deepened in late 1998. The argument for having the Federal Reserve fight inflation exclusively does not just ignore the reality of the crisis but assaults the urgent present priorities of the Fed itself.

What of the claim that inflation-targeting countries have enjoyed superior economic performance, even if employment and growth are omitted and inflation alone is considered? A fair evaluation of this claim would require a comparative perspective, which the authors do not provide. We are left then to review the historical experience and ask, what kind of evidence do Bernanke and his colleagues actually present that inflation targeting has succeeded?

This part of *Inflation Targeting* merits careful reading, for much of the story in detail is interesting and, within the extremely narrow limits that the authors place around their topic, it is competently told. But what is striking is that even the authors admit that inflation targeting in practice has done little actually to fight inflation. In the case of New Zealand, they write, “the decision to announce inflation targets occurred after most of the disinflation... had already taken place.” The same is true for Canada, while Britain also embraced inflation targets when “it was most likely to meet them.” Sweden, “was in deep recession” with inflation “down to a historically low rate of 3% per year,” when its central bank adopted inflation targets.

In other words, the countries in question never introduced inflation targets when inflation posed a serious threat, nor did the adoption of targets reduce the cost of any ongoing inflation fight. In all cases, the declaration of war came after the fighting was over.

So why did the central bankers do it? Bernanke and his colleagues are quite honest about the reasons. Inflation targeting in all cases coincided with high unemployment, and its main effect was to excuse central bankers from addressing that problem. Second, in some cases inflation targeting could substitute for the messy practice of *money-supply* targeting, an earlier misguided enthusiasm that

Britain had once embraced that Germany is still using today. Third, and in sharp contradiction with the first motive, inflation targeting provided in a few cases some camouflage for central bankers who were actually planning to ease policy in order to fight unemployment. It was a case of saying one thing to placate conservatives, and doing another to accommodate the political and economic realities of the hour.

Central bankers, like generals, are often accused of fighting the last war. But as this description of the actual motives behind inflation targeting makes clear, this is different. First, inflation targeting amounts to *a commitment in principle* to the last war -- the war against inflation -- as a way of avoiding conscription into the next one, against unemployment. Second, it is a way to declare *a change of tactics* for the last war, even though it ended. And third, in some cases inflation targeting permits central bankers to assert that the last war is still going on, and to *pretend* to fight it, while in fact sending a small covert force to the actual battle against unemployment. These mechanisms doubtless have their uses from the narrow political and public relations perspective of a central banker, but it cannot be said that they actually related to economic performance, including the pursuit of low inflation.

What should the United States do? The Federal Reserve is an independent executive agency under the authority of Congress. It therefore comes under the Humphrey-Hawkins Full Employment and Balanced Growth Act of 1978, which rewrote U.S. economic policy objectives to specify that they include full employment, balanced growth and reasonable price stability. In particular, the act set interim targets of four percent unemployment and three percent inflation -- goals that have now, within a few tenths of a percentage point, been achieved.

The authors of *Inflation Targeting* do not discuss the Humphrey-Hawkins Act. If they had the chance, however, they would likely rewrite that statute and direct the Federal Reserve to fight inflation alone. They do not say what would then become of the goal of "full employment." In principle, perhaps some other agency could address the task of sustaining full employment, for example through jobs programs funded by tax increases or deficit spending. But it is unlikely that Bernanke and his colleagues have this in mind. One suspects that what they really want is to abandon full employment as a formal objective of American policy.

It is ironic that this book appears just as Alan Greenspan, Alice Rivlin, and the rest of the Fed leadership have demonstrated how

spurious the natural rate doctrine is by proving that full employment, balanced growth and reasonable price stability are not mutually exclusive. This is a remarkable accomplishment, and it is due in part to the willingness of Chairman Greenspan to override the adherents of the Friedman/Lucas view, and to experiment cautiously with continuing reductions in unemployment. In this way, Greenspan and company have affirmed the good sense of the framers of the Humphrey-Hawkins law. The fact that the unfolding crisis of go-go globalization now threatens this accomplishment does not diminish validity or its importance. And in their attempt to stabilize the financial markets and world economy as the crisis of 1998 unfolded, the Fed's leadership has shown far more sophistication, flexibility and common sense than Bernanke, Laubach, Mishkin and Posen show in this evasive, unpersuasive book.

WRITTEN TESTIMONY OF
ALICE RIVLIN, Ph.D.
SENIOR FELLOW OF ECONOMIC STUDIES
BROOKINGS INSTITUTION
AND FORMER VICE CHAIR
FEDERAL RESERVE BOARD OF GOVERNORS

Chairman Paul and Ranking Member Clay:

I am happy to have this opportunity to testify before the subcommittee as you consider a diverse set of bills designed to alter the role, structure, or functioning of the Federal Reserve. I will focus my brief remarks this morning on the importance of preserving the Federal Reserve's dual mandate to target both maximum employment and price stability. I believe that the dual mandate has served the United States well, and that it would be a mistake to restrict the Fed's policy actions to fostering stable prices alone, as proposed by Mr. Brady in HR 4180 and Mr. Pence in HR 245.

I would like to make clear at the outset that I believe a strong, independent central bank is essential to keeping the United States economy functioning as productively as possible without unnecessarily costly swings in economic activity. Market capitalism has proven its ability to produce goods and services efficiently and deliver a rising standard of living, but it is prone to instability. Monetary policy, along with fiscal policy, can help moderate booms and busts, although it cannot erase the business cycle. Leaning against the economic winds, however, often involves unpopular actions, such as raising interest rates as a boom gathers excessive steam. There is always huge uncertainty about how the complex machinery of the economy is actually working and what results monetary policy can expect to achieve. Nevertheless, chances of successful monetary policy are highest when these difficult decisions are delegated to a group of qualified, experienced people, who are as insulated as possible from political pressures to please the public in the short run. Without a strong independent central bank functioning to mitigate economic and financial instability, the United States would have a weaker, far more chaotic economy and lose its leadership position in the global economy.

The objective of economic policy—including monetary policy—should be a rising standard of living for most people over the long run. That means maximizing sustainable economic growth and productive employment. Controlling inflation is a crucial element of the larger objective because high and, especially, rising inflation is a

serious threat to sustained growth. The expectation of rising prices distorts both consumer and investor behavior and can even turn into a destructive, self-perpetuating hyperinflation. Hence, an essential prerequisite for steadily increasing prosperity is a widespread, firmly anchored expectation that reasonably stable prices will prevail in the future.

Hence, I believe the dual mandate is simply a reflection of what average citizens ought to expect their central bank to do: Let the economy create as many jobs as possible, but don't let inflation interfere with that job growth. Economists translate that common sense exhortation into a monetary policy aimed at keeping the economy as close as possible to its long-run potential growth, without seriously overshooting in either direction. This idea is encapsulated in Pro. John Taylor's famous rule that prescribes easing or tightening when observed economic growth appears to be deviating from potential in either direction.

The problem for the Fed's decision makers is that potential growth is not observable, because it depends on trends in productivity growth, which can shift unexpectedly. In the stagflation of the 1970s, hindsight indicates that monetary policy makers overestimated potential growth and did not tighten soon enough to avoid the acceleration of inflation at the end of the decade. The aggressive tightening of monetary policy in 1979—and the deep recession of the early 1980s that followed—might have been mitigated if the Fed had acted more aggressively sooner. In the 1990s, when I was at the Fed, we faced a happier version of the same uncertainty. Unemployment had fallen to levels that past experience indicated could trigger inflation, but inflation was actually falling. We held off tightening on the presumption, which proved correct, that accelerating productivity growth had raised potential growth and reduced the risk of inflation.

Partly thanks to the Fed, the late 1990s illustrated the benefits of very tight labor markets without significant inflation. Marginal workers found jobs, acquired skills, and work experience, while firms had strong incentives to retain workers by training them, using their skills more effectively, and moving them into better paid jobs. We also had appropriately tightening fiscal policy that balanced the budget—a feat far easier to accomplish in a strongly growing economy. The sooner we get back to those conditions, the better!

But the late 1990s also illustrated the inadequacy of the Fed's toolkit in response to asset price bubbles. Some have criticized the Fed for not tightening monetary policy in response to "irrational exuberance" in the dotcom stock bubble of the late 1990s. But raising

interest rates enough to prick that bubble sooner would probably have tipped the economy into recession, punishing workers and companies across the country for no good reason. Influencing the federal funds rate through open market operations is simply not an effective way of calming an asset price bubble. That lesson had to be learned again in the far more dangerous housing price bubble that gathered steam in the 2000's and whose bursting precipitated the financial crash of 2008 and the ensuing Great Recession. Arguably the Fed kept interest rates too low too long, exacerbating the housing bubble, but interest rates were not the main cause of the catastrophe, nor could monetary policy alone have averted it. Among multiple culprits, I fault the Fed for not using its regulatory powers, in conjunction with other regulators, to raise underwriting standards for mortgage lenders, punish predatory lending, and rein in excessive financial leverage. While we should not have needed a catastrophe to learn this lesson, the Dodd-Frank Act now gives the Fed and the Financial Stability Oversight Council (FSOC) responsibility for financial stability and new tools with which to help achieve it.

The dual mandate is not inconsistent with strong emphasis on controlling inflation when appropriate or even with an explicit target for inflation. Indeed, last January the Fed confirmed a long run inflation goal of two percent. Operating under the dual mandate the Fed has successfully controlled inflation for three decades. To change the language of the law to imply that the Fed's only concern should be inflation would send a misleading signal to a public rightly concerned with jobs and growth, as well as inflation. It would imply that inflation is serious current threat to American prosperity, which seems to me unwarranted.

Exclusive attention to inflation and firmly announced inflation targets served central banks well in the last century, especially in small open economies that could ill afford importing inflation through swings in their currencies. But it would be ludicrous for the United States to put sole emphasis on inflation now, when we have slack labor markets and substantial excess capacity in most economic sectors. Some have urged the Fed to try to create more inflation in the current situation, but that would be hard to achieve, even if it were desirable. Our economy is far less inflation prone than it was in the 1970s. It is more flexible, less dependent on energy prices, has easy access to more sources of supply in the face of domestic prices increases, no longer has wages dominated by multi-year indexed labor contracts, and benefits from expectations that reflect 30 years of reasonably stable prices. That recent oil price shocks have had so

little effect on core inflation is evidence of lower inflation risk than the 1970s.

What we need now is a continuation of accommodative monetary policy plus fiscal policy that combines additional investment in long run growth and jobs with credible long-run action to stabilize the debt. In short, monetary policy as executed by the Fed under the dual mandate has a positive track record and is currently appropriate. I would urge the Congress not to tamper with legislative language that has served us well.

Thank you for your attention. I would be happy to answer questions.

EXPERT COMMENTARY

THOMAS E. WOODS, Jr., Ph.D.

AUTHOR AND SENIOR FELLOW
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CAN WE LIVE WITHOUT THE FED?

We have heard the objection a thousand times: why, before we had a Federal Reserve System the American economy endured a regular series of financial panics. Abolishing the Fed is an unthinkable, absurd suggestion, for without the wise custodianship of our central bankers we would be thrown back into a horrific financial maelstrom, deliverance from which should have made us grateful, not uppity.

The argument is superficially plausible, to be sure, but it is wrong in every particular. We heard it quite a bit in the financial press ever since the announcement that Congressman Ron Paul, a well-known opponent of the Fed, would chair the House Financial Services Subcommittee on Domestic Monetary Policy. Fed apologists were beside themselves – a man who rejects the cartoon version of the history of the Fed will hold such an influential position? He must be made into an object of derision and ridicule.

The conventional wisdom runs something like this: without a central bank or its lesser cousin, a national bank, we had frequent episodes of boom and bust, but since the creation of the Federal Reserve System the economy has been far more stable. People who believe in a free market in banking, as opposed to these cartel arrangements, are evidently so uninformed or so blinded by ideology

that they have never heard or internalized this one-sentence encapsulation of 19th- and 20th-century monetary history.

Modern scholarship has not been kind to this thesis. Mainstream economists have begun to acknowledge that the alleged instability of the period before the Federal Reserve has been exaggerated, as the posited stability of the post-Fed period. Christina Romer, who chaired the Council of Economic Advisers under Barack Obama, finds that the numbers and dating used by the National Bureau of Economic Research (NBER, the largest economics research foundation in the U.S., founded in 1920) exaggerate both the number and the length of economic downturns prior to the creation of the Fed. In so doing, the NBER likewise overestimates the Fed's contribution to economic stability. Recessions were in fact not more frequent in the pre-Fed than the post-Fed period.

Suppose we compare only the post-World War II period to the pre-Fed period, thereby excluding the Great Depression from the Fed's record. In that case, we do find economic contractions to be somewhat more frequent in the period before the Fed, but as economist George Selgin explains, "They were also three months *shorter* on average, and no more severe." Thus recoveries were faster in the pre-Fed period, with the average time peak to bottom taking only 7.7 months as opposed to the 10.6 months of the post-World War II period. Extending our pre-Fed period to include 1796 to 1915, economist Joseph Davis finds no appreciable difference between the frequency and duration of recessions as compared to the period of the Fed.

But perhaps the Fed has helped to stabilize real output (the total amount of goods and services an economy produces in a given period of time, adjusted to remove the effects of inflation), thereby decreasing economic volatility. Not so. Some recent research finds the two periods (pre- and post-Fed) to be approximately equal in volatility, and some finds the post-Fed period in fact to be *more* volatile, once faulty data are corrected for. The ups and downs in output that did exist before the creation of the Fed were not attributable to the lack of a central bank. Output volatility before the Fed was caused almost entirely by supply shocks that tend to affect an agricultural society (harvest failures and such), while output volatility after the Fed is to a much greater extent the fault of the

monetary system. (For citations on this point and for the previous paragraphs, see the paper by George Selgin, William D. Lastrapes, and Lawrence H. White, “Has the Fed Been a Failure?” available online.)

The 19th-century boom-bust cycles that are supposed to discredit the idea of a free market in money and banking are in fact consistently attributable to artificial credit expansion, a practice given artificial stimulus by means of the various government privileges granted to the banking industry. According to Richard Timberlake, a well-known economist and historian of American monetary and banking history, “As monetary histories confirm...most of the monetary turbulence – bank panics and suspensions in the nineteenth century – resulted from excessive issues of legal-tender paper money, and they were abated by the working gold standards of the times.” It is the old story of the faults of interventionism being blamed on the free market.

Contemporaries by and large attributed the Panic of 1819, for example, to the inflationary and then rapidly contractionary policies of the Second Bank of the United States. As often happens when the country is flooded with money created out of thin air, speculation of all kinds grew intense, as eyewitness testimony abundantly records.

During the years when the U.S. had no central bank (the period from 1811, when the charter of the first Bank of the United States expired, and 1817), government had granted private banks the privilege of expanding credit while refusing to pay depositors demanding their funds. In other words, when people came to demand their money from the banks, the banks were allowed to tell them they didn't have the money, and depositors would simply have to wait a couple years – and at the same time, the bank was allowed to continue in operation. By early 1817 the Madison administration finally required the banks to meet depositor demands, but at the same time chartered the Second Bank of the United States, which would itself be inflationary. The Bank subsequently presided over an inflationary boom, which came to grief in 1819.

The lesson of that sorry episode – namely, that the economy gets taken on a wild and unhealthy ride when the money supply is arbitrarily increased and then suddenly reduced – was so obvious

that even the political class managed to figure it out. Numerous American statesmen were confirmed in their hard-money views by the Panic. Thomas Jefferson asked a friend in the Virginia legislature to introduce his “Plan for Reducing the Circulating Medium,” which the Sage of Monticello had drawn up in response to the Panic. The plan sought to withdraw all paper money in excess of specie over a five-year period, then redeem the rest in specie and have precious-metal coins circulate exclusively from that moment on. Jefferson and John Adams were especially fond of Destutt de Tracy’s hard-money *Treatise on the Will* (1815), with Adams calling it the best book on economics ever written (its chapter on money, said Adams, defends “the sentiments that I have entertained all my lifetime”) and Jefferson writing the preface to the English-language edition.

While the Panic of 1819 confirmed some political figures in the hard-money views they already held, it also converted others to that position. Condy Raguet had been an outspoken inflationist until 1819. After observing the distortions and instability caused by paper-money inflation, he promptly embraced hard money, and went on to write *A Treatise on Currency and Banking* (1839), one of the great money and banking treatises of the nineteenth century. Davy Crockett, future president William Henry Harrison, and John Quincy Adams (at least at that time) were likewise opposed to inflationist banks; in contrast to the inflationary Second Bank of the United States, Adams cited the hard-money Bank of Amsterdam as a model to emulate. Daniel Raymond, disciple of Alexander Hamilton and author of the first treatise on economics published in America (*Thoughts on Political Economy*, 1820), expressly broke with Hamilton in advocating a hard-money, 100 percent specie-backed currency.

Popular references to the Panic of 1837 today urge us to blame President Andrew Jackson for having dissolved the Second Bank of the United States. The most common argument is this: without a national bank to discipline the state banks, the state banks that received the federal deposits after the closure of the Second Bank went on an inflationary binge that culminated in the Panic of 1837 and another downturn in 1839. This standard diagnosis is partly Austrian, surprisingly, in that it blames artificial credit expansion for giving rise to unsustainable booms that end in busts. But the alleged

solution to this problem, according to modern commentators, is a robust central bank with implicit regulatory powers over smaller institutions.

Senator William Wells, a hard-money Federalist from Delaware, had been unconvinced from the start that the best way to encourage sound practices among smaller unsound banks was to establish a giant unsound bank. “This bill,” he said in 1816,

came out of the hands of the administration ostensibly for the purpose of curtailing the over-issue of Bank paper: and yet it came prepared to inflict on us the same evil, being itself nothing more than a simple paper making machine; and constituting, in this respect, a scheme of policy about as wise, in point of precaution, as the contrivance of one of Rabelais's heroes, who hid himself in the water for fear of the rain. The disease, it is said, is the Banking fever of the States; and this is to be cured by giving them the Banking fever of the United States.

Another hard-money U.S. senator, New York's Samuel Tilden, likewise wondered, “How could a large bank, constituted on essentially the same principles, be expected to regulate beneficially the lesser banks? Has enlarged power been found to be less liable to abuse than limited power? Has concentrated power been found less liable to abuse than distributed power?”

A much better solution recommended by hard-money advocates at the time is what became known as the “Independent Treasury,” in which the federal deposits, instead of being distributed to privileged state banks and used as the basis for additional rounds of credit creation there, were retained by the Treasury and kept out of the banking system entirely. Hard-money supporters believed that the federal government was propping up (and lending artificial legitimacy to) an unsound system of fractional-reserve state banks by (1) distributing the federal deposits to them, (2) accepting their paper money in payment of taxes and (3) paying it back out again. As William Gouge put it,

If the operations of Government could be *completely* separated from those of the Banks, the system would be shorn of half its evils. If Government would neither deposit the public funds in the Banks, nor borrow money from the Banks; and if it would in no case either receive Bank notes or pay away Bank notes, the Banks would become mere commercial institutions, and their credit and their power be brought nearer to a level with those of private merchants.

Contemporary opponents of the Bank have sometimes been portrayed as antimarket, antiproperty populists. “Last time we had a central bank,” wrote a critic of Congressman Paul in 2010, “its advocates were conservative, hard-money businessmen, and its opponents were subprime borrowers and lenders who convinced President Jackson the bank was holding back the nation.” That is as wrong as wrong can be, as we’ll see in a moment. But our critic proceeds from this error to the false conclusion that supporters of the market economy then as now should be supporters of the central bank.

To be sure, opponents of the Second Bank of the United States were no monolith, and even today the central bank is criticized both by those who condemn its money creation as well as by those who criticize its alleged stinginess. On balance, though, the fight against the Second Bank was a free-market, hard-money campaign against a government-privileged paper-money producer. “The attack on the Bank,” concluded Professor Jeff Hummel in his review of the literature, “was a fully rational and highly enlightened step toward the achievement of a *laissez-faire* metallic monetary system.”

In fact, the most important monetary theorist of the entire period, William Gouge, was a champion of hard money who opposed the Bank; he considered these two positions logically coordinate, indeed inseparable. “Why should ingenuity exert itself in devising new modifications of paper Banking?” Gouge asked. “The economy which prefers fictitious money to real, is, at best, like that which prefers a leaky ship to a sound one.” He assured Americans that “the sun would shine, the streams would flow, and the earth would yield her increase, if the Bank of the United States was not in existence.” The conservative *Bankers’ Magazine*, upon Gouge’s death, said that his hard-money book *A Short History of Paper Money and Banking* was “a very able and clear exposition of the principles of banking and of the mistakes made by our American banking institutions.”

Another important hard-money opponent of the national bank was William Leggett, the influential Jacksonian editorial writer in New York who memorably called for “separation of bank and state.” Economist Larry White, who compiled many of Leggett’s most important writings, calls him “the intellectual leader of the *laissez-*

faire wing of Jacksonian democracy.” He denounced the Bank for its repeated expansions and contractions, and for the economic turmoil that such manipulation left in its wake.

The Panic of 1819 had likewise been due to such behavior on the part of the Bank, said Leggett during the 1830s. “For the two or three years preceding the extensive and heavy calamities of 1819, the United States Bank, instead of regulating the currency, poured out its issues at such a lavish rate that trade and speculation were excited in a preternatural manner.” Leggett continues,

But not to dwell upon events the recollection of which time may have begun to efface from many minds, let us but cast a glance at the manner in which the United States Bank *regulated the currency* in 1830, when, in the short period of a twelve-month it extended its *accommodations* from forty to seventy millions of dollars. This enormous expansion, entirely uncalled for by any peculiar circumstance in the business condition of the country, was followed by the invariable consequences of an inflation of the currency. Goods and stocks rose, speculation was excited, a great number of extensive enterprises were undertaken, canals were laid out, rail-roads projected, and the whole business of the country was stimulated into unnatural and unsalutary activity.

As in later crises, banks were allowed to suspend specie payment (a fancy way of saying that the law permitted them to refuse to hand over their depositors’ money when their customers came looking for it) while permitting them to carry on their operations. The knowledge that government could be counted on to bail out the banks in this way created a lingering problem of moral hazard that would affect banks’ behavior in the future.

Leggett blamed artificial credit creation for the Panic of 1837:

What has been, what ever must be, the consequence of such a sudden and prodigious inflation of the currency? Business stimulated to the most unhealthy activity; a vast amount of over production in the mechanick arts; a vast amount of speculation in property of every kind and name, at fictitious values; and finally, a vast and terrific crash, when the treacherous and unsubstantial basis crumbles beneath the stupendous fabrick of credit, and the structure falls to the ground, burying in its ruins thousands who exulted in the fancied security of their elevation. Men, now-a-days, go to bed deeming themselves rich, and wake in the morning to find themselves stripped of even the little they really had. They count, deluded creatures! on the continued liberality of the banks, whose persuasive entreaties seduced them into the slippery paths of speculation. But they have now to learn that the banks cannot help them if they would, and would not if they could. They were free

enough to lend their aid when assistance was not needed; but now, when it is indispensable to carry out the projects which would not have been undertaken but for the temptations they held forth, no further resources can be supplied.

Toward the end of 1837, he added:

Any person who has soberly observed the course of events for the last three years must have foreseen the very state of things which now exists.... He will see that the banks...have been striving with all their might, each emulating the other, to force their issues into circulation and flood the land. He will see that they have used every art of cajolery and allurements to entice men to accept their proffered aid, that in this way they gradually excited a thirst for speculation which they sedulously stimulated until it increased to a delirious fever and men in the epidemic frenzy of the hour wildly rushed upon all sorts of desperate adventures. They dug canals where no commerce asked for the means of transportation, they opened roads where no travelers desired to penetrate and they built cities where there were none to inhabit.

The Panic of 1857 was the result of a five-year boom rooted in credit expansion. The most capital-intensive industries of that decade, railroad construction and mining companies, expanded the most during the boom. States had even backed railroad bonds, promising to make good on those bonds if the railroad companies did not.

President James Buchanan engaged in no vain effort to reflate the economy. He observed in his first annual message, "It is apparent that our existing misfortunes have proceeded solely from our extravagant and vicious system of paper currency and bank credits." The economy recovered within six months, even though the money supply fell, interest rates rose, government spending was not increased, and businesses and banks were not bailed out. But Buchanan cautioned Americans that "the periodical revulsions which have existed in our past history must continue to return at intervals so long as our present unbounded system of bank credits shall prevail."

Buchanan envisioned a federal bankruptcy law for banks that, instead of giving legal sanction to their suspension of specie payments (that is, their failure to honor their depositors' demands for withdrawal), would in fact shut them down if they failed to make good on their promises. "The instinct of self-preservation might produce a wholesome restraint upon their banking business if they

knew in advance that a suspension of specie payments would inevitably produce their civil death.”

Until recently it was customary to refer to the 1870s as the period of the “Long Depression” in the United States. The modern consensus holds that there was no “Long Depression” after all. Even the *New York Times* recently observed:

Recent detailed reconstructions of nineteenth-century data by economic historians show that there was no 1870s depression: aside from a short recession in 1873, in fact, the decade saw possibly the fastest sustained growth in American history. Employment grew strongly, faster than the rate of immigration; consumption of food and other goods rose across the board. On a per capita basis, almost all output measures were up spectacularly. By the end of the decade, people were better housed, better clothed and lived on bigger farms. Department stores were popping up even in medium-sized cities. America was transforming into the world's first mass consumer society.

Farmers, moreover, who panicked at falling prices for agricultural commodities, at first failed to note that other prices were falling still faster. The terms of trade for American farmers improved considerably during the 1870s.

As for historians, they seem to have been fooled by the statistics on consumer prices, which fell an average of 3.8 percent per year. And since the conventional wisdom holds that falling prices and depression are intimately linked – they are not – they concluded that this must have been a time of terrible depression. With the gold standard restored in 1879 after being abandoned during the Civil War, the 1880s were likewise a period of great prosperity, with real wages rising by 20 percent.

The post-Civil War panics in the United States were due in large part to the unit-banking regulations in many states that forbade branch banking of any sort. Confined to a single office, each bank was necessarily fragile and undiversified. Canada experienced none of these panics even though it did not establish a central bank, the establishment's trusted panacea, until 1934. As Milton Friedman was fond of pointing out, when 9,000 banks failed in the U.S. during the Great Depression, not a single bank failure was taking place in Canada, where the banking system was not damaged by these regulations.

Moreover, as Charles Calomiris has noted, the bank failure rate during the pre-Fed panics was small, as were the losses depositors suffered. Depositor losses amounted to only 0.1 percent of GDP during the Panic of 1893, which was the worst of them all with respect to bank failures and depositor losses. By contrast, in just the past 30 years of the central-bank era, the world has seen 20 banking crises that led to depositor losses in excess of 10 percent of GDP. Half of those saw losses in excess of 20 percent of GDP.

Just from an empirical point of view, therefore, the case for the Fed is far weaker than its proponents admit or realize. Still, as in so many other areas, critics of the status quo are reflexively condemned as cranks, and alternatives are dismissed as unthinkable. But they are unthinkable only because we have allowed fashionable opinion to keep us from thinking them. We have been forced into a box that confines our choices to various forms of statism. The movement to end the Fed is an astonishing and most welcome first step toward clawing our way out.



*H*EARING VI.

FRACTIONAL RESERVE BANKING AND THE FEDERAL RESERVE: THE ECONOMIC CONSEQUENCES OF HIGH-POWERED MONEY

Thursday, June 28, 2012

WITNESSES

Salerno, Joseph T., Ph.D., Professor of Economics, Lubin School of
Business, Pace University

Cochran, John P., Ph.D., Emeritus Professor of Economics and
Emeritus Dean of the School of Business, Metropolitan State
College of Denver

White, Lawrence H., Ph.D., Professor of Economics, George Mason
University

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Fractional Reserve Banking and the Federal Reserve: The Economic Consequences of High-Powered Money” at 2:00 p.m. on Thursday, June 28, 2012 in Room 2128 of the Rayburn House Office Building.

This hearing examined fractional reserve banking, its relationship to monetary policy, and its effect on the economy. This hearing also explored legislative reforms to create a more stable monetary system. This was a one-panel hearing with the following witnesses:

- John P. Cochran, Ph.D., Emeritus Professor of Economics and Emeritus Dean, School of Business, Metropolitan State College of Denver
- Joseph T. Salerno, Ph.D., Professor of Economics, Lubin School of Business, Pace University
- Lawrence H. White, Ph.D., Professor of Economics, George Mason University

Fractional Reserve Banking

Fractional reserve banking is a form of banking in which banks keep a percentage of deposits on hand as reserves and lend out the remaining deposits to borrowers. When borrowers deposit funds they have borrowed into another bank, that deposit enables further lending by the second bank. In a normally-functioning banking system, this cycle of taking deposits, keeping a fraction, and lending out the remainder continues until loanable deposits diminish to zero and no more money can be lent out. This process creates additional credit, expanding the money supply in the economy.

The fraction of deposits kept as reserves is known as the reserve ratio. The maximum amount of money that can be lent out is known as the “money multiplier,” and it is determined by the percentage of deposits held as reserves. The maximum that the “money multiplier” can reach is the reciprocal of the reserve ratio. For example, if the reserve ratio is 10%, then the money multiplier is 1 divided by .10, or 10. Thus every dollar of deposits can create up to \$10 within the banking system. Similarly, if the reserve ratio is 5%, the money multiplier is 1 divided by .05, or 20, which means that every dollar of deposits can create up to \$20 within the banking system. New or original deposits—those deposits not generated from loans—are often referred to as high-powered money because they begin the money multiplier effect anew. Original deposits are typically generated when depositors receive additional funds from a revenue stream, such as earnings or wages, or from the sale of assets. Assets sold to the Federal Reserve produce the highest-powered money, because the Federal Reserve pays for them with money that is newly created within the banking system.

In the United States, the Board of Governors of the Federal Reserve System mandates the percentage of deposits that banks must keep as reserves, which is known as the required reserve ratio. Currently, the required reserve ratio varies between zero and ten percent, depending on the amount of liabilities a bank holds.

Instability of Fractional Reserve Banking

Fractional reserve banking can lead to instability if a bank has insufficient reserves to make good on claims against its deposits. A simple example is the everyday business of check clearing. If Bank A has \$10,000 worth of deposits and \$1,000 in reserves, \$1,000 in checks drawn on the bank's deposits and presented for redemption will wipe out its reserves, while \$1,001 or more in checks presented for redemption will cause the bank to default, if it cannot sell its assets or borrow against them to obtain the liquidity it needs to redeem the checks presented.

Fractional reserve banks hold on hand only a small percentage of their deposits, so they cannot redeem all their deposits at the same time. Because banks are required to redeem deposits on demand but lack the liquid assets to do so, they are functionally insolvent. Fractional reserve banks can remain in business because the likelihood that at any given time depositors will withdraw enough funds to exhaust the bank's reserves are small, meaning that actual insolvency is a rare occurrence. At the onset of a financial crisis,

however, or if rumors of a bank's instability begin to circulate, depositors may begin to withdraw their funds, weakening the bank and leading to a bank run and possible default.

Averting Fractional Reserve Banking Crises

The instability of fractional reserve banking has resulted in significant government intervention into the banking system. In the past, bank runs were often averted through bank holidays or suspensions of deposit redemptions—or suspension of specie payment since reserves primarily consisted of gold or silver coins. Suspension of specie redemption normally came about through government action, permitting banks to refuse to redeem their banknotes for gold or silver as promised, thus allowing them to keep their gold and silver reserves throughout a financial panic until calm and order returned. Bank holidays were days on which the government closed banks in order to stem bank runs by preventing depositors from withdrawing their funds.

The creation of the Federal Reserve in 1913 was in part meant to deal with the problem of bank runs resulting from the fractional reserve banking system. By serving as a lender of last resort, the Federal Reserve was to be a source of additional funding (reserves) to banks when claims made on bank deposits exceeded bank reserves. Many economists, however, believe that the advent of deposit insurance in the 1930s is the primary reason that bank runs have been largely eliminated, although periodic incidents do still arise, such as the bank runs on Washington Mutual, IndyMac, and Northern Rock during the recent financial crisis. In theory, the existence of deposit insurance means that depositors need no longer be first to pull their money out of a troubled bank because they will still receive their money even if the bank fails.

Benefits of Fractional Reserve Banking

One of the primary purposes served by the banking system is that of financial intermediation. Banks bring together savers and borrowers, dramatically decrease the costs of matching savings and investment, help the economy function more efficiently, and facilitate growth and wealth creation.

Many economists believe that fractional reserve banking increases the ability of banks to provide funds to borrowers by pooling deposits and lending them out. When those loans are deposited anew, additional credit is created for lending, providing more liquidity to the market than would result from simply matching savers and borrowers. Fractional reserve banking is thus perceived as driving

economic activity by increasing the money supply and helping the economy grow faster.

Fractional reserve banking also allows for maturity transformation, by which short-term liabilities, such as banking deposits redeemable on demand, are transformed into long-term assets, such as mortgages and business loans. Maturity transformation increases liquidity in the marketplace, thereby benefitting the economy.

Fractional Reserve Banking and Systemic Risk

While fractional reserve banking can temporarily boost economic activity and growth, it also creates financial instability and precipitates economic crises. As Bank of England Governor Mervyn King stated in a 2010 speech:

It is this structure, in which risky long-term assets are funded by short-term deposits, that makes banks so hazardous. Yet many treat loans to banks as if they were riskless. In isolation, this would be akin to a belief in alchemy – risk-free deposits can never be supported by long-term risky investments in isolation. To work, financial alchemy requires the implicit support of the taxpayer.¹⁷⁴

Given the inherent instability that maturity mismatching poses to the financial system, fractional reserve banking depends on a government safety net. The existence of this safety net, in turn, can create a moral hazard that incentivizes banks to continue engaging in excessive long-term loan creation, because defaults will be covered by a government bailout.

While the banking system is supposed to provide financial intermediation, fractional reserve banking primarily creates credit rather than true financial intermediation. Credit creation and monetary expansion can negatively impact the economy by disrupting price signals, misallocating resources, and increasing leverage. For example, if \$100 in savings is deposited in a bank which has a required reserve ratio of 10%, \$90 of that deposit that could be loaned out would be true financial intermediation. But once that \$90 in loans is deposited into another account, that next bank can create another \$81 in loans. That \$81 in loans does not originate from

¹⁷⁴ Mervyn King, "Banking: From Bagehot to Basel, and Back Again," (Oct. 25, 2010), available at <http://www.bankofengland.co.uk/publications/Documents/speeches/2010/speech455.pdf>. Last accessed December 11, 2012.

savings, i.e., deferred consumption, but from the \$90 already deposited at the first bank. The \$81 in loans, and subsequent loans pyramided on top of further deposits, is credit that has been created through the fractional reserve banking system, not real savings matched with borrowers through financial intermediation.

Many economists in the Austrian School argue that this creation of credit, which is not supported by real savings, leads to a monetary expansion that misdirects resources in the economy, creating malinvestments and sowing the seeds for the artificial economic booms and corrective busts of the business cycle.

Public Perceptions

Although fractional reserve banking is an integral part of the nation's banking system, consumers tend to have a limited understanding of how it works. Consumers believe that banks can simultaneously lend out 90%+ of their deposits yet still be ready to redeem 100% of those same deposits. As a result, consumers may not fully appreciate the economic consequences that result from fractional reserve banking, including the economic booms and busts that result from credit expansion. Critics of fractional reserve banking claim that the backstop provided by government and ultimately the taxpayers—which is needed to sustain the fractional reserve banking system—permits consumers to remain oblivious to the economic consequences of fractional reserve banking. This government backstop also insulates fractional reserve banking from market pressures by concealing its full risks and costs.

Both confusion about the legal ownership of deposits and the advent of deposit insurance have also made it difficult for consumers to understand the risks of fractional reserve banking. Bank deposits are legally considered to be the bank's money because they are in fact loans made to the bank, and depositors are creditors of the bank. Yet few depositors understand that they are bank creditors, because they are and have always been able to withdraw their deposits on demand. The creation of deposit insurance has arguably made it unnecessary for depositors to understand the legal relationship they have with their banks because those deposits are guaranteed by the government. But this government safety net has also distorted the system by blunting market discipline since depositors now have less incentive to be vigilant about the risks banks take with their deposits. Ultimately, the government safety net makes the banking system more fragile.

Survey of Reforms

Narrow Banking

Narrow banking is one alternative proposed to the fractional reserve banking system. Narrow banking would prohibit banks from lending deposits and ensure that lending could only be performed by other financial intermediary institutions. Such proposals include Limited Purpose Banking, a concept advanced by Boston University Professor Lawrence Kotlikoff, which would convert all financial institutions—including insurance companies and hedge funds—into mutual funds, treat them as banks, and require them to engage only in financial intermediation.

100% Reserve Banking

Proponents of 100% reserve banking propose a system in which banks accepting deposits must keep 100% of the deposits they take in as reserves. Essentially, 100% reserve banking would separate deposit banking from loan banking. A deposit bank would serve as a warehouse for storing money for safekeeping, while loan banks would serve as financial intermediaries where savers would place their money for investment purposes and borrowers would seek loans.

Free Banking

Free banking is another proposed alternative to the government-backed fractional reserve banking system. In a free banking system, there are no governmental restrictions on banking. For example, no government charter would be required to enter the banking business, nor would there be any legal reserve requirements or restrictions on bank reserves. In a free banking system, banks would be regulated through market forces, and their risk taking and business practices would be monitored and evaluated by potential depositors, not government agencies. In a free banking system, government would not insure deposits and taxpayers would not pay to bail out the creditors or shareholders of failed banks. Banks would compete for deposits on the strength and soundness of their financial positions. Some scholars argue that free banking would result in 100% reserve banks, while others argue that fractional reserve banks would be accepted by consumers, but that the market would demand higher reserve ratios than currently required under a fractional reserve banking system supported by government safety nets.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 2:30 p.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Luetkemeyer, and Schweikert.

Chairman PAUL. This hearing will come to order.

I now recognize myself for 5 minutes to make an opening statement.

I thank all the Members attending today, and I thank the panel for being here today. I will make a brief statement because we are anxious to get to the testimony.

I find today a very interesting day in our history because there is lots in the news today. There is a contempt vote in the House that will be voted on, as well as there was a major Supreme Court ruling today which has caught the attention of not only people in Washington, but everybody around the country.

But I would like to suggest that the hearing we are holding today is not to be dismissed as insignificant, because we are dealing with a subject that is rarely thought about but has a major impact on our economy, on how deficits are financed, how government grows, and how financial bubbles are formed, and why we have crises, which are the corrections and the depressions. So, for this reason, I think this emphasis today on fractional reserve banking is very apropos, because without the understanding of this and the understanding of the nature of money, we really can't get to the bottom of the business cycle.

There are certainly those who argue that fractional reserve banking is something that is advantageous, it facilitates the market, it makes credit easy, it causes economic growth. Others would choose to say that there is also a downside for fractional reserve banking because there is an encouragement of those who can find credit

rather easily, not coming from savings but from a computer or a printing press or fractional reserve banking, causes problems. It causes problems because it does affect interest rates, it sends out bad signals, it causes malinvestment and overinvestment that, indeed, the marketplace requires that these mistakes be corrected.

And this is the reason why we are having these hearings today, because much has been talked about in the last several years about the influence of the Federal Reserve itself, how it can increase the monetary base and high-powered money, but it doesn't end there. Money continues to expand with the cooperation of the banks with what we call fractional reserve banking. But we also have to deal with and think about exactly where capital comes from in a free market system.

My understanding is that capital should come from work, hard effort, and having a savings; don't consume everything you earned. If you can't save, you can't invest. And that is a big difference if you understand that capital comes from hard work and savings and then investment and it be distributed by the marketplace by the so-called price or the interest rates; compared to saying, savings are unnecessary, don't ever worry, we can always provide the liquidity and the credit either directly from the Fed or indirectly through fractional reserve banking. So if we indeed think about fractional reserve banking, we have to think about actually where capital comes from and where the mistakes come from and what causes them.

But fractional reserve banking is a major contributing factor to the ease with which governmental bodies accumulate debt. And we can also emphasize the importance and nature—and we will talk more about this today—of worry that there is a moral hazard connected to this. So if there is risky financial behavior with the monetary system we have, it is compounded by the fact that there are going to be guarantees in the system, the lender of last resort, the insurance that says that people can be taken care of and actually be rewarded for the mistakes that they made.

It seems to me that the system seems to work on one part of the cycle and it is a total disaster on the downturn of the cycle. And that is something I think every American, every Congressman, everybody who cares about their fellow man and about a healthy economy should think about and consider. Because if, indeed, the business cycle is caused in this manner, there is actually an answer for us and there is something that we can do about it, rather than the demagoguing and the politicizing of these issues as goes on so often.

So I want to pause there and make sure there are no other Members who have an opening statement. And if not, we will proceed to the witnesses.

The first witness I would like to introduce is Dr. Joseph Salerno, who is a professor of economics and chair of the economics graduate degree program at Pace University in New York City. He is also academic vice president of the Ludwig von Mises Institute in Auburn, Alabama; research associate of the Foundation of the Market Economy at NYU; and policy expert for The Heritage Foundation. He has written extensively on monetary policy theory and banking and comparative economic systems. He finished his undergraduate study at Boston College and received his M.A. and Ph.D. in economics from Rutgers University.

Also with us today, we have Dr. John Cochran, emeritus professor of economics and emeritus dean of the School of Business at Metropolitan State College of Denver and a senior scholar of the Ludwig von Mises Institute. He has published numerous scholarly articles on the refinement and development of the Mises/Hayek Austrian theory of the business cycle. He received his Ph.D. in economics from the University of Colorado Boulder.

Dr. Lawrence White is professor of economics at George Mason University, where he specializes in the theory and history of money and banking. Dr. White is one of the leading experts on free banking and is a member of the Financial Markets Working Group at the Mercatus Center. He has been published in the *American Economic Review* and the *Journal of Monetary Economics* and has also authored three books on monetary matters, including, “The Theory of Monetary Institutions.” He received his Ph.D. in economics from UCLA and his undergraduate degree in economics from Harvard.

Without objection, your written statements will be made a part of the record. You will now each be recognized for a 5-minute summary of your testimony.

Dr. Salerno?

**STATEMENT OF JOSEPH T. SALERNO, PH.D.¹⁷⁵
PROFESSOR OF ECONOMICS, LUBIN SCHOOL OF BUSINESS
PACE UNIVERSITY**

Mr. SALERNO. Chairman Paul and members of the subcommittee, I am deeply honored to appear before you to testify this morning on

¹⁷⁵ [The prepared statement of Dr. Salerno can be found on page 781.]

the momentous topic of fractional reserve banking. Thank you for your invitation and attention.

In the short time I have, I will give a brief description of fractional reserve banking, identify the problems it presents for the economy, and suggest a solution.

A bank is simply a business firm that issues claims to a fixed sum of money in receipt for the deposit of ready cash. These claims are cashable on demand and without cost to the depositor. In today's world, these claims may take the form of checkable deposits that are transferred to a third party by writing out a check. They may also take the form of so-called savings deposits that require withdrawal in person at one of the bank's branches or at an ATM machine.

In the United States, the cash for which the claim is redeemable consists of Federal Reserve Notes, the dollar bills that we all are familiar with. Fractional reserve banking occurs when the bank lends or invests some of its deposits payable on demand and retains only a fraction in cash reserves, hence the name "fractional reserve banking." All U.S. banks today engage in fractional reserve banking.

Let me illustrate how fractional reserve banking works with a simple example. Assume that a bank's deposits of \$1 million make \$900,000 of loans and investments. If we ignore for simplicity the capital paid in by its owners, this bank is holding a cash reserve of 10 percent against its deposit liabilities, the assets of the bank or its cash reserves, and various noncash assets. The noncash assets include business loans, credit card loans, mortgage loans, and securities issued by the U.S. Treasury and other financial authorities. These assets are titles to cash receivable only in the near or distant future.

The key to understanding the nature of fractional reserve banking and the problems it creates is to recognize that a bank deposit is not, itself, money. It is, rather, a money substitute—that is, a claim to standard money or dollar bills—widely regarded as perfectly secure. Bank deposits will be routinely paid and received in exchange in lieu of money only as long as the public does not have the slightest doubt that the bank which creates these deposits is willing and able to redeem them without delay or expense. When this is the case, bank deposits are regarded as indistinguishable from cash itself.

The very nature of fractional reserve banking, however, presents a problem for the bank. On the one hand, all of the bank's deposit liabilities mature on a daily basis because it has promised to cash them in on demand. On the other hand, only a small fraction of its assets is available at any moment to meet these liabilities. The rest of

the bank's liabilities will only mature after a number of months, years, or even decades.

In the jargon of economics, fractional reserve banking always involves "term structure risk," arising from a mismatching of the maturity profile of its liabilities with that of its assets. In layman's terms, banks borrow short and lend long.

The inherent problem is revealed when the withdrawal of deposits exceeds a bank's existing cash reserves. The bank is then compelled to hastily sell off some of its longer-term assets, many of which are not readily saleable. Thus, it will incur big losses. This will cause a panic among the rest of its depositors, who will scramble to withdraw their deposits before they become worthless. A classic bank run will ensue, and the bank will fail.

But the failure of fractional reserve banking is only a minor problem. Its effects are restricted to the bank's stockholders, creditors, and depositors, who voluntarily assume the peculiar risks involved in this kind of business.

More important are the harmful effects that fractional reserve banking has on the overall economy. First, fractional reserve banking is inherently inflationary. The issue of money substitutes unbacked by cash expands the money supply and drives up prices. Second, the lending of unbacked money substitutes artificially reduced interest rates below market equilibrium rates. This causes businesses to make unwise and wasteful investments and households to indulge in overconsumption. It destroys wealth, and it creates financial bubbles that end in recession and financial crises.

The inflation and business cycles generated by fractional reserve banking are greatly intensified by Federal Reserve and U.S. Government interference in the banking industry. The most dangerous forms of such interference are the power of the Federal Reserve to create bank reserves out of thin air via open market operations, its uses of these reserves to bail out failing banks in its role as the lender of last resort, and Federal insurance of bank deposits.

In the presence of such policies, the deposits of all banks are perceived and trusted by the public as one homogeneous brand of money substitute, fully guaranteed by the Federal Government and backed up by the Fed's power to print up bank reserves and bail out insolvent banks. Under such a monetary regime, there is absolutely no check on the inherent propensity of fractional reserve banks that borrow short and lend long to issue unbacked money substitutes, to expand the money supply, and to artificially depress interest rates.

The solution to the problem is to treat banking as any other business and permit it to operate in a market completely free of government guarantees of bank deposits and assurance of Fed bailouts. In order to achieve this ideal, the Fed would have to be permanently and credibly deprived of its legal power to create reserves from nothing. The best way to do this is to establish a genuine gold standard, in which gold coins would circulate as cash and serve as bank reserves. At the same time, the Fed must be stripped of its authority to issue notes and conduct open market operations. Also, banks would once again be legally permitted to issue their own competing brands of notes, as they were throughout the 19th Century and even into the 20th Century.

To conclude, in fact, on the banking market as I have described it, I foresee the ever-present threat of insolvency lurking over fractional reserve banks to compel banks to refrain from further lending of their deposits on demand. They would retain in their vaults and ATM machines the full amount of the cash deposits. This means that if a bank wished to make loans of a longer or shorter maturity, it would only do so by issuing credit instruments whose maturities matched their loans. Thus, for short-term business lending, they would issue certificates of deposit with maturities of 3 or 6 months; to finance car loans, they might issue 3- or 4-year short bonds. Mortgages would take the form of 5- to 10-year balloon loans, as they did in the 1930s, and be financed by bonds of 5 or 10 years.

In short, on a free market, fractional reserve banking, with all its inherent problems, would slowly wither away.

Thank you.

Chairman PAUL. Thank you.

Dr. Cochran?

**STATEMENT OF JOHN P. COCHRAN, PH.D.¹⁷⁶
EMERITUS PROFESSOR OF ECONOMICS AND
EMERITUS DEAN OF THE SCHOOL OF BUSINESS
METROPOLITAN STATE COLLEGE OF DENVER**

Mr. COCHRAN. Chairman Paul and members of the subcommittee, thank you for this opportunity to discuss fractional reserve banking, central banking, and its relationship to economic and financial instability.

Fractional reserve banking has historically been viewed by some economists and most monetary cranks as a panacea for the economy, a source of easy credit, and new purchasing power to quicken trade.

¹⁷⁶ [The prepared statement of Dr. Cochran can be found on page 787.]

Better economists, however, recognize fractional reserve banking, with its ability to create credit, as a major source of financial and economic instability.

Credit created by fractional reserve banks—credit extended beyond what could be supported by actual savings—while initially appearing beneficial, output and employment increase in areas supported by the expanding credit is unsustainable and will end in a bust. A secondary consequence of the bust is a financial and banking crisis, the bank run and associated panic.

The establishment of a central bank was often, when not driven by fiscal priorities of a government, an attempt to achieve the first while mitigating or eliminating the second. For the United States in particular, the effort was misguided. Per Vera Smith, “A retrospective consideration of the background and circumstances of the foundation of the Federal Reserve System would seem to suggest that many, perhaps most, of the defects of American banking could, in principle, have been more naturally remedied otherwise than by the establishment of a central bank; that it was not the absence of a central bank per se that was the root of the evil.”

Recent research supports her conclusion. Compared to the pre-Federal Reserve era, the Fed has failed to provide the promised stability and the Fed has guided a significant decline in the purchasing power of the dollar. The dollar currently has a purchasing power of less than 5 percent of the 1913 dollar.

Fractional reserve banks developed from two separate business activities: banks of deposit, or warehouse banking, where banks offering transaction service for a fee; and banks of circulation or financial intermediaries. Circulation banking, if clearly separated from deposit banking, reduces transaction costs and enhances the efficiency of capital markets, leading to more savings, investment, and economic growth. Fractional reserve banking combined these two types of banking institutions into one: a single institution offering both transaction services and intermediation services.

With the development of fractional reserve banking, money creation—either through note issue or deposit expansion—and credit creation became institutionally linked. Banks create credit if credit is granted out of funds especially created for this purpose. As a loan is granted, the bank prints bank notes or credits the depositor on account. It is a creation of credit out of nothing. Created credit is credit granted independently of any voluntary abstinence from spending by holders of money balances.

The existence of a central bank, with its ability to create high-powered or base money, is a necessary prerequisite for excessive credit creation and the resultant boom-bust cycle. While 100 percent reserves could eliminate or reduce the boom-bust cycle and eliminate the threat of bank runs and panics, boom-bust business cycles are really a phenomenon of central banking, not fractional reserve banking per se. Without a central bank, credit creation by fractional reserve banks would be limited in extent. Large misdirections of production caused by credit creation require either newly created base money or the promise to create new base money in the event of a crisis by a central bank.

During the period known as “the great moderation,” roughly 1982 to 2000, the U.S. economy experienced a period of apparent relative stability and prosperity. The U.S. economy was then buffeted by two boom-bust cycles tied directly to credit expansion and low interest rates. While much of the discussion following the recent crisis focused on why the recovery has been so slow, a lesson that should have been learned is that credit-driven artificial booms cannot last. High-powered, money-driven credit expansion, enhanced by the money multiplier of fractional reserves, is a major destructive power that misdirects production, falsifies calculation, even in a period of relatively stable prices, and destroys wealth. Policy-induced booms tend to piggyback on whatever economic development is under way. The interest rate break, which normally would stop the event before they turn into bubbles and booms, is effectively neutered by credit creation.

Central bank response to the most recent crisis has moved in the direction of greater, not lesser, central bank involvement in the economy. Recent trends are troubling. John Taylor recently reported that the Federal Reserve purchased 77 percent of the net increase in the debt by the Federal Government in 2011. The Fed is moving from a monetary policy to a “mondustrial” policy, a policy environment that is not a monetary framework; it is an intervention framework financed by money creation. These trends make a return to sound money, which involves abolishing the central bank and paper fiat money and restoring a commodity money chosen by the market and totally subject to the market, imperative.

Fractional reserve banking supported by a central bank is a cause of the boom-bust cycle, both the dot-com and the 2007 financial crisis and great recession. Elimination of the source of instability requires monetary reform, such as H.R. 1094, which is most consistent with the reforms in the written testimony. H.R. 4180 would be a strong

improvement over current Fed operations, as would H.R. 245, but both of these, while improving monetary policy, would still leave the economy subject to boom-bust cycles.

Chairman PAUL. Thank you.

And now, I will recognize Dr. White.

**STATEMENT OF LAWRENCE H. WHITE, PH.D.¹⁷⁷
PROFESSOR OF ECONOMICS
GEORGE MASON UNIVERSITY**

Mr. WHITE. Thank you, Chairman Paul, and members of the subcommittee.

I want to second what has been said by Dr. Salerno and Dr. Cochran. The problem is not fractional reserve banking per se, but the lack of constraints on fractional reserve banking which have been created by: one, the Federal Reserve system; two, our system of deposit insurance combined with “too-big-to-fail;” and three, other restrictions and privileges placed upon banks.

In my statement, I offer some historical background on the origins of fractional reserve banking, and talk a little about the effect of fractional reserve banking on the money supply. But I think the important issue here is to focus on the problems of bank runs and financial instability and the reforms needed to improve our banking system, so let me focus on that.

Undoubtedly, the leading argument made in favor of government regulation of banks, at least since the 1930s, has been the argument claiming that fractional reserve banking is inherently fragile, and so it needs a lender of last resort; it needs deposit insurance to prop it up. I find that is actually not correct. Uninsured fractional reserve banking is not, in fact, inherently prone to runs; it is not inherently prone to panics. The runs and panics that were a problem in the United States in the late 19th Century and in the Great Depression were due to weakness that was specific to the United States and created by the legal restrictions and privileges that I have mentioned.

It is true that runs have harmful effects, I don't think there is much disagreement about that, at least when a run takes place on a bank that is actually solvent. In a sense, the depositors think there is not enough to go around, but there really is. We would all like to prevent that. But banks would like to prevent that, too, and I will talk about how they can do that.

¹⁷⁷ [The prepared statement of Dr. White can be found on page 806.]

And the supposed remedy of deposit insurance, although it does reduce the number of runs, it does so at a cost that is probably greater than the—I think almost surely greater than the benefit that it provides by doing so, because it not only eliminates the tragic runs but it also eliminates the runs that are healthy, the ones that eliminate insolvent banks. And in the absence of that kind of mechanism, we rely on the good graces of the bank regulators to close banks when they begin to get insolvent, and we have found that they are not actually very good at it. They tend to delay closure, and that creates great moral hazard problems.

So if a fractional reserve bank makes promises to pay on demand more than it has in its vault, then it is possible that enough people will claim their money back that the bank can't pay everyone. And if that happens, as Dr. Salerno said, the bank is forced into hasty liquidation of assets. That is certainly possible. It typically happened, historically, when a bank was already insolvent, so it actually—the run closed the bank that ought to be closed. But it could happen even against a solvent bank.

And because that is a possibility, some economic theorists have jumped to the conclusion that banks in practice are actually fragile. But if we look at the historical record and especially if we look outside the United States, we find that that is not what prompted bank runs. What prompted bank runs was a justifiable fear that a bank was already insolvent.

And that explains the pattern of bank runs over the season, over the business cycle, and it explains why bank runs were more of a problem in the United States than they were in, say, Canada, because the United States had a weak banking system in ways that Canada didn't. And the United States system was weak because we restricted branching for so many years and because we restricted notes issued by banks under the national banking system in ways that made them unable to meet peak demands for currency.

There are two way banks can protect themselves from runs. One is to have a clause in their accounts that says, "If necessary, we can delay redemption until we have enough time to liquidate assets in an orderly manner." That was used by some trust companies in the United States. But, most importantly, banks have to assure their customers that they are solvent, and they have to behave in such a prudent way that there is no doubt about their solvency.

And before deposit insurance, banks did that. They held large capital positions; 20 percent capital was typical. But when the FDIC Act came along, the banks hired—banks used to actually paint in

their window, “This bank has \$5 million in capital.” When the FDIC Act passed, they hired someone to go scrape that paint off the window and put in the FDIC sticker. All right? So, FDIC protection took the place of what should be protecting depositors, namely bank capital. Since then, banks have held as little capital as the FDIC will let them get away with. And the FDIC is not particularly good at monitoring bank capital or discovering when banks have bigger liabilities than they admit on their balance sheets.

So I think our biggest problems today—let me talk about very briefly, in conclusion, about what we need to do. We need to find some way of rolling back and ultimately ending deposit insurance at the Federal level. We need to certainly end immediately the too-big-to-fail doctrine because that compounds the problem and means that even uninsured depositors are not shopping around for a safe bank, so nobody is monitoring banks for prudent behavior. So, some way of ending that needs to be found immediately.

Thank you.

Chairman PAUL. Thank you.

[QUESTIONS & ANSWERS]

I now yield myself 5 minutes for questioning.

I am going to direct this question to Dr. Salerno, but, the rest of the panel, feel free to also answer it.

I wanted to talk a little bit about how, under today’s circumstances when we have the Fed doing what they are doing and we are concerned about fractional reserve banking, we know the Fed had an effect on interest rates and an inflationary impact, certainly on the monetary as well as price inflation.

But is there any way to just roughly maybe separate the two: How much of an impact does fractional reserve banking have on interest rates, and how much does it have an impact on actually the inflationary impact which ends up with prices going up? Is this a major contributing factor or not too relevant because the Fed is to be blamed for everything? Can you put that into a proper perspective?

Mr. SALERNO. Yes.

On a free market, as I said, I don’t think fractional reserve banking would be too problematic. It would eventually, I think, wither away. I disagree with Larry on that.

But when there is the Fed, a lender of last resort, somebody who can print up reserves out of thin air, there is really a symbiotic relationship between the two. The Fed needs fractional reserve banking, and fractional reserve banking needs the Fed.

So when fractional reserve banking, which I believe is inherently stable, gets into trouble, as when Washington Mutual failed overnight, you then have the Fed intervening, of the too-big-to-fail doctrine. And it is the very fragility of fractional reserve banking that caused the Fed, then, to engage in Quantitative Easing 1 and 2.

Without fractional reserve banking, we would not have had these unconventional ways of injecting money into the system. So I think, yes, fractional reserve banking does contribute a great deal to the problem.

Chairman PAUL. But does it affect the interest rates per se?

Mr. SALERNO. Yes, actually, if the government just printed money and issued it, it wouldn't affect interest rates. If the government just printed up money and spent it, it wouldn't affect interest rates. It needs to have fractional reserve banking in order to put down pressure on interest rates and, therefore, cause bubbles and recessions.

Chairman PAUL. Do either of the others have a comment?

Mr. WHITE. Yes, I think the Fed, even in a world without fractional reserve demand deposits, could affect interest rates by going out and buying a huge quantity of government bonds. That kind of open market operation will push up the price of bonds, and push down the yields on bonds. So it is true that fractional reserve banking gives the Fed, in a sense, more leverage.

When it comes to the price level, if the Fed expands the money supply by 10 percent, quantity theory of money tells us—at least, it is an approximation for the long run—the price level will rise 10 percent. And that is true whether you have 100 percent reserve banking or fractional reserve banking.

So the Fed can raise the price level by a given percentage by expanding its own liabilities by that percentage, and whether the commercial banks get involved or not is not really important to that process. The new money comes from the central bank, and it has that power over the price level with or without fractional reserve banking.

Chairman PAUL. Dr. Cochran, I think we can assume that with the system that we have and with the moral hazard of the guarantees insurance and the Fed being the lender of last resort, there are less runs on the bank than we had without those guarantees.

But does that, in itself—if we don't see the runs, where things have to change and go back to a more normal system, does this then encourage the building up of more debt?

Would this be the reason why the world is engulfed with debt? Because most people now do recognize that the world is facing a debt

crisis. People understand it when they look at Greece and these other countries, but look at ourselves, too.

But do you think the fact that there aren't these corrections, we don't have old-fashioned runs on the bank, that we end up with a bigger problem which may be down the road, it takes a little longer to develop, but we end up with this huge debt crisis?

Mr. COCHRAN. That is a tough question to answer in the context of that, but I think, as Joe alluded and Larry has alluded, with the guarantees that we have, we essentially have weakened—one of the control sides—prudence on the side is essentially the lender of funds—and people depositing funds into a bank are lenders, okay—had more restraint on deciding at least who and when and how they lent money when they knew the funds were at risk.

So with some of these restraints that have been taken away, that we have less people paying attention to the safety and soundness of the types of instruments they have invested in, and then with the central banking that can create credit, that once you set an interest rate target, in many ways there is incentive for a bank, even if they don't have the funds currently available, to extend a loan, create the deposit, and then go out and either borrow the reserves in the Federal funds market, and as they borrow in the Federal funds market—and that would put upward pressure on the Federal funds rate—then the Federal Reserve has an incentive to go in and create the reserves to sustain the overextension of credit.

So, yes, I think there is an interaction between the fractional reserve banking, these restraints, or the lack of, essentially, risk on the downside to the depositors from the apparent safety, that has helped us overleverage.

Chairman PAUL. Thank you.

I now want to yield 5 minutes to the gentleman from North Carolina, Mr. Jones.

Mr. JONES. Mr. Chairman, thank you very much.

As I sit here and listen, I really appreciate you sharing your intellectual abilities and helping us better understand the pros and cons of fractional reserve banking. And it leads me to a number of thoughts.

First of all, a week or so ago, we had Jamie Dimon up here trying to explain how he lost \$2 billion in investments. And then, you read in the paper today that it wasn't \$2 billion, it was \$9 billion.

And I listen to your feelings about fractional banking and whether this is a sound policy or not a sound policy and how it plays in. And I think—I am from eastern North Carolina, and I think I listen very

carefully to the people I represent, their concerns about our monetary systems and is it strong, is it challenged, is it weak. And it leads me to a very simple point that I would like your response to.

When the banks failed in the 1930s, the Congress passed what they believed was legislation to create some confidence and some soundness in banking known as the Glass-Steagall Act. I have said many times that in the 18 years I have been in Congress, the two worst votes I ever made were the Iraq war and the repeal of Glass-Steagall.

When I look at all these boutique-type investments that the banks have access to, from the selling of credit defaults, from all these different systems, and fractional banking, how do you get back to some soundness? Because it looks like to me that what we are doing is gambling on Wall Street. And I am talking about the banks as well as the investment banks.

How do we get back? Chairman Paul—I hate to think that he is leaving Congress because I think he has been such an expert, whether you agree with all of his positions on the monetary system. But I think we have allowed a system that is not sound at all. In fact, I think the system is becoming more and more fragile as we continue to move forward.

Do we need to go back to something like Glass-Steagall? Do we need to say to the banks that you have to start banking instead of gambling? Where are we in this process?

I would like all three of you to respond, please.

Mr. SALERNO. I agree with you that repealing Glass-Steagall was ill-considered. It wasn't really deregulation. It only deregulated the banks' assets side. It allowed S&Ls to suddenly begin speculating, not just loaning mortgages but making risky loans in the oil industry and so on. So I agree with you there.

What I suggest is not to put back in place Glass-Steagall but to deregulate the liability side, okay? That is, the ability of banks—bailing out banks and the deposit insurance was what allowed banks to become irresponsible when you got rid of Glass-Steagall.

So I would have kept Glass-Steagall in place, and when Congress was ready to repeal deposit insurance and when the too-big-to-fail doctrine was gotten rid of, then I think banks would become much more careful. They would operate more like money market mutual funds, which don't go bankrupt, which don't have any problems, which have adjusted to market forces.

Mr. WHITE. Yes, I think that the Act passed in the 1930s that has weakened our banking system more than any other is not the Glass-

Steagall Act, and certainly not the repeal of the Glass-Steagall Act, but the FDIC Act.

And when deposit insurance was very closely limited, small amounts and banks, as Dr. Salerno alluded, couldn't gamble with the money, then deposit insurance didn't generate a lot of moral hazard. But now, sort of, everything goes.

And the big problem with the repeal of Glass-Steagall is that it has extended the subsidy of deposit insurance to risk-taking to very creative risk-takers. And so what we need to do to get the genie back in the bottle is to find ways to limit the access of risk-takers to insured deposits. If they want to gamble with their own money, that is fine with me. I don't want to put any restrictions on hedge funds, for example. They are not involved in the payment system. They haven't been considered too-big-to-fail so far; let's hope that continues.

But investment banks sort of fell into this gray area, where traditionally they were not considered part of the Fed's purview even, but 5 years ago, the Fed decided that it needed to jump in and save Bear Stearns from its own foolishness. I think that was a real mistake, and it has led to and encouraged a trend that was already under way toward overleveraging.

So it is not that all leveraging is bad, but, clearly, we have gone too far. We have encouraged banks to go too far, and we need to take away those encouragements.

Chairman PAUL. I thank the gentleman.

Now, I recognize the gentleman from Missouri, Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Mr. White, you have been doing most of the discussing here with regards to deposit insurance. And I have just kind of an observation first, and then we will get to a question.

In 2008, in my district, there were a number of runs on banks. And people would go in and they would take out \$10,000, \$20,000 worth of cash, but they also would take their money that was above the \$100,000 deposit insurance level and move that to another bank. And that is a run of sorts, in that it is taking money out of banks and shifting it around, although it didn't go into their pocket or in a tin can in the backyard.

But because of the insurance that was in place, it did put a floor under some of this activity and did show that the consumer had a trust level to that much, at least. And I guess it was a trust in the government, with FDIC insurance backing it up.

So I guess my question is, I understand where you are coming from, but I think if you open it up, make it the wild, wild west with regards to investments out here and it is up to the individual to do his own research, it is going to get kind of hairy.

I know right now—in the past, banks have always had to publish a quarterly financial statement, and everybody could see what their—and it has to be disclosed in the public area so people could see the solvency of the bank. But how many of the average consumers in this room today can read a financial statement or understand it? It is pretty complicated stuff.

So I am questioning, if we are going to continue with fractional reserve banking, I think deposit insurance certainly is a part of that.

And I have a follow-up question when you get done with that.

Mr. WHITE. I think you are right that it would be hairy if we eliminated deposit insurance tomorrow without any preparation, because banks have adopted positions, they have taken risks, they have put themselves in illiquid positions knowing that deposit—or, expecting that deposit insurance will be there tomorrow. So it would take some preparation to even phase it back a little bit, even to introduce coinsurance or—

Mr. LUETKEMEYER. I would assume that if you want to get rid of deposit insurance, you would want to raise capital requirements. Is that one of the ways you want to go?

Mr. WHITE. I would encourage banks to hold more capital. I am not sure I would do it in the form of a requirement.

But if we look over the broad sweep of banking history, we find very solid banking systems that didn't have deposit insurance, where the banks held adequate capital because it was in their interest to do so. So that is sort of the goal I have in mind.

Now, getting to that kind of system, we kind of have a bomb in front of us and we have to snip the wires in the right order. I appreciate that.

Mr. LUETKEMEYER. It is kind of interesting because I was in a discussion this morning with one of the higher-level folks in the Treasury Department, and they are advising the Europeans to try and implement deposit insurance. So I am just kind of like, you have to be kidding me.

But, anyway, I think you made a point a while ago that I thought was excellent. It kind of spurred a thought here, with regards to the home mortgage problem that we had during the early 2000s. And part of it was access to money, lots of money. But the other part of it was the lending, loosening the lending standards. And I think when

the Fed throws money out there, if they would also think about restricting lending standards, I think that is another way to control the access to these funds.

And I think if you see the quality of the new loans being made by the GSEs, you can see that suddenly their balance sheets look pretty good on the loans they have made since this, under new restrictions, going back to the old lending standards, which would seem to me, if we had just done this thing right to begin with, we wouldn't be in this problem.

But I am kind of curious with regards to the 100 percent reserve banking, where you have a bank that takes in all the money and all the deposits and lets it sit there and it is just sort of like a piggyback that goes back and forth, and then we have a separate entity that is a loaning bank. Where does the loaning bank get its money from?

Mr. WHITE. If it can't lend out demand deposits, checking account dollars, it can still lend out savings account dollars. So money that it takes in with certificates of deposit would still be available for lending. But it could restrict the amount of lending banks could do, and the money that people hold—

Mr. LUETKEMEYER. In other words, you still make a deposit into your savings account or certificate of deposit, and that is the money, then, that is loaned out; it is not the checking account money.

Mr. WHITE. That is right.

Mr. SALERNO. If I might interject, the savings deposits would have to be true savings deposits. That is, they would have to have some sort of 30-day maturity or something like that. Today, they technically do, that you are supposed to give 30 days' notice, but that has been a dead letter since the 1920s.

Mr. LUETKEMEYER. Has there ever been in history a system like this?

Mr. WHITE. I think the closest, the most nearby example is the Canadian banking system. Up until the first world war, there was nationwide branch banking, they had very few restrictions on note issue by banks, on deposit making by banks, and there were no panics in the Canadian banking system. They didn't have a panic of 1907. They didn't have a panic of 1930, 1931, or 1932. No banks failed in Canada during the early years of the Great Depression. It is quite remarkable. And yet, they had no deposit insurance, and there wasn't any movement for deposit insurance.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now recognize the gentleman from Arizona, Mr. Schweikert.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

And I appreciate you all being here because this is one of those—I know sometimes it feels a little esoteric.

But I want to go a little bit to the side and sort of make sure I have my head around part of the global side of where you see the problem. Is it the expansion of liquidity that the design now creates? Is that the simple way to phrase it?

Mr. WHITE. Yes, that loose monetary policy has been a big problem over the last—

Mr. SCHWEIKERT. And that becomes dollars that go in and create bubbles?

Mr. WHITE. That is right.

Mr. SCHWEIKERT. Can we play, sort of, game theory for a moment? Do credit card issuers in some ways, with the way they are chartered and issue credit expansion, do they add to that same sort of liquidity out there?

Mr. SALERNO. I would say “no.” A classic credit card, that money is basically an instant loan, so that the money that is lent to—or, actually, paid to the retailer that you purchased from, that money comes from a loan. It doesn't have to come from a fractional reserve bank.

Mr. SCHWEIKERT. Is there an agreement that organizations organized off of that type of credit—how about a store credit or automobile credit or even a credit line attached to your house? Does that create that same type of multiplier effect of the expansion of money supply?

Mr. SALERNO. A legitimate loan, where someone gives up the amount of money, let's say, an equity loan for 5 years, they don't have the money to spend, and you do have the money to spend. That has no effect on prices and that has no effect on interest rates, so it does not cause bubbles and financial crises and so on. But because everything is so tied up with fractional reserve banking, it ramified into almost all of these loans.

Mr. WHITE. Credit cards are not money. In some circumstances, they are a substitute for spending money. But if the total supply of credit is determined, then it is a matter of what kind of credit is being issued.

Mr. SCHWEIKERT. So if it is on the back end, is saying, look, there is a certain amount of total credit that is able to be offered, and we as the institution have to have that properly capitalized over there.

Mr. WHITE. Right. Yes. But money is an asset to the holder, and having an unused credit card line is not an asset.

Mr. SCHWEIKERT. So, other than, sort of, the ratios of deposit to how much can be lent out, do you see any other types of financial instruments or activity in the American marketplace that also creates that sort of expansion of cash that is out there chasing assets?

Mr. WHITE. Not in a big way—traveler's checks, a tiny bit, not very big.

Mr. SCHWEIKERT. Traveler's checks. So it is basically the Fed, fractional reserve banking, and then maybe a couple of other externalities out there, issuers of certain lines of credit that do it with very little—sort of a hope-and-pay type of system.

Mr. SALERNO. Right now, it is the Fed. It is the Fed pumping liquidity into the system in order to prop up these fractional reserve banks that have extended loans that have gone bad in a massive way. So I think that was what Dr. Paul referred to as the, sort of, complementarity between the Fed and fractional reserve banking.

Mr. SCHWEIKERT. Okay. And this actually sort of ties back into what our chairman has touched on many times before. Let's say we are all sitting here 3 years from now and the Fed is still buying a massive portion of U.S. sovereign debt, we see a credit expansion. What does our world look like 3 years from now? Are we in a massive debasing of the currency? Are we seeing a huge inflationary cycle? Each of you, I would love your prediction of what our world looks like 36 months from now if we continued on this path.

Mr. SALERNO. If we continue on this path and the banks finally begin to lend money out—because they are sitting on a lot of this liquidity that has been injected into the system by the Fed. They have over a trillion dollars of excess reserves. If that is lent out, then we begin to see—I think what we are going to see is, first, a very rapid depreciation of the exchange rate.

And with the overhang of foreign ownership of U.S. sovereign debt, what we are going to see happening is the dumping of that debt, further exchange rate depreciation, which is going to feed on itself, push import prices in the United States through the roof, and, also, interest rates are going to rise tremendously as people just unload U.S. debt.

Mr. SCHWEIKERT. Okay.

Mr. SALERNO. I see that happening.

Mr. COCHRAN. I would tend to echo that, that my biggest fear is not really a total collapse in the currency but really, a return to the economic stagnation and inflation that was a real problem in the mid-1970s through the early 1980s, and I think is overlooked in this current crisis, where people have jumped back and tried to compare

this to the 1930s, and our biggest threat is getting back to a period with significantly high interest rates, with inflation premiums, and double-digit inflation and threatening double-digit unemployment.

Mr. SCHWEIKERT. With your patience, Mr. Chairman, may I have Mr. Wright answer?

Mr. WHITE. Yes, I have the same concern about inflation. I don't know at what rate, but we learned in the 1970s, I thought, that you can have rising inflation even while unemployment is high. The fact that there is slack capacity in the economy doesn't mean that prices can't start to be bid up for the goods and services that people are buying and selling.

Now, of course, the Fed assures us that it will start to pay attention to inflation if it rears its ugly head, but there is a lag in recognizing what the problem is and there is a lag in turning that ship around. So I worry that inflation will rise substantially, maybe between 5 and 10 percent, before they can do anything about it.

Mr. SCHWEIKERT. Within that scenario, do you also see, literally, if you are debasing the currency in that, almost a currency war between sovereigns?

Mr. SALERNO. I think we are in a currency war. I think the United States has been waging a currency war from the 1960s— that is, devaluing its currency in order to help prop up so-called aggregate demand or total spending in the economy to continuously get us out of recessions and so on.

Mr. SCHWEIKERT. All right. Thank you.

And thank you for your patience, Mr. Chairman.

Chairman PAUL. Thank you.

I believe we will have time to go on with a second round of questioning. So I will yield myself 5 minutes.

Suggesting that we could move into something like in the 1970s with low growth and prices going up, history also shows that you can get inflationary depressions, too. The depression actually gets worse, and then you also have a destruction of the currency. And let's hope we can prevent that from happening.

But I wanted to ask the panel, and I will start with Dr. Salerno, about some of the challenges we get, those of us who believe in commodity money or even the gold standard, that they always throw the 19th Century up to us, and they say that the gold standard was a total failure because we had bank runs; that is why we had to have the Fed, and that is why we had to have this system.

But, Murray Rothbard wrote about the booms and the busts in the 19th Century, and he didn't blame the gold standard like they did

in the 1930s. They said that the gold standard was at fault. But he talked about the pyramiding of debt and the deposits.

Would that be saying that there is some blame for fractional reserve banking for contributing to those crises that we had in the 19th Century, and it was that rather than the gold standard that caused those problems?

Mr. SALERNO. Yes, I think that is right, that fractional reserve banking was really to blame for most of those panics and depressions. Particularly after the Civil War, when we had the national banking system, you had this pyramiding not only on gold, but— Wall Street banks pyramided on gold. Gold was concentrated on Wall Street. That was one of the points of the legislation. And then the country banks pyramided not on gold, they didn't hold gold, they held Wall Street bank notes and deposits as their reserves.

So we had this huge, unstable, upside-down pyramid which was ready to topple over at the slightest problem or small—or large default on some loan. And that is exactly what the cause was, not the commodity money standard itself.

Chairman PAUL. Now, if we were back in the 19th Century, what would have been the tool for preventing those bubbles from forming? Would there have been a government role in trying to prevent what you just described?

Mr. SALERNO. Yes, get rid of all of the policies that caused the pyramiding. Let the banks each stand on their own bottom. If they want to have fractional reserve banking, let them hold their own reserves. If they can get a loan from another bank, they may be able to go on for a little while. But that would prevent it.

Chairman PAUL. Do you care to make a comment, Dr. Cochran?

Mr. COCHRAN. Yes. Some of the panics and problems with the banking system at that time were not a result of banks holding commodity reserves and making loans on that, but were actually restrictions put on their note issue that they first had to buy State government debt or, with some of the national banking, Federal Government debt. And it was the government debt that was supposedly backing their note issue, not the commodity reserves.

So there was some very, very strange symbiosis between governments using the banking system to help their fiscal situation that were much more responsible for some of the panics and the financial crisis, particularly the myth of the wildcat banks.

Chairman PAUL. Dr. White?

Mr. WHITE. Yes, I would disagree with Dr. Salerno a little bit on this. I think fractional reserve banking was a necessary condition for

bank runs and panics, but it is not a sufficient condition. And if you look around the world, as I said before, you find other countries that had sound fractional reserve banking systems where the banks were not artificially hamstrung; they were well-diversified, and they did manage their own reserves, as Dr. Salerno said. They didn't have inter-regional banks' deposits of reserves, like country banks into city banks and city banks into New York, because banks were allowed to open their own offices in the financial capital. So they didn't have to put their money in the hands of another bank and then create that instability. But under the national banking system, the reserve requirements were structured in such a way that it encouraged this kind of interbank depositing.

But if you look at Canada, if you look at Scotland—which is my favorite example—if you look at Switzerland, if you look at Sweden, you see systems where banks were on their own two feet, they had the penalty of failure in front of them if they failed to keep enough reserves or to invest prudently, and the banking systems were competitive and they were solvent, they were solid. So that is how I would draw the lesson.

Chairman PAUL. Okay. Thank you.

I now yield to Mr. Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you.

And I couldn't help but think—in some of your answers, several of you have mentioned other countries and their systems seem to be relatively sound. And I couldn't help but think that is because they probably have a different system of raising money for campaigns. This country—I don't think we could ever do what is right for the banking system or some other systems as long as we have lobbyists. Both parties raise money—and I am guilty of that too, by the way—and they have influence.

When people like yourself, for whom I have great respect—you are professionals, you are intellectuals, this is your area of expertise so to speak, you probably could help us write a really good bill that maybe would make some meaningful changes and make the system a little bit more sound. And yet you, other than hearings like this and other committees, you probably—that is the limit.

And I guess my point is that, I don't know how we are going to ever get the system sound again as long as the paid lobbyists come down here and tell us they like this page of the bill, and they don't like that page of the bill, so you need to change that.

Do you have any thoughts? I really have taken you way off field, so to speak, but do you have any thoughts about a system like ours,

which really doesn't encourage the honesty and integrity to change things for the good of the system but also the good of the people? I will end at that and let you take a shot at it.

Mr. SALERNO. I work in New York. I work at a university in New York City a few blocks away from "Occupy Wall Street." And I think that things will only change, especially in the banking sector, when we have a grassroots movement that shares some of these opinions, that is like "Occupy Wall Street," in that it spreads throughout the constituencies of the United States.

I think that is one of the things that we should be working to do. And I think Congressmen who think—like yourself and Dr. Paul—that things should be changed should encourage these movements to the extent that you can.

Mr. COCHRAN. And the concern is not just limited to banking. I think Adam Smith, as far back as 1776, which I think also is a significant date for this country, really phrased it that, for the economy to operate properly, there needs to be an elimination of all systems of privileges and restraints. And the lobbying comes in both as necessary because of the unnecessary restraints we put on market participants, but also them recognizing that the system that restrains them also can be the system that grants special privileges and monopolies in the true sense, which is a government-protected privilege to offer goods and services to the public.

Mr. WHITE. In the 19th Century, we had a weak banking system because the small banks had the very powerful lobby, and they lobbied for restrictions on their competitors so that they could stay in business. Today, in the 21st Century, it is very different. The main problem of weakness is caused by privileges, and the privileges are being lobbied for by the largest banks. And the weakest banks are no longer the smallest banks; the weakest banks are now the largest banks. And they are the most dependent on these privileges, so they are the ones who are going to be lobbying the most to keep these privileges intact.

And I don't know how to solve that problem, but it has long been a problem that when there—in any area of the economy, if there are privileges and restrictions at stake, there are going to be people who are trying to shape legislation around those things. So there has to be some kind of greater attitude toward letting the banking system operate without privileges and without restrictions.

Mr. SALERNO. Can I just add to that very quickly?

Murray Rothbard, the economist, once said that the way you get true change is to have statesmen and educators who really are in-

terested in the public good reach around the privileged elites and get their message out to the public.

Mr. JONES. I think that maybe the *Citizens United* decision might bring some sanity to the system. It won't happen in my lifetime, but maybe in our children or grandchildren's lifetime, that maybe this would be a system that goes back to being the people's representatives instead of the lobbyist's representatives. And I think it will happen in time. I hope to live long enough, maybe in a retirement home, to see it happen, but I would love to see that happen.

But thank you for your comments.

Chairman PAUL. I thank the gentleman.

Now, I yield to the gentleman from Missouri, Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Interesting conversation. I was struck with some of the comments by the gentleman from North Carolina. And it kind of got me thinking about, if we make you king for the day, President for the day, Congressman for the day, whatever, how would you solve our situation now with the weakness that we have in our system? What changes do you think we need to be implementing or working for to get our system back to where it is on solid ground and make it all work? How would you ease it into a more workable solution?

Each one of you?

Mr. SALERNO. I think the first step is to get rid of the too-big-to-fail doctrine wholesale and forthwith. Do it right now. And then phase out—I probably would phase out more quickly than Larry—the FDIC insurance, within the year or something like that, within a year from the date that you get rid of the too-big-to-fail doctrine.

Mr. LUETKEMEYER. So, in other words—

Mr. SALERNO. I think those are the first important steps.

Mr. LUETKEMEYER. So, in other words, what you would suggest is to put the onus back on the banking system for their own—the responsibility for their own decisions. Their own risk has been taken by themselves, not the taxpayer or the FDIC insurance folks and nobody else.

Mr. SALERNO. Right.

Mr. LUETKEMEYER. Okay.

Mr. SALERNO. Because at bottom, all they are, are business firms. They are not special. They should not be special. They should not be privileged. They should operate on the market, bear the burdens of the risks they assume—not only them, but any depositors who want

to put money into a fractional reserve bank. They must realize what the consequences can be.

Mr. LUETKEMEYER. It is interesting, I made the comment the other day in committee that I think for the first time in several years here, people are actually now finding out what banks do. They don't just sit there and take deposits and make loans. They manage risk. That is what they do every day. And, as a result, I think the consumers and the citizens of our country are finally figuring out that, whoa, this is a risky business, and there is some responsibility on somebody's part here to manage that risk. And it is determining who takes the risk, who manages it, that is our dilemma here right now of what is going on.

Dr. Cochran?

Mr. COCHRAN. Yes, I would echo Dr. Salerno's comments that the too-big-to-fail doctrine has to go first and, really, with it, the mentality that bailouts are going to come in across the economy, whether it is banking or others, and protect people from the risk they undertook.

Back to the deposit insurance, when it appeared that some of the money market funds were going to break the buck, we came in and de facto offered insurance for the deposit on the money market funds, which just again reinforces the deal.

And then probably on the monetary side, I would look at eliminating all the restrictions right now that make it difficult for anybody to come in and compete with the system. I think recently, we just had someone arrested for coining gold that could or could not have been used as a medium of exchange in competition. So that we really don't allow people who would even want to choose to contract in something payable other than in Federal Reserve Notes to write a contract that would be enforceable for payment in ounces of gold or other mediums of exchange.

Mr. LUETKEMEYER. Dr. White?

Mr. WHITE. In addition to the points that have already been made, I would say that the Federal Reserve needs to be constrained so that it doesn't create such an unstable environment and so that it doesn't issue what became known as the "Greenspan Put," which was the, sort of, open suggestion that if the stock market starts to go down, we will pump in enough money to keep everybody afloat. That sort of thing leads to a relaxation of prudential standards, and I think that has been a big problem in the banking system.

Now, under this kind of caveat emptor system that we are suggesting, it is true that people will have to shop around for a bank and

people will have to reeducate themselves as to how do that. But people nowadays shop around for a mutual fund. They don't understand exactly how mutual funds operate. They get a prospectus, and they don't really know what to make of it. But they do know who does know, right? They can read Money magazine, they can read investment newsletters, and they can seek out the advice of experts. And people can exercise at least that much prudence when they choose a bank.

Mr. LUETKEMEYER. Very good.

Thank you, Mr. Chairman. I yield back the balance of my time.

Chairman PAUL. I thank the gentleman.

I now recognize Mr. Schweikert from Arizona.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

Back to our happy part of the discussion, which is how the world comes to an end, looking back to the discussion of, whether it be 3 years or 5 years, whatever the timeframe is, we seem to all have a universal agreement here that with the massive amount amounts of liquidity that are out in the system, we see inflation, we may see a runaway type of inflation.

Okay, each of you just became Federal Reserve Chairman. Congratulations. How would you—actually, I will nominate you. In all sincerity, how would you guide the ship of monetary policy? How would you pull that excessive liquidity out of the system? What proposals would you make to avoid that ugly scenario?

Let's start with Dr. White.

Mr. WHITE. Okay. The same way it went in, it can come out. That is, the Fed can sell off its mortgage-backed securities, and the Fed can sell its Treasury bills back into the market.

Now, at the same time, the Fed can reduce the incentive of banks not to lend by scaling back the interest they pay on reserves. Banks are sitting on more than a trillion dollars in excess reserves, in large part because the interest rate the Fed is paying on those reserves is about the same as the interest rate the banks can earn on T-bills.

Mr. SCHWEIKERT. Would you also, in that same scenario, raise reserve requirements at chartered lenders?

Mr. WHITE. Reserve requirements aren't really relevant these days. They are pretty much not binding. Most banks have more cash in their ATMs than they are required to hold.

Mr. SCHWEIKERT. Okay.

Mr. WHITE. Total required reserves in the system are something like \$80 billion, and banks have more than a trillion dollars in reserves. So reserve requirements are not really going to do the job.

Mr. SCHWEIKERT. Doctor?

Mr. COCHRAN. Yes. And one of the things I would echo is that you can pull out these excess reserves the way they got in by basically, where you purchased, now sell them. One of the dangers going in is that, as they have changed their balance sheet from short-term securities to longer-term securities, that the value of those securities, the mortgage-backed and others, are much more susceptible to decline in value to rising interest rates.

I do think that, given the amount of excess reserves that are in the system, that a possible way to avoid this, besides reducing— as you reduce the interest that they are paying on these excess reserves, that it is possible that a consideration of a significant increase in the required reserve ratio could be an effective tool as you take more time to pull and sell off some of these assets.

Mr. SCHWEIKERT. Okay.

Mr. SALERNO. And once this was reversed, once the excess reserves were sucked out of the system, I would then, if I were the Federal Reserve Chair, just stop open market operations at that point, stop printing up reserves and purchasing government securities. And then, that would stop the next influx of liquidity into the system that would get the whole thing started again.

Mr. SCHWEIKERT. Okay. You are more optimistic than I am, I guess mechanically so.

But one of you doesn't think raising the reserve requirements would be effective, just because of how much margin there is there? And you actually believe that would be one of the tools?

Mr. COCHRAN. I think it should be a consideration. It would not be a first tool, but it could be a tool that could allow more of a phased sale of the securities without allowing the reserves to start flooding excess lending into the system.

Mr. SCHWEIKERT. Okay.

And, Dr. White, you looked anxious there.

Mr. WHITE. Well, it is possible to make reserve requirements binding if you are really determined to do so. But, banks have gotten very good with computers at sweeping the reservable deposits off the books at the end of the day, and that makes it very hard to enforce reserve requirements.

Mr. SCHWEIKERT. Okay.

Mr. Chairman, thank you.

Chairman PAUL. I thank the gentleman.

And I want to thank our witnesses for appearing today. As I said at the opening, I believe these are very important hearings, and I very much appreciate you being here.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for Members to submit written questions to these witnesses and to place their responses in the record.

This hearing is now adjourned.

{Whereupon, at 3:42 p.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

During a time of economic crisis, when the topic of stability of the banking and financial sector is at the forefront of most people's minds, it is ironic that the most important factor in the development of the modern banking system is precisely the one topic which is almost never mentioned. The elephant in the room is, of course, fractional reserve banking. In a speech in October 2010, Mervyn King, Governor of the Bank of England, referred to fractional reserve banking as “financial alchemy”, an analogy which is particularly apt. Just as alchemists attempted to turn worthless lead into something thousands of times more valuable, modern-day financial alchemists attempt to turn a limited number of bank deposits into an unlimited amount of money and credit. But while the alchemists were never successful in their endeavors, financial alchemists have been all too successful at creating money and credit out of thin air, sowing the seeds for the destructive booms and busts of the business cycle.

Fractional reserve banking is the practice by which banks accept deposits but only keep a fraction of those deposits on hand at any time. In practice, nearly 100% of deposits are loaned out, yet depositors believe that they can withdraw the full amount of their deposit at any time. Loaned funds are then redeposited and reloaned up to the limit of the bank's reserve requirements, compounding the effect. While mainstream economists extol this “money multiplier” as

a nearly miraculous process that results in a robust economy, low reserve requirements actually enable banks to create trillions of dollars of credit out of thin air, a process that distorts the structure of production and gives rise to the business cycle.

Imagine that A deposits \$100 in a bank. The bank keeps 10% on reserve and loans \$90 to B. B deposits that same \$90, the bank keeps 10% on reserve, loans the remainder to A, and the cycle continues on and on. Eventually the bank has a combined deposit total of \$1000. Theoretically there is now \$1000 that can be spent. Yet while the amount of money and credit in the system has increased, the amount of real savings and real production has not changed.

Everyone understands the absurdity of this little example, but once this same process is expanded throughout the economy, the means by which that \$100 deposit turns into \$1000 of credit is treated almost as magic. The fact that ten times as much money is chasing the same amount of goods, that the new credit benefits earlier recipients more than later recipients, and that distortion to the capital structure then ensues, are all completely ignored.

Once the boom phase of the business cycle has run its course and the bust commences, some people will naturally look to hold cash. So they withdraw money from their bank accounts in order to hold physical currency. But bank deposits consist of a huge amount of credit pyramided on top of a small amount of original cash deposits. Each dollar of cash that is withdrawn unwinds the multiplier, resulting in a contraction in credit. And if depositors attempt to withdraw more funds than are available in reserves, the entire house of cards comes crashing down. This is the very real threat facing some European banks today.

Since the amount of deposits always exceeds the amount of reserves, it is obvious that fractional reserve banks cannot possibly pay all of their depositors on demand as they promise – thus making these banks functionally insolvent. While the likelihood of all depositors pulling their money out at once is relatively rare, bank runs periodically do occur. The only reason banks are able to survive such occurrences is because of the government subsidy known as deposit insurance, which was intended to backstop the stability of the banking system and prevent bank runs. While deposit insurance arguably has succeeded in reducing the number and severity of bank runs, deposit insurance is still an explicit bailout guarantee. It thereby creates a moral hazard by encouraging bank deposits into fundamentally unsound financial institutions and contributes to instability in the financial system.

Rather than enhancing stability, deposit insurance creates instability by rewarding risky behavior on the part of banks. Why engage in sound banking and lending practices if the government promises always to bail out your bank and its depositors? Deposits legally are considered loans to the bank, but depositors are promised by the government that they never will lose a penny of their deposits. Therefore depositors need not perform due diligence when selecting a bank with which to do business. Whether the bank is sound or unsound is immaterial, since deposits are guaranteed by the government. Thus risky banks which would be forced out of business in a free market are guaranteed access to funds with which they engage in their financial alchemy.

Throughout much of banking history, bankers and politicians have colluded to their mutual benefit. Bankers fund government wars in exchange for special protections from the government. In the 19th century, U.S. banks were required to purchase government bonds in order to back their issues of banknotes, thus ensuring funding for government boondoggles. And when too many banknotes were issued and depositors sought to exchange them for gold and silver coin, governments suspended specie redemption, allowing banks to keep their gold and silver and refuse redemption of their notes. Ultimately taxpayers and savers were the victims of this unholy alliance.

Unfortunately, not much has changed since then. Banks continue to loan money to the government through purchases of Treasury debt, enabling wars of aggression abroad and a massive police and welfare state at home. And when banks make mistakes they are never forced to take losses or go out of business. Smaller banks are merged by federal regulators into larger banks, while banks that are deemed to be “too big to fail” are given billions of dollars worth of bailouts so that they can live to fail another day.

The solution to the problem of financial instability is to establish a truly free-market banking system. Banks will no longer require government charters in order to operate. They will no longer be forced to comply with arbitrary government reserve regulations that treat money loaned to the government as an asset worth more than gold in the vault. And most importantly, banks will no longer have a government backstop of any sort in the event of failure. Banks, like every other business, should have to face the spectre of market regulation. Those banks which engage in sound business practices, keep adequate reserves on hand, and gain the confidence of their customers will survive, while others fall by the wayside. Banking, like any other financial activity, is not without risk – and the government

should not continue its vain and futile pursuit of trying to eliminate risk. Get government out of the way and allow the market to function. This will result in a more stable system that meets the needs of consumers, borrowers, and investors.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF JOSEPH T. SALERNO, Ph.D.

PROFESSOR OF ECONOMICS
LUBIN SCHOOL OF BUSINESS
PACE UNIVERSITY

Chairman Paul, Ranking Member Clay and members of the Subcommittee, I am deeply honored to appear before you to testify on the topic of fractional-reserve banking. Thank you for your invitation and attention.

In the short time I have: I will give a brief description of fractional reserve-banking; identify the problems it presents in the current institutional setting; and suggest a potential solution.

A bank is simply a business firm that issues claims to a fixed sum of money in receipt for a deposit of ready cash. These claims are cashable *on demand* and without cost to the depositor. In today's world these claims may take the form of checkable deposits, so called because they can be transferred to a third party by writing out a check payable to the party named on the check. They may also take the form of so-called "savings" deposits with limited or no checking privileges and that require withdrawal in person at one of the bank's branches or at an ATM machine. In the United States, the cash for which the claim is redeemable are the Federal Reserve Notes or "dollar bills" that we are all familiar with. These dollar bills are the ultimate cash of the contemporary U.S. monetary system.

Fractional-reserve banking occurs when the bank lends or invests some of its depositors' funds and retains only a *fraction* of the deposits in cash. This cash is the bank's reserves. Hence the name fractional-reserve banking. All banks today both domestically and abroad engage in fractional-reserve banking

Let me illustrate how fractional-reserve banking works with a simple example. Assume a bank with deposits of \$1 million makes \$900,000 of loans and investments. If we ignore for simplicity the capital paid in by its owners, this bank is holding a cash reserve of 10 percent against its deposit liabilities. The deposits constitute the bank's liabilities because the bank is contractually obligated to redeem them on demand. The assets of the bank are its reserves, loans, and investments. Its assets then are ready cash as well as IOUs and securities that give it title to sums of cash payable in the near or distant future. The noncash assets include short-term business loans, credit card loans, mortgage loans and the securities issued by the U.S. Treasury and foreign financial authorities.

Now the key to understanding the nature of fractional-reserve banking and the problems it creates is to recognize that a bank deposit is not itself money. It is rather a "money-substitute, that is, a claim to standard money—dollar bills—that people regard as completely secure. Bank deposits transferred by check or debit card will be routinely paid and received in exchange in lieu of money *for as long as the public does not have the slightest doubt that the bank which creates these deposits is able and willing to redeem them without delay or expense* (either to the depositor or to the party that he has paid by check or debit card). Under these circumstances, bank deposits are eagerly accepted and held by businesses, investors, and workers and are regarded as indistinguishable from cash itself. They are therefore properly included as part of the money supply, that is, the total supply of dollars in the economy.

The very nature of fractional-reserve banking, however, presents a problem for the bank itself. On the one hand, all of a bank's deposit liabilities mature on a daily basis, because it has promised to cash them in on demand. On the other, only a small fraction of its assets is available at any given moment to meet these liabilities. For example, during normal times, U.S. banks effectively hold much less than 10 percent of deposits in ready reserves. The rest of a bank's liabilities will only mature after a number of months, years, or, in the case of mortgages, even decades. In the jargon of economics, fractional-reserve banking always involves "term structure risk" arising from the mismatching of the maturity profile of its liabilities with that of its assets. In layman's terms, banks "borrow short and lend long." The underlying problem is revealed when the withdrawal of deposits exceeds a bank's cash reserves at any moment in time. The bank is then compelled to hastily sell off some of its longer-term assets, many of which are not readily saleable. It will thus incur big

losses. This will cause a panic among the rest of its depositors who will scramble to withdraw their deposits before they become worthless. A classic bank run will ensue. At this point the value of its remaining assets will no longer be sufficient to pay off all its fixed-dollar deposit liabilities and the bank will fail.

A fractional-reserve bank, therefore, can only remain solvent for as long as public confidence exists that its deposits really are riskless claims to cash. If for any reason—real or imagined—the faintest suspicion arises among its clients that a bank's deposits are no longer payable on demand, the bank's reputation vanishes overnight. The bank's brand of money-substitutes is instantly extinguished and people rush to withdraw their deposits in cash—cash that no fractional-reserve bank can provide on demand in sufficient quantity. Thus overnight extinction of its product brand and insolvency is always looming over fractional-reserve banks.

The ever-present threat of insolvency is the least of the problems with fractional reserve banks, however, since its effects are restricted to the bank's stockholders, creditors and depositors who voluntarily assume the peculiar risks involved in this business.

The major problems of fractional-reserve banking are its harmful effects on the overall economy. I will describe two of these problems.

First, fractional-reserve banking is inherently inflationary. When a bank lends its clients' deposits, it inevitably expands the money supply. For example, when clients deposit an additional \$100,000 of cash in the bank, depositors now have an additional \$100,000 in their checking accounts while the bank accumulates an additional \$100,000 of cash (dollar bills) in its vaults. The total money supply, which includes both dollar bills in circulation among the public and dollar balances in bank deposits, has not changed. The depositors have reduced the amount of cash in circulation by \$100,000, which is now stored in the bank's vaults, but they have increased the total deposit balance that they may draw on by check or debit card by the exact same amount. Suppose now the loan officers of the bank lend out \$90,000 of this added cash to businesses and consumers and maintain the remaining \$10,000 on reserve against the \$100,000 of new deposits. These loans increase the money supply by \$90,000 because, while the original depositors have the extra \$100,000 still available on deposit, the borrowers now have an extra \$90,000 of the cash they did not have before.

The expansion of the money supply does not stop here however, for when the borrowers spend the borrowed cash to buy goods or to pay wages, the recipients of these dollars in turn redeposit some or all

of this cash in their own banks, which in turn lend out a proportion of this cash. Through this process, bank deposit dollars are created and multiplied far beyond the amount of the initial cash deposits. (Given the institutional conditions in the U.S. today, each dollar of currency deposited in a bank can increase the U.S. money supply by up to a maximum of \$10.00). As the additional deposits dollars are spent, prices in the economy progressively rise and the inevitable result is inflation with all its associated problems.

Fractional-reserve banking inflicts another great harm on the economy. In order to induce businesses and consumers to borrow the additional dollars created, banks must lower interest rates below the market equilibrium level determined by the amount of voluntary savings in the economy. Businesses are misled by the artificially low interest rates into borrowing to expand their facilities or undertake new long-term investment projects of various kinds. But the profitability of these undertakings depends on expectations that bank credit will remain cheap more or less indefinitely. Consumers, too, are deceived by the lower interest rates and rush to purchase larger residences or vacation homes. They take out second mortgages on their homes to buy big-ticket luxury items. A false economic boom begins that is doomed to turn into a bust as soon as interest rates rise again.

As the inflationary boom progresses the demand for credit becomes more intense and more cash is withdrawn from bank deposits to finance the purchase of everyday goods whose prices are rising. The banks react to these developments by raising interest rates and contracting loans and deposits. During the recession that follows the binge of bad investment and overconsumption is starkly revealed in the abandoned construction projects, empty commercial buildings, and foreclosed homes that litter the economic landscape. At the end of the recession it turns out that almost all households and business firms are made poorer by fractional-reserve bank credit expansion, even those who initially gained by the inflation.

Now the inflation and the boom-bust cycles generated by fractional reserve banking are enormously intensified by Federal Reserve and U.S. government interference with the banking industry. The most pernicious forms of such interference are: the power of the Federal Reserve to create bank reserves out of thin air via open market operations; its use of these phony reserves to bail out failing banks in its role as a lender of last resort; and federal insurance of bank deposits. In the presence of such polices, the deposits of all banks are perceived and trusted by the public as one homogeneous

brand of money substitute fully guaranteed by the Federal government and backed up by the Fed's power to print up bank reserves at will and bail out insolvent banks. Under this monetary regime, there is absolutely no check on the natural propensity of fractional-reserve banks to mismatch the maturity profiles of their assets and liabilities, to expand credit and deposits, and to artificially depress interest rates. We can expect bubbles to continually grow in various sectors of the economy and the subsequent financial crises to continue unabated.

The solution to our problems is to treat banking as any other business and permit it to operate on the free market—a market completely free of government guarantees of bank deposits and of the possibility of Fed bailouts. In order to achieve the latter, the Fed would have to be permanently and credibly deprived of its legal power to create bank reserves out of nothing. The best way to do this is to establish a genuine gold standard in which gold coins would circulate as cash and serve as bank reserves; at the same time the Fed must be stripped of its authority to issue notes and conduct open market operations. Also, banks would once again be legally enabled to issue their own brands of notes, as they were in the nineteenth and into the early twentieth century.

Once this mighty rollback of government intervention in banking is accomplished, each fractional-reserve bank would be rigidly constrained by public confidence when issuing money-substitutes. One false step—one questionable loan, one imprudent emission of unbacked notes and deposits—would cause instant brand extinction of its money substitutes, a bank run, and insolvency.

In fact on the banking market as I have described it, I foresee the ever-present threat of insolvency compelling banks to refrain from further lending of their deposits payable on demand. This means that if a bank wished to make loans of shorter or longer maturity, they would do so by issuing credit instruments whose maturities matched the loans. Thus for short-term business lending they would issue certificates of deposits with maturities of three or six months. To finance car loans they might issue three-year or four-year short bonds. Mortgage lending would be financed by five or ten year bonds. Without government institutions like Fannie Mae and Freddie Mac implicitly guaranteeing mortgages, and in absence of the relentless appreciation of housing prices due to inflation, mortgage loans would probably be transformed into shorter five- or ten-year balloon loans. the bank may retain an option to roll over a mortgage loan when it comes due pending a re-evaluation of the mortgagor's current

financial situation and recent credit history as well as the general economic environment. In short, on a free market, fractional-reserve banking with all its inherent problems would slowly wither away.

WRITTEN TESTIMONY OF
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Introduction

Fractional reserve banking has historically been viewed by some economists and most monetary cranks as a panacea for the economy—a source of easy credit and new purchasing power to quicken trade. Better economists, however, recognized fractional reserve banking with its ability to create credit, Mises’s (1971, 268-69) circulation credit or Rothbard’s (1994) deposit banking, as a major source of financial and economic instability. The establishment of a central bank was often, *when not driven by fiscal priorities of government*, an attempt to achieve the first while mitigating or eliminating the second. For the United States, in particular, the effort was perhaps misguided. Per Vera Smith (1990 [1936], 166):

A retrospective consideration of the background and circumstances of the foundations of the Federal Reserve System would seem to suggest that many, perhaps most, of the defects of American banking could, in principle, have been more naturally remedied otherwise than by the establishment of a central bank; that it was not the absence of a central bank *per se* that was at the root of the evil, ... there remained [even with a central bank] certain fundamental defects which could not be entirely, or in any great measure, overcome by the Federal Reserve System.

Rothbard (2002) covers the history of money and banking in the U. S. and amply documents periods of instability generated by banking panics associated with fractional reserve banking *sans* an explicit central bank. However, compared to this earlier era, fractional reserve banking supported by ‘scientific’ management of the currency by a central bank has failed to provide the promised stability. Besides the continuing instability, the Fed has guided a significant (massive) decline in the purchasing power of the dollar. The dollar currently has a purchasing power less than 5% of a 1913 dollar. Selgin, Lastrapes, and White (2010), “Has the Fed Been a Failure?” summarize:

Drawing on a wide range of recent empirical research, we find the following: (1) The Fed’s full history (1914 to present) has been characterized by more rather than fewer symptoms of monetary and macroeconomic instability than the decades leading to the Fed’s establishment. (2) While the Fed’s performance has

undoubtedly improved since World War II, even its postwar performance has not clearly surpassed that of its undoubtedly flawed predecessor, the National Banking system, before World War I. (3) Some proposed alternative arrangements might plausibly do better than the Fed as presently constituted. We conclude that the need for a systematic exploration of alternatives to the established monetary system is as pressing today as it was a century ago.

During a period known as the Great Moderation, roughly 1983-2000, the U. S. economy experienced a period of *apparent* relative stability and prosperity. The U. S. economy was then buffeted by two boom-bust cycles tied directly to credit expansion and low interest rates driven by fractional reserve banking supported by central bank activity (Garrison 2012 and 2009, Salerno 2012, Ravier and Lewin 2012, and Cochran 2011). The most recent recession and slow recovery rivals or exceeds the instability of 1970s and early 1980s in severity and is arguably the most significant crisis since the 1930s. While much of the discussion following the recent crisis has focused on why the recovery has been so slow, a lesson that should have been learned is that the economic growth driven by money and credit creation is short term only; an artificial boom cannot last. Ultimately credit creation is a major destructive power that misdirects production, falsifies calculation, even in a period of relatively stable prices, and destroys wealth (Salerno 2012, 32-36). An economy with a complex financial system like the present banking system, which in turn depends on a government monopoly of the supply of money, is prone to cycles and crisis even with the best of either discretionary or rule-based management. Under our current system of interest rate targeting “Policy-induced booms tend to piggyback on whatever economic development is underway” (Garrison 2009). This would be true whether the central bank followed a single, rather than the current dual mandate, such as a policy goal of price stability or adopted nominal GDP targeting (Garrison 2012, 435-36). Under fractional reserve banking supported by a central bank the interest rate brake which would normally stop such events before they turn into bubbles or booms is effectively neutered (Hayek, 1941, pp. 406–10). Because of this neutering, booms and busts remain a significant threat in a “learning by doing” policy framework (Garrison 2009).

Without a foundation of sound money, a market determined money, cycles are inevitable and destructive not only of short-term economic well-being, but potentially destructive of long-term freedom and prosperity. It is urgent that policy makers take seriously Hayek’s proposal, developed during the economic crisis of the 1970s,

for drastic monetary reform, for a “denationalization of money.” This call is echoed by Garrison (2012, 436) who argues future prospects for “achieving long run sustainable growth can only rest on the prospects for decentralizing the business of banking.”

Sound Money¹⁷⁸

After the decline of former socialist countries and under the influence of the apparent prosperity in most market economies during the Great Moderation, most economists recognized the importance of markets and private property for long-term economic prosperity.¹⁷⁹ But markets and private property generate prosperity because only in such an order can monetary calculation facilitate rational economic planning. But for monetary calculation to operate in a way most consistent with consumer sovereignty, calculation and prices must be embedded in a sound monetary system. As expressed by Salerno (2010 [1998], 468):

While there is now a basic recognition by economists that rational allocation of resources necessitates institutional reforms that return resources to private hands and restore genuine markets for productive inputs, there is no such comprehension of the importance of sound money to the processes of economic calculation.

Salerno (473) continues “Sound money, then is simply one which does not lead to systematic falsification of or nullification of economic calculation.” Economic calculation requires money prices, but for calculation to most adequately achieve the goal of solving the economic problem, the money prices used for calculation must reflect the valuations of producers/consumers that are based on their individually unique preferences, knowledge, and resources.

Sound money then is money whose purchasing power and quantity are determined by consumers’ and producers’ valuations; preferences, knowledge, and resources—that is, a market-determined commodity money absent government intervention. As expressed by Mises (1998, p. 225):

Economic calculation does not require monetary stability in the sense in which this term is used by champions of the stabilization movement. The fact that rigidity in the monetary unit’s purchasing power is unthinkable and unrealizable does not impair the methods of economic calculation. What economic calculation requires is a

¹⁷⁸ This section draws on Cochran 2004.

¹⁷⁹ Andrei Shleifer summarized, “Between 1980 and 2005, as the world embraced free market policies, living standards rose sharply, while life expectancy, educational attainment, and democracy improved and absolute poverty declined.” From “The Age of Milton Friedman.” *Journal of Economic Literature*: 2009, 47:1, 123-135

monetary system whose functioning is not sabotaged by government interference. The endeavors to expand the quantity of money in circulation either in order to increase the government's capacity to spend or in order to bring about a temporary lowering of the rate of interest disintegrate all currency matters and derange economic calculation.

Financial Intermediation and Fractional Reserve Banking and Cycles¹⁸⁰

The Austrian business cycle theory (ABCT) is a blend of monetary and capital theory and highlights coordination problems connected to “time and money.” In the framework developed by Ludwig von Mises, banks create money by creating credit. This created credit finances investment in excess of savings, distorts the structure of production, and sets the stage for the boom–bust cycle.

But what is created credit and when and how do banks create credit? Different answers to this question yield different implications for business cycle theory, research, and monetary policy, as well as different monetary reform proposals. In ABCT banks and central banking provide the link between capital markets, money, and economic instability.

Fractional reserve banks developed from two separate, apparently legitimate, business activities: banks of deposit or warehouse banking offering transactions services for a fee, and banks of circulation or financial intermediaries. Economists early on recognized that circulation banking, financial intermediation, reduces transactions costs and enhances the efficiency of the capital markets, leading to more savings, investment, and economic growth.¹⁸¹ Fractional-reserve banking combined these two types of banking institutions into one institution—a single institution offering both transaction services and intermediation services.¹⁸² With the development of a fractional reserve banking system, money creation, either through note issue or deposit expansion, and credit creation became institutionally linked.

¹⁸⁰ The following section draws heavily on Cochran and Call 2000 and 1998 and Cochran, Call, and Glahe 1999.

¹⁸¹ For a counter-argument on term intermediation see Barnett and Block.

¹⁸² Selgin (1988, chap. 2) argues that fractional-reserve banking develops naturally in a free economy as “a result of individuals finding new ways to promote their self-interest.” Banks are pure intermediaries (Selgin 1996, p. 120). Other Austrians have argued that fractional-reserve banks are hybrid institutions that could only develop as the result of special privileges granted to banks by government. The activities of these hybrids are not pure intermediation. The critical economic issue is: Is credit issued by a fractional reserve bank financial intermediation or credit creation? See Mises (1971, pp. 268–77) and Cochran and Call (1998, pp. 33–35).

In an Austrian analysis of money and credit, injection effects matter. The way money enters the economic system—that is the injection—affects the dynamic adjustment process. The spending of those who are initially affected by the monetary disturbance change before the spending plans of those who receive additional money balances only as the effects of the monetary change spread through the economy. In an economy with a developed banking system, monetary changes most often enter the economy as changes in the availability of credit. This analysis, which is the foundation of Austrian business cycle theory, combines the theoretical proposition that injection effects matter with the empirical observation that these effects take place as the banking system extends credit.

Monetary changes that originate through the banking system alter not just bank credit but total credit available in the economy and thus put downward pressure on interest rates. It is not the change in the rate of interest *per se* that is important, but the change in the rate relative to the natural or equilibrium rate.¹⁸³ An equilibrium rate reflects the “ratio of the value assigned to want-satisfaction in the immediate future and the value assigned to want-satisfaction in remoter periods of the future. It manifests itself in the market economy as the discount of future goods as against present goods” (Mises 1998, p. 523). Ordinarily, Mises (1998, p. 534) argues, “The loan market does not determine the rate of interest. It adjusts the rate of interest on loans to the rate of ordinary interest as manifested in the discount of future goods.” Credit creation temporarily suspends this adjustment process. Credit creation alters the money rate of interest relative to the equilibrium rate and disrupts the balance between the “supply and demand” for capital.¹⁸⁴

Mises developed an argument clearly explaining why and how credit creation takes place. Mises (1978, p. 119) cautioned:

One must be careful not to speak simply of the effects of credit in general on prices, but to specify clearly the effects of “increased credit” or “credit expansion.” A sharp distinction must be made between (1) credit which a bank grants by lending its own funds or funds placed at its disposal by depositors, which we call “commodity

¹⁸³ The term “natural rate” is controversial. Following Mises (1971, p. 359 and 1978, pp. 120–30), when I use the term it will be to distinguish between an equilibrium rate and a rate that has been altered by credit manipulation.

¹⁸⁴ While Mises argued that money was neither a consumption good nor a production good (1971, pp. 79–92), he definitely classified ‘money’ as a present good in his discussions on money and credit (pp. 268–77). See particularly (p. 268), “The claim he has acquired by his deposit is also a present good for him. The depositing of the money in no way means that he has renounced immediate disposal over the utility that it commands” and “(t)he note is a present good just as much as the money” (p. 272).

credit” and (2) that which is granted by the creation of fiduciary media, i.e., notes and deposits not covered by money which we call “circulation credit.”

Circulation credit is created credit because “[c]irculation credit is granted out of funds especially created for this purpose by banks. In order to grant a loan, the bank prints banknotes or credits the debtor on deposit account. It is creation of credit out of nothing” (Mises 1978, p. 218). Others in the Austrian tradition who seriously attempted to define credit creation include Machlup and Selgin. Machlup explicitly calls Mises’s circulation credit “created credit.”

I use the term transfer credit if the purchasing power accruing to the borrower is counterbalanced by purchasing foregone by somebody else, such as a voluntary saver or a disinvesting producer. My term “transfer credit” corresponds to Mises’s “commodity credit.” For Mises’s term “circulation credit,” I have substituted the term “created credit,” which clearly conveys the meaning that the purchasing power accruing to the borrower is not counterbalanced by any purchasing foregone by anybody else. (Machlup 1940, p. 224n)

Selgin (1988, p. 66) defines created credit as “credit granted independently of any voluntary abstinence from spending by holders of money balances.”

The Misesian model of credit creation sees modern fractional-reserve banks as hybrid institutions. Some transactions by these banks are financial intermediation, and as such enhance the efficiency of the saving and investment process. Other transactions by these same institutions create credit. Mises (1971, p. 261) describes these two distinct roles as “the negotiation of credit through the loan of other people’s money and the granting of credit through the issue of fiduciary media, i.e., notes and bank balances that are not covered by money.” Transactions in which both a depositor and a borrower retain, temporarily, current claims to money may not be intermediation, but credit creation. According to Mises (1971, 268-69):

It is usual to reckon the acceptance of a deposit which can be drawn upon at any time by means of notes or checks as a type of credit transaction and juristically this view is, of course, justified; but economically, the case is not one of a credit transaction (p. 268) . . . but this is not a credit transaction, because the essential element, the exchange of present goods for future goods, is absent. (p. 269)

The transaction is different in nature from a true credit transaction. In a true credit transaction the lender temporally surrenders “money or goods, disposal over which is a source of satisfaction and renunciation of which is a source of dissatisfaction” (Mises 1971, p. 264).

In this framework money as the medium of exchange is the present good *par excellence*. Since the holding of cash balances, whether in the form of demand deposits or bank notes, does not require the sacrifice of present goods, changes in cash balances financed from current income are part of the allocation of income to provide present utility. Households can use current income for present goods or future goods. If present goods are preferred, the household may choose specific consumption goods or money balances. Hence, the proper economic interpretation of a demand deposit or bank note is that the deposit or bank note is a bailment or warehouse receipt, not a credit instrument.¹⁸⁵ The depositor has not engaged in a true credit transaction because no sacrifice of present utility has taken place. Fractional-reserve banking combined with the creation of circulating credit expands the supply of credit beyond the limits set by prior saving. Banking institutions can and do push interest rates below the natural rate, resulting in spending by ultimate investors exceeding saving.

Created credit eventually causes an economic crisis. The normal operations of the money and banking institutions supported by a central bank generate business cycles by attempting to keep market rates of interest too low for too long. The recession phase of the business cycle is the economic correction of previous monetary excesses and the resulting malinvestment and overconsumption (Salerno 2012).

Alternative Views of Fractional Reserve Banking

In a Keynesian framework (Cochran and Call 1998), banks are viewed as financial intermediaries and money is considered a future, not a present, good; a store of value. This Keynesian framework is what Selgin (1996, p. 119) has labeled the “new view” of money and banking, where banks “are pure intermediaries: they act as brokers of, rather than creators of, loanable funds, and are not an independent cause of investment in excess of *ex ante* saving.” Banks are financial intermediaries that issue a liability that the public willingly uses as a medium of exchange. The problem for such a banking system may not be boom–bust cycles caused by credit creation and malinvestment, but secular stagnation. Such an

¹⁸⁵ See Rothbard (1978, pp. 148–49). If bank deposits are considered a short-term loan from a legal standpoint, then the funds are legally considered the property of the bank, not the property of the depositor. But the legal structure does not change the economic impact of the transaction. If such deposits (or notes) are used as a medium of exchange, they are a readily available source of current purchasing power.

economy would suffer from chronic unemployment as money and banking institutions operated so that the market rate of interest would be too high. Saving would exceed investment.¹⁸⁶

In this Keynesian view, financial intermediation should facilitate the flow of funds from savers to investors. Bank liabilities that do not serve as a medium of exchange are clearly of this type. The owner of the bank liability has loaned the funds to the bank for future considerations. Such intermediation is usually viewed as efficiency enhancing¹⁸⁷. Just as in a credit transaction without intermediation, the ultimate lender has a claim on future money and the borrower has acquired present money. In the new view, deposit banking is also intermediation. The saver prefers liquidity to return and decides to invest in money. The depositor loans funds to the bank and receives a bank I.O.U.—a bank deposit payable on demand. The bank now owns additional loanable funds. As reserves are loaned out, funds are transferred from an ultimate lender (the depositor) to an ultimate investor (the borrower).

Banks, for legal or economic reasons, maintain cash reserves to back these short-term liabilities (demand deposits or bank notes). As a result total lending will be less than total saving. A dollar held in a reserve balance is a dollar saved but not loaned to an ultimate investor. The supply of credit will be less than available saving and the market rate of interest will rise above the natural rate. Investment will be less than saving and the economy may remain below its productive capacity. Fractional-reserve banks and other intermediaries provide intermediation services that increase investment relative to a system without banking, but when these institutions hold significant cash reserves, the amount of investment may consistently be less than ideal. In this view, there exists no market process that ensures that saving will equal investment at full employment levels. A “natural” rate of interest may exist, but it is an equilibrium rate only in the sense that it preserves a *status quo*, a

¹⁸⁶ Selgin and White (1996, p. 101) argue that a consistent application of the Wicksellian framework would recognize not only that money creation can lower rates below the natural rate, but that “unanticipated destruction of money (or a drop in ‘velocity’) can drive the interest rate in the short run above its natural level, and hereby artificially curtail warranted investments.” Here again, the Misesian model leads to a different conclusion. See Mises (1971, p. 360): “The opposite case, in which the rate of interest charged by the banks is raised above the natural rate, need not be considered; if banks acted in this way, they would simply withdraw from the competition of the loan market, without occasioning any other noteworthy consequences.”

¹⁸⁷ For an Austrian critique of term intermediation see Barnett and Block 2011, 2009a and 2009b.

status quo that may not be ideal. A central bank is a necessary addition to the banking system. Central banks can provide new money and credit, high-powered money, to offset the general contractionary tendencies due to a fetish for liquidity which is part of the normal operation of financial markets (Garrison 2001, chapters on Keynes and Keynesians).

Selgin (1988 and 1996) offers a “qualified defense of the new view” that can be considered a middle ground between the Misesian and the new view. While fractional-reserve banking is intermediation, banks can still create credit. Credit is created when credit is “granted independently of any voluntary abstinence from spending by holders of money balances” (Selgin 1988, p. 60). *Extensive credit creation requires not just fractional-reserve banking, but central banking.* In this framework, the creation of fiduciary media that is matched by a willingness to hold the additional fiduciary media is not credit creation, but financial intermediation. Such transactions facilitate the flow of saving into investment. In the case where increased saving (reduced spending on present goods) takes the form of an increased demand for cash in the form of “inside” money, consumption is deferred and the funds are loaned to the banks for at least *short periods*. The extension of bank credit and the creation of new fiduciary media do not, in this instance, reduce the market rate below the natural rate, but instead, allow the market rate to follow the natural rate downward. Investment keeps up with a higher level of saving rather than exceeding a fixed level of saving. Credit creation can take place if banks issue fiduciary media and credit in excess of the demand for fiduciary media. But what mechanism prevents excessive credit creation? Here Selgin and White (1996, p. 103) rely on and build on Mises (1998, p. 440):

Free banking is the only method for the prevention of the dangers inherent in credit expansion. It would, it is true, not hinder a slow credit expansion, kept within very narrow limits, on the part of cautious banks which provide the public with all the information required about their financial status. But under free banking it would have been impossible for credit expansion with all its inevitable consequences to have developed into a regular—one is tempted to say normal—feature of the economic system. Only free banking would have rendered the market economy secure against crises and depressions.

The existence of a central bank with the ability to create high-powered or base money is a necessary prerequisite for excessive credit creation and the resultant boom–bust cycle. Free banking without central banking could provide intermediation services that could

mitigate contractionary pressures arising from monetary disequilibrium while also providing sufficient market discipline to prevent excessive credit creation. Austrian-type business cycles are thus a phenomenon of central banking, not of fractional-reserve free banking¹⁸⁸.

The Market Synthesis

The differences between the Keynesian-based new view and Mises, Machlup, and Selgin are significant and lead to different explanations of macroeconomic instabilities and policy proposals. In the Keynesian form of the new view, banks, including a necessary and benevolent central bank, do not create credit. With a ‘fetish for liquidity’, an economy absent central bank expansion of credit and lower interest rates will be subject to economic stagnation as the rate of interest exceeds the natural rate and investment falls below the level needed to achieve and sustain full employment. Central banking is a needed extra-market solution to a market malady (Garrison 2001).

In contrast, Mises (1971) developed the argument that fractional-reserve banking creates credit. Created credit is the source of the malinvestment of the boom phase of the cycle. But significant malinvestment in the Misesian cycle depends on central bank action or government backed special privileges, either explicit or implied. The central bank either actively provides new base money which banks use to create credit or the central bank passively makes new base money available to provide the needed liquidity (reserves) to an overextended banking system.¹⁸⁹ Without central bank activity, the **credit creation by fractional reserve banks would be limited in extent**. Large misdirection of production caused by credit creation requires either newly created base money or the promise to create

¹⁸⁸ The above argument depends on the caveat that free banking means banks operate in an environment in which banks are subject to the general rules of commercial and civil law and are not the recipients of special privileges and protections granted by the state. As expressed by Mises (1998, p. 440), “What is needed to prevent any further credit expansion is to place the banking business under the general rules of commercial and civil laws compelling every individual and firm to fulfill all obligations in full compliance with the terms of the contract.”

¹⁸⁹ Machlup (1940, pp. 247–48) argues, “Professor Mises believes, furthermore, that commercial banks alone without the support of the central bank can never produce a dangerous credit inflation.” Mises (1998, p. 788) is quite emphatic on this point, “But today credit expansion is an exclusive prerogative of government.”

new base money in the event of a crisis by a central bank.¹⁹⁰ Central banks provide the source of the newly created credit or remove the market barriers to bank initiated created credit.¹⁹¹

Banking freedom can potentially limit the scope of and quickly correct for or reverse any created credit that originates from fractional-reserve banking. Extensive and harmful credit creation is the result of the activity of central banking. The **malady is extra-market**. Created credit distorts the structure of production causing the boom–bust cycle and the remedy, really the preventative, is a return to free markets in money creation. The solution; **eliminate the central bank and restore a free market in money and banking**¹⁹² (Herbener, 2012).

Banking freedom would allow market participants to make the ultimate judgment on what to use as a medium of exchange and where to draw the line between money as a present good and money as a store of value. Bankers would make a judgments on the proportion of their deposits (or notes) that represent saving and the proportion that are currently serving as present money for the holders of the deposits. Only funds held as savings may be safely “invested” or loaned. Consumers of banking services make judgments about the safety and soundness of the banking institutions with which they deal. Successful banks will provide the mix of services that meet the needs of their clients.

Monetary Reform¹⁹³

In an introduction to the most recent issue of the *Cato Journal*, “Monetary Reform in the Wake of Crisis” the editor **James A. Dorn writes:**

¹⁹⁰ See White (2011, 497) for an argument, relative to the most recent crisis, why “A commodity standard with free banking, and **no central bank to distort the financial system** [emphasis mine], would have avoided such a boom-and-bust credit cycle.”

¹⁹¹ The existence of a lender of last resort who can and will create credit with newly issued base or high -powered money leads to a moral hazard problem that gives fractional-reserve banks an incentive to over-extend credit, which can show up as either more credit extended at lower rates of interest or riskier loans extended at unchanged rates of interest.

¹⁹² Herbener recommends 100% reserves for deposits that serve as a medium of exchange or for privately issued bank notes. 100% reserves also would more clearly remove threats of bank runs and panics.

¹⁹³ See Table 1 (elimination of central banking) and Table 2 (reforms retaining a central bank) for a summary of suggested reforms. Reforms are listed from a-f in order of ability to generate increased economic stability, although on this ground a and b are indistinguishable with perhaps a slight edge to b and with b leading to perhaps greater financial stability. Reforms a, b, and c are consistent with *HR 1094*. Reform e is consistent with *HR 4180* or *HR 245*. Reform f is consistent with *HR 245*. If either reform a or b would be adopted, discussion should continue on free banking versus 100% reserves.

At no time since the founding of the Federal Reserve nearly a century ago has it been more important to reconsider the role of monetary policy in a free society. In particular, as F. A. Hayek noted, “All those who wish to stop the drift toward increasing government control should concentrate their effort on monetary policy.”

Central bank response to the most recent crisis and slow recovery has moved in the direction of greater, not lesser central bank involvement in the economy. Recent troubling trends include money creation to finance massive government deficits¹⁹⁴, the Fed engaging in “Mondustrial Policy”¹⁹⁵, and becoming a gigantic financial central planner.

Cochran (2011) describes the Fed reaction:

With this second bust, unlike the first recession of the 21st century, the real economic slowdown was accompanied by a significant financial crisis and if not a public panic, definitely a policy panic. Policy makers feared that the financial crisis would lead to a collapse of the banking and credit system. The fear was deflation. The model was monetary events of 1929 to 1932. The Fed and the federal government responded with an unprecedented bailout of both financial and non-financial firms with the creation and use of new monetary policy tools and Fed-Treasury coordination accompanied by aggressive use of more traditional policy instruments (Duca *et al* 2009). The result has been a massive expansion of the Fed’s balance sheet as well as massive restructuring of the type assets held by the Fed. The picking of winners and losers has moved the Fed very close to a policy which is even more dangerous to liberty and prosperity than an ordinary fractional reserve banking system supported by a central bank; a **mondustrial policy**; monetary policy as an agency not only of irresponsible fiscal policy, but of industrial policy as well.

In an important paper published in the *Independent Review*, “Ben Bernanke versus Milton Friedman: The Federal Reserve’s Emergence as the U.S. Economy’s Central Planner”, Jeffrey Rogers Hummel provides, without explicitly mentioning the term, the intellectual foundations for a “Mondustrial Policy”. Hummel builds his case by illustrating the significant differences in “approaches to financial

¹⁹⁴ Per John B. Taylor, the Federal Reserve purchased 77% of the net increase in the debt by the Federal government in 2011. See <http://johnbtaylorblog.blogspot.com/2012/06/fed-bought-77-of-federal-debt-increase.html>

¹⁹⁵ In early 2009 at the AEA meetings, Stanford economist John Taylor used the term “Mondustrial Policy to criticize the Fed and Treasury response to the financial crisis. Taylor, as quoted in a *WSJ* blog post by Jon Hilsenrath (<http://blogs.wsj.com/economics/2009/01/05/the-feds-outspoken-critic/>), used this “unflattering term” to describe a policy environment that was “not a monetary framework. It is an intervention framework financed by money creation.”

crisis” between the Bernanke approach and a Friedman approach. In addition to exposing the theoretical foundation of this misguided and dangerous policy, Hummel provides a very detailed almost step by step use of this type of policy in response to the major events of the recent crisis. A must read for anyone interested in the details of how and why the Fed’s balance sheet expanded so significantly and how much of what was done did not and does not show explicitly in ‘regularly’ reported monetary aggregates, their sub components, or Fed balance sheet reports.

Hummel argues the differences have been rarely noticed. The impact as “those differences resulted in another Fed failure – not quite as serious as the one during the Great depression, to be sure, yet serious enough – but they have also resulted in a dramatic transformation of the Fed’s role in the economy. Chairman Bernanke has so expanded the Fed’s discretionary actions beyond controlling the money stock that it has become a gigantic, financial central planner.”

It should be clear, that this failed policy response to the current situation has set up future monetary conditions that may be very difficult to unwind without significant inflation and/or a continuing boom-bust pattern.

These trends make a return to sound money which “involves abolishing central banking and paper fiat money and restoring a commodity money chosen by and totally subject to the market” (Salerno 2010 [1998], p. 474) imperative. There is, however, controversy over the means. Does sound money require 100 percent reserve banking or does it allow banking freedom? Mises (1998, 440) opined, “Only free banking would have rendered the market economy secure against crises and depression. [And] [t]here is no reason whatever to abandon the principle of free enterprise in the field of banking.”

However, Rothbard, Salerno, Herbener, Huerta de Soto, Block, and Reisman among others favor 100 percent reserves; a clear separation of deposit banking from loan banking, on the basis of reform proposals made by Mises (1971, pp. 448–57, and 1978, pp. 17–21 and 44–47.) In these proposals, Mises argued for 100 percent backing of any *newly issued notes or checkable deposits*. For reform of a monetary system on the verge of collapse or as a proposal for how we move from our current system toward a sound money system, such a step may be essential. After reform though, it is also essential that “the question of banking freedom must then be discussed again and again, on basic principles” (Mises 1978, p. 45).

H.R. 1094 is consistent with reform recommended in this testimony. *H. R. 4180* would be a strong improvement over current Fed operations as would *H. R. 245*, but both would leave the economy subject to boom-bust cycles as monetary policy would still not prevent a boom-bust which piggy-backs created credit induced growth on top of productivity driven growth. A movement in the right direction would include elimination of all laws restricting private sector initiatives to develop competing medium of exchanges to Federal Reserve notes. New competitive currencies could be facilitated by privatization of all government stocks of precious metals. More detailed proposals for reform can be found in Rothbard (1991 [1962], 65-72), Salerno (2010, 333-363), White (2102), or Herbener (2012). The *Cato Journal* (Spring/Summer 2012, volume 32, number 2) is devoted to “monetary reform in the wake of crisis.” If or while significant reform such as H. R. 1094 is politically impossible, Selgin’s (1997) proposal for a productivity norm, which would greatly reduce the likelihood of significant credit creation in response to a productivity shock, should be given strong consideration as an appropriate guide for improving policy under existing banking arrangements.

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Table 1: Summary of Reforms – No Central Bank

a. Commodity Standard with Free Banking	b. Commodity Standard with 100% Reserves	c. Denationalization of Money
<p>Mises (1998, 440): “Only free banking would have rendered the market economy secure against crises and depression. [And] [t]here is no reason whatever to abandon the principle of free enterprise in the field of banking.”</p> <p>Free banking means banks operate in an environment in which banks are subject to the general rules of commercial and civil law and are not the recipients of special privileges and protections granted by the state; placing “the banking business under the general rules of commercial and civil laws compelling every individual and firm to fulfill all obligations in full compliance with the terms of the contract.”</p>	<p>From Huerta de Soto (2012): “(T)heoretical analysis yields the conclusion that the current monetary and banking system is incompatible with a true free-enterprise economy, ... and that it is a continual source of financial instability and economic disturbances.”</p> <p>Three recommended reforms: 1. The reestablishment of a 100 percent reserve requirement as an essential principle of private-property rights with respect to every demand deposit of money and its equivalents; 2. the abolition of all central banks (which become unnecessary as lenders of last resort if reform 1 above is implemented, and which as true financial central-planning agencies are a constant source of instability) and the revocation of legal-tender laws and the always-changing tangle of government regulations that derive from them; and 3. a return to a classic gold standard, as the only world monetary standard that would provide a money supply that public authorities could not manipulate and that could restrict and discipline the inflationary yearnings of the different economic agents.”</p>	<p>Hayek (1978):</p> <p>Elimination of central bank with denationalization of money and competing currencies.</p> <p>Hayek’s proposal for drastic monetary reform: In response to events in the 1970s, Hayek was driven “into proposing the denationalization of money” and a return to a market-determined money” (Hayek in Pizano 2009, 10)</p>

Table 2: Reforms Retaining Central Banking

d. Productivity Norm	e. Policy Rules	f. Price Stabilization (single mandate) with Discretion in Crisis or Nominal GDP Targeting
<p>Selgin (1997, 10): “I submit that a constant that a constant price level, even once in place, would be far from ideal. Instead, <i>the price level should be allowed to vary to reflect changes in goods’ unit cost of production</i> [emphasis mine]. I call ... such a rule for individual price changes a ‘productivity norm.’ Under a productivity norm, changes in velocity would be (as under zero inflation) from influencing the price level by offsetting adjustments in the supply of money.”</p> <p>Productivity norm is consistent with Hayek of the 1930s.</p>	<p>Taylor (2012, 2): “For all these reasons, there is a great need for improvement in the degree to which the Federal Reserve follows rules rather than discretion.”</p> <p>And: “However, a more practical and effective approach, in my view, is to reform the Federal Reserve and create strong incentives for rule-like behavior.</p> <p>The starting place for such a reform is the recognition that a clear well-specified goal usually results in a consistent and effective strategy for achieving that goal.”</p> <p>And : “In the case of monetary policy, multiple goals enable politicians to lean on the central bank to do their bidding and thereby deviate from a sound money strategy. More than one goal can also cause the Federal Reserve to exceed the normal bounds of monetary policy—moving into fiscal policy or credit allocation policy—as it seeks the additional instruments necessary to achieve multiple goals.”</p> <p>Taylor (2012, 4): “(L)egislative reforms which clarify the Fed’s mandate, enhance reporting requirements about its strategy or rule for the monetary instruments, restrict the</p>	<p>Price Stabilization:</p> <p>From Hayek (1979 from lectures delivered 1974 and 1975, 17): “Though monetary policy must prevent wide fluctuations in the quantity of money or in the volume of the income stream, the effect on employment must not be a dominating consideration. <i>The primary aim must again become the stability of the value of money</i> [emphasis original].”</p> <p>But (Hayek 1979, 18): Where policy still generates a boom-bust, then, to prevent “liquidity crises or panics” there is a need “to ensure convertibility of all kinds of near-money into real money” For this, “the monetary authorities must be given some discretion”</p> <p>But (Hayek 1979, 10): “I do not believe we shall regain a system of international stability without returning to a <i>system of fixed exchange rate</i>[emphasis mine], which impose upon national central banks the restraint essential for successfully resisting pressure of the advocates of inflation in their countries ...”</p> <p>Nominal GDP:</p> <p>“The moment there is any sign that the total income stream may actually shrink [during a post-bust deflationary crash], I should certainly not only try everything in my power to prevent it from dwindling, but I should announce beforehand that I would do so in the event the problem arose.”</p> <p>F. A. Hayek in 1975, in reply to</p>

	<p>nature of the its purchases of securities, and balance voting rights on the FOMC would allow Congress to exercise appropriate political control without becoming involved in day-to-day monetary policy operations or otherwise micromanaging the Fed. In my view the reforms [H.R. 4180] would enhance the independence of the Fed by adding reassuring accountability appropriate for an independent agency of government and clarifying that its overall responsibility is monetary policy not fiscal policy or credit allocation policy. History and basic economics tells us that such reforms would greatly improve employment and price stability and would help restore America's prosperity."</p>	<p>a question from his old friend Gottfried Haberler in a talk given at the American Enterprise Institute Posted at http://hayekcenter.org/?p=5401 Accessed 06-26-2012.</p>
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WRITTEN TESTIMONY OF LAWRENCE H. WHITE, Ph.D.

PROFESSOR OF ECONOMICS
GEORGE MASON UNIVERSITY

Chairman Paul, Ranking Member Clay, and members of the subcommittee: Thank you for the opportunity to discuss the fractional-reserve character of modern banking, its positives and negatives, its relationship to financial instability, and to offer my thoughts on how to promote greater banking stability. I will begin by describing the historical origins of fractional-reserve banking (hereafter FRB), then move on to the effect of FRB on the money supply process, its connection to bank runs and financial instability, and finally the reforms needed to improve our banking system.

The Origins of Fractional Reserve Banking

A “bank” is a firm that both gathers funds by taking in “deposits” (or creating account balances) *and* makes loans with the funds gathered. A moneylender who draws only on his own wealth is not a banker, nor is a warehouseman who does not lend. A “deposit,” in ordinary modern usage, is a debt claim, an IOU issued by the banker and held by the “depositor,” which the banker is obliged to repay according to the terms of the contract. We can distinguish between a “time deposit,” which the banker is obliged to repay only at a specified date in the future, and a “demand deposit,” which gives the customer the legal right to repayment “on demand,” that is, whenever the customer chooses (on any day the bank is open).

Historically, deposit-taking grew out of the coin-changing and safekeeping businesses. Medieval Italian money-changers would (for a fee) swap coins from one city for those from another. Some traveling merchants, who brought in coins of one type, would chose to hold balances “on account” for the time being, preferring to receive coins of another type later when it was more convenient. The earliest deposit-takers in London were goldsmiths, artisans who made gold jewelry and candlesticks, who were also coin-changers. Like the Italian coin-changers, they provided safe-keeping in the vaults where they kept their own silver and gold.

A key to the development of fractional-reserve banking was that vault-keepers (money-changers and goldsmiths) began to provide *payment services* by deposit transfer. The earliest record of payment by deposit transfer is from Italy around 1200 AD. Before deposits became transferable, suppose Alphonso wanted to pay (say) 100

ounces of coined silver to Bartolomeo, both of them customers of the same vault-keeper. Al would go to the vault-keeper, have him weigh out the requisite amount of coins, and transport the coins to Bart, who would then have to transport the coins back to the vault-keeper to have them weighed again and placed back in the vault. There was great inconvenience, not to say risk, in transporting the coins across town and back. And there were fees to pay for weighing the coins. At the end of the day, Al's account balance or claim on the vault-keeper would be down by 100 ounces (plus transaction fees), and Bart's would be up by 100 ounces (minus transaction fees).

A less burdensome and safer way to accomplish such a payment was for Al and Bart to meet at the bank, and simply tell the banker to transfer 100 ounces *on his books* by writing Al's account balance down and Bart's up. No coins had to be weighed or moved, or even touched at all. Payment was now made not by handing over coins, but by handing over *claims* to coins.

Other methods for authorizing deposit transfer were often more convenient and soon displaced the three-party meeting in the banker's office. For example, Al could sign a written authorization, what we now call a check. Today we have electronic funds transfer, but all of these methods accomplish the same end, which is to make a transfer funds from one account to another.

Some of the earliest deposit-taking was simple warehousing, in which the coins deposited were merely stored, and the exact same coins would be returned to the depositor on demand assuming all storage fees had been paid. (In legal parlance such a claim on the warehouseman is a "bailment" and not a debt.) In the early Middle Ages a customer who wanted this kind of storage would bring the coins to the vault in a sealed bag. The bag was not to be opened by the warehouseman. For each specific bag of coins that could be claimed by Al or Bart, those specific bag of coins were always in the vault. Supposing that the bags' contents were recorded on the books (which they need not have been), we could say that for each ounce of coined silver claimed by depositors there was always an ounce of coined silver in the vault. This arrangement, which resembles the business today of renting safety deposit boxes, is sometimes described as "100 percent reserve banking," although strictly speaking it isn't banking at all, but simply warehousing.

As payment by deposit transfer became popular, goldsmiths and coin-changers found that they could offer a different kind of contract to customers who primarily wanted not storage but economical payment services. In a "fractional reserve" contract, the vault-keeper

becomes a banker, able to lend out some of the funds deposited. In the early Middle Ages a customer who wanted this kind of account would bring loose coins to the vault. The coins could be mingled with other depositors' coins, whereas in money warehousing there is no evident rationale for mingling. The customer would receive a redeemable claim, entitling him to get back *equivalent* coins on demand, but not to receive back the *identical* coins he brought in. The account is now a debt claim and not a bailment. Now the coins in the vault are a fraction of immediately demandable deposits. We can describe them as a reserve for meeting the redemption claims that will actually be made.

Later, beginning perhaps in the 1400s, banks began to issue deposit receipts that could be signed over, making them something like traveler's checks today. For their customers' convenience, they soon provided them in bearer form (no signing-over necessary) and round denominations. These we call banknotes, paper currency claims on banks that were payable to the bearer (whoever presented them), typically on demand. As currency, they could be transferable anonymously, and without bank involvement (unlike deposits transfers, which need to be recorded on the books). London goldsmiths were issuing banknotes in the mid-1600s. Banks also held fractional reserves against the total of their banknote liabilities.

When is a Fractional Reserve Feasible?

For a unique or specific coin, which the customer wants to have back, it isn't. A specific coin lent cannot be instantly recalled from the borrower who has spent it. But for coins that customers regard as *interchangeable* with other coins, it is. Likewise, you count on a coat check stand to keep your specific coat there all evening, and not to lend it out, because you don't want back just any coat of the same size. Unlike coat-checkers, most depositors are willing to treat coins as interchangeable. Depositors do not insist on getting the very same coins back, so any equivalent coin in reserve will be satisfactory.

To avoid defaulting, or breaching the contractual obligation to repay, the bank obviously needs to keep *enough* coins in reserve. How can the bank count on having enough coins to meet all requests? It is a matter of practical calculation: the bank needs to know from experience the probability of any given amount of coins being demand on a given day. If it wants to be 99.99% safe, it needs to hold a reserve (or have ways of replenishing its reserves) sufficient to cover 99.99% of cases.

The economist Ludwig von Mises offered the following illustration. Consider a baker who issues 100 tokens, each stamped “good for one loaf of bread.” Leaving aside lost tokens, it is clear that the baker will need 100 loaves. All the tokens will be redeemed, because using them to get bread is their only use. By contrast, transferable claims to coin (bank deposits or banknotes) are *useful even without being redeemed*. Unlike bread tokens, which cannot be eaten with butter and jam, transferable bank accounts or banknotes *can do the job of the coins* in making payments. Once payment by deposit transfer and banknote becomes popular, the banker will reliably find that *not all deposits notes or deposits are redeemed for coins on a given day*, even if all are used to make payments. Thus a banker who issues \$100 in demand deposits or notes will need less than \$100 in coin to meet all the redemptions that will actually be demanded.

How much less than 100% the banker can hold, and still meet all the redemption demands that he does face, is a problem that the banker must solve by practical statistical calculation. There is no reason to think that a central authority can do the calculation better, and can improve matters by imposing an arbitrary percentage requirement. To provide the right incentive to hold enough reserves, it is important that the imprudent banker who miscalculates, holds too little in reserves, and fails to pay when obligated to pay, be subject to the ordinary legal penalties for breach of contract.

Advantages and Disadvantages of Fractional Reserves

The advantage to the bank from keeping fractional reserves is clear: it earns interest on the lent-out funds. A few commentators have declared that FRB must be a fraud: the gain is all on the bank’s side, and no customer would agree to it if she realized what the bank was up to. But this claim assumes that there are no advantages to the bank’s customers. In fact there are clear advantages to the bank’s customers, *at least under competition*. To compete for customers, all experience shows, banks offering fractional-reserve accounts charge zero storage fees and even pay interest on deposits, up to point where the interest they pay falls short of the interest they earn only by just enough to cover the bank’s operating costs for safekeeping and payment services. In this way FRB creates a *synergy* between payments services (checkable deposits, banknotes) and intermediation (pooling savers’ funds for lending to selected borrowers). When the deposited funds that are not needed as

reserves can be lent out, depositors enjoy lower (or zero) storage fees and interest on checking deposit balances.

By contrast to money warehousing, the savings of fractional-reserve banking do carry a disadvantage in the form of greater default risk. If the bank's investments go sour, the depositor may not be repaid in full. The warehouse, by contrast, makes no investments. So the customer choosing between a bank account contract and a warehousing contract needs to consider: is the saving in storage fees and the interest paid on deposits high enough (relative to the increased risk of not being paid promptly)? Historically, in competitive systems where banks were free to diversify and capitalize themselves well, the answer was yes for most people. Thus *well informed* consumers who want economical payment services typically prefer a fractional-reserve bank to a warehouse. In sound banking systems historically, before deposit insurance, the risk of loss was a small fraction of one percent, while the interest was more than one percent, and the sum of interest and storage fee savings was even higher. Thus FRB can arise and survive without fraud.

The economist George Selgin has examined the record of the London goldsmith bankers, and debunked the myth that they pulled a fraudulent switcheroo, promising 100% reserves but holding less, at the beginning of the practice of FRB. Goldsmith bank accounts became enormously popular in the mid-1600s because they offered interest on demand deposits. The offer of interest is a clear signal that the contract is not a warehousing contract.

For payment by account transfer, FRB offers a more economic way of providing payment services. A money warehouse or 100% reserve institution could also offer payments by account transfer, but its services would be significantly more expensive. The other bank payment instrument, redeemable banknotes circulating in round denominations, simply *cannot exist* without fractional reserves. Banknotes are feasible for a fractional-reserve bank because the bank doesn't need to assess storage fees to cover its costs. It can let the notes can circulate anonymously and at face value, unencumbered by fees, and cover its costs by interest income. An issuer of circulating 100% reserve notes would need to assess storage fees on someone, but would be unable to assess them on unknown note-holders. There are no known historical examples of circulating 100% reserve notes unencumbered by storage fees.

Under a gold or silver standard, the introduction and public acceptance of fractionally backed demand deposits and banknotes means that the economy needs less gold or silver in its vaults to

supply the quantity of money balances (commonly accepted media of exchange) that the public wants to hold. Thus money is supplied at a *lower resource cost*, that is, with less labor and capital devoted to mining or importing precious metals and fashioning them into coins or bars. Looking at the change in balance sheets from money warehouses to fractional reserve banks, the economy can now fund productive enterprises where before it only held metal. Gold can be exported, and productive machinery imported. This development in Scotland was praised by Adam Smith as a source of his country's economic growth. As the economist Ludwig von Mises put it, "Fiduciary media [fractionally backed demand deposits and banknotes] ... enrich both the person that issues them and the community that employs them."

Under a fiat money standard, as we have today with the Federal Reserve dollar, things are different. There are no mining or minting costs saved by holding fractional rather than 100% reserves in the form of fiat money. For commercial banks to hold 100% reserves in the form of fiat money issued by the federal government would, however, change drastically the function of the banks. Instead of funding productive enterprises, the banks would instead only fund the federal government. Fewer loanable funds would be available to the private economy, and more to the government. Private investment would be suppressed, and public spending enlarged.

The Effect of FRB on the Money Supply Process

With banks holding fractional reserves of Federal Reserve dollars (notes and deposit claims on the books of the Fed, whose sum is called "the monetary base"), when the Fed increases the quantity of Federal Reserve dollars by \$1 billion, the banking system ordinarily creates a multiple amount of deposit dollars. The total stock of money held by the public ("M1") increases, say by \$2.3 billion. At the moment, however, we are in an anomalous situation. Banks are sitting on such vast quantities of excess reserves – paid to do so by the Federal Reserve as it pays a relative high interest rate on reserves – that the monetary base is larger than M1. Thus the US banking system today actually has more than 100% reserves against its demand deposits.

The Problems of Financial Instability, Bank Runs, and Crises

Perhaps the leading argument made in favor of government regulation of banks is the argument claiming that a fractional-reserve banking system is inherently *fragile* and so needs deposit insurance. The argument rests on three underlying propositions:

- a) An uninsured fractional-reserve banking system is inherently prone to runs and (due to “contagion”) panics. (A run means that many depositors seek to withdraw at the same time, out of fear of a reduced payoff if they wait. A panic means that many banks suffer runs at the same time.)
- b) Runs and panics have net harmful effects.
- c) Deposit insurance can reduce runs and panics below their laissez-faire level at a cost less than the benefit of doing so.

My research into banking history convinces me that (a) and (c) are actually false, and even proposition (b) requires some qualification.

A run is always *possible* against fractionally backed bank deposits that are unconditionally redeemable on demand. Against such deposits, a run can even, in theory, be *self-justifying*: if a run forces the bank to conduct a hasty sale of illiquid assets, the bank may receive such a reduced value for its assets that it becomes insolvent (liabilities exceed assets), so that all depositors can no longer be paid in full. From this theoretical possibility, some economic theorists have jumped to the conclusion that fractional-reserve banks are *in practice* inherently run-prone. (The best known statement is a 1983 article by Douglas Diamond and Phillip Dybvig.) According to this view, a run can happen at any time, in any place, on any bank, triggered by nothing more than random fears or events that have no basis in the target bank’s solidity.

But are real-world deposit contracts so fragile? Historical evidence says no. Please consider: If real-world deposit contracts really *were* as fragile as the self-justifying-run theory supposes, it would be a mystery how they survived centuries of Darwinian banking competition before the first government deposit insurance schemes began. Wouldn’t a more robust arrangement have come to dominate the field?

The theory of runs that better fits the historical record is that runs occur, not randomly, but when depositors receive bad news indicating that their bank might be *already* (pre-run) insolvent. Receiving such news, depositors run because if assets are already be too small to pay all depositors back, the last in line get little or nothing. Unlike the self-justifying-run theory, the bad-news theory explains why runs typically occurred at onset of recessions (when bad news arrived about the banks’ borrowers declaring bankruptcy), and explains why countries that did not weaken their banks with legal

restrictions (e.g. Scotland, Canada) very seldom experienced runs and almost never panics.

What makes a deposit contract run-prone? Assume that depositors are rational. There must be a greater expected payoff to arriving sooner rather than later to redeem one's deposit. This implies that the deposit is unconditionally redeemable on demand (and that the bank pays on a first-come-first-served basis), *and* that default is likely on last claim serviced. To make an account *non-run-prone* it suffices to modify *either one* of these two conditions. First, the deposit contract can make redemption *conditional* rather than unconditional. An important historical example was the "notice of withdrawal clause" that many savings banks and trust companies included in their deposit contracts. If withdrawals were too great for a bank to satisfy without suffering severe losses from hasty asset liquidation, the banker had the option to defer redemption for 60 or 90 days by requiring notice of intent to withdraw to be given that far in advance.

More importantly, banks made default *unlikely* by providing their depositors with credible assurances that the bank would maintain solvency, that is, assets sufficient to pay in full even the last in line, even under adverse circumstance. To provide credible assurance, banks before deposit insurance held much higher capital than they do today, in the neighborhood of 20%. They invested much more conservatively, so that they faced much less risk of large asset losses. They avoided loans with high default risk, high risk of loss from interest-rate movements, and loans that were illiquid (hard to resell). Banks that relied on demand deposits and banknotes did not make long-term fixed-rate housing loans, for example. They invested primarily in short-term, high-quality, liquid business IOUs, what were then called "bills of exchange" and is today called "commercial paper." In some countries, banks had an additional backstop in the form of the right to call for more capital from their shareholders if otherwise depositors would go unpaid. Shareholders had extended liability, and in some systems unlimited liability, for the bank's debts.

The historical record does of course indicate that runs and banking panics *were* a problem in United States during the pre-Fed or "National Banking" era (1863-1913), and also under the Fed's watch during the early years of the Great Depression. But *few other countries have had similar experiences*. It is therefore clear that run-proneness and panics are not inherent to fractional-reserve banking. If we look for a pattern across countries, this is what we find: countries like Canada, Scotland, Sweden, and Switzerland, where the

banking systems had no more than minimal restrictions on entry, note-issue, branching, and capitalization, had virtually no problem from runs and none from panics, in contrast to the more restricted and hence weaker banking systems of the United States and England.

The US banking system was made fragile by the federal and state ban on interstate branching, and even branching within many states. Branch banking limits reduced diversification of assets and deposit sources, indirectly limited capitalization, and hampered the effective allocation of reserves. Poorly diversified and poorly capitalized banks could not offer credible solvency assurances, which made them more vulnerable to “bad news” runs.

The US system was also made fragile by federal restrictions on banknote issue that prevented banks from meeting peak demands for currency. Because of those restrictions, seasonal demands for currency became scrambles for reserve money that occasionally escalated into panics.

Reforms to Strengthen Our Banking System

The weakness in the US banking system today stems from a different set of government policies than the ban on branching (eroded in the 1980s and finally eliminated in 1995) and restriction on banknote issue (commercial banks stopped being allowed to issue any notes in the 1930s). Today the weakness is due not to restrictions, but to privileges. One indication of that is that the weakest banks today are not the smallest, but the largest banking companies.

Federal deposit insurance, since its birth in the 1930s, has meant that a comparatively risky bank (one with capital less adequate to cover potential losses on its asset portfolio) no longer faces a penalty in the market for retail deposits. Insured depositors have no incentive to shop around for a safe bank, so they no longer demand a higher interest rate to give it their deposits. Risk-taking is thereby effectively subsidized. Attempts to price deposit insurance according to risk, so as to recreate a penalty for holding on a risk bank portfolio, were mandated by the FDIC improvement act, but the attempt has failed. The FDIC insurance fund has been exhausted by bank failures, and now has a negative balance. Taxpayers are on the hook for the morally hazardous banking that the FDIC has fostered. Some way of rolling back and ultimately ending federal deposit insurance must be found.

The “too big to fail” doctrine compounds the problem. It gives even blanket protection even to a bank’s legally uninsured depositors and subordinated debt holders, removing their incentive to shop around for a prudently managed bank. “Too big to fail” treatment went from the exceptional event to the routine event during the last five years, as the Federal Reserve and the FDIC have deliberately declined to close several large insolvent banks. If no large bank is ever allowed to fail, then large depositors flock to the large banks that have the privilege of an implicit guarantee for all. On such a tilted playing field, an unnaturally large share of deposits flows into the largest banks. We are already there. Some way of ending “too big to fail” must be found – quickly.

Conclusion

The evidence shows that a fractional-reserve banking system is not unstable when the banking system is free of hobbling legal restrictions *and* free of privileges. The US banking system in the 19th century was weakened by legal restrictions. In response to that weakness, rather than let the banking system become robust by repealing its restrictions, Congress in the 20th century patched over the problem by creating the Federal Reserve system (to act a “lender of last resort”) and federal deposit insurance. As a result, the US banking system in the 21st century is chronically weakened by government privileges (especially taxpayer-backed deposit insurance and taxpayer-backed “too big to fail” bailouts) that generate moral hazard. Banks take advantage of these guarantees by holding asset portfolios too full of default risk and interest-rate risk. They finance their portfolios with excess leverage (too much debt, not enough equity). Rather than trying to come up with another patch, Congress should seek to dismantle the restrictions and the privileges that have left the American people saddled with an unhealthy banking system.

EXPERT COMMENTARY

TOBY BAXENDALE
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REFORMING FRACTIONAL RESERVE BANKING: A BRITISH EXPERIENCE

“When you’re one step ahead of the crowd you’re a genius. When you’re two steps ahead, you’re a crackpot.”¹⁹⁶

-Rabbi Shlomo Riskin
Lincoln Square Synagogue, February 1998

“I hold all idea of regulating the currency to be an absurdity; the very terms of regulating the currency and managing the currency I look upon to be an absurdity; the currency should regulate itself; it must be regulated by the trade and commerce of the world; I would neither allow the Bank of England nor any private banks to have what is called the management of the currency.

...

I should never contemplate any remedial measure, which left to the discretion of individuals to regulate the amount of currency by any principle or standard whatever... I should be sorry to trust the Bank of England again, having violated their principle [the Palmer rule]; for I never trust the same parties twice on an affair of such magnitude.”¹⁹⁷

-Richard Cobden
Report from the Select Committee on Banks of Issue
British Parliament, April 1840

¹⁹⁶ Arizona Jewish Post, 18 September 1998

¹⁹⁷ *Report from Select Committee on Banks of Issue*, Ordered, by The House of Commons, to be printed, 7 August 1840.

Introduction

It is a great privilege to write this essay on money and banking reform to mark the retirement of Dr. Paul from Congress. We in the United Kingdom have much to thank Dr. Paul for his tireless campaigning on these issues, especially those raised in the full public glare of two Presidential campaigns, making money and banking reform resonate here as well more than it otherwise would have.

At the Cobden Centre, we have two great parliamentarians, like Dr. Paul also inspired by the Austrian School of Economics: Steve Baker, Member of Parliament (MP) for High Wycombe (my co-founder of the Cobden Centre); and Douglas Carswell, MP for Clacton. Taking the idea of full-reserve free banking, currency competition, honest accounting, and full open liability for bankers, they have produced four bills in Parliament which we will discuss next in summary.

The Financial Services (Deposit and Lending) Bill – 2010

Carswell describes the Deposit and Lending bill as follows:

My bill would give account holders legal ownership of their deposits, unless they indicated otherwise when opening the account. In other words, there would henceforth be two categories of bank account: deposit-taking accounts for investment purposes, and deposit-taking accounts for storage purposes. Banks would remain at liberty to lend on money deposited in the investment accounts, but not on money deposited in the storage accounts. As such, the idea is not a million miles away from the idea of 100% gilt-backed storage accounts proposed by other hon. Members and the Governor of the Bank of England.¹⁹⁸

Currency and Banknotes (Amendment) – 2011

Carswell describes the Currency and Banknotes Amendment as follows:

That leave be given to bring in a Bill to amend the Currency and Banknotes Act 1954 to allow banknotes in addition to those issued by the Bank of England to be legal tender; and for connected purposes. ... My Bill would amend the Currency and Banknotes Act 1954 to enable a range of different currencies to be used as legal tender in Britain. The idea comes from a 1989 Treasury paper from when John Major was Chancellor. What the Treasury proposed as theoretically possible 22 years ago, the internet now makes practically achievable.

The internet has given people unprecedented choice. We have access to a greater range of music, financial services, groceries and

¹⁹⁸<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm100915/debtext/100915-0002.htm>

books than ever before, so why do we have legal tender laws that create a monopoly currency?¹⁹⁹

In an email to me, Carswell expressed the influence Congressman Paul has had on his work:

Reading Ron Paul's *End the Fed* gave me the confidence to speak out. I suddenly realised it wasn't just a few of us Brits who doubted the whole fiat money/candy floss currency scam. He has given hope to those of us throughout the West.

Financial Services (Regulation of Derivatives) Bill

Steve Baker, MP compiled the Regulation of Derivatives Bill with the help of Gordon Kerr, Tim Bush, and Prof. Kevin Dowd.²⁰⁰ When he introduced the legislation on 15 March 2011, he described the Bill as requiring “certain financial institutions to prepare parallel accounts on the basis of the lower of historic cost and mark to market for their exposure to derivatives; and for connected purposes.”²⁰¹ Baker explained how the accounting rules for banks incentivize trading in derivatives by enabling *unrealized* profits to be booked upfront, leading to large but unjustified bonuses and dividends.

More broadly, banks are producing accounts that grossly inflate their profits and capital in three ways:

- (1) Using mark-to-market and mark-to-model accounting, banks record unrealized gains in investments as profits.
- (2) International Financial Reporting Standards (IFRS) prevent banks from making prudent provision for expected loan losses by allowing recognition only of incurred losses.
- (3) IFRS encourages banks not to deduct staff compensation from profits.

Taken together, these flaws mean that banks' accounts under IFRS are at once rule-compliant and dangerously misleading. The Regulation of Derivatives Bill²⁰² deals with this broad problem. For

¹⁹⁹<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm110906/debtext/110906-0001.htm#11090649001274>

²⁰⁰<http://www.stevebaker.info/campaigns/the-financial-system/financial-services-regulation-of-derivatives-bill/>

²⁰¹<http://www.publications.parliament.uk/pa/cm201011/cmhansrd/cm110315/debtext/110315-0001.htm#11031569000724>

²⁰²http://www.publications.parliament.uk/pa/bills/cbill/2010-2012/0162/cbill_2010-20120162_en_1.htm

much more detail, see Gordon Kerr's Adam Smith Institute pamphlet, "The Law of Opposites."²⁰³

Financial Institutions (Reform) Bill²⁰⁴

Baker compiled the Financial Institutions Reform Bill with the help of Gordon Kerr and Kevin Dowd. The bill was introduced on Wednesday, 29 February 2012. The key provisions of the bill would:

- (1) Enforce strict liability on directors of financial institutions;
- (2) Enforce unlimited personal liability on directors of financial institutions;
- (3) Require directors of financial institutions to post personal bonds as additional bank capital;
- (4) Require personal bonds and bonuses to be treated as additional bank capital;
- (5) Make provision for the insolvency of financial institutions; and
- (6) Establish a financial crimes investigation unit.

The purpose of this Bill is to minimise moral hazard within the financial system by ensuring that those who take risks are held personally liable for the consequences. Since rules can usually be gamed by financial institutions, a principle underlying this Bill is to minimise scope for evasion.

Steve Baker, MP said,

The public are rightly incensed at the injustices we see across the financial system but our economy must have responsible, innovative and enterprising financial services. It is essential that commercial freedom is maintained while creating a system in which remuneration is a just reward for success, not the unjust product of unrealised profits and bailouts.

My Bill would make directors of financial institutions personally liable for losses. It would ensure that losses came first out of institutions' bonus pools then directors' personal bonds before hitting equity. Directors would also be exposed to unlimited personal liability long before any suggestion of taxpayer bailout.

With key decision makers' own wealth at risk, they would take responsible decisions instead of expecting rewards for failure.

²⁰³ Gordon Kerr, "The Law of Opposites: Illusory Profits in the Financial Sector." <http://www.adamsmith.org/research/reports/the-law-of-opposites-illusory-profits-in-the-financial-sector>

²⁰⁴ <http://www.stevebaker.info/campaigns/the-financial-system/financial-institutions-reform-bill/>

It's time to tell bankers, "Yes, innovate. By all means earn large rewards for providing valuable financial services. But bear your own commercial risks. Don't expect the rest of us to bail you out."²⁰⁵

Public Attitudes to Banking: A Survey Commissioned by the Cobden Centre (2010)²⁰⁶

When we started the Cobden Centre, we all thought we knew about money and banking and all thought we knew what our fellow Brits thought about it all. To the great credit of Prof. Anthony Evans, he said let's do some empirical testing. And so the Cobden Centre commissioned a survey. This research formed the basis of much of the work our parliamentary friends have embarked upon.

The survey was conducted by the market research company ICM with 2,000 participants. The results offer us a rather confusing array of views as to what people think banking is about.

- 74% of respondents thought that they were the legal owner of the money in their current account, as opposed to the bank being the legal owner.
- 66% of respondents answered "don't know" when asked what proportion of their current account was used in various ways by their bank.
- 15% wanted safe-keeping services.
- 67% wanted convenient access.
- 8% knew correctly that they had lent money to the bank.
- 33% think it is wrong that the bank lends out what they view as their money.
- 61% said they would not mind the bank lending if it was done safely.
- 26% wanted reserves to match deposits.

It would seem a sizeable minority percentage would want some form of safe-keeping services. Most would want easy access, which would imply short-term borrowing matched with short-term lending, so as to avoid runs, rather than the current practice of lending long and borrowing short.

The needs of savers and borrowers would be better aligned by requiring depositors to choose, at the time of making a deposit, how

²⁰⁵ <http://www.stevebaker.info/campaigns/the-financial-system/financial-institutions-reform-bill/>

²⁰⁶ <http://www.cobdencentre.org/2010/06/public-attitudes-to-banking/>.

much money they wished to put into plain saving (i.e., savings set aside for safe/precautionary holding as opposed to investment purposes—a distinction made by the Austrian scholar Ludwig von Mises) and how much into capitalist saving (i.e., savings set aside for investment gain as opposed to safe/precautionary savings). This would provide the setting for, and lead to, much more stable and substantial growth.

In a modern setting, the ability for banks to distinguish between plain savings, those savings that people want for safe keeping, and savings for capitalistic investment via the normal savings bonds, time deposit accounts, and so on and so forth, would allow the banking system to mediate more accurately the diverse time preferences of all savers and borrowers. (The Manchester/Lancashire system of full reserve banking and private money creation that we will discuss in the last part of this essay is a good historical example of how mediating only capitalistic savings, and not plain savings, created a system of safe credit—until it was interfered with by the Stamp Act.)

The ICM survey showed all of us that there is a need to sort out what people actually think happens with their money and banking and what actually does happen—as the two things are very different.

The Jesus Huerta De Soto Monetary Reform Proposal in Summary

Some three years ago I was fortunate enough to introduce both of our Parliamentary friends to the greatest of all the living Austrian School economists in the full reserve tradition, Prof. Jesus Huerta De Soto. His 1998 book, translated into English in 2006 as *Money, Bank Credit, and Economic Cycles*, is the seminal treatise on the matter.

In chapter nine, he outlines his reform proposal. (All quotes in this section are taken from chapter nine and the full book can be downloaded at <http://www.cobdencentre.org/tag/downloads/>.) The aims of the reform, as summarized by Prof. Huerta De Soto himself, are as follows:

[O]ur proposal is based on privatizing money in its current form by replacing it with its metallic equivalent in gold and allowing the market to resume its free development from the time of the transition, either by confirming gold as the generally accepted form of money, or by permitting the spontaneous and gradual entrance of other monetary standards.

This second element of our proposal refers to the necessity of revoking banking legislation and eliminating central banks and in general any government agency devoted to controlling and intervening in the financial or banking market. It should be

possible to set up any number of private banks with complete freedom, both in terms of corporate purpose and legal form. ...

Nevertheless the defense of free banking does not imply permission for banks to operate with a fractional reserve. At this point it should be perfectly clear that banking should be subject to traditional legal principles and that these demand the maintenance at all times of a 100 percent reserve with respect to demand deposits at banks. Hence free banking must not be viewed as a license to infringe this rule, since its infringement not only constitutes a violation of a traditional legal principle, but it also triggers a chain of consequences which are highly damaging to the economy.²⁰⁷

The crux of his reform proposal is as follows (the description is mine and made UK-specific by me—read chapter nine in full for the complete version in the Professor's own words):

- (1) All demand deposits are immaterial money, and are not the depositor's money but a liability from the bank they deposit with to pay them back money in the same amount as deposited, on demand.Safdsdfa
- (2) Let the government back all these demand deposits for physical cash and place them as reserves against the existing demand deposits. This is virtually a costless activity on behalf of the state. It is also not inflationary, as the backing, the physical cash, cannot be spent, as it sits in reserves.
- (3) The money supply can neither expand nor contract at this specific point.
- (4) The banks, where they had current liabilities, now no longer have them as they are fully reserved.
- (5) This generates a one-off gain to the banks in terms of their net worth. In short, so much as they had these current demand liabilities, now they have these backed with paper notes for the same value, so their net worth has gone up by the equivalent amount .
- (6) The asset side of the balance sheet, their loan portfolio, stays intact.
- (7) As there are over £1 trillion of demand deposits in the UK banking system, the banking system's net worth would have risen by £1 trillion.

²⁰⁷ Huerta de Soto, Jesus. *Money, Credit, and Economic Cycles*. 2nd edition. Auburn, AL: Ludwig von Mises Institute, 2009, pp. 739-740.

- (8) Why give this one-off gift of largesse to the shareholders and bonus-hungry bankers? Well, don't. Form special purpose vehicles to hold the asset side of the balance sheets of the banks to collect on these outstanding loans and you can contract out the management of this to the existing banks.
- (9) By doing this, the banks' net worth on the day after the reform is still the same as the day before the reform, but the £1 trillion loan repayments are now paying off our national debt obligations. This is a unique one-off gain and is a byproduct of this reform.
- (10) The gold price would need to rise to back all the deposits with gold and then you fix all money in one of its historic anchors: gold (you could also use silver or other successful monies). Since gold increases in physical supply at the rate of approximately 2% per year, if productivity gains run at about this rate you will have stable prices; if productivity rates are greater, then a benign price deflation.
- (11) Let the people spontaneously discover what their most favoured money actually is.

I have suggested my own reform proposal along this line of reasoning here: <http://www.cobdencentre.org/2010/05/the-emperors-new-clothes-how-to-pay-off-the-national-debt-give-a-28-5-tax-cut/>

In short, I would have no-reserve banking, not 100% reserve. By this, I have suggested that all demand deposits should actually be swapped out for physical cash and the current liability of the bank just rubbed out. Then the people would actually own their own money on deposit and not be current creditors, thus I would question the need to perform point number two and substitute along the lines of what I just suggested.

Would 100% Reserve Free Banking be the End of Lending and the End of Commerce as We Know It?

This is the question that gets asked when most people have understood that 100% reserve banking would be the end of bank-created credit. Many credible and distinguished people attribute the creation of bank credit as the source of the Industrial Revolution itself. Such a powerful thing is alleged. The noted Daily Telegraph writer Ambrose Evans-Pritchard says in his 21 October 2012 column:

One might equally say that this opened the way to England's agricultural revolution in the early 18th Century, the industrial

revolution soon after, and the greatest economic and technological leap ever seen. But let us not quibble.²⁰⁸

For those followers of Dr. Paul and those generally interested in monetary reform in this tradition, I did some research into the genesis of the Industrial Revolution to see if this assertion held any merit. I have focused my research into the County of Lancashire and what became the first industrial city of the world, Manchester.²⁰⁹ In this concluding historical section, I will show that in the first third of the Industrial Revolution, private credit, bills of exchange, backed by the goods and services that were being traded for and by gold and silver, was the preferred *modus operandi*. The taxation of this private money by the 1815 Stamp Act led to their slow decline in favour of the privileged note issue of, in particular, the Bank of England. However, by late 1874 some 45%²¹⁰ of all credit was still private credit in the form of bills of exchange. Private credit was the preferred medium of the Industrial Revolution, and not bank-created fiduciary credit.

Early Banking in Manchester

The historian Arthur Redford in his book about merchants and foreign trade in Manchester described the early bankers of the town:

The first Manchester Bank, that of Byron, Sedgwick, Allen, and Place, was opened in 1771, in combination with an insurance office, and the *Mercury* welcomed it with the comment that “from the general Approbation the Scheme has met with amongst all Ranks of People, it is not questioned that it will be of infinite Utility to the Trading Part of the Town, and to the County in general.” It was not the only Manchester banking business, for in 1772 John Jones and Co. were “Bankers and Tea Dealers” and within thirteen years were to have offices in London from which Jones Lloyds sprang. In Liverpool also most of the early bankers, says their historian, “arose out of general merchants, some few from tea dealers, and one from linen merchants.” Even after declaring themselves bankers, the banking business was usually continued along with trading.

²⁰⁸ Ambrose Evans-Pritchard, <http://www.telegraph.co.uk/finance/comment/9623863/IMFs-epic-plan-to-conjure-away-debt-and-dethrone-bankers.html>

²⁰⁹ Although the City of Manchester is now part of Greater Manchester or the Greater Manchester Urban Area, prior to 1835 it was part of the Salford Hundred of the county of Lancashire. By 1853, it had reached full City status. So for the majority of this essay's focus, when Lancashire is referred to, it certainly should be read to be synonymous with what is the heart of Manchester City today. Also, you will see Liverpool mentioned as well, often in the same light as Manchester. This is due to their close geographic connection and the Port of Liverpool being often the import and export venue for the Manchester manufacturers.

²¹⁰ Dun, John. *British Banking Statistics*. London: E. Stanford, 1876, p. 87.

But the use of the term banker was late, and until almost the end of our period the commerce of Liverpool, with its complex dealings in foreign exchange, and the internal trade of Lancashire seem to have been carried on mainly through the bill discounting side of the merchants' and traders' businesses. In Liverpool marine insurance broking was closely allied."²¹¹

The key thing I observe here is that in the first part of the Industrial Revolution the issue of notes (which were the chief means of bank fiduciary credit) was a side issue and bills of exchange were the main mechanism to facilitate this massive explosion in trade. Also, this first bank in the UK's main industrial area was nearly 100 years behind the establishment of the Bank of England and the Scottish public banks.

Data supplied by Prof. Angus Maddison shows us that from 1700 to 1820 there is 338.38% growth in measured economic activity. The next 130 years saw 960.06% growth when the Industrial Revolution was in full flow.²¹² Nevertheless, with the initial explosion of activity in the mid- to late-1700s, to the early 1820s, we see the prime industrial county in the world exist with few or no banks and banks not providing credit services as we know them today, and clearly not to its detriment.

Economic historian T. S. Ashton quotes William Langton (a driving force behind the founding of the Manchester Statistical Society in 1833) writing later in the 19th century:

"It is exceedingly natural," said Langton, "that those banks which still retain the privilege of issuing their own notes should desire to retain it, since it naturally adds to their profits; but it has always been recognised in the great industrial district of Lancashire that it is no essential condition to the wielding of manufacturing and commercial enterprise, and that the banks not possessing this privilege have not stinted their customers of any legitimate accommodation."²¹³

Langton also notes their usefulness vis-a-vis other modes of money:

My personal memory of trade only extends back to the year 1820; but at that time the Liverpool merchants received nothing but bills in payment from Manchester of their cotton invoices; every such payment, if in what was called promiscuous paper,

²¹¹ Redford, Arthur. *Manchester Merchants and Foreign Trade*. Manchester: Manchester University Press, 1934, p. 248.

²¹² Maddison, Angus. *Contours of the World Economy 1-2030 AD: Essays in Macro-Economic History*. Oxford: Oxford University Print, 2007. (Table can also be found at [http://en.wikipedia.org/wiki/List_of_regions_by_past_GDP_\(PPP\)](http://en.wikipedia.org/wiki/List_of_regions_by_past_GDP_(PPP)))

²¹³ Ashton, Thomas Southcliffe. *Economic and Social Investigations in Manchester, 1833-1933*. London: P.S. King & Son, 1934.

requiring a calculation of interest to make a settlement per appoint. This practice gradually disappeared with the resumption of cash payments by the Bank of England and the lowering of the standard rate of interest; but if economy of interest of money is to be taken as the special recommendation of any particular kind of circulating medium, this one surely ought to bear the palm!²¹⁴

W.T. Crick and J.E. Wadsworth note the significance of Manchester and the nearby City of Liverpool by observing:

Yet, in spite of Lancashire's advanced industrial organization, banking was rather later to develop than in some other areas. No banks are recorded in Manchester until 1771 or in Liverpool until 1774, and when eventually they were formed, they do not appear to have acquired note circulations except in a few unimportant instances.²¹⁵

Ashton describes the special preference for bills of exchange over notes:

These are reasons explaining the ubiquity of bills of exchange at this period. The special preference of Lancashire for bills rather than notes is a matter deserving of research. It arose, no doubt, out of a high degree of commercial confidence, no less than out of a low degree of trust in note-issuers, and the fact that Lancashire bought raw material from distant places and sold products in distant markets must also have engendered a preference for a document the circulation of which was not confined to the sphere of operations of a local bank. As time went on the domestic bill came to play a smaller part in commercial transactions: the increase of the stamp duties after the Napoleonic War dealt a blow to the system; and the growth of large banks of deposits with many branches, together with the shortening of the customary terms of credit, led to a substitution of cheques for bills in inland trade during the later decades of the nineteenth century. But in the period with which we are concerned cheques were in their infancy and the bill had no serious rival as a medium of exchange between traders.²¹⁶

Ashton also gives us clues as to why they have almost vanished today from the commercial idiom as the stamp duty applied to them was less advantageous vis-a-vis note or chequebook issue as the latter provided quicker redemption in money possibilities.

If we dig a bit further into the historical record we see that these bills arose spontaneously to fulfill a need to be able to facilitate the

²¹⁴ Langton, William qtd. in Ashton.

²¹⁵ Crick, W.F., and Wadsworth, J.E. *A Hundred Years of Joint Stock Banking*. London: Holder & Stoughton, 1936, pp. 142-143.

²¹⁶ Ashton, Thomas Southcliffe. *An Eighteenth-Century Industrialist: Peter Stubs of Warrington 1756-1806*. Manchester: Manchester University Press, 1939, p. 139.

smooth transmission of trade. A wonderful book written by Alfred P. Wadsworth & Julia De Lacy Mann, *The Cotton Trade and Industrial Lancashire 1600-1780*, documents this history quite thoroughly:

We have seen Marsden as a manufacturer, putting out cotton and yarn through his agent and debiting the materials and wages against the value of the finished goods. On the other side he maintained a London house, through which he bought his raw materials and sold his fustians, and in connection with which he conducted extensive operations as a bill discounter. Between 1688 and 1690 he was involved in a maze of lawsuits, from which some account of his business may be constructed

....

Having “constantly great and considerable sums of money in his hands” [Marsden] lent money to other dealers in return for their bills on London; or he “furnished them with bills of exchange for payment of considerable sums of money at London to them or their order, or to such persons as they appointed to receive the same,” either receiving cash, or, generally, giving them credit at an agreed rate of interest. When they failed to pay him for the bills he had given them, he would take an assignment of their goods at Liverpool —cotton or linen yarn, promissory notes, or bills drawn on their London debtors. But apart from his own trading credit, he had “for many years past been intrusted or employed with great parte of the monies returned out of the county of Lancaster to London.”²¹⁷

Marsden the industrialist had become the banker as well as the chief remitter of revenues back to Lancashire and the principal collector of taxes. Daniel Defoe, trader, writer, and journalist, remarked in 1727, that:

[A] very great part of the bills drawn out of the several counties in England upon the tradesmen in London, such as factors and warehousekeepers, are made payable to the General Receivers of the several taxes and duties, customs and excise, which are levied in the country in specie, and the money is remitted by those collectors and receivers on account of those duties; this generally appears by the bills or endorsements, which often mention it in these words *for his Majesty's use*.²¹⁸

Thus credit was granted and discounted bills accepted and paid with specie, not with notes or other such fiduciary credit. ***The Crown accepted these bills!***

In commenting upon the various inaccuracies with traders being bankers, after an extensive investigation into the disputes listed in the court records, Wadsworth and Mann conclude:

²¹⁷Wadsworth, Alfred P., and Mann, Julia De Lacy. *The Cotton Trade and Industrial Lancashire, 1600-1780*. Manchester: Manchester University Press, 1931, pp. 92-93.

²¹⁸ Defoe, Daniel, qtd. in Wadsworth and Mann, p. 93.

Much might be said of the use of the bill in the general system of credit, but enough, perhaps, has been suggested in earlier pages to indicate its importance. The bill on London, then as a century later the dominant form, entered at every stage, and into every form of transaction, ran from the smallest to the largest sums, and passed even more freely than cash. The financial mechanism which turned on the bill, the promissory note, and other credit instruments, and has here been summarily illustrated, bulks large in all the commercial manuals of the time. ... It is apt to be forgotten that the credit machinery of industries like the textile trades was hardly less extensive before the foundation of the country banks than it became after.²¹⁹

Unwin, Hulme, and Taylor did a fantastic investigation into the affairs of Samuel Oldknow and his mill at Mellor. There is also some evidence to show why Lancashire rejected bills vs. notes:

Enough has been said to show the almost desperate condition of Oldknow's affairs at the beginning of 1793. He had invested an immense capital—for those days—in the fixed forms of land, buildings, and machinery which could not yield any return without the assistance of commercial credit—and owing to the outbreak of war commercial credit had almost ceased for the time being to exist. No fewer than 872 bankruptcies were recorded between November 1792 and July 1793. The problem of credit currency became acute. The country banks, which had multiplied greatly during the previous decade, had produced an over-issue of notes, some of them for such small amounts as to provoke the derisive issue by a Newcastle cobbler of a note for two-pence. But the notes even of the sounder banks were now returned on their hands and many were obliged to close their doors.²²⁰

The instability that these free banks issuing fiduciary credit afforded the industrialist in the times of crises was very destabilising, as you did not want to become a creditor to a bankrupt banker. This is one way to accelerate your own potential to become bankrupt. So commercial credit, or bills backed by real goods, was sought in preference.

Why did these Lancashire Bills Decline?

Henry Thornton, an economist, banker, and Parliamentarian, commented on the demise of bills to the favour of notes in 1802: “Some Bank of England notes have also been recently employed in the

²¹⁹ Wadsworth & Mann, p. 96.

²²⁰ Unwin, George, Hulme, Arthur, and Taylor, George. *Samuel Oldknow and the Arkwrights: the Industrial Revolution at Stockport and Marple*. Manchester: Manchester University Press, p. 79.

place of small bills on London, the use of which has been discouraged by the late additional duty on bills and notes.”²²¹

Redford discusses the response of Manchester merchants to the duties and taxes imposed on bills of exchange:

A much more protracted struggle, extending throughout the second quarter of the nineteenth century, was waged by the Manchester merchants against excessive stamp duties on various kinds of legal documents. ... Bills of exchange and promissory notes were first subjected to stamp duties in 1782; a general Stamp Act of 1815 had increased the duties, which thenceforth discriminated between short-dated and long-dated bills. In the post-war period the average duty on all bills of less than £50 was 1/2 per cent.; but this charge was felt to be prohibitive, and had in Manchester caused bills to be almost completely replaced by bank notes. Bank notes, however, were considered to be a much more inconvenient and risky means of payment, since they were payable “to bearer” and not “to order.” The Manchester Chamber of Commerce therefore moved in 1822 for the reduction of the duties, and sent up several petitions on the subject, to the Prime Minister, the Chancellor of the Exchequer, and the Houses of Parliament. The petitioners described the serious inconvenience to business which had resulted from the virtual extinction of “a description of currency of great convenience and security”; they suggested a greatly reduced scale of duties, and argued that, if this were adopted, not only the business community but also the revenue would benefit greatly, because of the increased use of bills of exchange.²²²

The Bank of England (BoE) was still a private bank at the time. However, as the government’s favoured bank it had certain privileges and was always lobbying for more. The 1815 Stamp Act made the reissue of bills of exchange virtually impossible. Some were taxed up to 460% higher than Bank of England note issue, or subject to great penalty that made the issue of private credit by other banks more expensive than BoE note issue. In 1825 the Bank of England set up a branch in Manchester specifically to take advantage of the terrible taxation placed on private bill issue and make sure that those pioneers of the Industrial Revolution had to take BoE credit.

The significance of Manchester as the prime industrial area of the world at the time does make it a meaningful and worthy study area from which we can extrapolate, hopefully, our findings to the wider canvas of today and I submit that in the absence of bank-created credit we, like our ancestors, have nothing to fear. Indeed, like the pioneers of the Industrial Revolution, we should embrace private money solutions such as bills of exchange and rely on the lending of

²²¹ Thornton, Henry *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain (1802)*, London: George Allen and Unwin, 1939, note to p. 214.

²²² Redford, p. 209.

real savings to provide real capital to entrepreneurs and not bank credit created out of nowhere. Full-reserve systems are not only stable, but growth enhancing. Lending does not die as many advocates of fractional reserve banking dread.

Toby Baxendale

Hertfordshire, England, UK. 29 October 2012.

JESÚS HUERTA de SOTO, Ph.D.

PROFESSOR OF POLITICAL ECONOMY
UNIVERSIDAD REY JUAN CARLOS

FRACTIONAL RESERVE BANKING AND THE BUSINESS CYCLE

It is a great honor for me to have been invited to present this paper in honor of Ron Paul. I will concentrate on the very negative role the institution of Fractional Reserve Banking has on the free market, in which way it is inseparable from the Central Bank and how it is a continual source of financial instability and economic recessions.

The Fatal Error of Peel's Bank Act

I would like to start off by stressing the following important idea: all the financial and economic problems we are struggling with today are the result, in one way or another, of something that happened precisely in England on July 19, 1844... What happened on that fateful day that has conditioned up to the present time the financial and economic evolution of the whole world? On that date, Peel's Bank Act was enacted after years of debate between Banking and Currency School Theorists on the true causes of the artificial economic booms and the subsequent financial crises that had been affecting England especially since the beginning of the Industrial Revolution.

The Bank Charter Act of 1844 successfully incorporated the sound monetary theoretical insights of the Currency School. This school was able to correctly diagnose that the origin of the boom and bust cycles lay in the artificial credit expansions orchestrated by private banks and financed not by the prior or genuine savings of citizens, but through the issue of huge doses of fiduciary media (in

those days mainly paper banknotes, or certificates of demand deposits issued by banks for a much greater amount than the gold originally deposited in their vaults). So, the requirement by Peel's Bank Act of a 100 percent reserve on the banknotes issued was not only in full accordance with the most elementary general principles of Roman Law regarding the need to prevent the forgery or the over-issue of deposit certificates, but also was a first and positive step in the right direction to avoid endlessly recurring cycles of booms and depressions.

However Peel's bank Act, notwithstanding the good intentions behind it, and its sound theoretical foundations, was a huge failure. Why? Because it stopped short of extending the 100 percent reserve requirement to demand deposits also (Mises 1980, 446-448). Unfortunately, by Peel's day, some ideas originally hit upon by the Scholastics of the Spanish Golden Century had been entirely forgotten. The Scholastics had discovered at least three hundred years earlier that demand deposits (which they called in Latin "chirographis pecuniarium," or money created only by the entries in banks' accounting books) were part of the money supply (Huerta de Soto 2009, 606). They had also realized that from a legal standpoint, neglecting to maintain a 100 percent reserve on demand deposits is a mortal sin and a crime not of forgery, as is the case with the over-issue of banknotes, but of misappropriation.

This error of Peel's Bank Act, or rather, of most economists of that period, who were ignorant of something already discovered much earlier by the Spanish Scholastics, proved to be a fatal error: after 1844 bankers did continue to keep fractional reserves, not on banknotes of course, because it was forbidden by the Bank Charter Act, but on demand deposits. In other words, banks redirected their activity from the business of over-issuing banknotes to that of issuing demand deposits not backed by a 100 percent reserve, which from an economic point of view is exactly the same business. So, artificial credit expansions and economic booms did continue, financial crises and economic recessions were not avoided, and despite all the hopes and good intentions originally put into Peel's Bank Act, this piece of legislation soon lost all of its credibility and popular support. Not only that, but the failure of the Bank Act conditioned the evolution of

financial matters up to the present time and fully explains the wrong institutional design that afflicts the financial and monetary system of the so-called free market economies, and the dreadful economic consequences we are currently suffering.

When we consider the failure of Peel's Bank Act, the evolution of events up to now makes perfect sense: bubbles did continue to form, financial crises and economic recessions were not avoided, bank bailouts were regularly demanded, the lender of last resort or central bank was created precisely to bail out banks and to permit the creation of the necessary liquidity in moments of crisis, gold was abandoned and legal tender laws and a purely fiduciary system were introduced all over the world. So as we can see, the outcome of this historical process sheds light on the wrong institutional design and financial mess that incredibly is still affecting the world at the beginning of the second decade of the 21st century!

The Healthy Process of Capital Accumulation Based on True Savings

Now it is important that we quickly review the specifics of the economic processes through which artificial credit expansions created by a fractional-reserve banking system under the direction of a Central Bank entirely distort the real productive structure, and thus generate bubbles, induce unwise investments and finally trigger a financial crisis and a deep economic recession. But before that, and in honor of Hayek, we must remember the fundamental rudiments of capital theory which up to the present time and at least since the Keynesian revolution, have been almost entirely absent from the syllabus of most university courses on economic theory. In other words, we are first going to explain the specific entrepreneurial, spontaneous and microeconomic processes that in an unhampered free market tend to correctly invest all funds previously saved by economic agents. This is important, because only this knowledge will permit us to understand the huge differences with respect to what happens if investment is financed not by true savings, but by the mere creation out of thin air of new demand deposits which only materialize in the entries of banks' accounting books. What we are going to explain now is nothing more and nothing less than why the

so-called “paradox of saving” is entirely wrong from the standpoint of economic theory (Hayek 1975, 199-263). Unfortunately this is something very few students of economic theory know even when they finish their studies and leave the university. Nevertheless this knowledge applies without any doubt to one of the most important spontaneous market processes that every economist should be highly familiar with.

In order to understand what will follow, we must visualize the real productive structure of the market as a temporal process composed of many very complex temporal stages in which most labor, capital goods and productive resources are not devoted to producing consumer goods maturing this year, but consumer goods and services that will mature, and eventually be demanded by consumers, two, three, four, or even many more years from now... For instance, a period of several years elapses between the time engineers begin to imagine and design a new car, and the time the iron ore has already been mined and converted into steel, the different parts of the car have been produced, everything has been assembled in the auto factory, and the new cars are distributed, marketed and sold. This period comprises a very complex set of successive temporal productive stages. So, what happens if the subjective time preference of economic agents suddenly decreases and as a result the current consumption of this year decreases, for example, by ten percent? If this increase in savings happens, three key spontaneous microeconomic processes are triggered and tend to guarantee the correct investment of the newly saved consumer goods.

The *first effect* is the new disparity in profits between the different productive stages: immediate sales in current consumer goods industries will fall and profits will decrease and stagnate compared with the profits in other sectors further away in time from current consumption. I am referring to industries which produce consumer goods maturing two, three, five or more years from now, their profitability not being affected by the negative evolution of short term current consumption. Entrepreneurial profits are the key signal that moves entrepreneurs in their investment decisions, and the relatively superior profit behavior of capital goods industries which help to produce consumer goods that will mature in the long term

tells entrepreneurs all around the productive structure that they must redirect their efforts and investments from the less profitable industries closer to consumption to the more profitable capital goods industries situated further away in time from consumption.

The *second effect* of the new increase in savings is the decrease in the interest rate and the way it influences the market price of capital goods situated further away in time from consumption: as the interest rate is used to discount the present value of the expected future returns of each capital good, a decrease in the interest rate increases the market price of capital goods, and this increase in price is greater the longer the capital good takes to reach maturity as a consumer good. This significant increase in the market prices of capital goods compared with the relatively lower prices of the less demanded consumer goods (due to the increase in savings) is a second very powerful microeconomic effect that signals all around the market that entrepreneurs must redirect their efforts and invest less in consumer goods industries and more in capital goods industries further from consumption.

Finally, *and third*, we should mention what Hayek called *The Ricardo Effect* (Hayek 1948, 220-254; 1978, 165-178), which refers to the impact on real wages of any increase in savings: whenever savings increase, sales and market prices of immediate consumer goods relatively stagnate or even decrease. If factor incomes remain the same, this means higher real wages, and the corresponding reaction of entrepreneurs, who will try in the margin to substitute the now relatively cheaper capital goods for labor. What the Ricardo Effect explains is that it is perfectly possible to earn profits even when sales (of consumer goods) go down, if costs decrease even more via the replacement of labor, which has become more expensive, with machines and computers, for instance. Who produces these machines, computers, and capital goods that are newly demanded? Precisely the workers who have been dismissed by the stagnating consumer goods industries and who have relocated to the more distant capital goods industries, where there is new demand for them to produce the newly demanded capital goods. This third effect, the Ricardo Effect, along with the other two mentioned above, promotes a longer productive process with more stages, which are further away from current

consumption. And this new, more capital-intensive productive structure is fully sustainable, since it is fully backed by prior, genuine real savings. Furthermore, it can also significantly increase, in the future, the final production of consumer goods and the real income of all economic agents. These three combined effects all work in the same direction; they are the most elementary teachings of capital theory; and they explain the secular tendency of the unhampered free market to correctly invest new savings and constantly promote capital accumulation and the corresponding sustainable increase in economic welfare and development.

The Unsustainable Nature of the Bubbles Induced by Artificial Credit Expansions Created by the Fractional-Reserve Banking Industry

We are now in a position to fully understand, by contrast with the above process of healthy capital accumulation, what happens if investments are financed not by prior genuine savings but by a process of artificial credit expansion, orchestrated by fractional-reserve banks and directed by the lender of last resort or Central Bank.

Unilateral credit expansion means that new loans are provided by banks and recorded on the asset side of their balance sheets, against new demand deposits that are created out of thin air as collateral for the new loans, and are automatically recorded on the liability side of banks' balance sheets. So new money, or I should say new "virtual money" because it only "materializes" in bank accounting book entries, is constantly created through this process of artificial credit expansion. And in fact roughly only around ten percent of the money supply of most important economies is in the form of cash (paper bills and coins), while the remaining 90 percent of the money supply is this kind of virtual money that only exists as written entries in banks' accounting books. (This is precisely what the Spanish Scholastics termed, over 400 years ago, "chirographis pecuniarum" or virtual money that only exists in writing in an accounting book.)

It is easy to understand why credit expansions are so tempting and popular and the way in which they entirely corrupt the behavior of economic agents and deeply demoralize society at all levels. To

begin with, entrepreneurs are usually very happy with expansions of credit, because they make it seem as if any investment project, no matter how crazy it would appear in other situations, could easily get financing at very low interest rates. The money created through credit expansions is used by entrepreneurs to demand factors of production, which they employ mainly in capital goods industries more distant from consumption. As the process has not been triggered by an increase in savings, no productive resources are liberated from consumer industries, and the prices of commodities, factors of production, capital goods and the securities that represent them in stock markets tend to grow substantially and create a market bubble. Everyone is happy, especially because it appears it would be possible to increase one's wealth very easily without any sacrifice in the form of prior saving and honest hard individual work. The so-called "virtuous circle of the new economy" in which recessions seemed to have been avoided forever, cheats all economic agents: investors are very happy looking at stock market quotes that grow day after day; consumer goods industries are able to sell everything they carry to the market at ever increasing prices; restaurants are always full with long waiting lists just to get a table; workers and their unions see how desperately entrepreneurs demand their services in an environment of full employment, wage increases and immigration; political leaders benefit from what appears to be an exceptionally good economic and social climate that they invariably sell to the electorate as the direct result of their leadership and good economic policies; state budget bureaucrats are astonished to find that every year public income increases at double digit figures, particularly the proceeds from Value Added tax, which, though in the end is paid by the final consumer, is advanced by the entrepreneurs of the early stages newly created and artificially financed by credit expansion.

But we may now ask ourselves: how long can this party last? How long can there continue to be a huge discoordination between the behavior of consumers (who do not wish to increase their savings) and that of investors (who continually increase their investments financed by banks' artificial creation of virtual money and not by citizens' prior genuine savings)? How long can this illusion that everybody can get whatever he wants without any sacrifice last?

The unhampered market is a very dynamically efficient process (Huerta de Soto 2010a, 1-30). Sooner or later it inevitably discovers (and tries to correct) the huge errors committed. Six spontaneous microeconomic reactions always occur to halt and revert the negative effects of the bubble years financed by artificial bank credit expansion.

The Spontaneous Reaction of the Market Against the Effects of Credit Expansions: First the Financial Crisis and Second the Deep Economic Recession

In my book on *Money, Bank Credit and Economic Cycles* (Huerta de Soto 2009, 361-384) I study in detail the six spontaneous and inevitable microeconomic causes of the reversal of the artificial boom that the aggression of bank credit expansion invariably triggers in the market. Let us summarize these six factors briefly:

1st The rise in the price of the original means of production (mainly labor, natural resources, and commodities). This rise appears when these resources have not been liberated from consumer goods industries (because savings have not increased) and the entrepreneurs of the different stages in the production process compete with each other in demanding the original means of production with the newly created loans they have received from the banking system.

2nd The subsequent rise in the price of consumer goods at an even quicker pace than that of the rise in the price of the factors of production. This happens when time preference remains stable and the new money created by banks reaches the pockets of the consumers in an environment in which entrepreneurs are frantically trying to produce more for distant consumption and less for immediate consumption of all kinds of goods. This also explains the *3rd factor* which is

3rd The substantial relative increase in the accounting profits of companies closest to final consumption, especially compared with the profits of capital goods industries which begin to stagnate when their costs rise more rapidly than their turn over.

4th *“The Ricardo Effect”* which exerts an impact which is exactly opposite to the one it exerted when there was an increase in voluntary saving. Now the relative rise in the prices of consumer goods (or of consumer industries’ turnover in an environment of increased productivity) with respect to the increase in original-factor income begins to drive down real wages, motivating entrepreneurs to substitute cheaper labor for machinery, which lessens the demand for capital goods and further reduces the profits of companies operating in the stages furthest from consumption.

5th *The increase in the loan rate of interest even exceeding pre-credit expansion levels.* This happens when the pace of credit expansion stops accelerating, something that sooner or later always occurs. Interest rates significantly increase due to the higher purchasing power and risk premiums demanded by the lenders. Furthermore, entrepreneurs involved in malinvestments start a “fight to the death” to obtain additional financing to try to complete their investment projects (Hayek 1937).

These five factors provoke the following sixth combined effect:

6th Companies which operate in the stages relatively more distant from consumption begin to discover they are incurring heavy accounting losses. These accounting losses, when compared with the relative profits generated in the stages closest to consumption, finally reveal beyond a doubt that serious entrepreneurial errors have been committed and that there is an urgent need to correct them by paralyzing and liquidating the investment projects mistakenly launched during the boom years.

The financial crisis begins the moment the market, which as I have said is very dynamically efficient (Huerta de Soto 2010a, 1-30), discovers that the true market value of the loans granted by banks during the boom is only a fraction of what was originally thought. In other words, the market discovers that the value of bank assets is much lower than previously thought and, as bank liabilities (which are the deposits created during the boom) remain constant, the market discovers the banks are in fact bankrupt, and were it not for the desperate action of the lender of last resort in bailing out the banks, the whole financial and monetary system would collapse. In any case, it is important to understand that the financial and banking

crisis *is not* the cause of the economic recession but one of its most important first symptoms.

Economic recessions begin when the market discovers that many investment projects launched during the boom years are not profitable. And then consumers demand liquidation of these malinvestments (which, it is now discovered, were planned to mature in a too-distant future considering the true wishes of consumers). The recession marks the beginning of the painful readjustment of the productive structure, which consists of withdrawing productive resources from the stages furthest from consumption and transferring them back to those closest to it.

Both the financial crisis and the economic recession are always unavoidable once credit expansion has begun, because the market sooner or later discovers that investment projects financed by banks during the boom period were too ambitious due to a lack of the real saved resources that would be needed to complete them. In other words, bank credit expansion during the boom period encourages entrepreneurs to act as if savings had increased when in fact this is not the case. A generalized error of economic calculation has been committed and sooner or later it will be discovered and corrected spontaneously by the market. In fact all the Hayekian theory of economic cycles is a particular case of the theorem of the impossibility of economic calculation under socialism discovered by Ludwig von Mises, which is also fully applicable to the current wrongly designed and heavily regulated banking system.

The Specific Features of the 2008 Financial Crisis and the Current Economic Recession

The expansionary cycle which has now come to a close was set in motion when the American economy emerged from its last recession in 2001 and the Federal Reserve embarked again on a major artificial expansion of credit and investment, an expansion unbacked by a parallel increase in voluntary household saving. In fact, for several years the money supply in the form of banknotes and deposits has been growing at an average rate of over ten percent per year (which means that every seven years the total volume of money circulating in the world could have been doubled). The media of exchange

originating from this severe fiduciary inflation have been placed on the market by the banking system as newly-created loans granted at extremely low (and even negative in real terms) interest rates. This fueled a speculative bubble in the shape of a substantial rise in the prices of capital goods, real estate assets, and the securities which represent them and are exchanged on the stock market, where indexes soared.

Curiously enough, like in the “roaring” years prior to the Great Depression of 1929, the shock of monetary growth has not significantly influenced the unit prices of the subset of consumer goods and services (which are only approximately one third of the total number of goods that are exchanged in the market). The last decade, like the 1920s, has seen a remarkable increase in productivity as a result of the introduction, on a massive scale, of new technologies and significant entrepreneurial innovations which, were it not for the “money and credit injection,” would have given rise to a healthy and sustained reduction in the unit price of the goods and services all citizens consume. Moreover, the full incorporation of the economies of China and India into the globalized market has gradually raised the real productivity of consumer goods and services even further. The absence of a healthy “deflation” in the prices of consumer goods in a stage of such considerable growth in productivity as that of recent years provides the main evidence that the monetary shock has seriously disturbed the whole economic process. And let us remember the “Antideflationist Hysteria” of those who, even during the years of the bubble, used the slightest symptoms of this healthy deflation, to justify even greater doses of credit expansion.

As we have already seen, artificial credit expansion and the (fiduciary) inflation of media of exchange offer no shortcut to stable and sustained economic development, no way of avoiding the necessary sacrifice and discipline behind all high rates of voluntary saving. (In fact, before the crisis and particularly in the United States, voluntary saving not only failed to increase, but even fell to a negative rate for several years.)

The specific factors that trigger the end of the euphoric monetary “binge” and the beginning of the recessionary “hangover” are many, and they can vary from one cycle to another. In this crisis, the most

obvious triggers were first, the rise in the price of commodities and raw materials, particularly oil, second, the subprime mortgage crisis in the United States, and finally, the failure of important banking institutions when it became clear in the market that the value of their debts exceeded that of their assets (mainly mortgage loans erroneously granted).

If we consider the level of past credit expansion and the quality and volume of malinvestment produced by it, we could say that very probably in this cycle the economies of the European Monetary Union are in comparison in a somewhat less poor state (if we do not consider the relatively greater Continental European rigidities, particularly in the labor market, which tend to make recessions in Europe longer and more painful). The expansionary policy of the European Central Bank, though not free of grave errors, has been somewhat less irresponsible than that of the Federal Reserve. Furthermore, fulfillment of the convergence criteria for the monetary union involved at the time a healthy and significant rehabilitation of the chief European economies. Only some countries on the periphery, like Ireland and Spain, were immersed in considerable credit expansion from the time they initiated their processes of convergence.

The case of Spain is paradigmatic. The Spanish economy underwent an economic boom which, in part, was due to real causes (like the liberalizing structural reforms which originated with José María Aznar's administration). Nevertheless, the boom was also largely fueled by an artificial expansion of money and credit, which grew at a rate nearly three times the corresponding rates in France and Germany.

Spanish economic agents essentially interpreted the decrease in interest rates which resulted from the convergence process in the easy-money terms traditional in Spain: a greater availability of easy money and mass requests for loans from Spanish banks (mainly to finance real estate speculation), loans which Spanish banks granted by creating the money ex nihilo while European central bankers looked on unperturbed. Once the crisis hit Spain the readjustment was quick and efficient: In less than a year more than 150,000 companies -mainly related with the building sector- have disappeared, almost five million workers who were employed in the

wrong sectors have been dismissed, and nowadays we can conclude that although still very weak, the economic body of Spain has been already healed. We will later come back to the subject of what economic policy is most appropriate to the current circumstances. But before that, let us make some comments on the influence of the new accounting rules on the current economic and financial crisis.

The Negative Influence of the New Accounting Rules

We must not forget that a central feature of the long past period of artificial expansion was a gradual corruption, on the American continent as well as in Europe, of the traditional principles of accounting as practiced globally for centuries.

To be specific, acceptance of the international accounting standards (IAS) and their incorporation into law in most countries have meant the abandonment of the traditional principle of prudence and its replacement by the principle of “fair value” in the assessment of the value of balance sheet assets, particularly financial assets.

In fact, during the years of the “speculative bubble,” this process was characterized by a feedback loop: rising stock-market values were immediately entered into the books, and then such accounting entries were sought as justification for further artificial increases in the prices of financial assets listed on the stock market.

It is easy to realize that the new accounting rules act in a pro-cyclic manner by heightening volatility and erroneously biasing business management: in times of prosperity, they create a false “wealth effect” which prompts people to take disproportionate “risks”; when, from one day to the next, the errors committed come to light, the loss in the value of assets immediately decapitalizes companies, which are obliged to sell assets and attempt to recapitalize at the worst moment, when assets are worth the least and financial markets dry up. Clearly, accounting principles which have proven so disturbing must be abandoned as soon as possible, and the accounting reforms recently enacted, must be reversed. This is so not only because these reforms mean a dead end in a period of financial crisis and recession, but especially because it is vital that in periods of prosperity we stick to the principle of prudence in valuation, a principle which has shaped all accounting systems from the time of

Luca Pacioli at the beginning of the fifteenth century till the adoption of the false idol of the International Accounting Rules.

It must be emphasized that the purpose of accounting is not to reflect supposed “real” values (which in any case are subjective and which are determined and vary daily in the corresponding markets) under the pretext of attaining a (poorly understood) “accounting transparency.” Instead, the purpose of accounting is to permit the prudent management of each company and to prevent capital consumption, as Hayek already established as early as 1934 in his article “The Maintenance of Capital” (Hayek 1934). This requires the application of strict standards of accounting conservatism (based on the prudence principle and the recording of either historical cost or market value, whichever is lower), standards which ensure at all times that distributable profits come from a safe surplus which can be distributed without in any way endangering the future viability and capitalization of each company.

Who is Responsible for the Current Situation?

Of course the spontaneous order of the unhampered market is *not* responsible for the current situation. And one of the most typical consequences of every past crisis and of course of this current one, is how many people are blaming the market and firmly believing that the recession is a “market failure” that requires more government intervention. The market is a process that spontaneously reacts in the way we have seen against the monetary aggression of the bubble years, which consisted of a huge credit expansion that was not only allowed but even orchestrated and directed by *Central Banks, which are the institutions truly responsible for all the economic sufferings from the crisis and recession that are affecting the world.* And paradoxically central banks have been able to present themselves to the general public not only as indignant victims of the list of ad hoc scapegoats they have been able to put together (stupid private bankers, greedy managers receiving exorbitant bonuses, etc.), but also as the only institutions which, by bailing out the banking system as a last resort, have avoided a much greater tragedy.

In any case, it is crystal clear that the world monetary and banking system has chronically suffered from wrong institutional

design at least since Peel's Bank Act of 1844. There is no free market in the monetary and banking system but just the opposite: private money has been nationalized, legal tender rules introduced, a huge mess of administrative regulations enacted, the interest rate manipulated and most importantly, everything is directed by a monetary central-planning agency: The Central Bank.

In other words, real socialism, represented by state money, Central Banks and financial administrative regulations, is still in force in the monetary and credit sectors of the so-called free market economies.

As a result of this fact we experience regularly in the area of money and credit all the negative consequences established by the Theorem of the Impossibility of Socialism discovered by those distinguished members of the Austrian School of Economics: Ludwig von Mises and Friedrich Hayek.

Specifically, the central planners of state money are unable to know, to follow and to control the changes in both the demand for and supply of money. Furthermore, as we have seen, the whole financial system is based on the legal privilege given by the state to private bankers, who can use a fractional-reserve ratio with respect to the demand deposits they receive from their customers. As a result of this privilege, private bankers are not true financial intermediaries, but are mainly creators of deposits materializing in credit expansions that inevitably end in crisis and recession.

The most rigorous economic analysis and the coolest, most balanced interpretation of past and recent economic and financial events lead inexorably to the conclusion that central banks (which, again, are true financial central-planning agencies) cannot possibly succeed in finding the most convenient monetary policy at every moment. This is exactly the kind of problem that became evident in the case of the failed attempts to plan the former Soviet economy from above.

To put it another way, the theorem of the economic impossibility of socialism, which the Austrian economists Ludwig von Mises and Friedrich A. Hayek discovered, is fully applicable to central banks in general, and to the Federal Reserve and (at one time) Alan Greenspan and (currently) Ben Bernanke in particular. According to

this theorem, it is impossible to organize any area of the economy and especially the financial sector, via coercive commands issued by a planning agency, since such a body can never obtain the information it needs to infuse its commands with a coordinating nature. This is precisely what I analyze in Chapter 3 of my book on *Socialism, Economic Calculation and Entrepreneurship*, which has been published by Edward Elgar in association with the Institute of Economic Affairs (Huerta de Soto, 2010b).

Indeed, nothing is more dangerous than to indulge in the “fatal conceit” – to use Hayek’s useful expression (Hayek, 1990) – of believing oneself omniscient or at least wise and powerful enough to be able to keep the most suitable monetary policy fine-tuned at all times. Hence, rather than softening the most violent ups and downs of the economic cycle, the Federal Reserve and, to a lesser extent, the European Central Bank, have been their main architects and the culprits in their worsening.

Therefore, the dilemma facing Ben Bernanke and his Federal Reserve Board, as well as the other central banks (beginning with the European Central Bank), is not at all comfortable. For years they have shirked their monetary responsibility, and now they find themselves up a blind alley. They can either allow the recessionary process to follow its course, and with it the healthy and painful readjustment, or they can escape forward toward a “renewed inflationist” cure. With the latter, the chances of an even more severe recession (even stagflation) in the not-too-distant future increase dramatically. (This was precisely the error committed following the stock market crash of 1987, an error which led to the inflation at the end of the 1980s and concluded with the sharp recession of 1990-1992.)

Furthermore, the reintroduction of the artificially cheap-credit policy at this stage is hindering the necessary liquidation of unprofitable investments and company reconversion. It could even wind up prolonging the recession indefinitely, as happened in the case of the Japanese economy, which, though all possible interventions have been tried, has ceased to respond to any stimulus involving either monetarist credit expansions or Keynesian methods.

It is in this context of “financial schizophrenia” that we must interpret the “shots in the dark” fired in the last five years by the monetary authorities (who have two totally contradictory responsibilities: both to control inflation and to inject all the liquidity necessary into the financial system to prevent its collapse). Thus, one day the Fed rescued Bear Stearns (and later AIG, Fannie Mae, Freddie Mac or City Group) and the next it allowed Lehman Brothers to fail, under the amply justified pretext of “teaching a lesson” and refusing to fuel moral hazard. Finally, in light of the way events were unfolding, the US and European governments launched multi-billion-dollar plans to purchase illiquid (that is, worthless) assets from the banking system, or to monetize the public debt, or even to buy bank shares, totally or partially nationalizing the private banking system. And considering all that we have seen, which are now the possible future scenarios?

Possible Future Scenarios and the Most Appropriate Economic Policy

Theoretically, under the wrongly designed current financial system, once the crisis has hit we can think of four possible scenarios:

The first scenario is the catastrophic one in which the whole banking system based on a fractional reserve collapses. This scenario seems to have been avoided by central banks which, acting as lenders of last resort, are bailing out private banks whenever it is necessary.

The second scenario is just the opposite of the first one but equally tragic: it consist of an “inflationist cure” so intense, that a new bubble is created. This forward escape would only temporarily postpone the solution of the problems at the cost of making them far more serious later (this is precisely what happened in the crisis of 2001).

The third scenario is what I have called the “japanization” of the economy: it happens when the reintroduction of the cheap-credit policy together with all conceivable government interventions entirely blocks the spontaneous market process of liquidation of unprofitable investments and company reconversion. As a result, the recession is prolonged indefinitely and the economy does not recover and ceases to

respond to any stimulus involving monetarist credit expansions or Keynesian methods.

The fourth and final scenario is currently the most probable one: It happens when the spontaneous order of the market, against all odds and despite all government interventions, is finally able to complete the microeconomic readjustment of the whole economy, and the necessary reallocation of labor and the other factors of production toward profitable lines based on sustainable new investment projects.

In any case, after a financial crisis and an economic recession have hit it is necessary to avoid any additional credit expansion (apart from the minimum monetary injection strictly necessary to avoid the collapse of the whole fractional-reserve banking system). And the most appropriate policy would be to liberalize the economy at all levels (especially in the labor market) to permit the rapid reallocation of productive factors (particularly labor) to profitable sectors. Likewise, it is essential to reduce public spending and taxes, in order to increase the available income of heavily-indebted economic agents who need to repay their loans as soon as possible. Economic agents in general and companies in particular can only rehabilitate their finances by cutting costs (especially labor costs) and paying off loans. Essential to this aim are a very flexible labor market and a much more austere public sector. These measures are fundamental if the market is to reveal as quickly as possible the real value of the investment goods produced in error and thus lay the foundation for a healthy, sustainable economic recovery.

However, once the economy recovers (and in a sense the recovery begins with the crisis and the recession themselves which mark the discovery by the market of the errors committed and the beginning of the necessary microeconomic readjustment), I am afraid that, as has happened in the past again and again, no matter how careful central banks may be in the future (can we expect them to have learned their lesson? For how long will they remember what happened?), nor how many new regulations are enacted (as in the past all of them, and now especially Basel II and III, have attacked only the symptoms but not the true causes), sooner or later new cycles of credit expansion, artificial economic boom, financial crisis and economic recession will inevitably continue affecting us until the world financial and banking

systems are entirely redesigned according to the general principles of private property law that are the essential foundation of the capitalist system and that require a 100 percent reserve for any demand deposit contract.

Conclusion

I began this paper with Peel's Bank Act, and I will also finish with it. On June 13 and 24, 1844 Robert Peel pointed out in the House of Commons that in each one of the previous monetary crises "there was an increase in the issues of country bank paper" and that "currency without a basis (...) only creates fictitious value, and when the bubble bursts, it spreads ruin over the country and deranges all commercial transactions".

Today, 168 years later, we are still suffering from the problems that were already correctly diagnosed by Robert Peel. And in order to solve them and finally reach the only truly free and stable financial and monetary system that is compatible with a free market economy in this 21st century, it will be necessary to take the following three steps:

First, to develop and culminate the basic concept of Peel's Bank Act by also extending the prescription of a 100 percent reserve requirement to demand deposits and equivalents. Hayek states that this radical solution would prevent all future crises (Hayek 1984, 29) as no credit expansions would be possible without a prior increase in real genuine saving, making investments sustainable and fully matched with prior voluntary savings. And I would add to Hayek's statement the most important fact that 100 percent banking is the only system compatible with the general principles of the law of property rights that are indispensable for the capitalist system to work: there is no reason to treat deposits of money differently from any other deposit of a fungible good, such as wheat or oil in which nobody doubts the need to keep the 100 percent reserve requirement.

In relation to this first step of the proposed reform it is most encouraging to see how two Tory mps, Douglas Carswell and Steve Baker, were able to introduce in the British Parliament on September 15, 2010 and under the 10 minute rule the first reading of a Bill to reform the banking system extending the prescriptions of Peel's Bank

Act to demand deposits. This “Customer Choice Disclosure and Protection Bill” had two goals: first to fully and effectively defend citizens’ right of ownership over money they have deposited in checking accounts at banks; and second, to once and for all put an end to the recurrent cycles of artificial boom, financial crisis and economic recession. Of course this first draft of the bill still needs to be completed with some important details, for instance the time period (let us say a month) under which all deposits should be considered demand deposits for storage and not for investment, and the need to clarify that any contract that guarantees full availability of its nominal value at any moment should be considered at all effects a demand deposit for storage. But the mere discussion of these matters in the British Parliament and by the public at large is, in itself, of huge importance. In any case it is exciting that a handful of mps have taken this step against the tangle of vested interests related to the current privileged fractional-reserve banking system. If they are successful in their fight against what we could call the current “financial slavery” that grips the world they will go down in history like William Wilberforce –with the abolition of the slave trade- and other outstanding British figures to which the whole world owes so much.

Second, if we wish to culminate the fall of the Berlin wall and get rid of the real socialism that still remains in the monetary and credit sector, a priority would be the elimination of Central Banks, and particularly the Federal Reserve, which would be rendered unnecessary as lenders of last resort if the above 100 percent reserve reform is introduced, and harmful if they insist on continuing to act as financial central-planning agencies.

And *third*, who will issue the monetary base? Maurice Allais, the French Nobel Prize winner who passed away two weeks ago, proposed that a Public Agency print the public paper money at a rate of increase of 2 percent per year. I personally do not trust this solution as any emergency situation in the state budget would be used, as in the past, as a pretext for issuing additional doses of fiduciary media. For this reason in order to put an end to any future manipulation of our money by the authorities, what is required is the full privatization of the current, monopolistic, and fiduciary state-issued

paper base money, and its replacement with a classic pure gold standard.

There is an old Spanish saying: “A grandes males, grandes remedios”. In English, “great problems require radical solutions”. And though of course any step toward these three measures would significantly improve our current economic system, it must be understood that the reforms proposed and taken by governments up to now (including Basel II and III) are only nervously attacking the symptoms but not the real roots of the problem, and precisely for that reason they will again miserably fail in the future.

Meanwhile, it is encouraging to see how a growing number of scholars and institutions are studying again not only the radical reforms required by a truly honest private money, but also very interesting proposals for a suitable transition to a new banking system, like the one I develop in chapter 9 of my book on *Money, Bank Credit and Economic Cycles*. By the way, in this chapter I also explain a most interesting by-product of the proposed reform, namely the possibility it offers of paying off, without any cost or inflationary effects, most of the existing public debt which in the current circumstances is a very worrying and increasingly heavy burden in most countries.

Briefly outlined, what I propose is to print the paper banknotes necessary to consolidate the volume of demand deposits that the public decides to keep in the banks. In any case, the printing of this new money would not be inflationary, as it would be handed to banks and kept entirely sterilized, so to speak, as 100 percent asset collateral of bank liabilities in the form of demand deposits. In this way, the basket of bank assets (loans, investments, etc.) That are currently backing the demand deposits would be “freed”, and what I propose is to include these “freed” assets in mutual funds, swapping their units at their market value for outstanding treasury bonds. In any case, an important warning must be given: naturally, and one must never tire of repeating it, the solution proposed is only valid in the context of an irrevocable decision to re-establish a free-banking system subject to a 100 percent reserve requirement on demand deposits. However, no matter how important this possibility is considered under the current circumstances, we must not forget it is

only a by-product (of “secondary” importance) compared to the major reform of the banking system we have outlined.

And now to conclude, should in this 21st century a new Robert Peel be able to successfully push for all these proposed reforms, either in the U.S.A. or in the U.K., these great countries would again render an invaluable service not only to themselves but also to the rest of the world. Ron Paul, in his long and fruitful career did his best to push for these reforms. Let us hope that someone continues his efforts with the same wisdom and enthusiasm.

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*H*EARING VII.

ROAD MAP TO SOUND MONEY: A LEGISLATIVE HEARING ON H.R.1098 AND RESTORING THE DOLLAR

Tuesday, September 13, 2011

WITNESSES

Parks, Lawrence M., Ph.D., Executive Director, Foundation for the
Advancement of Monetary Education

White, Lawrence H., Ph.D., Professor of Economics, George Mason
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*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Road Map to Sound Money: A Legislative Hearing on H.R. 1098 and Restoring the Dollar” at 2:00 p.m. on Tuesday, September 13, 2011 in Room 2128 of the Rayburn House Office Building.

The focus of this hearing was the importance of sound money in the economy, the means by which sound money could be achieved, and the constitutional role of government in money. This hearing also examined H.R. 1098, the “Free Competition in Currency Act of 2011,” which would repeal federal legal tender laws, restrictions on private mints, and taxes on gold and silver in order to permit free-market forces to provide sound money through choice in currency.

This was a one-panel hearing, with the following witnesses:

- Lawrence M. Parks, Executive Director, Foundation for the Advancement of Monetary Education
- Lawrence H. White, Professor of Economics, George Mason University

Summary of the Legislation

H.R. 1098, the “Free Competition in Currency Act of 2011,” was introduced on March 15, 2011, by Subcommittee Chairman Paul, and referred to the Domestic Monetary Policy Subcommittee. H.R. 1098 was also referred to the Committee on Ways and Means and to the Committee on the Judiciary for consideration of the provisions that fall within their jurisdiction. The bill was subsequently referred to the Committee on the Judiciary’s Subcommittee on Crime, Terrorism, and Homeland Security.

H.R. 1098 would repeal the federal law establishing U.S. coins, currency, and Federal Reserve Notes as legal tender for all debts;

prohibit the imposition of taxes on coins, medals, tokens, or gold, silver, platinum, palladium, or rhodium bullion issued by a state, the United States, a foreign government, or any other person; prohibit states from assessing any tax or fee on any currency or other monetary instrument that is used in interstate or foreign commerce and that has legal tender status under the Constitution; repeal provisions of the federal criminal code relating to circulating coins of gold, silver, or other metal for use as current money and making or possessing likenesses of such coins; and abate any current prosecution under such provisions and nullify any previous convictions.

Context for Reform

Since the breakdown of the Bretton Woods system of monetary management in 1971, which tied most international currencies to the partially gold-backed U.S. dollar, most of the world has operated under a pure fiat currency system.²²³ Under a fiat currency system, the amount of money and currency in circulation is left to the discretion of the monetary authority. In the United States, the Federal Reserve System is the monetary authority and it has been given independent authority and responsibility to control the money supply and value of the currency, with a mandate of maintaining full employment and price stability.

In the wake of the near-collapse of the financial system and the looming debt crises facing both Europe and the United States, those who view the pure fiat currency system as a contributing factor to these events have become both more vocal and also more widely acknowledged. These critics of the fiat currency system have concluded that allowing monetary authorities to create money and currency without some form of discipline contributed to unsustainable expansion of debt, growth of inflation, and instability in the global financial system.

Several reforms have been proposed to constrain the creation of fiat currency, including the move to a “hard” currency, one backed by commodities. In the United States, these proposals include limiting the Federal Reserve to a single mandate of price stability or requiring the Federal Reserve to set an explicit inflation target; tying the dollar

²²³ A fiat currency derives its value from legal statute requiring it to be accepted as payment in a transaction, typically referred to as a legal tender statute. Alternatively, a commodity-backed currency has an intrinsic value based on the value of the commodity backing the currency. Both types of currency also derive value from their use as a means of exchange, known as exchange value.

to a basket of commodities; issuing Treasury securities redeemable in gold; restoring some form of gold convertibility to the dollar; and establishing a framework for competing currencies.

Competing currencies are based on the notion that the market for currency is like the market for any other good or service. Markets provide consumers with choices among products, and producers compete for consumers by providing the best, most efficient product. In the currency market, the best, most efficient product would be the one that best satisfies all the properties of money: durability, portability, divisibility, ease of recognition, and stability. Proponents of competing currencies claim that their approach would give monetary authorities an incentive to refrain from the excessive creation of money, in order to maintain a stable value and successfully compete against other currencies. Such a regime would give consumers an option between currencies and the ability to choose the currency that best satisfies their preferences.

H.R. 1098 is a legislative proposal intended to permit currency competition in the United States by eliminating barriers to entry in the currency market. H.R. 1098 seeks three changes in law. First, H.R. 1098 would repeal the legal tender law establishing U.S. coins and Federal Reserve Notes as a legal tender payment for all debts, public and private. Second, H.R. 1098 would remove taxes on precious metals or precious metal monetary instruments that prevent them from circulating as a currency. Third, H.R. 1098 would repeal provisions of the federal criminal code that prevent private mints from issuing coins.

Legal Tender Laws

Legal tender laws provide that a certain currency or certain currencies are “legal tender”: that is, the currency must be accepted when tendered for payments of debts, taxes, duties, etc. Legal tender laws that apply to a certain geographic territory often ensure that the government-issued currency circulates in the economy to the exclusion of other currencies. Some historians and scholars have argued that the federal government does not have the authority under the U.S. Constitution to enact legal tender laws, but merely to coin money and regulate its value. The only reference in the Constitution to legal tender is contained in Article 1, Section 10, which prohibits states from making “any Thing but gold and silver Coin a Tender in Payment of Debts.”

Taxation on Currencies

The capital gains taxes assessed on the appreciation of the metal content of coins have deterred the use of coins made from precious metals as a means of exchange. Under 26 U.S.C. 408(m)(2), coins are declared to be collectibles and they are taxed at rates different from those for other capital assets. Coins held for less than one year are taxed at the short-term capital gains rate, while coins held for longer are taxed at a rate of 28 percent. Given the steadily-increasing dollar value of gold and silver coins, using these coins to pay salaries or to make everyday purchases would require burdensome paperwork and tax payments, which makes it prohibitively expensive for precious metal coins to circulate as a competing currency.

Private Mints

From the founding of the United States to the Civil War, numerous hard money currencies circulated within this country. These currencies were U.S. Mint coins, foreign coins, and privately minted coins that circulated based on their weight in gold and silver. During this time, individuals could bring in an amount of precious metal and have it assayed and minted at branches of the U.S. Mint. Private mints sprang up in areas that were underserved by U.S. Mints and U.S. Assay offices.

Federal laws enacted in the 1860s and 1870s outlawed private mints. As greater centralization of government occurred after the Civil War, there was also a push by lawmakers for greater centralization and government control of money issuance. As legislation was passed to create a national banking system, two provisions—now codified at 18 U.S.C. 486 and 489—were enacted that prohibited the operations of private mints, outlawing the coinage of precious metal coins except by the government. H.R. 1098 would repeal these provisions, which would allow private mints to issue coins that could serve as a competitive currency.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 2:35 p.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Luetkemeyer, and Huizenga.

Chairman PAUL. This hearing will come to order. Without objection, all members' opening statements will be made a part of the record.

Are there any other opening statements? Okay. I will make a brief opening statement and then we will go to our witnesses.

The monetary issue has been an issue that I have been fascinated with and interested in for a long time. I became much more aware of the significance of this issue back in August of 1971, with the breakdown of the Bretton Woods agreement. At that time, I was quite convinced and remain convinced that we have ushered in a special age that probably did not exist in the same fashion ever before. And we now have been living for 4 decades with a total fiat world currency, and it has created a lot of problems for us.

I am convinced also that we are on the verge of a change from the current status. Just as significant as it was in 1971, something had to give, and there was a change. And I think this is what the conflict in the markets and the chaos in the markets is telling us.

But too often, the people in the Congress are looking elsewhere to solve the problems. We, as a Congress, have lived way beyond our means because the people in this country wanted us to live beyond our means, and the monetary issue of course is very significant because it actually facilitates the spending.

So without the type of system of money that we have today, there would have been a limitation on the massive expansion of the size of government, spending, taxes, debt, and the crisis that we are facing right now. But very few are even thinking about monetary policy as a

significant contributor to the economic problems we have today. More attention has been given to the Federal Reserve in recent years than it has in the past but we have a long way to go. But there are more and more people on both sides of this issue who are recognizing that monetary reform eventually will come. The big question is, is will they try to patch this up or transfer this into another system that is not much better than the one we have?

In many ways, that is what we did in 1971. We had a dollar reserve gold standard that broke down, and then we ushered in something actually worse and it probably lasted a lot longer than a lot of people expected. But today, because of the crisis, I think many are just wondering what is going to happen.

I have had a position for a long time about what I think we should do with the Federal Reserve; I don't believe it contributes all that much. But I have also taken the position that if I had the authority to do it, I probably wouldn't take the key, lock the door, and just allow the system to work its way out. I think that would be very chaotic, and that is not my position. So as early on as the Gold Commission in the early 1980s, even up until now, I still believe that the best way to go from one system to another is to try to allow the market to help us.

The British made a serious mistake when they tried to go back on the gold standard in the 1920s at an old ratio of the dollar to the pound and it obviously failed. Of course, it was blamed on the gold, not on the policy of transition.

So the market has to help us on this, the market has to help us if we ever want to relate our currency to gold again. I have been fascinated with some of the work of Hayek and others that talks about allowing currencies to compete with one another, let the markets sort it out. And it is a lot less threatening. Other countries are talking about that. The Mexican Government has talked about it. The Swiss Government has talked about just allowing other currencies to circulate within their own country. And when you think about it, that is what happens internationally all the time. Currencies fluctuate all the time, and that is one of the ways that they were able to keep the system together, is allow the competing currencies to fluctuate on a minute-to-minute basis.

So there is no reason in the world that we couldn't adapt to allowing competing currency within our own country. And then if people just love Federal Reserve Notes and want to spend Federal Reserve Notes and save in Federal Reserve Notes, let them do it. But others who might think that another system is better, I think we ought to talk about legalizing it.

To me, I would like to summarize and say, why don't we legalize the Constitution? The Constitution has been rather clear. It might not have given us the perfect monetary system and we didn't follow it very well. But at least it did indicate that the Founders didn't like paper money. They did not like emitting bills with credit. They did not like fiat money. And if we were to look just to the Constitution, it would mean that we should reconsider commodity money, something that governments can't control, can't monopolize, and let the market work.

So, those are basically my thoughts on this issue. I am anxious to hear the remarks from Dr. Parks and Dr. White on these issues, because I have studied this for many, many years and there are still a lot of questions to answer.

We do have a bill, H.R. 1098, which is far from a perfect bill. But it is a place to get started in talking about what we might do and how we can do it because things could change rapidly. Although many of us have been thinking about this for many, many years, things could move rapidly. Currency destructions, the end of currencies sometimes move much quicker than anybody dreams that it could. So a major crisis could come. It could come next month or next year or in a few years. But to me, there is no guarantee that we have 5 or 10 years to keep studying this. I think that we need to get people engaged in this and talking about it and understanding the monetary issue.

So I am very grateful to our two guests for coming today and for being willing to submit their remarks and answer some questions for us.

I will now go to our first witness. Dr. Lawrence Parks is the executive director and founder of the Foundation for the Advancement of Monetary Education. Dr. Parks has studied money for 30 years and was a student of the free market economist Murray Rothbard. His writings have appeared in *The Economist*, *Pensions and Investment*, and *The Washington Times*, among others. He has authored and produced over 200 educational videos on the U.S. monetary system. Dr. Parks is a member of the United Association of Labor Education and UAW 1981, AFL-CIO. He received his Ph.D. in operations research from the Polytechnic Institute of New York University.

Dr. Parks, please go ahead and give your summary and then we will go to our next witness.

STATEMENT OF LAWRENCE M. PARKS, PH.D.²²⁴
EXECUTIVE DIRECTOR
FOUNDATION FOR THE ADVANCEMENT
OF MONETARY EDUCATION

Mr. PARKS. Thank you very much, Dr. Paul. It is a great honor to be here, and I appreciate the opportunity to testify in support of H.R. 1098, the Free Competition in Currency Act of 2011. I am honored to have been invited.

I know it must sound like hyperbole, but I believe that H.R. 1098 is perhaps the most important piece of legislation ever to come before the Congress, because H.R. 1098 is necessary to make a transition from a certain catastrophic collapse of our unauthorized by the Constitution, dishonest, and unstable legal tender, irredeemable paper-ticket-electronic monetary system.

While I suspect that this committee will be most interested in how this bill will affect jobs, debt, economic growth in capital markets, pensions, and a host of other important and timely topics, I am going to focus my opening statement with an example of the dishonesty, which is the Achilles' heel of the present system, by highlighting one of the many misrepresentations about our money.

There are three take-away points from my testimony. The first is that the system is not in conformity with the Constitution. The second, and very importantly, it is dishonest. And third, it is unstable and in the process of blowing up perhaps while I am testifying here today.

One can be certain of a complete collapse of this monetary system because there is no longer any market-based self-correcting mechanism for increasing debt, increasing the money supply, and increasing leverage. And any system, any physical system, any social system, any system without a self-correcting mechanism blows up. With no exceptions, the history of legal tender irredeemable paper-ticket money is that its purchasing power always approaches its cost of production, which is zero.

I want to explain why the system is dishonest. There are a myriad of misrepresentations and nondisclosure of material information about what we call a dollar. No amount of regulation or oversight committees will cure dishonesty. The only remedy is honesty.

To illustrate what in my view is the most egregious example of this dishonesty, I give an example of silver, although the same

²²⁴ [The prepared statement of Dr. Parks can be found on page 887.]

principle applies with gold. Now it was and remains inconvenient for people to carry around silver dollars because they are heavy and bulky. So what people did—let’s have the first exhibit up there—is that they deposited their silver dollars typically in a bank and received in exchange a promissory note, a.k.a. a banknote or a note that bore the inscription that so many dollars had been deposited and the note was payable to the bearer on demand.

Here is an example of a United States note. And notice that this is not a dollar. At the top of the bill are the words, “United States Note.” I don’t know if you can see it from where you are sitting but under the image it says, “will pay to the bearer on demand one dollar.” Well, what is a dollar?

Next slide [image of a silver dollar]. That is a dollar, as put into law by Alexander Hamilton in the Coinage Act of 1792. But then the promise to pay a dollar—let’s have the next slide—was defaulted. Here is the punchline. The broken promissory note, the dishonored promissory note is now represented as being a dollar. This is a gross misrepresentation and is dishonest. This piece of paper is not even a valid note. The signatures of the Treasurer of the United States and the Secretary of the Treasury are gratuitous and deceptive.

In other words, what we use for money are just dishonored promissory notes that are misrepresented to be dollars. It means that all of the securities in our capital markets at home and abroad are denominated in dishonored promissory notes. This has immense implications for trade, jobs, pensions, military preparedness, and almost everything else that is important.

People have the notion that the Congress can make the dollar anything the Congress wants it to be and back it with specie or not or whatever. This is demonstrably false. The highest law in our country is the Constitution and all of our laws have to be in conformity with it. The word “dollar” is mentioned twice in the Constitution but it is not defined in the Constitution. It is mentioned in connection with the Slave Tax, which is no more, but it is also mentioned very importantly in the Seventh Amendment, which guarantees everyone a right to a trial by jury for any dispute \$20 or more.

If it were true that the Congress could redefine the dollar, that would mean that the Congress could redefine the Seventh Amendment, which is ridiculous. And so the question comes up, what is the objective meaning of the dollar? And in fact, for the Seventh Amendment to have objective meaning, the dollar has to have an objective meaning. And what they are talking about in the Constitution itself—next slide—is the Spanish Milled Dollar, sometimes

called the piece of eight. The Spaniards had built mints all over the colonies and the Spanish Milled Dollar was ubiquitous. When independence was declared, the colonies adopted the Articles of Confederation, which gave the Congress the power to issue money called “continentals.” Here is an example of a continental \$30 bill.

Next slide. I don't know if you can read it from where you are sitting, but notice it “entitles the bearer to receive 30 Spanish Milled Dollars, or the Value thereof in Gold or Silver.” The value of a coin is its specie content.

After independence was achieved and the Constitution was adopted, the United States did not want to rely on Spanish mints for its coins. The United States wanted its own mints to mint its own coins, including dollars. To that end, Alexander Hamilton, then Secretary of the Treasury, wrote the Coinage Act of 1792, wherein he tells us exactly what a dollar is. And what a dollar is, is 371.25 grains of silver. Where did Hamilton get that crazy number? That was the silver content of the Spanish Milled Dollar. They couldn't just introduce some arbitrary coin because everybody had contracts in terms of dollars. So the Constitution requires that the dollar be a weight of silver. Now some might claim that if Hamilton defined the dollar this way, perhaps it can be defined another way. And that is not true either. Hamilton's definition of a dollar was not arbitrary. All he did was write into law what was already a fact.

Here is another way of looking at this issue. Go to the next slide, please. Suppose we have a sign that says “cat” and we hang it on a dog. Does the dog become a cat? And suppose the Congress passes a law that says all the dogs with cat signs are now cats—go to the next slide—now are all of these dogs cats? And the answer is no. Conceptually, this is no different than taking a piece of paper, printing the word “dollar” on it, adding seals and signatures, and calling it a dollar. And this is precisely what has happened to our money.

Clearly, there is no easy remedy. How could such an immense fraud be perpetrated? There are several reasons but one of the most important ones, which H.R. 1098 will go a long way to correcting, is that we are coerced into using fraudulent money by the legal tender statutes. By getting rid of legal tender, H.R. 1098 is necessary and may be sufficient to help pave the way to an honest monetary system.

I am going to stop now and give you a chance to address any questions or issues that may come to mind. Thank you so much.

Chairman PAUL. I thank you. I would like to go next to Dr. White.

Dr. Lawrence White is professor of economics at George Mason University, where he specializes in the theory and history of banking and money. Dr. White has written extensively on monetary systems with over 40 articles published in academic journals, including the *American Economic Review* and the *Journal of Monetary Economics*. He has also authored three books on monetary matters, including “*Competition and Currency: Essays on Free Banking and Money*.” He received his Ph.D. in economics from UCLA and his undergraduate degree in economics from Harvard.

Dr. White, you may proceed.

**STATEMENT OF LAWRENCE H. WHITE, PH.D.²²⁵
PROFESSOR OF ECONOMICS
GEORGE MASON UNIVERSITY**

Mr. WHITE. Thank you, Mr. Chairman. Thanks for the opportunity to discuss my views on H.R. 1098, the Free Competition and Currency Act of 2011. I am going to have to be very sweeping given the limited time, but I will be happy to answer any questions you might have about historical or other details.

The idea of competition in currency, or you might call it competition among currencies, is fairly straightforward. We know as a rule that open competition gives us better products, higher quality at lower cost. For example, we have faster and more reliable package delivery thanks to the competition of FedEx and United Parcel Service with the U.S. Postal Service. The main point I want to emphasize today is that competition in currency isn’t any exception to this general rule. More competition promotes better currency.

Let me give you some examples. Throughout history, currency has been better provided by freely competing private enterprises than by government monopoly or by legally protected private monopoly. The United States had competing gold and silver mints at one time during our gold and silver rushes and they produced very trustworthy coins. These private mints ended only when they were suppressed by Civil War legislation, part of which H.R. 1098 aims to repeal. Redeemable private tokens and redeemable bank-issued paper currency notes have also been popular forms of money in the 60-plus parts of the world where they have been allowed.

1098 would lift legal barriers to currency competition. It wouldn’t immediately remove the U.S. Treasury or the Federal Reserve System from issuing currency. But—and then this is the second point

²²⁵ [The prepared statement of Dr. White can be found on page 973.]

I want to emphasize—competition would give the Fed better incentives to provide the kind of money that people want. Sound money, stable, valued money, trustworthy money. It would give the Fed better incentives to avoid creating inflation, in other words, because its customers could begin to go elsewhere. The U.S. dollar already faces competition, and I would say useful competition, in the international arena. People have a choice in international trade. Between the dollar and the euro, the Swiss franc and they can invest in gold and silver. So there are many monetary standards in the world. 1098 would open a door to similar kinds of competition within the domestic arena between Federal Reserve Notes and other currencies. It won't make the Federal Reserve Note go away, as Dr. Paul said, if people want to use Federal Reserve Notes. New forms of currency won't gain a foothold in the market any faster than the public has reason to prefer them to Federal Reserve Notes. So the Fed can retain its business as long as it provides a high-quality product. But if the Fed slips up in quality control, meaning if double digit inflation should unfortunately return to the United States, then the American public would find it very useful to have trustworthy alternatives to Federal Reserve Notes that are depreciating in their pockets.

So this Act offers three concrete reforms. And let me talk about them briefly. Section 2 of the Act removes legal tender status from Treasury coins and Federal Reserve Notes. Legal tender has a more narrow scope than is often realized. It relates to the discharge of debts. So the phrase on Federal Reserve Notes, "legal tender for all debts" means that under current law a creditor is barred from refusing payment in Federal Reserve Notes. But it is perfectly feasible to have debt contracts without legal tender, and, in fact, there is already an important class of contracts that are today exempt from legal tender provisions.

Under Title 31, Section 5118(d)(2), the obligations created by gold clause bonds are not discharged by delivery of legal tender today. That section says that the bond issuer has a contractual obligation to pay in gold. That is what the contract says, and that will be enforced. So removing legal tender status from U.S. Treasury coins and Federal Reserve Notes more generally would simply broaden the freedom to denominate debt contracts in whatever people want, not just dollars, not just gold. But they might want silver. They might want to say the debt is only discharged by checks or wire transfers of dollars, or it could be silver coins or it could be units of foreign currency, claims

denominated in consumer index bundles or wholesale commodity bundles or it could be Bitcoins.

Section 3 of the Act rules out Federal or State taxes on precious metal coins, whether minted by a foreign government or by a private firm. That would allow a more level playing field for competition of private coins with the U.S. Treasury coins without the special tax disadvantages which now handicap private coins. Sales taxes on acquisition, capital gains taxes on holding them, right. Federal Reserve Notes are not subject to those taxes.

Section 4 of the Act repeals Title 18, Section 486. That section bans privately produced coins of gold, silver or other metals and it repeals Section 489 which bans disks that are merely similar to official coins. Section 486 is the relic of the Civil War that I mentioned. It was part of an effort to boost the acceptance of the wartime paper greenbacks by banning competition from the private gold coins that were being produced. Repealing that would again allow producers to make and consumers the option to use privately minted silver and gold coins if they like.

I think the question we should ask, in the words of Seth Lipsky in a recent Wall Street Journal article, is whether it makes any sense to “suppress private money that is sound in order to protect government-issued money that is unsound.”

I have mentioned that Section 489 would also be repealed. That I think is a section that is redundant at best and far too sweeping at worst. It outlaws making or possessing “any token, disk or device in the likeness or similitude as to design, color, or the inscription thereon of any of the coins of the United States.” It is redundant at best because there is already another section that outlaws counterfeiting and we are not talking about repealing the laws against counterfeiting. But this section is simply about similitude. And if you took it literally, it would outlaw all silver medallions because after all they are the same color as silver dollars and quarters and dimes. So it is too sweeping because it can be used to suppress private coinage, what we might say victimless private coinage that doesn’t involve counterfeiting and doesn’t involve any other fraudulent intent.

So to conclude, competition in currency is a very practical idea. It is an idea that offers sizable benefits to the public when the quality of the dominant currency becomes doubtful. Now we all hope that Federal Reserve Notes retain their value. But for those who are skeptical, they should have another alternative. U.S. citizens would benefit from H.R. 1098’s removal of current legal restrictions and

obstacles against currencies that could provide useful competition with Federal Reserve Notes and Treasury coins.

Thank you.

Chairman PAUL. Thank you. I will start off with the questions. The first question will be for both of you.

What do you think the arguments will be by the establishment? How will they come back and describe what we are trying to do? And why is it—I think it is well known that governments have always wanted to cling to a monopoly power over the currency, and it must be related to that. But could you give me an idea of what you think they will be saying or trying to describe what is going to happen? And if they claim that this would be terribly chaotic, what are some of the answers that we might give to those questions that they raise?

Mr. WHITE. I suspect that the argument might be made that you are encouraging people to abandon the U.S. dollar and, thereby, you are undermining the U.S. economy. Right? But the answer is that the fate of the dollar or the purchasing power of the dollar is in the Federal Reserve's hands. And all we are doing is giving people the option to make the transition to a more stable system if the Federal Reserve Note should begin to deteriorate in value, in reliability.

If we look at the experience around the world with paper money, we know that high inflation is not impossible, and we have had double digit inflation in the United States. And where people are free, they start—in a country with very high inflation—in Latin America we see this many times—they prefer to start moving their savings into a more stable currency. And then they start posting prices in the more stable currency so that they don't have to repost them every day. And then they start accepting payment in the more stable currency. Having that freedom makes the public a lot better off. So giving people an additional option doesn't undermine the stability of the current monetary system. That is under the control of the people who issue the current money.

Chairman PAUL. Dr. Parks?

Mr. PARKS. What I suspect they are going to do is to ignore this altogether, not raise any objections at all, just leave it alone. However, should any objections come forth, I think the best response is that the irredeemable paper-ticket money is going away, and, in fact, the history of the world is that these paper moneys always go away. Why should this one be any different?

Second, the irredeemable paper-ticket dollar has lost something like 98 percent of its purchasing power since the Federal Reserve was

formed. Why does anybody think that the last 2 percent is sacrosanct?

Third, there is a whole bunch of—how shall I say—trial balloons being put forth by the media talking about currency depreciation and why it is acceptable. So there was a time roughly about a year ago when Jeffrey Garten—Jeffrey Garten had a minor role in the Nixon Administration, was an Under Secretary of, I think Commerce, in the Clinton Administration, went on to be Dean of the Management School at Yale University, wrote five books, sometimes a publisher of articles in *Business Week*, member of the Council on Foreign Relations—published an article in the *Financial Times*, something to the effect of, we have to get ready for a weaker dollar. And he says in the *Financial Times*, the United States is going to have to camouflage a slow motion default. “Camouflage.” In other words, not really explain to the people what they are doing. But there is no question at all that the obligations of this government, of all the local and State governments and all the other debts, these obligations are not going to be met. People’s pensions are going to be lost.

Then this was followed up just recently by a professor from Harvard, Professor Rogoff, who published a piece saying that once every 75 years or so we have to have extra inflation, maybe 6, 7 percent, in order to get rid of this debt. And this was legitimized further by Floyd Norris, senior writer from *The New York Times*, a very senior guy. He wrote an article, “Sometimes inflation is not evil.”

So what they are really doing is setting us up for the depreciation of the dollar. And we know from history that once this gets started, once this gets out of the can, there is no way to put it back in the can.

Other things about this competition and money. It is true that you can make contracts in gold. However, in regular life, if you should have a contractual dispute with somebody and it gets settled in the courts, that judgment is going to come down in the irredeemable paper-ticket money. And it is also noteworthy that the people in the financial sector have gotten the International Monetary Fund—in 1978—to add a provision to the IMF Articles of Agreement—it is like their bylaws—to prohibit member countries from linking currencies to gold and only to gold. These folks have really knocked themselves out to get gold out of the monetary structure and I think part of the response should be that the reason they did that is so that they could garner unearned profits.

I have good evidence to show that. I think I am past my time. I don’t know if you want to see some of that evidence.

I am asking you a question. Should I put it up?

Chairman PAUL. Yes.

Mr. PARKS. Thank you. Put up slide number 67, please. I am sorry, 56. Do you have that? 63. It is important. So if you go back to 1980, the money supply in this country, defined by the Federal Reserve at that time, was M3, was something on the order of \$2 trillion. And the market capitalization of the stock market was roughly \$1 trillion. The financial sector portion of that was roughly 5 percent, roughly \$50 billion. You shift ahead to 2007. Now all created flat out of nothing, with no work, now the money supply is something on the order of \$13 trillion. The stock market capitalization is approaching \$20 trillion and now the value of the financial sector firms is something like \$4 trillion. It went from \$50 billion to \$4 trillion. Forget about the bonuses. Think stock options. These folks have garnered just an incredible amount of money. They don't even know what to do with it. That would not have been possible if we had an honest monetary structure. And the way they got away from an honest monetary structure is they got gold out of the system. And the legal tender laws helped do that. So really you have to get rid of legal tender.

Chairman PAUL. Thank you. I want to move on. I want to yield time to the vice chairman of the committee, the gentleman from North Carolina, Walter Jones.

Mr. JONES. Mr. Chairman, thank you very much. Dr. Parks and Dr. White, thank you very much for your testimony today. I am going to take a little different approach. I am not an expert in financial matters of this magnitude, but I have learned a lot from my good friend Ron Paul, and being part of the Liberty Caucus has at least exposed me to some individuals like yourself who could help me become more interested in the issue of monetary policy.

I am one who is very much concerned, as most Americans are, that we are headed down the road of no return. And when I listened to both of your testimonies—and I listened very carefully—it brings me to a question that the average working American, which I am a part of that group, by the way, when do we know that we get to a monetary point of no return? When that collapse comes, is that something in your opinion that you see happening sooner rather than later? And what should the average person—what will make the average person realize that we are in a collapse as it relates to strength of the dollar?

Mr. WHITE. I think we are getting mixed messages right now. If we look at the exchange value of the U.S. dollar, it has declined precipitously the last couple of years. If we look at the price of gold, of

course, that is shooting through the roof. And those are telling us that people don't want to hold their wealth in dollars. They want to move it into something they think is safer. On the other hand, if you look at the inflation indexed bonds or if you look at long-term bonds, those are not signaling the expectation of high inflation. But I am not sure how much we can trust those signals anymore because the Federal Reserve now has a policy of buying 30-year bonds to drive their prices up and drive their yields down. So that signal may be jammed a little bit.

But when we see all those signals indicating that high inflation is coming, then we know we have a big problem on our hands. And of course we don't just have a monetary problem. We also have a fiscal problem. We have a problem of an unsustainable debt going forward. And the two issues are of course related. As Dr. Parks mentioned, there has been talk about how we need inflation in order to relieve our national debt in real terms. But that is nothing more than a default, sort of behind a very thin veil in the form of the value of the dollars being paid back is reduced by half instead of the debt is explicitly cut in half. But it is the same thing. So when that becomes sort of respectable talk, then we have to be very worried.

I am not sure if I can identify exactly a tipping point. But when we see inflation get into double digits, then we will know we are in big trouble.

Mr. PARKS. I would say that collapse can come at any moment. And the amount of leverage in the system is beyond belief. Put up slide number 71, please. This is a slide showing the amount of derivative bets the banks have made all over the planet. It is something north of \$600 trillion. This data comes from the Bank for International Settlements, which is sort of like an umbrella organization for all the central banks—it has sovereignty by the way. But one of the things it does, they calculate all these derivative bets.

Slide 71. There you go.

So after the last tie to gold was broken, which was in 1971, as you can see from this chart, basically the only derivative bets you had were things like commodities, corn, soybeans or whatever. But after the last tie to gold was broken you start to have volatility in interest rates, big volatility, and big volatility in foreign exchange rates, and people who are in business and people who trade between countries need to hedge that. Banks have made an incredible number of bets on this. According to the Bank for International Settlements, the amount at risk that can be lost is something like \$30 to \$40 trillion and this is worldwide. In this country, according to the Office of the

Comptroller of the Currency, the amount of derivative bets is something on the order of \$200 trillion, and of that, one bank, JPMorgan Chase has something like \$80 trillion worth of derivative bets.

These bets, by the way, you have counterparty risk and that is what happened with AIG. That is why they really had to bail out AIG. AIG owed money to a bunch of banks. If you let AIG go down, then those banks' balance sheets become impaired.

But also on this business of inflation, they have changed the methodology of how they compute the CPI multiple times since the Clinton years.

Put up slide 27, please. There is a guy who is a scholar for us. His name is John Williams. He is in retirement now. He used to be an establishment economist with clients like Boeing and IBM. And what he does is he calculates the CPI using the consistent methodology from the 1980s—that is that top blue line—versus what the Bureau of Labor Statistics tells us today. And as you can see, on a consistent methodology basis, inflation is already and has been running 10, 11 percent for like 25 years. The understatement of the CPI, there are innovations such as the hedonic pricing, geometric weighting, substitution. Who knows what these people are talking about? They really lull people into thinking it is not as bad as it is.

I have prepared an analysis. Go to chart number 29, please. These are my health care premiums for Oxford while I had Oxford, and I compare the year-on-year increases with the medical component of the CPI. Next slide, please. With the medical component of the CPI and my insurance premiums—this is everybody in the whole country—they are going up 15 percent a year. But the medical component of the CPI is going up 4 percent a year. So they mislead people on that. And of course people who are seniors, who get Social Security and those benefits are keyed to the CPI. Disabled veterans, people who have cost-of-living escalations and union contracts and of course holders of Treasury inflation protection bonds, these people are all being cheated. But the tipping point comes, you don't know how it is because of the leverage. It is the leverage that always brings you down. And the leverage is beyond belief. As I said, it could happen while I am talking. You don't know when it is going to be.

Mr. JONES. Thank you, Mr. Chairman.

Chairman PAUL. I have a couple of follow-up questions that I would like to ask. I will start with Dr. White.

We have had this system of money since 1971 where there is no connection to gold and the dollar has been used as a reserve currency,

to a slightly less degree than it was even a year ago, but it is still the major reserve currency and most of the countries hold dollars. And they pyramid down and inflate their own currencies from this. Have there been many times in history that it has been this significant, this big, this worldwide with the fiat currencies? I know we have had fiat currencies for as long as we can date. People have debased their currency in different manners. But has it ever been this big? Is this a special phenomenon? Or is this something that you can go back in history and say, it was sort of like this 200 years ago or 300 years ago and we worked our way out of it? How do you put this in perspective in history?

Mr. WHITE. As far as the international monetary system goes, the international monetary system was never a fiat system. It was the international silver standard and the international gold standard. And of course there is no potential for runaway inflation when you have a metallic currency. It is only mined to—1, 2 percent of the stock is produced each year. The stock of gold just doesn't grow that fast. And in fact, that makes it possible to have an international monetary system. It is not controlled by any one country. And so countries can join, knowing that it is safe from political devaluation from the interest of any one country undermining the system.

Countries that have adopted the dollar or who fix their own exchange rate to the dollar do so when they think the dollar is the most popular currency in world markets. But as you have mentioned, as the dollar becomes a little shakier, they start to shy away. China, most importantly, has moved from basing their currency entirely on the dollar to now a basket of currencies. So we are starting to see other countries starting to back away from the dollar.

In that sense, I think the move to create the European monetary system provides some real competition to the dollar as an international reserve currency. And we can only hope that that will give the Fed a signal that there is somebody they don't want to inflate faster than. Of course, it seems to be a race to the bottom right now.

Chairman PAUL. If we were successful and had something like we are proposing and we had a competing currency, what would happen with the concept of fractional-reserve banking? Would more laws have to be written? Or would they follow the same pattern that we have today? How do you think that would work?

Mr. WHITE. That is a very good question. If private gold and silver coins begin to be popular, people are going to want to have bank services denominated in gold units or silver units, whatever it is that they find attractive. I am not sure we really have a sort of legal

barrier against the Fed controlling that parallel banking system the way they control the current banking system. So it might be necessary to construct some barriers and say, here are the rules for this parallel banking system. It doesn't have deposit insurance. It doesn't have control by the Federal Reserve System as to reserve ratios or investment portfolios. So we would need to think about that if we got to the point where there was a big demand for those services.

Chairman PAUL. I will follow up on that and ask both of you what your opinion is. Of fractional-reserve banking, you know in free market circles, there is a disagreement to a large degree on— I know Rothbard was very adamant, his position of no fractional-reserve banking. What is your opinion about what would be proper? And Larry, you can answer as well, as to whether we should have rules on what the banks declare.

Mr. WHITE. I think the basic should be freedom of contract. And as long as people make informed fractional-reserve contracts with a banker, I have no problem with that. Historically, that seems to have been what was more popular. If you have a fractional reserve then you don't need to pay storage fees to the vault keeper who is keeping your gold and you may even get interest on your account balance. So it is an attractive deal. It doesn't have to be based on hoodwinking the customers. Customers brought their money to fractional-reserve banks because they got a better deal.

The other thing worth noting is that you can't really have circulating paper currency, which is more convenient than carrying around coins for many purposes, unless you have fractional reserve banking. Because if it is a warehouse receipt, the warehouse needs to know who to charge the storage fees to. But if it is an anonymous circulating note, like we are accustomed to, how do they know who to charge the storage fees to? So I don't know of any historical examples of circulating warehouse receipts. But there are plenty of examples of pay to the bearer on demand in gold or silver circulating banknotes.

Chairman PAUL. Do you have an opinion on fractional-reserve banking?

Mr. PARKS. First question, put up slide number 73. This has to do with the size, the amount of fiat money out there. This is an analysis that is put together by McKinsey Global. And in 1980, the amount of financial securities was roughly—I don't know, it looks around \$18 trillion. By the end of 2009, it was close to \$200 trillion. Last year, it hit something like \$212 trillion. I don't know if you can

see on that chart, but at the very top it is in red, and that is gold. So all the rest is—it is irredeemable paper-ticket money,

U.S. and foreign money, or securities denominated in irredeemable paper-ticket money.

The nice thing about this bill is that it leaves everything in place. It leaves the dollar in place, leaves the Federal Reserve in place, and it really facilitates a transition. And for everyday purposes, it really doesn't make any difference to people whether we use an irredeemable paper-ticket, token, or whatever. They go to work, they get paid, they buy stuff, who cares? Where it becomes important is for future payment for people's pensions, for people's annuities, for people's savings. There they want to know in the future that they are going to have what they have. So in that way, this bill is very important.

For future transactions, people will want gold and we have precedent in this country where this kind of thing was instituted. And that was after the Civil War. You recall the Civil War was financed with greenbacks at one point. The greenbacks were discounted roughly 50 percent against gold. And the way people looked to protect themselves afterwards is they put a gold clause in their contracts. And when they got paid later on they got the same amount of gold they were expecting. When the United States issued Liberty Bonds during the first World War, they had a gold clause in the bonds.

As for fractional-reserve lending, I agree with Dr. White. But I want to add something to that. And that is, it is fractional-reserve lending that got us into trouble from the get-go. And the reason is, the banks have engaged in fraud in their basic banking relationships right from the beginning. And so, for example, banks told people that they were depositors. They are not depositors. They are unsecured creditors. And second, banks told people they could get their money back on demand. In fact and in law, when these people put money into a bank it is not their money anymore. It is the bank's money to do with as the bank wishes. If banks want to do fractional-reserve lending, they need to do what I call full disclosure. They have to tell people right out, we are going to lend this money to somebody else or whatever, that you may not be able to get it back. Some people may want to take that gamble. But my guess is they won't. Ordinary people put money in the bank for security, for safety. They don't want to have it in the mattress. It might be stolen or lost or whatever. They are not interested in making interest on their savings. They just want it to be safe. Those people are not going to be involved in fractional-reserve lending.

As to Murray Rothbard's point of view, Murray was talking all-ways about a gold backed dollar. That is a mistake. Again, you have to go back to what a dollar is. A dollar is the weight of silver. There is no such thing as a gold-backed piece of silver. The trouble with what Murray did is, he didn't go back further than the Coinage Act of 1792 where Hamilton defined the dollar as 371.25 grains of silver. The notion was that if Hamilton could define the dollar one way, we could define it another way. That is not true.

But again, the beauty of this H.R. 1098 bill is that we don't really have to address those issues. I think what will happen is that for long-term transactions, people will start using the gold clause. And over time, there will be a transition. During that period, all the irredeemable paper-ticket money will go away. The Federal Reserve will go away. Again, there is no possibility, in my view, as a practical matter, of having some kind of discontinuity in our monetary system, getting rid of the Fed. But this in fact is really important and we need to bring people up to curve as to why it is.

Chairman PAUL. Congressman Jones?

Mr. JONES. Mr. Chairman, thank you. I want to go a little bit off of your expertise, but I think you will have some very helpful comments. I have said two of the worst votes I ever made since I have been in Congress were the vote to go into Iraq and the repeal of Glass-Steagall. I realize this doesn't deal exactly with monetary issues, but we do have banks. You have made reference to banks many times in your comments about monetary policy.

Do you feel that when Glass-Steagall was repealed by the Congress, it helped the banking world or it created opportunities for greed and for mistakes?

Mr. PARKS. Greed is part of the human condition. Glass-Steagall did not do anything to change that. There is a fellow, his last name was Warburg, he was the son of Paul Warburg, what was his name? One of Franklin Roosevelt's advisors. He wrote a book in the 1930s called, "The Money Muddle," which really led to this business with Glass-Steagall, and what they were complaining about in those days was using bank money to speculate in the securities market. Bank money, it was understood, was money that the bank created out of nothing as opposed to regular money, gold and silver, and so the purpose of Glass-Steagall was really to keep the banks from overleveraging, and when Glass-Steagall was passed, now the banks could overleverage in a big way.

I have charts that I can put up for you that show what happens to the banks. Let me just get those out. Start with chart number 67, please. We will go right through them.

If you go before the last tie to gold was broken, and look at bank revenues, they are tiny. What are banks doing? They are processing payments, they are handling the check clearing system. But after the last tie to gold was broken, look what happened to bank revenues, it went up to something like \$800 plus billion. This is just for passing paper around.

Go to the next slide. Look at bank net income after the last tie to gold was broken. It went up to something like, I don't know, \$130 billion at its peak. This is after paying compensation to employees.

Go to slide 70, please. Look what happened to bank employee compensation. So the whole notion of all this business of allowing the banks to leverage up, this was enormously beneficial to employees, to the banks themselves. Over the period after the last tie to gold was broken, banks paid out over a trillion dollars in dividends, a trillion dollars in dividends, and just a couple of years ago, it turns out that while bank balance sheets said they had to get, I don't know, \$2 trillion from the Federal Reserve, all this money that they paid out in bonuses and what-not, it was not real profits, and the only reason they were able to do that is because they were able to leverage up, and the only reason they were able to leverage up is because we have irredeemable paper ticket electronic money as legal tender. If you had gold and silver money, you would be back on that curve before the last tie to gold was broken, and it is the banks that really have corrupted the system, but again it is probably counterproductive to point fingers. Really what we want to do is have a transition, and again the whole system is going to collapse no matter what. It is urgent that we pass this bill in order to facilitate a transition to an honest monetary structure.

Mr. JONES. I understand. Dr. White, could you comment on Glass-Steagall as well?

Mr. WHITE. I would say the repeal of Glass-Steagall had very little to do with the financial crisis. There would be absolutely no objection to repealing Glass-Steagall; that is, letting commercial banks align or merge with investment banks and insurance companies, if it weren't for deposit insurance and if it weren't for the too-big-to-fail doctrine.

If those had not been in place, then if somebody wants to form a financial supermarket, okay, we will see if that will fly. It is no skin off our nose. But when we begin to guarantee the liabilities of

investment banks which are highly leveraged, which are not like commercial banks, which are not even part of the payment system, that is really an invitation to trouble, and when the Federal Reserve Bank of New York intervened in the Bear Stearns failure and took up the bad assets so that JPMorgan Chase would buy the rest, it is not the first sort of too-big-to-fail action, but it is the one that sort of sticks in my craw. That was really bad policy.

Mr. JONES. Right.

Mr. WHITE. And I don't think it had that much to do with the repeal of Glass-Steagall. But if we treat investment banks like they are entitled to too-big-to-fail protection, then we are really asking for trouble, and that is really what needs to be undone.

Mr. JONES. Thank you, sir.

Mr. PARKS. Can I add to that, please? If you have gold and silver as money, gold as money, this too-big-to-fail stuff doesn't even come up. The only reason you have this is because of the irredeemable paper ticket money. You could never have this kind of leverage with gold, and in fact the money-center banks, they have leveraged their balance sheets something like 30 to 1, impossible if you had an honest monetary system. So really one feeds into the other, and this whole business with too-big-to-fail, the lender of last resort, Federal Deposit Insurance—Federal Deposit Insurance is not insurance; it is just a subsidy to the banks, and the reason it came about is that after the banks failed in 1933—they were failing before 1933—people were not putting their money back into the banks, and so they passed that legislation to induce people to put their money back into the banks.

As far as the lender of last resort comes about, again, that is the result of bank leverage, and the only reason you have so much leverage with the banks is because they misrepresented depositors. So if I were to borrow money from you, say I want you to lend me \$10,000, what is the first thing that goes through your mind? I would think, what is the collateral? How am I going to get the money back? What are you going to do with the money? But if you loaned it to a bank and they say, well, this is a deposit, now you don't do the counterparty surveillance, so it is really a function of what constitutes the money, and I think you have to go back and realize that what we call our money today, our dollar, this is just a dishonored promissory note. And in fact one of the quotes I have for you, and I will stop right here, is after Franklin Roosevelt closed the banks on March 5th, 1933, a lot of people were caught short, and there was a question of whether they should print script, and here is a quote from William Woodin, Roosevelt's Secretary of the Treasury, he says the Federal

Reserve Act lets us print all we need, and it won't frighten the people. Get this line now. It will look like—it won't look like stage money, it will be money that looks like real money. This is the Secretary of the Treasury telling you that this stuff is really, in effect, stage money, but it looks like real money. This is not real money that we have, folks. This is just a piece of paper gussied up with seals and what-not. It is dishonest, and we need to fix the dishonesty.

Mr. JONES. Thank you, sir.

Chairman PAUL. Thank you. I have one more question for Dr. White. If we moved in to a period of time where we had competing currency, we have one group of people thinking a dollar equals a Federal Reserve note and let's say we or somebody decides that a dollar equals 371 grains of silver, and we use an old silver dollar, that could be competing, but the definitions are obviously completely different. How do you think it would be resolved when it comes to paying your taxes? Because they won't allow—I think this is part of the reason that we allowed the resistance because some people have tried this, paying salaries with old silver dollars, and, oh, that is a dollar, I don't have to pay any taxes on this. But it is a real problem because if they think that anybody—we want to get rid of some of the inhibitions to a competing currency, but if the people who use silver dollars had no taxes to pay, it would be a tremendous advantage. I think we could win that argument. But what do you think the IRS and the tax people are going to say about this? And do you have an idea how that could be resolved?

Mr. WHITE. I am sure the IRS would like the taxes to be paid in the equivalent of what they would be if all the transactions had been done in Federal Reserve notes. It would be an interesting exercise to look at around the world and see if there are other countries that have faced this problem of having taxes denominated in multiple currencies. I really don't know that much about it myself, but it seems like not a very important problem. On tax day, you need to have some exchange rate between the different currencies people might be allowed to pay in or you would require them to convert their own books into whatever the official currency for tax purposes is, but 364 days of the year that shouldn't bother them. It is pretty easy with software these days to convert one column of figures into another column of figures.

Chairman PAUL. It seems like in the computer age we could probably work that out rather well. If I made one dollar of profit and silver was \$40, maybe it could be worked out, but of course the more

ideal thing would be not to have the income tax, and we wouldn't have to worry about problems like that.

Okay, Walter is gone.

I think that we will conclude. The Chair notes that some members may have additional questions for this panel that they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

This hearing is now adjourned.

[Whereupon, at 3:35 p.m., the hearing was adjourned.]

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

I. The Problem

John Maynard Keynes once stated that “There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose.” Such a situation is exactly what faces this country today, as the Federal Reserve seems hell-bent on destroying what little purchasing power remains of the U.S. Dollar.

Money is what allows civilization to flourish. Without money, consumers must barter their goods, hoping to exchange their products for those produced by others, and relying on a double coincidence of wants. Money enables man to rise above barter and makes exchange less burdensome. Once money comes into existence, businessmen can calculate profit and loss, homemakers can compare prices among different grocery stores, and individuals can begin to save and invest.

Money as a medium of exchange should always satisfy certain properties. It should be durable, not wearing out easily; it should be portable, easily carried; it should be divisible into units usable for everyday transactions; it should be recognizable and uniform, so that one unit of money has the same properties as every other unit; it should be scarce, in the economic sense, so that the extant supply

does not satisfy the wants of everyone demanding it; it should be reproducible, so that enough units of money can be created to satisfy the needs of exchange; and most importantly, it should be stable, so that the value of its purchasing power does not fluctuate wildly.

Unfortunately, monetary developments over the past century have eroded the stability of the monetary unit. The roots of this instability date back to the mid-19th century, when the government sought to establish a monopoly on the issuance of money. Until that time, gold and silver from numerous countries and private mints circulated as money. At this country's founding, there was no government-controlled national currency. While the Constitution established the Congressional power of minting coins, it was not until 1792 that the US Mint was formally established. In the meantime, Americans made do with foreign gold and silver coins such as the silver Spanish milled dollar, which was understood at the time of the Constitution's drafting to be the basis of our dollar system. Even after the Mint's operations got underway, foreign coins continued to circulate within the United States and did so for many decades. Since the dollar was variously defined as a specific weight of silver (or gold) it was relatively easy to determine the value of non-U.S. currency in dollars. Perhaps more importantly, the Coinage Act of 1792 ensured that the purchasing power of United States currency would remain stable, as debasement of the currency was punishable by death.

As with most monetary malfeasance throughout history, the United States government's drive to monopolize the issuance of money came about during a time of war. In order to fund its military operations during the 1860s, the federal government for the first time in its history issued paper currency which was unbacked by any commodity and was to be accepted at face value as a legal tender. These "greenbacks" quickly declined in value against gold-backed notes, and the government undertook numerous measures to eliminate competition and ensure that individuals would have to accept greenbacks. While some measures, such as banning futures trading in gold, were quickly repealed, other laws that banned the private minting of coinage remain in force today.

Since that time, the government slowly but surely tightened its grip over the issuance of money in this country. Resumption of gold redemption led to gradual acceptance of the federal government's paper currency, and then to Federal Reserve Notes. Once paper currency drove gold out of everyday use, the government was able to ban private ownership of gold in the 1930s. Eventually the gold window for foreign governments was closed in 1971, thus severing

once and for all any link between the dollar and gold. For the past 40 years we have lived in a world in which the issuance of money is completely at the discretion of governments and central banks, and we are reaping the consequences. The fiat money standard has led from one financial crisis to another, as each attempt to inflate out of the previous bubble only sows the seeds for the next crash. Real wages remain stagnant or decrease, while price increases resulting from inflation of the money supply force American households to go ever deeper into debt in order to maintain a constant standard of living.

Economics teaches that monopolies produce fewer goods and sell them at a greater price than in a competitive market. This leads to inefficiency, deadweight losses, and over time complacency on the part of the monopolist. Most mainstream economists fail to extend the theory of monopoly to the market for money. Government monopolization of the issuance of money fails to produce the sound money the market demands. The poor-quality money that is issued continues to lose its value, and the American people must work longer and harder for money that continues to decline in purchasing power. Meanwhile, government agencies and the banking system benefit from the first use of that money, being able to spend it and lend it before it circulates through the rest of the economy and before prices increase in reaction to this inflation.

The only way to counteract this problem is to break the government monopoly on the issuance of money. The Constitution does not grant the federal government this monopoly, a fact which was not in dispute for nearly a century after this country's founding. The federal government has become complacent, forgetting the need for sound money, and the only way to break this complacency is to break the monopoly. HR 1098, the Free Competition in Currency Act, intends to do just that.

II. The Solution

Over millennia of human history, gold and silver have been the two metals that have most often satisfied the market's demand for money and gained the trust of billions of people. Gold and silver are difficult to counterfeit, a property which ensures they will always be accepted in commerce. It is precisely for this reason that gold and silver are anathema to governments. A supply of gold and silver that is limited in supply by nature cannot be inflated, and thus serves as a check on the growth of government. Without the ability to inflate the

currency, governments find themselves constrained in their actions, unable to fund either the welfare state or the warfare state.

On the desk in my office I have a sign that says: "Don't steal – the government hates competition." Indeed, any power a government arrogates to itself, it is loathe to give back to the people. The history of this nation is filled with examples of increasing and unconstitutional centralization of power by the federal government. Militias, letters of marque and reprisal, and declarations of war have gone by the wayside; the postal monopoly drove out private competition; and a market-driven system of competing currencies was suppressed by the creation of a government-supported banking cartel that monopolizes the issuance of currency. In order to return to sound money, it is necessary to undo the legal obstacles that forbid other currencies from competing against the dollar.

The first step consists of eliminating legal tender laws. Article I, Section 10 of the Constitution forbids the States from making anything but gold and silver a legal tender in payment of debts. States are not required to enact legal tender laws, but should they choose to, the only acceptable legal tender is gold and silver, the two precious metals that individuals throughout history and across cultures have used as currency. There is nothing in the Constitution that grants Congress the power to enact legal tender laws. Congress has the power to coin money, regulate the value thereof, and of foreign coin, but not to declare a legal tender. Yet, there is a section of US Code, 31 USC 5103, that purports to establish US coins and currency, including Federal Reserve notes, as legal tender.

Historically, legal tender laws have been used by governments to force their citizens to accept debased and devalued currency. Gresham's Law describes this phenomenon, which can be summed up in one phrase: bad money drives out good money. An emperor, a king, or a dictator might mint coins with half an ounce of gold and force merchants, under pain of death, to accept them as though they contained one ounce of gold. Each ounce of the king's gold could now be minted into two coins instead of one, so the king now had twice as much "money" to spend on building castles and raising armies. As these legally overvalued coins circulated, the coins containing the full ounce of gold would be pulled out of circulation and hoarded. This same phenomenon occurred in the United States in the mid-1960s when the US government began to mint subsidiary coinage out of copper and nickel rather than silver. The copper and nickel coins were legally overvalued, the silver coins undervalued in relation, and silver coins vanished from circulation.

These actions also give rise to the most pernicious effects of inflation. Once the public realized that the king debased his currency by 50%, prices would eventually double, as it would now take two coins to purchase what used to require only one. The king who debased his currency spent his new money immediately, before prices rose, and thus gained the benefit of that new money. Most of the merchants and peasants who received the devalued currency felt the full effects of inflation, the rise in prices and the lowered standard of living, before they received any of the new currency. By the time they received the new currency, they had long since had to suffer doubled prices, and the new currency they received would give them no benefit. In the absence of legal tender laws, Gresham's Law no longer holds. If people are free to reject debased currency, and instead demand sound money, sound money will gradually return to use in society.

The second step to legalizing currency competition is to eliminate laws that prohibit the operation of private mints. One private enterprise which attempted to popularize the use of precious metal coins was Liberty Services, the creators of the Liberty Dollar. The government felt threatened by the Liberty Dollar, as Liberty Services had all their precious metal coins seized by the FBI and Secret Service in November of 2007.

The sections of US Code which Liberty Services is accused of violating are categorized as anti-counterfeiting statutes, when in fact their purpose was to shut down private mints that had been operating in California. California was awash in gold in the aftermath of the 1849 gold rush, yet had no US Mint to mint coinage. Even establishment of a US Assay Office failed to provide enough coinage, as the only coins they produced were too large to be used in everyday transactions. Foreign coins filled the void, but even still there was insufficient coinage, and these coins circulated at a value higher than their inherent metal value. The public clamored for smaller denominations of coins, and private mints stepped into the breach to fulfill this demand. The private mints were eventually accused of circulating debased coinage, and with the supposed aim of providing government-sanctioned regulation and a government guarantee of purity, federal laws were enacted which banned private mints from producing their own coins for circulation as currency.

The final step to reestablishing competition in currency is to eliminate capital gains and sales taxes on gold and silver coins. Under current federal law, coins are considered collectibles, and are liable for capital gains taxes. Coins held for less than one year are

taxed at the short-term capital gains rate, which is the normal income tax rate, while coins held for more than a year are taxed at the collectibles rate of 28 percent. These taxes on coins actually tax monetary debasement. The purchasing power of gold remains relatively constant, but as the nominal dollar value of gold increases due to the weakening of the dollar by the Federal Reserve, the federal government considers this to be an increase in wealth, and taxes accordingly. Thus, the more the dollar is debased, the more capital gains taxes must be paid on holdings of gold and other precious metals.

Just as pernicious are the sales and use taxes which are assessed on gold and silver at the state level in many states. Imagine having to pay sales tax at the bank every time you change a \$10 bill for a roll of quarters to do laundry. Inflation is a pernicious tax on the value of money, but even the official numbers, which are massaged downwards, are only on the order of 3-4% per year. Sales taxes in many states can take away 8% or more on every single transaction in which consumers wish to convert their Federal Reserve Notes into gold or silver coins. Americans should not be penalized through punitive taxation merely for desiring to hold or use one type of currency, nor should they be penalized for exchanging Federal Reserve Notes for US Mint-produced coins.

I hope that this hearing will start a vigorous discussion of currency competition, sound money, and how to return to a sound dollar. HR 1098 is certainly not a panacea, as there remain significant structural problems in our banking and monetary system that still need to be addressed. But allowing for competing currencies will enable Americans to choose a currency that suits their needs, rather than the needs of the government. The prospect of Americans turning away from the dollar towards alternate currencies will provide the necessary impetus to the US government to regain control of the dollar and halt its downward spiral. Restoring soundness to the dollar will remove the government's ability and incentive to inflate the currency, and keep us from launching unconstitutional wars that burden our economy to excess. With a sound currency, everyone is better off, not just those who control the monetary system.

WITNESS TESTIMONY

**WRITTEN TESTIMONY OF
LAWRENCE M. PARKS, Ph.D.,^{226,227}
EXECUTIVE DIRECTOR
FOUNDATION FOR THE ADVANCEMENT OF
MONETARY EDUCATION**

Thank you for the opportunity to testify in support of H.R. 1098, *The Free Competition in Currency Act of 2011*. I am honored to have been invited.

I know it must sound like hyperbole, but I believe that H.R. 1098 is perhaps the most important piece of legislation to ever come before the Congress, because H.R. 1098 is necessary to make a transition from the certain catastrophic collapse of our unauthorized (by the *Constitution*), dishonest and unstable legal tender irredeemable paper-ticket-electronic monetary system.

While I suspect that this committee will be most interested in how this bill will affect jobs, debt, economic growth, the capital markets, pensions, and a host of other important and timely topics, I will focus in my opening statement on where we are headed and on the dishonesty of our present system by highlighting some of the many misrepresentations about our money. There are three takeaway points. Our current monetary system is:

- (1) Not in conformity with the Constitution;
- (2) Dishonest; and,

²²⁶ [Dr. Parks submitted a slightly modified version of his testimony for inclusion in this work that corrected typographical and stylistic errors.]

²²⁷ [Dr. Parks answered additional questions for the record that can be found in Appendix B.]

(3) Unstable and in the process of blowing up, perhaps while I am testifying here today.

One can be certain of a complete collapse because there is no longer any market-based self-correcting mechanism providing negative feedback against increasing the money supply, increasing debt, and increasing leverage. Any system without a self-correcting mechanism is unstable and blows up.

Where We are Headed

With no exceptions, the history of legal tender irredeemable paper-ticket-electronic money is that its purchasing power always approaches its cost of production: ZERO! Here are some scenes that illustrate this point:



Exhibit 1: Sweeping Hungarian money into the sewer circa 1946



Exhibit 2: Burning German money for heat circa 1923

They are
not playing
with blocks



Exhibit 3: Children playing with blocks of German money circa 1923

A lesson in
high finance



Exhibit 4: Children playing with blocks of German money circa 1923

A cheaper way
to heat food



Exhibit 5: Burning German money to heat food circa 1923

Money not worth the paper it is printed on



Exhibit 6: Weighing paper money for value rather than nominal value, Germany circa 1923

Buying lunch in Zimbabwe today.



Exhibit 7: Using depreciated paper money in Zimbabwe to buy lunch circa 2008



*Exhibit 8: \$100 Trillion Zimbabwe bill, 2008***Collapse of the Monetary System**

With gold-as-money, and without the banking system creating money out of nothing, the amount of financial leverage would be *de minimis* with no possibility of collapse. Because legal tender irredeemable paper-ticket-electronic money can be created without limit, there is no market-based self-correcting mechanism to limit financial leverage. Especially at a time when those who engage in leverage do not bear the full risk of loss, but are able pass the risk on to the public through the banking system, whose balance sheet and liabilities are *de facto* guaranteed by the public, financial collapse is a certainty.



Exhibit 9: Sweeping Hungarian money into the sewer circa 1946

This is a scene from Hungary after World War II. That stuff that is being swept down into the sewer is the Hungarian money of the day. Those folks standing about watching are ordinary people who might

have been saving the legal tender irredeemable paper-ticket money for later needs.

“A lifetime’s worth of savings – literally down the sewer!”

While there have been many currency collapses during the 20th century, the reason why most countries eventually recovered after a time was that they had an alternate currency: the dollar. Once the dollar is rejected, all those countries that consider dollars as part of their reserves will also experience collapses.

What we define as civilization is the intricate web of understandings that we have about one another and the mutual promises we have made. For example, if I promise to meet you at two o’clock and don’t show up, that hurts the relationship. Aside from the mutual promises and understandings we have with family members, the most important promises in society are promises to pay: to pay pensions, salaries, suppliers, annuities, etc.

When money collapses, all promises of future payment are broken, and the enormous intricate web of promises both at home and abroad breaks down. The risks to society cannot be overestimated. A breakdown in national and international currencies is certain. The challenge is to mitigate the damage and lay the groundwork to put into train a monetary system that will not break down and that serves the needs of productive enterprise.

Most important, action must be taken to protect the middle class. As the British are fond of saying, it’s the middle class that protects us from the Barbarians.

In 1997, Mr. Greenspan, when he was the Chairman of the Board of Governors of the Federal Reserve, gave a remarkable speech in Belgium where he addressed the issue of leverage and the risk to the financial system.²²⁸ He said:

“Central bank provision of a mechanism for converting highly illiquid portfolios²²⁹ into liquid ones²³⁰ in extraordinary circumstances has led to a greater degree of leverage in banking than market forces alone would support.²³¹

Mr. Greenspan was confirming that the “mechanism” or safety net/subsidy/wealth transfer for banks, has led to more leverage than

²²⁸ Remarks by Chairman Alan Greenspan At the Catholic University Leuven, Leuven, Belgium January 14, 1997

²²⁹ “Highly illiquid portfolios” are portfolios that cannot be sold except at a substantial discount to par.

²³⁰ The most “liquid” portfolio consists of cash that the Federal Reserve creates out of nothing.

²³¹ Private investors would pay less for these assets than would the Fed. In fact, depending upon how “illiquid” these portfolios were, private investors might pay nothing.

would otherwise occur. For banks, this is great. They can enter into more profitable and riskier bets than they would otherwise because they know that if they lose, i.e., if their bets become “illiquid”—worthless and cannot be sold—the Federal Reserve will “convert” those bets into cash.

And where does the Federal Reserve get the cash? It literally “creates” it out of nothing, thereby diluting the purchasing power of savings and expected pensions of ordinary working people and seniors. In other words, if the banks win their bets they keep their winnings, and if they lose, the Fed—read that ordinary taxpayers—absorb the losses. Fantastic!

“Traditionally this has been accomplished by making discount or Lombard facilities available, so that individual depositories could turn illiquid assets into liquid resources and not exacerbate unsettled market conditions by the forced selling of such assets or the calling of loans.”

What this means is that rather than cause “individual depositories” (banks) to sell “illiquid assets” (loans) which are not good—at a presumed loss—or force borrowers into bankruptcy, the Federal Reserve may buy these loans from the banks, presumably at a discount. Again, if things work out, the banks keep the profits. If the loans cannot be repaid, the Federal Reserve (really taxpayers) makes up the loss.

Is it fair to taxpayers that banks keep the winnings if their bets are successful but that taxpayers make them good if they experience catastrophic losses? Isn’t this just blatant wealth transfer? When the Federal Reserve and the Treasury used the “Exchange Stabilization Fund” to bail out Mexico in 1995, the money supplied to Mexico was quickly transferred to the Wall Street firms and banks that had purchased Mexican securities.

Ignoring the fact that every so often the Mexican peso melts, to garner extra yield, U.S. financial institutions bought Mexican securities. When it appeared certain that Mexican debt would default, rather than allow these financial institutions to book a loss, our government—read that ordinary taxpayers—lent money to Mexico so that it could repay U.S. banks and Wall Street firms. Another version of this story was played out by the International Monetary Fund, in part financed by U.S. taxpayers, to bail out banks in South Korea, Indonesia, Malaysia, the Philippines, and elsewhere.

“More broadly, open market operations, in situations like that which followed the crash of stock markets around the world in 1987, satisfy increased needs for liquidity for the system as a whole that

otherwise could feed cumulative, self-reinforcing, contractions across many financial markets.”

In this and other speeches, Mr. Greenspan addresses systemic risk. Much more needs to be said about this, but, in sum, the system is perilously close to imploding or blowing up.

Why should ordinary citizens be at risk that our monetary system will implode so that banks and other financial players may reap unearned profits by taking on ever-greater risks?

“Of course, this same leverage and risk-taking also greatly increase the possibility of bank failures. Without leverage, losses from risk-taking would be absorbed by a bank’s owners, virtually eliminating the chance that the bank would be unable to meet its obligations in the case of a ‘failure.’”

In other words, without the safety net/subsidy from taxpayers, banks would make bets and take chances while putting their own capital at risk instead of taxpayers’ money. This is as it should be, it seems to me. Most important, Mr. Greenspan confirmed that without leverage the possibility that depositors would not get their money back in case of a “failure” would be virtually eliminated. Ordinary working people and seniors would not be at risk.

What an incredible acknowledgment! In other words, we can conclude that if the banks had not been induced by the safety net/subsidy to increase leverage, the banking system would not have collapsed in the 1930’s and we would not have experienced the Great Depression. Many think that the Great Depression was a “market failure.” Mr. Greenspan has written extremely eloquently that the Great Depression was in fact caused by the Federal Reserve feeding too much credit into the banking system, i.e., enabling the banking system to increase leverage too much.²³²

This raises other important questions: Why should our government empower and induce banks to increase leverage when we know that can lead, and has led, to a catastrophic monetary collapse? Why should ordinary working people and seniors and the rest of us be put at risk of a monetary implosion and the total collapse of our economy?

“Some failures can be of a bank’s own making, resulting, for example, from poor credit judgments. For the most part, these failures are a normal and important part of the market process and provide discipline and information to other participants regarding the

²³² See Greenspan, Alan; “Gold and Economic Freedom,” in Rand, Ayn; *Capitalism the Unknown Ideal*; Signet Books, 1967, pp96-101.

level of business risks. However, because of the important roles that banks and other financial intermediaries play in our financial systems, such failures could have large ripple effects that spread throughout business and financial markets at great cost.”

The point of this is that it is leading up to the need to suspend normal business rules for banks by not letting them fail on account of “ripple effects.”

Why Legal Tender Irredeemable Paper-ticket-Electronic Money is Dishonest

I wish to focus first on explaining why our monetary system is dishonest. Most importantly, there are myriad misrepresentations and nondisclosure of material information about what we now call a dollar. No amount of regulation or oversight committees will cure dishonesty. The only remedy is honesty.

There was a time after the Revolution when our money, as provided for by the *Constitution*, was gold and silver. There was no legal tender for private transactions. However, the bank notes of the first Bank of the United States were legal tender for payments to the government, e.g., tariff dues.

To illustrate what in my view is the most egregious example of dishonesty, I give an example with silver, although the same principle applies to gold.

It was, and remains, inconvenient to carry around silver dollars, because they are heavy and bulky. So, people deposited their silver dollars, typically in a bank, and received in exchange a promissory note, a.k.a. a banknote or a note, that bore the inscription that so many dollars were deposited and that the note was payable on demand by the bearer in silver.



Exhibit 10: United States One Dollar Note

Notice that this is not a dollar. At the top of the bill are the words “United States Note.” Under Washington’s image, it says “will

pay to the bearer on demand one dollar.” As put into law by Alexander Hamilton in the *Coinage Act of 1792*, this is a dollar:



Exhibit 11: U.S. Silver Dollar

Then, the promise to pay a dollar was defaulted, and the broken promise, the dishonored promissory note, is now represented as being a dollar!



Exhibit 12: One dollar Federal Reserve Note

This is a gross misrepresentation and is dishonest. This piece of paper is not even a valid note. The signatures of the Treasurer of the United States and the Secretary of the Treasury are gratuitous and deceptive.

In other words, what we use for money are just dishonored promissory notes that have been misrepresented to be dollars. All of the securities in our capital markets, at home and abroad, are denominated in dishonored promissory notes. This has immense

implications for trade, jobs, pensions, military preparedness and almost everything that is important.

People have the notion that the Congress can make the dollar anything the Congress wants it to be and “back” it or not with specie or whatever. This is demonstrably false. The highest law of our country is the *Constitution*, and all laws must be in conformity with it. The word “dollar” is mentioned twice in the *Constitution*, but it is not defined in the *Constitution*.

The word “dollar” appears in connection with the Slave Tax, which is no more. Much more importantly, it is mentioned in the 7th Amendment:

"In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law."²³³

If it were true that Congress could redefine the word “dollar,” that would mean that the Congress could redefine the 7th Amendment, which is ridiculous. Further, for the 7th Amendment to have objective meaning, the word “dollar” must have objective meaning. What is the objective meaning of the word “dollar” as used in the *Constitution*?

The word “dollar” in the *Constitution* refers to the Spanish Milled Dollar, a.k.a. a piece of eight.

²³³ 7th Amendment to the Constitution.



1753 PERU 8 REALES
PILLAR TYPE

Exhibit 13: A Spanish Milled Dollar, a.k.a. a piece of eight or a real

The Spaniards had built mints all over the colonies, and the Spanish Milled Dollar was ubiquitous. In some colonies it was made the unit of account. When independence was declared, the colonies adopted *Articles of Confederation* which gave Congress the power to issue paper money, called “continentals.” Here is an example of a continental \$30 bill. Notice that it “entitles the Bearer to receive Thirty Spanish milled Dollars or the Value thereof in Gold or Silver.”



Exhibit 14: A \$30 bill, issued by the Continental Congress for Thirty Spanish milled Dollars

After independence was achieved, and the *Constitution* was adopted, the U.S. did not want to rely on Spanish mints to mint its coins. The U.S. wanted its own mints to mint its own coins, including dollars. To that end, Alexander Hamilton, then Secretary of the Treasury, wrote the *Coinage Act of 1792* wherein he tells us exactly what a dollar is:

“Dollars or Units—each to be of the value of a Spanish milled dollar as the same is now current, and to contain three hundred and seventy-one grains and four sixteenths parts of a grain of pure, or four hundred and sixteen grains of standard silver.”²³⁴

This definition of a dollar, 371.25 grains of fine silver, has never been changed, and cannot be changed. The *Constitution* requires that a dollar be a weight of silver. Some might claim that if Hamilton defined a dollar in this way, perhaps it can be defined in another way. That is not true. Hamilton’s definition of a dollar was not arbitrary. All he did was to write into law what was already a fact.

Here is another way of looking at this issue. Suppose we take a sign that says “cat,”



Exhibit 15: Sign that says “cat”

And hang it on a dog,



Exhibit 16: Photo of a dog

Does the dog become a cat?

²³⁴ *Coinage Act of 1792*



Exhibit 17: Dog with a sign reading “cat”

Suppose Congress passes a law that says that now all dogs with cat signs are cats?



Exhibit 18: Dog with “cat” sign + order of Congress

Are all dogs with cat signs now cats?

Conceptually, this is no different than taking a piece of paper, printing the word “dollar” on it, adding seals and signatures and calling it a dollar. This is precisely what has happened to our money. Clearly, there is no easy remedy.

How could such an immense fraud be perpetrated? There are several reasons, but one of the most important, which HR1098 will go a long way to correcting, is that we are coerced into using fraudulent money by the legal tender statutes. By getting rid of legal tender, HR1098 is necessary, and may be sufficient, to help pave the way to an honest monetary system.

Placing images of some of our most revered Founding Fathers on various bills gives bogus money the patina of legitimacy by implying that it had the imprimatur and endorsement of the Founders, when in fact they condemned paper money.

Jefferson, for example, wrote:

"Paper is poverty,... it is only the ghost of money, and not money itself."²³⁵

"But that its [paper money's] abuses also are inevitable and, by breaking up the measure of value, makes a lottery of all private property, cannot be denied."²³⁶

"The trifling economy of paper, as a cheaper medium, or its convenience for transmission, weighs nothing in opposition to the advantages of the precious metals... it is liable to be abused, has been, is, and forever will be abused, in every country in which it is permitted."²³⁷

"I now deny [the Federal Government's] power of making paper money or anything else a legal tender."²³⁸

Placing Jefferson's image appear on a legal tender paper \$2 irredeemable paper-ticket-dollar misrepresents Jefferson's clear condemnation of legal tender irredeemable paper-ticket-electronic money. It is dishonest.



Exhibit 19: A \$2 United States Note with Jefferson's image

George Washington was equally clear: in a letter he wrote to Jefferson on August 1, 1786:

"Other states are falling into very foolish and wicked plans of emitting paper money."²³⁹

In addition, he wrote:

"Paper money has had the effect in your state that it will ever have, to ruin commerce, oppress the honest, and open the door to every species of fraud and injustice."

²³⁵ Thomas Jefferson to Edward Carrington, 1788. ME 7:36

²³⁶ Thomas Jefferson to Josephus B. Stuart, 1817. ME 15:113

²³⁷ Thomas Jefferson to John W. Eppes, 1813. ME 13:430

²³⁸ Thomas Jefferson to John Taylor, 1798. ME 10:65

²³⁹ Letter to Jefferson on August 1, 1786

Washington, in his circular letter of June, 1783, to the governors of the several United States, wrote that "honesty will be found on every experiment to be the best and only true policy," being convinced that "arguments deduced from this topic could with pertinency and force be made use of against any attempt to procure a paper currency."

Notice that Washington is not writing from an economic point of view. He is condemning paper money as "wicked," i.e., evil. The perils of paper money were well known. This is very strong language. As with Jefferson, the monetary authorities again misrepresent Washington's heart-felt condemnation of paper money by putting his image on a legal tender irredeemable paper-ticket dollar. That is dishonest.



Exhibit 20: \$1 Federal Reserve Note

James Madison, the "Father of the *Constitution*," had an unequivocal view of paper money as well:

"Paper money is unjust; to creditors, if a legal tender; to debtors, if not legal tender, by increasing the difficulty of getting specie. It is unconstitutional, for it affects the rights of property as much as taking away equal value in land." [Emphasis added]

Notice, as with Washington, Madison condemned paper money on moral, not economic, grounds as "unjust." As the principal author of the *Constitution*, who better to opine on it as not permitting paper money than Madison. Again, as with Jefferson and Washington, the monetary authorities misrepresent Madison's strong condemnation of paper money by putting his image on the \$5,000 legal tender irredeemable paper-ticket-dollar. That is dishonest.



Exhibit 21: \$5,000 Federal Reserve Note

Alexander Hamilton, Secretary of the Treasury and presidential aspirant did not condemn paper money *per se*, but he could not have been clearer of what he referred to as “unfunded paper,” the kind we have now. In June, 1783, Alexander Hamilton, in resolutions for a new constitution of the United States of America, set forth explicitly:

"To emit an unfunded paper as the sign of value ought not to continue a formal part of the constitution, nor ever hereafter to be employed; being, in its nature, pregnant with abuses, and liable to be made the engine of imposition and fraud; holding out temptations equally pernicious to the integrity of government and to the morals of the people."

By putting Hamilton’s image on the \$10 legal tender irredeemable paper-ticket-dollar, his clear condemnation of unfunded paper money is also misrepresented. That is dishonest



Exhibit 22: \$10 Federal Reserve Note

Consider now the all-important issue of how to get people to accept legal tender irredeemable paper-ticket-electronic money in exchange for their goods and services? Misrepresentation may not be enough. There is a need for coercion, which is provided by the legal tender laws.

Fraud: Nondisclosure of Material Information and

Misrepresentations about Our Monetary System

Commodity money, e.g. gold or silver, is what it is. There is nothing to disclose or misrepresent. Gold or silver is what it purports to be. When gold or silver is minted into coins by the U.S. mint, one can rely on the integrity of the coins because the penalty for malfeasance, e.g., cheating on the weight or the specie content, is punishable by death. Policing the integrity of coins produced by the U.S. mint is done by the U.S. Secret Service. It is very diligent.

The Free Competition in Currency Act of 2011, by removing coercion for our monetary system, will signal folks who otherwise would not pay attention to reevaluate the merits of legal tender irredeemable paper-ticket-electronic money.

A full disclosure critical review will tend to reveal:

- (1) “Dollars” are not redeemable into anything, i.e., they are not valid “notes” that promise to pay something of value to the bearer;
- (2) “Dollars” have value because people believe that other people, both at home and abroad, will continue to accept them for their goods and services and save them for future needs;
- (3) In the U.S., people are forced by law [legal tender] to accept “dollars” for all debts public and private;
- (4) “Dollars” are created out of nothing by the U.S. banking system—mostly by commercial banks;
- (5) If, in the judgment of the Federal Reserve, there needs to be additional “liquidity” in the system, then the Federal Reserve, on its own authority and without any oversight from Congress, may create “dollars” without limit. Creating additional “dollars” out of nothing will dilute the purchasing power of “dollars” that have been saved or promised for future payment, such as pensions;
- (6) Creation of new “dollars” out of thin air has depreciated “dollar” purchasing power by more than 95% since 1950;
- (7) “Dollars” are in no way obligations of the U.S. Government (the signatures of the Secretary of the Treasury and the Treasurer are gratuitous);
- (8) “Dollars” are tokens, i.e., a paper tickets or electronic blips in a computer;
- (9) What we call a *dollar* today is not in conformity with the word

dollar used in the 7th Amendment to the *United States Constitution*.²⁴⁰ In other words, what we call a dollar is not authorized by the highest law in the land.

For day-to-day transactions, none of this matters. People get paid in legal tender irredeemable paper-ticket-electronic money, and they use that money to buy what they need for daily living. It is, however, *crucially* important for people who save or have securities that are denominated in legal tender irredeemable paper-ticket-electronic money.

A monetary system based on legal tender irredeemable paper-ticket-electronic money is inherently fraudulent. Frauds can be classified in three ways:

Frauds in the private sector are generally limited and most times are recognized in a short period.

- (1) Frauds which have an indirect government imprimatur, — e.g., Madoff, whose fraud continued for three decades largely because many believed that government regulations and Securities and Exchange Commission oversight would prevent such frauds — lull folks into a sense of security and can continue for longer periods.
- (2) Frauds that have the direct participation of government by virtue of enabling legislation, e.g., the fiat money fraud, can continue for very long periods because people want to believe in their institutions, and, because government is involved, they are coerced — that’s what legal tender is about — into participating.
- (3) Some misrepresentations about our monetary system are:
 - (4) Pieces of paper gussied up with seals and signatures that have the word “dollar” printed on them are not dollars, as the term is used in our *Constitution* and as defined in the *Coinage Act of 1792*;
 - (5) Federal Reserve Notes are neither in law nor in fact notes — because they have neither a payee nor a due date certain, which are part of the definition and legal requirement for a note to be valid;

²⁴⁰ *7th Amendment*: “In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.”

- (6) Legal tender irredeemable paper-ticket-electronic money is not authorized by our *Constitution*. It is misleading to have the signatures of the Secretary of the Treasury and the Treasurer on the bills;
- (7) Founders such as Washington, Madison, Jefferson and many others condemned paper money on moral grounds. It is misleading to put their images on the legal tender irredeemable paper-ticket-electronic money as if they might have endorsed paper money.

All frauds are eventually found out and collapse.

Legal Tender

Historically, some commodities were made legal tender, e.g., tobacco in the American colonies. However, there is no need to make gold a legal tender because people readily accept gold-as-money, especially for large transactions. For small transactions, historically people have always accepted silver.

Fiat, irredeemable paper ticket-token or electronic-checkbook money is always made legal tender because otherwise people tend to reject fiat money for their savings or promises of future payment, e.g., annuities, rents, pensions. The biggest hurdle for irredeemable paper-ticket-electronic money to circulate is getting people to accept it in exchange for their goods and services and especially to save it. Legal tender is the coercion in our monetary system.

Legal tender morphed from a concept called “forced tender.” When Marco Polo visited China in the middle of the 13th century, he, as well as other observers, noticed that the Chinese Emperor had become fabulously wealthy by issuing paper money. Upon returning home and reporting this to the Europeans, they were incredulous. Why, they asked, would anyone accept a piece of paper, even if gussied up with seals and signatures, in exchange for their goods and services? The answer was that if one didn't accept the Emperor's paper money he would be killed. This was called forced tender.

In 1694, Bank of England (then a private bank) notes were made legal tender by the king. There is no death penalty for not accepting legal tender today. However, if one doesn't accept it, one is not entitled to be paid.²⁴¹

²⁴¹ Interestingly, after the French Revolution and the issuance of legal tender irredeemable paper-ticket money, called *Assignats*, eventually the penalty for non-acceptance was death pursuant to a special law called *The Law of the Maximum*.

Legal tender was widely used in Colonial America, but opposition didn't crystalize until during the Revolution when the American experience with legal tender was a disaster. The experience of Thomas Jefferson is emblematic. Here is what happened to Jefferson.

Jefferson was married to the daughter of one of the richest men in the colonies, John Wayles. Wayles died in 1773 leaving a huge estate with assets, consisting of slaves and plantations, valued at upwards of 20,000 pounds, and liabilities, consisting of monies owed to British financiers, of about 11,000 pounds. At the time, 100 pounds was a good year's wages for a skilled tradesman, so the net estate was a fortune. Wales had appointed Jefferson along with Jefferson's two brothers-in-law the co-executors of his will.²⁴²

In those days, and today as well, if an executor distributes the assets of an estate without settling out the liabilities, he becomes personally liable for the liabilities. However, in this instance, since the value of the assets was so much greater than the liabilities, and, besides, Jefferson's in-laws wanted their shares, Jefferson felt comfortable in selling the assets and distributing the proceeds.

At the time in Virginia, folks did not have enough cash for such a large transaction. The remedy was to use what we call today a seller's mortgage or a "purchase money" mortgage, or in the case of goods, vendor financing. In 1773, the procedure was for the buyer to issue a bond to the seller, and amortize the bond, which is what happened. Jefferson offered the estate's British creditors a portion of the bonds to settle their claims, but they wanted specie, i.e., gold or silver. So Jefferson would need to pay off the debts from the amortization of the bond.

But then in 1776 the Revolution started. Virginia issued paper money and made it legal tender. As with all paper money, its purchasing power approached its cost of production — near zero — and Jefferson's debtors paid off the bond with the then worthless money. But Jefferson was still personally liable for the 11,000 pounds to Wayles' creditors in England.

Jefferson was never able to work his way out of that debt and he died a *de facto* bankrupt. Along the way the Congress tried to help him out; it bought his books for \$15,000 which became the Library of Congress. After he died, his possessions were auctioned, but they didn't bring enough money to satisfy the debt.

So, when Jefferson said that paper money was a cheat, he wasn't hypothesizing about a theoretical construct. He was cheated big time.

²⁴² Sloan, Herbert; *Principle and Interest: Thomas Jefferson and the Problem of Debt*; University of Virginia Press (2001).

And here is the punch line: and so were the other gentry in Virginia including Madison and Washington. Madison, also a large plantation owner, saw the Revolution coming, and he leased his land. The people to whom he leased his land paid him with the worthless legal tender money, and similarly for George Washington.

When the Founders assembled in Philadelphia at the Constitutional Convention (at that time they had gotten Jefferson out of town as our ambassador to France), they were not supposed to write a new constitution. They were to amend the *Articles of Confederation* which were thought to be inadequate because the Articles didn't give the general government the power to tax.

The Framers used the powers granted Congress in the Articles as a template and went down the list transferring what they thought were good provisions to the *Constitution*. When they got to the provision whereby the Articles gave the Congress the power to issue paper money, in those days called "emitting bills of credit," they debated the issue and overwhelmingly voted it down. Madison's notes contain entries to the effect that "we killed paper money," and "we closed the door to paper money."

The principal monetary power of the general government under the *Constitution*, as put forth in Article I Section 8, is "To coin Money, regulate the Value thereof, and of foreign Coin." There is no legal tender power to the general government, and there is no power to issue paper money.²⁴³ That was not an oversight. In addition to the Founders, ordinary people had a miserable experience with legal tender and there was near universal opposition to it. Thomas Paine, sometimes referred to as the Father of the Revolution and the author of "Common Sense," wrote:

"The laws of a country ought to be the standard of equity and calculated to impress on the minds of the people the moral as well as the legal obligations of political justice. But tender laws, of any kind, operate to destroy morality, and to dissolve by the pretense of law what ought to be the principle of law to support, reciprocal justice between man and man; and the punishment of a member [of Congress] who should move for such a law ought to be DEATH."²⁴⁴

What could be clearer than that? Jefferson also confirmed the fact that the general government does not have the power to arbitrarily

²⁴³ The best reference for the constitutional issues dealing with the U.S. monetary system is Dr. Edwin Vieira's magnificent *Pieces of Eight: The Monetary Powers and Disabilities of the United States Constitution*, Sheridan Books (2002), Edition: 2nd

²⁴⁴ Bancroft, George; *A Plea For The Constitution Of The United States, Wounded in the House of Its Guardians*; (1884)

assign value to something that is valueless by making it “legal tender.”

“The federal government — I deny their power to make paper money a legal tender.”²⁴⁵

Even John Marshall, the revered chief justice of the Supreme Court condemned legal tender:

“The inflexible adversary of paper money, detesting it with a hatred almost amounting to a passion, was the chief justice of the United States, John Marshall. While he was on the bench, no case could come before him, in which power was claimed for the United States to issue bills of credit; because at that day he and everybody else well understood and willingly acknowledged that the power to emit bills of credit was withheld from the United States, was forbidden by not being granted. But his opinion of the illegality of the issue of bills of credit by the states gave him the opportunity to declare in terms of universal application that the greatest violation of justice was committed when paper money was made a legal tender in payment of debts. But the opportunity to express his opinion, which was never offered to him as a judge, he found as a historian in his life of Washington. He claimed for himself and those with whom he acted, an “unabated zeal for the exact observance of public and private engagements.” He rightly insisted that the only ways of relief for pecuniary “distresses” were “industry and frugality;” he condemned “all the wild projects of the moment;” he rejected as a delusion every attempt at relief from pecuniary distresses “by the emission of paper money;” or by “a depreciated medium of commerce.” These were his opinions through life. He gave them to the public in 1807, and twenty-four years later in a revised edition of his *Life of Washington* he confirmed his early convictions by the authority of his maturest life.”²⁴⁶

Years later, in 1836, legal tender was still being discussed and condemned:

“Most unquestionably there is no legal tender, and there can be no legal tender, in this country, under the authority of this government or any other, but gold and silver, either the coinage of our own mints, or foreign coins, at rates regulated by congress. This is a constitutional principle, perfectly plain, and of the very highest importance. The states are expressly prohibited from making anything but gold and silver a tender in payment of debts; and

²⁴⁵ Bancroft, George; *A Plea For The Constitution Of The United States, Wounded in the House of Its Guardians*; (1884)

²⁴⁶ *ibid*

although no such express prohibition is applied to congress, yet as congress has no power granted to it, in this respect, but to coin money and to regulate the value of foreign coins, it clearly has no power to substitute paper, or anything else, for coin, as a tender in payment of debts and in discharge of contracts. Congress has exercised this power, fully, in both its branches. It has coined money, and still coins it; it has regulated the value of foreign coins, and still regulates their value. The legal tender, therefore, the constitutional standard of value, is established and cannot be overthrown. To overthrow it, would shake the whole system. The constitutional tender is the thing to be preserved, and it ought to be preserved sacredly, under all circumstances."²⁴⁷

Given the U.S. historical record as well as the universal failure of paper money to protect savings and promises of future payment, how did it happen that gold and silver have been “demonetized?”

As with many ill-advised actions of the general government, the assault on honest money gained traction during wartime. The Civil War was a very unpopular war, and Lincoln had trouble financing it. The Morrill Tariff, which was the government’s principal source of revenue, was raised to 47%. It didn't bring in enough money.

Lincoln instituted an income tax. For the most part, people rejected paying it, and, in any event, it didn't bring in much money either. In this case, the need for funds was so-great, money could not be borrowed except on terms that would have raised interest rates, some said, to as much as 20% or more. Since bank balance sheets consisted mostly of bonds, had interest rates increased so greatly, the banks would have been bankrupted. So, if one cannot tax or borrow, what does one do?

Lincoln’s Secretary of the Treasury, the brilliant lawyer Salmon Chase, who was himself an aspirant to the presidency, agreed to print money, called Greenbacks, because the back of the bills were in green ink. But why would people accept them when they were used to, and were expecting, gold and silver for their goods and services? The answer was that the Greenbacks were made legal tender.

²⁴⁷ *ibid*; Extract from a speech delivered by Daniel Webster in the Senate of the United States, on the 21st of December, 1836, on the subject of the Specie Circular.



Exhibit 23: \$1 legal tender Greenback

As one might imagine, this was very controversial. There ensued a great deal of litigation. At its nadir, Greenbacks depreciated nearly 50% against gold. People who had lent gold or were expecting gold in payment felt they were being cheated. After the Civil War, the legal tender cases litigation percolated up to the Supreme Court. Lincoln had appointed Chase Chief Justice, and it was partially up to him to decide if what he had done during the Civil War was in conformity with the *Constitution*.

The first legal tender case, *Hepburn v. Griswold*, was decided in 1870 at a time when there were two vacancies on the Supreme Court. Chase wrote for the majority that there was no legal tender power in the *Constitution*. He wrote, further, that the government had made the Greenbacks legal tender as a war measure, out of necessity. But since the Civil War was over, so was legal tender.

The two open positions on the Supreme Court were filled (some said that the Court was “packed”) with justices who were known to be sympathetic to legal tender. The Court quickly took a new case, *Knox v. Lee*, and promptly reversed itself and said there was indeed a legal tender power. However, the affirmative decision relied not on the *Constitution per se*, nor on the legislative history, but, ruled the Court, other countries could create legal tender, and therefore, so

could the U.S. In the Court's language, legal tender was a power that accompanied sovereignty.

Chase, now in the minority, wrote in his decision:

"The legal tender quality [of money] is only valuable for the purposes of dishonesty."

In my view, Chase has this right. Further, it seems clear to me that by not giving the legal tender power to the general government, and limiting legal tender by the states to only gold and silver, mindful that the 10th Amendment to the *Constitution* declares "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people," it means that sovereignty over money is reserved to the people.

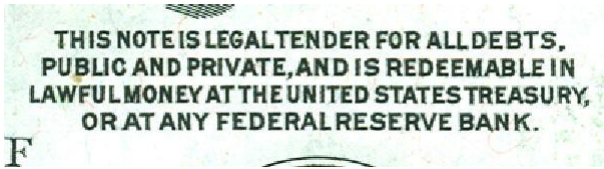
In other words, if the people want to increase the money supply, they should mine more gold and silver, and take it to the mint to have it coined. The argument that other countries can impose legal tender and so can we brings to mind when I was a child and was remonstrated for doing something my mother disapproved of. A response from me that "the other kids are doing it" was rejected outright by my mom, and so should have been legal tender.

In defense of this miserable decision, there was an issue of people who had borrowed Greenbacks during the Civil War who would have had to repay their debts in much more valuable gold if legal tender was rejected.

Chief Justice Chase's strong objection to legal tender and very strong language that it was dishonest, did not stop the monetary authorities from putting his image on the \$10,000 legal tender irredeemable paper-ticket-dollar as if he might have endorsed legal tender. This is yet another misrepresentation. It is dishonest.



Exhibit 24: \$10,000 legal tender Federal Reserve Note bearing the likeness of Salmon Chase.



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Exhibit 25: Blowup of the legal tender wording on the \$10,000 Federal Reserve Note

Notice that this legend is somewhat different from the legend that appears today on Federal Reserve Notes because it includes the words that the note is “redeemable in lawful money.” The reason for this is that, at the time that the Federal Reserve legislation was passed, it was never anticipated that Federal Reserve Notes would be money *per se*.

Today, all of our money is fiat, not redeemable in “lawful money,” and we rely solely on legal tender irredeemable paper-ticket-electronic money, all of which bears the legend:

“This note is legal tender for all debts public and private.”

What this means is that if one owes money to any entity and offers payment in Federal Reserve Note(s), if they are not accepted, then one need not pay. In addition, legal disputes settled in money are payable in the legal tender.

The history of how our money became transformed from constitutionally mandated gold and silver to legal tender irredeemable paper-ticket-electronic money is not well understood. Legal tender and other important monetary concepts have been removed from textbooks and, as far as I know, are taught nowhere. Today, I cannot find a textbook that deals with the history of how our legal tender irredeemable paper-ticket-electronic money became legal tender and the controversies that resulted.

While legal tender was a great benefit to those who issued money, at the end of the 19th century, it was the American Federation of Labor that was most vociferous against legal tender.

“No legal tender law is ever needed to make men take good money; its only use is to make them take bad money. Kick it out!”²⁴⁸

“If money is good and would be preferred by the people, then why are legal tender laws necessary? And, if money is not good and would

²⁴⁸ Byington, Stephen T. *The American Federationist* September 1895. *The American Federationist* was the official monthly magazine published by the American Federation of Labor.

not be preferred by the people, then why in a democracy should they be forced to use it?"²⁴⁹

"We [the American Federation of Labor] believe in a financial policy that will neither depreciate our currency at home nor abroad."

"We believe in an honest dollar."

By repealing legal tender, *The Free Competition in Currency Act of 2011*, will facilitate a transition to an honest monetary system, hopefully avoiding a catastrophic collapse.

The Kind of Money We Use is a Moral Issue

Commodity money is in conformity with the *Eighth Commandment*: "Thou Shall Not Steal," and *Leviticus* 19:35 & 36, which says that one should not falsify weights and measures. Honesty in business dealings is considered consistent with holiness and with moral law.

Fiat money violates the *Eighth Commandment* and the admonition that one should not tamper with weights and measures. Because it is used for future payment, money is said to serve as a store of value. The generation of fiat money, which is produced without work—how much more work is involved in producing a \$100 bill as opposed to a \$1 dollar bill?—dilutes that which has been saved and that which has been promised for future payment. It is the same as stealing.

Property Rights and Money

Commodity money protects property and is protected by the notion of private property. With fiat money, when money is diluted by the creation of additional money out of nothing, the property rights of savers and those who have been promised future payments, such as pensions, are violated.

James Madison, the Father of the *Constitution* condemned paper money, even that which might have promised redemption, on the grounds that it adversely affected property rights. Repeating the passage cited above, he wrote:

"Paper money is unjust; to creditors, if a legal tender; to debtors, if not legal tender, by increasing the difficulty of getting specie. It is unconstitutional, for it affects the rights of property as much as taking away equal value in land." [Emphasis added.]

For example, if one works and saves the money one receives in exchange, arguably one has a property right in the money saved. If the money is fiat, then the purchasing power can be decreased by the

²⁴⁹ Ibid.

issuing authority by creating out of nothing, and without work, any amount of additional money. The result will be that one has lost the value of one's work.

The same logic applies to money that has been promised for future payment, e.g., pensions. Arguably, people who have earned and/or contributed to a pension plan have a property right to what they have earned when the plan vests. If a monetary authority creates additional money out-of-nothing, in effect one loses the value of his property. Where is the justice in that?

Governmental Monetary Integrity

With commodity money such as gold or silver, the general government tends to be completely honest about money and the monetary system, because there is little for the government to do except to coin money. There is very little “wobble room.”

With legal tender irredeemable paper-ticket-electronic money, because it is inherently fraudulent, the government or its agents, e.g., the Federal Reserve, engage in myriad frauds both at home and abroad.

By delegating to the Federal Reserve a power that Congress does not have under the *Constitution*, the power to create money out of nothing, the Congress has empowered the Federal Reserve to act as a *de facto* agent of the general government. While almost all of what the Federal Reserve does is secret and generally not subject to discovery, occasionally evidence of gross malfeasance and fraud appears.

For example, there came a time circa 1982 when the Federal Reserve helped phony up the balance sheet of the Bank of Mexico. Here are the facts.

After Paul Volcker retired as Chairman of the Board of Governors of the Federal Reserve in 1987, he and Toyoo Gyohten, his former counterpart from the Bank of Japan gave a series of lectures at Princeton. Those lectures became a book, *Changing Fortunes*, in which the following passage appears:

“So it was a matter of buying time. In an effort to hold things together psychologically, we agreed with considerable unease to extend overnight swap credits once or twice to the Bank of Mexico to bolster the month-end figures for their dollar reserves. *We would transfer the money each month on the day before the reserves were added up, and take it back the next day.* Our unease did not arise from any fear of financial loss, but because the ‘window dressing’

disguised the full extent of the pressures on Mexico from bank lenders and from the Mexicans themselves.” [Emphasis added.]

This is a *prima facie* fraudulent transaction. The phrase “window dressing” is a euphemism for a misrepresentation, which is the indicium of a fraud. The issue that this raised for me is that if the Federal Reserve is willing to engage in this genre of fraudulent transactions, what might be the limit on what the Federal Reserve might or might not do. I conclude that there is no limit.

Further, what possible legislation passed by Congress authorizes this? Some time ago, I submitted to the Federal Reserve a Freedom of Information request for documents dealing with this transaction. My query turned up nothing.

As a small digression, some time ago as part of a larger presentation I showed this to Mr. Ed Ott, then the Executive Director of the New York City Central Labor Council. Mr. Ott connected a dot that I had not considered. He noted that after the Mexican Peso collapsed, when many ordinary Mexicans lost their savings and jobs, in order to survive, many of them illegally migrated to the U.S. to find work. In this way, fiat money has contributed to the problem of illegal immigration that some in the U.S. have complained about.

The Perils of Money Creation

Prior to August 15, 1971, when President Nixon “temporarily,” he said, defaulted on the U.S.’ sovereign promise to redeem dollars for foreign governments and foreign central banks at the rate of one ounce of gold for \$35 (at the time it was a felony for U.S. citizens to own gold anywhere in the world), the amount of dollars created out of nothing by our banking system was ultimately limited by the amount of gold that could be claimed. After the default, the amount of dollars that could be created out of nothing has no limit. (See *Exhibit 23*)

As Mr. Greenspan confirmed multiple times, the Federal Reserve has the power, on its own authority and without any oversight from Congress, and as recent events have shown, to create money without limit. When money is created out of nothing, it depreciates the purchasing power of money that exists, and more importantly, it depreciates money that has been promised for future payment, e.g., pensions, annuities, etc.

Since 1946, about \$14 trillion (M3) has been added to the economy. Where did all of this money come from? How did it get into the society?

As John Kenneth Galbraith explained:

“The process by which banks create money is so simple that the mind is repelled.”²⁵⁰

Consider, for example, if one were to take a \$300,000 30-year 6% fixed rate mortgage loan from a bank. The interest on the loan will be about \$350,000. Where does the bank get the \$300,000? Papers are passed back and forth and signed. Then a bank employee goes to a computer and types in a book entry to one’s account for \$300,000 and that’s it! In other words, essentially for passing some paper around and keying six keystrokes, the bank will now reap \$350,000 over a 30-year period.

Suppose the loan was for \$3,000,000, yielding the bank about \$3,500,000 in interest. What extra work does the bank need do to realize the additional \$3,150,000? All that need be done is to add an additional zero; one more keystroke. And if the loan was for \$30,000,000, yielding the bank almost \$35 million in interest, all that need be done is to add two more keystrokes!

Is this genre of money creation possibly in conformity with the *Constitution*? In what way is this related to Congress’ power to “coin money?” Is it in conformity with free market principles? Does this kind of “work” justify the lavish salary and bonus compensation paid to bankers? I’ll have more to say about this later.



Exhibit 26: How banks create money

As unbelievable and outrageous as this appears, the process is explained in official Federal Reserve publications. The Board of

²⁵⁰ Galbraith, John Kenneth; *Money: Whence it came, where it went*

Governors and the twelve regional Federal Reserve banks each maintain a Public Information Office. A large number of pamphlets, manuals, reports, videos and other publications purportedly to educate the public on why the Federal Reserve system is so wonderful are available for free or for a nominal sum. This is a great source of reading material if one is having trouble sleeping. The following quote comes from a comic book format directed at children. It explains simply:

“Money exists simply as a bookkeeping entry at a bank.”²⁵¹

Here is a more complete explanation from a more erudite publication:

“If a bank makes a loan, it credits the checking account of the borrower. This creates new money in the form of additional checkable deposits for the borrower.”²⁵²

In effect, the Congress has delegated to the banking system a power that the Congress does not have: the power to create legal tender irredeemable paper-ticket-electronic money out of nothing. What is the response from the financial sector? How can this be justified?

First, they claim that money creation helps the economy and provides jobs by financing factories, real estate, consumer purchases, and so on. While it is true that in some cases money creation is used to build and enhance productive enterprise, mostly it is used for gambling in the capital markets, e.g., proprietary trading. Today, the major money center banks have become *de facto* hedge funds.

Second, they claim that no one coerced another into taking a loan, and presumably the bank is satisfying a customer need while benefiting itself at the same time. In other words, they claim a win-win situation.

But wait, not so fast. The rest of society ultimately pays a huge price for the banking system having the privilege of creating money out of nothing. Consider the effect on the purchasing power of money:

²⁵¹ *The Story of Money*, 8th Printing, 2005, Federal Reserve Bank of New York, page 17

²⁵² *The Federal Reserve Today*, 15th Edition, Federal Reserve Bank of Richmond, page 16

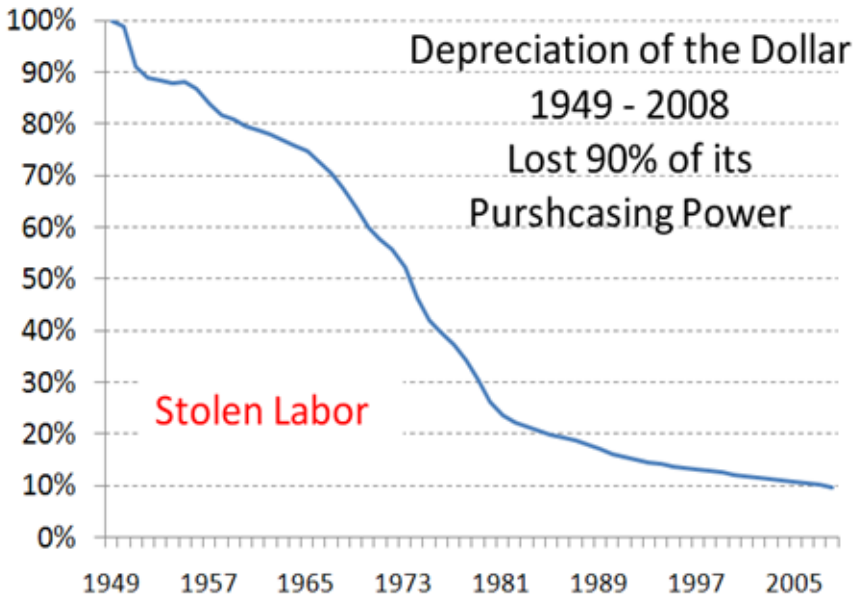


Exhibit 27: Depreciation of the dollar 1949 – 2008; Source: Federal Reserve CPI data.

The reason why I call this “stolen labor” is because if one works, one’s labor is transformed into money, some of which one saves. If one’s savings depreciate, in effect, one has lost his labor. Who benefits? Except for waste, which is unfathomable, the principal beneficiary of legal tender irredeemable paper-ticket-electronic money is the financial sector.

Its members, through a combination of fees and stock options, get to transform the legal tender irredeemable paper-ticket-electronic money into real stuff, e.g. 40,000 foot houses in multiple locations around the globe, 200 foot boats, \$200 million airplanes, now. Later, when savers and those to whom money has been promised, e.g., pensioners, get their rewards, it turns out that their saved money doesn't have the purchasing power they anticipated. In effect, they have been and will be cheated.

Later, I will show empirical data whereby the financial sector public company market capitalization has increased from 5% of total market capitalization in 1980 to more than 20% in 2007. How could the financial sector, which produces no final products that improve the lives of anyone, have quadrupled its share of market

capitalization in one generation? This was just blatant wealth transfer from people who earned it to the financial sector.

These days, the depreciation of the dollar, usually referred to in the press as inflation, as measured by the Consumer Price Index (CPI) is thought to be benign. In my view, and that of anyone who eats food or consumes fuel, the notion that the CPI is benign is false.

John Williams, a Foundation for the Advancement of Monetary Education Foundation Scholar, has had a long career as a professional economist with clients such as Boeing and IBM. Now in retirement, he runs a website service called Shadowstats.com. He claims that the methodology by which the CPI is computed has been modified multiple times since the Clinton years, incorporating “innovations” such as Hedonic Pricing, geometric weighting, substitution, etc. that have had the effect of reducing the CPI from what it would otherwise be had a consistent methodology been used. Here is a plot showing his findings from 1981 through July 2011:

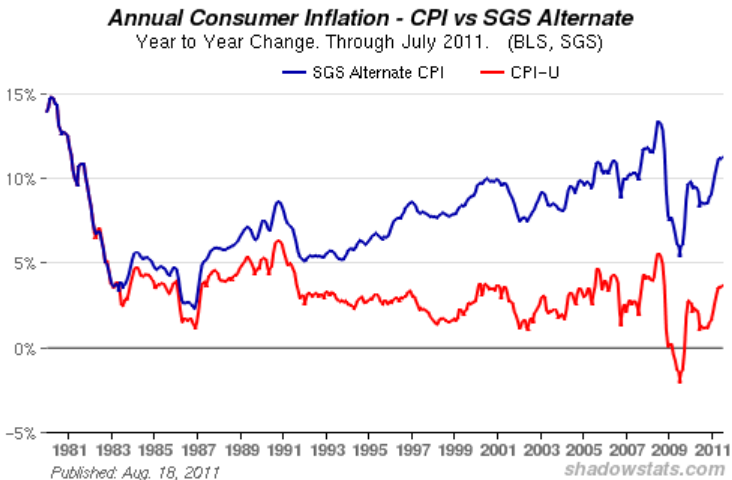


Exhibit 28: Annual Consumer Inflation vs. Shadowstat.com computation using a consistent methodology from the early 1980s.

As can be seen, using a consistent methodology, the CPI has been materially understated for almost 25 years.

Here is a real-life example of how the CPI is understated for ordinary people. This graph shows my monthly healthcare premiums to Oxford for the years 2001 through 2007:

Oxford Monthly Premiums for Larry Parks
(\$ per month)

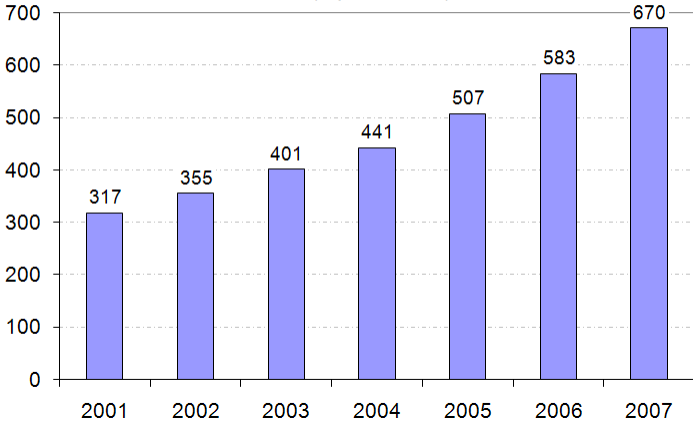


Exhibit 29: Oxford Health Plan monthly premiums for Larry Parks 2001 – 2007

On the next graph, I show my year-on-year percentage increased cost (which I believe is representative of the experience of most people who have healthcare insurance) and compare it to the percentage increase in the BLS medical component of the CPI:

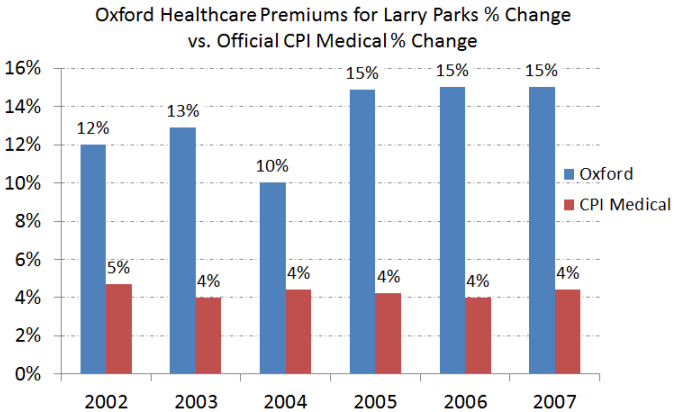


Exhibit 30: Medical component of the CPI contrasted with increased premiums charged by Oxford Health Plan; Source: BLS and data from Larry Parks' Oxford bills

Thus, the medical component of the CPI is not in conformity with the experience of virtually the entire population, which has experienced double-digit increases for health care for years.

There is overwhelming empirical evidence that prices are increasing greatly for the inputs to consumer items.

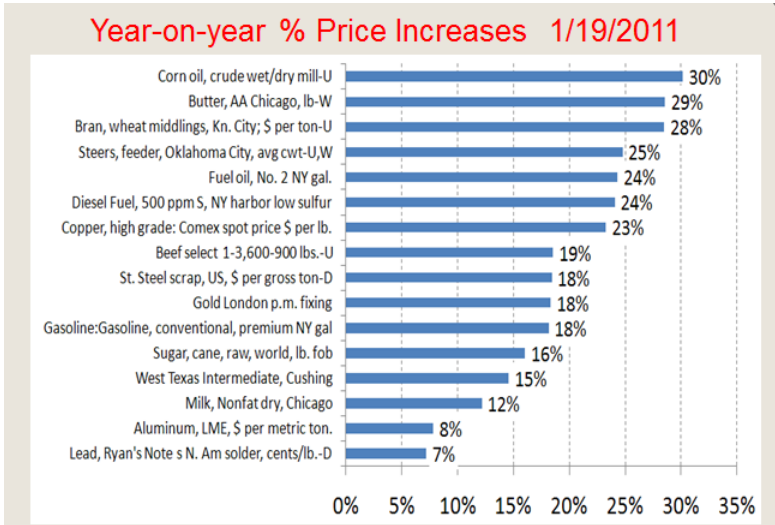


Exhibit 31: Year-on-year price increases as at 1/19/2011; Source: Wall Street Journal

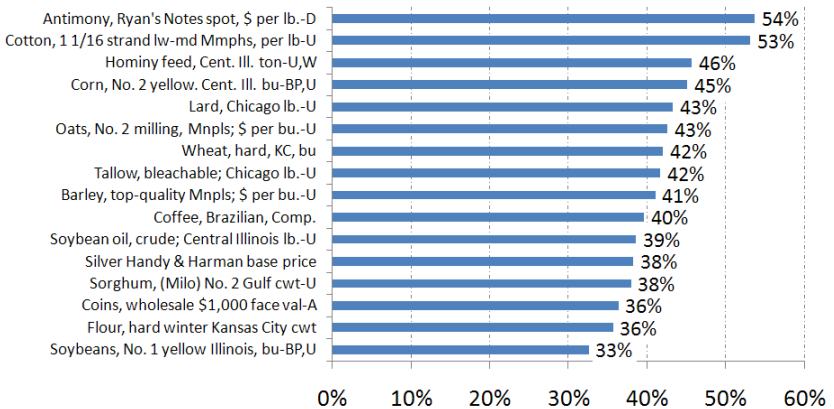


Exhibit 32: Year-on-year price increases as at 1/19/2011; Source: Wall Street Journal

It's hard to imagine that these large price increases will not at some point be incorporated into consumer products one way or another. For example, the media has reported on many products whose packaging and content sizes have been reduced, while maintaining the prior price per package when it contained more product. In this way, and many others, the effects of currency depreciation are being obfuscated.

These graphs provide support for Mr. Williams' hypothesis that using a consistent methodology the CPI has been seriously understated for almost 25 years. Since retirement schemes such as Social Security, benefits to disabled veterans, and salary increases to those who have COLA clauses (which used to be common in labor contracts) are keyed to increases in the CPI, these beneficiaries along with Treasury Inflation Protection bond holders are being cheated. Why should our government be part of a cheat?

Boom & Bust in the Economy

With commodity money, such as gold, and without fractional reserve lending (leverage), a.k.a. the creation of "bank money" by banks, economic activity expands without busts. With increasing amounts of fractional reserve lending, there are periodic booms and busts. A bust results when marginal credit that cannot be serviced is liquidated.

Fiat money tends to create huge bubbles, which, when they collapse—and they always collapse—lead to extended depressions and severe hardship, especially for ordinary working people and seniors.

Likelihood, Duration, and Size of Wars

Wars are very expensive. Because the only sources of revenues with commodity money are taxes, which people tend to resist, or borrowing, which drives up interest rates, there tend to be fewer and smaller wars. For example, it is less likely that the U.S. would have fought in Vietnam if President Johnson had to finance the war with taxes.

Fiat currency enables politicians to generate revenues with less accountability. They are then able to act without the consent of the citizenry, which, if consulted, would probably allocate their savings differently. Thus, politicians have a freer hand to engage in military adventurism, and they do.

Military Preparedness and the Ability to Wage War if Need Be

With commodity money such as gold or silver the country will have a stronger industrial base, which makes for a stronger military. Also, lower interest rates, which are a by-product of commodity money, make for a greater capacity to finance a war.

With legal tender irredeemable paper-ticket-electronic money, there will be a weaker military due to a weaker industrial base. Since purchase power of the money is vulnerable to collapse, there is less of a capacity to finance a war. When a collapse arrives, the military can become fatally weakened. This is an important national security issue.

Who Gets the Wealth of Society?

With commodity money such as gold or silver, the wealth of society goes to the people who earn it: workers, entrepreneurs, and the producers of goods and services sold in the market in voluntary transactions.

With legal tender irredeemable paper-ticket-electronic money, an inordinate amount of wealth is transferred from those who produce it to banks and financial intermediaries. Large credit-worthy borrowers benefit. Also, politicians tend to profit along with people who are direct beneficiaries of government largesse.

Social Mobility: the Ability to Improve One's Lot in Society

With commodity money such as gold or silver, social mobility is high. There are innumerable stories of years gone by about people who came to America with nothing but their willingness to work who built major successes. When the U.S. had sound money, it was known worldwide as "The Land of Opportunity." These days, there are innumerable stories about folks going back to their original homelands.

With legal tender irredeemable paper-ticket-electronic money, social mobility is low to none. Because improving one's lot requires the accumulation of wealth, and because it is not economic to save fiat currency, the poor tend to stay poor.

Social Engineering (The Redistribution of Wealth)

With commodity money, such as gold and silver, social engineering is hard to do because it must be done with taxation and people tend to oppose higher taxes. They take a greater interest in where money is spent when it is their own.

With legal tender irredeemable paper-ticket-electronic money, social engineering is easier to attempt by creating money out of nothing and "spending" it, lending it, or guaranteeing loans (where it

is known in advance that such guarantees can be met by creating additional money). Contrary to popular opinion, the empirical evidence confirms that most wealth redistribution is from the poor to the rich.

No less an authority than Mr. Greenspan has confirmed that we have subsidies for the banking system. Mindful that bankers are richer than most, this means that poorer people are transferring wealth to richer people. Where is the justice in that? If we had an honest monetary system, the wealth transfer would be apparent to all and would be objected to.

Unfathomable Waste

There is a loss that can be even greater than the depreciation of the currency if banks make loans for enterprises that are not long-term viable. Consider the recent residential real estate debacle whereby several million homes face foreclosure. More than a million homes are vacant and many millions are “underwater.”

A house isn't like a rock; it requires constant care and maintenance. If a leak develops, water and mold damage can result in a total loss. When a bank finances a home for which insufficient savings have been accumulated to pay for it, the bank gets upfront fees, called “points.” The mortgage broker gets a fee, as does the real estate agent, the appraiser, lawyers . . . a little army of beneficiaries. If the house is a new build, the builder makes a profit as well. My point is that many people get paid.

If the house goes into foreclosure and results in a total loss (there are film clips on the Internet of whole new house divisions being bulldozed), the entire enterprise is for nothing. None of these folks have their compensation clawed back. However, the bank's balance sheet will be replenished one way or another. It is the taxpayer, through additional currency depreciation, who ends up holding the empty bag.

By making a transition to an honest monetary system, when all the facts are on the table without misrepresentations, full disclosure and no coercion, as I will explain further in the section on jobs, prices will again be stable, and savings and promises of future payment will not bear the risk of currency depreciation. *The Free Competition in Currency Act of 2011* will hasten that transition.

Research & Development and Science Education

Because commodity money has a lower interest rate structure and a longer investment-time-horizon, there tends to be more long-term investment. Research and development tend to be long-term

activities. Thus, commodity money results in more scientific activity and the need for more science education.

Because fiat currency results in a higher interest rate structure and a shorter investment-time-horizon, there tends to be less long-term investment. If interest rates are high enough, as in Mexico or Brazil, there may be no long-term investment at all and little research and development, and less demand for science education.

Manufacturing Jobs and Employment

With commodity money such as gold or silver, there is more investment in productive ventures; there are more and higher-paying jobs than otherwise. Because manufacturing is capital intensive, there are also more manufacturing jobs. With fiat, irredeemable paper ticket-token or electronic-checkbook money, there is less investment in long-term productive enterprise; there are fewer and lower-paying jobs.

This is because fiat currencies cause higher interest rates and a shorter investment-time-horizon, causing a decrease in manufacturing activity. Generally, there is an increase in the so-called service sector because it has a much shorter investment-time-horizon. A near zero interest rate today is not a market-driven event. It is blatant market manipulation by the Federal Reserve creating additional money out of nothing to buy bonds.

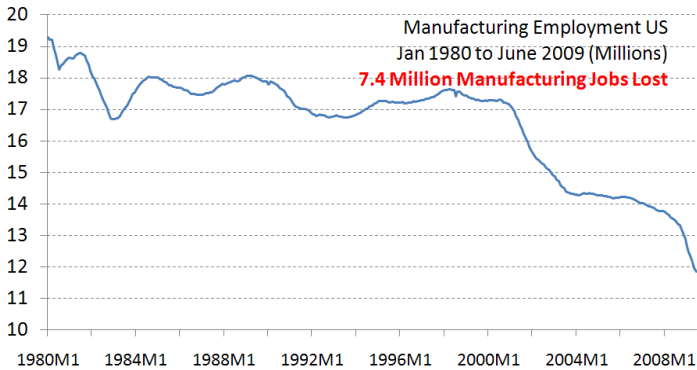


Exhibit 33: U.S. Manufacturing Employment January 1980 to June 2009; Source: BLS

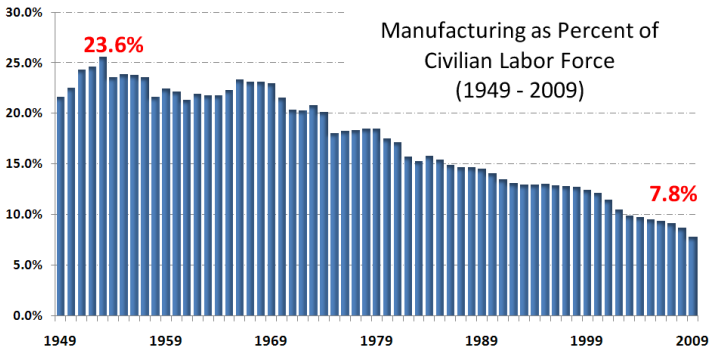


Exhibit 34: Manufacturing as a percent of the civilian labor force 1949 – 2009; Source: BLS

With commodity money, job security is impacted mostly by increases in productivity, which tends to destroy some jobs and create others. Decreasing prices help offset the negative effects associated with the destruction of jobs resulting from productivity (labor saving) improvements.

With fiat money, job security is impacted by rapidly changing interest and foreign exchange rates, and less of a propensity to save and invest for the long term.

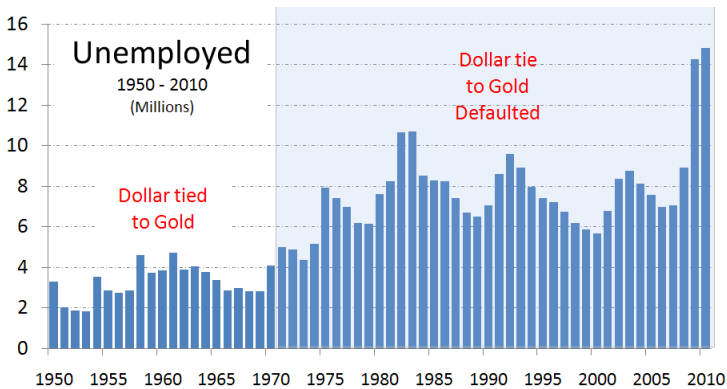


Exhibit 35: Unemployed 16 years and over; Source: BLS

The Free Competition in Currency Act of 2011, by speeding a transition to an honest monetary system, will help to create more and better job opportunities in the U.S.

Except for those workers who do manual work without tools, e.g., picking vegetables or who are professionals working in a knowledge-

based industry, well-paying jobs require tools, or more generally, plant and equipment. The more sophisticated the tool, the more investment in research and development is required over longer periods. The source of investment is always accumulated savings, i.e., that which is not consumed from one's production.

While legal tender irredeemable paper-ticket-electronic money created out of nothing by the banking system may at first blush appear to be an alternate source of funding separate from savings, in fact it dilutes the purchasing power of that which has been saved or has been promised for future payment. The only thing that gives fiat money value is that some people save it. If a country that had no accumulated savings issued paper money, that money would depreciate quickly and would, in effect, be rejected.

Part of the human condition is that people must save (or someone must save on their behalf, e.g., a pension plan) for a time when they can no longer work. Labor songster, the late Joe Glazer wrote a song commemorating this at the time that Walter Reuther was negotiating the Chrysler pension plan circa 1954. The refrain is "Too old to work, too young to die, how am I going to get by?"

Ordinary people are very security conscious and tend to allocate their savings to what they perceive to be the least risky (from the vernacular, not the financial definition) allocation. Most times, they allocate to U.S. Government bonds (in Europe, German bonds are considered safe). Ideally, however, society is best off when savings are allocated to productive enterprise.

Recently, David Malpass, president of Encima Global and former Bear Stearns' chief economist, wrote an insightful op-ed piece in the *Wall Street Journal* in which he observed:

"Treasury bond yields have been at near-record lows and gold prices at record highs, attracting millions of investors into idle assets through coins, exchange-traded funds, and even warehousing facilities." And,

"It means people would rather buy gold than hire workers or start businesses -- that they don't trust the central bank to maintain the value of their money."²⁵³

Thus, if people don't trust the efficacy of currency, they make a "flight-to-safety" rather than invest in productive enterprise. So far, there is substantial residual faith in the fiat dollar, as evidenced by the unsustainably low interest rates on U.S. Government securities.

²⁵³ "Beyond the Gold and Bond Bubbles Shouldn't the Fed Try to Improve Incentives to Invest in Growing Businesses?" by David Malpass, *The Wall Street Journal*, August 31, 2011.

That could change very quickly. The bottom line is that industrialization requires sound money, not money that a central bank can create, in Mr. Greenspan's exact words "without limit."

But there is another and more toxic effect of legal tender irredeemable paper-ticket-electronic money on jobs. As the banking system increases the money supply, as mentioned previously, the purchasing power of money that exists depreciates. This is called inflation as measured by the CPI.

Here is a long-term chart of M3, the so-called broad money supply, from official sources until March 2006, at which time the Federal Reserve stopped publishing this metric. The components of M3 are known, so some have constructed a proxy to continue the series. For our purposes, that proxy is meaningful. Here is a plot showing the M3 money supply from 1946 through 2008.

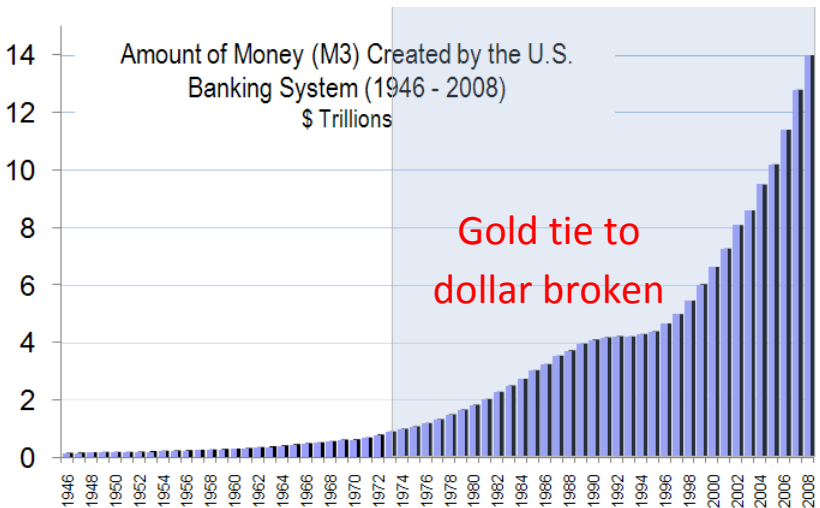


Exhibit 36: The broad money supply (M3) from 1946 to 2008.

Source: Federal Reserve until March 2006 when the Fed stopped reporting this metric. From April 2006 to December 2008 the data reflects estimates of various observers based on known components of M3.

In 1946, M3 was approximately \$150 billion. By 2008, it had ballooned to \$14 trillion. Contrary to what most people understand, all of our money is created by the banking system. Specifically, when

a bank makes a loan it creates the deposit with a simple book entry. The jargon for money creation is called “fractional reserve lending.”

Notice how the money supply accelerated after the last tie to gold was broken on August 15, 1971. A great deal of the increase in the money supply went into the capital markets, thereby increasing the nominal valuations of equities. Wall Street called this “wealth creation.” In fact, on account of the fees that went to financial sector participants and stock options that went to those who manage publicly-traded companies, it was mostly wealth transfer. I will have more to say about this in the section on Wall Street and the Banks.

Again, creating all of this new money out of nothing increased the price level. The effect on jobs has been an unmitigated disaster and from many points of view.

Consider the price level of the United States from 1800 to 2006:

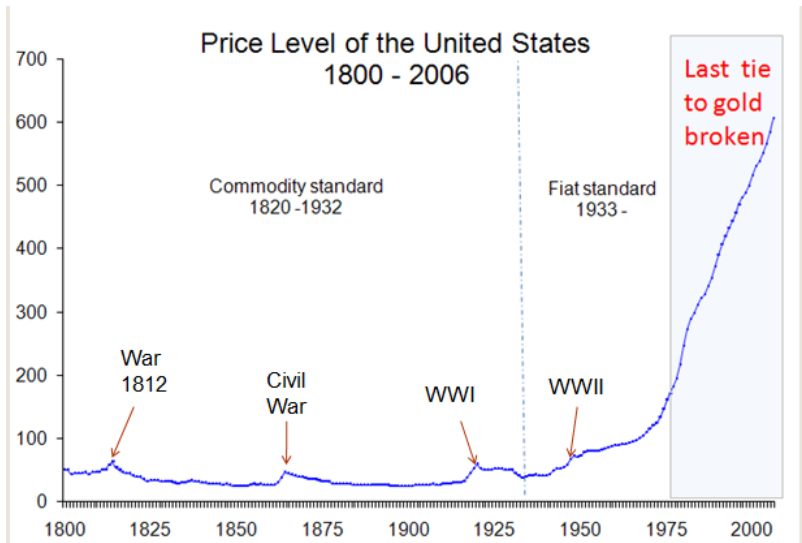


Exhibit 37: Price Level of the United States 1800 – 2006. Source: Federal Reserve Bank of Dallas.

Notice that the U.S. price level was stable for about 125 years. There were little blips at the time of the War of 1812, the Civil War, WWI and WWII, but at the end of the period prices were nearly what they were in the year 1800. During the period, there were enormous improvements in manufacturing as more and better products were produced. The standard of living at the end of the period was many times greater than that of the year 1800 with innovations such as the

steam engine, railroads, telegraph and many others. Further, the growing industrial strength made the U.S. the envy of the planet. At one point it appeared that a large part of the world's population wanted to migrate to the "Land of Opportunity," also called the "Land of the Free."

It is significant that after FDR seized all of the monetary gold owned by U.S. citizens and made it a felony for U.S. citizens to own monetary gold anywhere in the world, the price level began to increase, especially on account of financing the Vietnam War with legal tender irredeemable paper-ticket-electronic money.

At the time that president Nixon defaulted on the last promise to redeem dollars for gold to foreign countries and foreign central banks, not only did money creation accelerate, but so did the price level.

What does this have to do with jobs? As the price level increased, nominal wages increased, and along with some other effects, especially taxes (which are not part of the CPI calculation), the U.S. became uncompetitive with other locales. I recall up until the last tie to gold was broken the New York City metropolitan area where I live had a large garment center manufacturing presence. Because it was cheaper to manufacture in other countries, e.g., Japan, garment manufacturing, and most labor-intensive manufacturing left the U.S.

Shortly thereafter, whole industries migrated, such as shoe manufacturing. I have been told that there is only one large shoe manufacturer left in the U.S., Allen and Edmonds. As time went on the television industry, microwave ovens and myriad other industries took their jobs overseas.

The spin from Wall Street was that we would be doing the creative work (we would think, and the Asians would sweat) and everyone would benefit. Forgetting the effect of legal tender irredeemable paper-ticket-electronic money in financing "trade," so-called globalization was the new mantra to an improved standard of living for all. What was wrong with that argument?

The fallacy with globalization is that it wasn't trade, unless one wants to think of it as trading jobs for consumer electronics. When Ricardo postulated that comparative advantage and free trade would benefit all, England was on a gold standard, and trade meant an exchange of value for value and work for work. With a legal tender irredeemable paper-ticket-electronic monetary system, money is created without work. How much more work does it take to create a \$100 bill as opposed to a \$1 bill? None at all. And the amount of work it takes to create a \$1 bill is about two cents. In this light, globalization is not trade. It is wealth transfer.

Money Creation Effects on State and Local Taxes

Commodity money tends to facilitate lower tax rates and less taxation, since citizens see how much is being extracted from them. As fiat money is created out of nothing, there tends to be inflation and ordinary working people are pushed into higher tax brackets. People pay a larger percentage of their income to taxes.

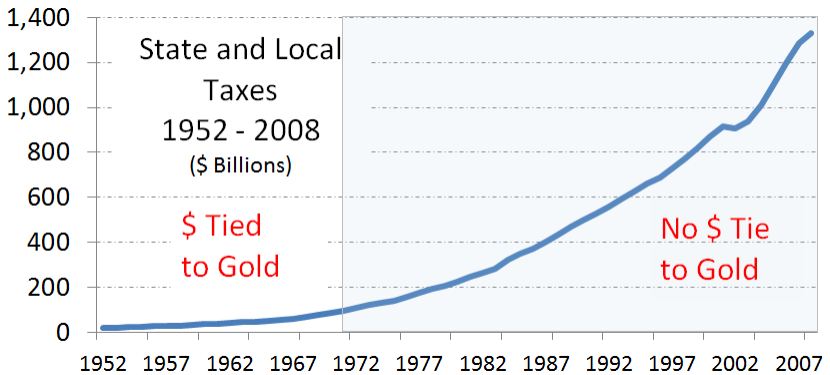


Exhibit 38: State and Local Taxes 1952 – 2008; Source: government data

After the last tie to gold was broken in 1971, concomitant with money creation, state and local taxes increased greatly. Until recently, except for a very slight decrease in year 2003, tax collections were clearly in a long-term uptrend. Few made the connection between legal tender irredeemable paper-ticket-electronic money and tax revenues. The apparent prosperity generating the increased tax revenues was a mirage based on fiat money.

The result was that state and local politicians were induced to expand public services and to make promises, such as pensions and benefits, to public employees that they should not have made and which cannot be kept. One can well understand the fury of those who have been promised pensions and benefits, having worked their entire careers in anticipation of receiving them and then being told that these promises cannot be kept. Reality must be confronted in a way that will minimize the damage and pave the way for an honest monetary system that will provide genuine prosperity going forward.

The alternative of increased money creation along with so-called “inflation targeting,” while kicking the can down the road, will compound the catastrophe. The money issue needs to be addressed

now. *The Free Competition in Currency Act of 2011* provides a clear path.

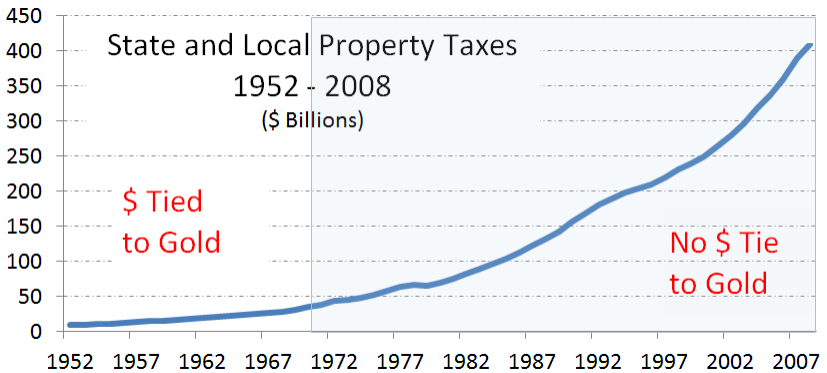


Exhibit 39: State and Local Property Taxes 1952 – 2008; Source: Government data

A great deal of legal tender irredeemable paper-ticket-electronic money created out of nothing found its way to financing real estate. As a result, real estate values increased greatly and so did concomitant real estate taxes. One effect was that seniors whose income was fixed, and also on account of other increasing costs such as fuel, insurance, medical care etc., got squeezed out of their homes. Some, not being mindful of money creation and anticipating ever-increasing values of their homes, took out additional mortgages. Everyone knows how that turned out. Few have connected the dots to legal tender irredeemable paper-ticket-electronic money.

But legal tender irredeemable paper-ticket-electronic money is responsible for another and in my view more insidious effect. While bankers, Wall Street firms, mortgage brokers, real estate brokers and a small army of support personnel profited and walked off stage with major fortunes, manufacturers whose products were marginally profitable had to abandon their businesses and fire their employees.

For example, a couple of years ago *The New York Times* ran a story about Bartlett Manufacturing Company in Cary, Illinois, which had to close its printed circuit board factory because the property taxes were no longer affordable. As can be seen from the photo, this was a machine-intensive business.²⁵⁴

²⁵⁴ Uchitelle, Louis; "Obama's Strategy to Reverse Manufacturing's Fall"; *The New York Times*, 7/21/09



Exhibit 40: Bartlett Manufacturing Company shutdown on account of property taxes

After he closed the business he was quoted as saying: “I am going to tear down the building and sit on the land, and hopefully sell it after the recession when land prices hopefully rise.” As can be seen, this is a perfectly serviceable building.



Exhibit 41: Bartlett Manufacturing Company teardown on account of property taxes

The bottom line is that legal tender irredeemable paper-ticket-electronic money has myriad adverse effects, one of which, by causing taxes to increase at the state and local level, is contributing to the destruction of industry and jobs.

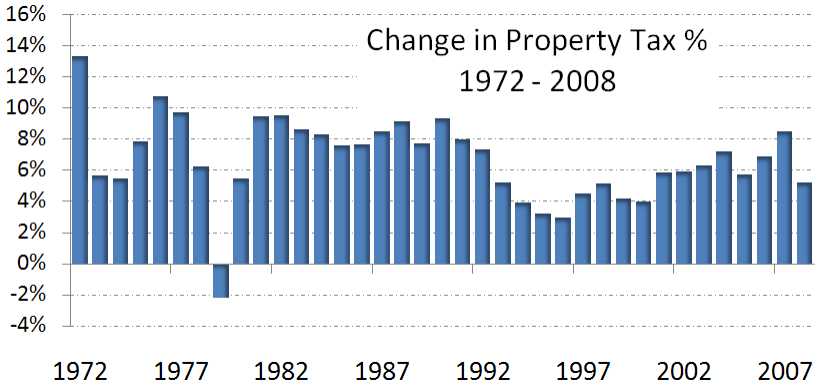


Exhibit 42: year-on-year percentage change in property taxes; Source: government data

Small digression: property taxes are not included in the CPI calculation. In addition to property taxes there are many other fees and charges that increase on account of money creation.

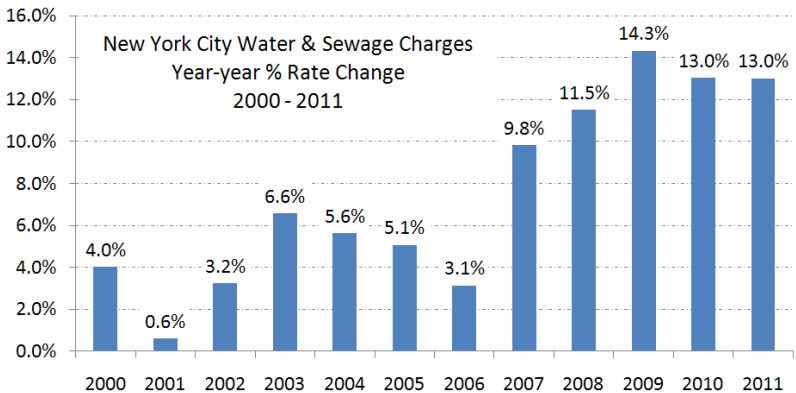


Exhibit 43: New York City Water & Sewage Charges year-on-year change 2000 – 2011; Source: New York City Government

Real Wages

With commodity money, real wages tend to increase, as does the standard of living. With fiat money, real wages tend either to stagnate or decrease, as does the standard of living. This is confirmed by the empirical data.

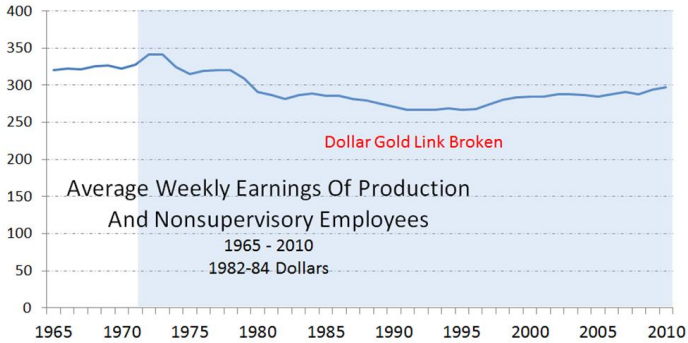


Exhibit 44: Average Weekly Earnings Of Production And Nonsupervisory Employees, 1982-84 Dollars; Source: BLS

The tipoff that legal tender irredeemable paper-ticket-electronic money adversely affects wages is the use of the adjective “real.” Without the modifier are wages imaginary? Yes they are. Even with the modifier, with fiat money wages are denominated not in dollars as the term is used in the *Constitution*, but in dishonored promissory notes, i.e., broken promises to pay dollars (see the section: Why legal tender irredeemable paper-ticket-electronic money is dishonest).

Common usage is for “real” to mean “adjusted for inflation” as measured by the CPI. As explained in the section: The perils of money creation, this adjustment understates the depreciation of the currency, and so real wages have suffered even more than shown in Exhibit 31. While there was a link to gold and our dollar was more stable, real wages had been increasing.

At the inception of the Labor Movement in America, circa 1830, working people were very mindful of the perils of paper money, which, while not legal tender, was redeemable into specie on demand. The problem from Labor’s point of view was that redemption had to take place at the bank of issue, which was not always geographically convenient. As a result, workers paid with paper money most times suffered a redemption cost when they redeemed it for specie.

Gold and silver as money, a.k.a. sound money (because it made a sound) or honest money, was one of the three issues that motivated men to join unions. The other two were the ten-hour workday and education for workers. Eli Moore, then president of the Typographers’

Union in 1832, was the first union official to win a seat in Congress. He was a staunch supporter of Andrew Jackson who got rid of the Second Bank of the United States by vetoing its renewal charter and who was an outspoken supporter of gold.

Propensity to Save

Commodity money is very savable because it doesn't obsolesce or deteriorate and is difficult to counterfeit. Purchasing power is not diminished. Fiat money is less savable and can discourage long-term savings altogether, since its future value is always in doubt. Why save a depreciating asset? This is confirmed by the empirical data.

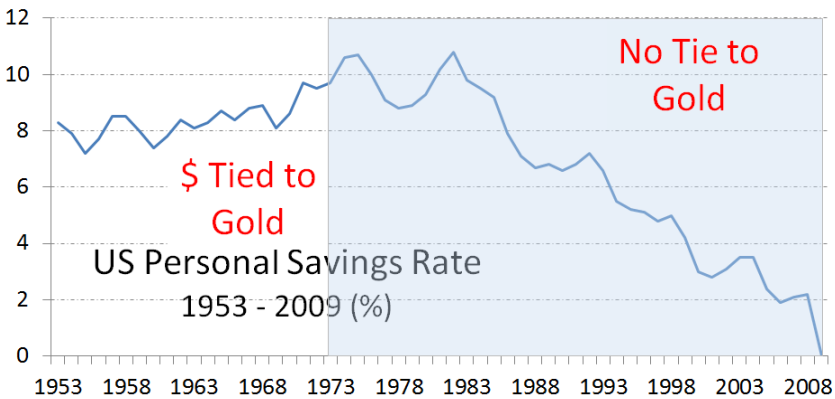


Exhibit 45: U.S. Personal Savings Rate; source: <http://www.bea.gov/national/nipaweb/SelectTable.asp#S5>

The only way to build a rich society and improve everyone's standard of living is to save and invest. Provided one invests in a society that respects property rights and one can reasonably expect to enjoy positive results of an investment, should there be any, then one tends to risk a portion of one's accumulated savings by investing in productive enterprise. Otherwise, one might just as well spend and enjoy one's income. That is precisely what the empirical data confirms.

It is invested capital, both physical and intellectual, that are a precondition for high-wage jobs. The lack of accumulated capital in most of Africa is the principal reason why wages are so low in that region. Because legal tender irredeemable paper-ticket-electronic money always depreciates, especially for long-term investments, the eventual chance that one will enjoy a positive result from risking

one's savings is less than it would otherwise be, and so there is less of it.

Most important, since legal tender irredeemable paper-ticket-electronic money always depreciates, less of it is saved than otherwise. One deceptive escape hatch for some people is to allocate their savings to the equity markets and hope for the best. As will be shown, the capital markets benefit mostly those who get fees for facilitating transactions.

Pensions in Peril

Pension assets in physical gold are safe and secure. There is no counterparty risk. Because the amount of new gold produced each year is a tiny fraction, generally less than 2%, of the gold above ground, prices denominated in gold remain stable over time. Because it takes work to mine and produce gold, the amount of gold above ground cannot be increased by whim.

With legal tender irredeemable paper-ticket-electronic money, pension assets are vulnerable to volatility in interest rates, rate-of-return and discount rate assumptions by those charged with contributing to defined benefit plans, whether they are private or political entities. Because fiat money can be created out of nothing without limit, the purchasing power of pensions is vulnerable to severe depreciation.

The Free Competition in Currency Act of 2011, by speeding a transition to an honest monetary system, will make pensions more secure and more valuable for the putative beneficiaries.

With our current legal tender irredeemable paper-ticket-electronic monetary system, the real beneficiaries of pension plans are financial sector firms, especially banks, brokerage firms, and the army of professionals who service them. If retirees receive their promised pensions and benefits, it will be a happy accident. Already, millions of steel workers, textile workers, airline workers and many others have lost promised pensions and benefits which they have earned.

The short explanation is that financial sector firms get fees now in money that still has purchasing power, while pensioners are looking forward to getting their payments later. When later arrives, the money they receive will at best be worth a lot less than what they are expecting, and at worst will be worth nothing at all. In many ways, this is similar to the classic Ponzi scheme in that some people get paid sooner; when later arrives, folks are left with an empty bag.

An important way in which real assets are improperly transferred to the financial sector has to do with the manner in which assets are allocated to various financial vehicles.

Today, U.S. private and state and local pension funds have approximately \$9 trillion in assets.

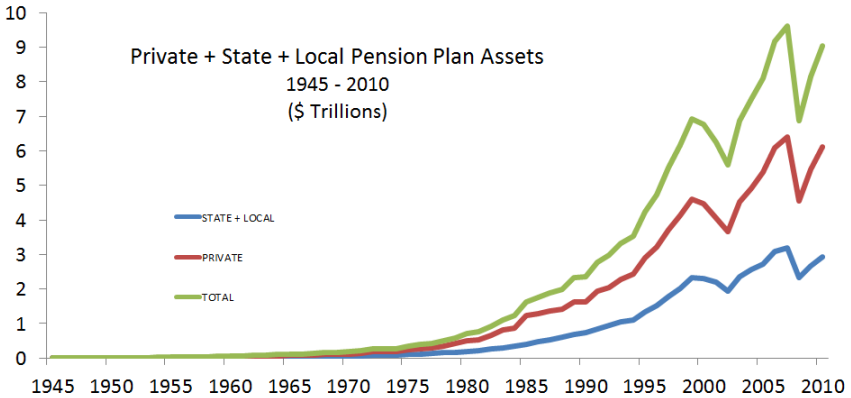


Exhibit 46: U.S. private and state and local pension assets. Source: Federal Reserve Flow of Funds

Pension assets, while supposedly under the control and by law the fiduciary responsibility of pension plan trustees, are *de facto* under the control of consultants and Wall Street money managers from whom trustees take their marching orders. Order of magnitude, all factors considered, I estimate that fees and overhead for these funds is about one percent of assets, \$100 billion per year. This structure is enshrined in major legislation including *The Employee Retirement Income Security Act* (ERISA) and *The Pension Protection Act Of 2006* (PPA) which require trustees to be “prudent.”

In case something goes horribly wrong and pension assets are dissipated, virtually everyone has been given a “safe harbor” if they rely upon “standard industry practice.” In effect, what this means is that no one will be held liable if they diversified the allocation of assets and relied upon “experts.” The experts, however, have a conflict of interests with the beneficiaries, because their compensation is derived from fees which they have an incentive to maximize, and the diversification of assets is based on demonstrably phony methodologies.

Over the years, along with academic “experts” whom the financial sector has compromised through endowed chairs, prizes²⁵⁵, honorariums, research grants, consulting work, and who knows what else, demonstrably bogus methodologies have been conferred legitimacy that enhance fees to the detriment of pension plan beneficiaries.

The ranks of those who might become experts is highly restricted because journals that an academic must publish in to qualify for tenure and to move up the academic food chain are, for the most part, edited by folks who are present or former employees of the banking system, and especially the Federal Reserve.

“One critical way the Fed exerts control on academic economists is through its relationships with the field's gatekeepers. For instance, at the *Journal of Monetary Economics*, a must-publish venue for rising economists, more than half of the editorial board members are currently on the Fed payroll -- and the rest have been in the past.”²⁵⁶

These editors act as gatekeepers and do not publish anything that challenges fundamental assumptions nor the legitimacy or honesty of central banking and the legal tender irredeemable paper-ticket-electronic monetary system.

Here is another example of how the Federal Reserve has compromised the Academy: In 1994, Mr. Stephen Davies wrote an article citing evidence collected by then Chairman of the House Banking Committee Henry Gonzalez showing that the Fed has spent millions hiring economics faculty members as “consultants.” The article quotes Mr. Gonzalez:

“The Federal Reserve employs hundreds of researchers in their [sic] research departments, but inexplicably also spends millions to pay hundreds of outside economic consultants. . . *The Fed is simply buying off potential critics by holding out contracts that offer academics extra money and use of the Fed's facilities. No agency that has to justify its spending would dream of this kind of extravagance and waste.*” [Emphasis added.]

More telling, the article continues:

²⁵⁵ The Nobel Prize in Economics, for example, is not one of the prizes that were endowed by Alfred Nobel in 1895. It came in 1968, and the endower is the Central Bank of Sweden. The real name of the prize is Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel. It is a bank prize, and it is not given to anyone who might challenge the honesty or legitimacy of central banking.

²⁵⁶ “Priceless: How The Federal Reserve Bought The Economics Profession” by Ryan Grim, 9-7-09, http://www.huffingtonpost.com/2009/09/07/priceless-how-the-federal_n_278805.html

Moreover, the *Bond Buyer* has learned that in the case of the Federal Reserve Board, all contractors are required to sign a non-disclosure statement... broadly worded *to prohibit the release of any information relating to past, present or future activities that can be considered damaging to the Board.*²⁵⁷ [Emphasis added.]

The bogus methodologies, e.g., Modern Portfolio Theory (MPT) and the Capital Asset Pricing Model (CAPM), which work to generate fees, would not be applicable if we had an honest monetary system without legal tender irredeemable paper-ticket-electronic money.

Allow me to explain. Modern portfolio theory is a theory of investment which attempts to:

- (1) Maximize portfolio expected return for a given amount of portfolio risk; or equivalently,
- (2) Minimize risk for a given level of expected return, by carefully choosing the proportions of various assets.

Notice the reference to “risk.” The meaning of “risk” in this context is crucial, because there needs to be some standard against which to measure risk. For MPT asset allocation, the standard is called the “riskless rate-of-return,” i.e., the rate of return on an asset allocation with zero risk over a period. In practice, the USD 3-month Treasury bill is considered to be a (near) riskless asset. But what about the risk that the dollar will lose purchasing power? That risk is not considered.

Furthermore, in the financial sector, the word “risk” has yet another meaning: it means “volatility.” The risk of the dollar losing purchasing power is also not considered. As price volatility increases, “risk” is said to increase. This special and limited definition gives birth to concepts such as the “risk-adjusted rate-of-return.” Thus, an allocation to gold might have a lower risk-adjusted rate-of-return than, say, an allocation to equities or real estate, despite the fact that an allocation to gold increased by about 18% per year since 2001 and without any down years!

257 Davies, Stephen A.; "Some Lawmakers Claim Fed Keeps Critics at Bay With Jobs", *The American Banker**Bond Buyer, December 2, 1994 page 3.

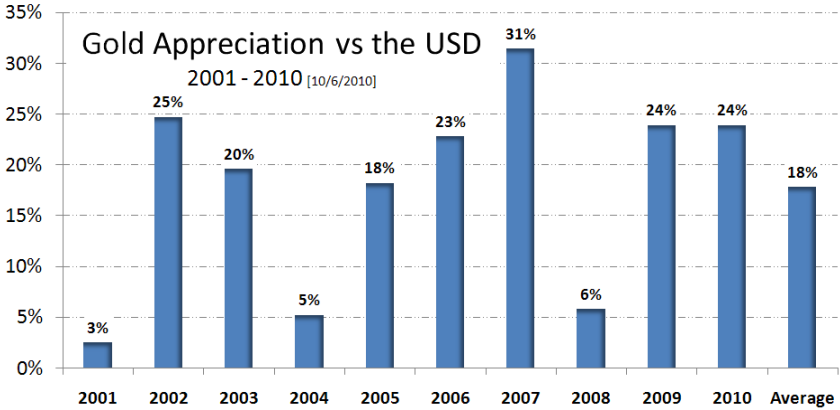
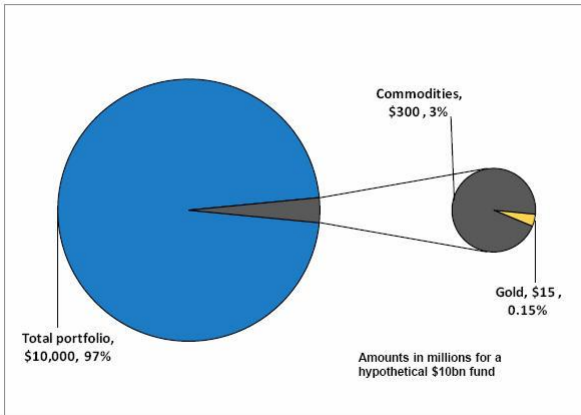


Exhibit 47: Gold appreciation vs. the dollar 2001 - 2010

But using standard industry practice, except for a unit of the Texas Teachers' Retirement Fund and a few others, U.S. pension funds are believed to have less than \$20 billion of their assets in gold out of their approximately \$10 trillion.²⁵⁸

Gold holdings at U.S. pension funds are negligible...



Source: TRS

Exhibit 48: Estimated gold holdings at U.S. pension funds; Source: Texas Teacher's Retirement Fund

²⁵⁸ An allocation to gold might pay a fee at the time of purchase, but then the fee stream stops.

From here, the story gets worse. Much worse. For almost everyone who is not in the financial sector or providing services to it, risk, according to the *Oxford English Dictionary*, means “(Exposure to) the possibility of loss, injury, or other adverse or unwelcome circumstance.”

What could be a more adverse or unwelcome circumstance than having one’s hard-earned savings, allocated to sovereign debt (either U.S. or some other country) and having it redeemed in currency whose purchasing power has greatly depreciated? How do the ratings agencies treat this risk in assigning ratings to various fixed income securities? This is important, because at home and abroad many pension funds are restricted by law to allocate to only “investment grade” securities.

To check this out, I queried the major ratings agencies (Fitch Ratings, Moody’s, and Standard and Poor’s):

“If the purchasing power of a sovereign’s currency, e.g., in the U.S. that would be the dollar, were to fall to zero, and all of the outstanding sovereign’s debt was paid down with worthless currency, would that or would that not constitute a default in the opinion of [rating agency]?”

Eduardo Barker, Communications Strategist, Sovereign and Latin America Moody’s sent me a sheet with its explanation of sovereign ratings that did not appear to address the question along with a statement “we would not comment beyond that.”

Fitch Ratings was more forthcoming. Brian D. Bertsch, Director, Corporate Communications, wrote me: “It is very hypothetical but most likely it would not be considered a default.”

Standard and Poor’s was the most straight forward. John Piecuch, Director, Standard & Poor’s Communications, wrote me: “In terms of your question, even in the case of hyperinflation, a currency’s purchasing power is still not zero (if it were zero, it would cease to be a currency). Even in that case, as long as the issuer were honoring the original terms of the contract (even if repaying with much cheaper currency than originally borrowed), this would not be a default.”

Thus, through the use of Modern Portfolio Theory and ratings from government-endorsed ratings agencies, pension plan assets are not being allocated to the one asset that would give beneficiaries the most protection against a decrease in the dollar’s purchasing power.

Empirical evidence, in the U.S. and elsewhere, is incontrovertible that currency depreciation is a material risk. Consider again the depreciation of the dollar from 1949, according to official CPI data:

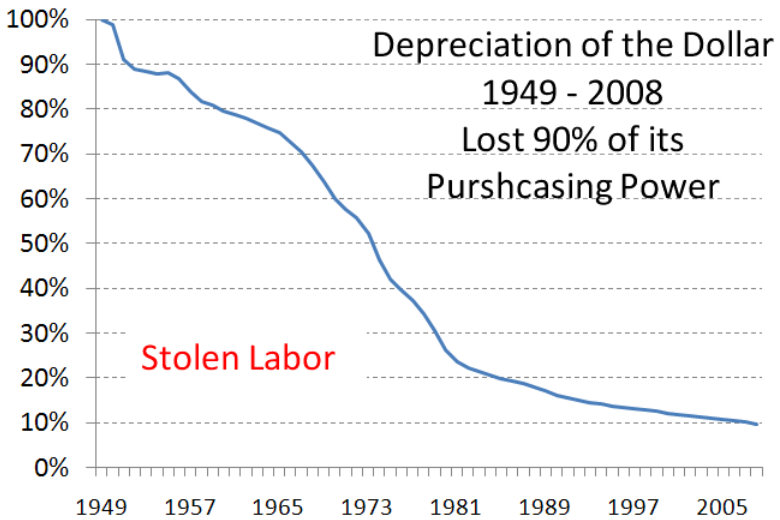


Exhibit 49: Depreciation of the Dollar 1949 – 2008; Source: CPI data, BLS

Balance of Trade

With commodity money such as gold or silver trade balances because one is always trading work for work, and value for value. With gold-as-money, exports pay for imports and balance of trade deficits are small or nonexistent.

With fiat, irredeemable paper ticket-token or electronic-checkbook money, and provided that foreigners, especially foreign central banks, continue to save legal tender irredeemable paper-ticket-electronic dollars, which, by the way, are legal tender only in the U.S., as history shows, enormous trade deficits are possible. Not only are foreigners going to end up with an empty bag, along the way these huge trade deficits represent lost employment at home.

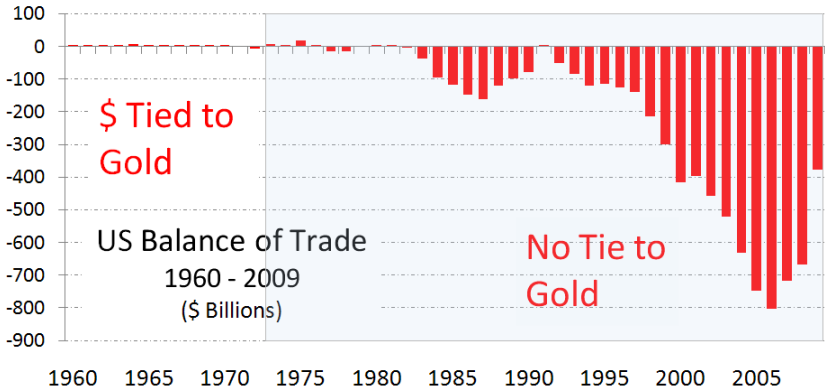


Exhibit 50: U.S. Balance of Trade 1960 – 2009: Source: Government data

This is a really ugly chart. It provides empirical evidence that after the last tie to gold was broken in 1971, partly as a result of many U.S.-based industries moving production overseas, the U.S. began to experience enormous trade deficits. Leaving aside the trillions of dollars that have accumulated as reserves in the other countries, especially China, Japan, South Korea, etc., this also reflects a huge transfer of good-paying manufacturing jobs to other locales.

While the Business Roundtable, along with the AFL-CIO and others were complaining about “currency manipulators,” and while Wall Street embraced the process, now called “globalization” and was cheerleading the globalization as concomitant to “wealth creation,” overlooked was the fact that the dollars accumulating overseas weren’t really dollars at all. It was, as Jefferson called it, “only the ghost of money, and not money itself.”

When the legal tender irredeemable paper-ticket-electronic dollar meets its fate, in addition to folks at home, there are going to be some very unhappy and angry people overseas. Are foreigners going to continue to sell us oil along with the myriad other products we now depend on from imports to keep our society functioning? This is a risk factor policy makers need to address.

Federal Taxes and Spending

With commodity money such as gold or silver, as government spending increases, taxes or borrowing (delayed taxation) must increase, because there is no other source of funding. People tend to resist higher taxes, thereby limiting government spending.

With fiat, irredeemable paper ticket-token or electronic-checkbook money, since government has easy access to money created out of nothing, it does not need to increase tax rates. In effect, it can borrow by so-called monetizing debt. In time, money is depreciated, which causes prices, including the price of labor, to increase in nominal terms, along with concomitant tax collections.

However, because of the delay in tax collections, spending almost always exceeds revenues. Eventually the purchasing power of the legal tender irredeemable paper-ticket-electronic money approaches its cost of production —near zero— there is a regime change and the party ends.

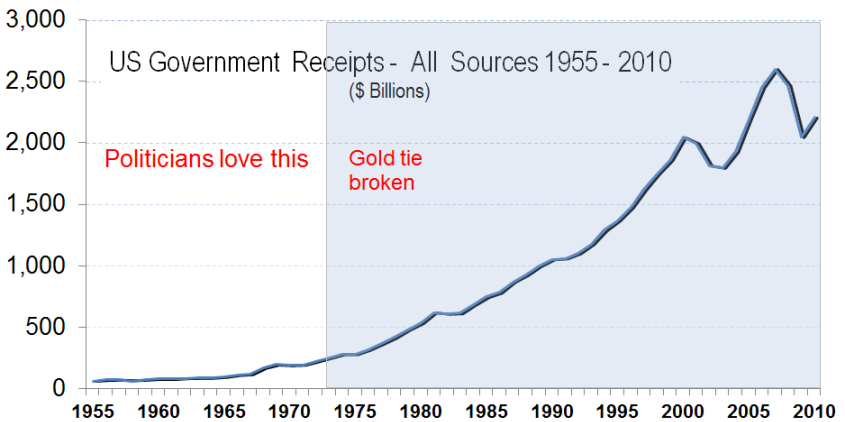


Exhibit 51: U.S. Government Receipts: 2955 – 2010; Source: U.S. Department of Treasury: Monthly Treasury Statement - Table 1; FRB 1.39 (for historical fills)

Notice that after the last tie to gold was broken tax collections accelerated greatly. Even before the gold link was defaulted, to fund the Vietnam War, there was material money creation. As some of that money leaked overseas to U.S.' major trading partners, Great Britain, France, Japan and Germany, both Britain and France, recognizing that too many dollars were being created for the U.S. to maintain its sovereign promise to redeem dollars for gold at the rate of one ounce of gold for \$35, began redeeming dollars in ever-increasing amounts. At the time when President Nixon defaulted, "temporarily," he said, it was clear that had he not defaulted all of the U.S. gold would have been gone anyway.

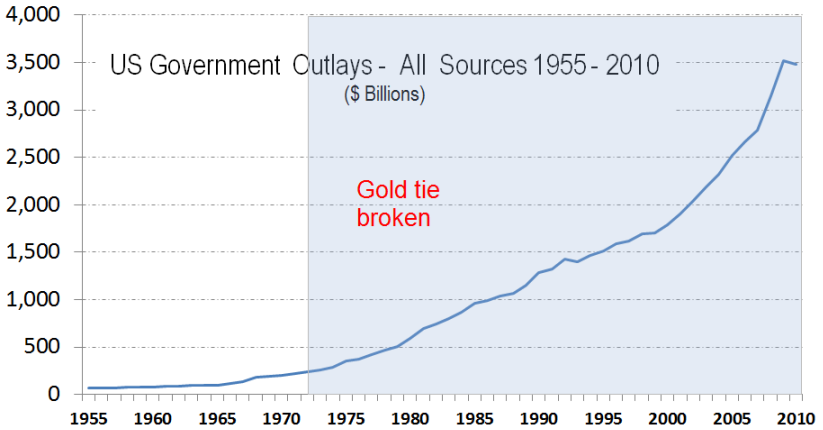


Exhibit 52: U.S. Government Outlays 1955 – 2010; Source: U.S. Department of Treasury: Monthly Treasury Statement - Table 1; FRB 1.39 (for historical fills)

As federal government receipts continued to increase year-after-year, politicians bought into the notion that this was the result of our growing economy. They were not mindful that the nominal numbers were being driven by ever-increasing money creation. True, there were some wakeup calls along the way, especially when inflation began to pick up at the end of the 1970s, but high interest rates, imposed by Mr. Volcker, appointed by President Carter, were thought to have “broken the back of inflation.”

On April 19, 1993 Mr. Greenspan gave a speech using the word “inflation” an incredible 58 times, in which he stated that “it is going away; it is not coming back; it is not a problem; it is diminished; it is nonrecurring; it is subdued; there’s no resurgence; we’ve learned our lesson.” Pronouncements such as these also diverted people’s attention from the amounts of money being created out of nothing. In addition, much of the newly-created money accumulated in the capital markets. The equity and real estate markets spiraled upwards. Investors were euphoric. The CPI was reformulated to take lesser account of the increase in housing prices, and so the monetary authorities could then claim that inflation was benign.

Because so much of the newly-created money found its way to the fixed income market, people who should have known better adopted the view that “deficits don’t matter.” President after president greatly increased spending. This would not have been possible if we had an honest monetary system.

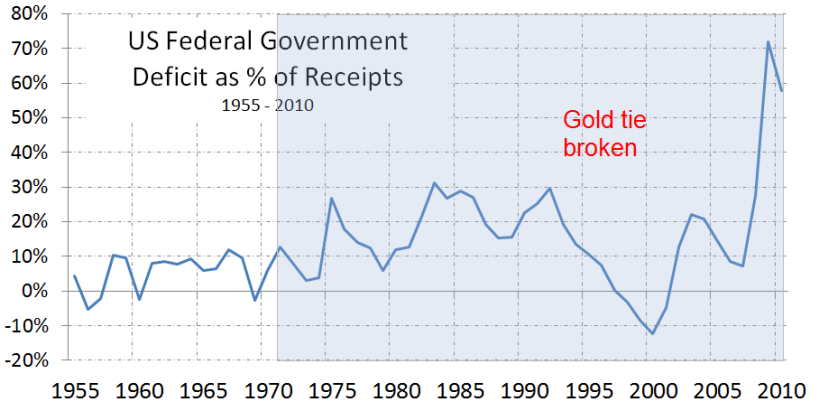


Exhibit 53: U.S. Federal Deficit as a % of receipts; Source: U.S. Government

In an attempt to put the government deficit into perspective, most economists compare it to GDP. This is a grave error, in my view. The GDP, a specious metric to begin with, is not available to the government to service and, if was honestly incurred, repay its debt while meeting its promised obligations. For any entity, the money to service and repay debt must come from receipts.

As shown above for the period 1955 to 1970, prior to defaulting on the last promise to redeem dollars for gold, the federal deficit as a percentage of receipts was almost always less than 10%. These days, it is painfully clear that the deficit is completely out-of-control. Theoretically spending could be reduced to bring it in line with receipts. However, that would mean defaulting on benefit promises. It is difficult to imagine how that could happen.

Meanwhile, many trial balloons are appearing in the major media forecasting and endorsing currency debasement.

“Washington will therefore have little choice but to take the time-honoured course for big-time debtors: print more dollars, devalue the currency and service debt in ever cheaper greenbacks. In other words, the US will have to camouflage a slow-motion default because politically it is the easiest way out.”²⁵⁹

“Any inflation above 2 per cent may seem anathema to those who still remember the anti-inflation wars of the 1970s and 1980s, but a once-in-75-year crisis calls for outside-the-box measures.”²⁶⁰

²⁵⁹ Garten, Jeffrey, *Financial Times*, November 30, 2009; “We must get ready for a weak-dollar world”

²⁶⁰ Rogoff, Kenneth; “The bullets yet to be fired to stop the crisis”; *Financial Times* 8/9/2011

“In the future, central banks will have to realize that debt-financed expansions in asset prices can be a threat. For now, it would be nice if they would at least recognize that major deflations in asset prices can be much more important than the relatively small gains in commodities that show up in the Consumer Price Index.”²⁶¹

Government Deficits

It is difficult to sustain government deficits with commodity money because they would have to be funded by borrowing. Since a commodity money supply cannot arbitrarily be expanded, interest rates would increase if government increased borrowing. Manufacturers and others would then object to higher interest rates, causing government to reduce spending, and thereby causing deficits to decrease.

With legal tender irredeemable paper-ticket-electronic money, as long as someone, such as the Bank of Japan, the Bank of China, the Federal Reserve, or banks, will purchase government securities by creating money out of nothing (called “monetizing debt”), deficits can be funded without greatly increasing interest rates, and deficits can grow without limit (in theory). Also, government debt can be financed by pension plans and other institutions. Eventually, the debts are defaulted.

The empirical evidence confirms that government deficits are facilitated by legal tender irredeemable paper-ticket-electronic money.

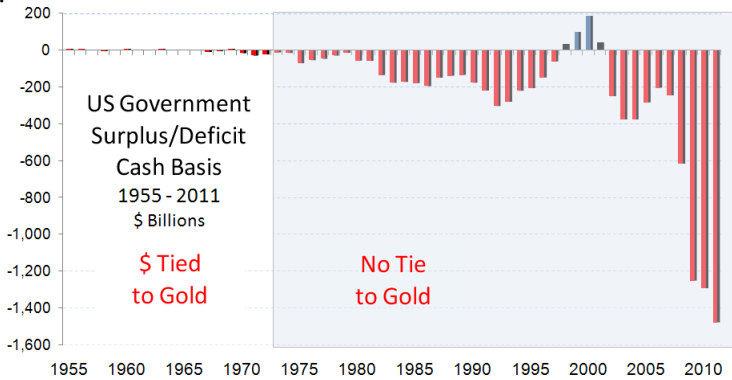


Exhibit 54: U.S. Government Surplus/Deficit Cash Basis 1955 – 2011;
Source: BLS

²⁶¹ Norris, Floyd; “Sometimes, Inflation Is Not Evil”; *The New York Times*, August 11, 2011

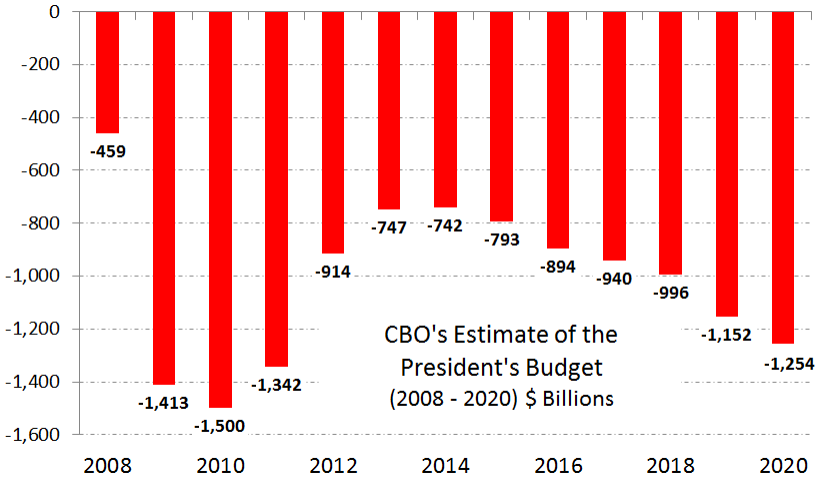


Exhibit 55: Recent CBO Estimate of forecasted deficits; Source: Congressional Budget Office; Office of Management and Budget.

The data shows conclusively that while the dollar had a link to gold, government deficits were small. After the last tie to gold was broken, the deficits and resulting government debt accelerated greatly. Also, these deficits use the cash method of accounting.

If one factors in the present value of promises, e.g., Social Security, Medicare, Medicaid, etc., then the deficits are much greater. Some estimate that the accumulated obligations are on the order of \$100 to \$200 trillion! Because politicians cannot renege outright on their promises, especially if they want to be reelected, there will be motivation to continue to inflate the currency until it collapses. I don't see any alternative.

That's why *The Free Competition in Currency Act of 2011* is important. It provides a way to mitigate the damage and prepare our country for an honest monetary system.

Financial Market Instability and the Best Argument against Gold

Absent fraud and coercion, a monetary system based on gold-as-money is stable. With Legal tender irredeemable paper-ticket-electronic monetary systems, because there is no market-based mechanism that provides negative feedback to increasing the money supply, total debt and leverage will necessarily blow up.

The strongest argument against linking the dollar to gold, sometimes referred to as the "gold standard," is that financial

markets are *inherently* unstable. Because almost all other markets depend on the financial sector for payment processing, there needs to be a lender-of-last-resort. If the dollar is tied to gold, the lender-of-last-resort may not be able to function. Therefore, it is claimed, modern financial markets require a “properly managed” (to quote William Niskanen, former Chairman of the CATO Institute) fiat monetary system.

While it is true that over the last two centuries financial markets have been unstable, they are not inherently unstable. Misrepresentations and nondisclosure about our monetary system and about basic banking customer relationships enable financial sector firms to over-leverage. This is the root cause of financial instability. Remedies being put forth, such as a global lender of last resort, will be counterproductive and will result in greater instability. The solution is to change the structure of the world’s monetary systems to remove the cause of such instability: the ability of banking systems to create money out of nothing.

In the U.S. during the 19th and 20th centuries, there were numerous boom/bust periods in which financial markets soared and then collapsed. How come this malady wasn’t common to other markets, such as the ice cream market or the automobile market? What is it about financial markets that they tend to boom and bust? Also, it is essential to understand that because financial markets are interrelated with other markets, a financial market collapse can also result in a systemic collapse.

A distinguishing characteristic of financial markets that is absent from other markets is *excessive* leverage. On the futures exchanges, various commodities are leveraged, but no one would suggest that the markets for, say, copper or soybeans are inherently unstable. Clearly there is something different about financial markets. That difference is inadequate counterparty surveillance. And that inadequacy is the result of misrepresentations and nondisclosure, which is the indicia of fraud, on the part of key financial players: banks.

From inception, banks made fundamental misrepresentations to their customers regarding the basic banking relationship in two areas. First, banks told customers that they were “depositors.” At best, this was misleading. In fact and in law, depositors were, and continue to be, unsecured creditors of banks. Most depositors, especially small ones, put their money in banks for safe keeping; they were not heedful of the risks they were taking.

Second, banks told customers that they could get “their” money back “on demand.” However, in fact and in law, when people “deposit”

money in a bank, it becomes the bank's money to do with as the bank pleases. The bank may loan that money to someone else, invest it in whatever, including illiquid investments, or gamble with it. Further, what banks should have told depositors was that they could get their money back on demand provided: not too many of them wanted to do so at the same time; the money had not been invested in something that was illiquid and that could not quickly, and without much loss, be converted back into cash; and, finally, that the bank had not lost the money in some venture.

Third, when banks make a loan, they create the deposit with a book entry.

These misrepresentations lulled depositors into acquiescing to nondisclosure on the part of banks as to what they were doing with depositors' money and the amount of leverage banks were employing. If banks told depositors the truth about the basic relationship, depositors would have exerted more counterparty surveillance over banks, excessive leverage would never have occurred, and there would never have been anything approaching systemic failure, as almost occurred in 1907 and as did occur in 1932.

In his book, *Soros on Soros*, Mr. George Soros correctly observes that a lender of last resort and the gold standard are incompatible. What made the lender of last resort bailout facility necessary were banking misrepresentations and nondisclosures.

By abandoning the gold standard, banks enhanced their ability to, in effect, create money out of nothing. Whereas under the gold standard they were able to create money, called "fractional reserve lending," there were some (clearly inadequate) limitations on the amount of money they could create. First and foremost, since all of the newly created money, called banknotes, which were legally promissory notes, were redeemable on demand in gold, there was a physical limit beyond which market forces would close a bank that created money greatly in excess of its capital and its reserves, thereby curtailing additional money creation.

Second, with some limitations, bank officers and directors were personally liable to depositors. These two factors led many banks to keep something on the order of 40% of their reserves in gold, just in case. If those reserves could be reduced, then banks could garner more profits, and first some, and then many banks sought to do so. The notion that banks were acting improperly was well understood by some market participants.

"Perhaps Hugh McCulloch, our first Comptroller of the Currency, may have been somewhat over the edge, in this regard, when in 1863

he proposed that the National Bank Act 'be so amended that the failure of a national bank be declared prima facie fraudulent, and that the officers and directors, under whose administration such insolvency shall occur, be made personally liable for the debts of the bank, and be punished criminally, unless it shall appear, upon investigation, that its affairs were honestly administered.' So much for moral hazard. And surely, here we observe the intellectual origins of prompt corrective action." [Speech by Federal Reserve Chairman Alan Greenspan before the American Bankers Association, Washington, D.C., September 18, 2000]

After the Panic of 1907, which J. P. Morgan alleviated with a huge gold loan to banks so that they could meet the demands of depositors who were then withdrawing their funds, there were four words that terrified the banking community: "What if he [Morgan] dies.?" The answer was a government entity that would provide "liquidity" when the banks got caught short. Further, the formation of the Federal Reserve enabled bank reserves to be aggregated so that there would be a need for less of them, and the banks could leverage even more than before.

The banking system was thus able to finance World War I. Without such financing, and had there been full disclosure at that time about the causes of bank panics, some suggest that the War would have been over in just a couple of months with no Treaty of Versailles, no destruction of the German and Austrian currencies, no Hitler, no Lenin, no Stalin, no World War II, and the murder of 150 million, excluding those who died during wars during the Twentieth Century, would not have occurred.

No amount of regulation will eliminate the moral hazard issue. Further, the system, with moral hazard, is inherently unstable, and the moral hazard issue means that there will necessarily be wealth transfer from ordinary working people to those who benefit from the moral hazard: the financial sector. Not only is this unfair, it will not stand the light of day if ordinary people come to understand what is transpiring.

The solution is gold-as-money. There are compelling reasons why free men and free markets choose precious metals as money. In a nutshell, because of its physical attributes, precious metal as money is the most efficient medium of exchange—in terms of minimizing transaction costs—for transmitting value over time.

Levels of Debt

Because with commodity money prices tend to decrease, it becomes harder to service and pay down debt, and debt is discouraged. With fiat, irredeemable paper ticket-token or electronic-checkbook money, because debt gets serviced and repaid with cheaper money, increases in debt are encouraged. This also works to decrease the purchasing power of savings and future payments, the majority of which constitute pension funds. Today, booked debt (public and private), exclusive of the present value of promised “entitlements,” is more than \$52 trillion.

Exhibits 43, 44, 45, and 46 confirm that after the last tie to gold was defaulted, “temporarily” promised President Nixon, on August 15, 1971, debt levels in the U.S. greatly increased.

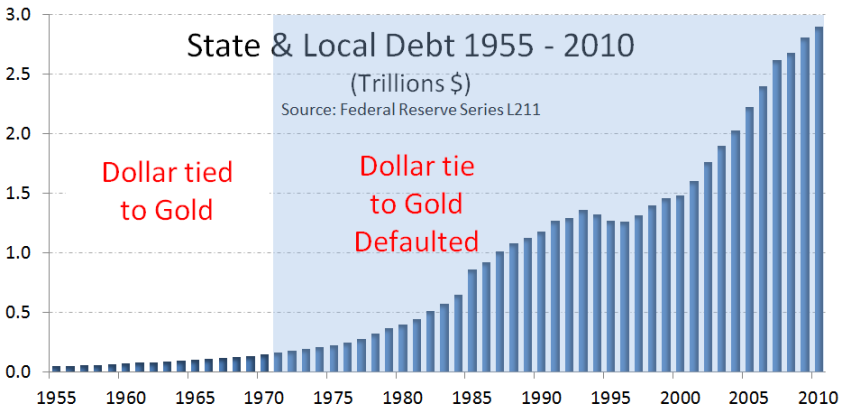


Exhibit 56: State and Local Debt 1955 – 2010: Source: Federal Reserve Flow of Funds

The level of debt at the state and local level does not include the present value of promised pensions and benefits to public employees. Because of the misallocation of pension assets, also largely the result of legal tender irredeemable paper-ticket-electronic money as I have explained, state and local finances will be under ever increasing pressure to increase taxes and/or to reduce services in order to meet obligations.

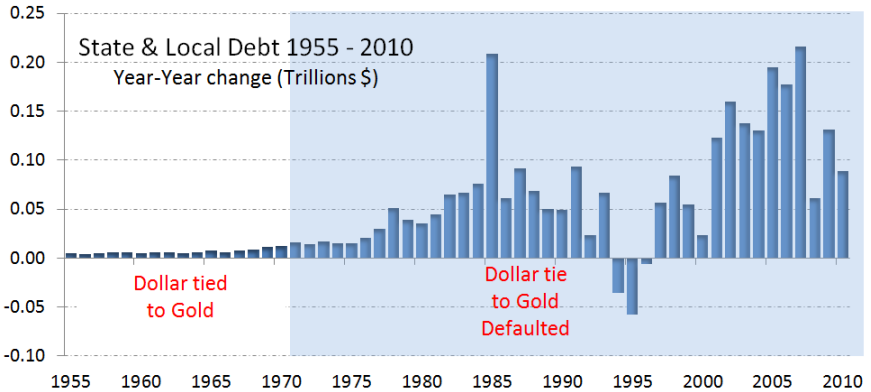


Exhibit 57: State and Local Debt 1955 – 2010 year-on-year changes;
Source: Federal Reserve Flow of Funds

The effects of fiat money on state and local debt are even more dramatic when one looks at the year-on-year change the state and local debt. Notice how much state debt accelerated after the last tie to gold was broken.

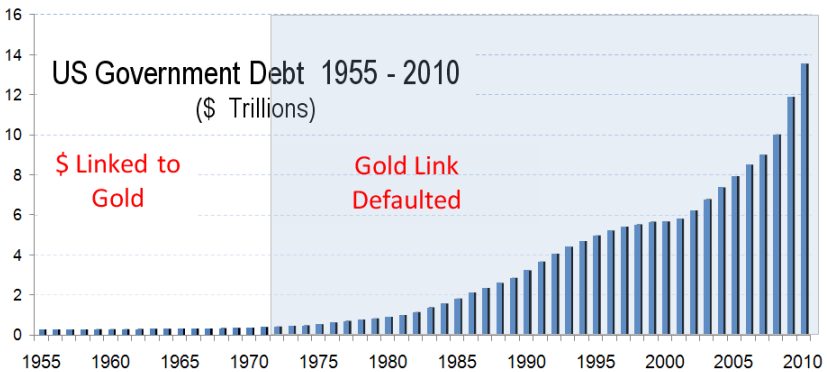


Exhibit 58: U.S. Government debt 1955 – 2010; Source: Federal Reserve Flow of Funds

It is now clear to many observers that U.S. Government debt is completely out-of-control. In my view, because there is neither the intention nor the ability to ever repay this debt with money of similar purchasing power at the time that the debt was incurred, this is fraudulent debt. The big losers will be ordinary people who have followed the rules, worked hard, and allocated their retirement

savings to U.S. Government securities, which they have been told are the safest in the world.

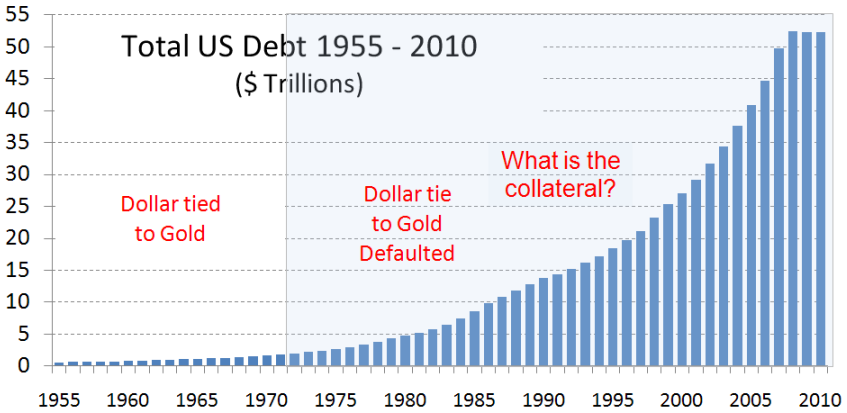


Exhibit 59: Total U.S. Debt 1955 – 2010; Source: Federal Reserve Flow of Funds

Total booked debt, exclusive of the present value of government and corporate promises for entitlements and pensions is now more than \$52 trillion. What is the collateral of \$52 trillion in debt instruments? Aside from government debt, the collateral is mostly residential and commercial mortgages along with car loans, credit card loans, etc. That collateral is melting away. This means that there are going to be material defaults, most likely through the ongoing depreciation of the currency. Every dollar of debt is somebody's asset, e.g., retirement savings. If we had an honest monetary system, these obscene debt levels would not have been possible.

Long-term Interest Rates

With commodity money, long-term interest rates have historically been about four percent; just equal to the time-value of money. There is good data from Great Britain going back almost 200 years attesting to this. With fiat money, interest rates include not only the time-value of money but also an additional increment—the so-called “inflation premium”—to compensate for the loss of purchasing power due to the actual and expected creation of additional money. Interest rates are much higher than with commodity money.

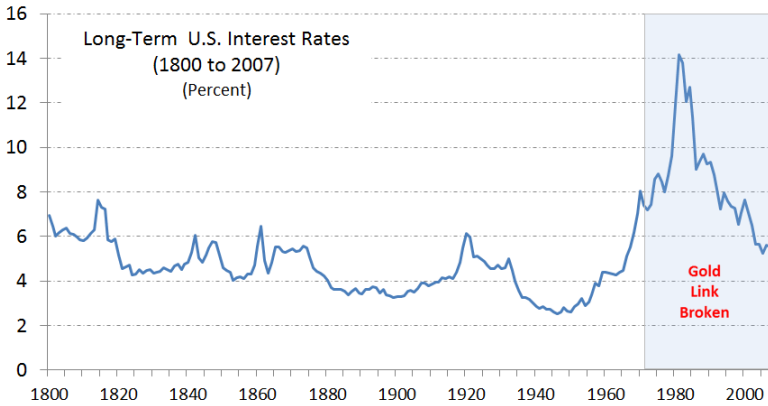


Exhibit 60: Long term U.S. interest rates 1800 – 2007;²⁶²

Notice that, from year 1800 almost until 1970, except for times of war, e.g., the War of 1812, the Civil War, and World War I, long-term interest rates hovered about 4%. It was only when the last link to gold was broken in 1971 that interest rates began to increase to unheard of levels. Is it any wonder that the price of gold accelerated greatly reaching \$850 per ounce in intraday trading circa 1981? Many thought the monetary system was collapsing at that time.

Low and stable long-term interest rates are necessary for long-term investment. As interest rates increase, the present value of a future payoff decreases, and activities for which the payoff is in the distant future are curtailed. For example, when I began my working career at IBM in 1964, IBM, along with Bell Labs, had one of the world's premier research and development facilities, the Watson Research Center. In those days, IBM was engaged in research at the molecular level where a commercial product was not expected well into the 21st century.

After long-term interest rates began to increase greatly the present value of future payoffs was reduced to a tiny fraction of what was originally anticipated. As a direct result, Bell Labs and almost all of IBM's pure research efforts were disbanded. If the U.S. can achieve an honest monetary system as discussed above, long-term research and development will increase greatly. This is a vital ingredient not only to increase our standard of living, but also for military preparedness.

²⁶² <http://www.measuringworth.org/datasets/interestrates/result.php>

Interest Rate and Foreign Exchange Rate Volatility

With commodity money, such as gold or silver, there is very little interest rate or foreign exchange volatility. With fiat money, there is inherent high volatility, which tends to be hedged by derivatives, and which adds additional cost to financing. Financial sector participants benefit. Workers, manufacturers, entrepreneurs and consumers pay the cost.

Almost everyone who is not a participant or supplier to the financial sector wants monetary stability. Manufacturers want low and stable interest rates so they can make long-term investments in plant, equipment, and research and development. Ordinary people want low stable interest rates so they can plan their futures, buy homes and have some idea what their return will be on assets they have saved for retirement. Those involved in international trade want stable foreign exchange rates to facilitate payment for goods to be delivered far into the future, e.g., airliners, and so on.

The financial sector does not want monetary stability. Because so much of its profits derive from trading, the financial sector wants volatility. Tragically, the financial sector has been left in charge of the monetary structure, and it has rigged that structure for its own benefit (really the benefit of top management) and to the detriment of everyone else. That is why the financial sector champions legal tender irredeemable paper-ticket-electronic money. The empirical evidence confirms that legal tender irredeemable paper-ticket-electronic money results in interest rate volatility:

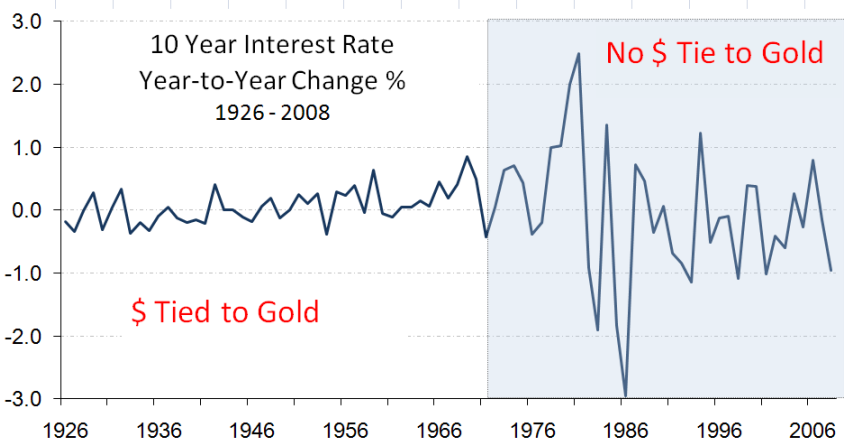


Exhibit 61: U.S. 10-year bond year-on-year interest rate change; Source: Federal Reserve

Prior to the last link to gold being broken by President Nixon in 1971, going back almost 200 years in Britain, and for a lesser period in the U.S., interest rates were relatively stable, very rarely moving plus or minus 20 basis points in any year. After the last link to gold was broken, year-on-year volatility reached 200 basis points and even higher.

One shocking result was that interest rate volatility played havoc with defined benefit pension plans (DBPPs). The added risks to companies led many to replace DBPPs with defined contribution pension plans, which transfer the risk of the value of pension plan benefits to workers.

DBPPs allocate their investments to the fixed income and equity markets. Using General Accepted Accounting Principles (GAAP), because DBPP liabilities are discounted by interest rates, interest rate volatility resulted in volatility for pension plan liabilities. In the 1980s, in addition to interest rate volatility, there was also volatility in the equity markets. Changes in pension plan assets and liabilities flowed through to the income statements of the companies affected. Thus, volatility in pension assets and liabilities resulted in volatility in reported earnings.

Investors want earnings stability. Companies with great profit volatility are penalized with lower stock prices than they would otherwise enjoy. For company management, lower stock prices meant that they would be less likely to reap a benefit from their stock options. What was their remedy?

Corporate management appealed to their accountants who lobbied to change GAAP to allow management to smooth interest rates and changes in equity valuations on the theory that since pensions would not be due for many years, it was unfair to pay such close attention to yearly interest rate and equity fluctuations. This led to abominations called the expected rate-of-return and a smoothed discount rate. Accountants and actuaries did the calculations for the smoothing. Management hired and paid them.

Since contributions to a pension fund are considered a cost, in an effort to reduce costs, it is to management's benefit to have the assumed rate-of-return and the discount rate to be high as possible. The result is that, depending upon whom one listens to, public pension funds are underfunded by as much as \$3 trillion, and the DBPPs that remain in the private sector are underfunded by about \$½ trillion.

There was another wrinkle to this that adversely affected pension plan beneficiaries. Because pension fund liabilities are discounted by the “discount rate,” the higher the discount rate, the less the present value of the liabilities. In the 1980s, on account of high interest rates, some DBPPs became “over-funded.”

Then ensued a great deal of merger and acquisition activity whereby, if a firm could be liquidated, the pension plan could be frozen, and any “overfunding” could be recaptured. Recall the movie *Wall Street* whereby rationale for liquidating the airline Blue Star was its overfunded pension plan.

Working people who are depending on their DBPPs for retirement are not going to receive pensions and benefits they are expecting. None of this would have occurred if we had an honest monetary system. By passing *The Free Competition in Currency Act of 2011*, an anticipated new monetary system based on gold-as-money will avoid this kind of malfeasance.

For those who are engaged in international trade, stable exchange rates are essential. Foreign exchange rate volatility results in lower profit, or even losses. It reduces the international division of labor and our and our trading partners’ standard of living. Consider volatility between the U.S. dollar and the Canadian dollar:

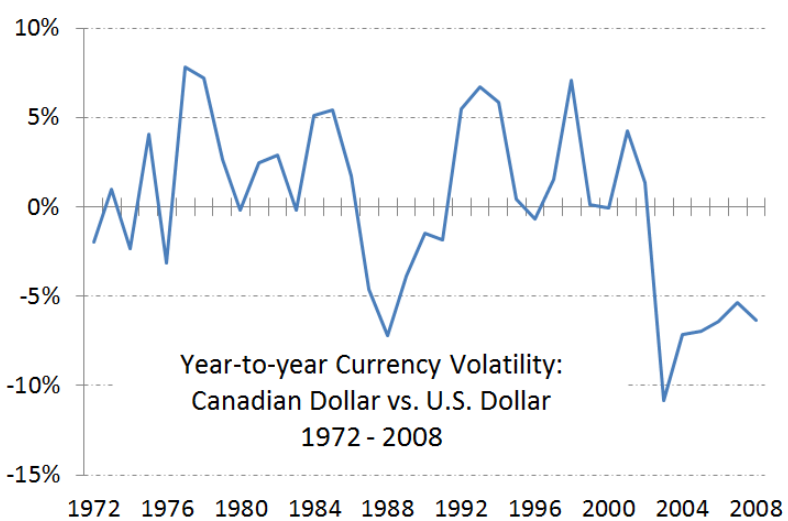


Exhibit 62: Year-to-year currency volatility: Canadian dollar vs. U.S. dollar 1972 - 2008

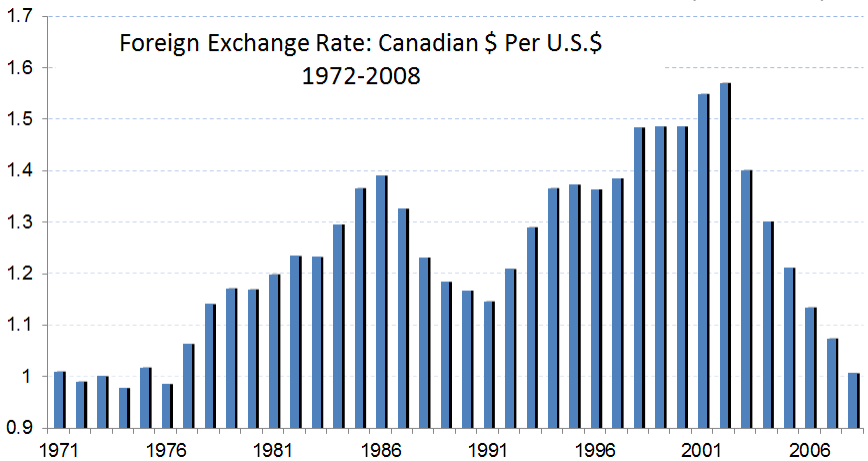


Exhibit 63: Foreign Exchange Rate: Canadian dollar per U.S. dollar

With our European trading partners foreign exchange rate volatility is even more extreme. To protect themselves from catastrophic foreign exchange losses, firms buy derivative contracts from banks. This cost is a benefit to financial sector firms. As Mr. Paul Volcker has noted numerous times, “a global economy requires a global currency.” The open issue is what is the global currency going to be?

If the global currency is gold, then there is no foreign exchange volatility. Of course, that will mean an end to a material profit stream for financial sector firms. Is that a contributing reason why the International Monetary Fund changed its *Articles of Agreement* in 1978 to prohibit member countries from linking their currencies to gold and only to gold?²⁶³ What might be the public policy justification of that prohibition?

Wall Street and the Banks

With commodity money, such as gold and silver, Wall Street, while important, plays a minor role. Its primary function is to help asset allocation on a much-reduced scale. With fiat, legal tender irredeemable paper-ticket-electronic money, Wall Street, because it has easy access to money created out of nothing, plays a dominant role in society.

²⁶³ IMF *Articles of Agreement* Section 4-2b

Consider the growth of the financial sector after the last link to gold was broken in 1971.

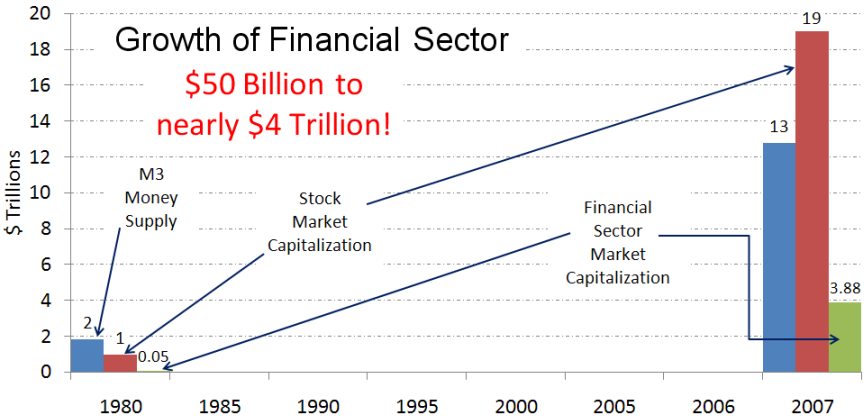


Exhibit 64: Growth of the Financial Sector

In 1980, the broad money supply (M3) as reported by the Federal Reserve was slightly less than \$2 trillion. The U.S. stock market capitalization was about \$1 trillion, and financial sector firms accounted for about 5% of the total, about \$50 billion. On the plot above, one can barely see the valuation of the financial sector.

By 2007, the money supply, all created flat out of nothing, had zoomed to about \$13 trillion, but now the market capitalization of the equity markets was about \$19 trillion, and about \$4 trillion of that was from financial sector firms.

Forget about the multi-million dollar bonuses and salaries. That was chickenfeed compared to the value of stock options. Some folks in the financial sector garnered so much money they didn't know what to do with it. The extravagances are legend: 40,000 foot houses in multiple locations around the world, 200 foot boats, \$200 million airplanes with another \$100 million to outfit them. Some extreme excesses made the major media.

For instance, on February 26, 2002 it was reported that six investment bankers went out for dinner and spent \$60,000 for a meal! The media is fond of reporting financial sector management taking home tens of millions. Frank Raines, at one time a government employee earning government scale wages, is reported to have left Fannie Mae with more than \$100 million. The question that needs to be addressed is exactly what do these folks provide to society that they should be rewarded like this?

Here is another way of looking at the data:

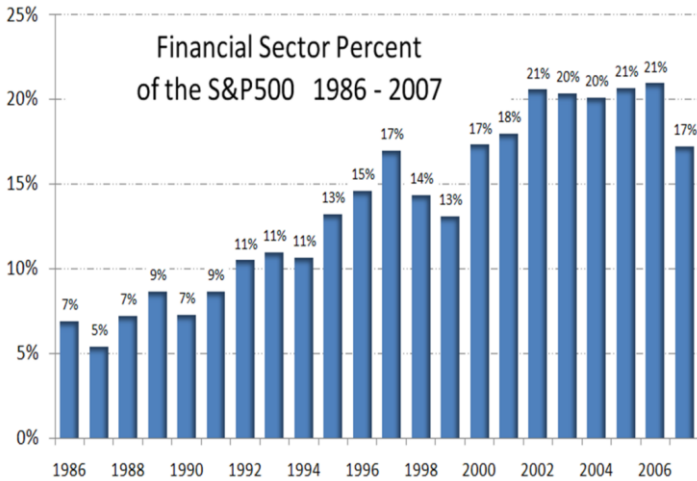


Exhibit 65: Financial Sector as percent of S&P500; Source: Standard & Poor's

The growth of the financial sector, while noticed, was not criticized greatly because on the back of obscene money creation, equity valuations greatly increased, too. What's to say if one's Goldman Sachs or Merrill Lynch account is growing at double digits? When the equity markets lost nearly half their value almost overnight, for some people it was a wakeup call that something is seriously wrong.²⁶⁴

²⁶⁴ For Bear Stearns employees, the decline was over a weekend. They went to sleep on a Friday night when their stock had a book value of about \$85 per share. When they awoke Monday morning, the stock was trading for \$2. There was a clean certificate from the accountants, an investment-grade rating from the rating agencies, and no malfeasance. Again, there's something wrong with a system that can destroy accumulated savings in this manner. That something is our dishonest monetary system.



Exhibit 66: U.S. Stock Market Capitalization 1980 – 2005

Wall Street firm revenues, again, just for moving paper around, took off as well:

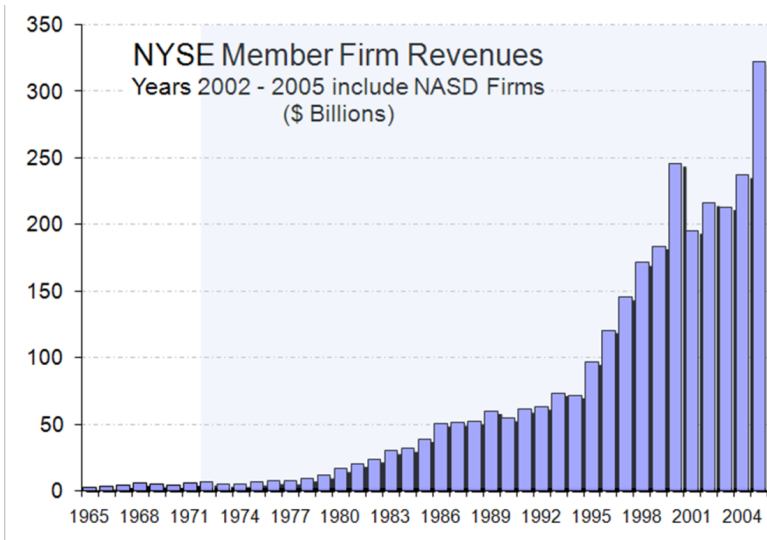


Exhibit 67: NYSE Member Firm Revenues 1965 – 2005; Source: SIFMA

Twenty-something-year-old youngsters, fresh out of college began taking down multimillion dollar salaries. Again, what was the product or service that they were providing to society that they should have received that level of compensation? Did they invent

anything that improved the lives of anyone? Did they cure some dread disease? Did they produce a useful product? No, no, and no. They were the fortunate beneficiaries of legal tender irredeemable paper-ticket-electronic money creation.

And look what happened to bank revenues after the last link to gold was broken:

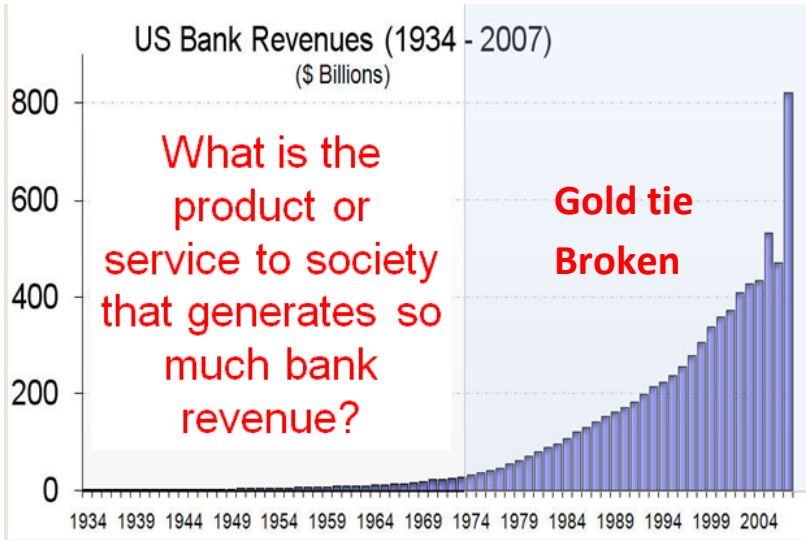


Exhibit 68: U.S. Bank Revenues 1934 – 2007; Source: FDIC

And after paying out multimillion dollar salaries to “talent,” look at how bank net income increased after the last tie to gold was broken:

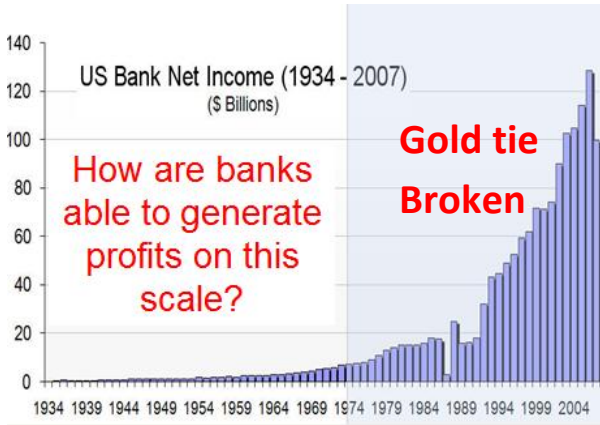


Exhibit 69: U.S. Bank Net Income 1934 – 2007; Source: FDIC

Consider the tradeoffs between commodity money and legal tender irredeemable paper-ticket-electronic money for banks. With commodity money, such as gold or silver, the role of bankers is limited to: (1) storing money for safekeeping; (2) acting as intermediaries between savers and credit-worthy borrowers; and (3) facilitating the payments transfer system. With legal tender irredeemable paper-ticket-electronic money, bankers have a greatly expanded role: they sell instruments to hedge interest rate and foreign exchange volatility; and they create fiat money (in the form of credit) for which they get the interest and fees. In effect, banks' traditional role as intermediaries between savers and borrowers decrease, and the banks become the equivalent of hedge funds whose downside is guaranteed and subsidized by ordinary working people. The euphemisms for these guarantees are called the "lender of last resort" bailout facility at the Federal Reserve, and so-called Federal Deposit Insurance, which is not insurance.

Again, focusing on stock options, look at what happened to Citibank stock as a result of money creation:



Exhibit 70: Citibank stock from about 1979 to about 2009

One can well imagine the amount of wealth garnered by executives fortunate enough to have stock options with long durations.

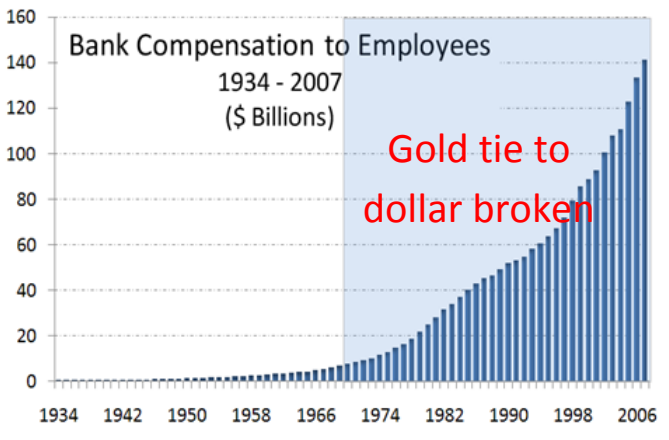


Exhibit 71: Bank Compensation to Employees 1934 – 2007; Source: FDIC

While financial sector compensation appears excessive by any standard, it is important to note that these folks have done nothing wrong. George Soros once said: “I’m just playing by the rules, and I didn’t make up the rules.” There is something seriously wrong with the rules. It is not a lack of regulation. It is our dishonest monetary structure. That needs to be changed. *The Free Competition in Currency Act of 2011* is necessary to get that done.

Special Privileges for Banks and Other Financial Players

With commodity money such as gold or silver, banks and other financial players receive no special privileges.

Because of the instability of fiat-based monetary regimes, to “protect” the efficacy of the payment transfer systems, there is a need for a “safety net” for the financial sector. This “safety net,” as Mr. Greenspan has pointed out, is a subsidy to the financial sector. It constitutes wealth transfer from ordinary taxpayers to the financial sector. While regulators are charged with monitoring the financial sector to reduce or make less likely massive wealth transfer, the financial sector has a history of compromising politicians who are nominally in charge of the regulators. At the end of the day, in all cases, regulation fails and the fiat system collapses.

Taxes on Money

When used as money, gold and silver *per se* is not taxed. When not used as money, and partially in an effort to suppress its use as money, the U.S. general government has arbitrarily classified gold and silver bullion, coins, and securities representing gold and silver as “collectibles” and subject to taxation at a much increased level as compared to capital gains for financial securities. Local jurisdictions also apply taxes, e.g., sales taxes, on transactions in gold or silver.

When used as money, fiat money *per se* is not taxed. However, taxes do apply for transactions whereby U.S. legal tender irredeemable paper-ticket-electronic money is converted to another country’s legal tender irredeemable paper-ticket-electronic money.

Another benefit of *The Free Competition in Currency Act of 2011* is that it abolishes taxation on gold and silver, the money mandated by the *Constitution*. Part of the human condition is that people must save for a time when they become too old or incapacitated to work. Ordinary people seek a medium that is the most secure form of savings.

Today, on account of coercion, misrepresentation and nondisclosure of material information, few are saving silver or any gold. Were they to convert their labor into gold instead of legal tender irredeemable paper-ticket-electronic money or securities denominated in legal tender irredeemable paper-ticket-electronic money, why should they have to give up a portion of their savings when the legal tender irredeemable paper-ticket-electronic money depreciates? That strikes one as blatantly unjust.

For example, if one works and allocates his earnings that are not consumed into gold, and the Federal Reserve, in Mr. Greenspan’s

exact words, creates money “without limit,” thereby depreciating the purchasing power of legal tender irredeemable paper-ticket-electronic money, why should one be penalized for having saved gold or silver by having to pay income or other taxes on the appreciation of his gold or silver relative to the legal tender irredeemable paper-ticket-electronic money?

Without the ability to save gold or silver, ordinary people are defenseless against the loss of their savings on account of our unconstitutional and dishonest monetary system. Current taxing schemes whereby the IRS has misclassified gold and silver as “collectibles” subject to a 28% tax on appreciation against legal tender irredeemable paper-ticket-electronic money provide a great disincentive for such saving. Justice cries out to get rid of this and other pernicious taxing schemes.

Summary and Recommendations

As I hope this testimony makes clear, in every area of our economy that is important, whether it be jobs, pensions, wages, debt levels, government fiscal responsibility at all levels, etc. legal tender irredeemable paper-ticket-electronic money works to the disadvantage of ordinary people and to our nation. For all of history, there have been no successes with paper money. Every one of them has resulted in a disaster. The U.S. experience is vulnerable to being qualitatively different in three critical areas.

First, in every country where the paper currency collapsed in the last century, there was always an alternate currency in which some people had saved. That alternate currency was almost always the dollar. In other words, there was always some accumulated wealth that could be used to rebuild. Because the dollar is the so-called “reserve currency of the world,” when the dollar collapses, most of the planet will be caught empty handed. This has the potential to almost destroy the division of labor for a long time, plunging the U.S. and much of the world into poverty.

Second, the U.S. is different in a very important aspect from every other country sans Switzerland. The U.S. is an armed country. There are more than 200 million guns in the hands of the public. When the dollar collapses and people lose their savings, their pensions, their annuities, and their jobs, it’s hard to say what action they will take. There is the potential for serious unrest.

Third, there is a contingency plan, although when I questioned authorities such as Paul Volcker, Larry Summers, and many others, they did not want to speak of it. The contingency plan, as set forth in

myriad legislation and Executive Orders, is martial law. That was what Henry Paulson was talking about when he was attempting to steamroll passing the TARP legislation. We could have a regime change that will set us back possibly for generations. That's why it is crucial to pass *The Free Competition in Currency Act of 2011* in order to mitigate the damage and prepare for an honest monetary system.

Mindful that our current monetary system is well on its way to blowing up, I hope that Congress will act quickly and decisively to set things right. For the American people to accept what will be perceived as drastic changes in the monetary structure, those changes will need the imprimatur of being in conformity with the *Constitution*. Fortunately, that is indeed the case.

While Congress is certainly culpable for allowing the monetary system to become unauthorized and dishonest, it was not this Congress. All of the malfeasance was set in train a long time ago, some as far back as 100 years ago when the Federal Reserve legislation was passed.

As a practical matter, absent the debacle of a complete collapse, there can be no abrupt changes to our monetary system. That is another reason why *The Free Competition in Currency Act of 2011* is so important and so timely. It leaves everything in place: the Federal Reserve, the irredeemable paper-ticket-electronic dollar (which will cease to be legal tender), and all of the mutual promises based on it.

For day-to-day transactions, eliminating legal tender is irrelevant. People work, they get paid, and they exchange their pay for daily needs: food, shelter, fuel, etc. Why would anyone care if the dollar is depreciating at the Federal Reserve's hoped-for rate of 2% or thereabout? I doubt they will.

But there are situations where some people will care: making sure that future payment will be made at a value that one is anticipating. Fortunately, we have precedent in the U.S. to guide us to how those situations will most likely be dealt with.

After the Civil War experience with Greenbacks, to protect against the depreciation of paper money, for long-term transactions, e.g., real property leases, long-term loans, bond issues, people inserted a "gold clause" in their contracts.²⁶⁵ This provided that future payments should be made in gold at the same weight and fineness as were current at the time that contracts were entered into.

²⁶⁵ When the U.S. Government sold Liberty Bonds to help finance World War I, the bonds had a gold clause. The promise of gold redemption was defaulted when President Roosevelt seized the nation's gold and made it a felony for American citizens to own monetary gold anywhere in the world.

In this way, provided there is no discontinuity in the purchasing power of the dollar and it continues to depreciate slowly, in time we will make a transition to a gold-as-money monetary system. Our country will then reap the benefits of a sound system that will encourage savings, capital investment, high paying jobs, and all the other benefits described above in this testimony.

Agreements for future payment in gold cannot be accomplished if there are taxes on the money itself. Thus, the provisions in *The Free Competition in Currency Act of 2011* to eliminate any taxes on gold and silver are also essential.

In addition, we need a way to get gold into the hands of the population at large. Thus, as envisioned by Alexander Hamilton, the mints should be opened for free coinage; people should be able to bring gold or silver to the mint to have it coined. While it would be helpful to allow private mints, they will certainly do no harm and may provide extra needed capacity, it's not clear to me that the death penalty could apply to a private mint that cheated on its coinage, as the penalty does apply for anyone who counterfeits coins from the U.S. mint.

Other recommendations that are not addressed by the proposed Act:

- (1) The U.S. supposedly has in the treasury about 288 million ounces of gold. (This gold reserve has not been audited since the Eisenhower years. It's time for an audit.) It would be helpful if that gold was coined and distributed per capita to every American citizen, perhaps a 25 gram coin each.
 - a. On the theory that they cannot replenish their savings when the legal tender irredeemable paper-ticket-electronic dollar collapses, perhaps older people should get extra and infants none at all on the theory that their parents would take care of them.
- (2) Relief could be brought to the real estate market by the president declaring real estate taxes (now under the jurisdiction of state and local governments) as against public policy. Eliminating real estate taxes will boost real estate valuation by a factor of about twenty times the eliminated tax. Nationwide, real estate taxes are about \$400 billion per year. Thus, order of magnitude, real estate valuations would increase by about \$8 trillion. That would give relief to almost all those whose mortgages are "underwater." Revenue from lost real estate taxes could be compensated by increasing

sales taxes.

Errata:

The original submission had the date of the Resumption Act as having been signed in 1869. The correct date of the Act is January 14, 1875.

**WRITTEN TESTIMONY OF
LAWRENCE H. WHITE, Ph.D.**

PROFESSOR OF ECONOMICS
GEORGE MASON UNIVERSITY

Chairman Paul, Ranking Member Clay, and members of the subcommittee: Thank you for the opportunity to discuss my views on HR 1098, the Free Competition in Currency Act of 2011 (hereafter “the Act”). As an economist specializing in monetary systems I have studied and written for many years about the role of free competition in currency. Indeed the second book of my three books on the topic, published in 1989 by New York University Press, was entitled *Competition and Currency*.

THE BENEFITS OF CURRENCY COMPETITION

It is widely understood that competition among private enterprises gives us technological improvements in all kinds of products, delivering higher quality at lower cost. For example, the competition of FedEx and UPS with the U.S. Postal Service in package delivery has been of great benefit to American consumers. Currency users also benefits from competition. My research indicates that currency has been better provided by competing private enterprises than by government monopoly. For example, private gold and silver mints during the American gold rushes provided trustworthy coins until they were suppressed by legislation. Scientific appraisals have found that the privately minted coins were produced even more precisely than the coins of the U.S. Mint. Private bank-issued currency was the most popular form of money around the world until government-sponsored central banks, with few exceptions, gained exclusive note-issuing privileges.

We do not rely on the Treasury or the Federal Reserve, but rather private financial institutions, to provide our checking accounts, credit cards, and traveler’s checks. The consumer benefits from the competition in payment services among banks. Consumers would likewise benefit from free and fair competition among coin issuers. Although Federal Reserve Notes and Treasury coins should of course be protected from counterfeiting, there is no good case for them to enjoy monopoly privileges in the market for currency.

HR 1098 would give currency competition a chance. It would not remove the Federal Reserve from the currency market, but it would give the Fed a stronger incentive to deliver the kind of trustworthy money that consumers want. The dollar already faces salutary

international competition from gold, silver, the euro, the Swiss Franc, and other stores of value. HR 1098 would allow salutary domestic competition between the Federal Reserve Note and other media of exchange. The Fed will have little to fear from competition so long as it provides the highest quality product on the market. Continuing to ban competition from the domestic U.S. currency market, or keeping it at a legal disadvantage, limits the options of American consumers who use money to their disadvantage.

What sort of competition might we see if currency were free from legislated restrictions? Here is one example. In 1998 a non-profit organization launched the “American Liberty Currency,” a private silver-based currency intended to compete with Federal Reserve currency. In the year 2000 I wrote an article about the project, entitled “A Competitor for the Fed?,” published by The Foundation for Economic Education’s magazine *The Freeman* (vol. 50, July 2000). I was skeptical that the project would attract many users, absent high inflation in the dollar. But I noted then, and I reiterate today, that in a high-inflation environment “silver-backed currency with widespread acceptance would provide a useful alternative to the Federal Reserve’s product. Then, if you don’t like the way the federal government manages (or mismanages) the value of the fiat dollar, you aren’t limited to complaining. You can switch to the private alternative.” If double-digit inflation should unfortunately return to the United States, then the American public, as I wrote, would “find a very practical advantage in a silver-backed alternative to the free-falling Federal Reserve note.”

The Act offers three reforms. I will comment on them in turn.

SECTION 2

Section 2 of the Act repeals 31 USC, §5103, which presently declares that “US coins and currency (including Federal Reserve notes ...) are legal tender for all debts, public charges, taxes, and dues.”

What are the likely economic consequences of removing legal tender status from US Treasury coins and Federal Reserve notes? The immediate consequences would be minimal. New forms of currency will not be introduced into the market any faster than the public is prepared to accept them. The longer-run consequence will be to enable a more level playing field for competition in the issue of currency.

Legal tender status is more limited in its scope than is sometimes believed. That Federal Reserve notes and Treasury coins have “legal tender” status does not mean that they are the only legal way to pay.

Any seller or creditor may (of course) voluntarily accept payment by transfer of bank-account balances, that is, by ordinary bank check, debit-card transfer, direct deposit, or wire transfer. Traveler's checks or cashier's checks may be accepted. The seller or creditor may even accept foreign currency or barter. Measured by dollar volume, payments in Federal Reserve notes or coin are a tiny share of all final payments in the United States (less than 20% of consumer payments, nearly 0% of business-to-business and financial payments). The great bulk of payments are electronic transfers of non-legal-tender bank balances.

Nor does legal-tender status mean that acceptance is mandatory when offered at a point of sale in a spot transaction. Large-denomination Federal Reserve notes are refused at many points of sale, and lawfully so. Vending machines refuse pennies. Mail-order sellers may refuse cash of any denomination. Millions of legal-tender one-dollar coins are piling up in the Federal Reserve's vault in Baltimore because nobody wants them.

Legal tender relates to the discharge of debts. The phrase "Legal tender for all debts" in 31 USC, §5103, quoted above, means that if Smith owes Jones \$125, then Smith's offering Jones \$125 in US coins or Federal Reserve notes legally extinguishes the debt, even if Jones would prefer payment in some other form (say, a check). In other words, the creditor is barred from refusing payment in legal tender notes or coins.

There is already an important exception, however. Debts in gold-clause contracts, made since 1977, are *not* unilaterally discharged by offer of US coin or Federal Reserve notes. 31 U.S.C. §5118(d)(2) reads: "An obligation issued containing a gold clause or governed by a gold clause is discharged on payment (dollar for dollar) in United States coin or currency that is legal tender at the time of payment. This paragraph *does not apply* to an obligation issued after October 27, 1977." [emphasis added] That is, the holder of a gold-clause bond is free to insist on receiving payments in gold, or in an amount of dollars indexed to the price of gold, whichever the bond contract specifies.

Removing legal-tender status from U.S. Treasury coins and Federal Reserve notes generally, as Section 2 of the Act does, essentially broadens the gold-clause exception to allow contractual obligations to specify payment in, or indexed to, any medium that is an alternative to Treasury coins and Federal Reserve notes. It opens the competition not just to private checks and banknotes, but also to gold units, silver units, units of foreign currency, Consumer Price Index bundles, wholesale commodity bundles, Bitcoins, and whatever

else a lender and a borrower might agree upon. If they prefer a unit for denominating their debt contract other than the Fed or Treasury dollar, they would be free to write a specifically enforceable contract in the unit of their choice.

Hand-to-hand currency does not need legal tender status to make it circulate easily. In jurisdictions where private commercial banks may issue circulating currency notes or “banknotes” (found today in Scotland, Northern Ireland, and Hong Kong), banknotes have the same legal status as checks. That is, they do not have legal tender status. Any creditor *might* refuse them if he preferred to be paid in another medium. (In Scotland and Northern Ireland, only pound sterling coins are legal tender.) I have spent a fair amount of time in Northern Ireland, visiting the Finance Department at the Queen’s University of Belfast, and have observed the circulation of banknotes there first-hand. There are four private banks that issue notes, and all of their notes are universally accepted. Legal tender status is clearly not necessary to have currency that circulates widely and is commonly accepted for payment of debts. Currency notes do not need legal tender status any more than credit cards, checks, debit cards, or traveler’s checks.

SECTION 3

Section 3 of the Act rules out federal or state taxes on precious-metal coins, whether minted by a foreign government or by a private firm. This section would allow precious-metal coins to compete with the US Treasury’s token coins (made of base metals, and denominated in fiat US dollars) without tax disadvantages (sales taxes on acquisition and capital gains taxes on holding, from which Federal Reserve Notes are exempt), and thereby a level playing field for competition among monetary standards.

SECTION 4

Section 4 of the Act repeals Title 18 §486 (relating to uttering or passing coins of gold, silver, or other metal) and §489 (making or possessing likeness of coins).

Section 486 is a relic of the Civil War, part of an effort to bolster the use of the wartime paper “greenback” currency by banning competition from the private gold coins I previously mentioned. The repeal of §486, combined with the previous section, would allow silver and gold coins to compete with the Treasury and the Fed on a level playing field.

I previously mentioned the American Liberty Currency project. The mover of that project, Bernard von Not Haus, was convicted in

March 2011 of violating §486, and presently awaits sentencing, for the victimless crime of producing one-ounce silver coins, of original design, that he hoped would compete with the Federal Reserve's currency. Regarding this case I commend to your attention the article by Seth Lipsky, "When Private Money Becomes a Felony Offense," *Wall St. Journal*, 31 March 2011.

The repeal of §486 would avoid a repeat of the injustice done to Mr. von Not Haus. I share Mr. Lipky's view that "it's a loser's game to suppress private money that is sound in order to protect government-issued money that is unsound."

Title 18 §489 of current law outlaws making or possessing "any token, disk, or device in the likeness or similitude as to design, color, or the inscription thereon of any of the coins of the United States or of any foreign country issued as money, either under the authority of the United States or under the authority of any foreign government". Von NotHaus was also charged with violating this section. In my view §489 is redundant at best and over-reaching at worst. It is redundant at best because if there is any fraudulent intent in making or passing such a device, it is already outlawed under §485, which bans the counterfeiting of US coins. To outlaw "likeness or similitude as to design, color, *or* the inscription" [emphasis added] in cases where it is not counterfeiting and has no fraudulent intent, is far too sweeping. Taken literally, §489 outlaws all commemorative silver medallions—and if you go on eBay, you'll find that there are thousands of them for sale—because it says that you are in violation of the law if you make or own any disk that merely has a color similar to that of a US quarter.

CONCLUSION

Competition in general creates incentives to provide a high quality product by taking business away from low-quality producers. Competition in currency is a practical idea that offers sizable benefits to the public when the quality of the incumbent currency becomes doubtful. In particular, US citizens would benefit from freedom of choice among monetary alternatives though the removal of current legal restrictions and obstacles against currencies that could compete with Federal Reserve Notes and US Treasury coins. HR 1098 would give currency competition a chance.

EXPERT COMMENTARY

LLEWELLYN H. ROCKWELL, Jr.

FOUNDER AND CEO
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ROTHBARD AND MONEY

The scholarly contributions of Murray Rothbard span numerous disciplines, and may be found in dozens of books and thousands of articles. But even if we confine ourselves to the topic of money, the subject of this volume, we still find his contributions copious and significant.

As an American monetary historian Rothbard traced the party politics, the pressure groups, and the academic apologists behind the various national banking schemes throughout American history. As a popularizer of monetary theory and history he showed the public what government was really up to as it took greater and greater control over money. As a business cycle expert he wrote scholarly books on the Panic of 1819 and the Great Depression, finding the roots of both in artificial credit expansion. And while the *locus classicus* of monetary theory in the tradition of the Austrian School is Ludwig von Mises' 1912 work *The Theory of Money and Credit*, the most thorough shorter overview of Austrian monetary theory is surely chapter 10 of Rothbard's treatise *Man, Economy and State*.

Rothbard placed great emphasis on the central monetary insight of classical economics, namely that the quantity of money is unimportant to economic progress. There is no need for the money supply to be artificially expanded in order to keep pace with population, economic growth, or any other factor. As long as prices are free to fluctuate, changes in the purchasing power of money can

accommodate increases in production, increases in money demand, changes in population, or whatever. If production increases, for example, prices simply fall, and the same amount of money can now facilitate an increased number of transactions commensurate with the greater abundance of goods. Any attempt by “monetary policy” to keep prices from falling, to accommodate an increase in the demand for money, or to establish “price stability,” will yield only instability, entrepreneurial confusion, and the boom-bust cycle. There is no way for central bank policy or any form of artificial credit expansion to improve upon the micro-level adjustments that take place at every moment in the market.

With the exception of the Austrian School of economics, to which Rothbard made so many important contributions throughout his career, professional economists have treated money as a good that must be produced by a monopoly – either the government itself or its authorized central bank. Rothbard, on the other hand, teaches that money is a commodity (albeit one with unique attributes) that can be produced without government involvement. Rothbard’s history of money, in fact, is a history of small steps, the importance of which are often appreciated only in hindsight, by which government insinuated its way into the business of money production.

It was Carl Menger who demonstrated how money could emerge on the free market, and Ludwig von Mises who demonstrated that it had to emerge that way. In this as in so many other areas, Mises broke with the reigning orthodoxy, which in this case held that money was a creation of the state and held its value because of the state’s seal of approval. A corollary of the Austrian view was that fiat paper money could not simply be created *ex nihilo* by the state and imposed on the public. The fiat paper we use today would have to come about in some other way.

It was one of Rothbard’s great contributions to show, in his classic *What Has Government Done to Our Money?* and elsewhere, the precise steps by which the fiat money in use throughout the world came into existence. First, a commodity money (for convenience, let’s suppose gold) comes into existence on the market, without central direction, simply because people recognize that the use of a highly valued good as a medium of exchange, as opposed to persisting in barter, will make it easier for them to facilitate their transactions. Second, money substitutes began to be issued, and circulate instead of the gold itself. This satisfies the desires of many people for convenience. They would rather carry paper, redeemable into gold, than the gold itself. Finally, government calls in the gold that backs

the paper, keeps the gold, and leaves the people with paper money redeemable into nothing. These steps, in turn, were preceded by the seemingly minor – but in retrospect portentous indeed – government interventions of monopolizing the mint, establishing national names for the money in a particular country (dollars, francs, etc.), and imposing legal tender laws.

Rothbard also brought the Austrian theory of the business cycle to a popular audience. Joseph Salerno, who has been called the best monetary economist working in the Austrian tradition today, was first drawn to the Austrian School by Rothbard's essay "Economic Depressions: Their Cause and Cure." There Rothbard laid out the problems that business cycle theory needed to solve. In particular, any theory of the cycle needed to account, first, for why entrepreneurs should make similar errors in a cluster, when these entrepreneurs have been chosen by the market for their skill at forecasting consumer demand. If these are the entrepreneurs who have done the best job of anticipating consumer demand in the past, why should they suddenly do such a poor job, and all at once? And why should these errors be especially clustered in the capital-goods sectors of the economy?

According to Rothbard, competing theories could not answer either of these questions satisfactorily. Certainly any theory that tried to blame the bust on a sudden fall in consumer spending could not explain why consumer-goods industries, as an empirical fact, tended to perform relatively better than capital-goods industries.

Only the Austrian theory of the business cycle adequately accounted for the phenomena we observe during the boom and bust. The cause of the entrepreneurial confusion, according to the Austrians, is the white noise the Federal Reserve introduces into the system by its manipulation of interest rates, which it accomplishes by injecting newly created money into the banking system. The artificially low rates mislead entrepreneurs into a different pattern of production than would have occurred otherwise. This structure of production is not what the free market and its price system would have led entrepreneurs to erect, and it would be sustainable only if the public were willing to defer consumption and provide investment capital to a greater degree than they actually are. With the passage of time this mismatch between consumer wants and the existing structure of production becomes evident, massive losses are suffered, and the process of reallocating resources into a sustainable pattern in the service of consumer demand commences. This latter process is the

bust, which is actually the beginning of the economy's restoration to health.

The concentration of losses in the capital-goods sector can be explained by the same factor: the artificially low interest rates brought about by the Fed's intervention into the economy. What Austrians call the higher-order stages of production, the stages farthest removed from finished consumer goods, are more interest-rate sensitive, and will therefore be given disproportionate stimulus by the Fed's policy of lowering interest rates.

Equipped with this theory, Rothbard wrote *America's Great Depression* (1963). There Rothbard did two things. First, he showed that the Great Depression had not been the fault of "unregulated capitalism." After explaining the Austrian theory of the business cycle and showing why it was superior to rival accounts, Rothbard went on to apply it to the most devastating event in U.S. economic history. In the first part of his exposition, Rothbard focused on showing the extent of the inflation during the 1920s, pointing out that the relatively flat consumer price level was misleading: given the explosion in productivity during the roaring '20s, prices should have been falling. He also pointed out how bloated the capital-goods sector became vis-a-vis consumer goods production. In other words, the ingredients and characteristics of the Austrian business cycle theory were very much present in the years leading up to the Depression.

Second, Rothbard showed that the persistence of the Depression was attributable to government policy. Herbert Hoover, far from a supporter of laissez-faire, had sought to prop up wages during a business depression, spent huge sums on public works, bailed out banks and railroads, increased the government's role in agriculture, impaired the international division of labor via the Smoot-Hawley Tariff, attacked short sellers, and raised taxes, to mention just a portion of the Hoover program.

Rothbard had been interested in business cycles since his days as a graduate student. He had intended to work on a history of American business cycles for his Ph.D. dissertation under Joseph Dorfman at Columbia University, but he found out that the first major cycle in American history, the Panic of 1819, provided ample material for study in itself. That dissertation eventually appeared as a book, via Columbia University Press, called *The Panic of 1819: Reactions and Policies* (1962). In that book, which the scholarly journals have declared to be the definitive study, Rothbard found that a great many contemporaries identified the Bank of the United States – which was supposed to be a source of stability – as the primary

culprit in that period of boom and bust. American statesmen who had once favored such banks, and who thought paper money inflation could be a source of economic progress, converted to hard money on the spot, and proposals for 100-percent specie banking proliferated.

In *A History of Money and Banking: The Colonial Era to World War II*, a collection of Rothbard's historical writings published after the author's death, Rothbard traced the history of money in the United States and came up with some unconventional findings. The most stable period of the nineteenth century from a monetary standpoint turns out to be the period of the Independent Treasury, the time when the banking system was burdened with the least government involvement. What's more, the various economic cycles of the nineteenth century were consistently tied to artificial credit expansion, either participated in or connived at by government and its privileged banks. Rothbard further showed that the traditional tale of the 1870s, when the United States was supposed to have been in the middle of the "Long Depression," was all wrong. This was actually a period of great prosperity, Rothbard said. Years later, economic historians have since concluded that Rothbard's position had been the correct one.

Rothbard's treatment of the Federal Reserve System itself, which he dealt with in numerous other works, involved the same kind of analysis that historians like Gabriel Kolko and Robert Wiebe applied to other fruits of the Progressive Era. The conventional wisdom, as conveyed in the textbooks, is that the Progressives were enlightened intellectuals who sought to employ the federal regulatory apparatus in the service of the public good. The wicked, grasping private sector was to be brought to heel at last by these advocates of social justice.

New Left revisionists demonstrated that this version of the Progressive Era was nothing but a caricature. The dominant theme in Progressive thought was expert control over various aspects of society and the economy. The Progressives were not populists. They placed their confidence in a technocratic elite administering federal agencies removed from regular public oversight. What's more, the resulting regulatory apparatus tended to favor the dominant firms in the market, which is why the forces of big business were in sympathy with, rather than irreconcilably opposed to, the Progressive program. "With such powerful interests as the Morgans, the Rockefellers, and Kuhn, Loeb in basic agreement on a new central bank," Rothbard wrote, "who could prevail against it?"

It is with these insights in mind that Rothbard scrutinized the Federal Reserve. He would have none of the idea that the Fed was

the creation of far-seeing public officials who sought to subject the banking system to wise regulation for the sake of the people's well-being. The Fed was created not to punish the banking system, but to make its fractional-reserve lending operate more smoothly. In *The Case Against the Fed, What Has Government Done to Our Money?*, and *The Mystery of Banking*, Rothbard took the reader through the step-by-step process by which the banks engaged in credit expansion, earning a return by lending money created out of thin air. Without a central bank to coordinate this process, Rothbard showed, the banks' position was precarious. If one bank inflated more than others, those others would seek to redeem those notes for specie and the issuing bank would be unable to honor all the redemption claims coming in.

The primary purpose of the central bank, therefore, in addition to propping up the banks through its various liquidity injections and its position as the lender of last resort, is to coordinate the inflationary process. When faced with the creation of new money by the Fed, the banks will inflate on top of this new money at the same rate (as determined by the Fed's reserve requirement for banks). Therefore, the various redemptions will tend, on net, to cancel each other out. This is what Rothbard meant when he said the central bank made it possible to "inflate the currency in a smooth, controlled, and uniform manner throughout the nation."

Although Rothbard distinguished himself as a monetary theorist and as a monetary historian, he did not confine himself to theory or history. He devoted plenty of attention to the here and now – to critiques of Federal Reserve policy, for example, or to criticisms of government responses to the various fiascoes, the Savings and Loan bailout among them, to which our financial system is especially prone. He likewise looked beyond the present system to a regime of sound money, and in *The Case for a 100 Percent Gold Dollar* and *The Mystery of Banking* laid out a practical, step-by-step plan to get there from here.

In his work on monetary theory and history, as in his work in so many other areas, Rothbard showed from both an economic and a moral point of view why a system of liberty was preferable to a system of government control. At a time when the political class and the banking establishment are being subjected to more scrutiny than ever, the message of Rothbard takes on a special urgency.

For that reason we should all be grateful that his monetary work, and that of the other great Austrian economists, is being carried on by Murray Rothbard's friend and colleague Ron Paul. By my

reckoning, no one in history has brought true monetary theory and history to a larger audience.

Llewellyn H. Rockwell, Jr, former editorial assistant to Ludwig von Mises and congressional chief of staff to Ron Paul, is founder and CEO of the Mises Institute, executor for the estate of Murray N. Rothbard, and editor of LewRockwell.com.



*H*EARING VIII.

**SOUND MONEY: PARALLEL CURRENCIES AND
THE ROADMAP TO MONETARY FREEDOM**

THURSDAY, AUGUST 2, 2012

WITNESSES

Lewis, Nathan, Principal, Kiku Capital Management LLC.

Ebeling, Richard, Ph.D., Professor of Economics, Northwood
University

Gray, Rob, Executive Director, The American Open Currency
Standard

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Sound Money: Parallel Currencies and the Roadmap to Monetary Freedom” at 10:00 a.m. on Thursday, August 2, 2012 in Room 2128 of the Rayburn House Office Building.

This hearing examined parallel currencies and alternative forms of money, the effects of parallel currencies on the economy and monetary policy, and the obstacles that prevent the circulation of alternative forms of money. This was a one-panel hearing with the following witnesses:

- Dr. Richard Ebeling, Professor of Economics, Northwood University
- Mr. Nathan Lewis, Principal, Kiku Capital Management LLC
- Mr. Rob Gray, Executive Director, The American Open Currency Standard

“Parallel currency” is a term that describes alternative currencies or forms of money circulating alongside the dominant medium of exchange. Federal Reserve Notes and dollar-denominated bank deposits are the most common media of exchange in the United States. Parallel currencies would thus be any voluntarily-chosen alternative medium of exchange.

Fiat Monetary Regime

Since the breakdown of the Bretton Woods system of monetary management in 1971, which tied most international currencies to the partially gold-backed U.S. dollar, most of the world has operated

under a pure fiat currency system.²⁶⁶ Under a fiat currency system, the amount of money and currency in circulation is left to the discretion of the monetary authority, whose currency is made the legal tender. In the United States, the Federal Reserve System is the monetary authority and it has been given independent authority and responsibility to control the money supply and value of the currency, with a mandate to maintain full employment and price stability.

In the wake of the near-collapse of the financial system and the looming debt crises facing both Europe and the United States, those who view the pure fiat currency system as a contributing factor to these events have become both more vocal and also more widely acknowledged. These critics believe that allowing monetary authorities to create money and currency without some form of restraint has contributed to unsustainable expansion of debt, growing inflation, and instability in the global financial system.

In light of continued accommodative monetary policies being deployed by monetary authorities to stave off financial crisis, some critics worry that the experiment with pure fiat money is headed toward collapse unless changes are made. To that end, some advocate allowing alternative currencies to begin circulating alongside fiat currencies for two reasons: (1) parallel currencies could restrain monetary authorities from excessive money creation by allowing competition between government fiat money and private money, and thus promote stability; and (2) if the restraint proves ineffective, having in place a system of parallel currencies provides individuals with a safeguard, in the form of an alternative monetary system, should the experiment with pure fiat currencies come to a disorderly end.

Parallel Currencies

Parallel currencies are based on the notion that the market for currency is like the market for any other good or service. Markets provide consumers with choices between products, and producers compete for consumers by providing the best, most efficient product. In the currency market, the best, most efficient product would be the one that best satisfies all the properties of money: durability, portability, divisibility, ease of recognition, and stability.

²⁶⁶ A fiat currency derives its value from legal statute requiring it to be accepted as payment in a transaction, typically referred to as a legal tender statute. Alternatively, a commodity-backed currency has an intrinsic value based on the value of the commodity backing the currency. Both types of currency also derive value from their use as a means of exchange, known as exchange value.

With parallel currencies, any item could emerge as an alternative form of money, but precious metal currency would likely become the most dominant because precious metals contain all the properties necessary to be money and have historically been the forms of money most widely accepted around the world. Precious metals could circulate either as coins, paper certificates backed by coins or bullion, or as an electronic currency, all of which could be provided by private enterprises, each competing to provide the “best” money, *i.e.*, the soundest, most stable, and most convenient.

Obstacles to Parallel Currencies

While alternatives to fiat currencies exist in the U.S., their adoption and circulation are limited because of obstacles created by the federal government. These obstacles inhibit the circulation of parallel currencies, diminish the network effects needed for widespread adoption, and limit the use of parallel currencies. Three of the major obstacles are: (1) taxes on precious metals that prevent them from circulating as money; (2) provisions of the federal criminal code that prevent the private minting of coins as currency; and (3) legal tender laws that make U.S. coins and Federal Reserve Notes payment for all debts.

Taxation on Currencies

Capital gains taxes assessed on the appreciation of the precious metal content of coins have deterred the use of coins made from precious metals as a means of exchange. Under 26 U.S.C. 408(m)(2), coins are declared to be collectibles and are taxed at rates different from those for other capital assets. Coins held for less than one year are taxed at the short-term capital gains rate, while coins held for longer are taxed at a rate of 28 percent. Given the steadily-increasing dollar value of gold and silver coins, using these coins to pay salaries or to make purchases would require burdensome paperwork and tax payments, which makes it prohibitively expensive for precious metal coins to circulate as a parallel currency.

Private Mints

From the founding of the United States to the Civil War, numerous hard money currencies circulated within this country. These currencies were U.S. Mint coins, foreign coins, and privately minted coins that circulated based on their weight in gold and silver. During this time, individuals could bring in an amount of precious metal and have it assayed and minted by local branches of the U.S.

Mint. Private mints sprang up in areas that were underserved by U.S. Mint and Assay offices.

Federal laws enacted in the 1860s and 1870s outlawed the minting of currency by private mints. As greater centralization of government occurred after the Civil War, there was also a push by lawmakers for greater centralization and government control of money issuance. As legislation was passed to create a national banking system, two provisions—now codified at 18 U.S.C. 486 and 489—were enacted that prohibit the operation of private mints, outlawing the coinage of precious metal coins as currency except by the government.

Legal Tender Laws

Legal tender laws provide that a certain currency is “legal tender”: that is, the currency must be accepted for payments of debts, taxes, duties etc. Legal tender laws that apply to a certain geographic territory often ensure that the government-issued currency circulates in the economy to the exclusion of other currencies. Some historians and scholars have argued that the federal government does not have the authority under the U.S. Constitution to enact legal tender laws, but merely to coin money and regulate its value. The only reference in the Constitution to legal tender is contained in Article 1, Section 10, which prohibits states from making “any Thing but gold and silver Coin a Tender in Payment of Debts.”

Examples of Private Currencies

Liberty Dollar

The Liberty Dollar was created in 1998 by Bernard von Nothaus and issued through his company, Liberty Services and was intended for use as a circulating private currency. The Liberty Dollar existed in the form of gold and silver coins, gold and silver certificates backed by those coins, and as an electronic currency. Liberty Dollar coins were minted with a suggested U.S. dollar face value.

In November 2007, Liberty Services was raided by the FBI and Secret Service. Its gold, silver, platinum, and copper coins were seized by the U.S. government. Nothaus was charged in 2009 with violating 18 U.S.C. 485 (issuing coinage similar to U.S. coinage) and 18 U.S.C. 486 (minting coins of original design intended for use as money), among other laws, and was convicted in March 2011.

American Open Currency Standard (AOCS)

The AOCS was created in 2007 as an umbrella organization that both issues its own precious metal medallions and also approves those minted by other organizations which conform to AOCS standards of metal purity.

Given the experience of Liberty Dollar, AOCS has been cautious to avoid some of the problems that resulted in criminal charges being filed against Bernard von Nothaus. For example, AOCS issues “medallions,” “tokens,” or “rounds” rather than “coins” and refrains from using the word “coin.” Their medallions are struck with a medallic orientation, meaning that the reverse is right side up when the coin is flipped on its *vertical* axis. This makes their product dissimilar from United States coinage, which is struck with a coin orientation, meaning that the reverse is right side up when the coin is flipped on its *horizontal* axis. Unlike the Liberty Dollar, AOCS medallions are not marked with the term “dollar,” nor are they marked with a dollar sign.

AOCS-approved medallions are minted in copper (1 oz. avoirdupois), silver (1/10, 1/2, 1, and 5 troy ounces), and gold (1/10, 1/2, and 1 troy ounce). AOCS-approved medallions are minted with their weights and a face value number that corresponds proportionally to the metal content of medallions within each metal series. In general, merchants who accept AOCS medallions are willing to exchange them at a dollar to face value parity.

GoldMoney

GoldMoney was founded in 2001 by James Turk and his son Geoff Turk in recognition of gold’s usefulness as a financial asset as well as its worldwide role as money. GoldMoney now primarily sells gold, silver, platinum, and palladium to customers around the world and offers storage of those metals to its customers in warehouses in Hong Kong, the United Kingdom, and Switzerland. However, GoldMoney had long contemplated the use of gold in electronic commerce, and increased adoption of the Internet enabled GoldMoney to offer a digital gold currency, allowing its customers to make payments to each other using a patented digital gold currency with a unit of account in grams. GoldMoney holds four patents related to its digital gold currency. In January 2012, increased regulatory burdens and low usage caused GoldMoney to discontinue its digital gold currency for all customers outside of Jersey, a British crown dependency in the Channel Islands where GoldMoney is headquartered. GoldMoney has said that it plans to reinstate metal payments for its customers in other countries in the future.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:04 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul (chairman of the subcommittee) presiding.

Members present: Representatives Paul, Luetkemeyer, Schweikert; and Green.

Chairman PAUL. This hearing will come to order. Without objection, all Members' opening statements will be made a part of the record.

I also ask for unanimous consent to place in the record a letter with an attachment from Dr. Edwin Vieira, who could not appear on this panel today.²⁶⁷

Without objection, it is so ordered.

I will now recognize myself for 5 minutes to make an opening statement. First, I want to welcome our panel today to discuss a very important issue dealing with monetary policy. We have had a series of hearings and discussions in this committee dealing with monetary policy, mostly directed around Federal Reserve policy and the Federal Reserve.

Today, there will not be that much emphasis on the Federal Reserve itself, but rather on money: on money, the issue of what it means; what our history is like on money; whether we can have parallel currencies; and what the founders might have thought about parallel currencies.

The world is in the midst of a crisis today, and many of us believe it is related to a deeply flawed monetary system, a deeply flawed understanding of what money should be, a rejection of the notion that money should have real value and that money originated in the marketplace rather than originating from a computer over at the Federal Reserve.

²⁶⁷ The letter and attachment from Dr. Vieira can be found in Appendix C.

And though today the general public, as well as the financial markets, have a difficult time wanting to accept that or even understand it, ultimately it is the nature of money that I believe we will have to come to grips with, and make a decision about. Because as we speak, they are meeting in Europe and the ECD's are deciding what to do and manipulating their money and credit, as well as we here in the United States.

We in this country have been given some benefits, definitely, by being able to issue the reserve currency of the world. And because there is no definition to money, and because we can create money out of thin air, we have had some advantages.

But the whole world is engulfed in this problem because of this lack of determination, a lack of desire to understand what money is all about. So today, we want to discuss that, and get the testimony from our witnesses to try to further understand the nature of money and credit, and whether it is necessary to have a precise definition.

Also, really, we want to talk about parallel currencies, concurrencies circulate next to each other. And I think the answer is rather clear. They are doing it all the time internationally. Currencies are circulating all the time, and in the computer age, they adjust their values rather quickly.

But the question is, can we have parallel currencies within the United States? Would it be legal? Does it contradict the Constitution? What would the States' role be in this? And what can they do? Under these circumstances, it does raise a lot of questions, because it raises tax questions and the authorities on how they are going to respond and what one can do with currencies without having the wrath of Big Brother and Big Government coming down on us, and saying, "No, you can't do that."

But today, we have an absolute monopoly control over money and credit. They are managing a money that they can't even define. And then they wonder why we have chaos in the marketplace. I see a time coming where there will be a response to the problems that we have, a response that I will endorse. And that is for monetary reform.

But it won't happen because of our hearing today. I know we are going to have a great hearing and great testimony, and there will be lots of words of wisdom. But we are not going to walk away and all of a sudden the world is going to say, "You know, that makes a lot of sense. We have to deal with this."

The one thing that I am convinced of with the current system that we have, because we don't deal with the issue of money, is the financial system worldwide is going to get a lot worse, because they

are not admitting the truth of what is happening. Because the system that we have, we have had for so many years and so many decades that it has encouraged a system of horrendous debt.

And not only are many of our companies and banks and States and countries insolvent, they wonder why we have a problem. But if they don't admit to it, and think that, well, the solution is just creating more money. So that is an overwhelming task for that reform.

But in the meantime, is there anything that we can do to emphasize and to promote the interests of, and the understanding of what sound money would be by just permitting parallel currencies? Why can't we have the freedom to do this? We claim we live in a free country and a free society, but are we allowed to have parallel currencies, are we allowed to have competition, are we allowed to have something in addition to a cartel and a monopoly that has controlled money and credit and has created a worldwide monster for which they have no answers?

That is the reason I think this is a very, very important subject. And once again, I want to welcome our panel. I would like to know now if any other Members have an opening statement. No? Okay, thank you.

I will now introduce our guest speakers and the members of the panel. Our first guest, Mr. Nathan Lewis, is the principal of Kiku Capital Management, a private investment firm, and author of "Gold: the Once and Future Money," which is now published in five languages.

His writings can be found in the Financial Times, Forbes, and Dow Jones Newswires, among others. He has appeared on television networks, including Bloomberg TV and CNBC, and has been featured in several television documentaries.

Dr. Richard Ebeling is a professor of economics at Northwood University in Midland, Michigan. He is recognized as one of the leading members of the Austrian School of Economics. He is the former president of the Foundation for Economic Education, and author of "Political Economy, Public Policy, and Monetary Economics." Dr. Ebeling earned his Ph.D. in economics from Middlesex University in London.

Mr. Robert Gray is founder and executive director of the American Open Currency Standard. He is responsible for the creation and successful implementation of more than 150 circulating community currencies and silver-, gold- and copper-based token fund-raising programs.

Mr. Gray helped issue the official currency of the free and independent Lakota Indian Nation, and also founded the Mulligan Mint, a full-service mint in Dallas, Texas.

Without objection, your written statements will be made a part of the record, and you will now be recognized for a 5-minute summary of your testimony.

I now recognize Mr. Lewis.

**STATEMENT OF NATHAN LEWIS²⁶⁸
PRINCIPAL, KIKU CAPITAL MANAGEMENT LLC**

Mr. LEWIS. Thank you. The phrase “parallel currencies” tends to sound rather novel and experimental to us today, living in the United States. However, most people in the world are using parallel currencies today. U.S. dollars or euros are accepted in trade in goods and services.

In many countries that suffer from low-quality domestic currencies, the largest corporations finance themselves with dollar-denominated debt. The governments of such countries themselves issue dollar-denominated government bonds. By the end of World War II, the U.S. dollar, which had been considered an emerging market currency in 1900, had proved to be the most reliable currency in the world.

In practical terms, this meant that the U.S. dollar remained on a gold standard system while once-prominent European currencies were devalued and political situations became unstable. The dollar thus became the parallel currency of choice worldwide.

In 1971, the United States abandoned its then-nearly two-century-old commitment to the gold standard system. At this point, historically, currencies were often discarded for whatever the highest quality, most reliable alternative was which, in practice, meant a gold standard currency from a large developed country.

Despite the U.S.’s poor currency management since 1971, the alternatives have been even worse. This why the U.S. dollar remains the most popular currency in the world, and serves as a parallel currency in many, if not most, countries today.

Today, there are no particularly onerous barriers against using a parallel currency in the United States. People are free to do business in euros or Russian rubles if they so choose. There are over 150 currencies in the world, all of which could conceivably be used as parallel currencies within the United States or other countries.

²⁶⁸ [The prepared statement of Mr. Lewis can be found on page 1023.]

However, all of them are floating fiat currencies generally of lower quality than the U.S. dollar or euro. There is hardly any reason to introduce another. Plus, the most meaningful new parallel currency to be introduced in the United States or in another country would be one based on gold.

Although the use of other countries' national currencies is largely accepted in the United States, the issuance of alternative currencies within the United States can run afoul of what are collectively known as "legal tender laws," both de jure and de facto. The one person who attempted to issue a gold- and silver-based parallel currency in the United States was arrested in 2009 and convicted of charges related to counterfeiting and declared to be a domestic terrorist.

Gold, today, is regarded as a collectible, and subject to a different system of taxation than if one were to do a similar transaction using foreign currency such as euros or Canadian dollars. In addition, purchases or sales of small quantities of gold are subject to sales taxes in many States.

Thus, in practice, the U.S. Federal Government makes a powerful effort to suppress the introduction and use of alternative gold-and silver-based currencies today. This state of affairs has become intolerable to many. In 2011, the State of Utah declared that it would consider U.S. Mint gold and silver coins and monetary instruments based on these coins to be legal as currency.

This included the removal of all State-level taxes on transactions in gold and silver bullion. Twelve other State legislatures have had similar bills proposed. The Utah example could serve as a template for similar Federal-level legislation to legalize gold- and silver-based currencies within the United States. According to a study of 775 floating currencies by Mike Hewitt, no floating fiat currency has ever maintained its value.

The average life expectancy of a floating fiat currency was found to be 27 years. The U.S. dollar, which has been a floating fiat currency for 41 years now, is thus an unusual example of longevity. However, today's extreme reliance upon easy money approaches to deal with economic problems, with the Federal Reserve promising unprecedented zero percent policy rates for years, and real interest rates deeply negative, suggests to many that the floating fiat dollar does not have a long or successful future.

Governments of China, Russia, Malaysia, Switzerland, the Gulf States, and others have complained about the potential consequences of today's aggressive easy money techniques not only at the Federal Reserve, but also the European Central Bank, the Bank of England,

and the Bank of Japan, and have made preliminary steps toward a future alternative, including discussions of new gold-based parallel currencies.

On the international scale, the parallel gold-based currency, or many such currencies, would help ease this transition and form the basis of a new monetary order if that should become necessary. Each individual would be free to make increasing use of the gold-based alternative as it best suited their interests.

It would be no great day of transition, but a smooth, extended process, perhaps over years. The existence of a high-quality alternative could help people avoid much of the potentially disastrous consequences if today's floating fiat currencies meet the same end as the 599 floating currencies that no longer exist.

Thank you.

Chairman PAUL. I thank you.

And now, we will go to Dr. Ebeling.

**STATEMENT OF RICHARD M. EBELING²⁶⁹
PROFESSOR OF ECONOMICS, NORTHWOOD UNIVERSITY**

Mr. EBELING. Chairman Paul, and members of the subcommittee, I would like to thank you for this opportunity to share some ideas on this important theme of sound money, parallel currencies, and the roadmap to monetary freedom.

To discuss a possible roadmap to monitor a freedom in the United States requires us to first determine what may be viewed as sound or unsound money. Through most of the first 150 years of U.S. history, sound money was considered to be the one based on a commodity standard, most frequently gold or silver.

In contrast, the history of paper, or fiat, monies were seen as an account of abuse, mismanagement, and financial disaster, and therefore were viewed as unsound monies. The histories of our own American Continental notes during the Revolution, the assignat during the French Revolution, and the greenbacks and the Confederate notes during the American Civil War all warned of the dangers of unrestricted and discretionary government power over the monetary printing press.

That result was that in the second half of the 19th Century, all of the major countries of the world moved towards a monetary standard based upon a commodity, in this case, gold.

The important matter to be emphasized—that while it assured a degree of monetary stability while governments basically followed the

²⁶⁹ [The prepared statement of Dr. Ebeling can be found on page 1038.]

rules of the gold standard—that is, a fixed ratio was established between a unit of gold and the amount of notes or account deposits that were extended after a deposit was made; the ability to redeem them at that fixed rate; the monetary authority of the central banks at that time basically following the rules of the road of limiting the amount of notes or accounts open to the amount of gold that had been deposited, withdrawing notes and accounts when gold was withdrawn, the fact remains that it still was a system of government-managed money.

And once the ideologies and philosophies of the time changed and the shift was to a more activist government policy in the 20th Century of government targeting price levels, government attempting to influence and manipulate output and employment or inflation targets and so on, the reins of ability to manipulate the monetary system were already in the hands of the authority given responsibility for money and credit in the economy.

That raises the entire issue as to whether it is desirable to have government managing a monetary and banking system at all. The free market case for competition in general and, therefore, a similar case in the case of money is the fact that competition in a market does at least two essential things.

First, it decentralizes the impact of errors. If a businessman makes a mistake in his entrepreneurial judgments, it may have a negative effect on himself, some of his employees, or a few suppliers of the good that he produces. But it is decentralized. It does not affect the entire economy. When a central bank makes a mistake, its impact is potentially on the entire economy as a whole, since the monetary authority influences interest rates in general, affects the supply of money in the economy in general, distorts relative prices, and impacts the general rate of inflation in the economy as a whole.

Second, it is only through competition that we discover innovative and creative ways to give people the things that they want. And this, market advocates have argued, is no less true in the case of money. If government did not monopolize the control of money, individuals in the market would determine what commodities such as gold and silver they choose to use as media of exchange.

What type of financial intermediation and forms of financial intermediation they found most advantageous and profitable to use. And a diversity of such forms—as banks offered different features, issuing their own notes based upon commodity money deposits—and therefore acting as a check and a balance on each other to give

consumers what they wanted while restraining their ability to abuse their particular individual authorities.

So how would one move towards such a system of free banking and competitive choice in currency? I would like to suggest the following steps.

First, the repeal of the Federal Reserve Act of 1913 and all complementary and related legislation giving the Federal Government authority and control over the monetary and banking system.

Second, the repeal of the legal tender laws, giving the government the power to specify the medium of exchange through which people will transact and enter into contract.

Third, repeal all restrictions and regulations on the free entry into banking business and the practice of interstate banking.

Fourth, repeal all restrictions on the right of private banks to issue their own bank notes and to open accounts denominated in foreign currencies or in weights of gold and silver.

Fifth, repeal all Federal and State government rules, laws, and regulations concerning bank reserve requirements, interest rates, and capital requirements.

And sixth, abolish the Federal Deposit Insurance Corporation. Any deposit insurance arrangements and agreements between banks and their customers and between associations of banks should be private, voluntary, and market-based. In the absence of government regulation of this type, we would naturally move towards a system of competitive currencies and free banking.

Thank you.

Chairman PAUL. I thank the gentleman.

And now, we will go to Mr. Gray.

STATEMENT OF ROBERT J. GRAY²⁷⁰
EXECUTIVE DIRECTOR
THE AMERICAN OPEN CURRENCY STANDARD

Mr. GRAY. Thank you, Mr. Chairman, and members of the subcommittee. My name is Rob Gray, and I was asked to testify today on the theory of competing currencies and the practical challenges that make such a theory difficult or impossible to implement.

For nearly 5 years now, I have successfully directed the American Open Currency Standard, the standard for private voluntary silver, copper, and gold currencies that compete with each other, not against the U.S. dollar. Allow me to clarify. We do not consider AOCs-

²⁷⁰ [The prepared statement of Mr. Gray can be found on page 1055.]

approved medallions produced and traded in our private barter marketplace competition at all to the U.S. Federal Reserve note.

Because fair competition, as one would find in the free market, assumes the existence of a level playing field, existence of a standard set of rules. Those players who wish to compete honestly do so by simply relying on the merit of the value that they bring to the market.

Well, no fair challenge can be made between honest men and thieves. Now let me be clear that when I say, “thieves,” I refer directly to the current private central bank and the men in government who allow it to exist. It brings us to a critical point. According to your employee handbook, article one, section eight says that Congress shall have the power to coin money and regulate the value thereof.

I would argue that since 1913, Congress has failed to do the job with which it has been tasked. In the free market, since our inception, the Open Currency Standard has enjoyed nearly 5 years of growth and success, and our mission of issuing a means that allows valuable exchanges among those who produce.

In the next 5 years, we expect to expand our offerings and to increase our ability to keep up with the demand for our private currency. We are doing the job today that Congress would not. But back to theory. The use of community currencies here in the United States became popular back in the early 1930s.

At the time, the theory was that a group of the world's most powerful men were intentionally and systematically removing currency from circulation, creating artificial scarcity of money across the country. Small cities and towns felt it worse than anyone, but life did go on.

Then, during the greatest economic depression the country had ever seen, individuals across the country developed their own mediums of exchange. They still needed things like food, clothing, and daily essentials; they still needed to live. And they didn't have time to sit around and wait for the government to fix the problem.

And so, according to historical records, thousands of community currencies were created, circulated, and traded in places where the scarcity of dollars was interfering with humans' desire to live. Individuals took it upon themselves back then to secure the means for their own survival and potential prosperity.

More recently, community currencies have sprung up across Europe, as the euro and other national currencies become increasingly unavailable and undependable. Today, communities all across the

eurozone trade their own money instead of the euro. Community currencies today are not simply a good idea in theory.

Right now, alternative and complementary currencies circulate widely across the country in many different forms. Ithaca, New York, has Ithaca Hours that are loosely based on the value of time. Berkshire, Massachusetts, uses a fiat-backed fiat system. And many more communities circulate gold, silver, and copper AOCs-approved barter tokens as a medium of exchange.

As for the practical challenges in the issuance and circulation of complementary currencies, there are plenty. In a voluntary system, those that participate in the trading of private currencies must deal with the possibility of counterfeiting, fraud, scarcity, acceptance, accounting, storage, and other issues, all without the luxury of Big Brother holding a gun to anyone's head to ensure their success.

But even with all these risks, the market still moves on. As in any free market, good ideas circulate with success and bad ones eventually fade away. Participants voluntarily choose to accept and circulate the highest quality currencies in exchange for their best production.

Merchants accept complementary currencies based on the premise that someone else is willing to do the same thing later. Issues arise and are worked out by the market with only one light to guide them—the mutual exchange of value. No guns, no laws, nor force, just the willingness to think outside the box and act on principle.

Complimentary currencies are not new, in theory or in practice. Private currencies circulated long before governments erected themselves to interfere. But what is new, however, is the public's apathy towards the government and the Federal Reserve, and their policies. You have managed somehow for the last 100 years to convince the citizens of this country that you are relevant.

But now, just recently, we are beginning to see the tides change on this. And once it catches on, you will be rendered completely obsolete. The greatest hurdle you will face over the next 100 years is trying to convince We the People that you are still necessary in spite of your failure to get the job done.

Sure, some will rely on your for handouts. That is what they have always known their entire lives, and they will be slaves right up to the point of their own destruction. But they don't know any better, and I don't blame them for their ignorance. In the future, you will not have to worry about Million Man Marches or citizen journalists trying to catch you on camera.

What you need to fear is no one paying attention to you. The next American revolution will be fought not with bullets and bombs, but instead it will be won with the opposite consciousness. To that end, I am here today to propose a solution. My understanding of this committee is that you want to be part of the solution.

You want to believe that you are doing something good for the country. And so today, the greatest gift that you can offer to the people that you clearly represent—not to the legislature, but directly to the public—is what I call “IR-1207,” Individual Resolution 1207, commonly referred to as “Ignore the Fed.”

Store your wealth in silver, bank with non-fractional banks that pay real money on deposits, use the card service network to satisfy dollar obligations, do not try to compete with the Federal Reserve system; simply ignore them.

I ask you to leave the Fed their Federal Reserve notes and leave us our gold, silver, and copper. Do not push to redefine whatever representations we choose for our wealth. Let the Fed do what it wants with their legal tender, so long as they leave our money alone. I warn you, honest money legislation is a wolf in sheep's clothing.

The greatest thing this body can do is exactly what it has done so far: absolutely nothing. All I ask is that you stay out of the market's way. The people in our world are very happy to go right along saving you from your own destruction by producing value against all odds, regulations, codes, and challenges that you throw our way, but leave our money alone.

It doesn't belong to you, and it never will. The bottom line is very simple. Humanity is not going to wait for permission to survive. Things that cannot go on forever simply won't. The market will move on with or without you. And based on your rate of success to date, our preference is certainly without you.

Thank you for the time.

[QUESTIONS & ANSWERS]

Chairman PAUL. Thank you. I will now yield myself 5 minutes for questioning.

First off, I would like to talk about the legal tender laws a little bit more. I want to pose a question for all three of you. It was mentioned in your testimony about how important legal tender laws are and whether or not we can ignore them.

How important are the legal tender laws, and how important is it that we get rid of the legal tender laws if we really want to have a parallel currency and be assured that we can do it? Can we ignore it?

Should we work to repeal it? How far can you go without dealing with this issue?

Because it does provide the monopoly that will not go away easily. So if each one of you could expand your thoughts on the importance of legal tender laws and what we should try to do, and is it absolutely necessary that we do something before we can advance the cause of competition or parallel currencies?

Mr. Lewis?

Mr. LEWIS. Although I think that some communities are using small-scale metallic currencies, more or less under the radar, if a large corporation—let us take Ford Motors, for example—would begin to do business in gold and silver coins or related currencies, they would immediately come under Federal scrutiny and basically be prevented from doing so.

What I would like to see is basically for gold and silver, and currencies based on gold and silver, to be treated as legal currency within the United States. In practice, this will require a declaration of some sort to make it effective. And ultimately, at the very least, to be able to treat gold and silver the same way we treat euros or Canadian dollars today.

We can all do business in them in the United States, even though they are not necessarily declared as legal tender, and so on and so forth. It would be better to have a more official declaration to say, yes, we accept gold and silver as a legitimate means of monetary transaction and a legitimate foundation for business.

Chairman PAUL. Thank you.

Dr. Ebeling?

Mr. EBELING. Yes. Anyone who has traveled in a country that has been experiencing severe, or even hyperinflation knows that in spite of official legal tender laws—that is, the government declaring a certain money or its currency the lawful money—people start using alternative currencies that they view, given their circumstances, as having more confidence in shorter certain value.

So in spite of laws and regulations, at the end of the day what people will choose to use as money, even when it breaks the law, they will follow what they view as most effective and self-interested for themselves in the marketplace to secure their wealth and their transaction opportunities for themselves and their families.

But the fact remains that while the market, in a sense, finally supersedes and no longer recognizes government laws when it becomes serious enough, it is crucially important if we could eliminate the legal tender restrictions in the United States. Because basically,

it would say that now individuals—and the law, the government, the courts—will respect the contracting and the exchanging of any form of medium of exchange that the individual citizens of the society choose to use.

That would go a long way. For example, a well-known Nobel Laureate, Austrian economist Friedrich Hayek, once made the case for what he called “choice in currency.” He was doing this before the euro in the context of Europe. But he said one way to tame the inflationary tendencies of government is to allow citizens within their own country just to use the currencies of other countries within their domestic exchanges if they choose.

To be able to say I don't trust, and have confidence in, the monetary authority to restrain itself in issuing excessive quantities of that money. Also, if you eliminated the legal tender laws, then the people themselves would decide do we want to use dollars, do we want to use alternative to dollars, how much do we want to use notes, how much do we want to use, actually, coins of various sorts?

And it would be basically saying consumer sovereignty, consumer choice. But if we could do that, that would be the essential roadway, and path, to restoring a system of monetary freedom. But if, in the United States, we were to ever experience—and, of course, we hope we never do—a serious and hyperinflation, the market would basically tell the government what it thinks of its money because people will choose to use alternative currencies of choice.

Chairman PAUL. Thank you.

Mr. Gray?

Mr. GRAY. Mr. Chairman, before addressing or issuing the answer to that question, can you please summarize for me your understanding of the legal tender laws as they exist today?

Chairman PAUL. Not at this moment. I would like you to answer the question first.

Mr. GRAY. My answer is, very simply, leave them alone. My understanding of the legal tender laws is that the U.S. dollar, the Federal Reserve note, can be used to satisfy debt obligations. We don't need to change that at all. There is no law that restricts us from privately minting coinage—tokens, medallions as we refer to them.

There is no law that restricts us from engaging in private barter transactions with other men. And so, we don't need to change anything about the legal tender laws in order to do exactly what we are doing right now.

Chairman PAUL. Okay.

I now yield 5 minutes to Mr. Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

As you talk about the different parallel currencies, I think we have a parallel currency situation over in Europe right now that is pretty obvious. How is the euro working over there, in your judgment, all three of you?

Mr. EBELING. I will begin by saying I think it is an unmitigated disaster. The fact is, this was not a choice by the people either making their demonstrated choice in market exchanges or even in a political vote or a referendum. This was basically imposed upon many of the E.U. countries as a discretionary choice of the politicians.

Some of the more prominent countries wanted to have a unified currency so as to be able to have the political clout to look down the dollar in the eye, to be explicit. That is my view of why the French were pushing it. The result is that this currency has been imposed upon systems that follow different regulatory paths, different fiscal paths in terms of debt and deficits, all of which has created this problem.

A lot of people in Europe are saying, "Oh, it would be disastrous if the Greeks pulled out and reestablished the drachma," for example, or "the Spaniards were to reestablish a peso," for instance. I think that would be the path to denationalize, or rather deinternationalize this monetary system because it is not working.

And it is dependent upon a central bank in one location to make the monetary choices and decisions for all of the hundreds of millions of people who participate in this system, rather than allowing even the competition of the national central banks, as had existed before. Because if you felt that the lira was being inflated, people escaped into marks.

That was the pattern in the post-war period. Where does an Italian escape to now as easily as into the market as was historically the case? So even in terms of competitive national currencies, the unification under the euro has been a disaster, and certainly for the freedom of the people there.

Mr. LUETKEMEYER. Mr. Lewis?

Mr. LEWIS. I would generally agree with Dr. Ebeling. I don't think the euro is a case of a parallel currency so much as a shared monopoly currency. With parallel currency, the idea is having the choice of two highly viable alternatives. For example, the euros, maybe, in Turkey, where the Turkish lira has a rather poor history, often people use Deutsch Marks in the past and now use the euro.

So I think that is probably a bad example of a parallel currency. Thank you.

Mr. LUETKEMEYER. Mr. Gray?

Mr. GRAY. I think the key thing to consider with what is going on right now in Europe, besides the fact that there is just no confidence whatsoever in the banking system is that still, in our country here today, we do have confidence in our currency, we do have confidence, for the most part, in the banking system, for whatever reason.

And that is very different over in Europe right now. As soon as money shows up and the banks are unfrozen, the people make a run on the bank. They pull out as much currency as they can, they turn it into anything they can get their hands on that is valuable; whether that is another currency, or hard goods, or gold and silver.

It is the same thing that we are seeing now that we saw in hyperinflation just before World War II, where the race was on to get rid of the currency as quickly as possible. The advantage we have right now is that we don't have that yet in our country. And I think the opportunity that lies before us is to help the people of this country get out of that system, deleverage the system, so that they don't have to experience the panics and the fear that are being experienced right now in Europe today.

Mr. LUETKEMEYER. You had a key word there that really describes all monetary systems and, basically, even economics. And that is "confidence." If people don't have confidence that the money that they are exchanging for goods is worth that amount of money, or whatever it is, there is very little transaction that takes place.

And so really, even at the highest levels of the biggest banks, we found in 2008 that it wasn't necessarily the entity that they were dealing with. It was the confidence in that entity to be able to transact business.

And so basically, you have a fall-back on confidence, which leads me to the question with regards to what we are talking about this morning, sound money and parallel money. If you work in a different monetary system parallel to another one, where is the level of confidence going to come from that allows that business to be transacted in a parallel currency?

Mr. GRAY. The simple answer to that question is the confidence comes from the fact that the currency is not based on debt. Every national fiat currency is put into circulation through loans and debt.

And so people today are starting to understand that there is so much money out there that people owe in loans, mortgages, credit card bills, all these derivatives out there—trillions and trillions of dollars—and all that money has to be paid back eventually.

That is where the lack of confidence comes from. And so when you start thinking and talking about alternative currencies, especially those that are issued in gold, silver, copper, and something real, some sort of commodity, people who understand the concept begin to realize that those are debt-free currencies that don't need to be paid back at some point to some bank.

Think about all the money that the people of America owe to the banks. Think about all the people who are in debt, all the States and the municipalities, the colleges, universities. Everyone is in debt. The real question is, who owns the other side of that debt?

And that is where the lack of confidence comes from. The fact that people are starting to ask that question, and realize that there is really no money out there to begin with.

Mr. LUETKEMEYER. I see my time is up.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

If the gentleman from Arizona is ready, he could be recognized. If not, we can wait a couple of minutes. Are you ready? Okay, thank you. I will go on and have a second round of questions.

The question of taxation comes up with money, as well, because we think money is a commodity. And our government tends to think that any time you have a commodity transaction, you pay taxes on it. You have sales taxes and you have capital gains taxes. And that, I think, curtails this development of parallel currencies.

And I don't know how we could ignore this if we really want to promote some competition or allowing another currency. Because if you tax one currency but not another one, it is hardly a parallel currency. It is at a tremendous disadvantage.

So if a parallel currency really got off the ground, because of the conditions or the people became knowledgeable and they thought it was wise to do it, the people in Washington don't like to have their powers undermined. So they have the power of the IRS.

Isn't this a significant concern, or do you think we can just sort of bypass it, and say, "Well, it's a problem, but not a big problem. We will just go do our thing, and it can work." What is your opinion about the tax issue when it comes to a parallel currency, all three of you?

Mr. LEWIS. I think there are—just as you can have under-the-table transactions in U.S. dollars, small-scale that maybe you don't report to the IRS, you can also do so. And maybe people are doing so with gold and silver coins or copper coins today. But as soon as you get the business of any scale, you can't break the laws that easily.

I think that ultimately, just as you say, we have taxes that apply to transactions in dollars, capital gains taxes, for example. We have taxes that apply to transactions in euros and Canadian dollars and many other currencies. We have many thousands of corporations doing business in many currencies worldwide.

I think we should recognize that because gold and silver and related instruments are not recognized as currencies, they are under a different system of taxation. Gold, for example, has a different tax rate because it is a collectible. But I think more importantly, let's just take a very simple transaction. I wanted to buy a car from the Ford Motor Company, I wanted to pay them in gold coins, U.S. Mint American Eagles produced by the government.

When I give the gold coin to the auto dealer, that would be considered basically a sale of the coin and you would have to pay capital gains tax, taxes on what the dollar value of the coin was when you acquired it and when you dis-acquired and so on and so forth. Which is very different than if I were to, for some reason, do the same transaction in euros where that would not apply.

So I think that at the very minimum, we should endeavor to treat these the way we would treat other national currencies today, which we are actually doing business in. Not so much in the United States, but what American citizens, the American corporations are doing every day and accountants are very familiar with how this works.

So I think that there is definitely something for the Federal Government to do there to legitimize that and treat it as the same way we treat other national currencies today.

Thank you.

Mr. EBELING. Yes, I would argue that the parallel way of thinking about this is, in international trade, what we call the most favored nation clause. Any agreement that you reached with country X, you give the same best-favor treatment with import duties and so on to all other countries with which you trade.

The parallel argument would be that the government should recognize that anything that people use as a medium of exchange in transactions should be viewed as anything that they have historically viewed as a transaction. Basically, that there shouldn't be these extra taxes. That was just pointed out.

So that if people are now using gold and silver coins, the transaction should be more taxed or treated in a different way than any transaction with the Federal Reserve's own note. That gives a level playing field with neither an advantage nor disadvantage for the use of one currency versus the other.

Because otherwise, the government creates stumbling blocks and hurdles to give people those fair and level playing field choices. So the parallel should be some taxing of media of exchange along this notion of the most favored nation clause.

Chairman PAUL. Mr. Gray?

Mr. GRAY. First of all, Mr. Chairman, I want to clarify that we are not tax experts and we are not allowed to give tax advice, nor do we give tax advice to anyone who participates in our system. Our job is, very simply, to issue the currency and make sure we guarantee the weight and the purity. So we are just keeping an eye on what is going out there.

But tax applications vary from State to State, municipality to municipality. Some States, some cities and towns, allow you to barter. They say, well, you can do 100 barter transactions per month or per year, and they don't look at it as being under the table or underhanded. They look at it as just being private trade that is not a taxable event.

Certainly, my understanding is that the Federal Government would like us to report the profit or gain from any transaction. That is kind of strange because in a barter transaction, there is not really any profit or gain on either side of it. But in our voluntary system, we encourage the participants to explore and decide for themselves based on their own morals and values what their tax obligation is, and to report and to remit accordingly.

Chairman PAUL. Thank you.

Now, I recognize Mr. Luetkemeyer from Missouri again.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Following up again on my comments earlier with regards to the confidence in the system and the ability to protect the citizens whenever you transact business like this, Dr. Ebeling, I think in your testimony you abolish the Federal Deposit Insurance Corporation. While you may not like it, that is also one of the things that adds confidence to the person who deposits money in the bank. To realize that if they deposit the money there, they are going to be able to get it back. Without that, the consumer is going to have to do an awful lot of work.

And as you gentlemen have described this morning, parallel monetary systems—you are going to put a tremendous onus on the individual to make sure that they get value back for whatever they exchange their money for, and that that money will have value down the road so they will not lose value and business continue to be transacted in that same form.

And so, I think one of the advantages of the system we have now is that it takes a lot of the work in trying to find ways for the money to be able to be secured and have confidence in away from the consumer. Am I wrong in that, or do you agree with that statement?

Mr. EBELING. I think that the problem with deposit insurance is that it creates a degree of confidence, but a false sense of security. The fact is, is that the impression is made that the bank is serving as a depository for your money and that it is always guaranteed to be gotten back.

The fact is, you put money into a bank to earn interest. The bank can pay you interest only through one way, and that is extending it and pooling your savings with others to worthy borrowers. They pay interest for the loan, the bank receives that loan. They take what they view as their service charge for financial intermediation, and then you as the depositor receive your interest, whether it be a savings account or most forms of checking accounts which pay interest now.

The fact is, you are putting your money at risk. You are lending it to others through the bank's good services. Federal Deposit Insurance has created this impression as if there is no risk with your money. And the fact is, I think the people would be more cautious and more attentive to the nature of the bank that they are doing business with, what the track record of the bank is in managing your funds, along with those of other depositors.

And on that basis, seeing what private insurance or guarantees or other forms of assurances bank competitively would establish. We take for granted that when you go in and buy, for example, a microwave or an oven or a refrigerator, what if it doesn't work?

Most large companies, for brand name reputation, give you various warranties and guarantees. And it is important for the company's success to stand by and guarantee that warranty and guarantee. Various banks, for competitive advantage, would offer various types of, perhaps, guarantees and warranties on deposits, but with the understanding that nothing is certain.

In a money market mutual fund, you realize that the value of your account may go up or down depending upon the value of the portfolio of the company with which you are dealing. The fact is, that is the case of a bank, too.

Mr. LUETKEMEYER. You are mixing apples and oranges here. You are talking about an investment account, where you know that the money is going to be invested and it has the ability to go up and

down, versus a deposit where you put the money in and you are going to write checks on that account.

And I think the deposit insurance takes some of the risk away. Over the last 4 years, we as a society have been educated to the fact that banks manage risk. That is what they do. Before, people thought they just take deposits, make loans, and turn around and pay out dividends and interest and whatever.

That is not what happens. They manage risk. And so, the deposit insurance actually minimizes the risk. It doesn't take it all away, but it minimizes it so that it gives some level of confidence to that investor. And I don't think you can sit there and say that somebody who invests in a money market account or some sort of investment account at the bank, that is a totally different relationship between the bank and the individual customer.

I have some concerns about that.

Mr. EBELING. If I could just sort of follow up on that, the mistake is that people view their checking accounts—I have a checking account, as I know you have—you feel as if, well, I have deposited my paycheck and I can draw that money down by writing checks or using my debit card, etc.

The fact is, that is not a warehouse deposit or like a safety deposit box. The fact is, under our current banking system that money is then taken—which you are viewing as 100 percent accessible to you—and using it as part of their investment funds to lenders. It is at risk as much as a savings account is, where you know that during the period of like a time deposit your money is being lent out to a lender.

The fact is, to a borrower, the same things applies with our checking accounts. People are given a false sense of security that this is not an investment account, when it is. It is as much of a risk as when you put your money in the bank and a savings account and you more consciously know the bank is using your money for a period of time with a risky loan.

Checking accounts are, in fact, with our system no different. And if you didn't have deposit insurance, I would suggest that people would become more aware of it and be more cautious, informed and intelligent in what type of banking institution they did business with.

I am talking about the long-run, institutional incentives of a system.

Mr. LUETKEMEYER. I see my time is up. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now recognize the gentleman from Arizona, Mr. Schweikert.

Mr. SCHWEIKERT. Thank you, Mr. Chairman. This may be a slightly more ethereal question, but I am trying to also understand how much of this is actually going on around us. And actually, also, if you have ever looked at the differential in high transaction cost jurisdictions: high sales tax; the barter economy; some of these things I now see on the Internet.

What was one of them called? Something “coin,” where you can actually develop—what was it?

Mr. GRAY. Big Coin, I believe?

Mr. SCHWEIKERT. Yes. And I think there are two or three versions of that, where, because of certain transactions or uses of Web sites or these things, you actually build accounts. How much of this is there already, even though in the scale it may be very small?

Is there actually, in sort of the barterer of economy, of this Internet exchange of value that is out there? I remember there was an explosion of it in the early 1980s, very early 1980s, when inflation—so I would trade something with my dentist for this. And even though inflation and other things, I knew I was getting a certain service for a certain service.

What is out there today?

Mr. GRAY. It is pretty substantial. The first thing to take a look at is the gray and black economics of the world which, right now, are really the only segment of the global marketplace that is actually growing. A lot of that is done with barter, direct trade. Some of it is done with alternative community currency, some of it is done with gold and silver.

So it is happening right now across the globe in a very big way. In the United States, there are probably 400 to 600 different community currencies in circulation right now. The total value of the currency in circulation is probably somewhere between \$1 billion and \$5 billion, I would estimate.

So it is small, but it is consistently growing.

Mr. SCHWEIKERT. I don't think a lot of folks even understand. My little sister was part of a baby-sitting exchange. She puts in so many hours, and she gets so many hours over there. In many ways, that was a barter economy, and folks don't realize they were basically transacting value for value.

What happens if we wake up tomorrow and a handful of our trading partners, competitors move to a basket or currencies? And so China and a couple other countries say, “We are going to do this new blended currency.” Does that actually now create a new method of exchange?

I have been trying to figure out if that actually creates an additional value of exchange with which we would have to deal.

Mr. GRAY. I think on the macro level in the global economy, yes, it does. As far as the micro level and the baby-sitters and the pet groomers and people in small towns and cities across the country, I don't think they would notice that any more than they notice, and are affected by, the international currency problems we have right now.

So I think, yes, globally sure.

Mr. SCHWEIKERT. But where that more comes from, Mr. Chairman, and to whoever would like to answer this, I don't know how often you see this, but I used to see it in the old days. A contract would have a gold clause in it, particularly contracts that were coming out of the late 1970s, very early 1980s when there was high inflation, saying, "Hey, we are going to write the contract denominated in U.S. dollars, but there will be a gold peg on it so if somehow inflation might—by the time we are going to do the take-down."

I am curious if we are seeing any more of that type of hedging. And that is actually what a blended commodity currency would do, also. I told you this was going to be a bit ethereal.

Mr. EBELING. I think what is sometimes being proposed, the Chinese and the Russians have talked about this instead of the dollar as an international currency for a lot of transactions. What this idea of a basket of commodities or series is, is to try to have an index of what currency A, let us say the U.S. dollar, is worth as sort of an index, or composite, of these other currencies to determine some value.

But the fact is that what would still be traded is actually some currency A for currency B. But the market estimate of what currency A is worth in relation to currency B would be that the currency B would, in fact, have its value based upon some composite index. It is a way of determining the exchange ratio, not so much that you would be trading the basket of the currencies for this other good, or this other currency.

Mr. SCHWEIKERT. And my fear is, often—and my good friend, Mr. Luetkemeyer, I think, that was also part of the dialogue of it—sometimes, it is not only you get back your dollar-for-dollar invested, but what was the actual ultimate purchasing power of that dollar when you get it back.

And I think that is actually a much more honest way to look at the value of a transaction.

Mr. EBELING. Right. And see, what happens—again, as I mentioned in an earlier question—is that if you have traveled in a country that is dealing with a severe or a hyperinflation, the uncertainty and

instability of that nation's own currency has reached such a point that people no longer either use that currency, or they calculate its real value in another currency, whether it be, let us say, a dollar or an ounce of gold.

And they say that based upon this other currency, that is what we are going to view as the value of my own currency in buying commodities.

Mr. SCHWEIKERT. Mr. Chairman, I know I am way over time. But if you have done lots of traveling, particularly in the third world, you will often see, here is the price in the local and here is the price, as I had an experience in Myanmar. There was a price for green, which was U.S. currency.

So thank you, Mr. Chairman.

Chairman PAUL. Thank you.

We will be having a vote shortly, but I believe we have time for another round of questions. I have a question for Dr. Ebeling. And it is a more generalized and philosophic question. Under the system we have today, it is very unfair to one group, where another group, I think, benefits.

And if you look at runaway inflation, it is not usually those who have been able to park their money overseas and escape the harm. Many times it is the average person who had savings in accounts and they lose everything. I think what we are dealing with on a monetary system is a reflection of a bigger philosophy.

And that is the philosophy of government, big government, and why we spend so much money. And money is not so much a means of exchange, like it should be. It is the vehicle for taxation. Because we have big government for various reasons and there is never enough tax money. But there is also the printing press and there is the printing of money.

Which is really a tax on the people, the middle class and the poor. Many people endorse that system because they have been convinced that the current system is helpful to the poor. We can have housing programs and we can provide welfare, and they really like the system. They don't want to give up on it.

Now, we might agree that a sound monetary system would be more fair and it wouldn't be beneficial to the very, very wealthy and to the Wall Streets and the bankers. But what about if we got a little further along on parallel currencies?

Do you see any way this could give a temporary reprieve, or would it once again been seen oh, this is just another gimmick to protect the rich, and the poor don't know anything about this, they

can't use this currency, and it is really not a solution; it doesn't even address the subject of this inequity in the system that we have today.

Do you have any thoughts on that at all?

Mr. EBELING. Yes, I think that is an important point. We can see the problem sort of magnified as one reads about it in the press, for example, is what has happened in Greece right now. The fact is, is that for years, decades, the Greek government promised more than it has turned out it can pay for, either with taxes or with continuing borrowing.

That is one of the reasons some in Greece want to return to a drachma so they can just print the money that they need to cover the promises for which the real resources in the society are not available. It is the long run versus the short run.

In the short run, if the government can tax, borrow or print money, it can create the illusion of generating wealth and benefits and special opportunities for various segments of the society. But in the longer run, the problem is that eventually the piper has to be paid. The tax money runs out.

Or it can't borrow anymore, or it becomes very expensive, as the Spanish and the Italians are now finding, as well as the Greeks. Or they resort to printing money. But at the end of the day printing money dilutes the value of every unit of money in people's pockets. It destroys savings, it undermines the ability to undertake exchanges. It diminishes the ability for profit-making decision-making. And therefore, it is most devastating on the poor.

The analogy is like the kid who goes to the circus and he eats too much cotton candy. And his Uncle Bob who took him said, "Gee, I am sorry that you have a tummy ache, so to make you feel better here's more cotton candy." That is just exacerbating the problem. At the end of the day, the boy gets home and he has a big tummy ache.

And that is what has to be emphasized, the illusion—

Chairman PAUL. Okay, I want to interrupt for a minute because I want to know about whether the parallel currencies affect this in any way, positively or negatively. Or does it help this inequity and this disadvantage over the kind of system we have today?

Mr. EBELING. Yes, I would argue that if people had a choice in currency—whether they be rich, middle-income or poor—they would have a way to park their income and wealth in an alternative medium of exchange, a unit of account, that they could have greater security of, that its value is more certain and more stable based upon their fears and expectations about the trend their own national currency is following.

Chairman PAUL. So there is even an advantage to incrementalism in moving in this direction if it is available to the people rather than saying, “Well, we can’t do a thing until we repeal the Federal Reserve Act,” and that sort of thing.

Mr. EBELING. Absolutely.

Chairman PAUL. Okay, very good.

Now, I want to go to Mr. Luetkemeyer, if he has another question.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

To follow up on that, how do you protect the citizen to make sure that they don’t get slipped up on with going to alternative or parallel currencies? How do they have, how can they enable—we have a whole group of folks here this morning. How can each one of them know that if they want to transact business and each one of them a different currency, it is going to be something that they will be able to trade down the road?

Mr. LEWIS. This relates to your previous comment about confidence. In practice, it will be a process of some institution establishing a track record. And also the institution being sort of visibly considered to be a long-term—

Mr. LUETKEMEYER. So in other words, whether it is a country or city or a state, whatever entity produces the currency there will have to be a certain level of confidence in that entity to be able to—

Mr. LEWIS. Right.

Mr. LUETKEMEYER. There would—

Mr. LEWIS. And it will have to be earned. You can’t decree it. You can’t have an advertising campaign. We are kind of talking about these very small kind of neighborhood currencies. And on a larger scale, that might be where we would begin.

On a larger scale, it could be Citibank, it could be the State of Utah. I know some of my colleagues here would be appalled at the idea of the U.S. Federal Government issuing a parallel gold currency. But I think it is an interesting idea.

Or it might be the state of Russia. In practice, the one that has the most confidence will be the one that people use. The reason that people used the U.S. dollar after World War II is because it had a long history, over 100 years, of sticking to the gold standard. It had a stable political system, it was militarily impervious.

And that is why they used that instead of the currency of China or what have you. It will be, ultimately, a process of track record, and probably very large organizations will dominate.

Mr. LUETKEMEYER. Okay, Mr. Lewis, we have before us this morning your book. I was trying to read the cover and the back of it

here, as well as the inside slips. Can you just briefly tell me how you would like to see us—or could be enabled to be able to move over to the gold standard? What are your thoughts on it?

Mr. LEWIS. Ideally, you would all have an epiphany and understand that this is the best system for all of us. However, in practice, one of the reasons we are here today, I think, is that typically, people have these epiphanies after a tremendous catastrophe. It happened many, many times in the past.

Usually, things go all the way. You don't stop halfway and say, "Oh, I think I know where this is going. Let us stop now and switch to a gold standard system." Usually, you end up in disaster. Whether it be China in 1949; the hyperinflation, Japan in 1949; hyperinflation, United States in 1784; hyperinflation, Germany 1923.

Hyperinflation, you tend to end up with some kind of catastrophe beforehand. One of the nice things about the parallel currency idea is maybe you can avoid that process, that political cycle. You could establish something, even by the Federal Government or by very many means, and you could have the two options available.

So when people simply decide to do business in one currency or another—say I am going to write the contract in U.S. gold dollars, not U.S. Bernanke bucks, they will start to buy and sell and do business in that way. And then over a period of a few years, perhaps, people will just naturally decide which system they like better, the Bernanke system or the gold system, and they can migrate and, eventually, have a very smooth, non-disruptive transition between one and the other, ideally.

Mr. LUETKEMEYER. But even in your system of moving over to the gold standard, there still has to be a level of confidence and that as the backup, as the standard, would it not?

Mr. LEWIS. You would have to have—ultimately every currency has an issuer. And ideally, that issuer will have a track record of managing the currency correctly. And will likely probably be, in my opinion, a large institution, maybe a national government, maybe a State government, maybe a—maybe a large bank, maybe some other large institution that emerges.

We are simply not going to have the entire United States do business in a currency that is issued by something in—a little storefront in Miami or something of that sort when we get to that scale. So the institution will earn the confidence.

Mr. LUETKEMEYER. All right, thank you.

Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for Members to submit written questions to these witnesses and to place their responses in the record.

This hearing is now adjourned. I appreciate your appearance today. Thank you very much.

{Whereupon, at 11:08 a.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

One of the most pressing issues of our time is the push for monetary freedom. The only sound monetary system is one which protects sound money and allows consumers, businesses, and investors the freedom to transact in the currency of their choice. The importance of sound money is summed up nicely by Ludwig von Mises: “It is impossible to grasp the meaning of the idea of sound money if one does not realize that it was devised as an instrument for the protection of civil liberties against despotic inroads on the part of governments.” It is no wonder that governments fight tooth and nail against sound money, as sound money protects the well-being of the middle class and the poor while preventing the expansion of government.

Governments throughout history have sought to monopolize the issuance of money, either directly or through the creation of central banks. The growth of central banking in the 20th century allowed governments to monetize their debt in an indirect manner while still ensuring a ready market for government debt. And central banks' slow but sure debasement of the currency allowed governments to repay their debts in devalued money. What debtor would not want such a sweetheart deal?

Indeed, the 20th century witnessed a revolt by governments against the strictures of sound money. In some countries such as

Weimar Germany the revolution came quickly and the results were both immediately apparent and instantaneously disastrous. In other countries such as the United States, the revolt came more gradually, with the destructive effects of money printing only recently becoming apparent to more and more Americans.

Over the past 100 years, the Federal Reserve has continually pumped new money into the economy, resulting in a 96 percent devaluation of the dollar. This devaluation does not affect everyone equally, as the banks who receive this new money first benefit from using it before prices rise, while average Americans suffer the price rises first and receive only a trickle of money well afterward. In this way the Fed enriches Wall Street while impoverishing Main Street, leading to a growing disparity of wealth.

The wealthy are always able to protect the value of their assets against inflation to an extent that the middle class and poor cannot. Anyone with enough money and resources can set up a foreign bank account denominated in euros or Hong Kong dollars, or purchase gold and silver that will be safely stored in London or Singapore. The rich are best able to purchase precious metals, the only ones able to invest in high-yielding hedge funds, and the ones most able to shelter their assets from punitive taxation.

All the legislation and regulation that ostensibly protects the average American from losing money in fact does exactly the opposite. It keeps the average American from being able to defend against inflation by investing in precious metals, forces him into mediocre investment opportunities that do not even keep up with inflation, and leaves him at the mercy of the taxman. Compared to their counterparts in other countries, the average American has far fewer financial options available to them.

Mexican workers can set up accounts that are denominated in ounces of silver, and can take delivery of that silver whenever they want, tax-free. In Singapore and some other Asian countries, individuals can set up bank accounts denominated in gold and silver. Debit cards can be linked to gold and silver accounts so that customers can use their gold and silver to make point of sale transactions, a service which is only available to non-Americans. In short, Americans have far fewer options to protect their wealth than citizens of many foreign countries do.

The solution to this problem is to legalize monetary freedom and allow the circulation of parallel and competing currencies. There is no reason why Americans should not be able to transact, save, and invest in the currency of their choosing. Unfortunately, decades of

government restrictions and regulations have hampered and prevented the circulation of parallel currencies and destroyed the familiarity of Americans with any sort of money aside from Federal Reserve Notes or bank deposits denominated in U.S. dollars. The thought of introducing parallel currencies undoubtedly scares many people who understandably wish to minimize their financial risk.

All financial activity is fraught with risk. Most people understand the risks inherent in stock or bond investment, but the risk of holding savings accounts or cash is still drastically underappreciated. Everyone is familiar with the maxim “Don't put all your eggs in one basket” and investors and savers are constantly urged to diversify their portfolios, yet the U.S. government continues to set roadblocks that force Americans to transact and save in dollars that continue to depreciate.

According to the government's official figures, price inflation runs around two percent per year which means that, since interest rates on savings accounts are near zero, the real rate of return on savings accounts is negative. Anyone holding a savings account or cash is losing nearly two percent of the value of his savings per year with this relatively mild inflation. Some private economists estimate that actual price inflation is running closer to nine percent per year, which would make the loss from holding dollars enormous.

Even greater danger comes during bouts of hyperinflation, such as during Weimar Germany and more recently in Zimbabwe. But when Zimbabwe's dollar became worthless, people began to use U.S. dollars, South African rand, and Zambian kwacha to conduct transactions. Similarly in Weimar Germany, many individuals resorted to using dollars, pounds, and precious metals. So despite the economic hardship wrought by hyperinflation, not all economic activity ground to a halt, largely due to the circulation of parallel currencies. Should the United States ever face a hyperinflationary crisis, which due to the Fed's quantitative easing is very possible, the only means of survival would be through the use of parallel currencies.

It is horribly unjust to force the American people to do business with a dollar that is continuously debased by the Federal Reserve. Forcing a monopoly currency with legal tender status onto the people benefits the issuer (government) while harming consumers, investors, and savers. The American people should be free to use the currency of their choice, whether gold, silver, or other currencies, with no legal restrictions or punitive taxation standing in the way. Restoring the

monetary system envisioned by the Constitution is the only way to ensure the economic security of the American people.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF NATHAN LEWIS PRINCIPAL KIKU CAPITAL MANAGEMENT LLC

Use of Parallel Currencies

The phrase “parallel currencies” tends to sound rather novel and experimental to us today, living in the United States. However, most people in the world are using parallel currencies today. Many of us have found that, when traveling to some foreign countries, that shops and restaurants are happy to accept U.S. dollars in return for their goods and services. Often, people there also use U.S. dollars among themselves, in their own commerce and business dealings. In this case, the U.S. dollar is serving as a parallel currency, alongside the currency issued by the domestic government, such as Costa Rican colón or Vietnamese dong.

In such places, the U.S. dollar is used not only by sidewalk vendors, but often by the largest corporations in the country. Throughout Latin America, until only a few years ago, large corporations would typically finance their operations with loans or debt denominated in

U.S. dollars. Indeed, the governments of these countries themselves borrowed in dollars, issuing dollar-denominated government bonds. After many decades of bad experience, nobody would buy a bond denominated in the local currency, which the government could devalue at a whim. Before the introduction of the Euro in 1999, German marks were popular throughout Europe. During the 1990s, governments with a history of poor currency

management, such as that of Greece, issued government debt denominated in German marks.

It is perhaps only in the United States, and more recently in the eurozone, that people are not already accustomed to using a variety of currencies in their daily business and commerce. Large U.S. corporations regularly do business in a variety of currencies, and investors commonly buy or sell foreign stocks or bonds using foreign currencies. For most of us, however, we have no reason to use the Ukrainian hryvna in our daily affairs. We would much rather use dollars.

Ukrainians, at some points in their history, have also preferred to use U.S. dollars. Why is that? It is because the dollar has consistently been one of the best-managed, highest-quality currencies in the world. For 182 years, from the founding of the United States in 1789 to 1971, the United States government adhered to the principle of a gold standard for the dollar, even if, in practice, it deviated from that ideal from time to time. The United States was following the example demonstrated by the best European governments, especially Britain, whose gold standard system can be traced to 1698.

However, during the 20th century, those European governments made a mess of things numerous times, and their currencies became unreliable. The British pound, like most of the currencies of Europe, became a floating currency at the onset of World War I, and soon depreciated in value. People didn't even know if France or Britain would exist after the war.

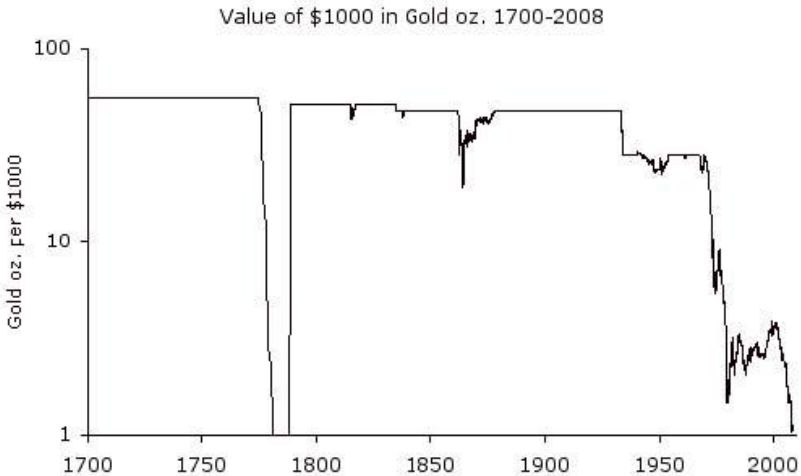
In the early 1920s, more European currencies became unreliable, with the hyperinflation of the German mark perhaps the best remembered example. By 1926, Europe had mostly reconstructed the world gold standard system that existed before the war, just in time for the chaos of the Great Depression. During the Great Depression, currencies everywhere were devalued, led by Britain in 1931. Also, we tend to forget today that several European governments also defaulted on their sovereign debt during the 1930s, including Austria, Germany, Greece, Hungary, Poland, Romania and Turkey.

By the end of World War II, the U.S. dollar, which had been considered an emerging-market currency in 1900, had proved to be the most reliable currency in the world. It thus became the parallel currency of choice worldwide, and U.S. tourists in the 1950s found that they could spend their dollars throughout Europe. The British pound still had some fans, but after a devaluation in 1949 and again in 1967, few people were willing to give Britain anymore chances.

In 1971, the United States abandoned its then nearly two-

century-old commitment to the gold standard system. At this point, historically, currencies were often discarded for whatever the highest-quality, most reliable alternative was, which in practice meant a gold standard currency from a large developed country. However, a consequence of the U.S.'s abandonment of the gold standard in 1971, due to the nature of the Bretton Woods system, was that other governments' currencies left gold too. There was no gold standard alternative in the world.

Since 1971, the value of the U.S. dollar has fallen from $1/35^{\text{th}}$ of an ounce of gold to about $1/1600^{\text{th}}$ of an ounce today. The dollar today is worth only $1/46^{\text{th}}$ of its value during the Kennedy administration. As bad as this is, the alternatives have been even worse. This is why the U.S. dollar remains the most popular currency in the world, and serves as a parallel currency in many, if not most, countries today.



After several centuries of stability, the dollar became a floating fiat currency in 1971. Since then, it has fallen to about $1/46^{\text{th}}$ of its prior value. The decline in the 1780s represents the hyperinflation of the Continental dollar.

Use of Parallel Currencies in the U.S. Today

Today, there are no particularly onerous barriers against using a parallel currency in the United States. People are free to do business in euros or Russian rubles if they choose to. It would be easier if there were no tax consequences from this, such as a capital gains tax. This

is the case in Switzerland or Hong Kong, where people can do business in the currency of their choice without tax issues. At least one country, Zimbabwe, has no official currency, but rather a formal multi-currency policy where people can do business using any currency the like. In practice, this has turned out to be primarily U.S. dollars, with some use of South African rands.

Historically the preferred currency of business, in any country, is one based on a gold standard system. British pounds, and later U.S. dollars, became the preferred parallel currency throughout the world for this reason. It was the currency people chose to use instead of their own government's fiat junk.

Some people today, including myself, think that the United States should return to the monetary principles of the country's first 182 years – in other words, a gold standard system. However, that idea remains contentious, particularly among those who believe that a currency should be used as a tool for economic manipulation. Our present chief currency manager, Benjamin Bernanke, spent his academic career arguing for the merits of economic manipulation via currency manipulation. A gold standard system would prevent such things.

However, even among academics who share Mr. Bernanke's viewpoints, the idea of letting people choose whatever currency suits them best remains a popular one. The concept of parallel currencies, including those based on gold, within the United States seems to be relatively uncontroversial among the economic mainstream.

Today, there are over 150 currencies in the world, all of which could conceivably be used as parallel currencies within the United States or other countries. However, all of them are floating fiat currencies, generally of lower quality than the U.S. dollar or euro. There is hardly any reason to introduce another. Thus, the most meaningful new parallel currency to be introduced, in the U.S. or in another country, would be one based on gold.

Difficulties of Using Gold-and Silver-Based Parallel Currencies in the U.S. Today

Although the use of other countries' national currencies is largely accepted in the U.S., the issuance of alternative currencies within the U.S. can run afoul of what are collectively known as "legal tender laws," both *de jure* and *de facto*. Beginning in 1998, a private businessman, Bernard von NotHaus, issued a system of coinage and paper bills called Liberty Dollars that represented warehouse receipts for gold and silver bullion. The notes and coins bore no resemblance

Federal Reserve Notes or U.S. Mint coins. About 250,000 people apparently participated in the system. Although other alternative currencies have existed, such as “Phoenix dollars,” Baltimore’s “BNote,” “BerkShares,” “Ithaca Hours,” and “bitcoin,” this was apparently the only such system based on gold and silver.

Liberty Dollar notes and coins.



In 2006, the U.S. Mint issued a press release stating that the U.S. Justice Department had determined that using Liberty Dollars was a Federal crime. The press release stated:

Under 18 U.S.C. § 486, it is a Federal crime to pass, or attempt to pass, any coins of gold or silver intended for use as current money except as authorized by law. ...

NORFED’s “Liberty Dollar” medallions are specifically marketed to be used as current money in order to limit reliance on, and to compete with the circulating coinage of the United States. Consequently, prosecutors with the United States Department of Justice have concluded that the use of NORFED’s “Liberty Dollar” medallions violates 18 U.S.C. § 486, and is a crime.

In 2007, the Federal Bureau of Investigation (FBI) raided the warehouse used by the Liberty Dollar system at the Sunshine Mint in Coeur D’Alene, Idaho, confiscating a reported \$7 million of gold and silver bullion. The seizure warrant was for money laundering, mail fraud, wire fraud, counterfeiting, and conspiracy.

In 2009, von NotHaus was arrested and charged with: one count of conspiracy to possess and sell coins in resemblance and similitude of coins of a denomination higher than five cents, and silver coins in resemblance of genuine coins of the United States in denominations

of five dollars and greater, in violation of 18 U.S.C. § 485, 18 U.S.C. § 486, and 18 U.S.C. § 371; one count of mail fraud in violation of 18 U.S.C. § 1341 and 18 U.S.C. § 2; one count of selling, and possessing with intent to defraud, coins of resemblance and similitude of United States coins in denominations of five cents and higher, in violation of 18 U.S.C. § 485 and 18 U.S.C. § 2; and one count of uttering, passing, and attempting to utter and pass, silver coins in resemblance of genuine U.S. coins in denominations of five dollars or greater, in violation of 18 U.S.C. § 486 and 18 U.S.C. § 2.

In 2011, von NotHaus was convicted on several counts, and faced up to 15 years of jail time. In 2011, von NotHaus was labeled a domestic terrorist by the FBI.

Conceivably, people today could do business using gold coins produced by the U.S. Mint, such as the popular American Eagle gold and silver coins. However, they too would face unusual difficulties. Despite its long history as the foundation of monetary systems in the United States and elsewhere, gold today is regarded as a “collectible,” and subject to a different system of taxation than if one were to do a similar transaction using foreign currencies such as euros or Canadian dollars. The capital gains tax rate on “collectibles” held for one year or longer is 28%, compared to 15% for stocks and bonds.

For example, if a house were purchased using U.S. Mint gold coins, the transfer of the coins to the seller would be regarded as a “sale” of gold bullion for tax purposes, and subject to capital gains taxes. If the same transaction were done with euros, no such taxes would apply. (Capital gains taxes would apply to the eventual sale of the house, and if the euros were converted back to dollars.)

In addition, purchases or sales of small quantities of gold are subject to sales taxes in many states. California, for example, charges sales tax on bullion sales of less than \$1,500. Thus, a businessman who wished to pay employees using a 1/10th ounce U.S. Mint gold bullion coin, or one-ounce U.S. Mint silver coins, may face sales taxes on his “sale” of the bullion coins to the employee. (No such sales taxes apply to purchases of euros.)

Also, transactions in gold bullion are now subject to onerous surveillance, which does not apply to similar transactions in foreign currencies. To give an idea of the present state of affairs, here is some information from bullion dealer metallixdirectgold.com:

4. COMPLIANCE WITH GOVERNMENT AGENCIES; RECORDED CONVERSATIONS.

A. Documentation for Payment. Several states require that we obtain your driver's license number or other government-issued identification and a sworn statement from You as to the Merchandise and compliance with applicable law before we process any payment to You. Certain localities require completion of forms and a waiting period for a transaction in precious metal. If merchandise contains by weight or volume 50% or more of precious metal and is valued at more than \$3,000, federal anti-money laundering laws obligate us to obtain certain completed forms and identity information from you before we process the transaction (such local, state and federal documentation, "Compliance Documents"). You agree to supply such Compliance Documents to us upon our request. . If You fail to provide such Compliance Documents to us within 5 Business Days after the date of our notice to You requesting such information, we have the option to terminate the proposed Transaction and return your Merchandise in the form in which You furnished it to us or in a different form in accordance with this Agreement without providing You with additional notices.

Thus, in practice, the U.S. Federal Government makes a powerful effort to suppress the introduction and use of alternative gold-and silver-based currencies today.

This state of affairs has become intolerable to many. In 2011, the State of Utah declared that it would consider U.S. Mint gold and silver coins (and monetary instruments based on these coins) to be legal as currency. This included the removal of all state-level taxes on transactions in gold and silver bullion. The Utah example has been widely followed. Twelve other state legislatures have had similar bills proposed. ²⁷¹The Utah example could serve as a template for similar Federal-level legislation to legalize gold and silver (and associated monetary instruments) as currency within the United States.

Parallel Currencies Issued by National and State Governments

In the last decade, some governments have taken steps to introduce gold-based parallel currencies, intended to circulate alongside their existing currencies, and to be used internationally.

In 2002, the prime minister of Malaysia proposed the introduction of a gold dinar currency, for use throughout the Islamic world. In 2006, gold dinar coins (containing 4.25 grams of gold) were introduced by the government of the Malaysian state of Kelantan. This was

²⁷¹ South Carolina, North Carolina, Alabama, Virginia, Tennessee, Missouri, Idaho, California, Colorado, Washington, Indiana and Minnesota.

followed by the state of Perak in 2011. The coins have been quite popular. However, the effort to create a usable international currency based on the gold dinar has been hindered, in my opinion, by the fact that small denomination banknotes and coins have not yet been issued. Gold coins are much too valuable (have a high denomination) to be useful in small daily transactions by themselves. Also, banking arrangements based on the new currency have apparently not been established yet.



Malaysian gold dinar and silver dirham coins, produced by the state of Kelantan. In 2002, the prime minister of Malaysia stated the intent to create a gold dinar system to serve the entire Islamic world.

In 2011, the Swiss Parliament began discussions on the creation of a gold franc, which would be issued by the Swiss national government and circulate in parallel with the existing Swiss franc, a floating fiat currency. The initiative is part of the “Healthy Currency” campaign sponsored by the conservative Swiss People’s Party.

Governments of the Gulf States have discussed a common currency tentatively named the khaleeji, which some have speculated would be based on gold. In August 2011, the Dubai Multi Commodities Center introduced a gold coin, called the khalifa, intended to serve as legal currency. The DMCC is in talks with the central bank of the UAE to designate the coin as legal tender throughout the UAE and Middle East.



Proposed khalifa coin, intended to serve as legal currency in the Gulf States region.

What if the U.S. Federal government itself issued a parallel currency, in particular one based on a gold standard system? It could be quite popular both in the U.S. and abroad. The U.S. Federal government already has a long history of this. From 1882 to 1933, the Federal government issued gold certificates – a form of banknote, or paper money, redeemable for gold bullion – that constituted a major part of the U.S. currency system. During that time, both U.S. Treasury gold certificates and National Bank Notes issued by a menagerie of private banks circulated alongside. The gold certificates were more popular, due to their uniformity and the fact that people trusted the reliability of the Federal government far more than the small commercial banks of the day. In 1914, gold certificates accounted for 32% of circulating currency in the United States.



U.S. Treasury Gold Certificate, series 1922. These gold certificates circulated alongside many other types of banknotes, including Federal Reserve Notes and National Bank Notes. People were free to choose which banknote they preferred.

If the Federal government does not wish to undertake such a program, a state government, such as the State of Utah, could conceivably issue its own parallel currency.

Historically, before 1971, there was little reason for national governments to issue their own parallel currencies, because their primary currencies were already operating on a gold standard system. However, there is at least one example: in 1922, the Russian government introduced the gold-based chervonets currency, to circulate alongside the ruble, which at the time was a floating fiat currency. By 1947, the ruble itself had been pegged to gold, thus negating any need for a parallel gold-based currency. Thus, the chervonets was retired.



1937 Russian gold chervonets banknote. The chervonets was introduced by the Russian national government as a parallel currency to the floating fiat ruble

in 1922.

A similar example comes from Germany. In November of 1923, a new currency based on gold, the rentenmark, was introduced to replace the hyperinflated Reichsmark. For a short period, the two currencies circulated alongside, the rentenmark pegged to gold and the reichsmark continuing its plunge into oblivion. The rentenmark was quickly adopted by all, and the Reichsmark in effect disappeared from circulation.



German rentenmark banknote. The rentenmark was introduced by the nationally-sanctioned Rentenbank as a gold-based parallel currency, at first circulating alongside the hyperinflated reichsmark.

Gold and silver have reportedly been declared legal currency in China, and major state-owned commercial banks there now offer gold- and silver-denominated bank accounts.²⁷²

Significance of Gold-Based Parallel Currencies Today

The discussion today around parallel currencies is part of a broader discussion: whether to have a currency that can be manipulated for economic effect, or to have a currency which is as stable and reliable as possible, free of human intervention. Traditionally, these have been known as “soft money” and “hard money,” and, in practice, have meant either a floating fiat currency, or a gold standard system. The two options are, for the most part, mutually exclusive: it is not possible to have a gold standard system and a policy of monetary manipulation together for any length of time.

²⁷² See for example: <http://businesstimes.com.vn/chinas-banks-use-gold-as-legal-currency/>

Both options have been used, by one government or another, for literally thousands of years. We have a lot of experience in these matters. For the entire post-medieval history of capitalism -- stretching from the Italian city-states of the Renaissance era, through the heyday of Amsterdam as the world's financial center in the 17th century, through the entire history of the Industrial Revolution with London as the world's financial center in the 19th century, into the 20th century with the U.S. as the leader of the capitalist world -- a gold standard system was the preferred monetary foundation.

The worldwide transition to floating fiat currencies, or "soft money," in 1971 reflected the increasing popularity of currency manipulation ideas beginning in the 1930s. However, it also reflected simple incompetence. It was an accident. In 1971, the Bretton Woods gold standard system had delivered twenty years that were among the most prosperous in world history. There was no reason to change it. President Nixon himself said that the end of the gold standard in August 1971 would be temporary. Indeed, he tried to reinstate it with the Smithsonian Agreement in December 1971, which he called "the most significant monetary agreement in the world."

Thus, it is not surprising today that we are again trying to find a way back to the world gold standard system, which worked so well for literally centuries.

Rather than endlessly debating the merits of one system or another, a simpler method is to make both options available, and allow people to choose which they prefer. Just as people in Turkey today choose to do business either in the Turkish lira or euros, as suits their needs, people in the U.S. or elsewhere could choose to do business either in floating fiat dollars or some gold-based alternative.

According to a study of 775 floating fiat currencies by Michael Hewitt²⁷³, no floating fiat currency has ever maintained its value. In 20% of cases, they were destroyed in hyperinflation; 21% were destroyed by war; 12% disappeared in independence; 24% underwent a monetary reform; and 23% exist today, awaiting their final outcome. The average life expectancy of a floating fiat currency was found to be 27 years.

The U.S. dollar, which has been a floating fiat currency for 41 years now, is thus an unusual example of longevity. However, today's extreme reliance upon "easy money" approaches to deal with economic problems -- with the Federal Reserve promising

²⁷³ Hewitt, Michael. "The Fate of Paper Money," dollaraze.org, January 7, 2009. http://dollaraze.org/blog/?post_id=00405

unprecedented zero percent policy rates for years, and “real” interest rates deeply negative – suggests to many that the floating fiat dollar does not have a long or successful future. Unfortunately, with world currency arrangements still very dollar-centric, the management of the dollar has consequences for everyone. Governments of China, Russia, the Gulf States and others have complained about the potential consequences of today’s aggressive “soft money” techniques – not only at the Federal Reserve but also the European Central Bank, Bank of England, and Bank of Japan – and have made preliminary steps toward a future alternative.



At a G8 meeting in July 2009, Russian President Dmitry Medvedev illustrated his call for a supranational currency to replace the dollar with a coin that he called a sample of a “united future world currency.” The coin is half-ounce gold bullion coin. Such a “supranational currency” would be, in effect, a parallel currency, used alongside national currencies.



The coin held by President Medvedev. source: futureworldcurrency.com

On the international scale, a parallel gold-based currency, or many such currencies, would help ease this transition, and form the basis of a new monetary order if that should become necessary. Each individual would be free to make increasing use of the gold-based alternative, as it best suited their interests. There would be no great day of transition, but a smooth extended process perhaps over years. The existence of a high-quality alternative could help people avoid much of the potentially disastrous consequences if today's floating fiat currencies meet the same end as the 599 floating currencies that no longer exist.

If the United States government wishes to retain its leadership role in world monetary affairs, I suggest that this alternative be created in the United States – either by federal or state governments themselves, or by allowing private institutions to do so. Otherwise, governments that are clearly establishing the foundation for a future dollar alternative, likely based on gold, will take that role in the future.

**WRITTEN TESTIMONY OF
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The gold standard alone is what the nineteenth-century freedom-loving leaders (who championed representative government, civil liberties, and prosperity for all) called “sound money.” The eminence and usefulness of the gold standard consists in the fact that it makes the supply of money depend on the profitability of mining gold, and thus checks large-scale inflationary ventures on the part of governments.²⁷⁴

--Ludwig von Mises

To discuss a possible roadmap to monetary freedom in the United States requires us to first determine what may be viewed as a “sound” or “unsound” money. Through most of the first 150 years of U.S. history, “sound money” was considered to be one based on a commodity standard, most frequently either gold or silver. In contrast, the history of paper, or fiat, monies was seen as an account of abuse, mismanagement and financial disaster, and thus “unsound” money.

The histories of the Continental Notes during the American Revolution, the *Assignats* during the French Revolution, and then Greenbacks and the Confederate Notes during the American Civil War, all warned of the dangers of unrestricted and discretionary government power over the monetary printing press.²⁷⁵ This view was summed up in the middle of the nineteenth century by the famous British economist, John Stuart Mill, whose *Principles of Political Economy* was a widely used textbook for decades not only in his native Great Britain, but in the United States, as well:

²⁷⁴ Ludwig von Mises, “The Gold Problem,” [1965] in *Planning for Freedom* (South Holland, Ill: Libertarian Press, 1980); see, also, Richard M. Ebeling, *Austrian Economics and the Political Economy of Freedom* (Northampton, MA: Edward Elgar, 2003), Chapter 5: “Ludwig von Mises and the Gold Standard,” pp. 136-158.

²⁷⁵ On the American Continental Notes, the French Revolutionary Assignats, and the Greenbacks and Confederate currency during the American Civil War, see, J. Laurence Laughlin, *A New Exposition of Money, Credit and Prices*, Vol. II (Chicago: University of Chicago Press, 1931), pp. 147-185 & 302-341; Edwin W. Kemmerer, *Money* (New York: MacMillan, 1935) pp. 173-197 & 230-270; and, Richard M. Ebeling, “Inflation and Controls in Revolutionary France: The Political Economy of the French Revolution,” in Stephen Tonsor, ed., *Reflections on the French Revolution* (Washington, D.C.: Regnary Gateway, 1990) pp. 138-156; and Richard M. Ebeling, “The Great French Inflation,” *The Freeman: Ideas on Liberty* (July/August, 2007) pp. 2-3.

The issuers may add to it indefinitely, lowering its value and raising prices in proportion; they may, in other words depreciate the currency without limit. Such a power, in whomsoever vested, is an intolerable evil ... To be able to pay off the national debt, defray the expenses of government without taxation, and in fine, to make the fortunes of the entire community, is a brilliant prospect, when once a man is capable of believing that printing a few characters on bits of paper will do it ... There is therefore a preponderance of reasons in favor of a convertible, in preference to even the best-regulated inconvertible currency. The temptation to over-issue, in certain financial emergencies is so strong, that nothing is admissible which can tend, in however slight a degree, to weaken the barriers that restrain it.²⁷⁶

Episodes of great inflations in countries like Germany, Austria, and China in the twentieth century only have reinforced the advocates of “sound money” on the dangers of paper money in the hands of any political authority.²⁷⁷

The importance of a monetary system based on gold, therefore, is that it limits the range of discretion open to governments to manipulate the quantity and value of money. The fundamental rule that the supply of money in the economy is anchored to the profitability of gold production as determined by market forces depoliticizes the monetary system to a significant degree.

Given an established redemption ratio between bank notes and deposit accounts and a quantity of gold on deposit in banks; given fixed reserve requirements on checking and other forms of bank deposits; given an established rule of the right of free import and export of gold between one's own country and the rest of the world; and assuming that the political authority with responsibility over the country's monetary system does not interfere with these conditions and rules, then political influences on the value and quantity of money would be minimized.

The Gold Standard in Practice

In the second half of the nineteenth century most of the major nations of the world put into place national monetary systems based

²⁷⁶ John Stuart Mill, *Principles of Political Economy, with Some Applications to Social Philosophy* (Fairfield, N.J.: Augustus M. Kelley, [1871] 1976) pp. 544-546.

²⁷⁷ For a brief history of the great inflations during and after the First World War, and especially in Germany and Austria in the early 1920s, see, Richard M. Ebeling, “The Lasting Legacy of World War I: Big Government, Paper Money, and Inflation” *Economic Education Bulletin*, Vol. XLVIII, No. 11 Great Barrington, MA: American Institute for Economic Research, November 2008); and on the hyperinflation in China during the 1930s and 1940s, see, Richard M. Ebeling, “The Great Chinese Inflation,” *The Freeman: Ideas on Liberty* (December 2004), pp. 2-3.

on gold. By the fact that such a large number of countries had each linked their respective currencies to gold at some fixed rate of redemption in this manner, there emerged an international gold standard. A person in any one of those countries could enter any number of established, authorized banks and trade in a certain quantity of bank notes for a stipulated sum of gold, in the form of either coin or bullion. He could transport that sum of gold to any of the other gold-based countries and readily convert it at a fixed rate of exchange into the currency of the country to which he had traveled.

As Murray Rothbard expressed it in, *What Has Government Done to Our Money?*:

The world was on a gold standard, which meant that each national currency (the dollar, pound, franc, etc.) was merely a name for a certain definite weight of gold. The "dollar," for example, was defined as 1/20 of a gold ounce, the pound sterling as slightly less than 1/4 of a gold ounce ... This meant that the "exchange rates" between various national currencies were fixed, not because they were arbitrarily controlled by government, but in the same way that one pound of weight is defined as being equal to sixteen ounces.²⁷⁸

Why did governments recognize and (with occasional exceptions) follow the rules of the gold standard through most of the nineteenth century? Because the gold standard was considered an integral element in the reigning political philosophy of the time, classical liberalism. As the German free-market economist Wilhelm Roepke explained in *International Order and Economic Integration*:

The international "open society" of the nineteenth century was the creation of the "liberal spirit" in the widest sense, [guided by] the liberal principle that economic affairs should be free from political direction, the principle of a thorough separation between the spheres of government and of economy . . . The economic process was thereby removed from the sphere of officialdom, of public and penal law, in short from the sphere of the "stat" to that of the "market," of private law, of property, in short to the sphere of "society."²⁷⁹

At the same time, said Roepke,

This [liberal] principle also solved an extremely important special problem of international integration . . . i.e., the problem of an international monetary system . . . in the form of a gold standard . . . It was a monetary system which rested upon the structural

²⁷⁸ Murray N. Rothbard, *What Has Government Done to Our Money?* (Auburn, AL: Ludwig von Mises Institute, 1990) p. 23-24.

²⁷⁹ Wilhelm Roepke, *International Order and Economic Integration* (Dordrecht, Holland: D. Reidel Publishing, 1959) p. 75.

similarity of the national systems, and which made currency dependent, not upon political decisions of national governments and their direction, but upon the objective economic laws, which applied once a national currency was linked to gold . . . But it was at the same time a phenomenon with a moral foundation . . . The obligations, namely, which a conscientious conformity with the rules of the gold standard imposed upon all participating countries formed at the same time a part of that system of written and unwritten standards which . . . comprised the [international] liberal order.²⁸⁰

In the nineteenth century, the ruling idea had been liberty. The wealth of nations was seen as arising from individual freedom in a social order respecting private property in the means of production. The relationships among men, it was believed, should be based on voluntary exchange for mutual benefit. Just as there were no inherent antagonisms among men in a free market within the same nation, there were no inherent antagonisms among men living in different nations. The mutual gains from trade could be expanded by extending the principle of division of labor to a global scale. If men were to benefit from those possibilities, a stable, sound, and trustworthy monetary order had to assist in the internationalization of trade. Gold was considered the commodity most proven through the ages to serve that function. And preservation of the gold standard, therefore, was given a prominent place among the limited duties assigned to the classical-liberal state in that earlier era.

In the nineteenth century there also was a greater humility among those who constructed and implemented various government economic policies. There was a general agreement with Adam Smith's observation that "the statesman, who should attempt to direct private people in what manner they ought to employ their capitals, would not only load himself with a most unnecessary attention, but assume an authority which could safely be trusted, not only to no single person, but to no council or senate, and which would nowhere be so dangerous as in the hands of a man who had the folly and presumption enough to fancy himself fit to exercise it."²⁸¹

The Gold Standard, Central Banking, and Changing Monetary Policy Goals

The classical liberals were deeply suspicious of government abuse of the printing press. They believed that only a monetary system

²⁸⁰ Ibid., pp. 76-77.

²⁸¹ Adam Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (New York: New Modern Library, [1776] 1937), Book IV, Chapter II, p. 423.

under which all bank-issued notes and other deposit claims were redeemable on demand for gold could act as a sufficient check against the abuse and debasement of a currency.

However, even in the high-water mark of classical liberalism in the nineteenth century, practically all advocates of the free market and free trade believed that money was the one exception to the principle of private enterprise. The international monetary order of the last century, of which Wilhelm Roepke spoke in such glowing terms, was nonetheless the creation of a planning mentality. The decision to “go on” the gold standard in each of the major Western nations was a matter of state policy.

A central-banking structure for the management and control of a gold-backed currency was established in each country by its respective government, either by giving a private bank the monopoly control over gold reserves and issuing banknotes or by establishing a state institution assigned the task of managing the monetary system within the borders of a nation. The United States was the last of the major Western nations to establish a central bank, but it finally did so in 1913.

Central-banking authorities were given the power and responsibility to manage the gold reserves at their disposal and the quantity of notes and other bank deposit claims outstanding to maintain the soundness of the monetary system and to counteract various short-term fluctuations in the national currency's foreign-exchange rate, the balance of payments, and the quantity of financial credit available in the country's economy. Their policy “tools” included manipulation of short-term interest rates and the buying and selling of private-sector bills of trade and securities.

While the goals for monetary policy may have been considered modest and limited in the eyes of the classical liberals of the nineteenth century, it remained a fact that the monetary system was a subject for national government policy. In an era of relatively unrestricted free-market capitalism, money and the monetary system were a “nationalized industry.” And as such, even most of the advocates of economic liberty argued for monetary socialism and monetary central planning. They failed to call for and defend the privatization of the most important commodity in a market economy – the medium of exchange.

What they forgot was that once a government has control and responsibility for the monetary system within a country, little was outside the power of that government to influence and manipulate. This was clearly stated by a prominent German economist named

Gustav Stolper while a refugee in the United States from war-torn Europe during the Second World War:

Hardly ever do the advocates of free capitalism realize how utterly their ideal was frustrated at the moment the state assumed control of the monetary system . . . A “free” capitalism with government responsibility for money and credit has lost its innocence. From that point on it is no longer a matter of principle but one of expediency how far one wishes or permits governmental interference to go. Money control is the supreme and most comprehensive of all government controls short of expropriation.²⁸²

As a result, when economic collectivism, socialism, and interventionism gained popularity and power in the early decades of the twentieth century, money was the one area in which the central-planning ideal was already triumphant. For a hundred years, now, in the United States it had been taken for granted that the state should have either direct or indirect monopoly control over the supply of money in the market.

In the nearly one hundred years since the First World War, the goals assigned to monetary central planning changed, but the instrument for their application remained the same – central bank management of the money supply. In the 1920s, Federal Reserve policy was heavily focused on “price level” stabilization; its result was generating a variety of imbalances between saving and investment that set the stage for the Great Depression.²⁸³

Beginning in the 1930s, under the growing influence of Keynesian Economics the goal was to influence the levels of aggregate employment and output in the economy. After the disastrous experience with Keynesian-generated “stagflation” in the 1970s – a combination of significantly rising prices and persistently high unemployment – the monetary authorities in the 1980s and 1990s focused on slowing down and “controlling” inflation.²⁸⁴ In the late 1990s, the Federal Reserve switched back to a more “activist” monetary policy that fed the excesses of the “high tech” bubble that

²⁸² Gustav Stolper, *This Age of Fable in the Political and Economic World* (New York: Reynal & Hitchcock, 1942), p. 42.

²⁸³ For an analysis of the Federal Reserve policy in the 1920s, and the contrasting interpretations on the causes and cures for the Great Depression given by the Austrian Economists and the Keynesians, see, Richard M. Ebeling, *Political Economy, Public Policy, and Monetary Economics: Ludwig von Mises and the Austrian Tradition* (London/New York: Routledge, 2010), Chapter 7: “The Austrian Economists and the Keynesian Revolution: The Great Depression and the Economics of the Short-Run,” pp. 203-272.

²⁸⁴ On the “stagflation” of the 1970s, see, Gottfried Haberler, *The Problem of Stagflation: Reflections on the Microfoundation of Macroeconomic Theory and Policy* (Washington, D.C.: American Enterprise Institute, 1985).

went bust shortly after the turn of the new century. Then, in 2003, fearful of hypothetical “deflationary” forces,²⁸⁵ the Federal Reserve went on a policy of monetary expansion that created the monetary and credit wherewithal that produced the housing and investment and consumer spending boom that went dramatically bust in 2008 – and from which we are still attempting to recover, especially in terms of employment.²⁸⁶

In addition, throughout the last century, governments – including the United States government – loosened the limits that gold placed on the ability of their central banks to expand the money supply and manipulate the amount of credit created and issued through the banking system to further changing monetary and fiscal goals. For decades, now, governments – including the United States government – have completely eliminated this “break” on their discretionary monetary policy by virtually ending any connection between the paper currencies they control and gold.

The world economy operates in an economic environment of paper monies under the monopoly control central banks.

Central Banking is a Form of Central Planning – With the Same Defects

One of the primary benefits of economic freedom is that it decentralizes the negative effects that may arise from ordinary human error. Every one of us makes decisions that we hope will produce outcomes we desire.

Yet the actual outcomes from our actions often fail to match up to the hopes that motivated them. A businessman who misreads market trends in planning his private company's production and marketing strategies may experience losses that require him to cut back his activities, resulting in some of his employees' losing their jobs and in

²⁸⁵ See, Richard Ebeling, “The Hubris of Central Bankers and the Ghosts of Deflation Past,” *In Defense of Capitalism & Human Progress* blog (July 5, 2010), <http://blogs.northwood.edu/indefenseofcapitalism/2010/07/05/the-hubris-of-central-bankers-and-the-ghosts-of-deflation-past-by/>

²⁸⁶ On the current economic crisis, see my testimony before the House of Representatives Subcommittee on Domestic Monetary Policy and Technology delivered on May 11, 2011: Richard M. Ebeling, “Monetary Policy, the Federal Reserve, and the National Debt Problem,” *In Defense of Capitalism & Human Progress* blog (May 11, 2011), <http://blogs.northwood.edu/indefenseofcapitalism/2011/05/>.

resource suppliers' experiencing fewer sales because the loss-suffering businessman reduces his orders for what they have for sale.

But the negative ripple effects from his entrepreneurial mistakes are localized within one corner of the overall market. Other sectors of the market need not be directly penalized or subject to the unfortunate effects of his poor judgment. Profit-making enterprises can freely go about their business hiring, producing, and then selling the goods that they have more correctly anticipated the consuming public actually desires to buy.

Under government central planning, however, errors committed by the central planners are more likely to have an impact on the economy as a whole. Every sector of the economy is directly interlocked within the centrally planned blueprint for the allocation of resources, the quantities of different goods and services to be produced, and the distribution of the output to the consuming public.

Centralized failures in resource use or production decisions more directly affect every sector of the economy, since nothing can happen in any of the government-run industries independently of how the central planners try to fix their mistakes. Everyone more directly feels the consequences of the central planners' errors and must wait for those planners to devise a revised central plan to correct the problem.

Monetary central planning suffers from the same sort of defect. Changes in the money supply emanate from one central source and are determined by the monetary central planners' conceptions of the "optimal" or desired quantity of money that should be available in the economy. Their central decision can indirectly influence the pattern of interest rates (at least in the short run) and the market structure of relative prices and inevitably bring about changes in the general value, or purchasing power, of the monetary unit. The monetary central planners' policies work their way through the entire economy, possibly bringing about a cycle of an inflationary boom followed by general economic downturn or even depression.

Halting the inflation and bringing an unsustainable boom to an end depends upon the monetary central planners' discovery that things "may have gone too far" and a decision by them to reverse the course of monetary policy. Many, if not most, sectors of the market will then have to modify and correct investment, production, and employment decisions that had been made under the false, inflationary price signals the central planners' monetary policy has artificially created. Capital, wealth, and income spending patterns in

the market will have been misdirected and partly wasted because of the errors committed by the monetary central planners.

The opponents of central banking have argued that the occurrence of such errors would be less frequent and discovered more quickly under a system of competitive free banking. Any private bank that “over-issued” its currency would soon discover its mistake through the feedback of a loss of gold or other reserves through the interbank clearing process and withdrawal by its depositors. The bank would realize the necessity of reversing course to ensure that its gold- and other-reserve position was not seriously threatened and avoid the risk of losing the confidence of its own customers because of heavy withdrawals by depositors.

Moreover, the effect of such a private bank's following a “loose” and “easy” monetary policy would be localized by the fact that only its banknotes and check money would be increasing in supply because of the additional spending of those to whom that bank had extended additional loans. It could neither force an economy-wide monetary expansion throughout the entire banking system nor create an economy-wide price-inflationary effect. Any negative consequences, while being unfortunate, would be limited to a relatively narrow arena of market decisions and transactions.

Free Banking and the Benefits of Market Competition

One of the strongest arguments that advocates of the free market have made over the last 200 years has been to point out the benefits of competition and the harmfulness of government-supported monopoly. In a competitive market, individuals are at liberty to creatively transform the existing patterns of producing and consuming in ways they think will make life better and less expensive for themselves and other members of society as a whole.

Wherever legalized monopoly exists, the privileged producer is protected from potential rivals who would enter his corner of the market and supply an alternative product or service to those consumers who might prefer it to the one marketed by the monopolist. Innovation and opportunity are either prevented or delayed from developing in this politically guarded sector of the economy. Production methods remain unchanged or are modified only with great delay. Product improvements are slow in being developed and introduced. Incentives for cost efficiencies are less pressing and, when utilized, are often only sluggishly passed on to consumers in the form of lower sale prices.

Those who have the vision and daring to enter the market and successfully innovate and create newer or better products than the existing suppliers are offering are stymied or blocked from doing so in the protected sectors of the economy. They are forced to apply their entrepreneurial drive in less-profitable directions or are dissuaded by the political restrictions from even attempting to do so. The product improvements they would have supplied to the consuming public remain invisible “might-have-beens” lost to society.

Furthermore, as Friedrich A. Hayek especially emphasized, market competition is the great discovery procedure through which it is determined who can produce the better product with the most desired features and qualities and at the lowest possible price at any given time.²⁸⁷ It is the peaceful market method through which each participant in the social system of division of labor finds his most highly valued use as judged by the relative pattern and intensity of consumer demand for the various goods supplied. Competition's dynamic quality is that it is a never-ending process. In the arena of exchange, every day offers new opportunities and allows entrepreneurs and innovators to create new opportunities that they are free to test on the market in terms of possible profitability.

Every political restriction or barrier placed in the way of competition, therefore, closes the door on some potential creativity, risk-taking, and entrepreneurial discovery of more efficient and rational uses of men, materials, and money in the interdependent and mutually beneficial relationships of market specialization and cooperation. The choice is always between market freedom and political constraint, between the competitive process and governmentally created monopoly.

This general argument in favor of market competition and against politically provided monopoly is no less valid in the arena of money and banking. The participants in the market may choose money they find most advantageous to use, or government can impose the use of a medium of exchange on society and monopolize control over its supply and value. The benefit from market-chosen money is that it reflects the preferences and uses of the exchange participants themselves. Participants in the market process will sort out which commodities offer those qualities and characteristics most useful and convenient in a medium of exchange. As the Austrian economists persuasively demonstrated, while money is one of those social

²⁸⁷ F. A. Hayek, “Competition as a Discovery Procedure,” [1969] in *New Studies in Philosophy, Politics, Economics and the History of Ideas* (Chicago: University of Chicago Press, 1978) pp. 179-190.

institutions that are “the results of human action but not of human design,” it nonetheless remains the spontaneous composite outcome of multitudes of individual choices freely made by buying and selling in the marketplace.

The alternative is what the American economist Francis A. Walker referred to in 1887 as “political money.” Political money is one that the government determines shall be used as money and whose supply “is made to depend upon law or the will of the ruler.” He warned that under the best of circumstances the successful management of a government-controlled money would “depend upon an exercise of prudence, virtue and self-control, beyond what is reasonably and fairly to be expected of men in masses, and of rulers and legislators as we find them.” Governments would, in the long run, always be tempted to abuse the printing press for various political reasons.²⁸⁸

But besides the dangers of political mischief, the fact is that the government monetary monopoly prevents the market from easily discovering whether, over time, market participants would find it more advantageous to use some particular commodity or several alternative commodities as different types of media of exchange to serve changing and differing purposes. The “optimal” supply of money becomes an arbitrary decision by the central monetary monopoly authority rather than the more natural market result of the interactions between market demanders desiring to use money for various purposes and market suppliers supplying the amount of commodity money that reflects the profitability of mining various metals and minting them into money-usable forms.

But commodity money, as history has shown, has its inconveniences in everyday transactions in the market. There are benefits from financial depositories for purposes of safety and lowering the costs of facilitating transactions. But what type of financial and banking institutions would market participants find most useful and desirable under a regime of money and banking freedom? The answer is that we don't know at this time precisely

²⁸⁸ Francis A. Walker, *Political Economy* (New York: Henry Holt, 1887) p. 352. After the last one hundred years of even further monetary mischief and abuse than those in the nineteenth century had learned from, Walker's further comment is more pertinent today than when he wrote it, p. 353: “The man who advocates government issues [of paper money], without being prepared to show reasonable ground for believing that they will not be so abused as to accomplish more evil than of benefit, is not entitled to be listened to. After the experiences of the last hundred years intelligent men rightly refuse to take the trouble even to discuss political schemes that assume an impossible virtue, or which disregard the actual conditions under which alone they could be set to work.”

because government has monopolized the supplying of money; and it imposes, through various state and federal regulations, an institutional straitjacket that prevents the discovery of the actual and full array of preferences and possibilities that a free market in monetary institutions might be able to provide and develop over time.

The increasing globalization of commerce, trade, and financial intermediation during the last several decades has certainly demonstrated that there is a far greater range of possibilities that market suppliers of these services could provide and for which there are clear and profitable market demands than traditionally thought 20 or 30 years ago. But even in this more vibrant global competitive environment, it remains the case that whatever options have begun to emerge has done so in a restrictive climate of national and international governmental regulations, agreements, and constraints.

Suppose that monetary and banking freedom were established.²⁸⁹ What type of banking system would then come into existence? Some advocates of monetary freedom have insisted that a free banking system should be based on a 100 percent commodity money reserve. Others have argued that a free banking system would be based on a form of fractional-reserve banking, with the competitive nature of the banking structure serving as the check and balance on any excessive note issue by individual banks.

²⁸⁹ The literature on the potential, nature and workings of a private, competitive banking system with complete monetary freedom is large. Among the important works are: Ludwig von Mises, "Monetary Stabilization and Cyclical Policy [1928] in *On the Manipulation of Money and Credit* (Indianapolis, IN: Liberty Fund, 2010); Mises, *Human Action: A Treatise on Economics* (Chicago: Henry Regnary, 3rd revised ed., 1966), pp. 440-448; Mises, *The Theory of Money and Credit* (Indianapolis, IN: Liberty Fund, [1953] 1981) pp. 434-438; Vera Smith, *The Rational of Central Banking and the Free Banking Alternative* (Indianapolis, IN: Liberty Fund, [1936] 1990); F. A. Hayek, "Denationalization of Money: An Analysis of the Theory and Practice of Concurrent Currencies," [1978] in Stephen Kresge, ed., *The Collected Works of F. A. Hayek*, Vol. 6: *Good Money, Part II* (Chicago: University of Chicago Press, 1999) pp. 128-229; Lawrence H. White, *Free Banking in Britain: Theory, Evidence, and Debate, 1800-1845* (Cambridge: Cambridge University Press, 1984); White, *Competition and Currency: Essays on Free Banking* (New York: New York University Press, 1989); White, *The Theory of Monetary Institutions* (Wiley-Blackwell, 1999); George A. Selgin, *The Theory of Free Banking: Money Supply Under Competitive Note Issue* (Totowa, N.J.: Rowman & Littlefield, 1988); Selgin, *Bank Deregulation and Monetary Order* (New York: Routledge, 1996); Kevin Dowd, *Private Money: The Path to Monetary Stability* (London: Institute of Economic Affairs, 1988); Dowd, *The State and the Monetary System* (New York: St. Martin's Press, 1989); Dowd, *Laissez-Faire Banking* (New York: Routledge, 1993); Kevin Dowd, ed., *The Experience of Free Banking* (New York: Routledge, 1993); Steven Horwitz, *Monetary Evolution, Free Banking and Economic Order* (Boulder, CO: Westview Press, 1992); Murray N. Rothbard, *The Case for a 100 Percent Dollar* (Auburn, AL: Ludwig von Mises Institute, 1991); Mark Skousen, *Economics of a Pure Gold Standard* (Auburn, AL: Ludwig von Mises Institute, 1988).

Until monetary and banking freedom is established, we have no way of knowing which of the two alternatives would be the most preferred. This is for the simple reason that under the present government-managed and government-planned monetary and banking system, market competition is not allowed to demonstrate which options suppliers of financial intermediation might find it profitable to offer and which options users of money and financial institutions would decide are the ones best fitting their needs and preferences.

Given the diversity in people's tastes and preferences, the differing degrees of risk people are willing to bear for a promised interest return on their money, and the variety of market situations in which different types of monetary and financial instruments might be most useful for certain domestic and international transactions, it probably would be the case that a spectrum of financial institutions would come into existence side by side. At one end of this spectrum would be 100 percent reserve banks that guaranteed complete and immediate redemption of all commodity money deposits, even if every depositor were to appear at that bank within a very short period of time.

Along the rest of the spectrum would be various fractional-reserve banks at which lower or no fees would be charged for serving as a warehousing facility for deposited commodity money. Their checking accounts might offer different interest payments depending on the fractional-reserve basis on which they were issued and on the degree of risk or uncertainty concerning the banks' ability to redeem all deposits immediately under exceptional circumstances.

Some banks might offer both types: they might issue some bank notes and checking accounts that were guaranteed to be 100 percent redeemable on the basis of commodity money deposited against them; and they might issue other bank notes and checking accounts that, under exceptional circumstances, were not 100 percent redeemable.

And these banks might offer "option clauses" stipulating that if any designated notes or checking accounts were not redeemed on demand for some limited period of time, the note and account holder would receive a compensating rate of interest for the inconvenience and cost to himself.

Whether most banks would be closer to the 100 percent reserve end of this spectrum or farther from it is not - and cannot be - known until the monetary and banking system is set free from government regulation, planning, and control. As long as the government remains as the monetary monopolist, there is just no way to know all the

possibilities that the market could or would generate. Indeed, for all we know, the market might devise and evolve a monetary and banking system different from that conceived even by the most imaginative free-banking advocates.

Competition is thwarted by government monopoly money, and the creative possibilities that only free competition can discover remain invisible "might- have-beens." How then can the existing system be moved towards a regime of monetary and banking freedom?

For a System of Monetary and Banking Freedom

The great tragedy of the twentieth century was the arrogant and futile belief that man can master, control, and plan society. Man has found it difficult to accept that his mind is too finite to know enough to organize and direct his overall social surroundings according to an overarching design. The famous American journalist, Walter Lippmann, neatly explained the nature of this problem in his 1937 book, *An Inquiry into the Principles of the Good Society*:

The thinker, as he sits in his study drawing his plans for the direction of society, will do no thinking if his breakfast has not been produced for him by a social process that is beyond his detailed comprehension. He knows that his breakfast depends upon workers on the coffee plantations of Brazil, the citrus groves of Florida, the sugar fields of Cuba, the wheat farms of the Dakotas, the dairies of New York; that it has been assembled by ships, railroads, and trucks, has been cooked with coal from Pennsylvania in utensils made of aluminum, china, steel, and glass. But the intricacy of one breakfast, if every process that brought it to the table had deliberately to be planned, would be beyond the understanding of any mind. Only because he can count upon an infinitely complex system of working routines can a man eat his breakfast and then think about a new social order. The things he can think about are few compared with those that he must presuppose.... Of the little he has learned, he can, moreover, at any one time comprehend only a part, and of that part he can attend only to a fragment. The essential limitation, therefore, of all policy, of all government, is that the human mind must take a partial and simplified view of existence. The ocean of experience cannot be poured into the bottles of his intelligence.... Men deceive themselves when they imagine that they can take charge of the social order. They can never do more than break in at some point and cause a diversion.²⁹⁰

Money is one of those institutions that owes its origin and early development to social processes beyond what individual minds could

²⁹⁰ Walter Lippmann, *An Inquiry into the Principles of the Good Society* (Boston: Little, Brown, 1937) pp. 30 & 32.

have fully anticipated or comprehended.²⁹¹ But money's evolution has been constantly “diverted” from what would have been its market-determined course by governments and political authorities that saw in its control an ability to plunder the wealth of entire populations.

Debasement and depreciation of media of exchange through monetary manipulation has been the hallmark of recorded history. To prevent such abuses and their deleterious effects, advocates of freedom supported the gold standard to impose an external check on monetary expansion. Paper money was to be “convertible,” redeemable on demand to banknote and checking account holders at a fixed ratio of redemption.

But even this limit on government-managed money was eliminated in the twentieth century by the hubris of the central-planning mentality, under which money, too, was to be completely under the control of the monetary central planners as part of the vision of designing and directing the economic affairs of society.

Monetary central planning is one of the last vestiges of generally accepted out-and-out socialist central planning in the world. The fact is that even if monetary policy could somehow be shielded from the pressures and pulls of ideological and special-interest politics, there is no way to successfully centrally manage the monetary system.

Government can no more correctly plan for the “optimal” quantity of money or the properly “stabilized” general scale of prices than it can properly plan for the optimal supply and pricing of shoes, cigars, soap, or scissors.

The best monetary policy, therefore, is no monetary policy at all. The advocate of the free market believes that ending all trade restrictions or barriers and permitting free trade would eliminate the need for foreign trade policies.

He also believes that the need for domestic regulatory policies would be eliminated by abolishing the regulatory agencies and repealing the antitrust laws and simply permitting market-guided competition and exchange.

And logically the need for monetary policy would be eliminated by abolishing government monopoly control and regulation over the monetary and banking system.

As Austrian economist Hans Sennholz once concisely expressed it,

We seek no reform law, no restoration law, no conversion or parity, no government cooperation: merely freedom.... In freedom, the money and banking industry can create sound and honest

²⁹¹ Carl Menger, “On the Origin of Money,” [1892] in Richard M. Ebeling, ed., *Austrian Economics: A Reader* (Hillsdale, MI: Hillsdale College Press, 1910) pp. 483-504..

currencies, just as other free industries can provide efficient and reliable products. Freedom of money and freedom of banking, these are the principles that must guide our steps.²⁹²

An Agenda for Monetary Freedom

So what steps might be undertaken to move the American economy in the direction of establishing a regime of monetary freedom? At a minimum, they should include the following:

- (1) The repeal of the Federal Reserve Act of 1913, and all complementary and related legislation giving the federal government authority and control over the monetary and banking system.
- (2) The repeal of legal-tender laws, that gives government power to specify the medium through which all debts and other financial obligations, public and private, may be settled. Individuals, in their domestic and foreign transactions, would determine through contract the form of payment they mutually found most satisfactory for fulfilling all financial obligations and responsibilities into which they entered.
- (3) Repeal all restrictions and regulations on the free entry into the banking business and in the practice of interstate banking.
- (4) Repeal all restrictions on the right of private banks to issue their own bank notes and to open accounts denominated in foreign currencies or in weights of gold and silver.
- (5) Repeal of all federal and state government rules, laws, and regulations concerning bank-reserve requirements, interest rates, and capital requirements.
- (6) Abolish the Federal Deposit Insurance Corporation. Any deposit insurance arrangements and agreements between banks and their customers and between associations of banks would be private, voluntary, and market-based.

In the absence of government regulation and monopoly control, a free monetary and banking system would exist; it would not have to be created, designed, or supported. A market-based system would naturally emerge, take form, and develop out of the prior system of monetary central planning.

²⁹² Hans Sennholz, *Money and Freedom* (Cedar Fall, IA: Center for Futures Education, 1985) pp. 77 & 83.

What would be its shape and structure over time? What innovations and variety of services would a network of free, private banks offer to the public over time? What set of market-determined commodities might be selected as the most convenient and useful media of exchange? What types of money substitutes would be supplied and demanded in a free-market world of commerce and finance? Would many or most banks operate on the basis of fractional or 100% reserves?

There are no definite answers to these questions, nor can there be. It is deceptive to believe, as Walter Lippmann explained, that we could comprehend and anticipate all the outcomes that will arise from all the market interactions and discovered opportunities that the complex processes of the free society would generate. It is why liberty is so important. It allows for the possibilities that can only emerge if freedom prevails. It's why monetary freedom, too, must be on the agenda for economic liberty in this new twenty-first century.

WRITTEN TESTIMONY OF
ROB GRAY
EXECUTIVE DIRECTOR
THE AMERICAN OPEN CURRENCY STANDARD

Mr. Chairman and Members of the Committee,

My name is Rob Gray and I was asked to testify today on the theory of competing currencies, and the practical challenges that make such a theory difficult or impossible to implement.

For nearly 5 years now, I've successfully directed the American Open Currency Standard -the standard for private voluntary and complementary currencies that compete against each other, *not* against the US dollar. Allow me to clarify: we do not consider AOCs Approved medallions produced and traded in our private barter marketplace 'competition' to the US Federal Reserve Note. Because "fair competition", as one would find in the "free market", assumes the existence of a level playing field, the existence of a standard set of rules. Those players who wish to compete honestly do so by relying simply on the merit of the value they bring to the market.

No fair challenge can be made between honest men and thieves. Let me be clear that when I say thieves: I refer to the current private central bank and the men in government who allow it to exist.

This brings us to a critical point: according to your Employee Handbook, Article 1, Section 8 says: "The **Congress** shall have the Power ...To coin Money, regulate the Value thereof..." For anyone who has been a manager or business owner, it is not uncommon to find that you may have an employee who may choose to not do the work that is delegated to them, or even that they simply do it very badly. When such a time comes it is necessary for the manager or owner to step in and do the work themselves. I would argue that since 1913, Congress has failed to do the job with which it had been tasked. We the people are now bypassing you and are no longer waiting for you to make it right. It is far better to simply walk away from the system. We are walking away from toxic thoughts, relationships, investments and careers. We are taking the hard intellectual journey to rid ourselves of the indoctrination that keeps us in this system. We are realizing the power we have in ourselves and the everyday choices that we make to either empower some soulless collective or our own families. We are realizing that we simply need to withdraw our time, energy, and money from banks, politicians and corporations that do not serve our interests.

In the time since our inception, the American Open Currency

Standard has enjoyed nearly five years of growth and success in our mission of issuing a means that allows valuable exchanges among men who produce. In the next five years, we expect to expand our offerings and to increase our ability to keep up with the demand for our private currency. We are doing the job Congress would not.

The use of community currencies here in the US became popular back in the early 1930's. You see, at the time, the theory was that a group of the world's most powerful men, many of them international bankers, were intentionally and systematically removing currency from circulation, creating an artificial scarcity of money across America. Small cities and towns felt it worse than anyone. But life did go on.

Then, during the greatest economic depression this country had ever seen, individuals across this country developed their own mediums of exchange. They still needed things -food, clothing, daily essentials -they still needed to live, and they didn't have time to wait for the government to fix the problem, and they certainly weren't going to rely on the same bankers that caused the crash to offer solutions. And so, according to historical records, thousands of community currencies were created, circulated and traded in places where the scarcity of dollars was interfering with the human desire to live, and the market's desire to trade. And since their elected employees were not doing the job for which they were hired, these individuals took it upon themselves to secure the means to their own survival and potential prosperity.

More recently, community currencies have sprung up across Europe as the Euro and national fiat currencies become increasingly unavailable and undependable. Today, communities all across the Eurozone trade their own money instead of the Euro.

Community currencies are not simply a good idea in theory; they are necessary, alive, and true examples of the free market's unwillingness to be artificially manipulated. Right now alternative and complementary currencies circulate widely across this country and in many different forms: Ithaca, New York uses a local fiat currency based loosely on the value of time; Berkshire, Massachusetts uses a fiat-backed fiat system, while many more communities circulate gold, silver and copper AOCs Approved barter tokens as a medium of exchange. How they are issued, accepted, accounted for and reported varies widely, as the participants and procedures are as different as the markets they serve.

As for practical issues to overcome in the issuance and circulation of complementary currencies, there are plenty. In a voluntary system,

those that participate in the trading of private currencies must deal with the possibility of counterfeiting, fraud, scarcity, acceptance, accounting, storage and other issues, all without the luxury of big brother holding a gun to anyone's head to ensure their success.

Even with all the risks, the market moves on. As in any free market, good ideas circulate with success, and bad ones eventually fade away. Participants voluntarily choose to accept and circulate the highest quality and most valuable currencies in exchange for their best production. Merchants accept complementary currencies based on the premise that someone else is willing to do the same later. Issues arise and are worked out by the market with only one light to guide them: the mutual exchange of value. No guns, no laws, no force: just the willingness to think outside the box and act on principle.

Complementary currencies are not new, in theory or in practice. Further, private currencies circulated long before governments erected themselves to interfere. What's new, however, is the public's apathy towards you and your policies. You've managed for the last hundred years somehow to convince the citizenry that you're relevant. Now, just recently, we're beginning to see the tides change on this. And once it catches on, you'll be rendered completely obsolete.

The greatest hurdle you will face over the next few years is trying to convince "we, the people" that you are still necessary in spite of your failures to get the job done. Sure, some will continue to rely on you for hand-outs; it's what they've known their entire lives and they will be slaves right up and to the point of their own destruction. They don't know any better and I don't blame them for their ignorance. But as you continue to squeeze the life out of the middle class, watch out for their greatest weapon: apathy. They may not be ready to admit it, but soon they'll turn their backs on you and never believe another lie -the lie that you are willing and able to do the job for which you were hired. In the future you will not have to worry about million man marches or citizen journalists trying to catch you on camera. What you need to fear is no one paying attention to you. The next American revolution will not be fought with bullets and bombs; it will be won with the opposite consciousness.

"It is well enough that people of the nation do not understand our banking and monetary system, for if they did, I believe there would be a revolution before tomorrow morning." ~Henry Ford

To that end, I'm here today to propose a solution. My understanding of this subcommittee is that you desire to be part of the solution. You want to believe you're doing something good for the country. Today, the greatest gift you can offer to the people you

clearly represent is to introduce, not to the legislature but directly to the public, what I call IR 1207 -Individual Resolution 1207 - commonly referred to as 'Ignore the Fed'. Store your wealth in silver. Bank with a non-fractional bank that pays real money on deposits. Use the card services network to satisfy dollar obligations. Do not try to compete with the federal reserve system: ignore them. This country has succeeded in doing away with two central banks already over the course of its history -it is learning to do the same again.

Congressman Paul: on July 13, 2011, you asked Federal Reserve Chairman, Ben Bernanke, a question: 'Is gold money?' I ask that same question of you here today: is gold money? Is silver money? They most certainly are not. At least not by the current definition as handed down by Congress' money-issuing surrogate, the Federal Reserve. And that's just fine.

I respectfully petition you, sir, to seriously reconsider your position on this matter. The government has perverted the word money. My wife is a nutritionist, and she tells people, 'If your grandparents wouldn't recognize it as food, don't eat it.' I suggest to you that if your great-grandparents wouldn't recognize it as money, don't accept or spend it.

A great philosopher once said "When destroyers appear among men, they start by destroying money," Today, conventional wisdom tells us that money is a worthless pile of paper. And for the last 100 years Congress has for a third time (again) shunned its responsibility when it comes to issuing money. Since the creation of the Federal Reserve and Congress' abdication of their responsibility, the dollar has lost 98% of its value. I don't suspect anyone would call that stellar job performance. I must be blunt and say that, as employees, Congress, you have not been successful in your charge to "...coin money and regulate the value thereof..." and therefore your services in this area are no longer needed. It is sad that even the men and women in this chamber either do not understand the system they serve or are so dependent upon the system's favors that they dare not speak in opposition to it.

"It is difficult to get a man to understand something, when his salary depends upon his not understanding it!" ~Upton Sinclair

I ask you to leave the Fed their money and leave the people our silver, gold and copper. Do not push to redefine whatever representations we choose for our wealth as 'money'. Let the Fed do what it wants with their 'money', so long as they leave us alone. I warn you: 'honest money legislation' is a wolf in sheep's clothing. The record of Congress over time has proven that it will make a miserable

failure of this aspect of human survival as it has so many others.

The greatest thing this Congress can do is exactly what you've done so far: nothing.

"The nine most terrifying words in the English language are, "I'm from the government and I'm here to help." --Ronald Reagan.

I will not facilitate this government to "help" understand, control and ultimately destroy alternative currencies. All I ask is that you stay out of our way. The people in our world are happy to go right along saving you from your own destruction by producing value against all the odds, regulations, codes, and challenges thrown our way. But leave our money alone. It doesn't belong to you, and it never will.

If you really want to help, I would recommend that instead of trying to DO something, you could start by undoing some things. But that list is far too long for me to get into here today and as a responsible employer, I'll allow you some room for creativity.

One last thing I would like to leave you all to ponder...

How is it possible for every single person in the world to be in debt with credit card debt, student debt, consumer debt, auto debt, and mortgages?

How is it possible that every small business and corporation in the world is also in debt?

And finally how is it possible that every single local, county, province, state and nation on earth is also in debt?

Who owns the other side of that debt?

When you understand that, maybe just maybe, something positive will come out of this chamber.

The bottom line is simple: humanity is not going to wait for permission to survive. Things that cannot go on forever... won't. The market will move on -with or without you. And, based on your rate of success to date, our preference is without you.

I thank you for your attention to this matter of life and death.

There are thousands hacking at the branches of evil to one who is striking at the root. ~ Henry David Thoreau

EXPERT COMMENTARY

JAMES TURK²⁹³
FOUNDER & CHAIRMAN
GOLDMONEY

GOLD — THE BARBAROUS RELIC IS NOT WHAT YOU THINK

A Note from James Turk

Dear Reader,

The world today is a very different place than when I wrote this monograph six years ago. Unfortunately, by “different” I do not mean better, at least in regard to my main point — central banks are still the barbarous relic, not gold.

One noticeable difference from back then is the precipitous drop, particularly after the 2008 financial crisis, in the esteem with which central banks were previously viewed. The central bankers themselves are squandering this esteem. Their disregard for society is palpable, as despite their rhetoric to the contrary, they unflinchingly and single-mindedly cater to their own interests and of course those politicians who put banking favours ahead of the interests of the people they supposedly represent.

Central bankers are completely out of control. Having descended from the useful role they filled decades ago, their sole objective now is

²⁹³ [This essay is derived from Mr. Turk’s presentation at the Gold Rush 21 Conference (www.goldrush21.com) held in Dawson City, Yukon, Canada, August 8, 2005. This monograph and the introductory note are published with Mr. Turk’s permission.]

to protect the people in finance and government who participate in and profit from the outrageous cartel power central banks now exercise. By creating unlimited amounts of currency, they serve the omnipotent state that they indirectly control through their monetary power over politicians. They use this control over the political process to protect their interests and maintain their grip on economic activity. But perhaps things are changing.

An unreasonable burden has been placed on the backs of taxpayers around the globe by serial bailouts of foolhardy, reckless bankers. Combined with a corrupt system that allows unlimited quantities of money to be created out of thin air, and people everywhere are beginning to understand that a central bank does not serve their best interests, much less even care about their point of view. In the past central bankers have overcome this reality by claiming that they are a conduit to prosperity, which although false, has nevertheless enabled them to practice their financial witchcraft to create recurring booms and busts — to society's detriment.

During particularly tough economic times like the present, their arguments ring hollow. So instead central bankers and their apologists are now taking a new tack. They threaten us with a collapse of the whole financial edifice if their advice is not followed or if they are forced to disclose for public scrutiny the schemes and stratagems they concoct behind closed doors. When doing so, they blatantly ignore that this monetary system cobbled together over decades is rotten to the core with bad loans made by their banker collaborators. It is also inherently unfair given that bankers benefit during good times, and are then bailed out by taxpayers when the boom of illusory prosperity they created inevitably turns into the reality of a bust.

Despite the growing questions about their role and increasing awareness of their dubious track record, central bankers continue to run roughshod throughout the world by financing bubbles, debasing currency, bailing out irresponsible bankers and providing an unending stream of untrustworthy currency to profligate politicians. As the global financial crisis continues to damage economies and cause incalculable hardship, politicians under the control of central bankers are putting the ever-growing burden of banker bailouts on

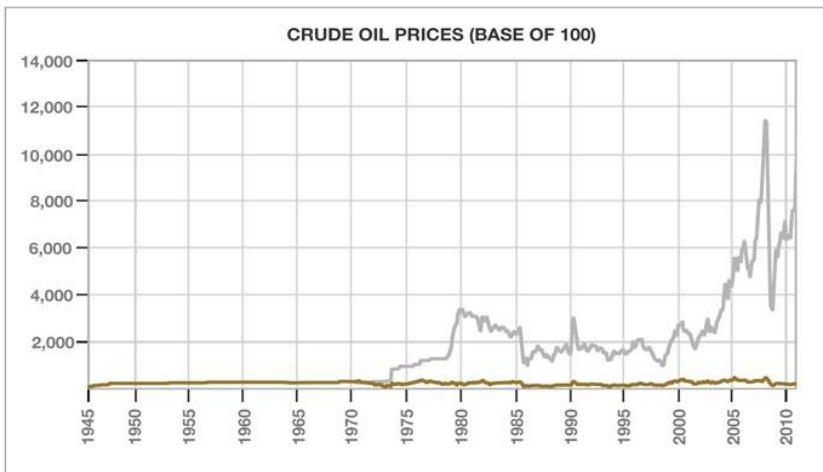
the backs of taxpayers. To what end? Hopefully to the end of central banking as it is currently practised, and the speedy restoration of sound money by people everywhere who are now awakening to the fact that central banking — and not gold — is the barbarous relic.

Sincerely,
James Turk
Director, GoldMoney Foundation
October 2011

Gold – The “Barbarous Relic” is Not What You Think

I am no fan of Keynesian economics. I find most Keynesian economic theories to be just plain wrong. But for the sake of truth and accuracy, I would like to correct a terrible injustice levied upon Keynes and, at the same time, also correct an equally terrible injustice that time and again is inflicted upon gold.

How many times have you heard gold described as the “barbarous relic”? It is a favorite phrase of gold-bashers everywhere who are trying to make gold the object of derision. I cringe every time I hear it, which is all too frequently, because gold is neither barbarous nor a relic, as can be explained easily by the following chart.



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■ goldgrams

■ US Dollars

Source: GoldMoney.com

This chart presents a base 100 analysis of crude oil prices in terms of dollars and grams of gold (goldgrams). In other words, to establish the comparison depicted above, it is assumed in this analysis that one barrel of crude oil equals \$100 and 100 goldgrams as of December 1945. The month-end price is calculated afterward based on the actual dollar price of crude oil and the prevailing dollar-to-goldgram rate of exchange.

Gold Is Neither Barbarous nor a Relic

The price of crude oil in goldgrams essentially is unchanged throughout the period measured. It is clear, then, that gold communicates the economic value of oil very effectively, and the communication of economic value is the primary feature of money.

Because money is the tool upon which economic activity is based, which is a reality that makes money central to society, money is not barbaric. Consequently, gold cannot possibly be barbaric because gold is money. Gold also is not a relic because gold communicates value today as effectively as it did 50 years ago and much better than does the United States dollar, a point demonstrated clearly by the chart above. In contrast to national fiat currencies today, gold tends to hold its value; in other words, the purchasing power of gold remains relatively unchanged.²⁹⁴ In fact, this precious attribute of gold is timeless because the above-ground stock of gold grows approximately at the same rate as world population growth and new wealth creation.²⁹⁵ How could anything as valuable and useful as gold be

²⁹⁴ There are many examples that illustrate gold's ability to maintain its purchasing power. Items as dissimilar as men's suits, Colt-45 revolvers, and the set menu lunch at London's Savoy Hotel have been used to demonstrate that gold retains its purchasing power because the price of these items in terms of gold remains relatively unchanged over long periods of time. For a detailed analysis of the historical relationship of gold to commodity prices, see Roy W. Jastram, *The Golden Constant: The English and American Experience, 1560-1976*, New York, NY: John Wiley and Sons (1977).

²⁹⁵ This observation rests largely upon logic because it is difficult to locate all the hard facts needed to support it. World population growth is estimated at 1.14 per cent annually. See www.cia.gov/cia/publications/factbook/print/xx.html. The World Gold Council estimates that, as of 2002, 147,000 tons of gold have been mined throughout history. See www.gold.org/value/stts/faqs/index.html. Allowing for additional production since then of about 2,500 tons per year, total production is 167,000 tons. Because gold is accumulated — in contrast to other commodities, all of which are consumed — most of this gold still exists in the

barbaric? And because gold is as useful today as it ever was, how could it possibly be a relic?

While the pejorative reference to gold usually is attributed to Keynes, here is what he really wrote in 1923 in *A Tract on Monetary Reform*: “[T]he gold standard is already a barbarous relic.” The reader should note that gold is not the barbarous relic but, rather, in Keynes’s view, the *gold standard*. There is a big difference between the two concepts. The gold standard is the mechanism by which national currencies at one time were defined as weights of, and redeemable into, gold.

Though the United States continued to define the dollar in terms of gold when Keynes penned those now infamous words after World War I, it had become the exception. Most of Europe had stopped the redeemability of paper currency into gold with the outbreak of hostilities in 1914. What is more, after the war, European countries were slow to return to the gold standard because their currencies had become terribly debased by the expansion of credit and the concurrent printing of money that had occurred during the intervening years.

In effect, by the 1920s, the classical gold standard was essentially dead, which was the reality observed by Keynes. It was dead because banking interests, working hand in hand with governments, killed it. They killed it because governments wanted more money to meet their growing spending aspirations, and seeing the profit opportunity that this circumstance presented, bankers wanted to lend that money to them. The discipline of the classical gold standard prevented the unbridled extension of credit and the resulting creation of new

current above-ground stock. The weight of gold lost due to shipwrecks, attrition of circulating coinage, etc., is unknowable, but it generally is believed to be fairly small because of the care given to gold in view of its high value. If we assume, therefore, that the above-ground gold stock is around 162,500 tons after adjusting for the weight of gold lost over time, then 2,500 tons of new production is increasing that stock by around 1.54 per cent annually. The rate of new wealth creation is harder to determine. The CIA Factbook referenced above estimates that world gross domestic product (GDP) grew by 4.9 per cent last year, but not all of this economic production increased the world’s net wealth. In my view, therefore, it is not unreasonable to assume that the rate of new wealth creation remains approximately somewhere between 1.14 and 1.66 per cent, which explains why the purchasing power of gold remains consistent over long periods of time.

money, which meant that it had to go.²⁹⁶ So is that why the gold standard had become a “barbarous relic”?

To answer this question, we have to understand why the gold standard came into existence in the first place. The origin of the gold standard can be traced back to events resulting from the formation of the Bank of England in 1694. However, to be able to really understand the gold standard and to explain Keynes’s trenchant observation, we have to go back even further into monetary history to extract one key truth — the history of money is actually the history of currency.

The Distinction between Money and Currency

It is important to note that money does not really change. Money is the function it performs, so money is still the same thing it always has been from the moment when it first was invented in pre-history.²⁹⁷ Namely, money is a mental tool used for economic calculation²⁹⁸ that ingeniously enables each of us to communicate what we value in an exchange. What changes throughout monetary history is *currency*. It evolves, and the biggest change ever occurred in 1694.

Until 1694, currency was always an asset in the hands of whoever held it, something tangible. Gold and silver were the most popular forms of currency, but history records that other assets were also used, such as cows, food crops, shells, beads, and other tangible items considered to be useful or rare. The nature of currency evolved as mankind progressed, and various scientific achievements made

²⁹⁶ Of the books that explain how and why banking interests and governments killed the gold standard, my favorite is Edwin Vieira, Jr., *Pieces of Eight: The Monetary Powers and Disabilities of the United States Constitution*, Fredericksburg, VA: Sheridan Books (2002), www.piecesofeight.us. For my recent review of this book, see www.fgmr.com/pieces8.htm.

²⁹⁷ By its classic definition, money is both a medium of exchange and a store of value. However, this definition better describes *currency* than *money*. In its broadest sense, which is how I use the term here, money is simply a means that enables economic calculation.

²⁹⁸ See, Ludwig von Mises, *Human Action*, 4th ed., Irvington-on-Hudson, NY: Foundation for Economic Education (1996), p. 209. Mises describes the “exchange ratios between money and the various goods and services” as the “mental tools of economic planning.” Given that money is the means that enables individuals to communicate their subjective views of value, money itself also is a mental tool. Mises states (p. 177) that “Language is a tool of thinking as it is a tool of social action.” In my view, the same thing can be said about money because, like language, money is a means of communicating.

currency more efficient and more reliable. For example, if you look at the evolution of coins over the centuries, you can see marked improvement.

The improvements were important. As coins became more reliable, the costs of conducting commerce were reduced, and reducing costs is always a good thing. By lowering the impediments to commerce — and the costs of handling currency and making payments are an impediment — commerce itself is promoted, and as commerce expands and develops, our living standards rise. So it was natural that new advancements that improved the currency of the day were welcomed widely, as was the advancement introduced by the Bank of England concurrent with its creation in 1694.

Gold and silver coins had disadvantages that were well-recognized. They were bulky, hard to carry, impractical in large denominations because of the weight that would be required, etc. What is worse, coins wore out from usage, wasting some of the precious gold and silver contained in them.

To overcome the shortcomings of precious metal coinage, the Bank of England introduced an important advancement that made currency more efficient. That innovation enabled gold and silver coins to remain safe and secure in the Bank's vault while paper promises to pay weights of precious metal — dubbed “banknotes” — circulated as currency in place of the coins. Paper as a circulating medium had obvious advantages of efficiency and cost and at any time — or in other words, on demand — could be redeemed for coinage. What is more, because it was opened under a Royal Charter, the Bank of England and its paper currency were perceived to be safe, and so they were — for about three years. By 1697, the world's first banking crisis was under way. The Bank of England had issued far more paper than it had physical metal on hand,²⁹⁹ primarily silver, because that still was the preferred metal of the day in England. Therefore, the crisis arose because people rushed to convert their paper currency into

²⁹⁹ This process is known as fractional reserve banking. Under the gold standard as it generally operated, banks only kept in reserve a fraction of the total weight of metal needed to redeem all their liabilities to pay out metal. For a detailed discussion of fractional reserves, see Murray N. Rothbard, *The Case for a 100 Percent Gold Dollar: In Search of a Monetary Constitution*, Leland B. Yeager, ed., Cambridge, MA: Harvard University Press (1962), pp. 94-136, and Auburn, AL: Ludwig von Mises Institute (1991), www.mises.org/story/1829.

silver coin, with the result that the Bank of England's new currency appeared to be a failure.

Despite ongoing monetary upheaval, the Bank of England persevered (even back then, government-sponsored enterprises seemed to take on a death-defying life of their own). But that monetary crisis did have one beneficial and constructive result: It made self-evident to everyone at the time that a paper currency promising to pay metal (a money substitute) was different from money (gold or silver) itself. After all, a bank liability is fundamentally different from a tangible asset.

What the Bank of England had done was to stand currency on its head. Until 1694, currency always had been a tangible asset (mainly gold and silver fabricated into coins). Thereafter, the new paper currency was not money; it was only a money substitute circulating in place of coin. This new currency was no longer a tangible asset; it had become a liability of a financial institution. This difference is as great as that between night and day, or more to the point, between assets and liabilities.³⁰⁰

The impact of this change was so profound that it had an invasive impact on the economy, with many adverse consequences. The insidious monetary turmoil wrought by the Bank of England's new currency persisted. To figure it all out, William III of England turned for help to the greatest mind of the day: Sir Isaac Newton, who was appointed Master of the Mint in 1699.

Over the next several years, Newton restored order where there had been Bank of England-created chaos. He did this by inventing and putting into practice what we now call the classical gold standard. That was a monetary system operating under rules³⁰¹ that

³⁰⁰ Until the introduction of paper currency, payment risk was limited to making sure the coins accepted as payment in a transaction were genuine. Similarly, the seller still needed to make sure that the paper currency received was not counterfeit. But paper currency introduced a new type of payment risk — default. Even if the paper currency was genuine, the paper could prove to be worthless if the issuer of that currency defaulted on its liabilities — for example, in the case of a bank failure. There is no default risk if one accepts gold in payment, which explains why gold often is referred to as the only currency that is not someone's liability. Consequently, in contrast to all national currencies, finality of payment in gold is not contingent on the creditworthiness of a counterparty.

³⁰¹ The key rules accomplished the following: (1) defined the British pound in terms of a specific and unchanging weight of gold, (2) confirmed that pound banknotes circulating as money substitutes were redeemable into coinage upon demand of the holder of the banknote,

Newton established that were followed voluntarily by banks and later by other governments that eventually adopted in their own country the Bank of England's paper currency innovation.

Newton's rules resulted in automaticity, which is what made the gold standard so effective. It was reliable and predictable. It was self-regulating when left unhindered, with capital flows over time tending to harmonise trade imbalances that arose from disparate economic conditions in different countries.

Newton recognised that the paper banknote was an important advancement that made currency more efficient. But he also understood that paper currency was not money and, even more so, that paper currency could be created to excess, which would result in monetary turmoil that in turn would have an adverse impact on economic activity. In other words, he realised that paper currency was useful, but only if it had some standard by which it could be measured and controlled. He achieved these objectives with the gold standard that he created.

The Demise of the Gold Standard

Newton's invention remained largely untouched from its implementation in 1707 until 1914. I say "largely" because the rules of his classical gold standard occasionally were broken. During periods of war, for example, the redeemability of paper into coinage

(3) confirmed that pound coins and pound banknotes were of equivalent value, meaning that they could be exchanged one for one, and (4) established that the Bank of England was responsible for maintaining prudent policies to ensure redeemability of banknotes into coinage, which was essential for an orderly monetary system. The practical result is that it became accepted Bank of England practice in the 18th and 19th centuries to maintain a gold reserve nominally equal to approximately 40 per cent of its gold liabilities. But see, John H. Wood, *A History of Central Banking in Great Britain and the United States*, New York, New York: Cambridge University Press (2005), where Wood observes that, in practice, the Bank maintained only a "thin film of gold," at times as low as only six per cent of gold liabilities. The British pound became the world's international reserve currency, largely supplanting gold in that role, because even though the banknotes were not 100 per cent backed by gold, the pound generally was considered to be "as good as gold." The expansion of the British Empire was not just the result of the Royal Navy; sound money also played an important role. The pound – managed as it was under the classical gold standard — enabled the global expansion of commerce. "The gold standard had become, in effect, the global monetary system. In all but name, it was a sterling [i.e., British pound] standard." See Niall Ferguson, *Empire: The Rise and Demise of the British World Order and the Lessons for Global Power*, New York, NY: Basic Books (2003), p. 245.

often was suspended, and credit was expanded beyond the prudent limits that normally prevailed. But the rules governing the gold standard remained in place, more or less, with the wartime suspensions usually lifted soon after hostilities ceased. Further, redeemability of banknotes into coin was re-established at the pre-war rates, which deflated the war-induced credit expansions.

Over time, however, bankers and politicians began to understand that, if they broke Newton's rules, they could gain an advantage. Bankers would make a greater profit because they could expand credit (make loans) beyond the self-imposed constraints. Politicians could gain greater power because, instead of being restricted to just spending gold, they envisioned creating a seemingly unlimited amount of money substitutes and spending those instead. Newton's rules were voluntary and worked only insofar as banks and governments agreed to them. By the 20th century, bankers and politicians were not just breaking the rules — they were discarding them.

Thus, given the powerful interests lining up against it, it is not surprising that the classical gold standard began to be depicted as undesirable, despite its splendid 200-year track record of maintaining relatively stable prices. What was worse, the classical gold standard started to be blamed for things for which it was not responsible. For example, it was not the gold standard that caused the Great Depression but, rather, imprudent credit expansion by banks, which was made worse by the growth of government and the rising expenditures that the burden of government entailed.³⁰² The last vestiges of the gold standard were jettisoned in August 1971,³⁰³ ushering in the present era of fiat currency regimes.

It should be clear by now why Keynes was taking a potshot at the gold standard. It is not surprising that Keynes — whose iconoclastic theories supported government management of the monetary system

³⁰² The cause of the Great Depression should be “placed where it properly belongs: at the doors of politicians, bureaucrats, and the mass of ‘enlightened’ economists.” Murray N. Rothbard, *America's Great Depression*, 3rd ed., Lanham, MD: Sheed and Ward, Inc.(1975), p. 295.

³⁰³ On August 15, 1971, President Nixon declared the US Treasury's “gold window” at the Federal Reserve Bank of New York to be closed, which meant that foreign dollar claims no longer were redeemable in gold. See William A. Safire, *Before the Fall: Inside the Pre-Watergate Nixon White House*, Garden City, NY: Doubleday (1975), pp.509-528.

— would claim that the gold standard was a barbarous relic. Even though Keynes was no fan of gold, he no doubt understood that it would be foolhardy to attack gold itself. That would come later, from anti-gold propagandists and central bank apologists misusing what Keynes really wrote. But that is not quite the whole story.

The Real Barbarous Relic

There is indeed a barbarous relic, but we now know that it is neither gold nor the gold standard because of the useful role that gold played for two centuries before World War I. Rather, the barbarous relic is *central banking itself*.

Central banks are barbarous in part because they conspired to put an end to Newton's brilliant invention that safeguarded sound money for 200 years. It is the process of central banking itself, as it has come to be practised, that deserves to feel the public's wrath.

Central banking is barbarous for the following reasons:

- (1) Money is a product of the free market. It is a fundamental building block of our society because it allows people to interact with one another in the market process. Money existed long before governments and central banks began to “manage” it. Tragically, instead of being a neutral and unfettered tool in commerce, fair to one and all, money now has become a matter of force and decree, which is disruptive to the market process and therefore harmful to society.
- (2) Prior to the creation of the Bank of England, every exchange in the trading activity that we call the market process tendered value for value. In other words, gold was exchanged for land, silver for food, etc. — assets were traded for assets.³⁰⁴ The Bank of England changed this process by creating money substitutes. Its banknotes are not a tangible asset like gold or silver. Banknotes are merely money substitutes and not money itself. Money substitutes are a liability of the bank issuing that paper currency, and money substitutes create all sorts of payment risk that one does not have when using tangible assets as currency.

³⁰⁴ From Franklin Sanders, ed., *The Moneychanger* (July 2005), www.themoneychanger.com, which included a noteworthy critique of central banking.

- (3) Central banks act in secrecy; consequently, they are not held accountable. For example, the so-called “Open” Market Committee of the Federal Reserve is far from “open.” It meets and makes decisions behind closed doors, and the minutes released one month later are thoroughly redacted, leaving outsiders in the dark about the members’ deliberations. Central bankers consider themselves — and act as if they were — above the law. Moreover, this secrecy favors the insiders, and it is this fundamental principle upon which central banks’ market intervention has been constructed, including, for example, their intervention in the gold market.³⁰⁵
- (4) Central banks have freed governments from having to ask their citizens — through their elected representatives — for more taxes.³⁰⁶ Central banks can acquire government debt and use it to create currency out of “thin air” for governments to spend on their latest whims. Even worse, through their policies that create inflation, central banks enable governments to steal from their citizens.
- (5) There are several tools in the central banks’ arsenal, and one of them is disinformation, which they regularly practise. For example, central banks have come to make us believe that inflation is “rising prices.” But wet streets do not cause rain. By changing the definition of inflation to one of “rising prices” rather than what it really is — monetary debasement engineered by central banks — the true culprits (the central banks themselves) are masked.
- (6) Not only are central banks guilty of disinformation, but deception is one of their most frequently used tools. The history of banking is replete with examples that demonstrate not just a lack of disclosure but, rather, outright deception. To give just one example, consider how central banks today account for their gold loans. They carry both gold in the vault and gold out on loan as one line item on their balance sheets.³⁰⁷ In effect, central banks are saying that they can

³⁰⁵ See the work published at www.GATA.org for a detailed analysis of this intervention. I also recommend the analysis of John Embry and Andrew Hepburn, *Not Free, Not Fair: The Long-Term Manipulation of the Gold Price*, Spratt Asset Management, Toronto, Canada (August 2004), www.spratt.ca.

³⁰⁶ Sanders (2005), note 9 above.

³⁰⁷ See, e.g., the European Central Bank’s balance sheet,

ignore the truthful disclosure established by Generally Accepted Accounting Principles, and as a result they can report both cash and accounts receivable as one and the same thing. Accounting like that would make even the fraudsters at Enron blush.

- (7) Central banks in effect have turned the market into a command, i.e., state-run, economy. The power to create money out of thin air brings with it the much greater power to control a nation's economy and therefore the economic destiny of millions. Central bankers today act like politburo members in the former Soviet Union, who pulled strings and pushed buttons to try making the economy — which means each and every one of us who participate in the economy — bend to their control. But it is not only the economic destiny of millions that is determined by central banks; subtle but potentially more disturbing issues are raised by the exercise of power by central banks
- (8) Central bankers and their comrades in government know that the command economy power that they have claimed forces them to walk a fine line between prosperity and economic collapse, given the inherent fragility of the credit-based monetary system that they operate. To try to reduce this ever-growing fragility — in a vain attempt to make it easier for central banks to control the command economy effectively and totally — governments take away peoples' freedom. Central banks usher in controls like the reporting of bank accounts and funds transfers and policies such as the “too big to fail” doctrine that underwrites bad decisions at banks with taxpayers' money. Controls perpetuate a central bank's stranglehold on power regardless of whether they are doing a good or a bad job — and it is usually bad — in commanding the economy.
- (9) The command economy that central banks operate encourages the growth of debt, rather than savings. Banks want to expand their balance sheets — i.e., to make more loans — in order to earn greater profits, and governments want central banks to accommodate this objective. The resulting credit expansion provides the public with opportunities to acquire new things, which creates an illusion of prosperity that makes

people believe that their wealth is rising. The result of this debt-induced, pseudo prosperity is a complacent populace, the net effect of which tends to perpetuate governmental power and politicians' perquisites. Instead of following a sound and time-tested, "pay as you go" policy, consumers, businesses, and governments have adopted a new creed — "buy now and pay later." The mountain of debt that exists in the United States today and the excessive consumption that continues to enlarge that mountain are the direct results of central banks' activity and their need to grow more debt to avoid the inevitable bust that would follow if the debt growth were to stop. Newsletter writer Richard Russell explains it very simply in just three words: "Inflate or die."³⁰⁸ This is why US Federal Reserve Chairman Ben Bernanke famously said (in a speech given before he was appointed Fed chief) that he would drop \$100 bills from helicopters if necessary to inflate the economy.³⁰⁹

- (10) What central banks do domestically, they also do to the international monetary system. Thus, the inherent fragility and the huge structural imbalances arising from cross-border trading exist today because of central banks' actions. The automaticity of the classical gold standard ensured that imbalances such as trade deficits were relatively short-lived. In contrast, present central bank policies have perpetuated longrunning US trade deficits, which are now several decades old and still growing.³¹⁰

The debt being created to finance these deficits has an impact on the monetary environment of each US trading partner. Thus, central bank-engineered imbalances are not just domestic problems; they also have global implications.

³⁰⁸ Richard Russell is the editor of *Dow Theory Letters*, www.dowtheoryletters.com/dtlol.nsf.

³⁰⁹ See www.federalreserve.gov/boarddocs/speeches/2002/20021121/default.htm

³¹⁰ According to the International Monetary Fund's statistics, the last year in which the United States had a trade surplus was 1975. The trade deficit, about \$624 billion in 2004, was about 5.3 per cent of US gross domestic product. *IMF, International Financial Statistics* (November 2005) and *International Financial Statistics Yearbook* (1995).

Barbarians Dwelling in Relics

In sum, central banking has proved to be barbarous indeed, but only one-half of the demonstration is completed at this point. Barbarity being established, one also needs to know why central banking is a relic, but that demonstration is easy.

Central banking has been around for more than 300 years. In that time, an institution becomes either a venerable object or an obsolete relic. If central banks once served a useful purpose, it was when they were governed by the discipline of the classical gold standard. Having abandoned Newton's rules, central banks now are abusive to free markets and antithetical to sound money. The reasons that make central banks barbarous also make them an unwanted relic. Central banks are a relic of empire, nationalism, and war. Having existed now for hundreds of years, central banks have survived not because they advance commerce or contribute to raising mankind's standard of living, but because they are disingenuous, slavish parasites, dutifully serving the omnipotent state, no matter how mindless or harmful the state's bidding might be. Central banks pursue reckless policies that erode — and in some cases destroy — the value of their currencies. Because of that recklessness, central banking is not only a barbarous relic, it has become dangerous as well.

When confronted with attempts by anti-gold propagandists to bash gold, we now know how to respond. The barbarous relic is central banking, and any central bank that prevents the restoration of sound money increases the danger that the relic poses to the public interest.

Not too many years from now, when the US dollar collapses as just one in a long list of fiat currencies that have collapsed before it, people will look back and ask themselves how it was possible that barbarous institutions like central banks could have hoodwinked so many people into thinking that they were acting in the public interest. The answer is that central banks have created the illusion of prosperity. Because people think that they are well off, they have no reason to question basic tenets that they are led to believe. For this reason, people are easily cozened into believing that gold is the

barbarous relic, that central banks are doing a good job, that officially measured inflation is low, and that their financial future is secure. However, nothing could be further from the truth. Their misguided beliefs reflect what some on Wall Street like to call the “bubble mentality,” and while it may be true that this condition is a state of mind, it also is true that it arises without any thinking going into it.

Conclusion: Let Gold Circulate as Currency Again

The gold standard is dead, but as the chart at the beginning of this essay shows, gold remains the standard. It is the value by which all things are measured, just as it was when Newton’s great invention, the classical gold standard, reigned supreme. This observation is important. For gold to achieve its greatest usefulness, it needs to circulate once again as a parallel currency that competes with government-controlled and central bank-“managed” national currencies.

The future of gold depends on the opportunity for gold to do what it always has done throughout history, namely to provide a neutral tool that people can use voluntarily — without force or coercion — as currency. We should be able to use gold as we go about our business each day, participating in the market economy to fulfill our needs and wants.

Fortunately, currency is evolving yet again. In this high-tech age, gold is now being used as currency in economic transactions. Digital gold currency³¹¹ provides the means to achieve economic growth and prosperity with sound money while escaping the state-run currency of central banking. This achievement is a welcome advance in free-market currency because it restores gold’s rightful and traditional role as a circulating medium unfettered by government control and central bank restrictions, but it also does more. Digital gold currency makes evident gold’s enduring usefulness, proving that gold is neither barbarous nor a relic.

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³¹¹ Digital gold currency is the invention of GoldMoney.com, which has been awarded three US patents.

PART 3:
OVERSIGHT

- IX. IMPACT OF MONETARY POLICY ON THE ECONOMY: A REGIONAL FED PERSPECTIVE ON INFLATION, UNEMPLOYMENT, AND QE3
- X. FEDERAL RESERVE LENDING DISCLOSURE: FOIA, DODD-FRANK, AND THE DATA DUMP
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*H*EARING IX.

**IMPACT OF MONETARY POLICY ON THE
ECONOMY: A REGIONAL FED PERSPECTIVE ON
INFLATION, UNEMPLOYMENT, AND QE3MONEY**

TUESDAY, JULY 26, 2011

WITNESSES

Hoenig, Dr. Thomas M., President, Federal Reserve Bank of Kansas
City

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing on the “Impact of Monetary Policy on the Economy: A Regional Fed Perspective on Inflation, Unemployment, and QE3” at 2:00 p.m. on July 26, 2011 in Room 2128 of the Rayburn House Office Building. Numerous regional Federal Reserve Bank presidents were approached to testify about their views on inflation, unemployment, and the Fed’s monetary policy. All but one of the presidents approached to testify either declined or were unable to testify. This was a one-panel hearing with the following witness:

- Dr. Thomas M. Hoenig, President, Federal Reserve Bank of Kansas City

Dr. Hoenig was asked to provide a regional Federal Reserve Bank perspective on the role of the Federal Reserve in the economy, focusing on the Federal Reserve’s execution of its mandate of price stability and full employment. Regional Federal Reserve Banks are supposed to be attuned to the economic conditions within their districts and to bring their knowledge and expertise to bear when meeting with other Fed officials. While Fed Chairman Bernanke’s statements and speeches receive significant amounts of media coverage, the views of the regional Federal Reserve Bank presidents do not receive similar attention.

This hearing examined the extensive liquidity operations undertaken by the Federal Reserve over the past few years; further actions that may be taken in the future by the Federal Reserve, including the possibility of further rounds of quantitative easing; and the outlook for inflation, unemployment, and GDP growth. The hearing also examined the exit strategies available to the Federal Reserve given its substantial involvement in the economy, the size of its balance sheet, and the excess reserves held by the banking system.

Regional Structure of the Fed

The Federal Reserve System is the central bank of the United States. The Federal Reserve formulates the nation's monetary policy, supervises and regulates banks, and provides a variety of financial services to depository institutions and the federal government. The Federal Reserve System consists of four major components: the Board of Governors, the twelve regional Federal Reserve Banks, the Federal Open Market Committee (FOMC), and member banks of the Federal Reserve System.

The twelve regional Federal Reserve Banks are responsible for the day-to-day operations of the Federal Reserve System, providing services to member banks within their districts, as well as regulating those banks. The regional Federal Reserve Banks are not entities of the federal government, like the Board of Governors, but private institutions chartered by the federal government and owned by the member banks in their districts. The board of directors of each regional Federal Reserve Bank appoints its own president of the Reserve Bank, who must then also be approved by the Board of Governors. The regional Federal Reserve Banks aim to balance the influence of the nation's financial centers on monetary policy at meetings of the FOMC, and to provide input on economic conditions across the country.

The FOMC sets the nation's monetary policy. The FOMC consists of up to twelve voting members: the seven members of the Board of Governors, who are political appointees of the President of the United States, and five of the twelve regional Federal Reserve Bank presidents. The president of the Federal Reserve Bank of New York is a permanent voting member of the FOMC. The other four regional slots rotate annually among the other Reserve Bank presidents.

Federal Reserve Policies During and After the Financial Crisis

During the financial crisis, the Federal Reserve undertook extraordinary measures to provide liquidity to the financial system. As the crisis deepened, the Federal Reserve began providing direct liquidity to the financial system, exercising its emergency lending authority, creating new credit facilities, and providing direct loans to non-bank financial firms—allowing non-banks and non-members of the Federal Reserve System to borrow directly from the Fed for the first time since the Great Depression. Most emergency lending was

conducted through the Federal Reserve Bank of New York, although other regional Reserve Banks also engaged in significant amounts of lending. At the peak of the Federal Reserve's emergency lending actions in December 2008, the Federal Reserve's balance sheet had more than doubled, by \$1.4 trillion, to over \$2.2 trillion.

From December 2008 to July 2011, the FOMC voted to keep the target federal funds rate between 0 and $\frac{1}{4}$ percent, the longest the Federal Reserve had held its target rate that low in modern times. The FOMC stated that it would maintain the target federal funds rate near zero as long as bank lending remained limited, unemployment remained high, and GDP growth was expected to remain low.

While the intensity of the financial crisis subsided in 2009, the Fed continued its accommodative monetary policies to prod the economy to grow. In February 2009, the Federal Reserve began to purchase large amounts of mortgage-backed securities (MBS) through its Mortgage-Backed Securities Purchase Program, the first installment of what has come to be known as quantitative easing (QE). By the summer of 2010, one year after the National Bureau of Economic Research had declared an end date of the recession, unemployment remained high and GDP growth remained sluggish.

The Federal Reserve then engaged in a second round of quantitative easing, known as QE2, by purchasing \$600 billion in Treasury securities between November 2010 and June 2011 in order to force down long-term interest rates to try to stimulate economic growth. When QE2 ended in June 2011, the Federal Reserve's balance sheet was approaching \$3 trillion and unemployment stood at 9.1%. Inflation measures saw a slight uptick at the beginning of 2011, mostly due to the rising prices of oil and other commodities. In addition, the inflation measure used by the Federal Reserve that excludes food and energy costs ("core consumer price index" or core CPI) also saw an upward trend during that time.

Concerns with Fed Policy

Many mainstream economists consider the actions taken by the Federal Reserve during the financial crisis to have been necessary to avoid a collapse of the financial system. In light of persistently poor economic performance since the supposed end of the recession, however, differences of opinion emerged about the Federal Reserve's later actions, such as maintaining a low target federal funds rate for an extended period and engaging in quantitative easing. The possibility that the Federal Reserve would embark on successive

rounds of quantitative easing only intensified the debate over monetary policy.

The FOMC decisions to maintain the low target federal funds rate were unanimous until 2010, when President Hoenig began to dissent and vote against the FOMC policy. Instead of supporting maintenance of a low target rate, President Hoenig called for a rate increase because of his concerns about inflation. While other regional Reserve Bank FOMC members expressed similar concerns about inflation, they continued to vote to keep the target federal funds rate near zero. Nonetheless, President Hoenig's willingness to vote against the FOMC policy, as well as his willingness to be outspoken about his dissent, has helped to embolden other Reserve Bank presidents to speak out, leading to a livelier debate about the Fed's monetary policy and the effects it has on the economy.

Some economists attributed a non-trivial portion of the recent rise in prices to the Federal Reserve's current monetary policy and to QE2, which they believed has greatly expanded the money supply. As Milton Friedman once said, "[i]nflation is always and everywhere a monetary phenomenon in the sense that it is and can be produced only by a more rapid increase in the quantity of money than in output." Critics of QE2 believed that the Federal Reserve's purchase of assets accelerated the expansion of the money supply and thus fuels inflation.

Other economists, most notably from the Austrian School of economic thought, also expressed concern that cheap funds resulting from the low target federal funds would prevent bad debts from clearing and could fuel another speculative bubble similar to the housing market bubble that precipitated the financial crisis. These economists pointed to the low target rate that the Federal Reserve maintained after the bursting of the dot-com bubble as one factor that helped inflate the real estate bubble, and they worry that a similar scenario may be developing. As of June 2011, excess reserves held by depository institutions stood at nearly \$1.6 trillion.

The Federal Reserve announced that it still had a number of tools available to stimulate the economy if economic conditions continued to worsen, and to withdraw liquidity support if improvements in the economy warranted a less-accommodative policy to ward off heightened inflation expectations. Some believed that the Federal Reserve had few policy tools left that it could use to further stimulate economic activity, while others believed that any additional options would only be minute variations on previous policies to purchase more securities and further increase bank reserves. In Congressional

testimony at that time, Chairman Bernanke noted an additional option: “more explicit guidance about the period over which the federal funds rate and the balance sheet would remain at current levels.”

While the Federal Reserve continued to weigh its options for further stimulating the economy through monetary policy, many believed that the time had come for the Federal Reserve to tighten monetary policy, given that the accommodative monetary policy had neither spurred employment nor economic growth, but had instead raised the spectre of future inflation. And of course, those from the Austrian School viewed the Federal Reserve exiting its heavy involvement in the economy as necessary to promote a healthy economic recovery.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 2:12 p.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Lucas, Luetkemeyer, Huizenga, Schweikert; Clay, Maloney, and Green.

Ex officio present: Representative Bachus.

Chairman PAUL. This hearing will come to order. Without objection, all members' opening statements will be made a part of the record.

I want to welcome our witness today, President Hoenig.

And I will begin the hearing with my opening statement.

Over the years, I have been interested in the transparency of the Federal Reserve (the Fed), and the Fed has been interested in the independence of the Fed. But since I know what Mr. Hoenig is interested in, I think he truly represents the right kind of independence that I like, because he is a rare individual to be at the Fed, or on occasion to be a member of the FOMC.

But I want to note that last year when virtually everybody was endorsing and welcoming QE2, he was dissenting against this position, I believe, about 8 times. So that to me is truly remarkable and shows that he is, obviously, an independent thinker.

My interest, of course, in the monetary system has been related to the accumulation of debt. I believe they are related and that the size of government is indirectly affected by monetary policy as well. If debt can be easily monetized, the temptation for Congress to spend money is always there. And I think that is a big, big distortion.

Mr. Hoenig has made his points made very clear, that maybe interest rates of 0 to 0.5 percent might be too much, and he actually has made statements about part of our problem prior to the crash of 2008 was the fact that interest rates were too low for too long.

And I often think about and like to clarify and expand as much as possible the relationship of the problems that we have today to our privilege of issuing the reserve currency of the world.

Obviously, nobody has quite that same benefit. And, therefore, our debt and our bubbles can get far more exaggerated than if you are an independent country and your debt is numbered in a currency that the world doesn't accept like they accept our dollars.

So though that might be a very positive thing in the short run, and give us some benefits, it also may be misleading to us, because it is deceiving us into thinking that this process can go on forever.

Today, we are in the middle of a default crisis. We are worrying about whether the national debt is going to be increased.

And I have an opinion that once the debt gets so big, default is virtually impossible to stop and that the default that we are worrying about right now is not strange and brand new, because in many ways, our country has already defaulted.

If you look at our inability to follow up on the promises to pay a gold certificate in the 1930s, that was a form of default. And then, we promised to pay foreigners gold for \$35, and we eventually had to quit doing that.

We promised to pay the American citizens a dollar for a silver certificate, and we defaulted on that. And eventually, those silver certificates were not worth a silver dollar, but they were then worth a Federal Reserve Note.

And even in 1978, we met a major crisis. It was a dollar crisis, and we were not able to maintain the value of the dollar. And we went hat in hand to the IMF and actually got approximately \$25 billion to \$30 billion of boost to prop up our dollar at that time.

So for me, that is a form of default, and I believe we have embarked on a system where default is going to come. And I think the argument and the impasse is because nobody wants to really admit that the default is here, and we have to face up to it.

The argument is, how do we default? Are we going to quit sending the checks out, or are we going to do the ordinary thing that countries have done for years and that we continually do, and that is, we pay off our debt with money with a lot less value.

To me, that is a default, but I see that as being unfair, because some people suffer more than others. And, therefore, we will eventually be pushed into some serious talks about monetary reform, which I believe are actually occurring already in international circles.

But my 5 minutes has expired.

And now, I will yield 5 minutes to Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman. And thank you for conducting this hearing on the impact of monetary policy and the state of the economy.

The Full Employment and Balanced Growth Act of 1978, better known as Humphrey-Hawkins, set four benchmarks for the economy: full employment; growth in production; price stability; and the balance of trade and budget.

The Humphrey-Hawkins Act also charges the Federal Reserve with a dual mandate: maintaining stable prices; and promoting full employment.

According to the Department of Labor, in June, the Nation's unemployment rate was 9.2 percent. Over 14 million Americans are looking for work. Another 5 million are underemployed at jobs that pay much less than they previously earned, and offer few benefits.

And in urban areas like the district that I represent in St. Louis, the unemployment rate among African Americans and other minorities is over 16 percent.

The Majority party has been in power in this House for over 200 days, and yet we have not seen one jobs bill, and America is still waiting.

I am eager to hear what additional steps the Federal Reserve is willing to take to free up the flow of credit to small businesses and to encourage major banks to finally invest in this recovery, instead of sitting on the sidelines with trillions of dollars that could be creating millions of jobs.

I also look forward to the witness' comments regarding what other urgent steps Congress can take to spur private sector job growth and restore confidence in our economic future.

And with that, Mr. Chairman, I yield back.

Chairman PAUL. I thank the gentleman.

Now, I yield to Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. Thank you, Mr. Chairman, for holding this hearing today and for continuing the dialogue.

I first want to recognize today's witness. President Tom Hoenig has been a voice for reasons and fiscal conservatism during a time when many of our economic policies have been weak.

Tom has often been a lone dissenter who has encouraged sound economic principles over politically expedient ones. Our Nation is grateful for his service.

President Hoenig has expressed concern over Federal Reserve monetary policies. Personally, I remain troubled by the expansionary

role the Fed seems to have been championing over the last several years. What is more upsetting is the fact that we don't seem to be any closer to changing course and abandoning these policies, even though they don't seem to have worked.

While a Federal program of quantitative easing looms, our economy remains stagnant. Our jobless rate continues to hover above 9 percent. Bank lending is still constrained. And we have seen little evidence of a long-term economic growth.

Abroad, the credit markets have indicated that austere measures are being taken by troubled governments. We are headed down an identical path.

Since 2008, the Fed has purchased several trillion dollars of U.S. treasuries, many of which are still held by the bank. We have been warned time and time again that unless we get our fiscal house in order, our credit rating is likely to be downgraded. Considering the amount of treasuries held by the Fed, the solvency of our central bank will undoubtedly be affected by this downgrade, should it occur.

The current state of our economy, combined with the problems we could face in the near future, results in a recipe for economic distress. The Fed must begin to seriously examine the policies in place and plan for worst-case scenarios that could overwhelm our Nation in the coming months.

Congress rarely hears from the 12 regional Fed Presidents. This is unfortunate, given their role as a financial regulator in our communities and as an independent voting member on the Federal Open Market Committee.

I appreciate President Hoenig's willingness to be here today, and I look forward to his testimony.

With that, Mr. Chairman, I yield back.

Chairman PAUL. I thank the gentleman.

I now yield to Mr. Green from Texas.

Mr. GREEN. Thank you, Mr. Chairman.

And Dr. Hoenig, thank you for appearing today, sir. I trust that you will find our committee hospitable.

I think that we have many concerns that we can address. And, of course, I am concerned about inflation, concerned about unemployment, concerned about the quantitative easing and the possibility of another round of quantitative easing.

But I must also say to you, I still believe in America. I really don't want this to come across as, we have lost faith in the country that has produced so much for so many. America is still a pretty good place to

live. A pretty good place to have your dreams, your hopes, and your aspirations fulfilled.

So as I—I will speak for myself—make my queries and make my inquiries known, I don't want to give the impression that I no longer have faith and belief in this, the greatest country in the world.

I am concerned, sir, about the widening gap, and I am not sure that you can address this, but if you have some intelligence that you will share, I would appreciate it, but the widening gap between what we commonly call the haves and the have-nots.

That is a real concern. I have seen some information published indicating that Latinos, African Americans and Asians have had a great widening in the gap between these groups and some others. That concerns me.

I am also concerned about this crisis that you have very little control over—you may be able to influence it, but little control—and that is the raising of the debt ceiling, as we call it. This ceiling is something that has become a crisis, but it really is a political problem that has somehow evolved into a crisis, a political problem that has evolved into an economic crisis, if you will, only because the politics have not come together appropriately.

And I still believe that we will get it right. I think that there is still time for us to raise the debt ceiling.

But these are some of the concerns that I hope you will be able to address today from your regional perch. I think highly of you, and I am interested in hearing your views. I have a lot of respect for you, and I thank you for appearing.

I yield back the balance of my time, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

Now, I yield to the full committee's chairman, Mr. Bachus.

Chairman BACHUS. Thank you, Chairman Paul.

I commend you for holding this hearing to examine the state of the economy from the perspective of a regional Federal Reserve Bank President, and I thank you for inviting Governor Hoenig, whom I consider to be a superb regional President.

Tom Hoenig, or Dr. Hoenig, is the longest-serving of the 12 Presidents of the regional Federal Reserve Banks. Perhaps happily for him, but sadly for many of us who admire his wisdom, he is soon to retire from that post.

You will be missed.

Dr. Hoenig has been a steadfast, independent voice among those in the inner circle of Federal Reserve Chairman Ben Bernanke, and before that, Chairman Alan Greenspan. He has been particularly

outspoken recently in cautioning against the overly stimulative efforts of the Fed, including the so-called QE2, quantitative easing program that ended last month after adding an additional \$600 billion in bonds onto the Fed's balance sheet.

The New York Times said that Dr. Hoenig's cautious views were clearly shaped by having worked at the Kansas City Fed during the runaway inflation of the 1970s and the bank failures of the 1980s, and "seem rooted in an agrarian and populist tradition that is mistrustful of concentrations of power."

I think that is a healthy fear. It is not surprising, then, that Dr. Hoenig has spoken forcefully on the subject of downsizing the biggest of the country's large banks, including a 2009 speech he titled, "Too Big Has Failed." I can tell you that on this side of the aisle, many of us are in wholehearted agreement with you. And we have looked on with alarm as there has been a greater and greater concentration of "too-big-to-fail" institutions.

I mention all this not only to salute you, Dr. Hoenig, for your career and your, I guess, bravery in speaking out, but also to make a comparison between your views and the view that is held by some in Washington that regional Fed Presidents should not be allowed to vote on monetary policy moves made by the Federal Open Market Committee.

Somehow, this view holds that regional Fed Presidents are captive of big business and the industry, and I can tell that you are a very good exhibit against that. In fact, I think that more often than not our regional banks are more attuned to Main Street.

And of course, you are not the only independent thinker among the regional Bank Presidents, but your appearance here today will serve as a good rebuttal to the view that the Federal Reserve Bank Board of Governors in Washington, D.C., need less input from the regional Feds and the rest of the country. Actually, they need more.

So thank you, Doctor.

And I yield back the balance of my time.

Chairman PAUL. I thank the chairman.

And if there are no other opening statements, we will go to the introduction of the witness.

I want to welcome Dr. Thomas Hoenig, who has been the President of the Federal Reserve Bank of Kansas City for the past 20 years and is the longest-serving policymaker at the Fed. While a voting member of the Federal Open Market Committee in 2010, he voted against keeping interest rates at zero, casting the only "no" vote at all 8 FOMC meetings.

He has been a vocal critic of the Fed's zero interest rate policy and QE2. He will be retiring in October, having reached the Fed's required retirement age of 65.

Mr. Hoenig, you are recognized.

**STATEMENT OF DR. THOMAS M. HOENIG³¹²
PRESIDENT, FEDERAL RESERVE BANK OF KANSAS CITY**

Mr. HOENIG. Thank you, Chairman Paul, and members of the subcommittee. I want to thank you for this opportunity to discuss my views on the economy from the perspective of a President of the Federal Reserve Bank of Kansas City, and, as you said, a 20-year member of the Federal Open Market Committee (FOMC).

The Federal Reserve's mandate reads: "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy's long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

Within the context, then, of "long-run," the role of the central bank is in fact to provide liquidity in a crisis and to create and foster an environment that supports long-run economic health. For that reason, as the financial crisis took hold in 2008, I supported the FOMC's cuts to the Federal funds rate that pushed the target range to 0 percent to 0.25 percent, as well as the other emergency liquidity actions taken to stanch the crisis. However, though I would support a generally accommodative monetary policy today, I have raised questions regarding the advisability of keeping the emergency monetary policy in place for 32 months with the promise of keeping it there for an extended period.

I have several concerns with zero rates. First, a guarantee of zero rates affects the allocation of resources. It is generally accepted that no good, service or transaction trades efficiently at the price of zero. Credit is no exception. Rather, a zero-rate policy increases the risk of misallocating real resources, creating a new set of imbalances or possibly a new set of bubbles.

For example, in the Tenth Federal Reserve District, fertile farmland was selling for \$6,000 an acre just 2 years ago. That land today is selling for as much as \$12,000 an acre, reflecting high commodity prices but also the fact that farmland loans increasingly carry an

³¹² [The prepared statement of President Hoenig can be found on page 1123.]

interest rate of far less than the 7.5 percent historic average for such loans. And with such low rates of return on financial assets, investors are quickly bidding up the price of farmland in search of a marginally better return.

I was in the banking supervision area during the banking crisis of the 1980s, when the collapse of a speculative bubble dramatically and negatively affected the agriculture, real estate, and energy industries, almost simultaneously. Because of this bubble, in the Federal Reserve Bank of Kansas City's district alone, I was involved in the closing of nearly 350 regional and community banks. Farms were lost, communities were devastated, and thousands of jobs were lost in the energy and real estate sectors. I am confident that the highly accommodative monetary policy of the decade of the 1970s contributed to this crisis.

Another important effect of zero rates is that it redistributes wealth in this country from the saver to the debtor by pushing interest rates on deposits and other types of assets below what they would otherwise be. This requires savers and those on fixed incomes to subsidize borrowers. This may be necessary during a crisis in order to avoid even more dire outcomes, but the longer it continues, the more dramatic the redistribution of wealth.

In addition, historically low rates affect the incentives of how the largest banks allocate assets. They can borrow for essentially a quarter-point and lend it back to the Federal Government by purchasing bonds and notes that pay about 3 percent. It provides them a means to generate earnings and restore capital but it also reflects a subsidy to their operations. It is not the Federal Reserve's job to pave the yield curve with guaranteed returns for any sector of the economy, and we should not be guaranteeing a return for Wall Street or any special interest groups.

Finally, my view is that unemployment is too high today, in part because interest rates were held to an artificially low level during the period of the early 2000s. In 2003, unemployment at 6.5 percent was thought to be too high. The Federal funds rate was continuously lowered to a level of 1 percent in an effort to avoid deflation and to lower unemployment. The policy worked, but only in the short run.

The full effect, however, was that the United States experienced a credit boom with consumers increasing their debt from 80 percent of disposable income to 125 percent. Banks increased their leverage ratios—asset to equity capital—from 15-to-1 to 30-to-1. This very active credit environment persisted over time and contributed to the bubble in the housing market. In just 5 years, the housing bubble

collapsed and asset values have fallen dramatically. The debt levels, however, remain, impeding our ability to recover from this recession. I would argue that the result of our short-run focus in 2003 was to contribute to 10 percent unemployment 5 years later.

That said, I am not advocating for tight monetary policy. I am advocating that the FOMC carefully move to non-zero rates. This will allow the market to begin to read credit conditions and allocate resources according to their best use rather than a response to artificial incentives.

More than a year ago, I advocated removing the “extended period” language to prepare the markets for a move to 1 percent by the fall of 2010. Then, depending on how the economy performed, I would move rates back towards more historic levels.

I want to see people back to work, but I want them back to work with some assurance of stability. I want to see our economy grow in a manner that encourages stable economic growth, stable prices, and long-run full employment. If zero rates could accomplish this goal, then I would support interest rates at zero.

Monetary policy, though, cannot solve every problem. I believe we put the economy at greater risk by attempting to do so.

Thank you, Mr. Chairman, and I do look forward to the committee's questions.

Chairman PAUL. I thank you for your statement, and I would note that without objection, your written statement will be made a part of the record as well.

Mr. HOENIG. Thank you.

[QUESTIONS & ANSWERS]

Chairman PAUL. I would like now to yield to Mr. Bachus for any questions he would like to ask.

Chairman BACHUS. I thank the chairman.

Dr. Hoenig, as I said in my opening statement, you have been firmly outspoken about monetary policy decisions.

The Fed recently issued guidelines on how and when Federal Open Market Committee members should discuss or could discuss monetary policy decisions. Do you view this as an attempt to control the message or to stifle dissenting voices?

And probably more importantly, Chairman Bernanke has promised a more open Fed, a more transparent Federal Reserve. And these guidelines, at least to me, seem a little inconsistent with restrictions on your ability to speak out. But I would like to know your views on that.

Mr. HOENIG. I hope not. I think part of the reason for the guidelines are that there were instances, frankly, where I would wake up on a Thursday morning and find what the future policy might be in the Wall Street Journal, not having known about it. And I think I raise objections to those kind of leaks and ask that they be vigorously pursued, to be quite frank. So I hope that is the reason.

Secondly, my approach is that I speak publicly, on the record. I try not to speak off the record, so that there isn't any confusion. And so when I come here, or wherever I go, I speak my views. I don't consult with the Board of Governors. I don't ask permission. I have until October, I realize, but I have never done so, and if I were staying on, I wouldn't do so in the future.

So I think it is a matter of personal choice. I don't think any of the members should disclose confidential information or leak to the media in advance. I strongly object to that, and I would have every intention to speak on the record my views publicly, regardless of what that statement might otherwise say. And I don't think that statement prevents me from doing so.

Chairman BACHUS. Good, so the guidelines are more designed to keep unauthorized releases and releases that aren't a part of the public record?

Mr. HOENIG. That is the context in which they came up.

The fact that they are there, I think could have the effect of stifling some, but I think that is a matter of someone saying, "I have spoken to this. This is my view," and show the leadership to speak their views.

Chairman BACHUS. Okay, good. And I am glad to hear that. I think that affirmation—I think Chairman Bernanke has tried to have a more open Fed, and I think he has been very candid with our committee.

In your testimony, you used the rapid increase in farmland value as an example of, maybe, credit misallocation resulting from what you see as a too-low Federal funds rate. Do you see any other bubbles building?

Mr. HOENIG. I don't—in fact, when people have asked me about the land, I have not said it is a bubble, but I—

Chairman BACHUS. Oh, yes.

Mr. HOENIG. But I do say that we have conditions. We have created conditions. Zero interest rates, QE1, QE2 create conditions that are amenable to bubbles.

And where we see asset values moving quickly, one example is in the farmland. I think you can see it in other areas, some of the bond markets and so forth. And so you have to be aware of that.

I think my issue is that, when you create conditions for certain outcomes, they will eventually arrive unless you withdraw those conditions in a timely fashion. And I think that is really the issue at hand.

Chairman BACHUS. Okay. The Fed used to say it specifically did not want to use monetary policy to reduce froth in the markets. Chairman Greenspan said it in front of this committee any number of times, or made that statement.

But is it appropriate for the Fed to avoid dealing with the buildup of asset bubbles but, on the other hand, conduct monetary policy aimed at reflating a market?

Mr. HOENIG. I think my view is that monetary policy should be conducted with a long-term focus, with, if you will, boundaries around its discretion, and therefore should not be in a position of creating froth in the market any more than it should try and somehow pinpoint some sector of the economy that it thinks is too frothy, and try and adjust that.

So, really, what you have to do is conduct monetary policy towards the long run. It is when you try and fine-tune monetary policy, direct it towards particular sectors, or to offset every short-term decline in the economy with extensive easing of monetary policy, that you create instability, as likely as deal with it.

Chairman BACHUS. Thank you. I will come back in the second round and ask other—I do want to say this, and I am just throwing it out for thought and not asking for a reply now. I have actually believed that QE2 gave the Congress an opportunity to—some time to move to make some long-term structural changes in our entitlement programs.

It is an opportunity that, whether it was intended for that purpose or not, it certainly gave us an opportunity, and kept financing the debt at a low rate, or lower rate, maybe. But the Congress has squandered that opportunity, at least at this time.

So I do believe that Chairman Bernanke's job has been made harder by the inability of this Congress to make the tough decisions and particularly to make needed structural changes in our entitlement programs. And I think we will continue to make problems for the Fed and probably result in inflation ourselves, some of our actions.

So, thank you.

Chairman PAUL. I thank the gentleman. I yield 5 minutes to Mr. Green.

Mr. GREEN. Thank you.

Again, I thank you for appearing today, sir.

Let us start with the debt ceiling. And if you could, be as terse as possible, because I have a couple of other questions. Can you give your opinion as to the consequences of our failure to raise the debt ceiling?

And if you can be brief, I would appreciate it, although I know it is impossible on this question.

Mr. HOENIG. The failure to address your budget issues is an action. It is a choice. And the consequences of doing that are to add to the uncertainty in the economy. So the effects will be, I think, in that sense, adverse.

I think the economy would do well with addressing the budget crisis and the budget problems and providing more stability and more certainty.

Mr. GREEN. In your opinion, would it be better to not raise the debt ceiling or to raise it and have it done in what we call a clean fashion—if it were those two choices?

I know there are many others, but is it better to raise it and have a clean raising of the debt ceiling, as opposed to not raise it at all?

Mr. HOENIG. The only answer I can give you to that is you really need—that is the Congress' area of responsibility—

Mr. GREEN. But I am talking about the consequences.

Mr. HOENIG. But you need to deal with it as forthrightly as possible.

Mr. GREEN. I understand, but are the consequences more severe if we don't raise it than if we raise it with a clean ceiling?

Mr. HOENIG. I think the consequences are there regardless. It is a matter of the timing of the consequences and how you want to accept those—

Mr. GREEN. So in your opinion, it could be just as bad to raise the debt ceiling as we have done in the past, just have a clean raising of the debt ceiling. That would be just as bad as not raising it at all?

Mr. HOENIG. I don't know what the consequences will be any more than anyone else does.

Mr. GREEN. I know, but you are in the business of prognosticating, because that is what you do to decide whether you should raise it the 1 percent that you are talking about here.

Mr. HOENIG. If you want my prognosis, honestly, I think what you need to do is address the budget crisis.

Mr. GREEN. I understand, but I am not ready to go there, you see. I am giving you a set of circumstances and I am asking you, if you would, to address this set of circumstances.

I know what you would like to do. I have been reading a little bit, here, and I understand your point of view. But I am taking you out of your comfort zone and—from time to time—

Mr. HOENIG. But it is not mine to decide. It is yours.

Mr. GREEN. I don't want you to decide. I just want you to tell me about consequences of not deciding.

Mr. HOENIG. If you don't raise the ceiling immediately, then the Congress and whomever else has to prioritize its future cash flows. If you do raise it, you also will have to prioritize it over time. In either case, you have—

Mr. GREEN. Let us go to another area, because—

Mr. HOENIG. —you have to make choices.

Mr. GREEN. I understand. My time is about up. Let me go to another area quickly.

You wanted to prepare the market for a 1 percent increase by the fall of 2010. Is that a fair statement?

Mr. HOENIG. Yes. And that was in an earlier part of 2010.

Mr. GREEN. Okay. All right, I understand the circumstances were different than now. But if we had done this, we had prepared the market, as you had hoped we would, what were your thoughts in terms of what would occur?

Mr. HOENIG. Interest rates would still be at historic low levels. Monetary policy would continue to be highly accommodative, but yet you would be off of zero. You would be no longer pumping enormous amounts of liquidity into the market.

And the market would know. Right now, the market—what you are doing is you are at zero. So you are creating—the market is adjusting to zero, in all its allocations, in its investments, in its bond funds, in its land, around an equilibrium of zero.

I think most people acknowledge that zero is not sustainable. So the longer you allow that to continue, the longer you allow that allocation of credit and assets around zero, the more fragile the equilibrium and the sharper the consequences when you finally do remove that zero.

And I think, the more—

Mr. GREEN. I wanted to have a quick follow up, because I only have 30-plus seconds.

You do agree that we don't have as much lending now as we need for the economy to recover. And if we don't have that lending at zero, what would be the circumstance at 1 percent?

Mr. HOENIG. I don't think that the issue around lending is related to the immediate policy of the Fed funds rate being zero. It is around the issues of the fiscal uncertainty. It is around the issues of whether we have a resurgence of manufacturing in this country that is sustainable. It is around the issues of how we create goods, because it is the creation of goods and services that brings jobs in.

And I don't think that the marginal choice for most businesses around whether they would do this of zero or a half a percentage point or 1 percentage point is the deciding factor in that instance.

Mr. GREEN. My time is up.

And you have been very generous, Mr. Chairman. I thank you. And I will wait for a second round.

Chairman PAUL. Thank you.

Mr. GREEN. And I will follow up.

Chairman PAUL. I thank the gentleman.

I will now take my 5 minutes.

I want to talk about the relationship of Federal Reserve policy and monetary policy with the debt increase. We all know that the Federal Reserve is the lender of last resort. The economy gets into trouble, liquidity dries up, the Fed is supposed to be there to help out.

But could it be that this concept of lender of last resort contributes to the deficit problem? And what I am thinking about here is that politicians, we in the Congress, get pressure from a lot of areas to spend money. And sometimes spending money helps us get reelected.

So, there are a lot of domestic needs, needs in our districts. And also, there is a lot of activity around the world, both violent and non-violent, that requires a lot of money.

And in the inflationary part of the cycle when things seem to be going well, it is very tempting for Congress to spend a lot of money.

But if the Fed is always there to keep interest rates low, doesn't that just encourage us? Congress generally is undisciplined, but doesn't the policy feed into this? Because if the Fed didn't do this, if they weren't our lender of last resort and interest rates started bumping up, we couldn't blame the Fed for our problems, we would have to blame ourselves—high interest rates—because we are sucking up all the credit.

Do you see a relationship between Fed policy and the encouragement or allowing Congress to spend more than they should be?

Mr. HOENIG. I think there is always the danger that the central bank can be put in the position of buying the government's debt. That is why you have an independent central bank and why the independent central bank has to pursue long-run monetary policy geared towards what the basic money-based requirements and needs are for the growth of that economy.

And it does require not only that the Congress be disciplined, but that the central bank be disciplined as well and not allow themselves to get drawn into that, yes.

Chairman PAUL. But in a way, doesn't your testimony verify that maybe the Fed didn't do their job because they kept interest rates too low for too long, and we were part of the problem. So how do you protect against that, if the Fed is as fallible as the Congress?

Mr. HOENIG. There is no system that is infallible. Whether it is the central bank doing this or the Congress doing it, there is no system that is infallible.

Yes, I think that in the early part of the decade of the 2000s— as I have said many times—the policy was kept too accommodative for too long. The consequence of that was to create a credit bubble. It affected not only the Congress, but, of course, the credit markets generally became very active.

That is why we had the tremendous expansion in credit in housing and later the consequence. That is an area that we have to learn from and go forward from. I don't think it is directly related in terms of the Congress and the debt, but it is related to the economic conditions broadly and the expansion of monetary policy during that period. And I think we have to be careful and mindful of that as a central bank.

Chairman PAUL. I would agree that no system is infallible, but it seems like we might get better information from the marketplace, dealing with interest rates. Prices are very important in the economy, and nobody is out there advocating wage and price controls. We have tried it and, hopefully, they never bring that back again.

But in a way, aren't we dealing with a price control and you are looking for the price of money, the cost of money? I think you talk about that, that the cost was too low. And it causes a misallocation of resources. So how do you know what the right price is?

Mr. HOENIG. I agree that you need to have a disciplined monetary policy that has a range. Our long-term growth over this decade has been about 3 percent real growth. Our policy should be mindful of that as we conduct monetary policy going forward.

And when we do go to zero and leave it there for an extended period, in reaction to a crisis, that is one thing. If we leave it there on a continuing basis, we do increase the risk that we misprice credit and misallocate resources, yes.

Chairman PAUL. It seems like it is a contest between confidence in the market setting the price or the interest rates versus somebody dealing with monetary policy. And some of us have come to the conclusion that we like the market to set that. We would like to see maybe the retirees get more for their CDs.

Mr. HOENIG. Right, and I understand, but the market makes terrible mistakes as well. And the market is responsible because it gets, if you will, euphoric in a direction, creates its own bubble around credit, because we are a fractional reserve system. It crashes. The market itself isn't perfect either. It causes—

Chairman PAUL. My time is up, but we are going to have a second round, and I want to ask about the fractional reserve system.

Mr. HOENIG. Okay.

Chairman PAUL. And now, I yield 5 minutes to Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

And welcome to my fellow Missourian.

Mr. HOENIG. Thank you.

Mr. LUETKEMEYER. Dr. Hoenig, it is good to have you here.

Mr. HOENIG. Thank you.

Mr. LUETKEMEYER. Since 2008, the Fed has purchased several trillion dollars worth of U.S. securities, treasury bills. And as we have seen over in Europe, over there the countries, in order to get their debt sold, have had to go to some very austere measures, sometimes go back 2 or 3 times to review their plans. Every time their interest rates have gone up in order to be able to accommodate them.

We are being told by the credit markets that if we don't do something within the next couple of weeks here, we are going to have our securities downgraded. How does that affect the solvency of the Federal Reserve to have all of those securities that they are holding all be downgraded suddenly?

Mr. HOENIG. It depends on how the markets view this downgrade. If it is downgraded and it doesn't affect the market pricing on those securities, because they have confidence that the Congress of the United States will come to a correct solution on that, I don't think it will have much effect at all on our solvency.

If the Congress fails to act, it will have a more lasting effect. But they are anticipating that the Congress will act.

Mr. LUETKEMEYER. As a former examiner, I am sure you—it would be interesting to have the Fed on the problem list, wouldn't it?

Mr. HOENIG. Yes.

Mr. LUETKEMEYER. Along that line, though, the same thing is happening with the rest of the banks in this country. If, for instance, we did get downgraded, suddenly now those banks—so your local community banks got a whole fistful of U.S. treasuries. And now they are being downgraded, and suddenly that affects their capital. It affects their rating.

How would you view that situation then—again, as a former examiner—the calamity that would happen to our local community banks?

Mr. HOENIG. If there was a serious effect from the downgrade on the pricing of the bonds to where there was capital loss in the bank, then of course it would have negative effects. I think the question is whether it would be a pricing effect, and I think that depends very much on the actions of the Congress.

Mr. LUETKEMEYER. It is an action that could happen on the part of the credit markets to where it could be an increase in risk that would have to be assumed there.

Mr. HOENIG. The failure to act is an action.

Mr. LUETKEMEYER. Okay. Thank you.

With regards to—you mentioned a while ago—my time is running out here—let me get to QE3.

We had Chairman Bernanke in here not too long ago, and he wouldn't say anything about QE3. But since he has been here, he certainly has not denied thinking about QE3. And to me, this is a devastating situation.

We have had a number of economists in here since he has been here, and every one of them I have asked the same question, "Do you see interest rates going up this fall as soon as QE2 stops here?" And every one of them said "Yes, unless you do a QE3, in which case you will probably have inflation."

Would you concur with that or do you have a different opinion on that?

Mr. HOENIG. First of all, I am not a supporter of QE3. I wasn't a supporter of QE2.

I think, by ceasing QE2, I don't know that interest rates necessarily will go up significantly. It depends on a whole host of factors in terms of how the economy is doing. It is not just whether you stop QE2 over time. I don't think we should mainly try and manage interest rates down. That is kind of the point of my testimony. I think

there are consequences of doing that, that misallocate resources, and we have to be mindful of that.

Mr. LUETKEMEYER. Obviously, I agree with that. I am just going along that line of thought, that among other things, the Fed's job is to look long term with regards to interest rates, with regards to unemployment.

And to me, this would seem to fit into a QE2, QE3. Where do we stop this? At some point, we have to get control of—at some point, the economy has to be resilient enough to stand on its own two feet. We have to wean them off this.

If we are going to absorb all the debt that we are incurring—and every budget whether it is Democrat, Republican or whomever, we have debt out there. Everybody is agreeing we are going to have more debt. So we are going to have to have somebody to purchase it. And if the Fed doesn't purchase it, somebody else is going to have to.

Mr. HOENIG. Correct.

Mr. LUETKEMEYER. And if we get our securities downgraded, risk is there, interest rates are going to necessarily go up. So long term, how do you manage those monies to see that you can minimize that? What would be your idea or a solution?

Mr. HOENIG. I think that the mandate is a long-term mandate, and we need to keep that in mind. And if we do and if we pursue a policy that is long-run oriented towards price stability, then the economy—a market economy adjusts on its own.

The market is not particularly brilliant, but it is harsh. It corrects itself when there is a misallocation. And so that is why monetary policy has to look to the long run, provide sufficient liquidity, but not try and fine-tune or manage the economy so that markets can in fact discipline themselves.

So we should not be doing QE3. This is my view. There are plenty of excess reserves out there on the order of \$2 trillion. I think that is plenty. Let the markets begin to heal, and let this market of ours allocate resources in our economy. And we should not try and fine-tune that.

I think when we do that, we inject instability as well, more likely than we do stability. So we have to be very mindful of that. In the short run, we can really inject instability. We have to have a long-run focus. And that is hard, I realize, but necessary.

Mr. LUETKEMEYER. Thank you for your comments.

And thank you for your indulgence, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

I recognize Mr. Lucas for 5 minutes.

Mr. LUCAS. Thank you, Mr. Chairman.

Doctor, as you are well aware, of course, I live in the great Kansas City district in western Oklahoma. And about the time you were out doing all that hard work in the early 1980s, I was a senior at Oklahoma State. And I will always think of my father's lecture in the spring of 1982 when I would occasionally go to land sales with my grandfather: "Keep your hands in your pockets and your mouth shut."

It was wonderful advice in 1982. The reason I bring that up is we are now dealing with a set of circumstances here that you have discussed and touched around the edges that in some ways is reminiscent of those early 1980s. You remember, and sometimes there is an occasional view here that nothing is interconnected, that we are all little islands in the world.

You remember when Penn Square Bank went down, an energy-concentrated banking establishment, which then took down, directly or indirectly, Continental Illinois in Chicago, took down Seafirst in Seattle, took down two major, historic long-term players.

Partly that, in my opinion, and you can offer yours and I would be pleased to hear it, as a result of perhaps misguided fiscal policy by Congress and perhaps misguided monetary policy by the Fed in that late 1970s and early 1980s period. But it had a devastating consequence, and it wasn't just Oklahoma that imploded. We sucked people under with us.

I guess that brings me to my real question, and whatever comments you would care to offer. As my colleagues have alluded to, with the Fed balance sheet at a little under \$3 trillion now, and even by a Texan's definitions, Mr. Chairman, that is a lot of money.

It took us 15 years to recover from the agriculture and the energy sector hangover from credit that started in 1982. In my opinion, in my quadrant, it was 1997 before the ship righted itself.

Three trillion dollars is a whole lot more credit than Penn Square was manipulating. When the right policy decisions are made, how long is it going to take this credit hangover to clear?

Mr. HOENIG. Let me first comment. I was on the discount window on Penn Square and was part of the group that recommended against lending against Penn Square. And I think it was the right decision there, although the consequences, as you said, were very harsh.

Mr. LUCAS. And for the record, a few officers of Penn Square did go to the Federal penitentiary. It was more than just a few bad decisions.

Mr. HOENIG. They did. Absolutely.

To your question of the degree of liquidity, the amount of time it will take to bring the liquidity off our balance sheet, the \$3 trillion, I think, is reasonably a period of years.

Because we have brought this on, I think if you bring it out too sharply, you will shock the economy. And in our last minutes, the Open Market Committee talked about how they would go about doing it in terms of rates and no longer renewing their debt instruments.

But even under those, it will take years. How many years? It depends on how the economy does. It depends on what the roll-off of these instruments, the speed of the roll-off of these instruments and whether we choose to sell those. I don't know how long, other than I know it will take years, and there are risks to doing that.

And that is my point about zero interest rates and creating what I call "fragile equilibriums" around this very liquid policy that when you finally do begin to move has a negative effect, a negative consequence on the economy, both nationally and regionally. And that does get my attention.

Mr. LUCAS. Is it a fair statement to say, Doctor, that, of course, we will make a decision at some point. We will, at some point, I hope, achieve a consensus. We have legitimate disagreements within the ranks of the House over what the right policy is.

Mr. HOENIG. Right.

Mr. LUCAS. That is the nature of the body. But at some point, we will arrive at something. If we make the wrong decision, whatever decision we come to, are the consequences as frightening as I suspect they are?

Mr. HOENIG. Any time—

Mr. LUCAS. Without commenting on any particular decision.

Mr. HOENIG. Right, anytime you make a wrong decision, there are usually negative consequences. And if you make the wrong decision, there will be negative consequences, whatever that is.

Mr. LUCAS. And the financial markets are sophisticated enough that they will respond moment by moment with whatever policy decisions we make, and will, as prudent money managers, use what I would define from an Oklahoma perspective as "defensive policies" if they need to. And that will ripple, too.

Mr. HOENIG. The greater the uncertainty you create, the more defensive the actions will be. That much we can be sure of.

Mr. LUCAS. Thank you, Mr. President.

Thank you, Mr. Chairman. I yield back the time that I have left.

Chairman PAUL. I thank the gentleman.

We will go ahead and start a second round of questioning.

If we look at the markets in the last couple of weeks, in light of all the conversation about whether or not the debt limit will be raised, my estimation or my observation is that the markets aren't that worried. Would you agree with that? Or do you think the markets are showing problems, or at least potential problems?

Mr. HOENIG. To this point, I think the markets at least strike me as having the view that there will be a solution. And as long as that view is in place, they will tend to stay calm. If they lose that or if they begin to see more instability, more uncertainty around it, and therefore actions, then they would—as I said earlier—take more defensive actions.

But right now, I think they have confidence in you, the Congress, and the President to come to some kind of agreement.

Chairman PAUL. In monetary history, it has been said that when countries get to a certain level of debt, they have a lot of trouble, and the debt eventually has to be liquidated. I personally think we are at that point, so there will be liquidation of debt.

As a matter of fact, free market individuals recognize that whether it is government debt or whether it is private debt, liquidation actually serves a purpose in order to get back to square one and have economic growth again.

When we liquidate debt, I believe I mentioned in my opening statement, you can do it in two different ways. You can just default, which great nations don't do. Small nations will. But we are nowhere close, I believe, to doing that. I don't believe that for a minute.

But I do worry about the other part. I worry about the liquidation of debt, because if it is inevitable that the debt will be liquidated and what we do may be prolonging the agony, that is what I worry about, that instead of allowing the liquidation and rapidly getting back to square one like we did in 1921, that we prolong this, such as Japan did and such as we did in the 1930s.

Do you agree with that? Do you have concerns that liquidation will come in the form of inflation? And if you want to prevent that, what are your other options, if we are not going to default on our payments, which of course, I don't believe we will?

Mr. HOENIG. First of all, I agree with you. I don't think great nations default on their debt. Second of all, I will say that I agree with you also, that we have leveraged our economy.

As I mentioned in my remarks, the consumer has raised their debt-to-disposable income from 80 percent to 90 percent to 125 percent. The Federal Government has raised its debt to in gross numbers 100 percent of GDP. So we have increased our debt.

My concern is that, maybe back to your earlier point, perhaps, but when you have that kind of debt, over time there is increased pressure on the central banks to help relieve that debt pressure by helping finance that debt.

That puts pressure on the central bank. If they do that, it does risk inflationary outbreak, and then you basically repay your debt in cheaper dollars.

Chairman PAUL. But isn't that—

Mr. HOENIG. That is a risk, so how do you avoid that? The way you avoid that is you take, either through the Congress, through special committees, whatever, and develop a long-run plan that shows the American people how we are going to deal with our debt, Federal and otherwise, but in the Congress, Federal debt, and how the debt-to-GDP ratio is going to be brought back down.

And if it does that in a systematic fashion, with a strong binding point, then you will take care of the debt in a responsible way.

Chairman PAUL. But it seems to me in that attempt, the Fed came in and they propped up banks and corporations, that they were the ones that have been benefiting from this, and now they have been able to get back on their feet again.

At the same time, it really didn't help the people. The jobs didn't come back and the people lost their houses. So it seems like it is a failed policy to me.

Mr. HOENIG. I understand your point. My concern is that we have in this country allowed to develop "too-big-to-fail" institutions, the largest financial institutions, who bulked their assets, and became so important to the economy that any one of them that failed would bring down and risk the economy.

The market understood that and therefore gave them an advantage in terms of their position in the market, lowered their cost of capital, and allowed them unfettered access. And when we allowed that part, the safety net portion of that to get in with the high-risk portion, the investment bank, it only increased that by factors.

So we do need to address the issue of "too-big-to-fail." We do need to think about how we separate out the safety net from the high risk so that the economy can function under a market discipline, or at least more under market discipline, and we would all benefit from that.

Chairman PAUL. My 5 minutes are up, and I now yield to Mr. Green.

Mr. GREEN. Thank you, Mr. Chairman. I will be honored to let you have 30 seconds of my 5 minutes, if you need it.

Let us talk for a moment about lowering the debt-to-GDP ratio. Do you agree that there is more than one way to do it?

Mr. HOENIG. Of course.

Mr. GREEN. Do you agree that cutting is a way to do it?

Mr. HOENIG. You can grow your economy—

Mr. GREEN. Grow the economy. You could also increase revenue.

Mr. HOENIG. Of course. That is up to the Congress, how they—

Mr. GREEN. I understand. But I just want you to be on the record indicating that we have more than one way to do it.

Mr. HOENIG. Right. And every choice has a consequence.

Mr. GREEN. Every choice has consequences. And not making a choice at all has its consequences as well.

Mr. HOENIG. That is a choice.

Mr. GREEN. Yes, sir.

Let us move to another area. You talked about markets and the market being calm. You do agree that the markets, generally speaking, don't like big surprises. When you give the market a big surprise, it has a reaction to a surprise. If you lead the market to believe that you are going in one direction, and if you go in another direction, then the market responds.

Mr. HOENIG. Correct.

Mr. GREEN. I think one of the best examples of this occurred when we had the \$700 billion TARP vote, and the market anticipated one thing, and when the vote went another way, we saw the market spiral downward. You recall that, I am sure.

Mr. HOENIG. Sure.

Mr. GREEN. So you agree that markets don't, generally speaking, want to be shocked with surprises.

Mr. HOENIG. Correct.

Mr. GREEN. Okay. If this is true, and you have indicated that the market currently believes that we are going to resolve this—and, by the way, I pray that we will—but you agree that failure to bring about the resolution that the market anticipates will create a reaction in the market.

Mr. HOENIG. Sure. It certainly will. If the market is thinking one thing and you do something else, there will be a reaction.

Mr. GREEN. One final question—

Mr. HOENIG. And that also happens on Main Street.

Mr. GREEN. Yes. And Home Street as well.

Mr. HOENIG. As well.

Mr. GREEN. Yes. But let us go back now to your support for the 0 to 0.25 target.

Mr. HOENIG. I do not support it.

Mr. GREEN. You do not support it. But in 2008, you supported the cut in the Federal funds rate that pushed us to this target range, did you not?

Mr. HOENIG. I wasn't voting, but I am sure I would have supported it. Yes.

Mr. GREEN. Okay. And, by the way, reasonable people can have opinions that differ—

Mr. HOENIG. Absolutely.

Mr. GREEN. —even on the things that you supported, true?

Mr. HOENIG. Absolutely.

Mr. GREEN. And Mr. Bernanke, whom I happen to think highly of and I have a great deal of respect for, and he has opinions that are very well-respected, and there are other members of the board with opinions, and you meet and you confer and you vote, and then you come to conclusions.

Mr. HOENIG. Correct.

Mr. GREEN. So at the time what you were trying to do was provide what I am going to call a soft landing. Is that a fair statement, that we didn't want the economy to just crash?

Mr. HOENIG. Well—

Mr. GREEN. We wanted it to land a little bit softer than if we had done nothing at all.

Mr. HOENIG. “Soft landing” is a generous term. I think we did want to avoid a crash and depression, yes.

Mr. GREEN. Yes, a crash and a depression.

And if you say that you wanted to avoid it, it says to me that you are of the opinion that had we not acted, there could have been a crash and a depression.

Mr. HOENIG. Counterfactuals are always there, and that is a possibility, yes.

Mr. GREEN. And counterfactuals are hard to prove.

Mr. HOENIG. Right.

Mr. GREEN. But the reason you acted the way you did was because there was this concern—and I am being kind by saying “concern,” because there are a lot of other ways to connote what was happening—but there were these concerns that we were headed for something close to a crash or a depression.

And your actions, probably if you were to write a book, you would say that your actions helped to avert this, would you not?

Mr. HOENIG. If you are speaking of our movement to zero interest rates and the liquidity we provided, yes, sir.

Mr. GREEN. Yes. Yes, that liquidity was helpful.

Mr. HOENIG. Yes.

Mr. GREEN. And just as it is difficult to prove a counterfactual as it relates to what you did, it is equally as difficult to prove it with reference to what Congress has done. Do you agree?

Mr. HOENIG. I assume so, yes.

Mr. GREEN. Okay. All right. What I am trying to do is establish this, sir. People of good will, and I consider you a person of good will, acted at a time of crisis—

Mr. HOENIG. Correct.

Mr. GREEN. —a time when it appeared as though we were about to go over the edge into an abyss unlike many of us had seen in our lifetimes.

And many of these things that we did, we won't be able to prove that we averted a great cataclysm, but we can surely conclude that what we did probably helped to avoid a rougher landing, a harder landing than we had.

Mr. HOENIG. Right.

Mr. GREEN. I want to thank you, Mr. Chairman. I will yield back the balance of my time.

Chairman PAUL. Thank you. I thank the gentleman.

I will yield to Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Dr. Hoenig, I have been watching what is going on over in Europe very carefully, and it is very concerning to me. And I know that in discussing this issue with a couple of other Fed members— board members—they don't seem to be quite as concerned about it as I am, so maybe I am an alarmist here. I don't know.

But I certainly see a contagion there that could easily spread to this country, especially whenever you look at our banks having about \$1.3 trillion loaned to the various governments, invested in bonds of the various governments over there as well as, now, Dodd-Frank tying all those big banks together with “too big to fail.”

It looks like there is a lot of connectivity between all of these things here. And you look at a line of dominoes, and it looks like we are in that line of dominoes.

So I know that the Fed has a swap line with the European central bank and perhaps some other reserve banks over there as well. And I am just wondering what your view is of that situation, how concerned are you?

Mr. HOENIG. I am concerned—do you mean about the European situation?

Mr. LUETKEMEYER. Yes, the European situation and how it will affect us or what kind of exposure we might have, our monetary policy, how it interacts. It is kind of a big question, but—

Mr. HOENIG. I understand your concern. The issues around those countries that keep coming up are also really around the banks, the European banks, because they, obviously, have exposure there. And that is a big part of the efforts we are trying to do to resolve this.

And like the United States, as I read it—and I only know from what I read in the paper—they are working toward some kind of solution, resolution around that.

But I think it proves to me not only in the United States, but internationally that we have institutions that are “too big to fail.” And that is what this is really about. We have taken the market discipline away. We are now working with institutions globally that are extremely important to those economies, to our economy.

And to me, the whole issue continues to be around institutions that are so large that their own difficulties have broad effects on the economy, and that makes them “too big to fail” and therefore forces, if you will, governments to come in and bail them out.

And that is really what, I think, is going on in Europe and that is really what has gone on in our crisis in the United States.

Until we change that formula, until we break those institutions up into those that are under the safety net and those that are allowed to engage in high-risk activities, we will have these crises periodically into the future—not right away, perhaps, but in years to come.

Mr. LUETKEMEYER. And the pitfall there is that we have our taxpayer dollars at risk, because we are backing these “too-big-to-fail” folks. Is that right?

Mr. HOENIG. When you put a safety net over them and put the government’s implied or explicit guarantee, the taxpayer is the backstop, yes.

Mr. LUETKEMEYER. In your position—and you are an economist, and having dealt with all of the financial things over the last several years, what do you see as the biggest concern to our economy today, whether it is international problems here we just discussed or oil prices or our monetary policy, our wars or—

What do you see as the biggest concern and how we can go to it from a financial aspect there?

Mr. HOENIG. That is a pretty important question.

Number one, I think that as far as our financial system goes, I continue to believe that “too big to fail” is an area that needs to be

further addressed, and these institutions need to have their risk better divided between what is under the safety net and what is not.

Number two, I think that the budget crisis in the United States is important because it is drawing all of our attention into that. And yet the economy is in difficulty and we should be thinking about our policies, do we want to see if we can bring greater manufacturing onshore?

In 1960, 25 percent of our GDP was contributed by manufacturing. Today, it is 12.5 percent. We have 14 million people out of work. So what is our attitude towards manufacturing? What is our attitude towards creating businesses that create things then that hire people?

By not being able to pay attention to that in the Congress and elsewhere, I think we are handicapping ourselves in an international, global, competitive market, and we need to pay more attention to it so we have a brighter future. I think that is essential.

Mr. LUETKEMEYER. I appreciate your comments. My time is up. Thank you again for visiting with us today. I always enjoy discussing things with you. I really appreciate your perspective and all your hard work as well. I thank you again for your service, sir.

Mr. HOENIG. Thank you, Congressman.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

I have another additional question. If you care to stick around, you may.

But I am not going to let you go so easily. I need to find some answers. But I am very glad you are here and willing to take our questions.

In your introductory statement, you mentioned that one of the responsibilities of the Federal Reserve was to have maximum employment, which sounds like a good idea, and stable prices.

I would look around and I would say, results aren't all that good. When you look at stable prices of housing, you even brought up the subject of unstable prices in farmland. That quite possibly could be a bubble.

I would think that if you looked at bonds in prices, they are very unstable. And who knows where that is going. If the market overrides, which I believe is possible, markets are very, very powerful. I know the Fed is very powerful, but I also know markets are very powerful.

But also in your statement, I want to get back to it, we talked a little bit about this, and you said, "I have several concerns with zero

rates. First, a guarantee of zero rates affects the allocation of resources.”

To me, I think that is very key and very important, because it really brings up the subject that the free market economists are very attuned to.

Ludwig von Mises, in his “Human Action,” talks about this as the misallocations and of malinvestment, excessive debt, money going into the wrong sectors, like farmland maybe or NASDAQ bubbles and houses.

But he took that and carried it much further. It seems like you have part of that philosophy, but not the full philosophy, but you are, I am sure, aware of what von Mises says about the Austrian theory of the business cycle.

Mr. HOENIG. Sure.

Chairman PAUL. How do you look at that? Can you say something favorable about his approach to it? Or can you draw a sharp line where interest rates are harmful and know how to divide the two? And what is your opinion of the Austrian business cycle theory?

Mr. HOENIG. I have read “Human Action.” I have a lot of respect for von Mises and I have a lot of respect for the Austrian school of thinking. I think it has value.

I understand that when you overinvest, when you leave things artificially low and you overinvest you create a correction by doing that. There is an action with that.

My view is that is why central banks have to be mindful. No matter what the system is, if you have markets and capitalism, you are going to have cycles and you are going to have crises. And what you want the central bank to do is address the crises and provide over a long period of time a base liquidity of money that allows your economy to grow.

When you move beyond that, when you find the central bank focusing on short-term issues, trying to manage the economy, trying to fine-tune it, then you create, if you will, impulses of instability, because you are trying to take care of short-run issues instead of looking to the long run.

That is why when I say the duty of a central banker is to think long run, and that I think I am in agreement with the Austrian school, but I do think there is a role for central banks, as I have said.

Chairman PAUL. I certainly agree with your point. Once they overextend, they are into central economic planning, except many have accepted the notion that you get into central economic planning

earlier than that, at the initial stages of believing that you can know what the interest rates should be.

Maybe you can give me a quick comment on this. Do you think the problems in the world today—try to put that in perspective. I think it is a very big problem, because I don't think we have faced it quite the same way, because we have a fiat dollar standard, and we are the issuers of the reserve currency of the world.

Do you think that has had an effect on what we are facing, the fact that we are issuing the reserve currency in the world, and it is much different than anything we faced before?

Mr. HOENIG. What I think is that the fact that we are the reserve currency is a consequence of decades of very good economic policy, the fact that we have had an economy that has grown, become very important to the world, and therefore, its currency has become very important.

I think that is a consequence, something you, as someone also said, you have earned. With that is carried a responsibility to look to long-run policy.

And to your point, if you have a gold standard, that is a legitimate alternative monetary base for your economy. But it does not eliminate crises. There is gold hoarding, there is positioning, there is mercantile practices. You will have crises.

So it doesn't matter if it is Congress, it doesn't matter if it is the central bank, it doesn't matter what the standard is. Good policy leads to good outcomes. Bad policy leads to bad outcomes. That is what you have to keep in mind.

Chairman PAUL. I would question whether we earned it or not. In some ways I think it was defaulted, because we were the standard. At least we pretended to be a good reserve standard, even though we weren't allowed to own gold. It was an international gold standard.

And then the confidence continued, surprisingly to some people. So that is just a matter of an understanding or semantics about whether it was earned or we defaulted into it.

But I have one more question. Because I have been interested in the monetary issues, I am delighted that you are here and so willing to visit with us.

But last week, I learned that gold was not money. So I have been able to put that out of my mind. Gold is not money, so I am still trying to figure out what money is. And I have asked these questions a lot of times, I have asked the Federal Reserve Board Chairmen over the years. And if I asked about dollar policy, they would say, "We are not in charge of dollar policy."

They are in charge of creating all this money and regulating interest rates, but they are not in charge of the dollar. The Secretary of the Treasury does that. But the Secretary of the Treasury doesn't give me any straight answers.

What I need to know from you to further my education is, tell me what a dollar is and where can I find the definition in our code?

Mr. HOENIG. The denomination is, I think—or the title was given back at just about the founding of our country. It was based on a gold standard at that time.

But money is, as you know, a medium of exchange, deferred means of payment and stored value. And as long as the public and the world understands that the dollar that is produced by the central bank of the United States, the base money, and then credit goes on beyond that, it is money.

As long as they take it as a medium of exchange, deferred payment and stored value. When that is lost, then it will no longer be money.

Chairman PAUL. But it is a note, it is a promise to pay. Actually, you are right about it being—

Mr. HOENIG. But it fills the three functions of money.

Gold can do the same thing. And if Congress designated that gold was the medium of exchange—

Chairman PAUL. This is why I am looking through the code, because the code, when I understand it, actually in the early years they wrote a dollar into the Constitution like they would write a yard, because everybody knew what it was, they didn't even define it, it was so well known. It was 371 grains of silver.

But that has never been changed, as best as I can tell, and all of a sudden now we have a Federal Reserve Note, a promise to pay nothing, is now the dollar standard and we can create them at will out of thin air. And then sometimes people wonder why we have a shaky, rocky economy.

I will keep looking for the definition of a dollar. But as best as I can tell, we have never said a dollar is a Federal Reserve Note. And the dollar under the code still says it is 371 grains of silver.

I yield to Mr. Luetkemeyer.

Mr. LUETKEMEYER. I just have one follow-up question on something the chairman asked a minute ago with regards to the role of currency.

Because I think one of the consequences of us not doing something to resolve our debt crisis here and then be downgraded, it would

seem to me to be a step down the path toward allowing ourselves to be no longer the world's reserve currency.

With China sitting over on the sidelines watching us twiddle our thumbs and waiting for an opportunity to get in the game, this is an opportunity. We are stumbling here and allowing them to do that.

What would be your thoughts on that comment?

Mr. HOENIG. I do think it is a serious matter. I think the U.S. currency, the dollar, is the reserve currency of the world and will remain so for some time.

And part of it is, what are your alternatives? You always have to ask the question. And the United States, for all of our issues and all the debate going on right now, it still has the deepest markets, is a market economy, has all the advantages. It has open capital markets. China doesn't have that. Europe has its issues.

So we still are the dominant economy. However, there is nothing guaranteed about that. That can change based upon the policies we choose going forward from here, both from a fiscal side and from a monetary side and from basically how we choose to have our economy operate in terms of the private sector and markets.

Those will all define the future of us as an economy and therefore the future of us as a nation as a reserve currency. It will be what we choose to do.

Mr. LUETKEMEYER. You just made the case from the standpoint that almost by default, we are the reserve currency, because China doesn't have all its ducks in a row yet to be that currency. Europe has its own set of problems. And so you look for the safest harbor, you look for the strongest economy. We are still there.

But if we keep twiddling our thumbs here, it could be endangered from the standpoint of the world sort of looking at us and saying, "Those guys can't get their act together—"

Mr. HOENIG. I agree with that.

Mr. LUETKEMEYER. —and their economy is stumbling along. They don't have a manufacturing base anymore, and they are going to import almost all the oil, which means they are going to be at the mercy of the oil companies and the oil cartels around the world."

And all of a sudden our economy is looked at as kind of a shaky thing versus a very stable thing. And now, we have those other folks coming in there to fill the void.

And to me this debt debate, one of the sidelights and one of the side consequences is that we are going down this road, and nobody is thinking about allowing China to get their foot in the door on the world currency side.

It is not going to happen today or tomorrow, but I have heard some people project that in 5 or 10 years, if we don't get our fiscal house in order, by that time they will be in a position economically where they will have resolved a lot of the issues that you talked about, and they may be knocking on the door.

Mr. HOENIG. I agree.

Mr. LUETKEMEYER. So what do you see on the horizon for that?

Mr. HOENIG. I think that the debates that are going on right now are about the long-run future of this country—how we choose to deal with our debt, how we choose to deal with our economy going forward. Those are the debates that are in place right now.

My point is that monetary policy cannot manage the short run, it has to have a long-run focus also. And the Congress and how we choose to have our markets operate are choices that lie ahead of us. If we don't choose well, in a generation, I think the answer to that question could be different.

So it is in our power to change this or to keep us on the right path, but you have to choose to do it. And these debates are about the long run. There is no question about it.

Mr. LUETKEMEYER. I certainly appreciate your common sense and intellectual approach to all of our problems, Dr. Hoenig, and I hope that you stay engaged in some aspect—

Mr. HOENIG. I hope so, too.

Mr. LUETKEMEYER. —of monetary and fiscal and economic policy here. You are too much of a prized jewel to walk away from this. So thank you again for your service.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you very much.

We are about to close, but I do have one more short question I think you can answer rather quickly. What would be the ramifications if they stripped away the voting rights of the regional Fed Presidents from the FOMC?

Mr. HOENIG. The ramifications would be you would lose an important set of voices in the Federal Open Market Committee. And I think it would be a mistake.

Right now in my region, as I deal with our board, a rancher from Wyoming, a bookseller in Oklahoma, a labor leader in Omaha— that is all input that comes into the process. I think you would lose that voice, and you would lose that input.

And you can say, make them advisers. But let me just tell you, voting and advising are two different things, and they are not even close to one another.

I would just say, since you have asked, I have been there. It is not democratic. It is not part of the political process. And my answer has been the selection of my successor will be a process that relies on our board, who represent, like I said, a grain dealer in Kansas City, an entrepreneur in Denver, a labor leader, a bookseller, a manufacturer, and a rancher from all over our region, six of our seven States.

And they very carefully go through a search, and then it has to be approved by the Board of Governors, the political appointees.

So, to me, that is a very democratic process. And it is in contrast to, if you select a Secretary of the Treasury who happens—if you are a Democrat and you select a former chairman of Goldman Sachs and you are a Republican and you select a chairman from Goldman Sachs, that is political, but I don't know that it is any more democratic than our process, and I don't recommend it.

Chairman PAUL. I thank you. I thank you for being here.

The Chair notes that some members may have additional questions for this witness, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to this witness and to place his responses in the record.

This hearing is now adjourned.

{Whereupon, at 3:37 p.m., the hearing was adjourned.}

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Today's hearing is the second in a series of hearings examining the relationship between Federal Reserve policy and the performance of the United States economy. Today we are receiving testimony from the Federal Reserve banks. Of the half-dozen Reserve banks we contacted, only President Hoenig was willing to testify in front of this subcommittee, and we welcome him here today.

Like many critics of the Fed's monetary policy, I fear that quantitative easing will soon return. Despite what we hear from the cheerleaders in government and in the media, the economy remains in a complete shambles. Unemployment remains high and seven million jobs lost during the recession have yet to be regained. The Federal Reserve has kept interest rates at or near zero for over two and a half years and pumped trillions of dollars into the banking system in a vain attempt to revive the economy. Yet even now after the failure of the zero interest rate policy (ZIRP) and quantitative easing have become readily apparent, we still hear calls for more stimulus, more easing, more lose money. Like any other government program, the solution for failure is to throw more money at the problem, never mind the fact that throwing more bad money after good in such instances has never succeeded.

Reading the press releases from the Federal Open Market Committee (FOMC) we see that the FOMC intends to keep interest

rates at a low level for an extended period. Chairman Bernanke has hinted at a further round of quantitative easing, the effects of which will undoubtedly be calamitous. Moneyholders seek a return on their holdings, and in an era of near-zero interest courtesy of the Fed, saving makes no sense. Combined with the still-shaky condition of the banking and financial sector, it is not surprising that much of the recently-created easy money has flowed into tangibles such as agricultural commodities, metals, and land. Rather than allowing the housing bubble to burst, overall prices to return to normal and overleveraged banks to break up, the Fed has thrown more fuel onto the fire and created the conditions for an even larger bubble that will eventually burst.

The Fed's easy money policy has also enabled the federal government to increase its total debt by 56% since 2008, an increase of over \$5 trillion. Thanks to the Fed driving down interest rates and purchasing debt as fast as the Treasury has issued it, the federal government faces a crunch not only in terms of running up against the debt ceiling, but also in the structure of the debt. Large amounts of short-term debt are coming due in a short period of time. ZIRP and quantitative easing cannot hold down interest rates forever, as at some point investors will rebel and insist on higher interest rates for US debt. At this point this maturing debt will either have to be paid off or rolled over at higher interest rates, both of which will be very costly for taxpayers.

While I disagree with Pres. Hoenig on many matters of monetary policy and especially on key policy issues such as the existence of the Federal Reserve System, we both have been critical of the Fed's policy of quantitative easing and its maintenance of zero interest rates. Pres. Hoenig has been the most outspoken member of the Federal Reserve System against Chairman Bernanke's policies, consistently voting against the Chairman during meetings of the Federal Open Market Committee last year. Due to Pres. Hoenig's impending retirement, the Fed will lose a much-needed counterbalance to the inflationists who dominate at the Fed.

Both Pres. Hoenig and I realize that printing money out of thin air as the Fed has done and threatens to continue to do is not a panacea. If zero interest rates and quantitative easing could really solve unemployment, there would be no reason not to maintain such policies in perpetuity. Such policies, however, lead to the formation of asset bubbles, as both Pres. Hoenig and I know. Chairman Bernanke's predecessor Alan Greenspan fueled the dot-com bubble and attempted to stave off its collapse by resorting to one percent

interest rates. That created the housing bubble whose collapse Chairman Bernanke is attempting to stymie through zero percent interest and massive quantitative easing. The next bubble is already forming, although which sector will be hit hardest remains to be seen. Pres. Hoenig has alluded to some possible bubble sectors in his district, so I look forward to his testimony and his answers to our questions.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF THOMAS M. HOENIG, Ph.D. PRESIDENT

FEDERAL RESERVE BANK OF KANSAS CITY

Chairman Paul, Ranking Member Clay and members of the subcommittee, thank you for the opportunity to discuss my views on the economy from the perspective of president of the Federal Reserve Bank of Kansas City and as a 20-year member of the Federal Reserve System's Federal Open Market Committee (FOMC).

The Fed's mandate reads: "The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy's long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates."

The role of a central bank is to provide liquidity in a crisis and to create and foster an environment that supports long-run economic health. For that reason, as the financial crisis took hold in 2008, I supported the FOMC's cuts to the federal funds rate that pushed the target range to 0 percent to 0.25 percent, as well as the other emergency liquidity actions taken to staunch the crisis. However, though I would support a generally accommodative monetary policy today, I have raised questions regarding the advisability of keeping the emergency monetary policy in place for 32 months with the promise of keeping it there for an extended period.

I have several concerns with zero rates. First, a guarantee of zero rates affects the allocation of resources. It is generally accepted that no good, service or transaction trades efficiently at the price of zero. Credit is no exception. Rather, a zero-rate policy increases the risk of

misallocating real resources, creating a new set of imbalances or possibly a new set of bubbles.

For example, in the Tenth Federal Reserve District, fertile farmland was selling for \$6,000 an acre two years ago. That land today is selling for as much as \$12,000 an acre, reflecting high commodity prices but also the fact that farmland loans increasingly carry an interest rate of far less than the 7.5 percent historic average for such loans. And with such low rates of return on financial assets, investors are quickly bidding up the price of farmland in search of a marginally better return.

I was in the banking supervision area during the banking crisis of the 1980s, when the collapse of a speculative bubble dramatically and negatively affected the agriculture, real estate and energy industries, almost simultaneously. Because of this bubble, in the Federal Reserve Bank of Kansas City's district alone, I was involved in the closing of nearly 350 regional and community banks. Farms were lost, communities were devastated, and thousands of jobs were lost in the energy and real estate sectors. I am confident that the highly accommodative monetary policy of the decade of the '70s contributed to this crisis.

Another important effect of zero rates is that it redistributes wealth in this country from the saver to debtor by pushing interest rates on deposits and other types of assets below what they would otherwise be. This requires savers and those on fixed incomes to subsidize borrowers. This may be necessary during a crisis in order to avoid even more dire outcomes, but the longer it continues, the more dramatic the redistribution of wealth.

In addition, historically low rates affect the incentives of how the largest banks allocate assets. They can borrow for essentially a quarter-point and lend it back to the federal government by purchasing bonds and notes that pay about 3 percent. It provides them a means to generate earnings and restore capital but it also reflects a subsidy to their operations. It is not the Federal Reserve's job to pave the yield curve with guaranteed returns for any sector of the economy, and we should not be guaranteeing a return for Wall Street or any special interest groups.

Finally, my view is that unemployment is high today, in part, because interest rates were held to an artificially low level during the period of the early 2000s. In 2003, unemployment at 6.5 percent was thought to be too high. The federal funds rate was continuously lowered to a level of 1 percent in an effort to avoid deflation and to lower unemployment. The policy worked in the short term.

The full effect, however, was that the U.S. experienced a credit boom with consumers increasing their debt from 80 percent of disposable income to 125 percent. Banks increased their leverage ratios--assets to equity capital-- from 15-to-1 to 30-to-1. This very active credit environment persisted over time and contributed to the bubble in the housing market. In just five years, the housing bubble collapsed and asset values have fallen dramatically. The debt levels, however, remain, impeding our ability to recover from this recession. I would argue that the result of our short-run focus in 2003 was to contribute to 10 percent unemployment five years later.

That said, I am not advocating for tight monetary policy. I'm advocating that the FOMC move to carefully move to non-zero rates. This will allow the market to begin to read credit conditions and allocate resources according to their best use rather than in response to artificial incentives.

More than a year ago, I advocated removing the "extended period" language to prepare the markets for a move to 1 percent by the fall of 2010. Then, depending on how the economy performed, I would move rates back toward more historic levels.

I want to see people back to work, but I want them back to work with some assurance stability. I want to see our economy grow in a manner that encourages stable economic growth, stable prices and long-run full employment. If zero interest rates could accomplish this goal, then I would support interest rates at zero. In my written testimony, I have included three speeches that describe in more detail my position on monetary policy.

Monetary policy cannot solve every problem. I believe we put the economy at greater risk by attempting to do so.

Thank you Mr. Chairman. I look forward to your questions.

REBALANCING TOWARD SUSTAINABLE GROWTH

THOMAS M. HOENIG, PRESIDENT

FEDERAL RESERVE BANK OF KANSAS CITY³¹³

THE ROTARY CLUB OF DES MOINES AND THE GREATER DES MOINES

PARTNERSHIP

DES MOINES, IOWA

JUNE 30, 2011

Introduction

³¹³ The views expressed by the author are his own and do not necessarily reflect those of the Federal Reserve System, its governors, officers or representatives.

The U.S. economic recovery is under way, but it remains more uncertain and volatile than anyone would like. Some believe that the Federal Reserve can speed up the recovery by keeping the federal funds rate near zero, where it has been for nearly two-and-a-half years, and by promising to keep it there for an extended period. If I judged—or if evidence suggested—that a zero rate would solve our country's unemployment problem or speed up the recovery without causing other adverse consequences, I would support it. However, monetary policy is not a tool that can solve every problem.

In today's remarks, I will outline my current views on the economy, and suggest what alternative options and policies our leaders might consider as we search for ways to build a stronger, more resilient economy.

U.S. economic conditions

First, it is a testament to the U.S. economic system that even as this nation carries a heavy public and private debt burden, the economy is completing its second year in recovery. The level of activity, as measured by GDP, has now surpassed its pre-recession peak after growing at a nearly 3-percent pace last year. However, I am concerned that in working to offset the effects of this devastating crisis and to restore the economy to health, an extended zero-interest-rate policy is producing new sources of fragility that we need to be aware of and allow for in our future policy choices.

Governments, businesses and consumers have made financial choices and allocated resources with an understanding that a zero-interest-rate policy will remain in place indefinitely.

The longer we leave interest rates at zero, the more asset values will be defined by these low rates and the greater the negative impact will be once the inevitable move up in rates begins.

Complicating the fragility around monetary policy, fiscal policy as a pro-growth policy instrument also appears to be approaching its limit. The government's stimulus efforts to support the economy, along with lower tax revenues, have resulted in historically large fiscal deficits and a very large debt level. Without a dramatic change, the deficit and the debt will only become more daunting with the rising cost of entitlement programs and likely higher interest rates.

For well over a decade, the U.S. consumer has been a principal source of world demand and economic growth. As a result, the United States has incurred consistently large trade deficits, contributing to imbalances in the global economy. As we have painfully learned from the housing bust, growth built on imbalances is ultimately

unsustainable.

Circumstances require, therefore, that we transition from an economy that relies too heavily on consumption and government spending for growth toward more sustainable sources of demand and economic prosperity. How we undertake this transition will define our economy and country's economic future.

To start, over the next several years, we must change our national savings, consumption and investment habits. Such shifts, though fundamental to long-term economic health, are admittedly difficult to accomplish. They require changes in behavior and expectations. They involve dramatic shifts in resource use, which are not painless as workers are temporarily displaced and industries are disrupted. The pain is immediate, and the payoff comes slowly. However, the gains also can be significant, as more sustainable long-run economic growth is well worth the effort and sacrifice.

In a recent visit to Singapore, I witnessed that nation's commitment to job creation. For example, during the recent crisis and recession, Singapore developed a program to retrain unemployed workers to ensure they would have the skills needed when its manufacturing sector recovered. As is well understood, workforce training matters. I spoke with individuals who described the drive to bring new factories on-line, with the goal of bringing a factory on-line with minimal delays and, by their description, without compromising safety.

Lessons from Germany

Other countries have made similar changes out of necessity or during a time of economic distress such as we are experiencing today. Countries have made deliberate choices and not relied on chance to change economic incentives and behavior that served to improve economic performance. I'm not advocating that we pick winners and losers—in fact, that is my biggest argument against too-big-to-fail financial institutions. Rather, I have observed a number of countries that are building and expanding their manufacturing bases—such as Korea, Singapore and China—that have been able to experience strong GDP growth over long periods of time.

Germany offers another example of a country having made significant changes to accomplish real employment goals. In the mid-1990s, Germany's trade deficit was similar to that of the United States. Since then, Germany has moved away from trade deficits to surging surpluses, while the United States has continued to run large trade deficits. Complementing this shift, German levels of

employment have made great strides, and its unemployment rate has touched its lowest point in nearly 20 years.

I am not suggesting that the United States attempt to be Germany or Singapore, two countries that differ from us in many ways. I am also not advocating that we suddenly strive to achieve a large U.S. trade surplus. This might only create other global imbalances and distortions. However, adjustments in our economy are necessary, and other countries have shown it can be done.

Perhaps the most immediate, and obvious, observation is the simplest: We must change our national savings rate. To rebalance the U.S. trade position from deficit to balance requires that the sum of private and public savings match domestic investment. In other words, a country must not produce less than it consumes if it wishes to balance its trade position with the rest of the world.

During the 2000s, Germany's personal savings rate increased and is currently about double the U.S. rate. German households paid down debt and avoided heavily relying on debt, in contrast to the United States and so many other countries' households.

The personal savings rate in the United States has modestly increased since the start of the recession, which is an important positive trend. Unfortunately, this improvement has been more than offset by the dramatic deterioration in public saving reflected in the nation's fiscal deficits. Though a significant amount of the recent deterioration in public finances is related to the U.S. financial crisis, the fact remains that our national savings crisis has been under way for nearly three decades. Since the early 1980s, our nation has consistently chosen to spend rather than save, as witnessed by the long-term decline in our private savings rate and our tendency toward fiscal deficits. Most importantly, when we look across the more developed countries, we see that those with higher national savings rates tend to have smaller trade deficits and higher domestic production per person.

Germany has also benefitted from managing unit labor costs in a manner that keeps its labor force globally competitive. Over the last decade, the German economy experienced relatively modest wage increases and important productivity gains. Both of these factors contributed to keeping unit labor costs in check. However, another important component of its success came in the form of labor policy reforms.

In the early 2000s, Germany, with labor and management input, passed a series of labor market enhancements called the "Hartz laws." These laws modified some of the more generous employee

benefits and reduced restrictions on temporary workers and the ability to lay off workers. Germany's reforms also sought to incentivize unemployed workers to transition to employment by making changes to job training programs for the unemployed and creating targeted subsidies to support some manufacturing job creation.

Finally, Germany developed export markets by focusing on meeting the needs of parts of the world experiencing the fastest growth and demonstrating strong demand for capital goods that German manufacturers produce: emerging economies in Asia, Europe and Latin America.

The United States is well-positioned to match this kind of performance, if it chooses to do so. For example, since 2000, the share of our exports going to the BRIC countries—Brazil, Russia, India and China—has more than doubled. If we choose to increase our savings rate, if government, labor and management see the mutual advantage of investing in and building a competitive manufacturing environment, then job growth will follow.

As the U.S. economy shifts gears to shrink its trade imbalances, many parts of the country will have a role to play. I fully expect Iowa to be an integral participant in this shift. Iowa already possesses a strong manufacturing base that is a key driver of the state economy. By some estimates, about half of the manufacturing firms in the state are small-and medium-sized enterprises, which provide some parallels with Germany's renowned export powerhouses, known as the *Mittelstand*.

Real Solutions versus Economic Shortcuts

Rebalancing our economy and improving our trade position is a necessary development, but unfortunately, it will take time. And as our immediate desire is to rush to improve our economy, I warn against the all-too-common impulse to take shortcuts and suffer their unintended consequences. Here in Iowa, for example, one area where I suspect this tradeoff might be playing out is in the recent rapid run-up in agricultural land prices.

Agricultural exports have played a significant role in the rapid rise of land prices. Since 2000, agricultural exports from Iowa have increased by a factor of six. A portion of this growth reflects surging commodity prices due to factors on the supply side—such as extreme weather in parts of the world—and on the demand side, including the well-documented, rapidly growing food demands of emerging economies.

In addition to anticipated strong future demand for agricultural commodities, there is another factor affecting these prices: exceptionally low interest rates. As a bank regulator in the 1980s, responsible for financial institutions in Nebraska, Kansas, Oklahoma, Missouri, Wyoming, Colorado and New Mexico, I witnessed the devastating effects of easy credit and leverage in agriculture, real estate and energy. We closed or assisted nearly 350 banks in our region alone.

With interest rates near zero and with additional massive liquidity poured into our economy, all interest rates are affected. Therefore, asset values of every kind are also being affected, including land values in Iowa. Loans for land are available at rates well below historical levels—in some instances, 400 basis points below historical averages. The effect on land assets, like any asset, is to artificially boost its value. And there is ample experience that tells us that if rates were to rise quickly, this would affect world demand for commodities and raise the cost of capital on land almost instantly. When—not if—the adjustment occurs, we will see a dramatic drop in values. In the meantime, if operators and speculators have incurred large amounts of debt, then a new crisis will emerge.

Finally, we know that a crisis can affect more than one segment of the economy. It nearly always affects the broad economy and employment. Shortcuts don't work. We need to focus on the real economy. We need to focus on real reform.

Conclusion

My point today is simply that as powerful as monetary policy is, it sometimes is not enough. It cannot ensure an economy that balances its savings and investing needs. It by itself cannot correct our current account deficit or enhance savings and investment. These will require important changes in our real economy. Providing the right environment in which government can play its role in supporting business and the consumer to save, invest, manufacture and service national and global needs in the end will create real income and wealth.

We need to focus on long-term, stable monetary policy and fiscal policy goals that support these broader goals. Having seen the effects of financial crisis after financial crisis as short-term policies beget short-term policies, we should know that an ever-present short-run focus, even if well intentioned, is the road to ruin.

THE FEDERAL RESERVE'S MANDATE: LONG RUN

THOMAS M. HOENIG, PRESIDENT, FEDERAL RESERVE BANK OF KANSAS
CITY³¹⁴

NATIONAL ASSOCIATION OF BUSINESS ECONOMISTS ANNUAL MEETING
DENVER, COLORADO
OCTOBER 12, 2010

Introduction and Framework

Thank you, and it is a pleasure to welcome you to Denver. This is the largest metropolitan area in the Tenth Federal Reserve District and home to one of three branches of the Federal Reserve Bank of Kansas City. The Denver branch serves Colorado, Wyoming and New Mexico—three of the seven states of our region.

I appreciate this opportunity to engage and interact with business economists from around the country regarding the policy choices now confronting the nation, especially those confronting the Federal Reserve.

In setting out my views, I'll first spend a minute describing the economy's performance and then turn to the matter of quantitative easing versus my preferred path of gradual steps to a renormalization of monetary policy.

Short-Term Outlook

Currently, a major and necessary rebalancing is taking place within our economy. This includes the deleveraging of consumers, businesses and financial institutions, and it's during a time that state and local governments are struggling with budgets and mounting debt loads. In this context, a modest recovery with positive overall data trends should be seen as highly encouraging.

Following a bounce back from restocking earlier this year, the economy has slowed but it has not faltered. GDP growth has averaged about a 2½ percent annual pace since the first of the year. Industrial production is showing growth of almost 6 percent, and high-tech more than double that. The consumer continues to buy goods, with personal income growing at more than a 3 percent rate, personal consumption expenditures at about 3 percent, and retail sales at more than 4 percent. And the U.S. economy has added more than 850,000 net new private sector jobs since the first of the year. While modest, these are positive trends for the U.S. economy.

³¹⁴ The views expressed by the author are his own and do not necessarily reflect those of the Federal Reserve System, its governors, officers or representatives.

The issue is, of course, that while private jobs are being added within the economy, it is not enough to bring unemployment down to where we all would like to see it. Unemployment remains stubbornly high at 9.6 percent. With such numbers, there is, understandably, a desire and considerable pressure for the Federal Reserve to “do something, anything” to get the economy back to full employment. And for many, including many economists, this means having the Federal Reserve maintain its zero interest rate policy or further still, engage in a second round of quantitative easing – now called QE2. Some are even suggesting these actions are necessary for the Federal Reserve to comply with its statutory mandate.

Interpreting the Policy Mandate

The FOMC's policy mandate is defined in the Federal Reserve Act, which requires that: “The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy's long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”

There is, within the Act, a clear recognition that our policy goals are long-run in nature. In this way, the Act recognizes that monetary policy works with long and variable lags. Thus, the FOMC should focus on fostering maximum employment and stable prices in the timeframe that monetary policy can legitimately affect – the future. The FOMC must be mindful of this fact and be cautious in pursuing elusive short-term goals that have unintended and sometimes disruptive effects.

In recent weeks, some have argued that with inflation low and the jobless rate high, the Federal Reserve should provide additional accommodation. Such an action – the purchase of assets by the central bank as a policy easing tool – would mark a second round of quantitative easing. While there are several ways to accomplish this, many suggest that the most likely method would be for the Federal Reserve to purchase additional long-term securities, including U.S. Treasuries.

Proponents of QE2 argue that it would provide a near-term boost to the economy by lowering long-term interest rates while raising inflation. These benefits would arise from the purchase of U.S. Treasury securities, which would lead to lower U.S. Treasury and corporate rates. These lower interest rates would then stimulate consumer and business demand in several ways, including

encouraging mortgage refinancing that could lead to increased consumer spending, boosting exports through a likely lower exchange rate, and fostering higher equity prices, thereby creating additional wealth. Such a move is said to be consistent with the FOMC's September 21, 2010 announcement, which stated that it was "prepared to provide additional accommodation if needed to support the economic recovery and to return inflation, over time, to levels consistent with its mandate."

Such easing, it is hoped, would bring inflation back up to something closer to 2 percent, a rate that many judge to be consistent with the Federal Reserve's mandate. In addition, higher inflation would increase demand as consumers move purchases forward to avoid paying higher prices in the future.

So, with these purported benefits, why would anyone disagree?

New Risks and QE2

I believe there are legitimate reasons to be cautious when considering this approach. A meaningful evaluation of QE2 must consider not simply whether benefits actually exist but, if they do, how large they are and whether they are larger than possible costs.

Based on recent research and the earlier program of purchasing long-term securities— known as LSAP—I think the benefits are likely to be smaller than the costs.

Some estimates suggest that purchasing \$500 billion of long-term securities might reduce interest rates by as little as 10 to 25 basis points. The LSAP program was effective, in part, because we were in a crisis. Financial markets were not functioning properly, or at all, during the depths of the financial crisis. In such a situation, it is reasonable that central bank purchases would be useful and effective. However, currently the markets are far calmer than in the fall of 2008. The financial crisis has passed and financial markets are operating more normally. One could argue, in fact, that with markets mostly restored to pre-crisis functioning, the effect of asset purchases could be even smaller than the 10 to 25 basis point estimate.

I would also suggest that even if we achieved slightly lower interest rates, the effect on economic activity is likely to be small. Interest rates have systematically been brought down to unprecedented low levels and kept there for an extended period. The economy's response has been positive but modest.

In fact, right now the economy and banking system are awash in liquidity with trillions of dollars lying idle or searching for places to be deployed or, perhaps more recently, going into inflation hedges.

Dumping another trillion dollars into the system now will most likely mean they will follow the same path into excess reserves, or government securities, or “safe” asset purchases. The effect on equity prices is likely to be minor as well. There simply is no strong evidence the additional liquidity would be particularly effective in spurring new investment, accelerating consumption, or cushioning or accelerating the deleveraging that is hopefully winding down.

If the purported benefits are small, what are the possible costs?

First, without clear terms and goals, quantitative easing becomes an open-ended commitment that leads to maintaining the funds rate too low and the Federal Reserve's balance sheet too large. The result is a further misallocation of resources, more imbalances and more volatility.

There is no working framework that defines how a quantitative easing program would be managed. How long would the program continue, and what would be the ultimate size? Would purchases of long-term assets continue until the unemployment rate is 9 percent or 8 percent or even less? Would purchases continue until inflation rises to 2 percent or 3 percent or more? Would the program aim to reduce the 10-year Treasury rate to 2¼ percent or 2 percent or even less? Without answers to these and other questions, QE2 becomes an open-ended policy that introduces additional uncertainty into markets with few offsetting benefits.

As central bank assets expand under quantitative easing, what will be the exit strategy? In the midst of a financial crisis, we may not have the luxury of thinking about the exit strategy. In current circumstances, however, we must define an exit strategy if the objective is to raise inflation but contain interest rate expectations. If history is any indication, without an exit strategy the natural tendency will be to maintain an accommodative policy for too long.

While I agree that the tools are available to reduce excess reserves when that becomes appropriate, I do not believe that the Federal Reserve, or anyone else, has the foresight to do it at the right time or right speed. It may work in theory. In practice, however, the Federal Reserve doesn't have a good track record of withdrawing policy accommodation in a timely manner.

Second, we risk undermining Federal Reserve independence. QE2 actions approach fiscal policy actions. Purchasing private assets or long-term Treasury securities shifts risk from investors to the Federal Reserve and, ultimately, to U.S. taxpayers. It also encourages greater attempts to influence what assets the Federal Reserve purchases. When the Federal Reserve

buys long-term securities – such as the \$1.2 trillion in mortgage backed securities it purchased during the financial crisis – it favors some segments of the market over others. And when the Federal Reserve is a ready buyer of government debt, it becomes a convenient source of cash for fiscal programs. During a crisis this may be justified, but as a policy instrument during normal times it is very dangerous precedent.

Third, rather than inflation rising to 2 or 3 percent, and demand rising in a systematic fashion, we have no idea at what level inflation might settle. It could remain where it is or inflation expectations could become unanchored and perhaps increase to 4 or 5 percent. Not knowing what the outcome might be makes quantitative easing a very risky strategy. It amounts to attempting to fine-tune inflation expectations—a variable we cannot precisely or accurately measure—over the next decade.

And why might inflation expectations become unanchored?

The budget deficit for 2011 is expected to be about \$1 trillion. Even if the Federal Reserve were to purchase only \$500 billion—and this amount in itself is a source of considerable uncertainty—that would appear to monetize one-half of the 2011 budget deficit. In addition, the size of the Federal Reserve’s balance sheet—now and over the next decade—will influence inflation expectations. Expanding the balance sheet by another \$500 billion to \$1 trillion over the next year, and perhaps keeping the balance sheet at \$3 trillion for the next several years, or increasing it even further, risks undermining the public’s confidence in the Fed’s commitment to long run price stability, a key element of its mandate.

While QE2 might work in clean theoretical models, I am less confident it will work in the real world. Again, I will note that the FOMC has never shown itself very good at fine-tuning exercises or in setting and managing inflation and inflation expectations to achieve the desired results.

Given the likely size of actions and the time horizon over which QE2 would be in place, inflation expectations might very well increase beyond targeted levels, soon followed by a rise in long-term Treasury rates, thereby negating one of the textbook benefits of the policy.

Non-Zero Rates as an Option

At this point, with a modest recovery underway and inflation low and stable, I believe the economy would be better served by beginning to normalize monetary policy. If long run stability is the goal, then re-

normalizing policy is an important step toward realizing that goal. How might we achieve this goal?

First, rather than expand the Federal Reserve's balance sheet by purchasing additional

U.S. Treasury securities, the Fed should consider discontinuing the policy of reinvesting principal payments from agency debt and mortgage-backed securities into Treasury securities. Given where we are, we would need to make such a change slowly but systematically. Allowing maturing mortgage backed securities to roll off, the Federal Reserve's balance sheet would shrink gradually, with relatively small consequences for financial markets.

Second, we should take the first early steps to normalize interest rate policy. This is not a call for high rates but a call for non-zero rates. In 2003 the FOMC delayed our efforts to raise rates. In that period we reduced the federal funds rate to 1 percent and committed to keeping it there for a considerable period. This policy fostered conditions that led to rapid credit growth, financial imbalances and the eventual financial collapse from which we are still recovering. Had we been more forceful in our action to renormalize policy then, it's likely we might have suffered far less in 2008 through 2010.

Also, any effort to renormalize policy would include signaling a clear intention to remove the commitment to maintain the federal funds rate at 0 to $\frac{1}{4}$ percent "for an extended period." As the public adjusts to this, we should then turn to determining the pace at which we return the funds rate to 1 percent. Once there, we should pause, assess and determine what additional adjustment might be warranted. A 1 percent federal funds rate is extremely accommodative, but from that point we could better judge the workings of the interbank and lending markets and determine the order of policy actions that would support sustained long-term growth.

Other Concerns Regarding Zero Rates

These are difficult times, no doubt, and it is tempting to think that zero interest rates can spark a quick recovery. However, we should not ignore the possible unintended consequences of such actions. Zero rates distort market functioning, including the interbank money and credit markets; zero rates lead to a search for yield and, ultimately, the mispricing of risk; zero rates subsidize borrowers at the expense of savers.

Finally, it is important to note, that business contacts continue to tell me that interest rates are not the pressing issue. Rather, they are

concerned with uncertainties around our tax structure; they are desperate to see this matter settled. They need time to work through the recent healthcare changes; and they are quite uncertain about how our unsustainable fiscal policy will be addressed. They are insistent that as these matters are addressed, they will once again invest and hire. QE2 cannot offset the fundamental factors that continue to impede our progress.

Conclusion

We are recovering from a set of shocks, and it will take time. These shocks did not develop overnight, but came after years of interest rates that were too low, leverage that was too high, and financial supervision that was too lax. If we have learned anything from this crisis, as well as past crises, it is that we must be careful not to repeat the policy patterns we have used in previous recoveries, such as 1990-91 and 2001. If we again leave rates too low for too long out of fear that the recovery is not strong enough, we are almost assured of suffering these same consequences yet again. I am fully committed to the Federal Reserve's dual mandate to maintain long-run growth so as to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates.

WHAT ABOUT ZERO?

THOMAS M. HOENIG, PRESIDENT, FEDERAL RESERVE BANK OF KANSAS
CITY
SANTA FE, NEW MEXICO
APRIL 7, 2010

Introduction

Good afternoon. I'm pleased to be in New Mexico today, and I extend my congratulations and best wishes to the city of Santa Fe on its 400th anniversary.

Last week, *The Wall Street Journal's* front page featured an article with a headline focused on the "epic comeback" of the corporate bond market. The article chronicled how a record \$31.5 billion in new high-yield, high-risk "junk" bonds came on the market last month and how investments in bond mutual funds last year were the highest on record. Thanks to the combination of near-zero short-term interest rates and the Federal Reserve's large-scale purchases of mortgage-backed securities, investors are flush with cash. And, as is sometimes the case, cash earning so little is an enticement to take on

additional risk in hopes of higher returns.

The bond market is not the only place where we are seeing the impact of cash-rich investors. Our contacts within the Tenth Federal Reserve District have shared anecdotal information suggesting that operators and investors in the Midwest are buying farmland and bidding up the price. We've seen this in the agricultural regions of our District in the past, notably in the run-up to the banking crisis of the 1980s.

Events such as these, along with new economic research now coming to light, are beginning to document a story about long-run risks that are created when money and credit are easy for too long, when interest rates are near zero, and when financial imbalances risk macroeconomic and financial instability.

As we all know, the last couple of years have been an extraordinary period in our nation's economic history. In response to the crisis, the Federal Reserve took unprecedented steps to drive down long-term interest rates and provide direct support to a fragile housing market. This was in addition to the steps taken by the administration and the Treasury. We will long study these events. Although we may disagree on the specifics of the actions taken during that period, most agree that without strong intervention, the outcome would have been dire.

But as the economy turns the corner and we move beyond the crisis, what about the challenges we now face, and what about policy actions over the next several quarters? The economy appears to be on the road to recovery, and we find ourselves having to face important questions of how the Federal Reserve will unwind the policy response to the crisis. In particular, what are the hazards of holding the federal funds rate target close to zero? The risks of raising rates too soon are clear and compelling. My comments, however, concern the risks of raising rates too late. Such risks also can be significant but all too often seem more distant and less compelling, and therefore hold great long-term danger for us all.

The Economic Outlook

As a preface to a discussion on the issues, I first should outline my expectation for the U.S. economy. Policy choices can be realistically considered only after first defining how we judge current conditions and our outlook for the future.

From my vantage point, the outlook is generally good. A number of indicators suggest the economy has begun to recover and is expanding at a steady pace since hitting bottom last summer. GDP

grew nearly 4 percent in the second half of last year, and growth of almost 3 percent is expected in the first quarter of this year. The pace of growth should modestly pick up over time, and looking ahead, I expect GDP growth of about 3 percent for 2010.

While labor markets remain weak, they seem to have stabilized. The pace of job losses gradually slowed over the course of 2009 and early 2010. In the first three months of the year, unemployment has remained essentially unchanged at 9.7 percent. Importantly though, Friday's report from the Labor Department showed the largest increase in non-farm payrolls in three years with more than 160,000 jobs added. Further, forward-looking indicators such as temporary help services, which has grown rapidly since the middle of last year, suggest broader job growth will continue. This is good news because such progress is essential for sustained growth. And like most, I am following it carefully. Unfortunately, it tends to lag the recovery and makes the implementation of policy always difficult to manage during the early stages of a recovery.

Consumer spending has been growing at a solid pace, and most forecasters put first quarter consumption growth at more than 3 percent. These are critical improvements because consumer spending, which has accounted for about 70 percent of GDP, will be a critical force strengthening the recovery. The manufacturing sector has followed the consumer and also has been expanding at a strong pace. Production has increased at an annual rate of about 8 percent since hitting bottom last summer. In turn, business spending on equipment and software appears to be picking up.

These are encouraging signs that the forces necessary for a sustained recovery seem to be moving into place and that this is not just a temporary boost from the fiscal stimulus package and sharp slowing in the pace of inventory liquidation.

Residential and non-residential construction continues to struggle, although to varying degrees. Residential construction spending has fallen sharply in the last few months after a strong uptick in the second half of last year, thanks in large part to the homebuyer tax credit. Looking ahead, spending should pick up considerably in response to the extended tax credit and then rise at a more moderate pace after the credit expires.

The picture is considerably bleaker for the non-residential sector. Private spending fell at an annualized rate of more than 25 percent in the last three months and is likely to fall further for most or all of this year. There has been an increase in vacancy rates for office, retail, and industrial space. Meanwhile, non-residential property values are

down. The soft market is due in part to problems with financing. With many banks facing the prospect of considerable losses in commercial real estate, lending remains weak.

Looking at the economy more broadly, inflation has drifted lower in recent months and is following the pattern common during and after a recession. While energy prices have kept consumer price inflation at around 2 percent, inflation in non-food and non-energy price – core inflation – stands at about 1 percent. In the absence of any current cost pressures from tight labor markets or other input prices, inflation will likely remain low for the next year or two.

Risks of a Commitment to Near-Zero Rates

With the economy gradually recovering from a severe recession, monetary policy is by any measure highly accommodative. The key challenge for the Federal Reserve's Federal Open Market Committee, is the question, "For how much longer should it remain so?"

The FOMC statement, issued after several meetings including the most recent, has said that "conditions will likely warrant keeping the fed funds rate, which is our key monetary policy tool, at exceptionally low levels for 'an extended period.'" The statement elaborates that this view is based on "economic conditions, including low rates of resource utilization, subdued inflation trends, and stable inflation expectations."

By itself, the current state of the economy warrants an accommodative monetary policy. However, as the economy continues to improve, risks emerge around the act of holding rates low for an extended period.

I have dissented at the last two FOMC meetings specifically because I believe the "extended period" language is no longer warranted and I am concerned about the buildup of financial imbalances creating long-run risks.

There is no question that low interest rates stimulate the interest-sensitive sectors of the economy and can, if held there too long, distort the allocation of resources in the economy. Artificially low interest rates tend to promote consumer spending over saving and, over time, systematically affect investment decisions and the relative cost and allocation of capital within the economy.

Today, as we look back over the past decade, there is a case to be made that too many resources were channeled into financial market activities and into real estate construction, both residential and non-residential. Some researchers have argued that keeping interest rates very low in 2002-2004 contributed to the housing boom and bust.

Exceptionally low rates, while perhaps not the single cause, played an important role in creating the conditions leading to our recent crisis.

We now find ourselves with a Federal Reserve System balance sheet that is more than twice its size of two years ago. The federal funds rate is near zero and the expectation, as signaled by the FOMC, is that rates will remain so for an extended period. And the market appears to interpret the extended period as at least six months. Such actions, moreover, have the effect of encouraging investors to place bets that rely on the continuance of exceptionally easy monetary policy. I have no doubt that many on Wall Street are looking at this as a rare opportunity.

These actions are not taken to enrich one group over another. They are taken with the well intended purpose of assuring a strong economic recovery and to create an environment of sustained job growth and strong business investment. I take no exception to this goal. However, the unintended negative consequences of such actions are real and severe if the monetary authority goes too long in creating such conditions.

Low rates, over time, systematically contribute to the buildup of financial imbalances by leading banks and investors to search for yield. *The Wall Street Journal* article tells a story about the market coming back that also makes my point. The search for yield involves investing in less-liquid assets and using short-term sources of funds to invest in long-term assets, which are necessarily riskier. Together, these forces lead banks and investors to take on additional risk, increase leverage, and in time bring in growing imbalances, perhaps a bubble and a financial collapse.

I make no pretense that I, or anyone, can reliably identify and “prick” an economic bubble in a timely fashion. However, I am confident that holding rates down at artificially low levels over extended periods encourages bubbles, because it encourages debt over equity and consumption over savings. While we may not know where the bubble will emerge, these conditions left unchanged will invite a credit boom and, inevitably, a bust.

What Next?

So, what options are available to policymakers?

I appreciate the inclination for staying the course that financial markets have come to expect: keeping the federal funds rate target near zero and maintaining a commitment to very low rates for an extended period of time. That view is motivated by concerns over an unemployment rate of nearly 10 percent and persuaded by the fact

that core inflation remains below 2 percent.

Continuing with current policy may also reflect confidence that the longer-term risks of financial imbalances are quite small and could be mitigated as they emerge. The Federal Reserve could correct imbalances through interest rate action or regulatory changes as the imbalances become apparent later.

However, in times of uncertainty policymakers tend to reassure themselves that an accommodative course of action can be reversed always in a timely fashion. Inevitably, though, the policy bias is to delay, to let accommodative conditions stand, and to reverse only when the economy is beyond recovery and into an expansion. The outcome too often is greater inflation, significant credit and market imbalances, and an eventual financial crisis.

An alternative policy option is to be more proactive, but cautious. This would require initiating a reversal of policy earlier in the recovery while the data are still mixed but generally positive. Small reversals in rates would leave policy highly accommodative and supportive of our economy's recovery but would put more weight on mitigating the risk of longer-run financial imbalances. It would end the borrowing subsidy more quickly and would moderate credit conditions in a more timely fashion. It would reduce the likelihood that inflationary pressures might build, or that financial imbalances might emerge. And over time it would contribute to greater macroeconomic stability.

Under this policy course, the FOMC would initiate sometime soon the process of raising the federal funds rate target toward 1 percent. I would view a move to 1 percent as simply a continuation of our strategy to remove measures that were originally implemented in response to the intensification of the financial crisis that erupted in the fall of 2008. In addition, a federal funds rate of 1 percent would still represent highly accommodative policy. From this point, further adjustments of the federal funds rate would depend on how economic and financial conditions develop.

Conclusion

As we look forward from here, I expect that all options will be considered and discussed fully as we navigate the course of monetary policy. As we consider our choices, I want to end my remarks by emphasizing that I am confident all of us want the best outcomes for the U.S. economy. The Federal Reserve understands its mission of stable prices and long-term, stable growth. Perhaps because I have been part of the history of the central bank for these past three

decades, I am as concerned about the introduction of instability into the economy as I am about managing it when it occurs. I am convinced that the time is right to put the market on notice that it must again manage its risk, be accountable for its actions, and cease its reliance on assurances that the Federal Reserve, not they, will manage the risks they must deal with in a market economy.

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*H*EARING X.

**FEDERAL RESERVE LENDING DISCLOSURE: FOIA,
DODD-FRANK, AND THE DATA DUMP**

WEDNESDAY, JUNE 1, 2011

WITNESSES

Alvarez, Scott G., General Counsel, Board of Governors of the
Federal Reserve System

Baxter, Thomas C. Jr., General Counsel, Federal Reserve Bank of
New York

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Federal Reserve Lending Disclosure: FOIA, Dodd-Frank, and the Data Dump” at 2:00 p.m. on Wednesday, June 1, 2011 in Room 2128 of the Rayburn House Office Building.

The hearing examined information disclosed by the Federal Reserve in compliance with the Dodd-Frank Wall Street Reform and Consumer Protection Act (P.L. 111-203) and the Freedom of Information Act (FOIA). Witnesses discussed information released by the Federal Reserve in December 2010 regarding emergency lending facilities and open market operations; documents released in March 2011 on discount window lending during the financial crisis; and the Federal Reserve’s compliance going forward with provisions of the Dodd–Frank Act requiring the Federal Reserve to disclose additional information.

This was a one-panel hearing. The witnesses were:

- Scott Alvarez, General Counsel, Board of Governors of the Federal Reserve System
- Thomas C. Baxter, Jr., General Counsel, Federal Reserve Bank of New York.

Fed Operations

The Federal Reserve System was established in 1913 as the central banking system of the United States. The Federal Reserve Board (the Board) formulates the monetary policy of the nation, supervises and regulates banks, and provides financial services to depository financial institutions and the federal government. In addition, the Federal Reserve serves as a lender of last resort through the operation of the discount window.

The discount window provides financial institutions with an outlet to exchange illiquid assets for liquid assets on a short-term basis to meet immediate obligations. Loans are secured by collateral, and the rate available through the discount window is typically higher than the federal funds rate (the overnight rate at which banks normally loan to each other), which discourages banks from relying on the discount window under normal circumstances. The Federal Reserve Board also has emergency lending authorities, set forth in Section 13(3) of the Federal Reserve Act. To invoke these emergency powers, the Board must make a finding of “unusual and exigent circumstances,” such as an institution’s inability to obtain credit from other banking institutions, and the Board must support the step through a vote. The Dodd-Frank Act added restrictions to the use of the “13(3)” authorities, so that they can no longer be used for the benefit of individual business entities.

Emergency Lending Facilities

The Federal Reserve Board used its emergency lending authority extensively and creatively during the financial crisis, creating a number of temporary lending programs to address perceived financial market liquidity shortages. As market conditions deteriorated and numerous companies experienced funding problems, the Board created lending facilities on an ad hoc basis, initially creating facilities to support individual entities and gradually creating larger facilities to provide market-wide assistance. Facilities were created by the Board and operated by the regional banks to provide liquidity to institutions and to stimulate the market for assets which had become illiquid. By the beginning of 2010, the Federal Reserve Board had injected large amounts of liquidity into the marketplace, expanding its balance sheet from roughly \$870 billion in August of 2007 to over \$2.2 trillion by the beginning of 2010. The Board also created several emergency facilities to address disruptions in financial markets, including the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF), the Term-Asset Backed Loan Facility (TALF), the Primary Dealer Credit Facility (PDCF), the Commercial Paper Funding Facility (CPFF), the Term Securities Lending Facility (TSLF), the TSLF Options Program (TOP), and the Term Auction Facility (TAF). The Board created dollar liquidity swaps with foreign central banks, assisted JP Morgan Chase in acquiring Bear Stearns by creating the Maiden Lane facility, and provided assistance to the American International Group (AIG) through the creation of Maiden Lane II and III.

The TAF and the CPFF were the most heavily used facilities. The TAF was the largest single temporary credit facility. The Board was concerned that firms appeared to be avoiding the discount window, perhaps fearing borrowing from the discount window would stigmatize them as weak institutions. To counteract widespread liquidity shortages, the Board created a facility that offered liquidity in the form of short-term (28-day maturity), fully collateralized loans.

The CPFF was created by the Board to provide a liquidity backstop to U.S. issuers of commercial paper. Many large firms issue commercial paper, which is short-term debt purchased by investors. Money market mutual funds (MMMFs) invest heavily in commercial paper. In September 2008, as market fears spread and a major MMMF (the Reserve Primary Fund) announced it had “broken the buck,” investors fled MMMFs, choking off a key source of short-term funding for the corporate sector. The Board created the CPFF in response. As part of this program, the Federal Reserve Bank of New York financed the purchase of highly rated unsecured and asset-backed commercial paper from eligible issuers. The CPFF closed in February 2010.

During the crisis, the Board provided only limited information about its lending decisions undertaken under these various emergency facilities. Information about lending facilities was limited to what could be discerned from statements on the Board’s weekly H.4.1 (Factors Affecting Reserve Balances) data release. Congressional interest in conducting thorough oversight of the Board’s intervention into the economy clashed with the Board’s desire to maintain its independence from political control and to protect borrowers’ expectations of confidentiality. The media also sought information about the Board’s lending facilities, arguing that the public had a right to know who had borrowed from these lending facilities because taxpayers were the ultimate backstop if the borrowers defaulted or if collateral proved insufficient.

Freedom of Information Requests

In 2008, Bloomberg News and the Fox News Network each sought information from the Federal Reserve under FOIA about the users of the Board’s temporary and emergency lending programs. Bloomberg requested information about users of three emergency lending facilities – the Primary Dealer Credit Facility, the Term Securities Lending Facility and the Term Auction Facility – and information about users of the discount window during the crisis. Bloomberg’s FOIA request sought information on each loan, including the name of

the borrower, the amount borrowed, the origination and maturity dates and the collateral pledged. Bloomberg also requested details on loans made by the Federal Reserve Bank of New York to J.P. Morgan Chase to facilitate the acquisition of Bear Stearns. Fox News' FOIA request sought information on the borrowers, loan amounts, and collateral pledged for all of the Board's temporary and emergency lending programs.

The Board refused to provide the information, arguing that the information was exempt from disclosure under exceptions contained within FOIA. Bloomberg and Fox sued to obtain the information, and in March 2010, the United States Court of Appeals for the Second Circuit held that the information was subject to FOIA and directed the Board to search the Federal Reserve System's records for responsive information to the FOIA requests and to disclose it. In response to the Second Circuit's order, the Board released internal documents to the news organizations on March 11, 2011, covering all the lending facilities, including the discount window, from August 2007 to March 2010. The Fed delivered an estimated 29,000 documents with redactions. The documents were not organized or delivered in any particular order.³¹⁵

Statutorily Required Disclosures

By statute, Congress also directed the Board to release additional information on the emergency lending facilities. Section 1109(c) of the Dodd-Frank Act required the Board to disclose detailed information about entities that borrowed from credit facilities established under Section 13(3) and about entities that participated in the agency mortgage-backed securities purchase program, used foreign currency liquidity swap lines, or borrowed through the TAF. The Dodd-Frank Act required the Board to disclose the type of assistance, the value or amount of the assistance, the date on which it was provided, the specific terms of expected repayment, including repayment time, interest charges, collateral, limitations on executive compensation or dividends and other terms, and the rationale for each such facility or program.

As required by Section 1109(c), the Board released information on December 1, 2010, regarding transactions made through emergency

³¹⁵ The Board delivered 894 PDF files on CD-ROM to Bloomberg headquarters. Bloomberg uploaded the files onto the Internet in the same format that the Board delivered them to Bloomberg, available at: http://cdn.gottraffic.net/downloads/30110331_fed_release_documents.zip. Last accessed on December 11, 2012.

lending facilities from December 1, 2007, until March 2010. The documents were made available on the Board's website by means of a spreadsheet that listed each transaction, the name of the borrower, the date, the lending bank, the loan amount, the interest rate, the amount and type of collateral.³¹⁶

Additional Federal Reserve Board Disclosures

Section 1109(a) of the Dodd-Frank Act required the Government Accountability Office (GAO) to review all loans and other Federal Reserve transactions between December 1, 2007, and July 21, 2010, that were effected under lending facilities and programs developed by the Federal Reserve during the financial crisis. The GAO's review focused on operational integrity, internal controls, collateral policy, favoritism and other factors.

Section 1102(a) gave the GAO the authority to audit any special credit facility created pursuant to Section 13(3) of the Federal Reserve Act. Activities related to the Federal Reserve's conduct of monetary policy remain beyond the GAO's audit authority.

Section 1103(b) requires disclosure of information about entities that use the discount window or section 13(3) lending facilities. The Board will be required to disclose information about borrowers from the discount window two years after the loan is made. The Board will be required to disclose information about borrowers from other lending facilities one year after authorization for the facility is terminated.

These sections are a modified and significantly more limited version of language originally introduced by Subcommittee Chairman Ron Paul in H.R. 1207 during the 111th Congress, which influenced discussions on increasing transparency of the Federal Reserve during the crisis.

³¹⁶ The Board published the data required by Dodd-Frank on its website at http://federalreserve.gov/newsevents/reform_transaction.htm. Last accessed on December 11, 2012. The credit facilities are listed as separate hyperlinks under the heading "Facilities and Programs," with each facility webpage containing an Excel data file link.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 3:40 p.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Luetkemeyer, Schweikert; Clay, Maloney, and Green.

Ex officio present: Representative Bachus.

Chairman PAUL. This hearing will come to order.

I would like to advise the members that the microphones we have improvised will be live all the time. So be careful what you say; the microphone is on. I imagine that is true down there, as well.

First, I want to welcome our two witnesses, and I will introduce them a little bit later. But, once again, I apologize to everybody for the inconvenience. I apologize to myself, because nobody likes to be inconvenienced. But it looks like we have a system set up here so that we can pursue our hearing.

And, without objection, all members' opening statements will be made a part of the record.

I will go ahead with an opening statement, and I will have time for anybody else who wants to have an opening statement.

I want to emphasize that I consider these hearings to be very, very important. They have come about because of many things that have happened over the last few years, and a lot of movement in the country for more transparency, in general, as well as with the Federal Reserve System. And I think my position on this is fairly well-known.

But, also, there has been legislation passed. The Dodd-Frank bill has stipulations about more information coming to us. That legislation passed last year. There have also been the court cases that are under the Freedom of Information Act. We will be dealing with a lot of that today. And, also, the provisions in the law that was language that was put in by, basically, Senator Sanders, that has required some additional information.

But, what is referred to today so often in hearings on the materials that came out of the Freedom of Information Act, it is called “the dump.” And I find that rather interesting, to call it that, because it sounds like a lot of material was dumped. And when you think of 29,000 pages of technical information, it is very large, and a lot of people have been studying it. Our staffs have been working very hard, and, quite frankly, it isn’t all that easy to figure out.

It reminds me of a story that was told, supposedly a true story, that an individual was being audited by the Federal Reserve. And they came to him, and they said, “We want 5 years of everything that you have ever done, every receipt you have ever had.” And, of course, that made him very unhappy, so he put them all together in a bushel basket and he dumped them. And I will tell you what, it didn’t go over very well, and he got into a lot of trouble. I am not suggesting this is similar, but it is a story that reminds me, when I look and try to figure out really what we have, it is a lot of material, and to sort this out is not easy.

One argument, and I understand the argument very clearly, on the hesitancy of the Federal Reserve not to give out too much information too early, with the idea that it might be proprietary and it might set the stage for concerns in the market.

But, I think it is in contrast to the purpose of the SEC. The SEC has a purpose to investigate, demand reports, and get the information out immediately, and that is their responsibility. And if a company doesn’t let us know exactly what they are doing and what their accounting procedures are, they get into a lot of difficulty. But the argument seems to be different for the Federal Reserve, that, oh, if we have information about a bank that might be in difficulty, in a market situation, that information should be available to us. So I take the position that information shouldn’t be that detrimental to us and the more we can get, the better.

I am hopeful that today we will be able to ask some pertinent questions to get more information and that members can follow up with more questions later on, and that there will be more transparency without ever injuring anybody. That certainly would be my goal.

I would now like to yield 5 minutes to Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman. And thank you so much for holding this hearing to examine information disclosed by the Federal Reserve in compliance with the Dodd-Frank Wall Street Reform and Consumer Protection Act and the Freedom of Information Act.

Also, I want to thank the witnesses for appearing today.

Due to the U.S. financial crisis, the Congress passed the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. This legislation was crafted as a response to the financial crisis, which has cost nearly 10 million American jobs and over \$10 trillion in household wealth. Nearly 4 million families have lost their homes to foreclosure and an additional 4.5 million have slipped into the foreclosure process or are seriously behind on their mortgage payment.

According to the Financial Crisis Inquiry Report, a combination of excessive borrowing, risky investments, and a lack of transparency put the financial system on a collision course of self-destruction. In the years leading up to the crisis, too many financial institutions, as well as too many households, borrowed too much, leaving them vulnerable to financial distress if the value of their investments declined even modestly.

For example, as of 2007, the 5 major investment banks were operating with extraordinarily thin capital. By one measure, their leverage ratios were as high as 40:1, meaning for every \$40 in assets, there was only \$1 in capital to cover losses. Less than a 3 percent drop in asset value could wipe out a company.

Leverage was often hidden in off-balance-sheet entities, in derivatives positions, and through “window dressing” of financial reports available to the investing public. Within the financial system, the danger of this debt was increased because transparency was not required or desired. Undercover corporate dealings assisted in the financial meltdown which still plagues us today.

In order for democracy and capitalism to exist correctly, transparency must be at the core. Trust and transparency and the rule of law are fundamental to this Nation's success. And business depends in some way on trust—a trust that business produces good products and a trust that business will deliver good services. Democracy depends in some way on trust. Transparency promotes government accountability, free and fair elections, competition and free markets; and the rules of law are critical to it.

The Dodd-Frank Wall Street Reform and Consumer Protection Act addresses these issues by reforming the Federal Reserve in two ways:

One, it limits the Federal Reserve's 13(3) emergency lending authority by prohibiting emergency lending to an individual entity. The Secretary of the Treasury must approve any lending program, and the program must be broad-based and loans cannot be made to

insolvent firms. Collateral must be sufficient to protect taxpayers from losses.

And two, it requires the Federal Reserve to disclose counterparties and information about amounts, terms, and conditions of 13(3) and discount window lending, and open-market transactions on an ongoing basis, with specified time delays.

These are just a few examples of the importance of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Thank you, Mr. Chairman. I look forward to the witnesses' comments.

Chairman PAUL. I thank the gentleman.

Mr. Luetkemeyer, you are recognized for an opening statement.

Okay. There are no more opening statements, so I will go ahead and introduce our witnesses.

First, we have Mr. Scott Alvarez, who is General Counsel at the Board of Governors, a post he has held since 2004. He has been with the Board for 30 years. And, also, Mr. Thomas Baxter, Jr., has been General Counsel and Executive Vice President of the legal group at the Federal Reserve Bank of New York since 1995. He also serves as Deputy General Counsel of the FOMC. Mr. Baxter has been with the New York Fed for more than 30 years.

It has been agreed upon by the witnesses, Ranking Member Clay, and myself that Mr. Alvarez will deliver the oral remarks for the joint written testimony of Mr. Alvarez and Mr. Baxter. This testimony may run longer than the customary 5 minutes. And without objection, your joint written statement will be made a part of the record.

I now yield to Mr. Alvarez.

JOINT STATEMENT OF³¹⁷

**SCOTT G. ALVAREZ, GENERAL COUNSEL,
BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM
AND THOMAS C. BAXTER, JR., GENERAL COUNSEL
FEDERAL RESERVE BANK OF NEW YORK**

Mr. ALVAREZ. Chairman Paul, Ranking Member Clay, members of the subcommittee, Thomas Baxter, the General Counsel of the Federal Reserve Bank of New York, and I appreciate the opportunity to discuss the ways the Federal Reserve informs the Congress and the American people about its policies and actions.

Central bank lending facilitates the implementation of monetary policy and allows the central bank to address short-term liquidity pressures in the banking system. This role of lender of last resort is a

³¹⁷ [The joint prepared statement of Mr. Alvarez and Mr. Baxter can be found on page 1194.]

critical one, long filled by central banks around the world, especially during times of economic crisis, when discount window lending can mitigate strains in financial markets that could otherwise escalate and lead to sharp declines in output and employment. In the United States, all discount window loans are fully secured, and the Federal Reserve has not suffered a loss to date on its discount window lending.

The Federal Reserve regularly releases significant detailed information about its operations in order to promote the understanding of how the Federal Reserve fosters financial stability and economic stability and to facilitate an evaluation of our actions while preserving the ability to effectively fulfill the responsibilities that Congress has given the Federal Reserve. Since 1914, the Federal Reserve has published its balance sheet every week.

We also publish full financial statements annually that are audited by an independent public accounting firm, which for the last 4 years has been Deloitte & Touche. These audits cover Maiden Lane, Maiden Lane II, and Maiden Lane III, as well as the transactions conducted through the discount window and with foreign central banks.

The Federal Reserve also publishes a special monthly report to Congress, posted on our Web site, that details the Federal Reserve's emergency lending programs, including providing information on the amount of lending under each program, the type and level of collateral associated with those loans, and information about the borrowers under those facilities.

In addition, the Federal Reserve Bank of New York maintains a Web site that includes schedules of purchases and sales of securities as part of open-market operations, with CUSIP information describing the securities involved.

The Federal Reserve is fully cooperating with the GAO in an extensive review of each of the special lending facilities developed during the crisis. This review will assess operational integrity, internal controls, security and collateral policies, policies governing third-party contractors, and the existence of any conflicts of interest or inappropriate favoritism in the establishment or operation of the facilities.

As provided by the Dodd-Frank Act, on December 1, 2010, the Board published detailed information on its Web site about the Federal Reserve's actions during the financial crisis. This release includes the names of borrowers, the amount borrowed, the date

credit was extended, the interest rate charged, information about collateral, and the description of the credit terms under each facility.

Similar information was provided for the draws of foreign central banks on their dollar liquidity swap lines with the Federal Reserve. For agency MBS transactions, details included the name of the counterparty, the security purchased or sold, and the date, amount, and price of the transaction.

On March 31, 2011, the Federal Reserve released documents related to the discount window in response to requests filed under the Freedom of Information Act. The March 31st release included documents containing information related to borrowers at the discount window between August 8, 2007, and March 1, 2010, that was not required to be disclosed under the Dodd-Frank Act.

Going forward, the Dodd-Frank Act provides for the release of information on any broad-based emergency lending facility 1 year after the termination of the facility, as well as a GAO audit of the facility. The Act also provides for the release of information regarding discount window lending and open-market operations conducted after July 21, 2010, with a 2-year lag.

For lending facilities, including both emergency lending facilities and the discount window, and for open-market operations, the Federal Reserve will publish information disclosing the identity of the borrower or counterparty, transaction amount, interest rate or discount paid, and the collateral pledged.

The Federal Reserve believes the lags provided by the Dodd-Frank Act for the release of transaction-level information establish an important balance between the public's interest in information about participants in transactions with the Federal Reserve and the need to ensure that the system can effectively use its congressionally authorized power to maintain the stability of the financial system and implement monetary policy.

We will carefully monitor developments in the use of the discount window and other Federal Reserve facilities and keep the Congress informed about their effectiveness. The Federal Reserve has worked and will continue to work with the Congress to ensure that our operations promote the highest standards of accountability, stewardship, and policy effectiveness, consistent with meeting our statutory responsibilities.

We appreciate the opportunity to describe the Federal Reserve's efforts on this important subject and are happy to answer any questions you may have. And we will be responsive to any written questions you may submit, as well.

Thank you very much, Mr. Chairman.
Chairman PAUL. I thank the gentleman.

[QUESTIONS & ANSWERS]

I will yield myself 5 minutes, but announce that we will likely be able to have repeat questioning. I think the time will permit that. But I will start off with 5 minutes.

I first want to ask unanimous consent to submit an article for the record from Bloomberg called, “Fed Gave Banks Crisis Gains on \$80 Billion Secretive Loans as Low as 0.01%.” Without objection, it is so ordered.³¹⁸

I want to refer to one document. And this little document from the material that we got from the Federal Reserve is called a “Chart Pack of Market Monitoring Metrics for Fed Facilities.” I am sure you know all 29,000 pages, and you probably know exactly what I am talking about, but it tells you about the problem that we have in trying to find out information.

And this particular document has 327 pages to it, but, in this particular document, it has some interesting material that I did not know about, and I want to ask about it. It reveals that there was a previously undisclosed Fed lending program known as the single-tranche open-market operations, and it is referred to as “ST OMO.” This is something new, and it allows the Fed to give .01 percent—that is, free money—to companies like Goldman Sachs and was essentially a free loan to these well-connected businesses.

But, also, the problem that we had in analyzing this to find out information that we are looking for is, it turns out that, just in this particular area, 81 percent of the contents has been redacted. So, we end up with a lot of pages, and then we end up with 19 percent that actually has information that we have to sort out.

The question is, why were these details not mentioned? Is it that everything has to be done in secret? We would like to know, the people would like to know, but we didn't see any evidence until this was dug out of here. And maybe it was mistakenly not redacted or something like that. It makes us wonder why we don't know about this.

That, of course, is one of my big beefs with the Federal Reserve, that the central bank wields so much power, so much financial power, you literally can have transactions greater than what we can do with

³¹⁸ [The article Rep. Paul placed in the hearing record can be found in Appendix D.]

our own budget. And that is why it is a deep concern to me, but to many other people as well.

But why was this not published? And are these and other programs that have yet to be disclosed—are there others? Why were so many pages redacted? Can you really claim this to be in compliance with FOIA, the Freedom of Information Act, when we don't know what has been excluded?

I would like to get your reaction to this and for you to talk specifically about this one program and what has been going on with it.

Mr. ALVAREZ. Mr. Chairman, the program you refer to, the single-tranche OMO program, was not a secret program. It was actually publicly announced by the Federal Reserve on March 7, 2008, when the program began. It was a short-term program that ended in January of 2009. And transactions that were conducted under that program as part of our open-market operations were reported, along with other open-market operations, on the New York Federal Reserve Bank Web site very quickly after the transactions occurred.

The documents you have before you are from the response for the Freedom of Information Act request. And so that, itself, should explain why there are redactions. The way the Freedom of Information Act works, it is a request for certain types of information in documents. First, the agency collects all documents that may have any information that relates to the request. Then, information that is not requested is taken out of the documents, redacted from the documents, simply because it is not responsive to the request.

So, it is not a desire to keep things secret. It is, instead, a desire to be responsive to the request. Often, when a requester asks for documents, there is information that is extraneous or not the kind of information that was requested, not relevant to the request, and that is taken out of the documentation. And that is why you see redaction in the documents before you.

These documents were reviewed by the court and released by the court in accordance with the Freedom of Information Act.

Chairman PAUL. Does that mean, if somebody were to follow up and broaden that request, all that material could become available? Would they have to just change the Freedom of Information Act request?

Mr. ALVAREZ. If another request was made for a broader range of information, we would review that information, determine what is confidential and what could be released, and a decision then would be made on that request.

Chairman PAUL. Could it be made so broad that you just turn over everything?

Mr. ALVAREZ. I am not sure there are enough people in the world to look at everything we have to turn over, but we would do the best we could.

Chairman PAUL. Okay.

My 5 minutes is up, and I now yield to Mr. Clay.

Mr. CLAY. Thank you, Mr. Chairman.

And thank you, Mr. Alvarez.

Just one question. Has the dramatic and, I believe, welcome increase in transparency, including your own initiatives and those called for in the Wall Street Reform Act of 2010, had any adverse or troubling consequences either for policymaking at the Fed or for the financial institutions that you regulate and interact with?

Mr. ALVAREZ. We think the increases in transparency, particularly around monetary policy, that we have taken in the last few years have been very helpful and responsive and have improved understanding of the Federal Reserve and the policy actions we are trying to take.

We have provided a lot of detailed information about the credit transactions we engaged in during the crisis. Congress, we think, struck a very important balance between the need for access to that information and providing a delay so that participants in the transaction don't experience the stigma that often occurs when there is an immediate release of information, allowing, therefore, an explanation for why institutions have participated in the facilities.

We are monitoring whether there will be any effect. We, of course, won't know until we see how these facilities operate in the future. We will keep the Congress informed on the effectiveness. If there is any bad effect, we will let you know.

Mr. CLAY. So you will inform the Congress as to if there needs to be changes in the—

Mr. ALVAREZ. Absolutely.

Mr. CLAY. Okay. Thank you for your response.

And, at this time, Mr. Chairman, I would like to yield the balance of my time to the gentlewoman from New York.

Mrs. MALONEY. I thank the gentleman for yielding, and I thank the chairman for holding this important hearing.

And I welcome both of our witnesses.

And I think we all have to remember that we were really on the verge of collapse, that this was a—we had the great recession instead

of a great depression because of the monetary policy and many of the steps that we took.

One of those steps that we have taken to stabilize our markets and move forward is the Dodd-Frank bill. And, in that, we required the GAO to conduct an audit of the Federal Reserve, and we also required the Fed to make information about the transactions through emergency lending facilities from December 2008 to March 2010 available to the public. In addition, Dodd-Frank required that the Fed disclose information about the entities that used the discount window or under I believe it was section 13(3) lending facilities.

But in addition to what we required in Dodd-Frank, the Federal Reserve is also already subject to robust congressional oversight. And I would like to ask our two witnesses, can you give the committee some examples of the types of congressional oversight that you are already required to do, even before Dodd-Frank?

Mr. ALVAREZ. Two of the most important types of oversight are: The Chairman of the Federal Reserve, who is also the Chairman of the FOMC, provides testimony on the economy twice each year, on the call of the House and the Senate. And that is an important check on monetary policy and the state of the economy.

Another important method is this hearing and hearings like this that we are going through. The staff and the Governors and the Chairman of the Federal Reserve, and the Presidents of the Reserve Bank have often been called to Congress to report on every aspect of our duties and how we implement various policies. And you use those as oversight of us, and we explain positions that we have taken.

So, I think it is the interaction between the Congress and the Federal Reserve in testimonies, in particular, that have been an effective form of oversight.

Mrs. MALONEY. Okay. My time is about to expire, but, as you know, there is a GAO audit authority now. Was there anything that is excluded from the GAO audit authority?

Mr. ALVAREZ. The GAO is authorized to audit a full range of the Federal Reserve's responsibilities. That includes all of the emergency transactions, the discount window, our supervisory authority, our consumer authority, all the various aspects of authority.

An area that Congress has reserved is the implementation of monetary policy, the actual policymaking decision process. The GAO does look at how we implement the policy, in the form of making sure that transactions actually occur as appropriate, that they are accounted for properly on the balance sheet, that they are fully

disclosed. But the decision-making process for monetary policy is the one thing outside the GAO's scope of authority.

Mrs. MALONEY. Mr. Chairman, may I follow up with one brief question on what are the arguments for excluding it? Why was that excluded? What is the argument for it?

Mr. Alvarez?

Mr. ALVAREZ. The importance of allowing the Federal Reserve and the FOMC to conduct monetary policy independently has been demonstrated throughout the world in both actions by other central banks and in a variety of studies of monetary policy.

The point, I think, is that the Congress wanted to reserve to the FOMC the ability to have discussions that are full and free and frank and to explore all the possible alternatives for monetary policy to reach the best monetary policy decision.

Moreover, the GAO doesn't do audits in the sense of a technical audit like a financial auditor might do, but does performance reviews and policy reviews. So that would mean that the GAO would review the alternatives considered for monetary policy, how the decisions were made, whether the decisions were actually appropriate. That would cause second-guessing of the FOMC, cast into doubt whether the FOMC was actually making the policy decisions or whether the GAO was making policy decisions in monetary policy, and make it more difficult for the monetary policy to be done effectively by the Federal Reserve.

Mrs. MALONEY. Thank you.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now yield 5 minutes to the vice chairman, Mr. Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you very much. And I appreciate you holding these hearings, as others have said.

I am going to take a little different approach. I represent the Third District of eastern North Carolina. It is a great district to represent, the home to the Camp Lejeune Marine Base, Cherry Point Marine Air Station, and the Outer Banks.

The frustration of the average businessperson down in my district is very deep and severe. And we have had numerous inquiries from the Third District, the citizens of the Third District, about the Federal Reserve and how decisions are made.

I know you cannot go into some of the backroom negotiations at the Reserve; I am not even asking that. But how do you say to the small-business owner that, in this crisis situation, we seem to find

ways to help foreign banks, foreign entities? And I am looking here at the note that my staff prepared for me—Harley-Davidson, McDonald's, GE, Verizon, Toyota. And yet, I have people in my district saying, "I go to the local banks, and I can't get any loans, and my credit has always been good."

Why and how does the Federal Reserve seem to be able to find the way to help these entities that are gigantic? And through greed and manipulation, they cheated, and, yet, they get bailed out. They get the help, when the average businessperson down in eastern North Carolina and probably across America, they can't even go to a bank that they have been banking with for 15 or 20 years and get a loan. And yet, here we are at the Federal Reserve, looking at those foreign banks who might need some help or these corporations that might need some help.

It really is—that is why this hearing is very important. The transparency, the trust—and that is a big word to me, "trust"—is just not there with the average system, when it comes to the Federal Reserve. And yet, if it had not been for the push by—I won't name all the entities that pushed—to tell you to show the bottom line, to show what was in the closet of decisions, who was being helped, we never would have known it.

And yet, I know you gentlemen are attorneys, and you are probably not at the position where the person ought to be here who ought to be putting a hand on the Bible to tell the truth to the American people.

That is my concern, is, how do we build the confidence of the American people when we see what is happening at the Federal Reserve?

Mr. ALVAREZ. Congressman, we understand that and feel that same frustration.

The programs that were designed and implemented by the Federal Reserve during the financial crisis were not designed to aid big companies for the sake of aiding big companies. The programs that we designed—for example, the TALF program—were designed to pass money and credit and liquidity on to the American people. So, for example, the TALF resulted in 3 million more auto loans during the crisis than would have occurred, a million more student loans, and almost a million small-business loans.

The programs you are talking about that aided Harley-Davidson and Toyota and other companies were the commercial paper facility, which provided short-term funding to those companies so they could continue to keep employment up and manufacturing up in the United

States, so that they could continue to provide jobs and provide opportunities in the United States.

Our efforts were all designed to try to keep the economy moving in order to help individuals and small businesses, not for the sake of helping the larger institutions.

And I understand that there is a different perception. Part of that perception, I think, comes from the fact that most of the financial tools that we were given are designed to work through banks or work through large markets. So we use the tools the best we can in order to have the funding aid the broadest range of people possible.

Mr. JONES. Mr. Chairman, I know my time is about up. But I guess, in a way, that if it had not been for Bloomberg and the Wall Street Journal and all of these raising the questions, doing investigation, I don't know if we would be having this hearing today. I don't know.

Chairman PAUL. I thank the gentleman.

I yield 5 minutes to Mrs. Maloney from New York.

Mrs. MALONEY. I thank the chairman for yielding.

And, as he is well aware, on Friday the jobs numbers come out. And the economy has been improving, not as fast as we would all like, but we are digging our way out of that hole.

And now that we have the benefit of hindsight and we are slowly recovering from the financial crisis of 2008, I know that some have taken the position—a position that I do not agree with—that the Fed's lending during this time actually helped contribute to the crisis. And some have argued that the Fed didn't need to take the actions that it took because the situation would have stabilized on its own.

But I would like to ask our panelists today, isn't it true that, without the actions that the Fed took, that by not setting up the facilities it did, by not giving institutions access to the discount window to provide additional liquidity to our economy, that the crisis would have been far worse?

So your comments, please, Mr. Alvarez and Mr. Baxter?

Mr. ALVAREZ. Thank you, Congresswoman.

We believe that the facilities that the Federal Reserve established did ease the crisis, and they certainly were designed to do that. The studies that are beginning to come forward now show that they actually were successful in unfreezing various markets—the commercial paper market, the asset-backed securities market—and providing liquidity to the financial system that was important for the financial system to continue to operate.

The funding that we provided was without any losses to the taxpayer. Indeed, the emergency lending facilities resulted in \$9 billion worth of interest and fees that were passed on to the Treasury.

As I was explaining to Congressman Jones, the facilities were designed to provide real relief to American consumers and small businesses in the form of student loans, auto loans, small-business loans, credit card loans, as well as allowing the operation of companies that relied on the commercial paper market, which had frozen up, to continue to find a source of funding to keep their operations going.

So, we think that the facilities were successful and were a good use of taxpayer funds.

Mrs. MALONEY. I would say that there is an impression—I hear it, and I think other Members of Congress hear it—that is out there, that all of the actions the Fed took during the crisis served only to help financial institutions. But I want to make clear the point that, and I want to make sure that people understand, that all of these actions were in the form of loans, and, in fact, over \$125 billion has been returned to the Treasury over and above what was loaned out.

That is what I read. I want to know if that is true. Is that true?

Mr. ALVAREZ. We have, in the last 2 years, provided about \$127 billion in earnings to the Treasury. Yes, that is correct.

Mrs. MALONEY. But can you bring this down to Main Street? Can you give the committee members and the general public some examples of how that lending helped not only stabilize the economy and keep our financial institutions in place, but literally helped Main Street and working men and women?

Mr. ALVAREZ. I would like to return to the TALF program, which was one specifically designed to make sure that loans were made in the United States to help students obtain education loans for college, to help small businesses have SBA loans, credit card loans, to provide auto lending, to provide equipment leasing, and a variety of other kinds of loans that were not being made during the financial crisis because of liquidity shortages.

That program was extraordinarily successful—

Mrs. MALONEY. Is it still operating?

Mr. ALVAREZ. It is. It has closed, but there are still about \$14 billion in loans outstanding. There were \$70 billion of credits extended through the program through its life. Much of it has been repaid.

Mrs. MALONEY. I would like to ask about a number of programs that the Fed engages in, including holding gold for foreign countries,

account services, and liquidity programs. In your experience, are these common activities for central banks?

Mr. BAXTER. Yes, Congresswoman, they are common for central banks. It is common for central banks around the world to hold reserves, and, as you know, the dollar is the principal reserve currency. At the Federal Reserve in New York, we hold over \$3 trillion on behalf of foreign central banks and countries.

It is very important to hold those sizable reserves because those sizable reserves are principally invested in Treasury securities, which helps to finance the debt of the United States. So, holding dollar reserves is a very important function of the Federal Reserve, and we do that at the New York Fed. And it is similar to functions that other foreign central banks perform around the world.

Mrs. MALONEY. My time has expired. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I yield 5 minutes to Mr. Green from Texas.

Mr. GREEN. Thank you, Mr. Chairman.

I thank the witnesses for appearing, as well.

I am interested in the central banks of other countries as compared to our country and this disclosure that they engage in compared to our country. I know that the systems are not going to be the same, but with reference to disclosure, can you give us some indication so that we can have some sort of comparison?

Mr. ALVAREZ. The practices of disclosure vary quite a bit across the world, but I believe the Federal Reserve is one of the, if not the, most transparent central banks.

Many central banks in developed countries do not, for example, announce their policy decision or the votes that are taken. The Federal Reserve does both of those. Many central banks do not provide minutes for their meetings. The Federal Reserve provides minutes 3 weeks after each meeting. Many foreign central banks do not publish at all the transcripts of their meetings, and the Federal Reserve publishes the transcript 5 years after each meeting.

On the discount window lending, that is a common power that foreign central banks have, but they are much less transparent in that area, as well. Indeed, you may recall that, at the start of the crisis, it was a leak about a discount window loan made by the Bank of England to Northern Rock that resulted in a run on Northern Rock there. So, the foreign countries tend to be more circumspect about the information they disclose about their discount window lending operation.

Mr. GREEN. Yes, sir?

Mr. BAXTER. With respect to the incident that Mr. Alvarez described, the British Parliament has written a report, which is entitled, "The Run on the Rock," and it has a section that describes how that run began. And that was triggered by public reports about a borrowing by Northern Rock at the Bank of England. With the permission of the Chair, we could submit that report for the benefit of the subcommittee.

Mr. GREEN. Thank you.

One other quick question, Mr. Chairman, if I may.

I know that you probably have gone through this, but explain to those who are viewing why it is important to have disclosure and why you try to achieve this balance that you have with reference to disclosure. For example, why not just have a CPA come in or someone come in and just audit everything all the time every day? What is the downside?

Mr. ALVAREZ. We do have a CPA come in—Deloitte & Touche, currently—to do an audit of our financial statements, including all of our transactions, our discount window lending and our open-market transactions.

The thought on disclosure is that disclosing the names of borrowers and the amount they have borrowed provides the American people with more information to make sure that the Federal Reserve is acting in a responsible way in its lending facilities.

The balance on the other side is that the discount window is a very important tool both in good times and in bad—in good times, for providing short-term liquidity to institutions when they need it and also as a monetary policy tool to help reduce the volatility of interest rates; and in emergency times, to provide liquidity to institutions that are generally healthy, but where panic has caused asset values to be out of whack, as it were, so that the institution can't fund itself in an appropriate way.

So the discount window is a very important tool. The concern is that, because it is often used by both healthy and troubled institutions, the public will be confused if it sees the names of a borrower at the discount window and not be certain if that institution is healthy or not. And if a healthy institution is wrongly thought to be troubled because it has accessed the discount window, then that could cause problems for that institution. That causes institutions to back away from using the discount window, and that makes it a much less effective tool, both in good times and in bad times, for addressing liquidity crises.

So it is important to have a balance in the disclosure. That is why we think the lag time, the 2-year period between the actual loan and the announcement of the borrower, is important. That leaves the institution some period of time to explain itself, to demonstrate its health, and to not be tied to a troubled transaction at a difficult time.

Mr. GREEN. I think my time is up. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I would like to direct this question to Mr. Baxter. And I want to follow up on Mr. Jones' question about how some of these decisions are made and how sometimes the big guy seems to benefit and the little people lose their mortgages and lose their homes and they lose their jobs. And, quite frankly, it is very difficult at times in this country, because it seems like people are too-little-to-save—there are people who are too-big-to-forget about them, too-big-to-let-them-fail.

But I want to direct a question about the foreign loans. And it seems to me from the figures I look at, that nearly one-third of all the loans during this period of time went to foreign banks. And, at one time, at the peak of this, 88 percent of these overall discount window loans went to foreign banks. But at the New York Fed, I think practically, essentially 100 percent of the loans were going to foreign banks.

And the answer I get is that, they are foreign banks but they have subsidiaries, and they qualify under the rules—I wouldn't say under the law, but under the rules—that they can go to the discount window. But it just seems to be way out of proportion, when you think of that tremendous amount of loaning that went to these foreign banks. And this is not easy for the average American citizen to understand.

Could you enlighten us on why it seems to be disproportionate? I am sure they don't represent that percentage of the financial problems that existed. A third of the problems didn't deal with foreign banks, surely. What is the explanation for that?

Mr. BAXTER. Yes, Chairman Paul. Thank you for that question.

First, the starting point is Federal statutory law. And section 13, paragraph 14, of the Federal Reserve Act says to the Federal Reserve that, with respect to discount window borrowing, we are to treat the branch or the agency of a foreign bank just like we treat our own U.S.-chartered depository institutions. So, there is this principle of national treatment that we start with, and it is a principle that is embedded in the Federal Reserve Act itself. And so, we must treat the branch and agency of a foreign bank in the same manner we treat our own. That is the starting point.

The second is, New York is the money center of the United States. And with respect to foreign banks that intend to come to our country and invest in our people and form branches and agencies in the United States, many of those foreign banking organizations look to form those organizations in the money center, which is in New York.

The short answer to your question, Chairman Paul, is the law requires us to lend to branches and agencies. And with respect to New York in particular, that tends to be the place where foreign banking organizations enter our country.

Chairman PAUL. Okay. Proportionately, it still seems to be out of whack. Wouldn't the system invite foreign banks? They are making most of their money overseas. Just open up a subsidiary in New York. And, therefore, they get the line of credit and the protection of the bank, and it is almost like free insurance for them.

Do you think this is a good idea, that a foreign bank, all they have to do is open up and get these bailouts? It just doesn't seem fair at all.

Mr. BAXTER. These were loans, Chairman Paul. They weren't gifts in any way. And the foreign banks have to repay, just like everyone else, the principal and interest.

Second, if a foreign bank—and some do—decides that they would prefer not to form a branch or an agency but to start a subsidiary bank in the United States, that is their option. And some foreign banks do just that. And, of course, the subsidiary bank, which would have a U.S. charter, that has access to the discount window as well.

Mr. ALVAREZ. I would add one more thing.

There is a limit on the amount that they can borrow. They are limited by the amount of collateral that they have, that they can post at the discount window. So, that is dollar collateral in the United States. That doesn't allow the foreign bank to borrow to the full extent of its assets worldwide. It borrows in order to support its dollar activities. And those dollar activities are largely, though not exclusively—you have a point there—but largely in the United States.

Chairman PAUL. Could the argument be made that maybe the banks in Greece should have had a lot more subsidiaries in New York, and maybe then Greece wouldn't be in so much trouble, the Fed would have bailed them out too?

Mr. ALVAREZ. No, their assets are in Greece, so they are Greek assets. And they would go to the Greek central bank to borrow there, not to the United States.

Chairman PAUL. Okay.

Mr. Green, do you have any more questions?

No? Okay. Mr. Jones, for 5 minutes.

Mr. JONES. Mr. Chairman, thank you again.

Looking through a lot of these reports—and I want to go to Libya and see if you can help me understand the rationale by the Treasury and the Reserve.

I will just read one paragraph: “Arab Banking Corporation, the lender part-owned by the Central Bank of Libya, used a New York branch to get 73 loans from the U.S. Federal Reserve in the 18 months after Lehman Brothers Holdings collapsed.”

Help me understand, so that I can explain to people back in my district, that here we are, an undeclared war. Any time—and I thank God we haven't lost any American military at this point, but we certainly have fired a bunch of missiles. And we are spending millions and millions of dollars, probably billions by now. And we are helping other countries.

What is the protection if Libya is Gaddafi and Gaddafi is Libya—or, at least, it has been for a period of time—and we have made these loans to their affiliate or to Libyan banks, their relationships, what happens in a wartime situation, where we are trying to drive Gaddafi out of business and we have made these loans to him or to Libya?

How do you explain to that person that each and every one of us, on both sides of the political aisle, has talked about today that can't get the loans? How do you explain this to Walter Jones, who happens to be a Member of the Congress, so he can explain it to his people back home?

Mr. ALVAREZ. The Arab Banking Corporation is a bank located in Bahrain. It is not located in Libya. The Libyans bought a substantial part of that bank after all the loans that were extended by the Federal Reserve were repaid.

We work with the Treasury Department and the State Department, which have responsibility for identifying banks that the United States should not deal with for foreign policy reasons. The responsibility for designating those banks rests with them. We consult with them to make sure that we don't lend to institutions that they have determined we should not be lending to.

At the time our credits were extended, Arab Banking Corporation was not identified by Treasury or State Department as a bank that was of concern. It was a foreign bank that had an operation in the United States that was well-rated in all other respects, like another foreign bank from a foreign country.

Mr. JONES. Mr. Chairman, I tell you, knowing that you, for many years, have picked up more and more support for your legislation to

audit the Federal Reserve, I wish, truthfully—and it has nothing to do with you gentlemen here today, but I am telling you that the distrust out here by the American people is as deep and as severe as I have ever seen it. And not only Congress itself, not only the Administration, but the Federal Reserve is just, at this point, at a very low ebb as it relates to trust.

And I am not talking about you personally. You are two men of high integrity, I know that. But, right now, the Federal Reserve is not held in high esteem by many people in this country.

I will yield back.

Chairman PAUL. I thank the gentleman.

I have a few short questions, and then we will finish up.

One thing is, on a follow-up on what Mr. Jones says, is, the confidence is very low. But when you speak of independence—and I understand your terms, and I disagree with the need for that, but I understand it. But what people hear, when you say “independence,” they hear “secrecy.” You are going to keep it from us.

And like the point I made at the beginning, the SEC is to pressure companies to reveal information, where the Federal Reserve does the opposite. They want—no, we can’t tell anything because it might disturb the markets.

I have one question: During the crisis or at any time that you are aware of, has the Federal Reserve or Treasury participated in any gold swaps arrangements?

Mr. ALVAREZ. The Federal Reserve does not own any gold at all. We have not owned gold since 1934. So we have not engaged in any gold swaps.

Chairman PAUL. But it appears on your balance sheet that you hold gold.

Mr. ALVAREZ. What appears on our balance sheet is gold certificates. Before 1934, the Federal Reserve did own gold. We turned that over, by law, to the Treasury and received, in return for that, gold certificates.

Chairman PAUL. If the Treasury entered into—because under the Exchange Stabilization Fund, I would assume they probably have the legal authority to do it—they wouldn’t be able to do it, then, because you have the securities for essentially all the gold?

Mr. ALVAREZ. No, we have no interest in the gold that is owned by the Treasury. We have simply an accounting document that is called “gold certificates” that represents the value at a statutory rate of the gold that we gave to the Treasury in 1934.

Chairman PAUL. It is still measured at \$42 an ounce, which makes no sense whatsoever.

But, the conventional wisdom today says that gold is really not money. We don't want it to be money. If you are for the gold standard, there is something wrong with you. And, yet, we hold the gold.

And, there has been the suggestion made, and I have sort of encouraged the suggestion, if gold is not money and it is an asset and you don't even use it because it is on your balance sheets and you don't even use it at the real value, why—would you have a position on this? Why shouldn't the Treasury just sell the gold and give it back to the people? The people had it at one time. Let the people have it.

Would you have any objection to that? Would you advise us and say, "No, that is not good; we ought to hold the gold?" Do you think holding the gold is a good idea or a bad idea?

Mr. ALVAREZ. I have no position on that at all. That is clearly a matter for the Treasury.

Chairman PAUL. No position?

Mr. ALVAREZ. It is a matter for the Treasury. It is not within the purview of the Federal Reserve.

Chairman PAUL. Mr. Baxter, would you have an opinion?

Mr. BAXTER. My opinion is, I agree with Mr. Alvarez.

Chairman PAUL. No position.

It is amazing, because I have asked questions of the Federal Reserve, the Members of the Board, for years. And whether it has been Mr. Greenspan—I can't recall exactly what I have asked Mr. Bernanke—but it is always, "Well, no, we have to hold on to these assets." But if it is not money and we don't need it and we are not going on a gold standard, I would think that they shouldn't be holding it.

The reason I ask that is, the truth is, gold is money. And people don't throw it away, and people do cling to it. But I would be real-ly—there are a lot of people who suspect, because of this lack of transparency, that there have been a tremendous amount of gold swaps and loans made and central banks sold a lot of gold off after the last 10 years. A lot of the gold has left the West and has gone to the East. And the central banks now have positive trade balances; they buy up the gold.

There has to be a message in there and a significance, even for those who don't want the restraints of gold, there has to be a message out there that we should look at, because we are in a financial mess and it has to do with our monetary system, and it is being reflected

today in rising prices and a weak economy. And just printing all this money isn't doing any good.

All this stuff that has been done for 30 years—when you look at the economic statistics now, they are horrible. And these people who lost their jobs, they are still unemployed. The people who bought stocks in the year 2000, if they held on, they probably haven't even broken even. They probably lost purchasing power.

So, eventually, I think—I know this is off the subject a little bit. But it is reflected only in that we don't know exactly what goes on. And people, when they don't know, then they get suspicious, and they say, "Well, it is kept secret from us. Why aren't we allowed to know?" And we just march on.

And the type of dollars we are talking about, and when we hear about this money going to central banks and banks that Qadhafi was a part owner in, this really stirs up the emotions of a lot of people.

I do appreciate you being here. And I know that there will be a lot of questions, there will be written questions submitted. And we would appreciate your cooperation in sending us your answers.

The Chair notes that some members may have additional questions for this panel which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

Also, I would like to emphasize at this time that this hearing deals with a very complex matter and is a large amount of material. And, therefore, written questions, I am sure, will be followed up. So I ask for as much cooperation as you can give us, because there are times when questions are sent in and they sort of get lost. But because there is so much and it is complicated and now that our time looks like it is going to be shortened, we may have to depend a lot on our written questions. So we ask you for your cooperation there.

And I thank you.

Mr. ALVAREZ. Thank you very much.

Mr. BAXTER. Thank you, Mr. Chairman.

Chairman PAUL. This hearing is adjourned.

[Whereupon, at 4:40 p.m., the hearing was adjourned.]

*Q*UESTIONS
FOR THE RECORD

FROM CHAIRMAN RON PAUL TO
THE HONORABLE SCOTT ALVAREZ, GENERAL COUNSEL, BOARD OF
GOVERNORS OF THE FEDERAL RESERVE SYSTEM AND THOMAS C. BAXTER,
GENERAL COUNSEL, FEDERAL RESERVE BANK OF NEW YORK

Question 1:

In testimony before the Subcommittee on June 1, 2011, Federal Reserve Bank of New York (FRBNY) General Counsel, Thomas Baxter, indicated that the FRBNY's lending during the financial crisis was more heavily weighted toward foreign institutions because New York, as a leading financial center, attracted more foreign institutions. However, this response did not explain the disproportionate use of Federal Reserve lending facilities by foreign institutions. Can the Federal Reserve provide statistics on the proportion of foreign institutions relative to U.S. institutions that are part of the Federal Reserve System? Can the Federal Reserve explain the factors that contributed to disproportionate borrowing by foreign institutions, especially in the following lending facilities which provided more than 50% of their total lending to foreign institutions: Commercial Paper Funding Facility, Mortgage-Backed Securities Purchase Program, Term Auction Facility; and Term Securities Lending Facility?

Answer:

As required by the provisions of the International Banking Act of 1978 and the Monetary Control Act of 1980, branches and agencies of foreign banks operating in the United States (foreign branches) have long had access to the Federal

Reserve's lending facilities on the same basis as domestic depository institutions. Foreign branches have a large presence in U.S. financial markets; in aggregate, they provide substantial amounts of credit to U.S. households and businesses and are active participants in U.S. fixed-income markets. In aggregate, these institutions account for about 10 percent of bank credit extended in the United States. Unlike most domestic banks, foreign branches do not have a large retail deposit base. As a result, they rely heavily on wholesale funding sources such as large time deposits and repurchase agreements to fund their assets. For example, these funding sources account for about 70 percent of the total liabilities of foreign branches. In contrast, large time deposits and repurchase agreements account for only about 10 percent of the liabilities of U.S. chartered depository institutions. As a result, foreign branches were particularly vulnerable to the intense liquidity pressures evident during the crisis when wholesale funding markets were severely disrupted. These institutions turned to the Federal Reserve's liquidity programs to address their dollar liquidity pressures and to avoid fire sales of assets that would otherwise have been necessary. The availability of these liquidity programs to foreign-owned financial institutions operating in the United States helped to address the severe strains in U.S. financial markets during the crisis and to support the flow of credit to U.S. households and businesses.

Question 2:

The Federal Reserve created the Term Asset-Backed Securities Loan Facility (TALF), which was intended to "lend up to 5200 billion ...to holders of certain AAA-rated ABS (asset-backed securities)." When TALF data was released in December 2010, they revealed that 18% of TALF loans were backed by subprime credit card and auto loan securities, 17% were backed by "legacy" (i.e. troubled) commercial real estate securities, and 13% were backed by student loan securities. Similarly, the Term Securities Lending Facility (TSLF) was to "lend up to 5200 billion...to primary dealers secured...by...securities, including federal agency debt, federal agency residential-mortgage-backed securities (MBS), and non-agency AAA/Aaa-rated private-label residential MBS." Data released for the TSLF revealed that 14% of loans were backed by collateral rated below AAA. Over 50% of all

collateral posted consisted of agency-backed MBS or CMO (collateralized mortgage obligations), whose ratings were not published. While it has generally been assumed that these Agency securities have a AAA rating due to their implicit government backing, the high collateral-to-loan ratio of the TSLF (4 to 1) implies that these securities were not in fact performing at a AAA level-not to mention that no one knew what any mortgage securities were actually worth during the financial crisis. Given that the Federal Reserve stated to the public that it would accept high-rated collateral in conducting loan operations through these facilities, yet nonetheless loaned funds against questionable or low-rated collateral, how is the public to trust the public statements made by the Federal Reserve? In accepting lower grade collateral than the lending facility originally intended, was there a protocol the Reserve Banks were to follow in accepting lower rated collateral? If not, how were determinations made about what collateral was acceptable? Additionally, what surety was given that AAA-rated collateral was truly AAA, especially given the uncertain quality of many MBS at the time?

Answer:

The TALF program accepted only AAA-rated securities backed by loan types approved by the Board of Governors and consistent with the program terms published on the websites of the Federal Reserve Bank of New York and Board of Governors. In addition to the AAA credit rating requirement, there were a number of additional requirements designed to ensure the quality of the collateral pledged to the program. For example, each loan was fully collateralized and the value of all collateral was discounted in determining the size of the loan it could support; for non-mortgage-backed ABS, an outside auditor had to attest to the accuracy of the information provided by the sponsor and issuer of all newly issued collateral regarding compliance with TALF collateral eligibility requirements; legacy CMBS were subject to an additional internal credit review by FRBNY staff; and TALF borrowers always had their own money at risk in a first-loss position if the collateral did not perform to expectations. Partly in response to the conservative terms offered on the TALF program, about four-fifths of TALF loans have been repaid early, all outstanding collateral is performing to

expectations, and all the outstanding loans remain well collateralized.

The Federal Reserve established the Term Securities Lending Facility (TSLF) in 2008 as a means of addressing the pressures faced by primary dealers in accessing term financing. When collateral markets became illiquid in 2008, primary dealers had increased difficulty obtaining funding and, therefore, were less able to support broader markets. The details, including the terms of acceptable collateral, were made public at the very start of the facility. Under this program, the Federal Reserve temporarily loaned its relatively liquid Treasury securities to primary dealers in exchange for less liquid securities that were harder to finance during a period of financial market stress. The TSLF loans were made with recourse to the borrower, meaning that the borrower was obligated to repay the loan regardless of the value of the collateral. In addition, the borrower pledged securities as collateral that met certain eligibility criteria, such as carrying an investment grade rating by major nationally recognized statistical rating organizations (NRSRO). All U.S. Treasury and U.S. government agency securities posted as collateral to the TSLF met the TSLF program criteria for collateral. The FRBNY conducts its own due diligence and analysis of collateral pledged against loans on a post-lending basis, primarily reviewing information provided by clearing banks, to ensure that these securities adhere to the eligibility requirements of the particular lending program in which the loan was made.

The collateral-to-loan ratio throughout the TSLF program was approximately 106%, not 400% as noted in the question. This ratio was driven by the haircuts specified on the collateral schedule and the composition of securities pledged as collateral. This ratio does not provide information on the performance of the pledged collateral. All credit extended under the TSLF has been fully repaid, with interest.

Question 3:

The Commercial Paper Funding Facility (CPFF) provided 60% of its total lending to foreign institutions. The CPFF also supplied funding predominantly to large firms, such as Harley Davidson, Chrysler, Caterpillar, ING, and AIG. To what extent did smaller firms that issued commercial paper know about and have access

to the CPFF? What efforts were made by the Federal Reserve to ensure that all eligible parties were made aware of the facility?

Answer:

The Board of Governors announced the creation of the facility on October 7, 2008 via a public press statement posted on its website. Information on how to access the facility was made available on both the FRBNY's website and the Board's website. As with other major Federal Reserve announcements, major media organizations reported on the CPFF to the general public. Following the initial announcement, FRBNY staff reached out to many CP market participants to inform them of the CPFF and receive feedback. The outreach included working with the FRBNY's Primary Dealers, the Depository Trust & Clearing Corporation (DTCC), the Securities Industry and Financial Markets Association (SIFMA) and the Commercial Paper Industry Working Group (CPIWG), who service or represent CP issuers in the market, to ensure information was disseminated to a wide group of CP market constituents.

The CPFF was open to any CP issuer who met the program eligibility requirements. To register for the facility, the CP issuer must have been a U.S. issuer issuing U.S. dollar-denominated commercial paper (including asset-backed commercial paper (ABCP)) that was rated at least A-1/P-1/F1 by a major NRSRO and, if rated by multiple major NRSROs, rated at least A-1/P-1/F1 by two or more major NRSROs. Only issuers that were active between January 1 and August 31, 2008 were eligible to issue to the facility. Inactive ABCP issuers were ineligible to participate in the CPFF from January 2009 on. An issuer was deemed inactive if it did not issue ABCP to entities other than the sponsoring institution for any consecutive period of three months.

Many large firms and a smaller-number of mid-sized firms registered for the program, though not all chose to issue to the facility. The composition of firms was largely reflective of the highly rated CP market more generally. Large firms with access to capital markets encompass the large majority of the CP market. Mid-sized firms have historically represented a much smaller segment of the highly rated CP market and small firms typically do not issue CP.

Question 4:

The Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) loaned primarily to two firms, JP Morgan and State Street. Each of the Maiden Lane facilities was set up to assist a particular institution. To what extent were lending facilities set up for the benefit of specific firms facing financial difficulties? To what extent were lending facilities created at the behest of specific firms, either through formal or informal lobbying?

Answer:

The AMLF was introduced to help money market mutual funds (MMMFs) meet investors' demands for redemptions in October 2008. While banking firms were intermediate participants in the AMLF, it was not established to assist banking firms. Under the AMLF, the Federal Reserve Bank of Boston lent to financial institutions that in turn used the funds to purchase asset backed securities from MMMFs in order to allow MMMFs to meet redemption demands by customers. Eleven banking entities from six organizations borrowed from the AMLF. These firms used AMLF loans to finance purchases of assets from nearly 200 money funds. All AMLF loans were repaid in full, on time, with interest.

The Federal Reserve authorized the establishment of six special facilities to provide assistance to specific institutions under section 13(3) of the Federal Reserve Act in the pursuit of financial stability during the crisis. The establishment of these facilities was aimed at stabilizing the financial system and mitigating the impact of financial stresses on the economy. Two of these facilities, those set up for Citigroup and Bank of America, ultimately did not require a loan from the Federal Reserve.

The loans provided to the four remaining facilities, Maiden Lane LLC, Maiden Lane II LLC, Maiden Lane III LLC and AIG Revolving Credit Facility were fully collateralized. Maiden Lane LLC received a loan from the Federal Reserve Bank of New York of \$28.8 billion to purchase assets from Bear Stearns to support JP Morgan Chase's acquisition of Bear Stearns. The Bear Stearns merger with JP Morgan Chase prevented a disorderly failure of Bear Stearns and potentially severe consequences on market functioning and

the economy. Maiden Lane II LLC received a loan from the Federal Reserve Bank of New York of \$19.5 billion to purchase residential mortgage-backed securities (RMBS) from AIG's insurance subsidiaries in order to alleviate capital and liquidity drains on AIG. Maiden Lane III LLC received a loan from the Federal Reserve Bank of New York of \$24.3 billion to purchase collateralized debt obligations (COOs) from certain counterparties of AIG Financial Products (AIGFP) in exchange for terminating the related credit default swaps (CDS) contracts between the counterparty and AIGFP which were contributing to capital and liquidity drains on AIG. The AIG Revolving Credit Facility (RCF) was a credit line extended by the Federal Reserve Bank of New York for up to \$85 billion to AIG. The RCF, Maiden Lane II LLC and Maiden Lane III LLC prevented a failure of AIG which would have had widespread consequences for the economy and indirectly impacted millions of Americans.

Question 5:

Given that information pertaining to discount window transactions during the financial crisis has been disclosed to the public, through the Bloomberg News and Fox News FOIA requests, without causing any material harm to institutions that used the discount window, will the Federal Reserve disclose the details of discount window transactions that occurred during the financial crisis on the Board's website in the same manner disclosures were made of the other facilities and programs conducted by the Federal Reserve during the crisis? If not, please provide an explanation of why the Federal Reserve will not make such information available.

Answer:

The FOIA Service Center page of the Board's public website makes available to any person upon request a copy of the records released on March 31, 2011 in the *Fox News* and *Bloomberg* FOIA lawsuits. Any person wishing to obtain a copy may submit a request using the Board's electronic FOIA request form, or by calling the Board's FOIA Service Center. The Board's public announcement, describing the records released on March 31, 2011 and the method for obtaining

copies can be found at:

<http://www.federalreserve.gov/generalinfo/foia/servicecenter.cfm>.

The March 31, 2011 releases resulted from litigation under the Freedom of Information Act ("FOIA"). Because FOIA requires disclosure of documents, as opposed to the underlying data or information, the Board made responsive documents available to the requesters and the public as noted above.

The Board's December 1, 2010 disclosures of section 13(3) lending information were made pursuant to section 1109(c) of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act"), which requires publication of specified information "on [the Board's] website " 124 Stat. 2129.

The Federal Reserve's discount window has been an important source of liquidity for depository institutions, especially during times of financial stress. Discount window credit is a common and important tool among central banks around the world and one of the most important tools during a financial crisis. Unlike grant programs, the discount window involves the extension of credit on a fully secured basis. To date, the Federal Reserve has never lost money on discount window lending.

Depository institutions have argued that public disclosure of information regarding borrowing at the discount window will discourage use of the discount window. They contend that, because both healthy and troubled depository institutions access the discount window, the public may misconstrue use of the discount window as a sign of financial weakness. Indeed, disclosure of access to credit from the Bank of England by Northern Rock led to runs on that institution. In accordance with the Dodd-Frank Act, the Board will disclose information regarding borrowings through the discount window, including the identity of the borrowers, amount borrowed, terms of the borrowing and collateral information, no later than eight quarters following any discount window transaction entered into after July 21, 2010.

The Board believes that the disclosure of discount window borrowing after a reasonable delay appropriately balances the

need to hold the Federal Reserve accountable for its lending activities with the concerns about the viability of discount window. We will continue to inform Congress of any concerns that arise as we implement this provision.

Question 6:

Given that information pertaining to certain "covered transactions", a definition which includes open market operations, will have to be disclosed to the public under the provisions of the Dodd-Frank Act, will the Federal Reserve disclose the details of open market operations that took place during the financial crisis and before the passage of Dodd-Frank, such as Single-Tranche Open Market Operations? If not, please provide an explanation of why the Federal Reserve will not make such information available.

Answer:

As required by section 1109(c) of the Dodd-Frank Act, on December 1, 2010, the Board published detailed information on transactions conducted under the Federal Reserve's Agency Mortgage-Backed Securities Program, which were undertaken prior to the enactment of the Dodd-Frank Act pursuant to the System's open market operation (OMO) authority.

In addition, the Federal Reserve has released significant information about single-tranche OMOs, which were conducted with the intention of mitigating heightened liquidity stress that was occurring in funding markets during the financial crisis in 2008. The program itself had been disclosed publicly at the time of its inception, each auction was announced to the public on the website of the FRBNY at the same time it was announced to the primary dealers, and each auction's aggregated results were immediately posted to the same website. Additional aggregated information on the single tranche OMO program was included in the Board's H.4.1 weekly data release on the condition of the Federal Reserve Banks and in the System Open Market Account annual report for 2009. Information on single-tranche OMO transactions has also been made public in connection with the *Fox* FOIA litigation. On July 6, 2011, the Board published additional data concerning the program, including trade and settlement dates, counterparty names, amounts, and rates for

all transactions under the program. This information may be found at:
http://www.federalreserve.gov/monetarypolicy/bst_tranche.htm

Question 7:

Will the details of the "QE2" program and ongoing rollovers of maturing MBS into Treasury debt securities be disclosed to the public? If not, please provide an explanation of why the Federal Reserve will not publicize such information.

Answer:

The Federal Reserve has provided to the public a substantial amount of information concerning the program to purchase longer-term Treasury bonds. The Federal Open Market Committee announced on November 3, 2010 that, in order to promote a stronger pace of economic recovery and to help ensure that inflation, over time, is at levels consistent with its mandate, the Committee would purchase a further \$600 billion of longer-term Treasury securities by the end of the second quarter of 2011, at a pace of about \$75 billion per month. The FOMC's announcement can be found at: <http://www.federalreserve.gov/newsevents/press/monetary/20101103a.htm>. The program is part of the FOMC's open market operations ("OMO").³¹⁹

Moreover, the current holdings of SOMA, including maturity date, CUSIP, coupon, par value and other information regarding securities held in SOMA can be found at: http://www.newyorkfed.org/markets/soma/sysopen_accholding_s.html.

In the Dodd-Frank Act, Congress gave careful consideration to the public's interest in greater transparency in OMO transactions and to the legitimate expectations of

³¹⁹ Additional details regarding the program, including the Trading Desk at the Federal Reserve Bank of New York's plans for distributing purchases of Treasury securities for the System Open Market Account ("SOMA"), were made available November 3, 2010 on the Federal Reserve Bank of New York's website at: <http://www.newyorkfed.org/markets/operatingpolicy/01103.html>. The Federal Reserve Bank of New York currently publishes a list of FAQs regarding the purchase program which provides information such as: the maturity sectors of Treasury securities the Desk planned to purchase, how much the Desk planned to purchase in each issue, how much the Desk planned to purchase each month in Treasury securities, and other information. The FAQs can be found at: <http://www.newyorkfed.org/markets/treasfag.html>.

confidentiality of parties to OMO transactions and the potential effects that premature disclosure of counter-party information could have on the Federal Reserve's ability to execute OMO transactions efficiently and at the best price. In striking this balance, Congress concluded that the Board should be permitted to delay the release of information about OMO transactions. In accordance with the Dodd-Frank Act, the Board will disclose counter-party information with respect to OMO transactions, including the reinvestments of maturing MBS into Treasury securities, conducted after July 21, 2010, no later than eight quarters after the transactions.

Question 8:

The documents released by the Federal Reserve in response to the Freedom of Information Act requests from Bloomberg News and Fox News contained large amounts of information that was redacted. The Federal Reserve has indicated that the information was determined not responsive to the FOIA requests and was therefore redacted. Is the Federal Reserve willing to release all of these records in their original form to the House Committee on Financial Services? If not, please explain why.

Answer:

In providing to Bloomberg News and Fox News the documents at issue in their FOIA litigation, the Board redacted from those documents certain information that was not sought by the requests. Should the Board receive a request from the House Committee on Financial Services for the unredacted documents at issue in the *Bloomberg/Fox* FOIA litigation, it will work with the Committee, as it has in the past in response to other similar requests, to assist the Committee in accessing the information it needs.

Question 9:

In the documents disclosed by the Federal Reserve on discount window transactions, it appears that banks, especially primary dealers, used the discount window like a revolving line of credit, essentially acquiring longer term funding through what is typically an overnight program. Why was the discount window used in such a fashion even when emergency lending facilities were set up to provide longer term financing through programs such as the TSLF or PDCF?

Answer:

The Term Securities Lending Facility (TSLF) and the Primary Dealer Credit facility (PDCF) were liquidity facilities set up during the financial crisis for primary dealers. Under the TSLF, primary dealers engaged in temporary swap transactions with the Federal Reserve Bank of New York in which the dealer received Treasury securities and pledged other high-quality securities as collateral. The swaps were priced through competitive auctions and had maturities of 28 days. The PDCF extended overnight loans to primary dealers against collateral that was eligible for tri-party repurchase agreements. Primary dealers were discouraged from using the PDCF as a source of longer-term funds by usage fees that rose with the frequency of borrowing. All credit extended under both the TSLF and the PDCF has been fully repaid, with interest.

Discount window loans (primary, secondary, and seasonal credit) are available only to depository institutions, that is, commercial banks, thrifts, credit unions, and U.S. branches and agencies of foreign banks. None of the primary dealers at this time or over the past few years were depository institutions, so none of the primary dealers have had access to the discount window. Although there is no prohibition against primary dealers being depository institutions, currently all primary dealers are broker dealers. In several cases, however, the broker-dealer subsidiaries of bank holding companies are primary dealers. In such cases, the commercial bank subsidiary of the holding company is eligible to borrow from the discount window and the primary dealer/broker-dealer subsidiary would have been able to borrow from the other lending facilities established for the primary dealers.

Easing the terms on primary credit (discount window) loans was one of the first steps the Federal Reserve took in response to the financial crisis. The easing was intended to increase the liquidity of depository institutions and thereby support their ability to lend to businesses and households. On August 17, 2007, the Federal Reserve narrowed the spread of the primary credit rate over the FOMC's target rate from 100 basis points to 50 basis points, and lengthened the maximum maturity from overnight to 30 days. On March 16, 2008, the Federal Reserve lowered the spread to 25 basis points and

extended the maximum maturity to 90 days. The easing of terms on discount window borrowing was part of the Federal Reserve's broader efforts to address strains in term funding markets and the liquidity strains in financial markets. As financial market conditions improved, the Federal Reserve normalized the terms on primary credit. Over the first few months of 2010, the Federal Reserve returned the typical maximum maturity on primary credit to overnight and widened the spread of the primary credit rate over the top of the FOMC's range for the federal funds rate to 50 basis points. By June 2010, borrowing had again fallen near zero.

Question 10:

What was the necessity of setting up Single-Tranche Open Market Operations (ST OMO) and programs such as the TSLF when they accomplished essentially the same task of providing 28-day credit? Was the existence of these separate operations due to the fact that the TSLF allowed the Fed to purchase secondary credit and not just primary credit, something not legally permissible under the ST OMO conducted through the Fed's open market operation authority?

Both the single-tranche (ST) OMO and the TSLF programs were aimed at relieving strains in the term funding markets. Since these strains were quite significant, the Federal Reserve provided more than one way to help alleviate the pressures. Both programs addressed term funding pressures for the primary dealers, though the mechanics were different, as was the list of eligible securities.

Mechanically, the ST OMO allowed primary dealers to bid at auction for direct 28-day financing of any of their OMO-eligible securities (i.e., U.S. Government securities and U.S. agency issued or guaranteed securities); they pledged their securities and received funds in exchange. With TSLF, however, the dealers bid at auction to essentially swap their program-eligible securities for U.S. Treasury securities, which they then had to finance in the market. Presumably it was easier for them to find term financing for the U.S. Treasury securities they received than it was for them to finance the securities they pledged into the program. So, after winning a TSLF auction, the primary dealer would still have to obtain financing for the U.S. Treasury securities they received from

the FRBNY. . .

There are other key differences between the ST OMO and TSLF programs.

The ST OMO program relied on standard legal authorities for open market operations, and transactions under this program were very similar to the shorter-term repo operations long conducted by the Federal Reserve in implementing monetary policy. Under this program, primary dealers could deliver as collateral any of the types of securities--Treasuries, agencies, and agency MBS--that are typically accepted in open market operations.

The legal authority for a key part of the TSLF--the so-called "schedule 2" TSLF operations--relied partly on the Federal Reserve's emergency lending authority in section 13(3) of the Federal Reserve Act. Under TSLF, primary dealers could borrow Treasury securities from the Federal Reserve for a period of 28 days. In contrast to the ST OMO program, under the TSLF primary dealers could pledge as collateral a range of highly rated private securities. Rates and amounts borrowed by individual primary dealers under the TSLF were determined through competitive auctions. Initially, the securities accepted as collateral in TSLF operations were limited to AAA-rated securities. Later as the crisis intensified in September of 2008, the range of collateral accepted was expanded to include all investment-grade securities. The ability of primary dealers to finance private investment-grade securities through the TSLF was very important in addressing the disruptions in financial markets during the crisis.

Question 11:

Can the Federal Reserve provide to the Committee a graph and/or spreadsheet for each of the emergency lending facilities (including the ST OMO) showing the high, low, and average rates charged in the facility over its lifetime in conjunction with the prevailing market rate for the same type of transaction over the same period?

Answer:

[See Appendix D]

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

Today's hearing deals with one of the most pressing issues this subcommittee will face during this Congress, the issue of Federal Reserve transparency. While the Federal Reserve is still far less transparent than it should be, recent disclosures of the Federal Reserve's lending programs have greatly increased our knowledge of the Fed's monetary policy during the height of the financial crisis.

In December 2010 and March 2011, a remarkable thing happened: the Fed disclosed information on its lending facilities and discount window operations, including who borrowed money, what amounts were loaned, maturity dates, interest rates, and collateral. It took an act of Congress, the Dodd-Frank Act, to bring about the December releases that discovered the details of the emergency lending facilities set up by the Fed during the crisis. The March 2011 disclosures covered discount window lending, the oldest Fed lending tool, whose operations had never before been disclosed. It took a three year legal battle regarding the Freedom of Information Act's (FOIA) applicability to the Fed in order to gain access to this information. The suits brought by Bloomberg and Fox News resulted in 29,000 pages of unorganized, heavily redacted documents being provided. Combining these two data releases has given us a fuller, if still woefully incomplete, picture of the Fed's operations during the financial crisis and the nearly \$3 trillion balance sheet it has built up.

On November 25, 2008, the Fed created the Term Asset-Backed Securities Loan Facility (TALF) which was intended to “lend up to \$200 billion... to holders of certain AAA-rated ABS [asset-backed securities].” When the Fed released TALF data in December of 2010, 18% of TALF loans were backed by subprime credit card and auto loan securities, 17% of TALF loans were backed by “legacy”, a.k.a. troubled, commercial real estate securities, and 13% of TALF loans were backed by student loan securities. On March 11, 2008, the Fed created the Term Securities Lending Facility (TSLF) to “lend up to \$200 billion...to primary dealers... secured... by... securities, including federal agency debt, federal agency residential mortgage-backed securities (MBS), and non-agency AAA/Aaa-rated private-label residential MBS.” When the Fed released TSLF data in December of 2010, 26% of loans were backed by AAA/Aaa-rated securities, 17% were backed by non-AAA-rated securities, and 57% of loans were backed by collateral whose rating was not published by the Fed.

Recent news reports have brought to light the existence of a previously undisclosed Fed lending program known as “single-tranche open market operations” (ST OMO). This program loaned money at rates as low as 0.01% to major firms such as Goldman Sachs, and was essentially a free loan to these politically well-connected firms. Data about this program was not published, but instead was gleaned through examination of charts published in March as a result of the Fed's Freedom of Information Act (FOIA) disclosure. The charts were found within a 327-page document which had 81% of its content redacted.

Out of the funds loaned through the Fed's credit facilities, nearly one-third was loaned to foreign banks. Some facilities and programs, such as the Mortgage-Backed Securities Purchase Program, the Commercial Paper Funding Facility, and the TSLF, provided more than half of their funding to foreign banks. During the peak of the financial crisis, up to 88% of overall discount window lending went to foreign banks, and nearly 100% of the New York Fed's discount window lending went to foreign banks.

Not surprisingly, these data disclosures have raised significant new questions about the Fed's behavior. Among many questions raised are: Why did foreign firms receive such a large percentage of Fed lending? What advantages were given to large financial institutions that had access to multiple lending facilities for prolonged periods of time? Did extending loans to non-financial firms go beyond the Fed's emergency lending authority? Why did investors who participated in TALF have to have a relationship with the Fed's

primary dealers, and did this give an unfair advantage to wealthy investors, such as the wives of two Morgan Stanley executives? Why did the Fed set up single-tranche open-market operations (ST OMO) which gave primary dealers access to \$80 billion at rates as low as 0.01%, essentially providing a direct government subsidy to these firms, and why did the Fed only disclose this information in chart form? Are there other programs that have yet to be disclosed? Why were so many pages redacted in the 327-page document that alluded to ST OMO? Can you really claim to be in compliance with FOIA when such significant portions of documents are redacted? How can we trust that this data was “not responsive” to the FOIA request? Are we to trust the nontransparent Fed that we really don't need to see that information? If the Fed claims to lend against AAA collateral and then does not, can we trust anything the Fed publishes in a press release? Can we trust that collateral classified by the Fed as AAA really is AAA?

More issues emerge from the Fed's handling of the FOIA requests brought by Bloomberg and Fox News. The Fed used several arguments in refusing to comply. Among them was the Fed's claim that it was a private institution and not subject to FOIA, since the documents requested were held by the New York Fed, a private bank, and thus exempt. Fortunately for the American people, the court rejected that assertion. But what exactly is the legal relationship between the private regional banks and the Board of Governors? The Fed also claimed that lending records of discount window borrowers were privileged or confidential information that could cause imminent competitive harm if disclosed, or even cause a run on banks, and therefore should be exempt from FOIA. This has been the Fed's long-standing defense of the secrecy of the discount window. One of the judges in the case summed up the Fed's secrecy succinctly: “[T]he risk of looking weak to competitors and shareholders is an inherent risk of market participation; information tending to increase that risk does not make the information privileged or confidential.”

Given the massive amount of data released last December and this March, and the fact that much information in the March data release was redacted, it is all but certain that there remains much to be discovered about the Fed's bailouts through the discount window and its credit facilities. The Federal Reserve's actions in bailing out Wall Street through credit facilities and quantitative easing provoked a backlash among the American people and among many members of Congress. Trillions of dollars worth of loans and guarantees were provided to rich bankers and their worthless holdings of mortgage

debt were snapped up by the Fed, while Main Street Americans continued to suffocate under harsh taxation and the prospect of increasing inflation. These events have awakened many Americans to the problems with the Fed's loose monetary policy, the bubbles it has created in the past, and the potential hyperinflation it might cause in the future. We should not neglect the fundamental need for more transparency of the Fed and a thorough audit that can help shed light on operations of the Federal Reserve System. We need stronger audit authority over the Fed, both looking back at previous market interventions and also ensuring that any future credit facilities, bailout vehicles, or large-scale asset purchase programs are subject to oversight.

At this hearing we hope to receive substantive answers from the Fed about its lending behavior during the worst part of the financial crisis, and we hope to receive assurances about the Fed's future compliance with the Dodd-Frank bill's requirements for public access to lending information. Aside from our ability to ask questions at the hearing, the hearing record will remain open for 30 days to allow the Fed time to respond to our written questions. At a time when the Fed's balance sheet is rapidly approaching the \$3 trillion dollar mark, it is absolutely imperative that the Fed come clean with the details of its open market operations, lending operations, and asset purchases. Pumping trillions of dollars into the banking system with no oversight by Congress and no accountability to the American people cannot be allowed to continue.

STATEMENT FOR THE RECORD

HON. WM. LACY CLAY

REPRESENTATIVE, 1ST DISTRICT OF MO
U.S. HOUSE OF REPRESENTATIVES

Thank you Mr. Chairman

For holding this hearing to examine information disclosed by the Federal Reserve in compliance with the Dodd-Frank Wall Street Reform and Consumer Protection Act and the Freedom of Information Act. Also, I want to thank the witnesses for appearing.

Due to the U.S. financial crisis, the United States Congress passed the Dodd-Frank Wall Street Reform and Consumer protection Act of 2010. This Legislation was crafted as a response to the financial crisis which has cost nearly 10 million American jobs and over \$10 trillion in household wealth. Nearly 4 million families have lost their homes to foreclosure and an additional 4.5 million have slipped into the foreclosure process or are seriously behind on their mortgage payment.

According to the financial crisis inquiry report; a combination of excessive borrowing, risky investments, and the lack of transparency put the financial system on a collision course of self destruction.

In the years leading up to the crisis, too many financial institutions, as well as too many households, borrowed too much, leaving them vulnerable to financial distress if the value of the investments declined even modestly.

For example, as of 2007, the five major investment banks were operating with extraordinarily thin capital. By one measure, their leverage ratios were as high as 40 to 1, meaning for every \$40 in assets, there was only \$1 in capital to cover losses. Less than a 3% drop in asset value could wipe out a company.

Leverage was often hidden in off-balance sheet entities; in derivatives positions; and through “window dressing” of financial reports available to the investing public. Within the financial system, the danger of this debt was increased because transparency was not required or desired; undercover corporate dealings assisted in the financial meltdown which still plagues us today.

In order for democracy and capitalism to exist correctly, transparency must be at the core; trust, transparency and the rule of law are fundamental to this nation success.

Business depends in some way on trust; a trust that business produces good products and a trust that business will deliver good services.

Democracy depends in some way on trust. Transparency promotes government accountability, free and fair election, competition and free markets, and the rule of law are critical to it.

The Dodd-Frank Wall Street Reform and Consumer Protection Act addresses these issues by reforming the Federal Reserve:

1) It limits the Federal Reserve's 13 (3) emergency lending authority by prohibiting emergency lending to an individual entity. The secretary of Treasury must approve any lending program, program must be broad based, and loans cannot be made to insolvent firms. Collateral must be sufficient to protect taxpayers from losses.

2) It requires the Federal Reserve to disclose counterparties and information about amounts, terms and conditions of 13 (3) and discount window lending, and Open Market transactions on an ongoing basis with specified time delays. These are just a few examples of the importance of the Dodd-Frank Wall Street Reform and Consumer Protection Act.

Thank you again Mr. Chairman and I look forward to the witnesses comments!

WITNESS TESTIMONY

**JOINT
WRITTEN TESTIMONY OF
SCOTT G. ALVAREZ**

GENERAL COUNSEL
BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM
AND

MR. THOMAS C. BAXTER, JR.

GENERAL COUNSEL
FEDERAL RESERVE BANK OF NEW YORK

Chairman Paul, Ranking Member Clay, and members of the Subcommittee, we appreciate the opportunity to discuss the different ways in which the Federal Reserve informs the Congress and the American people about our policies and actions. The Federal Reserve regularly releases significant, detailed information about its operations. Our aim in doing so is to promote understanding of how the Federal Reserve fosters financial and economic stability and to facilitate an evaluation of our actions while also preserving the ability to effectively fulfill the responsibilities that the Congress has given the Federal Reserve. In that context, we will describe the Federal Reserve's compliance with the disclosure provisions of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act), including the data we released in December 2010 about the transactions we conducted to stabilize markets during the recent financial crisis, restore the flow of credit to American families and businesses, and support economic recovery and job creation in the aftermath of the crisis. We will also address our March 2011 release, under the Freedom of Information Act, of documents regarding the use of the Federal Reserve's discount window during the crisis.

The role of lender of last resort is a critical responsibility long filled by central banks around the world. Central bank lending facilitates the implementation of monetary policy and allows the central bank to address short-term liquidity pressures in the banking system. During normal times, the Federal Reserve's discount window provides a backup source of liquidity for depository institutions in sound financial condition to address unexpected, short-term funding pressures. In doing so, the discount window facilitates the smooth and efficient flow of credit to U.S. households and businesses. In periods of crisis, the discount window is a tool that can be used to support market liquidity, and thereby mitigate strains in financial markets that could otherwise escalate and lead to sharp declines in output and employment. All discount window loans are fully secured and the Federal Reserve has not suffered a loss on any discount window loans.

Disclosure and Integrity of the Federal Reserve's Financial Statements

Since it began operation in 1914, the Federal Reserve has published full financial statements. We release our balance sheet every week, both by individual Reserve Bank and on a consolidated basis for the entire Federal Reserve System.³²⁰ In addition, the Federal Reserve publishes annual financial statements with information on our assets and liabilities as well as income and expenses in the same detail as a publicly traded corporation.³²¹

During the recent financial crisis, the Federal Reserve expanded its weekly balance sheet disclosures to include information about the amount of credit outstanding under each of the credit facilities established during the crisis. The Federal Reserve also initiated in June 2009 a special monthly report, which we provide to the Congress and publish on the Board's website, that provides additional detail about the Federal Reserve's emergency lending programs, including information on the amount of lending under each program, a description of the type and level of collateral associated with those

³²⁰ This information is published each Thursday, for the week ending the preceding Wednesday, through the Federal Reserve's H.4.1 Statistical Release, "Factors Affecting Reserve Balances of Depository Institutions and Condition Statement of Federal Reserve Banks." The current release, as well as past releases dating from 1996, is available on the Board's website at www.federalreserve.gov/releases/h41/default.htm. The website also provides descriptive information and an interactive guide for each table in the release.

³²¹ This information is included in the Board's annual report, which is submitted to the Congress each spring and published on the Board's website at www.federalreserve.gov/boarddocs/rptcongress.

loans, and information about the borrowers under those facilities.³²² This report includes aggregate information about credit provided to depository institutions through the discount window as well as information on the Federal Reserve's securities holdings and the holdings of Maiden Lane, Maiden Lane II, and Maiden Lane III. The Board's website also contains detailed information about the terms and conditions of each of the emergency lending programs, the availability of discount window lending, the swap lines opened with foreign central banks, and the arrangements with third-party vendors used by the System during the financial crisis, as well as expansive data and numerous reports and other information on all aspects of Federal Reserve operations.³²³

The Federal Reserve Bank of New York (FRBNY) also maintains a website that offers detailed information on open market operations taken to implement the monetary policy decisions of the Federal Open Market Committee. This information includes schedules of purchases and sales of securities as part of open market operations with CUSIP information describing the securities involved. With this information, a description of every open market operation can be examined shortly after it is conducted. Other open market information available on the FRBNY website includes summary and individual data on the securities held in the System Open Market Account and information about the federal funds rate.³²⁴ The site also contains a great deal of additional data related to FRBNY operations, including the names of the primary dealers, some legal forms for transacting business, and other information about fiscal agency activities on behalf of the U.S. Treasury.

The Federal Reserve's annual financial statements are audited by an independent public accounting firm, which performs customary procedures to assure their accuracy and integrity. For the last four years, for example, Deloitte and Touche has audited the financial statements of the Federal Reserve Board and the Federal Reserve System as a whole. In each year, the Federal Reserve has received a clean auditor opinion, meaning that the financial statements present fairly the financial positions of the Federal Reserve. Further, the

³²² See the *Monthly Report on Credit and Liquidity Programs and the Balance Sheet*, available at www.federalreserve.gov/monetarypolicy/clbsreports.htm. For more information on the various Federal Reserve liquidity and credit facilities and further background on the Federal Reserve's balance sheet, see www.federalreserve.gov/monetarypolicy/bst.htm.

³²³ The Board's website is at www.federalreserve.gov.

³²⁴ FRBNY's website is at www.newyorkfed.org. See www.newyorkfed.org/markets/openmarket.html for information about open market operations.

external auditor also opines that the Federal Reserve has maintained effective internal controls over financial reporting. The independent audit also covers transactions conducted through each of the special lending facilities established by the Federal Reserve under section 13(3) of the Federal Reserve Act and the financial statements of Maiden Lane, Maiden Lane II, and Maiden Lane III, as well as the transactions conducted through the discount window and with foreign central banks. By statute, the Board's Office of Inspector General (OIG) is responsible for ensuring that the auditor and the audits are independent. The results of these financial audits are reported annually to the Congress along with the audited financial statements of the Federal Reserve System and published on the Board's website.³²⁵

In addition to these audits, the Federal Reserve, and in particular, the special lending facilities established by the Federal Reserve during the recent financial crisis, have been subject to a number of other audits and reviews. These include special audits by the Office of the Special Inspector General for the Troubled Asset Relief Program for each program that involved any funding from the TARP program.³²⁶ The Congressional Oversight Panel and the Financial Crisis Inquiry Commission also conducted reviews and both have issued public reports.³²⁷

Moreover, the Federal Reserve's financial statements and a broad range of our functions are subject to review by the Government Accountability Office (GAO). For example, in recent years the GAO has conducted reviews of the policies and practices of the Federal Reserve in its supervision and regulation of bank holding companies, state-chartered banks that are members of the Federal Reserve System, and other banking organizations. It has also conducted reviews of the Federal Reserve in other areas, including our oversight and operation of payment systems; our implementation and enforcement of consumer protection laws; our policies on the acquisition of U.S. banking organizations by sovereign wealth funds; our efforts to address cyber security; and the need for financial regulatory reform. These reviews are not limited to auditing the

³²⁵ The latest *Annual Report of the Board of Governors of the Federal Reserve System* is available on the Board's website at www.federalreserve.gov/boarddocs/rptcongress.

³²⁶ See www.sig tarp.gov/audits.shtml.

³²⁷ See Congressional Oversight Panel (2011), *March Oversight Report—The Final Report of the Congressional Oversight Panel* (Washington: GPO, March 16), www.gpo.gov/fdsys/pkg/CHRG-112shrg64832/pdf/CHRG-112shrg64832.pdf; The Financial Crisis Inquiry Commission (2011), *The Financial Crisis Inquiry Report* (Washington: GPO, January), www.gpoaccess.gov/fcic/fcic.pdf.

integrity of the financial statements or public reporting of these activities. Rather, the GAO reviews the development of policies and provides assessments of and suggestions regarding appropriate policies.

In response to a directive from the Congress in the Dodd-Frank Act, the GAO is currently conducting a special review of all loans and other Federal Reserve transactions between December 1, 2007, and July 21, 2010, under the special lending facilities and other programs developed during the financial crisis.³²⁸ This review will assess operational integrity, internal controls, security and collateral policies, policies governing third-party contractors, and the existence of any conflicts of interest or inappropriate favoritism in the establishment or operations of the facilities.³²⁹ The Federal Reserve is fully cooperating with the GAO in its conduct of this extensive review and will continue its close cooperation with the GAO to assist in its reviews of Federal Reserve functions generally.

Recent Information Releases

As provided by the Dodd-Frank Act, on December 1, 2010, the Board published detailed information on its website about the Federal Reserve's actions during the financial crisis, including transactions to stabilize markets, restore the flow of credit to American families and businesses, and support economic recovery and job creation in the aftermath of the crisis.^{330 331}

In the December 1 data release, the Federal Reserve provided vast amounts of information about the programs and the terms and conditions of the individual transactions made under them. The information provided detailed explanations as well as definitions of

³²⁸ This audit is being undertaken pursuant to section 1109 of the Dodd-Frank Act and is to be completed in July 2011.

³²⁹ See 31 U.S.C. § 714(f).

³³⁰ See section 1103(b) of the Dodd-Frank Act. The data released on December 1, 2010, included transaction-level information about the following programs: the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF); the Term Asset-Backed Securities Loan Facility (TALF); the Primary Dealer Credit Facility (PDCF); the Commercial Paper Funding Facility (CPFF); the Term Securities Lending Facility (TSLF); the TSLF Options Program (TOP); the Term Auction Facility (TAF); agency MBS purchases; dollar liquidity swap lines with foreign central banks; assistance to Bear Stearns, including Maiden Lane; and assistance to American International Group, including Maiden Lane II and III. The information can be found on the Board's website at www.federalreserve.gov/newsevents/press/monetary/20101201a.htm.

³³¹ The Dodd-Frank Act has substantially modified the ability of the Federal Reserve to extend emergency credit to single identified non-banking companies. Now, credit under section 13(3) of the Federal Reserve Act may only be offered through credit facilities with broad-based eligibility.

the material terms for each facility. Data concerning the material terms were made available in multiple formats, including Excel files that allow users to search, sort, and filter the data for each program in multiple categories. For the broad-based lending facilities, details included the name of the borrower, the amount borrowed, the date the credit was extended, the interest rate charged, information about collateral, and other relevant credit terms. Similar information was provided for the draws of foreign central banks on their dollar liquidity swap lines with the Federal Reserve. For agency MBS transactions, details included the name of the counterparty, the security purchased or sold, and the date, amount, and price of the transaction.

In addition, as mandated by the Dodd-Frank Act, the Board's website directly links to the Federal Reserve's audit-related information, including GAO reports, annual audited financial statements, and reports related to emergency lending authority provided to the Congress.³³² The Board has also charged staff with identifying other information that could be posted to this site that would help to explain the accounting, financial reporting, and internal controls of the Board and the Reserve Banks.

On March 31, 2011, the Federal Reserve released documents related to the discount window in response to requests filed by Bloomberg L.P. and Fox News Network LLC under the Freedom of Information Act. Discount window lending under section 10B of the Federal Reserve Act offers secured, short-term loans from the Reserve Banks to depository institutions located in the lending Reserve Bank's district. The March 31 release included documents containing information related to borrowers at the discount window between August 8, 2007, and March 1, 2010, that was not required to be disclosed under the Dodd-Frank Act.

Future Information Disclosures

Going forward, the Dodd-Frank Act provides for the release of information on any broad-based emergency lending facility one year after the termination of the facility. The act also provides for the release of information regarding discount window lending and open market operations conducted by the Federal Reserve after July 21, 2010, with a two-year lag. For lending facilities (including both emergency lending facilities and the discount window) and for open market operations, the Federal Reserve will publish information

³³² See www.federalreserve.gov/newsevents/reform_audit.htm.

disclosing the identity of the borrower or counterparty, transaction amount, interest rate or discount paid, and collateral pledged.

The Federal Reserve believes that the lags provided by the Dodd-Frank Act for the release of transaction-level information about open market operations, emergency lending facilities, and discount window lending activities establish an important balance between the public's interest in information about participants in transactions with the Federal Reserve and the need to ensure that the System can effectively use its congressionally authorized powers to maintain the stability of the financial system and implement monetary policy. We remain concerned that a more rapid release of information about borrowers accessing the discount window and emergency lending facilities could impair the ability of the Federal Reserve to provide the liquidity needed to ensure the smooth working of the financial system. If institutions believe that publication of their use of Federal Reserve lending facilities will impair public confidence in the institution, then institutions may choose not to participate in these facilities. Experience has shown that banks' unwillingness to use the discount window can result in more volatile short-term interest rates and reduced financial market liquidity that, in turn, can contribute to declining asset prices and reduced lending to consumers and small businesses.

We will carefully monitor developments in the use of the discount window and other Federal Reserve facilities and keep the Congress informed about their effectiveness.

Conclusion

The Federal Reserve has worked and will continue to work with the Congress to ensure that our operations promote the highest standards of accountability, stewardship, and policy effectiveness, consistent with meeting our statutory responsibilities. We appreciate the opportunity to describe the Federal Reserve's efforts on this important subject and are happy to answer any questions you may have.

*H*EARING XI.

AUDIT THE FED: DODD-FRANK, QE3, AND FEDERAL RESERVE TRANSPARENCY

TUESDAY, OCTOBER 4, 2011

WITNESSES

Brown, Orice Williams, Managing Director, Financial Markets and
Community Investment, U.S. Government Accountability
Office

Auerbach, Robert D., Ph.D., Professor of Public Affairs, Lyndon B.
Johnson School of Public Affairs, University of Texas Austin

Calabria, Mark A., Ph.D., Director of Financial Regulations
Studies, Cato Institute

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Audit the Fed: Dodd-Frank, QE3, and Federal Reserve Transparency” on Tuesday, October 4, 2011 at 10:00 a.m. in Room 2128 of the Rayburn House Office Building.

This hearing examined the audit findings by the Government Accountability Office (GAO) of their Federal Reserve audit, which was mandated by the Dodd-Frank Wall-Street Reform and Consumer Protection Act (P.L. 111-203). Also discussed were earlier legislative efforts to audit the Federal Reserve; current statutory Federal Reserve audit and data disclosure requirements; and the larger issue of the economic and public policy importance of requiring transparency in the Federal Reserves’ actions – particularly in light of the Federal Reserve’s monetary policy efforts during the financial crisis of 2008-2009, its continued unconventional support to financial markets, and its engagement in the Eurozone’s financial crisis.

This was a two-panel hearing with the following witnesses:

Panel I

- Ms. Orice Williams Brown, Managing Director, Financial Markets and Community Investment, GAO

Panel II

- Dr. Robert D. Auerbach, Professor of Public Affairs, Lyndon B. Johnson School of Public Affairs, University of Texas, Austin
- Dr. Mark A. Calabria, Director of Financial Regulation Studies, Cato Institute

History

The Federal Reserve System has been the central bank of the United States for nearly 100 years. Over the course of that century, the Federal Reserve has steadily gained more power over the nation's monetary policy, while Congress has simultaneously abdicated its own Constitutional responsibility for, and authority over, monetary policy.

Throughout its long history, the Federal Reserve has provided very little disclosure to the public regarding its operations and actions. For the past several decades, numerous bills requiring audits, greater disclosure, and other accountability from the Federal Reserve to Congress about its conduct of monetary policy have been introduced in Congress, but have met with steep opposition. Advocates for these bills have consistently cited the seminal impact the Federal Reserve's monetary actions and policies have on the nation's economic and fiscal well-being as justification for requiring greater public disclosure regarding the Federal Reserve's actions and decision-making. Opponents argue that auditing and disclosing the Federal Reserve's conduct of monetary policy would interfere with the Federal Reserve's independence by subjecting its monetary policy decision-making to political pressure.

Limited Audit Authority

Although current law technically subjects the Federal Reserve to audits, the scope of those audits is limited. In 1999, the Gramm-Leach-Bliley Act (P.L. 106-102) required annual independent audits of the financial statements of each regional Federal Reserve Bank and the Board of Governors. Prior to that, P.L. 95-320 enacted in 1978 also authorized the GAO to conduct limited audits of the Federal Reserve. Despite that authorization, the GAO never actually audited the Federal Reserve. In hearings on the 1978 legislation, and again after the bill was enacted, GAO officials said that the GAO could not satisfactorily audit the Federal Reserve without being able to audit its open market operations as well, which it was not authorized to do. In fact, the GAO currently lacks the authority to fully audit the following Federal Reserve actions:

- (1) Transactions for or with a foreign central bank, government of a foreign country, or non-private international financing organization;

- a) Deliberations, decisions, or actions on monetary policy matters, including discount window operations, reserves of member banks, securities credit, interest on deposits, and open market operations;
- b) Transactions made under the direction of the Federal Open Market Committee; and
- c) Discussions or communications among or between members of the Board and officers and employees of the Federal Reserve System related to items (1)-(3).³³³

In the 111th Congress, concerns about the Federal Reserve's extraordinary actions in its conduct of monetary policy and its extensive assistance to financial markets during the 2008-2009 financial crisis led to a renewed interest in fully auditing the Federal Reserve. Several legislative proposals were introduced in both houses of Congress to provide the public greater transparency for the Federal Reserve's actions that helped pick winners and losers in the financial system. Among the bills was H.R. 1207, the popularly titled "Audit the Fed" bill, which repealed all of the current statutory restrictions on the GAO's ability to fully audit the Federal Reserve. H.R. 1207 was introduced by then-Ranking Member of the Domestic Monetary Policy Subcommittee, Rep. Ron Paul. The bill was cosponsored by 320 Members of the House on both sides of the aisle and formed the basis of the audit provisions in the original House-passed version of what eventually became known as the Dodd-Frank Act.

The Dodd-Frank GAO Audit of the Federal Reserve's Emergency Lending Facilities

Unfortunately, the final language of the Dodd-Frank Act as passed into law mandated only a one-time GAO audit of the Federal Reserve—and then only of the procedural elements of its emergency lending facilities. The GAO was given a year from the law's passage to issue both the required audit and a report on it. While the language enacted was much narrower in scope than the original House-passed audit requirement, the provision still constituted the first statutorily enacted directive authorizing the GAO to examine the Federal Reserve's conduct of monetary policy.

The Fed's Emergency Lending Authority

³³³ 31 U.S.C. 714(b)

Section 13(3) of the Federal Reserve Act grants the Federal Reserve the authority to lend money to institutions under “unusual and exigent circumstances.” During the financial crisis, the Federal Reserve relied upon Section 13(3) to create several new lending facilities and to lend to non-depository institutions. The Dodd-Frank Act required the GAO to audit these emergency lending facilities that the Federal Reserve had operated between December 2007 and July 2010. The GAO evaluated the lending facilities and presented its findings in an audit and report issued in July, 2011.³³⁴ The GAO report included the following information:

- (1) A description of the basis and purpose for the establishment of the programs, ostensibly to stabilize markets and institutions through liquidity programs.
- (2) An assessment of the Reserve Banks’ control over financial reporting and accounting. The GAO found no significant accounting, financial reporting, or internal control issues concerning the emergency programs.
- (3) An evaluation of the Reserve Banks’ policies and practices for the use, selection, and payment of vendors. The GAO found that the individual Reserve Banks would benefit from strengthened guidance for noncompetitive contracts awarded in exigent circumstances.
- (4) An evaluation of the policies for identifying and managing conflicts of interest for Reserve Bank employees, vendors, and members of Reserve Bank boards of directors. The GAO found that conflict-of-interest polices could be strengthened.
- (5) An assessment of the security and collateral policies in place to mitigate risk of losses. The GAO found risk management policies and practices for future emergency programs could be strengthened.
- (6) An examination of whether competing eligible participants were treated equitably. The GAO found that the Federal Reserve Board lacked guidance and documentation regarding decisions about granting access for some participants to the emergency facilities.

³³⁴ U.S. Government Accountability Office, *Federal Reserve System: Opportunities Exist to Strengthen Policies and Process for Managing Emergency Assistance*, GAO-11-696 (July 2011), available at <http://www.gao.gov/new.items/d11696.pdf>. Last accessed December 11, 2012.

The GAO report also compiled much of the publicly available information that had been released by the Federal Reserve in December 2010 as required by Dodd-Frank’s disclosure provisions. The information was published on the Board of Governors’ website and included detailed information about individual transactions and the entities that had borrowed funds from the emergency lending facilities. That information was presented in spreadsheets for each program with thousands of entries each, which helped to coin the phrase “Data Dump.”

The GAO tabulated the Federal Reserve’s total transaction amounts for its emergency lending facilities on both a term-adjusted, and non-term-adjusted, basis. Non-term-adjusted lending totaled more than \$16 trillion, and term-adjusted lending totaled \$1.1 trillion. The GAO found that large global institutions were among the largest recipients of the Federal Reserve’s emergency lending -- receiving over 50 percent of the total dollar amounts provided by the Term Auction Facility and the Commercial Paper Funding Facility.

Notwithstanding the data compiled and presented by the GAO, many argue that the audit mandated by the Dodd-Frank Act provided insufficient information regarding the decision-making and the amounts provided by the Fed’s emergency lending facilities. They point out that although the GAO audit examined the procedures and protocols that governed the lending facilities, it did not examine the actual lending transactions themselves and the individual evaluations and decisions the Federal Reserve made regarding them. In addition, the Dodd-Frank audit language also did not authorize the GAO to audit the Fed’s discount window or open market operations.³³⁵

The Future of Federal Reserve Transparency

In addition to the one-time audit requirement, the Dodd-Frank Act contained other provisions that provide additional on-going transparency for the Federal Reserve’s operations. Under Section 1102, the GAO is authorized to audit any special credit facility created under the Federal Reserve’s emergency lending authority. The Federal Reserve under section 1103 must disclose information about discount window borrowing by a financial institution two years after a loan is made. Also under section 1103, the Federal Reserve

³³⁵ The Federal Reserve released data on some discount window and open market operations in March 2011, in response to Freedom of Information Act requests from Bloomberg News and FOX News. The Federal Reserve had initially refused to provide the information, and the news agencies sued to obtain the data.

must disclose information about open market operations two years after a transaction occurs,³³⁶ and disclose information about borrowers from emergency lending facilities one year after authorization for that facility is terminated.

Notwithstanding the provisions of the Dodd-Frank Act, the Federal Reserve's subsequent and continued interventions in the markets long after the worst of the financial crisis passed led to calls for increased transparency. Among these interventions were the Federal Reserve's quantitative-easing programs (so-called QE1 and QE2³³⁷); the Federal Open Market Committee's announcement that it would sell \$400 billion in short-term bonds in order to purchase long-term bonds (the so-called Operation Twist); the Federal Reserve's swap agreements with foreign central banks; and its agreement with four foreign central banks to make unlimited dollar funding available to European banks. While the Dodd-Frank Act has made the Federal Reserve more transparent in regards to its mechanics, monetary policy operations and the decision-making criteria regarding them remain largely exempt from effective, much less timely, oversight.

The unprecedented scope, novelty, and self-determined expansions of its authority evidenced by the Federal Reserve's monetary efforts during the financial crisis and its aftermath have raised fundamental questions about Congress's ability to oversee the Federal Reserve -- and ensure that Federal Reserve officials are held accountable for their actions. The quantitative easing programs, for example, have raised concerns that the Federal Reserve may be purchasing bonds from favored institutions or that advance notice of the Federal Reserve's buying programs may signal to market participants that they should purchase or sell certain assets to gain profits or avoid losses.

The delay between the conduct of open market operations and disclosures about those operations also makes oversight of those operations difficult. The Federal Reserve is not required to disclose information about open market operations until two years after they take place. Because the last three major asset purchase programs have taken place over the last two and a half years, there are concerns that information about these programs will not be released

³³⁶Discount window transactions and open market transactions that took place before the Dodd-Frank Act was enacted are exempt from these disclosure requirements. Except for the FOIA requests from Bloomberg and FOX News, these transactions would still be undisclosed.

³³⁷ As of December 2012, the Fed had begun further quantitative easing programs that were to purchase a total of \$85 billion per month of mortgage-backed securities and Treasuries. These programs were referred to as QE3 and an extension of QE3 respectively—although the term QE infinity had been used as well, since the Fed gave no end date for the programs.

in time for Congress to provide effective oversight of these programs. In addition, the Federal Reserve has opened swap lines with foreign central banks to provide dollar liquidity to foreign markets; however, the frequency with which these lines have been opened and the size of the swap lines has led some to question whether the Federal Reserve is bailing out insolvent European banks—ultimately at U.S. taxpayers, savers, and consumers’ expense.

Proponents of Federal Reserve independence believe that the conduct of monetary policy requires that the Federal Reserve be insulated from political influence. However, the large sums being lent and circulated by the Federal Reserve could affect the U.S. economy as well as holders of dollars and dollar-denominated assets. With such large sums and consequences at stake, Americans should be as worried about the Federal Reserve’s influence in picking winners and losers in financial markets.

Given the significant effects that actions taken by the Federal Reserve have upon the economy, advocates of greater transparency continue to look for ways to increase accountability and oversight over the Federal Reserve. Of particular note was the passage of H.R. 459, the Federal Reserve Transparency Act, in the 112th Congress. A reintroduced version of Rep. Paul’s H.R. 1207 “Audit the Fed” bill from the 111th Congress, the bill passed with an overwhelming bipartisan majority of 327 to 98 in July 2012.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul (chairman of the subcommittee) presiding. Members present: Representatives Paul, Luetkemeyer, Huizenga, Hayworth, Schweikert; and Peters.

Chairman PAUL. This hearing will come to order.

Without objection, all members' opening statements will be made a part of the record.

This morning, we are holding a hearing entitled, "Audit the Fed: Dodd-Frank, QE3, and Federal Reserve Transparency." I will yield myself 5 minutes for opening remarks.

Transparency of the Federal Reserve has been an issue that I have been working on for many years, and I consider it very, very important, and we have been making some progress on this. Back in the 1970s, there was a major effort made to get more transparency of the Fed, but unfortunately it actually backfired and gave more protection to the Fed from any inquiries made by the Congress.

One thing I would like to make clear is my efforts to have more transparency of the Fed aren't equated to that of wanting Congress to manage day-to-day operations of the monetary policy. Quite frankly, I think managing of the monetary policy should be more involved with a free market, free market of interest rates, rather than anybody believing they can manage that from a day-to-day viewpoint.

Frequently, it is said that the independence of the Fed must be protected at all costs. I usually think once there is an emphasis on independence of the Fed, it usually means the secrecy of the Fed, and it is quite a bit of a difference, but the Fed hides behind this independence so there is no political influence.

But I think more people now are starting to realize that the Fed isn't truly independent from political influence because indirectly, and sometimes more directly, it is involved in political decisions or at

least private and secret decisions made to serve some political interest.

The Constitution is rather clear on if anybody is to have any oversight, it would be the Congress rather than the Executive Branch. The ability to do this, of course, has been hindered. The Congress created the Federal Reserve with the Federal Reserve Act of 1913, and therefore, obviously the Congress has something to say about it. Not only did they create the Fed, but they have changed the rules. Congress has passed laws giving instructions to the Federal Reserve, so clearly, Congress has the responsibility of oversight of the Federal Reserve.

I think it is very interesting that one of the arguments for independence is that we can't allow the people to know what is going on with the banks; that if all of the sudden, we knew that a bank was having a problem, this would be bad information for the people to know. And then that is used as an excuse to prop up certain banks and make sure bailouts occur and that there is a lender of last resort, and there is no confusion or, otherwise, no correction that might be necessary.

But in many ways, the Fed performs a function exactly opposite of what the SEC is supposed to do. The SEC is a regulator that is supposed to go in and look at the books and throw out some rules so that people know what is going on and get information out. It seems to me at least, that the Federal Reserve does exactly the opposite.

The significance of monetary policy is really the overriding issue about the Federal Reserve, and what has happened since 1913 and actually what is happening today, because we are in the midst of a major crisis, and there are many of us who have come to the conclusion that the business cycle is very much related to monetary policy. So, if the business cycle is related to monetary policy, this should be of vital interest to all of us. If we connect the two, the Federal Reserve and the business cycle, then we see that recessions and depressions are a result of the business cycle. First, you have the boom and you have to have the correction, so you have to have the bust.

The other important relationship of the Federal Reserve to what Congress does, and for too long, it has actually been symbiotic, the Congress has been negligent in oversight, but they have been very complacent about deficits being accommodated. If the Fed was not so accommodative and always buy the debt and keep interest rates artificially low, there would be a lot more restraints on the Congress. But as long as Congress wants to spend money and they don't want to

raise taxes—that is not popular—and borrowing becomes difficult, then there is a better way from their viewpoint to do it, and that is just to allow the Fed to create money out of thin air, which for those of us who believe in less government is better than more government, whether it is warfare or welfare, we see that the Federal Reserve has a strong influence in allowing our government to grow.

So I am very pleased to chair this hearing today, and I am very pleased to know that we are making progress. We didn't get a full audit last year, but we did get an audit coming out of the Dodd-Frank Act. We did get a lot more information, and today we are going to receive more information, as well as the court cases that have come about. So compared to even 4 years ago, a lot of progress has been made in the right direction, but from my view point, we have a long way to go.

I have concluded my opening statement.

Do any other members wish to make an opening statement?

[PANEL I]

Okay. We will then go ahead and start with our first panel. Our first panel consists of Ms. Orice Williams Brown, who has spent her 21-year career in civil service at the GAO office. She is currently the Managing Director of GAO's Financial Markets and Community Investment team. Her portfolio of work includes banking, securities futures, and insurance issues. Most recently, she has been responsible for leading much of GAO's work on the financial crisis, Treasury's Troubled Asset Relief Program, the Federal Reserve System and its emergency lending programs, and regulatory reform. Ms. Brown received her MBA with a concentration in finance from Virginia Tech. I now recognize Ms. Brown for her testimony.

STATEMENT OF ORICE WILLIAMS BROWN³³⁸

MANAGING DIRECTOR, FINANCIAL MARKETS AND COMMUNITY INVESTMENT, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Ms. BROWN. Thank you. Chairman Paul, members of the subcommittee, I am pleased to be here today to discuss our recent report on the Federal Reserve's emergency programs.

As you well know, the study was required by the Dodd-Frank Wall Street Reform and Consumer Protection Act. It is the first comprehensive assessment of the Federal Reserve's use of emergency authority under section 13(3) of the Federal Reserve Act in response to the recent financial crisis. It also covers a number of programs that

³³⁸ [The prepared statement of Ms. Williams Brown can be found on page 1252.]

were carried out under sections 10(b) and 14 of the Federal Reserve Act.

This morning, I would like to briefly highlight a few of our findings.

First, we found that the Federal Reserve and its emergency programs were subject to a number of internal and external audits. None of these audits found material weaknesses, and when issues were uncovered, the reserve banks generally addressed the deficiency in a timely manner. However, we did find that some operational audits had not been completed until the emergency programs had been operational for over a year.

Second, the New York Fed was the primary player in executing most of the emergency programs authorized by the Board of Governors and the Open Market Committee. However, one program, the Term Auction Facility, was executed across all 12 Federal Reserve Banks through their discount window operations. To implement and operate the various programs, the New York Fed used over 100 vendors to provide a variety of services, ranging from legal services to asset management. We found that most of the contracts were awarded noncompetitively and they were not recompeted after the period of exigency had passed. For a significant portion of vendor fees, Reserve Banks were reimbursed by program recipients or fees were paid from program income.

Third, we found that while the Federal Reserve took steps to manage conflicts of interest, opportunities exist to strengthen its policies for employees, directors, and vendors. During the crisis, the New York Fed expanded its guidance and monitoring for employee conflicts. However, while the crisis highlighted the potential for Reserve Banks to provide emergency assistance to a broad range of institutions, the New York Fed had not yet revised its conflict policies and procedures to more fully reflect potential conflicts that could arise with this new, expanded role.

Fourth, we looked at the Federal Reserve's risk management practices. We found that it took steps to mitigate the risk of loss, such as requiring collateral amounts beyond the loan exposure for the early programs, and accepting only highly rated assets as collateral for some of the latter, more novel, programs. For actions to assist individual institutions, it negotiated specific protections. Over time, the New York Fed expanded its risk management capabilities and strengthened its management of risks across all programs. However, we found that neither the Reserve Bank nor the Board of Governors tracked total potential loss exposures across all emergency programs.

Finally, we found that while the Board of Governors took steps to promote consistent treatment of participants, it lacked guidance and documentation for some decisions. For example, Reserve Banks lacked documented procedures to guide decisions about restricting or denying access to the programs. We made seven recommendations to the Board of Governors to strengthen policies for managing noncompetitive vendor selections, conflicts of interests, risks related to emergency lending, and documentation of emergency program decisions. In response, the Reserve Board indicated that it recognized the benefits of our recommendations and would strongly consider how best to respond.

In closing, I would also note that many of these programs were established at the height of the financial crisis, and little public information was provided initially. Over time, the Board of Governors and the New York Fed increased the amount of information provided to the public, and going forward, the Dodd-Frank Act requires even greater transparency and accountability for any future actions.

Mr. Chairman and members of the subcommittee, this concludes my oral statement, and I will be happy to answer any questions at this time. Thank you.

Chairman PAUL. Thank you very much.

[PANEL I QUESTIONS & ANSWERS]

I will yield 5 minutes to myself for questions.

Overall, having done this audit and been involved, was there any one thing that you were more frustrated with? Was there any obstacle or misunderstanding or the law was confusing? Or was this a pretty clear-cut responsibility and there weren't that many problems? How do you look at it in general?

Ms. BROWN. In general, I would say that the Act laid out a pretty clear level of expectation for us in terms of what was expected, the programs that we were to cover, and exactly what aspects of the program and the operations of the programs that we were supposed to cover. So I would say it was fairly straightforward.

Chairman PAUL. Okay. And this was a 1-year audit; you just have to perform this one time?

Ms. BROWN. Correct.

Chairman PAUL. Would there be much of a problem if we were doing this every year as far as accomplishing what you have done? What kind of a task is this?

Ms. BROWN. This particular audit, while it was fairly straightforward, was an enormous undertaking given the number of emer-

agency programs involved. Going forward, if—one, we would have to keep in mind the current structure that we have around the future ability to perform perform audits. And Dodd-Frank includes in section 1102 some additional authority for us to look at any future credit facilities that the Fed may establish and also certain open market or monetary policy activities that are delineated in the Dodd-Frank Act. So if we were asked to audit those, we would look at any particular request in turn, and approach it very much the way we approach this.

Chairman PAUL. And from your own experience, you have not had to look into the Federal Reserve in the way you did this time? Is this something rather unique for your experience?

Ms. BROWN. Yes.

Chairman PAUL. Many say that it is unnecessary to audit the Fed because they are already audited annually by an independent auditor. These audits are of the Fed's financial statements and became a legal requirement in the late 1990s.

Can you describe to us the difference between these financial audits that they would like to say, well, they are all inclusive and we know everything, versus an audit conducted by the GAO—could you describe the difference between the two?

Ms. BROWN. Yes. GAO actually also does financial audits and we do performance evaluations, and the audit that we did and issued in July of 2011 falls under the program evaluation performance audit arena, and the biggest difference is that we in this were asked to look at specific operational issues. We were asked to look at the operational integrity issues like internal controls over the operations of the programs. We were also asked to look at how the programs were implemented and stood up.

Financial audits tend to focus on if—whether or not the financial statements are being fairly and accurately presented and the controls around the financial reporting. So it tends to be much broader and also more in-depth.

Chairman PAUL. Along that line, I want to follow up with a similar question. The Dodd-Frank GAO audit has been described as a procedural audit. It seems that most of the analysis was looking at the protocol and guidelines in place for the various emergency lending facilities. What do we know about individual transactions? How were they conducted, how was collateral evaluated, and who all had knowledge and access to the facilities and those things in general? Are they included in the GAO's audit or were they not part of the directives given by the Dodd-Frank Act, especially on the individual transactions, and who knew about them and why they occurred?

Ms. BROWN. We were specifically asked to look at the operational aspects of the program, but that includes looking at certain individual transactions, specifically when it came to assistance to individual institutions. But in terms of looking at the broad-based programs, we did look at eligibility requirements. We looked at who the largest users were of the particular programs, and we also looked at how the decision was made from the perspective of who approved the particular emergency program—was it the Board of Governors, was it the Open Market Committee—and then how the particular Reserve Bank implemented the action that had been authorized by the Board of Governors or the FOMC.

Chairman PAUL. Thank you. My 5 minutes has expired. So we will move on to the next member, the gentleman from Missouri, Blaine Luetkemeyer, for 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. One of the things that is concerning to me is the fact that all banks, credit unions, thrifts, what have you, they have some entity that provides oversight over them. And yet the Fed, which is the central bank basically, I guess you would say, of our country, has very little if any oversight over it, you know. And some of the things that you say here are the things that were not—because of the prohibitions—you were not able to go into. I think it is kind of interesting. Where do you think we need to draw the line on this?

Ms. BROWN. GAO's position is that this is a policy decision, and wherever the line is drawn and the bar is set for us to do whatever action, we will do what Congress asks us to do.

Mr. LUETKEMEYER. Okay. Along that line, with regard to the emergency loans that were done during the height of the situation we had in this country, you say in here that the Federal Reserve banks required borrowers in several programs to post collateral in excess of the loan amount, programs that do not require pledge assets with high ratings, etc., etc. Did you see in the way that they handled the loans, was it, in normal banking terms—in other words, did they have the normal set of requirements for collateral excess over the loan they made, normal repayment terms, or what did you see there?

Ms. BROWN. We did look at the security and collateral procedures around loans that were made and we evaluated the processes they had in place. And we found that they did have controls around those, that they did have requirements that certain loans be overcollateralized. And in other cases, there was a requirement that the collateral posted be highly rated. So there were certain controls that were built around the loans that were being made.

Mr. LUETKEMEYER. Did you see anything there that was of concern to you?

Ms. BROWN. We didn't see anything that raised a major concern. We did point out that some of the internal audits that had been done had raised some questions around increasing the controls around the collateral, and we did look at the extent to which those had been addressed, and we found that at some point when an issue was raised, the bank would take steps to improve the controls that were in place.

Mr. LUETKEMEYER. Have all of those loans been paid back?

Ms. BROWN. For many of the broad programs, they have been. There are outstanding loans for the three Maiden Lane LLCs related to the assistance to Bear Stearns and AIG.

Mr. LUETKEMEYER. Okay. The point I am going to try and get to here, though, is they haven't all been paid back?

Ms. BROWN. Correct.

Mr. LUETKEMEYER. Your audit authority is over with; is that correct?

Ms. BROWN. Correct.

Mr. LUETKEMEYER. Therefore, at this point, there is no audit authority on those loans that have been paid subsequent to your audit or those that are yet to be paid; is that correct?

Ms. BROWN. In all cases except for any that involve assistance to individual institutions.

Mr. LUETKEMEYER. Do you think it would be a good idea if we went back and had a requirement to audit those whenever they are all paid off to see if everything is done according to sound financial tenets?

Ms. BROWN. It is something that if we were asked to do, we would definitely do.

Mr. LUETKEMEYER. That is a policy decision, right?

Ms. BROWN. Yes.

Mr. LUETKEMEYER. Okay. With regard to the open market operations of the Fed, one of the things it says here is that they are not required to disclose their operations until 2 years after they take place. How do you get ahold of information that is pertinent, that is time-sensitive, that we can actually get a good job of seeing everything that is going on here? If we can't do it within a 2-year timeframe, that seems almost beyond the ability to implement any sort of controls or corrections.

Ms. BROWN. We would note that in the audit that we did that was issued in July, it was done in many cases less than a 2-year time period.

Mr. LUETKEMEYER. And one more quick question: With regard to the swap lines of things that they have with foreign banks, were you able to do anything at all with oversight of that? Were you able to look into any of the activities along those lines?

Ms. BROWN. That was one of the specific programs listed under our authority in Dodd-Frank.

Mr. LUETKEMEYER. What did you find?

Ms. BROWN. We basically looked at how they were structured. We found that the Fed had engaged in a number of swap line transactions with foreign central banks, and the biggest takeaway was that once the Fed engaged in the swap with the foreign central bank, any activity of the central bank—the foreign central bank was really, from the Fed's perspective, that was the central bank's responsibility, and the foreign central bank assumed any credit risk from the activities that it engaged in.

Mr. LUETKEMEYER. If the chairman will bear with me, just one more question. Do you see any risk to the Fed with the way it is structured right now?

Ms. BROWN. That is one program that remains open, and the authority for that program is open through August of 2012. It was one of the programs that had been extended, and as with swaps, there is currency risk associated with currency swap-type of transactions.

Mr. LUETKEMEYER. Okay. I see my time is up. Thank you, Mr. Chairman, for your indulgence.

Chairman PAUL. Thank you. I now yield 5 minutes to Congresswoman Hayworth from New York.

Dr. HAYWORTH. Thank you, Mr. Chairman, and thank you for conducting this hearing. Thank you, Ms. Williams Brown, for being with us.

There is a notable statement in the GAO report that some Federal Reserve Board decisions to extend credit to certain borrowers were not fully documented. And I was wondering if you could elaborate on that. What sort of documentation would you like to have seen? Was there an explanation as to why the documentation was lacking?

Ms. BROWN. In the area of documentation prior to Dodd-Frank, there wasn't an explicit requirement for the Fed to document its decisions. From an audit perspective, that often presents a challenge

in determining exactly what happened. So that requires us to have a number of conversations with the relevant players.

But what we noted is, with the programs, there were generally broad eligibility requirements, and institutions that were generally considered to be in good financial condition were able to participate in a particular program. But to the extent that there were exceptions that didn't necessarily appear to coincide with the particular process in place, we had to have conversations to find out why things happened.

One example is with the commercial paper lending facility. An AIG subsidiary was allowed to continue to participate in the facility, even though they no longer met the new requirements—and that is, that they had been an active participant in the commercial paper market—but they were still allowed to participate in the facility.

Dr. HAYWORTH. Is there further work ongoing to determine why that was allowed to occur or—

Ms. BROWN. No.

Dr. HAYWORTH. So that now lies with us, I guess, here to—

Ms. BROWN. And we did make a recommendation to the Fed, going forward, that if they were to engage in credit facilities or any emergency lending in the future, that it is important to document decisions, and the Dodd-Frank Act now has a reporting requirement. So we pointed out that in order to fulfill that reporting requirement in the future, there is documentation that has to go along with the decision-making.

Dr. HAYWORTH. In order to encourage—

Ms. BROWN. Report it.

Dr. HAYWORTH. And presumably to encourage sound decision-making—

Ms. BROWN. Yes.

Dr. HAYWORTH. —so that we are not doing things that don't make sense fiscally.

Ms. BROWN. Yes, that. And to be able to then report to the Congress what was being done and why.

Dr. HAYWORTH. Thank you, Ms. Williams Brown, I appreciate that. Mr. Chairman, I yield back the remainder of my time.

Chairman PAUL. I now yield 5 minutes to the Congressman from Arizona, Mr. Schweikert.

Mr. SCHWEIKERT. Thank you, Mr. Chairman.

Ms. Williams Brown, part of this is actually—and my good friend from New York was almost touching on parts of this. First of all, on the emergency facilities, were you able to take a look at how well

documented the requests were, the systemization of the decision-making? And part of where I am leading on this is just your opinion, when you are playing auditor, if we were to have another hiccup, do they have mechanical rules and steps that are consistent? What did you see?

Ms. BROWN. In the retrospective audit, there weren't requirements for them to document specific decision points. So from that perspective, it required us to go back and attempt to reconstruct how decisions were made. Going forward, there are new requirements in terms of being able to report out that should help provide some additional structure around it, and that is one of the things that we also spoke to in some of our recommendations.

Mr. SCHWEIKERT. I heard some discussions about—even before—some of the new requirements. But do they seem to now have been adopted in the—if you and I were to lay out a flowchart and say, here is our decision-making process, with you and I also understanding this may be a process that sometimes has to be done very quickly.

Ms. BROWN. Correct.

Mr. SCHWEIKERT. But it also helps to know what checkboxes you are going through saying, okay, we have this, we have this, we have this. And from what you are seeing, have those documentation requirements, the new ones, been built into the system?

Ms. BROWN. I will say that since July, we haven't gone back to update the status of the recommendations that we made. So I can't say if they have addressed the recommendations that we made, for example, for a better documentation process. That is not something I am in a position today to say that they have or have not done those types of things.

Mr. SCHWEIKERT. Okay. Mr. Chairman, Ms. Williams Brown, with that—because where I am sort of hunting is, how did they document what assets were being pledged future forward, what was being swapped, and how well that was locked in, saying, yes, you are pledging this, and once you have pledged it, you can't go and touch it anywhere else, and we also have the proper mechanics telling us any exposure, like are there any sort of—where these assets may have also lent out their value to other pledges? I am just—I am trying to understand the decision tree, but also the quality of the documentation on assets pledged.

Ms. BROWN. In terms of pledging collateral and tracking that, we did look at the control process around the collateral process, and we did specific drilldowns on two of the facilities that the borrowers

were able to pledge a wide variety of collateral for a single loan. And we did a drilldown to look at the collateral that was pledged, and we also did some independent evaluation and testing to make sure that those controls around those were operational. So there was a process around that.

Mr. SCHWEIKERT. When you were looking at some of that, did you find some of the assets didn't really—ultimately, the market value—add up to what they were put into the pledge?

Ms. BROWN. We looked at the pricing of the collateral, and we found in a small percent of cases, somewhere around 2 percent, that there was some discrepancy in the price of the particular collateral that we tracked versus what was included in the data that we had gotten from the Federal Reserve. But we did not find any type of systematic bias one way or the other in terms of how that collateral had been priced.

Mr. SCHWEIKERT. But only about 2 percent?

Ms. BROWN. It was a fairly small percentage.

Mr. SCHWEIKERT. I am surprised. And would some of that have been MBS, mortgage-backed securities, because of the way you would price it?

Ms. BROWN. Right. I think it cut across a variety of other types of collateral that had been posted.

Mr. SCHWEIKERT. Last one, and I am partially doing this from writing, and seeing if I can find it in my notes, and this one may be asking more of an opinion.

The Inspector General for the Fed, I think, has also been given additional duties for the Consumer Financial Protection Bureau; almost wearing two hats, even though they are now separated. Any opinion on whether that works?

Ms. BROWN. That is not something we have specifically looked at, so I am not in a position to offer an opinion.

Mr. SCHWEIKERT. Gosh darn on that one. Mr. Chairman, I yield back my time. Thank you.

Chairman PAUL. I thank the gentleman. I yield 5 minutes to the gentleman from Michigan, Mr. Huizenga.

Mr. HUIZENGA. Thank you, Mr. Chairman, and I just want to express my appreciation for you holding this hearing. I think this is very important. I appreciate your time coming in as well, and I won't plan on using this full 5 minutes.

But I am struck by the theme that we are hearing of a need for oversight, and I don't want to put words in your mouth, but that certainly is the tone that I am catching, that this is a good thing that

we should—or that has happened. I think it is up to us, then, to decide whether this is something we should continue. It seems to me that we should.

I am curious a bit about if you could talk—and I apologize if you had—I had to step out for a phone call, but maybe you touched on this. I am wondering if you could talk a little bit about what some of the lending facilities were used by branches and subsidiaries of foreign banks, and were you really able to determine why several of those emergency lending facilities were primarily used by foreign institutions? I wonder if you could talk a little bit about that.

Ms. BROWN. We did look at the largest users across the facilities, and we did find that there are certain facilities that tended to be used by the branches and agencies of foreign banks. And in conversations and following up with the Federal Reserve about the reason for that, we found that usually the largest lenders of facilities were driven by the composition of the market. So if it is a market that there were major foreign banks that had branches and agencies in the United States, they would have been as likely as a U.S. bank to tap a particular facility.

Mr. HUIZENGA. And so that wasn't necessarily a region when you are saying that could be a product line or—

Ms. BROWN. Product line or a particular market that they were active in, because many of the broad-based programs were aimed at a particular disruption that was going on in a particular market. Commercial paper, some of the money market mutual funds had also experienced problems.

Mr. HUIZENGA. Thank you. And could you characterize the ratio of domestic versus the foreign?

Ms. BROWN. It really varies by program, and I would be more than happy to provide a breakdown for each facility for the record.

Mr. HUIZENGA. That would be great. How many facilities, as you are using the term “facility,” how many facilities are there? How many breakdowns do you think that would be?

Ms. BROWN. There were—I think it was somewhere in the 10 to 12 range.

Mr. HUIZENGA. Okay. I would appreciate the follow-up on that. So thank you. Thank you, Mr. Chairman. I appreciate that and I yield back.

Chairman PAUL. Thank you. And I now yield additional time to the gentleman from Missouri, Mr. Luetkemeyer, for a follow-up question.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. I would like to follow up just a little bit more on the swap line discussion we had a little bit ago. Can you tell me how many times the line has been used, or is it just beyond this—number of times per day—or has it just been only 3 or 4 times in the last 6 or 8 months?

Ms. BROWN. I am not sure that we tracked it by the number of times used, but we focused on the number of foreign central banks that were permitted to participate in the swap line. And there, would have been through the July timeframe.

Mr. LUETKEMEYER. Do you have an idea of how many times that was? We had the Chairman in here not too long ago, and he indicated that there was almost zero activity.

Ms. BROWN. I will say that when we issued our report, as of the end of June, the balance on the swap lines was zero at that time. So it may have been used and repaid.

Mr. LUETKEMEYER. Okay. Looking at those transactions, did you see anything in there that would pose a risk to the Fed or, therefore, our taxpayers?

Ms. BROWN. I think the potential for—because the Fed would be swapping dollars for foreign currency, with an agreement that the foreign central bank would reverse the swap at the same rate that the other—to the extent that rates move, there is a potential risk built into.

Mr. LUETKEMEYER. Did you see where it is a pass-through from other existing banks over in Europe through the central bank there, or was it just a direct swap through the European Central Bank?

Ms. BROWN. It was—once the swap happened with the particular central bank that the Fed engaged in swap activity with, the Federal Reserve didn't track what happened to those dollars once they were in the hands of the foreign central bank.

Mr. LUETKEMEYER. Okay. So basically there is a firewall, then, between the transaction and wherever else those moneys would go to, those other dollars would go to?

Ms. BROWN. Correct.

Mr. LUETKEMEYER. Is that a fair statement?

Ms. BROWN. I guess I am pausing on the firewall, but there is definitely a separation, yes.

Mr. LUETKEMEYER. Okay. There is no tangible liability exposure to us from one of the other banks in Europe that is going to be passed through the European Central Bank? I guess that is a better way to put it.

Ms. BROWN. The Central Bank would assume that risk.

Mr. LUETKEMEYER. Okay. So basically, then, there is no other risk that the Fed has assumed from those activities.

Ms. BROWN. Right, beyond the swap.

Mr. LUETKEMEYER. Okay. And the only risk that you see there is just the normal currency activity or the daily ups-and-downs of the value of the currency itself? All those other things in the transaction—

Ms. BROWN. There could potentially be others, but that was the one that immediately comes to mind.

Mr. LUETKEMEYER. Has the biggest risk?

Ms. BROWN. I would say that is the one that immediately comes to mind to me, and I do have a total on the number of transactions; 569, that is how many transactions there were.

Mr. LUETKEMEYER. During what time period?

Ms. BROWN. This would have been from the beginning of the program through June 29, 2011.

Mr. LUETKEMEYER. Really? Okay. One more quick question. In your report, you indicate that there is—the GAO found that conflict-of-interest policies could be strengthened. Can you give me an example of where there is a conflict of interest that you found, that there is a problem or exposure or concern?

Ms. BROWN. We found a number that raised issues. They raised an appearance of a conflict, and one had to do with senior Federal Reserve Bank of New York officials. They held stock in some of the institutions that had received assistance. AIG was one example.

Mr. LUETKEMEYER. Did you see a pattern with individuals or with particular companies, particular entities, like through AIG or other companies or other entities that were out there, that they were trying to work with?

Ms. BROWN. I wouldn't say we observed any type of pattern. We observed with the vendors that there were situations that the Federal Reserve Bank of New York, for example, could have taken additional steps to strengthen their management of conflicts of interest that may have existed within vendors, and done additional oversight of what the vendors were actually doing to make sure that they weren't exposed to conflicts.

Mr. LUETKEMEYER. Okay. Very good. Thank you, Mr. Chairman. I appreciate the second round.

Chairman PAUL. Thank you. And I now yield for follow-up question to Mr. Schweikert from Arizona.

Mr. SCHWEIKERT. And forgive me, I just want to make sure I was listening carefully to Congressman Luetkemeyer. On facilities that were with foreign central banks, was there a currency risk when the assets were moved back?

Ms. BROWN. That issue really comes up on the dollar swap lines, because that is actually a swap of U.S. dollars for foreign currency, with the agreement to reverse the swap.

Mr. SCHWEIKERT. It would be an unusual instrument to unwind it back to the value of the previous swap if there had been movement in the currency? That sort of defeats the purpose a bit.

Ms. BROWN. It is the nature of the swap, that you agree to exchange the currency and reverse it at a particular price, at a particular date in the future.

Mr. SCHWEIKERT. Okay. So there was—from what you were seeing, there was always a pledge on the value at the end—

Ms. BROWN. For the dollar swap line only.

Mr. SCHWEIKERT. Yes, that is the only one I was interested in.

Second of all, and I know this is a little on the annoying side, but if you would have one of your staff reach out to our office sometime in a couple of weeks, we would love to be able to chase down in writing—as you were saying, it was 2 percent that you saw that—of pledged assets that you thought may have been outliers. And this is one of those occasions I have to go through my file cabinet and find an article from a couple of months ago that I think was talking about specifically private label MBS that may have been pledged, that may have been much further in the dispute of what its true value was. And I am just trying to get my head around having read one thing and now in testimony making sure I am using the same definitions today.

Ms. BROWN. It is not only an issue of the same definitions, but this is something that could vary from facility to facility. And my comment was specific to two credit facilities; but this could actually be the case in one of the others.

Mr. SCHWEIKERT. It absolutely would be that way. It would absolutely be that way. There were five hundred and some different ones, as I think I just heard you say—

Ms. BROWN. For the transactions for the dollar swap lines, yes.

Mr. SCHWEIKERT. Okay. Last one is: Also, as long as we are asking to throw something into note, so that Inspector General comment before—I know this really isn't your area—but I would love someone, if there is a policy statement somewhere in the agency in regard to whether this really works to have one Inspector General

doing both the Consumer Financial Protection Bureau and the Fed, even though they now wear very separate hats. And with that, Mr. Chairman, I yield back, and I thank you.

Chairman PAUL. I thank you. Does anybody else have any follow-up questions? If not, I want to thank the witness for appearing. And also, without objection, your written statement will be made a part of the record, and you are now dismissed and the second panel may come to the table.

Ms. BROWN. Thank you.

[PANEL II]

Chairman PAUL. We will now receive testimony from our second panel.

Our first panelist, Dr. Robert Auerbach, is Professor of Public Affairs at the LBJ School of Public Affairs at the University of Texas in Austin. He was an economist with the House of Representatives' Committee on Financial Services, formerly the Committee on Banking, Finance, and Urban Affairs, for 11 years. He assisted Chairman Henry Reuss in the 1970s and the 1980s and Chairman Henry Gonzalez in the 1990s with oversight of the Fed, spanning four Fed Chairmen: Burns; Miller; Volcker; and Greenspan. He is the author of the book, "Deception and Abuse at the Fed: Henry B. Gonzalez Battles Alan Greenspan's Bank." He received two master's degrees in economics, one from the University of Chicago and one from Roosevelt University under Abba Lerner. He received his Ph.D. in economics from the University of Chicago where he studied under Milton Friedman.

Our second panelist is Dr. Mark Calabria who is the Director of Financial Regulation Studies at the CATO Institute. Prior to joining CATO in 2009, he spent 7 years as a member of the senior professional staff of the Senate Committee on Banking, Housing, & Urban Affairs, where he handled issues related to housing, mortgage finance, economics, banking, and insurance. Dr. Calabria has served as Deputy Assistant Secretary for Regulatory Affairs at the Department of Housing and Urban Development and has been a research associate with the U.S. Census Bureau's Center for Economic Studies. He is a frequent contributor to the New York Post, National Review, and Investors Business Daily, and frequently appears on CNBC, Bloomberg, Fox Business, BBC, and BNN. He received his Ph.D. in economics from George Mason University.

I would like to now recognize the second panel and also, under unanimous consent, your written testimony will be made a part of the record.

So I recognize Dr. Auerbach.

STATEMENT OF ROBERT D. AUERBACH, PH.D.³³⁹
PROFESSOR OF PUBLIC AFFAIRS
LYNDON B. JOHNSON SCHOOL OF PUBLIC AFFAIRS
UNIVERSITY OF TEXAS AT AUSTIN

Mr. AUERBACH. Thank you very much, Chairman Paul and members of the subcommittee. I am honored to come back here where I worked for 11 years. One thing you left out: I also worked in the Reagan Administration, saying the same things, in between the periods I worked at the Treasury Department.

I want to talk about transparency at the Fed. The Fed is the powerful central bank of the United States that controls the money supply, regulates the banking system, and since 1962 makes loans to foreign banks without congressional authorization. The historical record of Federal Reserve officials blocking transparency and individual accountability, including destroying source records of its policymaking committee since 1995, is clear.

I want to especially thank Chairman Ron Paul and Senator Bernie Sanders for finally getting some kind of an audit at the Federal Reserve in the Dodd-Frank Act.

In 1976, when I was here, I assisted Henry Reuss in putting up an audit bill of the Fed. The Fed immediately mounted a huge lobbying campaign using the bankers that it regulates to come to Washington and go into all the offices here and stop the audit. Chairman Reuss went to the Floor of the House later when we got direct evidence of how the Fed used their offices and their facilities to organize the bankers they regulate to come to the Congress and lobby.

Finally, the bill was passed in 1978 down the hall at the Government Operations Committee with two glaring no-audit parts of the bill. One is anything to do with monetary policy or international transactions at the Fed.

Let me just talk one moment about those two areas. In the monetary policy area, there are tremendous opportunities to make billions of dollars on inside information from the many leaks of Fed monetary policy which I helped the committee investigate for many years. Let me just give you one little taste of it.

³³⁹ [The prepared statement of Dr. Auerbach can be found on page 1281.]

First of all, then-Chairman Greenspan said after a number of leaks, when the newspapers were publishing what they had said the previous day in their secret meetings, that we are beginning to look like a bunch of buffoons. They had at those secret meetings at the Kansas City Fed, where I used to work, central bankers from Bulgaria, China, the Czech Republic, Hungary, Poland, Romania, and Russia attending and listening to interest rate information that they would not give the Congress at that time.

Finally, the Federal Reserve decided that they would not like to have any more public minutes of their central policymaking committee. That was Arthur Burns in 1976 from a law then that was being passed, Government in the Sunshine Act, and a suit from a student at a university in Washington, D.C. So the Fed voted then in 1976, a 10–1 vote, that they would no longer have any transcripts of their central policymaking committee, and it was a 10–1 vote and the 17-year lie began.

Finally, in 1992 I came back for the second time, and I spoke with the great Henry B., as we called him in his district in San Antonio: How could it be that the most powerful central bank in the world had no transcripts of its meetings that they used to send out? What happened to them? So, Mr. Gonzalez had all the Fed Presidents come. All but two showed up. Chairman Greenspan sat in the middle, right where I am sitting, Members of the Board of Governors on each side, and they misled the Congress.

We put a lot of heat on them because they were Federal witnesses, and a few days later the Cleveland Fed broke and said, well, they had had a meeting 4 days earlier where they just decided how they would mislead the Congress. One person at that meeting, a staff person, a very good staff person who used to work with me at the Kansas City Fed, but he was assisting Greenspan, said, “the Chairman is not highlighting these transcripts. We are not waving red flags.” And when Congressman Maurice Hinchey had asked him at the hearing right here, “Do you have any records?” Greenspan replied, “just some notes we keep.”

After that, Greenspan sent a letter over here and said, this is 17 years later, we have those transcripts. I took a group of Republican and Democratic staffers over to the Board of Governors and found them right around the corner from Greenspan's office neatly typed. So they decided then that they would start issuing the transcripts again after a 5-year lag, much too long for timely accountability.

After I left the committee, and went down to Texas, I read that they had decided in 1995 to shred the records of the Federal Open

Market Committee. Those transcripts had been kept and sent to the National Archives, but they decided to destroy them. So I wrote a letter to Alan Greenspan asking why they were doing that, and his Vice Chairman, a very good person inside the Fed—these are good people; they just have bad policies—Donald Kohn, who worked there for many years and became Vice Chairman, started at the Kansas City Fed, he wrote to me saying yes, we decided to destroy the transcripts of the meetings, but we think it is legal.

I just want to go through a few other things on the audits so you can get an idea of how bad the audits have been of the Fed, just two little points. One is the Los Angeles branch of the Kansas City Fed. You can ask me questions about it, when we found out that the auditing system there was corrupt. I took an excellent GAO team. Zoliason went in there and found that the system was completely corrupt. Greenspan admitted in a letter to the committee that they knew that the employees of the Fed had stolen at least \$500,000 in the previous 10 years from the vault system of the 12 banks.

One other thing, and then I will quit. The airplane fleet of the Fed, 50-plus airplanes, the audit there was a joke. There was no audit. The people running the fleet in Boston used to laugh about it. And they appeared here. Mr. Castle allowed them to come, and they were very courageous, and they talked about it right in the committee room here. Carolyn Maloney, Congresswoman Maloney, helped in investigating them. That was a completely corrupted thing. It was typified by their backup plane that the Fed paid for in Teterboro airport that didn't exist most of the time. That is all I am going to say about that.

I have two other points. One is about paying off all the economists throughout academia on investigation of Henry B. Gonzalez; and what I consider malpractice, the present monetary policy of the Fed that was begun in October 2008 that has caused a lot of unemployment in the United States.

Chairman PAUL. Thank you.

We will go to Dr. Calabria now.

**STATEMENT OF MARK A. CALABRIA, PH.D.³⁴⁰
DIRECTOR OF FINANCIAL REGULATION STUDIES
CATO INSTITUTE**

Mr. CALABRIA. Chairman Paul, distinguished members of the subcommittee, I thank you for the invitation to appear at today's important hearing.

³⁴⁰ [The prepared statement of Dr. Calabria can be found on page 1291.]

As the subcommittee is well aware, the events of 2008 witnessed not only unprecedented disruptions to our financial markets, but also extraordinary responses on the part of our financial regulators and central bank. No entity was more deeply involved than the Federal Reserve System, particularly the New York Federal Reserve. Yet the Fed has consistently and repeatedly resisted efforts to bring accountability and transparency to its actions.

Congress and the public repeatedly warned that if details of the Fed's actions became public, further panic would ensue in our financial markets. Yet when that information, such as AIG's derivatives counterparties, finally did become public, disruptions were minimal or nonexistent.

Despite some notable attempts by the Fed to increase its communications with the public, I believe, given its track record, the public cannot rely on the Fed to voluntarily provide us with sufficient information to monitor its activities and judge the effectiveness of its actions. While the requirements of the Dodd-Frank Act in relation to auditing the Fed's activities are an important advance, they fall far too short of providing sufficient oversight of the Federal Reserve.

What auditing has been conducted so far has been focused on the Fed's response to the crisis. Accordingly, much of the audit requirements in Dodd-Frank have something of an historical feel about them. However, it is not enough just to get history right, although we are lucky if we do that, but also to ensure that future mistakes are avoided. I can think of few areas requiring as much mistake avoidance as monetary policy.

The Fed's role in helping to create the crisis via its easy money policies in the aftermath of the dot.com bubble and the events of 9/11 remain largely uninvestigated by Congress. If we truly wish to end financial crises, then I believe it is absolutely essential that Congress receive a full and objective evaluation of the Fed's role in fostering the housing bubble, particularly as it relates to monetary policy decisions between 2002 and 2005.

Disagreement as to the appropriate stance of current monetary policy I think also demonstrates Congress' need for objective, independent analysis of monetary policy.

Some might object that a GAO audit of the Fed subjects the Fed to political pressure. I think that such an objection ignores the simple fact that the GAO is not a political organization.

As mentioned, I served as staff on the Banking Committee for a number of years. I can say through all of my interactions with GAO, they are independent, they are unbiased, they are nonpolitical. I have

not always agreed with the conclusions of GAO, but I have never felt that any of those disagreements were the result of politics or bias.

I think the subcommittee should also keep in mind that GAO exists for a very simple reason: that no Member of Congress or their staff are fully knowledgeable about the functioning of all the various government agencies. GAO simply exists to inform.

I would argue that there are few areas less understood than monetary policy and macroeconomics. Hence, I would argue there are few areas more in need of an audit than monetary policy and macroeconomics. Again, the purpose of GAO here is to try to provide some information so that Members can more actively engage, I think, and more effectively engage in oversight of the Federal Reserve.

Another objection to a GAO audit of the Fed is that such an audit would compromise the Fed's independence and subject it to political influence. I think such an objection confuses the very nature of Fed independence. The Fed's authority to regulate the value of money is one that is delegated from Congress. As Congress can and has legislated changes to the Fed, it should be beyond a doubt that the Fed is not independent of Congress; it is quite the opposite. It is a creature of Congress, and Congress has every right in that avenue to interject and regulate the activities of the Fed itself.

Setting aside the debate of the desirability and legitimacy of so-called independent agencies, it should be clear that their independence in any operational sense is supposed to be from the Executive Branch, not from Congress. It should also be clear, however, that in recent years, the Federal Reserve has coordinated its actions quite closely with the Treasury Department, in my opinion eroding any independence from the Treasury. The revolving door, both at the political and career levels, between the Federal Reserve and the Treasury Department further undermines the Fed's operational independence. I believe a GAO audit would help shine light on this relationship, actually helping to insulate the Federal Reserve from continued interference by the Treasury Department.

Again, the Dodd-Frank Act has made important advances in bringing transparency and accountability to the Federal Reserve. Unfortunately, it falls short in allowing Congress and the public to truly gauge the effectiveness of the Federal Reserve.

In order to improve Federal Reserve transparency, I would suggest that Congress mandate a regular audit of all Federal Reserve activities, including monetary policy. Such audits could be performed in a manner so as to minimize the disruptions to any ongoing deliberations of the Federal Open Market Committee. For instance,

these audits could be kept confidential for a short amount of time, 6 months, a year. That is certainly something that could be done not to try to unduly influence ongoing activities, but again, this audit should be made public at some point.

I think it is also important to emphasize that evaluating the effectiveness of any government agency is made all the more difficult when that agency faces a variety of competing and sometimes conflicting objectives. If the Federal Reserve feels it is free to abandon price stability in order to achieve other objectives, such as rescue the financial industry or misguided attempts to influence the labor market, then I believe the value of an audit may potentially be very limited.

At a minimum, Congress should consider restricting the Federal Reserve to a single goal, that of price stability. Congress should also restrict the ability of the Fed to have discretion implementing that goal. On a very basic level, a central bank that is free to define price stability or define its own objective is a central bank without any meaningful constraints.

With that, again, I thank the chairman, I thank the subcommittee, and I look forward to your questions.

Chairman PAUL. Thank you very much.

[QUESTIONS & ANSWERS]

Chairman PAUL. I yield myself 5 minutes for questioning.

My first question is for Dr. Calabria. I want you to follow up— I know you have talked about it in your statement—on this relationship of the Fed and the Treasury. You indicate that if there is to be any oversight or connection, it is more with the Congress than with the Executive Branch and the Treasury. Could you talk a little bit more about that, and exactly what you mean? And what has happened in the past that might suggest that we should be looking into the relationship of Treasury and the Fed and how that could be a negative, or why some people think it is a positive?

Mr. CALABRIA. There are a variety of different things. I will most directly touch on first the negotiation, implementation of Dodd-Frank. Treasury was the point person in negotiating Dodd-Frank for the Administration, yet several of the senior advisors at Treasury representing the Administration were staff on loan from the Federal Reserve. So again, I think many of us remember there was about a whole 5 minutes during the Dodd-Frank negotiations where maybe there really were going to be serious constraints on the Federal Reserve, where there would be a serious examination of the bank

supervision and regulatory powers. Again, I think the Congress and GAO should take a look at whether the Fed should be supervising banks in general, and whether that conflicts and provides any conflict of interest with the monetary policy decisions.

But, having essentially Federal Reserve staff at Treasury negotiating on behalf of the Administration certainly, in my opinion, meant that there was going to be no chance that Congress was actually going to be able to peel back any of the powers of the Federal Reserve. So, again, the Treasury relies very heavily on Federal Reserve expertise and legislative decisionmaking.

Most importantly, however, and it is important to keep in mind that Fed independence really came out of this Treasury-Fed accord where, prior to the 1960s, the Federal Reserve supported Treasury prices essentially and tried to maintain the price of long-term Treasuries in order so that the Treasury Department could more easily and more cheaply fund its activities. And again, if you have this relationship—and you see this particularly with the second round of quantitative easing where the amount that the Fed was purchasing on a monthly basis was coincidentally very close to the amount that was being issued by the Treasury. And so the extent that we go down that road of potentially “monetarizing” the debt, which I think is the ultimate concern, that you have the Treasury market supported by the Federal Reserve, which, of course, reduces discipline on not only the Treasury, but reduces discipline on Congress to get its fiscal house in order.

So again, we rely on the markets to send us signals, and the Treasury market should be sending us a signal that we are headed towards a financial train wreck, but it is, of course, not, because the Federal Reserve is intervening in that market to reduce the price cycle that we would be receiving.

So that is an important part of the debt market. I think it is ultimately one of the more important aspects of this, but, again, you also see it in financial regulation.

I want to emphasize again the nature of independence is supposed to be not from Congress, but from the Executive Branch. There is a variety of literature, for instance, in economics that talks about a political business cycle where you would see the Federal Reserve try to loosen monetary policy in expectation of Presidential elections.

Again, I would say that the empirical results in this literature are mixed, but, again, the emphasis is on the Administration. We know that in terms of any President’s reelection, it is going to be far more important what the Fed does compared to what any Member of

Congress wants. So again, there are far different interests and far different incentives in Congress, where you have a unified incentive in the Executive Branch.

So, I would emphasize again the importance is to draw some independence from the Executive Branch and the Federal Reserve rather than from Congress.

Chairman PAUL. So just in summary, the way I understand that is when they talk about independence, they are really not talking about independence, they want to eliminate the role of the Congress, which you are arguing has a responsibility. So they want to be excluded from that supervision, but they don't want to be independent from the Treasury.

What about political or private interest influence? When the bail-outs came, there had to have been some special interests and political interests. Would that—could that be said to be not independent either, but influenced by not only the Treasury, but outside interests? Do you think there is much—should there be concern about that?

Mr. CALABRIA. I think there should absolutely be strong concern about that on several levels. One could just look at monetary policy where monetary policy is conducted in partnership with the Federal Reserve's primary dealers in which it buys and sells Treasury securities with to conduct its monetary policy. Of course, if you are doing bank supervision, you have a financial crisis, and these primary dealers find themselves in trouble, the Federal Reserve has an incentive to try to essentially make sure that those primary dealers survive. And, of course, it doesn't want to make any of that public. I am sure you could ask any of the largest firms that were assisted. Whether it was Goldman or whether it was Societe Generale, they have not welcomed the attention that they have gotten when all of this information has come out.

We heard a little bit earlier about the GAO report. One of the things that struck me is that if you look through the tables and you look through the information in the GAO report, regardless of the program, it is the same companies that keep repeatedly coming up. Repeatedly we see Citi, repeatedly we see Bank of America, repeatedly we see Morgan Stanley. Regardless of the program, it seems to be that the concentration of the benefits of these programs are with a handful of corporations. And, of course, those corporations, I think, do not want the public attention that they have repeatedly received incredible assistance from the Federal Reserve or credible assistance that has been off budget.

So again, that relationship and that revolving door, we have seen it. And again, this is something that was talked about in Dodd-Frank, some of the governance issues. We all remember very much the role of Goldman essentially being the Chair of the Board at the New York Fed and some of the conflict of interest there. And certainly those were saying that the current president of New York Fed is a former Goldman employee. So not only am I concerned about the revolving door between Treasury and the Fed, I am also very concerned about the revolving door between Wall Street and the Fed.

Chairman PAUL. Thank you.

I yield 5 minutes to Mr. Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Dr. Auerbach, in your testimony you mentioned two or three things; the L.A. Fed whenever there was some corruption exposed, and some folks stole some money, the Federal airplane—the Federal Reserve airplane fleet. The audits that are being performed or should be performed, would they have caught these abuses?

Mr. AUERBACH. Did the audits have abuses?

Mr. LUETKEMEYER. Would the audits that are being proposed—in other words, right now we have the Inspector General folks, or GAO, they are now doing the audit on the emergency loan program that was administered.

Mr. AUERBACH. Right. They don't touch any of these.

Mr. LUETKEMEYER. You are saying we should expand—

Mr. AUERBACH. Definitely.

Mr. LUETKEMEYER. —audit procedures because existing auditing procedures are not catching these things?

Mr. AUERBACH. Definitely. There are tremendous problems inside the Fed, and the in-house audits were no good at the Boston Fed. The courageous people there who testified right here about it said that someone came from upstairs at the Boston Fed near the harbor. Officials of the Fed are at the top; the people who run the airplane fleet were down below. Someone came down asking, is everything all right here? That was about the extent of the in-house audit.

There were all kinds of corruptions, and so many corruptions that Henry Gonzalez, the Chairman, asked me to call the Janet Reno Justice Department, which I did, and they didn't want to get into it. Nobody likes to attack the Fed in Washington. So they said, call the Inspector General at the Fed, which I did, a very nice man, Brent Bowen, and he said, "I don't know if I have jurisdiction up in Boston."

And that is one of the major problems of the Fed and this new consumer protection agency that is located inside the Fed. The IG of

the Federal Reserve is appointed by the head of the Federal Reserve, so how can they investigate these things? Chairman Bernanke cannot be investigated, and his officials are the people they appoint. This should be a Presidential appointment and an independent IG at the Fed, if you want to start cleaning up this mess.

Mr. LUETKEMEYER. Do you think there is anything that should be off limits whenever it comes to disclosure of the Fed activities?

Mr. AUERBACH. That is a very interesting question, because the Fed is now shredding their documents. But Arthur Burns, who was the head of the Fed back in the 1970s, he died in 1987, and he sent his transcripts of the meetings up to the University of Michigan, the Ford Library. They had people from the National Archives, professional archivists who took out anything that had to do anything with national security, personnel. They were lightly edited.

So I was able to go up there and get copies of them all. They are very different from the kind of thing that the Fed issues. Ask any reporter who has received something from the Fed; it is mostly blanked out. This was a much better record.

What should be done now is that the Fed should be told that they cannot destroy those records. The records go to the National Archives after 30 years. There will be somebody looking at that.

And also on the FOIA requests, you should get professional archivists who know the rules in cooperation with the Fed instead of sending reporters blank pages.

Mr. LUETKEMEYER. Dr. Calabria, what do you think about that? Are there some things that you believe should not be disclosed or are off limits, or do you think everything is open to everybody?

Mr. CALABRIA. I think the way I would look at it is the question of when should it be disclosed. Ultimately, any sort of deliberations, any sort of economic forecasts should be disclosed at some point. I would be comfortable having some sort of time lag.

For instance, one of the things that Dodd-Frank does, and I think does correctly, despite much of what the bill doesn't do correctly, is require a disclosure of future discount window lending. And so the concern for the Federal Reserve would be if you disclose at the time that banks are coming to the discount window, that is a signal that such banks are weak, and I think that is a legitimate concern to raise.

But I think if you—and again, in Dodd-Frank it allows up to a 2-year delay for that disclosure. I would prefer something closer to a year, but I do—I would say a 6-month, a year delay on something like discount window is legitimate in that it will not scare away people from using a discount window. Of course, we could have a totally

separate discussion of whether this should be a lender of last resort in a discount window. But again, if you are going to have one, and you want it to be effective, a delay in disclosure in that, I think, is reasonable.

A delay on disclosure on deliberations at the Federal Open Market Committee meetings, I think, is again reasonable. Ultimately, in a timely basis, all of this information should be made public, and I want to emphasize 5, 10 years is not timely. So again, we need to get it out in a reasonable amount of time.

Mr. LUETKEMEYER. Thank you. I yield back, Mr. Chairman.

Chairman PAUL. I thank the gentleman, and we will go into a second series of questions.

This question is for Dr. Auerbach, and it has to do with what you talked about when you were trying get an audit in the 1970s, and you didn't get too far in the Banking Committee even though it was the chairman of the Banking Committee who wanted to do it. Then they took it and they sent it over to the Government Operations Committee. And then when they gave the authority for the audit, it was actually exactly the opposite and closed that.

I want you to expand on that. And also, why don't you tell me why it is that the individuals either in the Fed or see to it that their people get in the Fed, how come they have this much power that they are able to control even the Banking Committee chairman and then pass legislation exactly opposite of it? I think it was at that time that they really put into it to—seems like where the greatest protection is on these foreign operations, I think that is where there is a lot of mischief, and even now with our partial audit, we hear about it, but we don't know exactly what transpired. Could you expand on that a little bit?

Mr. AUERBACH. Sure. Let me take the second part first on international operations. You were right about the bill that was finally passed where the GAO is not allowed to go into anything that has to do with the operations, international operations, or monetary policy, trophies that remained on the shelf of the Fed for a long time.

In international operations, when the Fed goes, for instance, and notifies brokers all over the world, brokers who are not investigated by anybody in the United States, and tells them, we want to buy, say, 5 billion in euros, that information is given to the brokers ahead of time. I am not saying the brokers are dishonest, but when there are billions at stake in these markets, they can place orders, or people in their office can place orders, long before the order is consummated.

The chairman wrote to Alan Greenspan and asked, “Why are you doing this? Why not just make an announcement that you are going in with 5 billion and let everybody in the market get in on it at the same time?” And he wrote back, “I think there is only about a 10-minute delay between the time we tell them to do it and they make these huge purchases. That is ample time to make a lot of money in the market. And so, the international operations should be audited by the GAO. It is really important, and I think when the Fed is going to do something, they should announce it.

I disagree a little bit with Dr. Calabria. I would not leave these decisions for discount rate changes and for anything the Federal Open Market Committee does for more than 6 months—even that is very long—because there have been so many leaks at the Fed. The FBI has been called in, all the rest. It is going to leak out anyway. There are several ways it leaks out. One is when we asked how many people at the Fed know about these secret interest rate decisions, we got a whole bunch of pages, single-spaced, of hundreds of people all over the country on these conference calls. And as Greenspan reported, he was saying he opens the Singapore edition of the Wall Street Journal and found out what the Fed did at their meetings before. So you can't tie up information that is so valuable for months that just benefits inside traders. And those trophies, when they did go over and put them in there, it kept the GAO out of a lot of the problems.

Can I say one other thing that I think is important? We have sitting in the audience Walter Charlton, who has had suits against the GAO since 1983 because the GAO has had a policy, alleged policy against older workers. I had excellent GAO people who were at the Los Angeles Fed who did the audits. They were excellent. They were old-timers at the GAO who knew how a central bank works, and knew what to get into and what to look at.

The suits now in the courts all these years, some of them have been adjudicated. The suits allege that they try to get rid of the older people. In a recent suit, I gather that after a joint session of Congress, 200 were rehired by the GAO. But they try to get rid of the older people, people who are 55 or older, around there, and hire young people. And I know they hire young people, because I used to have lunch with David Walker when he came to the LBJ school to get some of our excellent young students, but that lowers the amount they have to pay the people by a huge amount.

But what we need in the GAO are experienced auditors who know how central banks work and can get in there and really find out what

is going on. That takes a lot of training to find out how to audit a vault facility.

The vault facility, since we found that team that was in there that I worked with, was excellent. They found out what was missing. It was just awful. The main ledger, the vault on the computer, everybody could get in there without a password. What happened to those officials when that went public? Nothing has happened since then at the Fed.

I think it is very important to get better GAO auditors—now, maybe they have them—who are experienced on how to audit a huge, enormous central bank with 20,000 employees. And they have vaults all over the country that hold all the money for the commercial banks, and the Bureau of Engraving ships it there. All the new money is in there also. It is a national security problem, and if Greenspan thought that the employees were stealing \$500,000 in 10 years—we thought that was a tremendous understatement and so did the GAO crew—but I believe shortly thereafter, most of them were no longer at the GAO.

Chairman PAUL. Thank you.

I yield 5 minutes to Mr. Luetkemeyer.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

I have a feeling that both of you gentlemen have a lot more to say and a lot more suggestions for us, so I think I will just use my time a little differently this time.

Dr. Calabria, you were the Director of Financial Regulatory Studies. What one regulation would you suggest would be impactful. Audit the full Fed? Is there something else that you see that would really protect our monetary system and really make an impact? What would be your suggestion?

Mr. CALABRIA. I think the focus really needs to be on defining and limiting the discretion for the Fed on price stability. So, again, you can do things like reduce—eliminate the dual mandate, having some sort of inflation targeting.

I would emphasize that ultimately what is going to be a constraint on the Fed is some sort of competition, so obviously encouraging alternative monetary mechanisms is something we should be looking at the in the long run, but certainly trying to find a way to constrain the Fed. So I would have a full audit. I would get rid of the dual mandates. I would put some statutory flesh around what exactly price stability means, because again, you can get rid of the dual mandate, but if the Fed decides that price stability is 3 or 4 percent, it

doesn't really matter. You have to take some of these definitions back into Congress.

And again, I want to emphasize one of the reasons I think the Federal Reserve has been so effective over the years at thwarting Congress is that they come up here and they give you all this gobbledegook about M1, M2, and all this, and they try to confuse you. Again, the most important thing is to get information out there so that Members of Congress can even start with the very right questions and can push them and basically not let them get around that. So the most important thing we can do is educate Congress and the public on how exactly monetary policy works.

Mr. LUETKEMEYER. Very good. I asked for one, and got three. Must be D.C. Thank you.

Dr. Auerbach, with regard to the same question, you have had a lot of advice for us in some of your previous comments here. What piece of advice or regulation would you suggest?

Mr. AUERBACH. Price stability is certainly important, but the Fed should understand it is the 1949 Employment Act that said they have to do full employment also; that price stability helps produce full employment. And right now we have quite a bit of inflation. Year over year, 1 month it was 4 percent, then 5 percent. Then Chairman Bernanke testified that he doesn't see any inflation. How high does it have to go before he sees it? That is year-over-year inflation.

The other thing that I think that Congress should have something to say about is what I call malpractice at the Fed. In September 2008, when Lehman Brothers collapsed and the markets went crazy all over the world, one month later, the Fed decided that they would start paying the banks interest in order for them to hold their reserves.

I have that diagram—I wonder if you would put it up—of the amount of—there it is. The amount of excess reserve. You will notice that since—this is the Federal Reserve of St. Louis. It is zero. All of a sudden in 2010, the banks are intelligent. They say, look, we can get a quarter percent interest risk-free from the Fed; why should we loan it to businesses?

So the Fed begins pumping in their monetary base, they pumped in \$1.9 trillion. How much of that got out for loans to banks and to businesses? \$1.7 trillion was parked as excess reserves. It is there today. The total today is \$1.6 trillion in excess reserves. It went through the roof.

We are in a position today where people inside the Fed, economists inside the Fed, like William Gavin, a great economist at the St.

Louis Fed, published in their literature for the banks it is a much better investment to hold the money as excess reserves, tie it up, than to lend it out to people, because they get a quarter percent for sure, and we are in a terrible environment.

What should be done immediately? I call this malpractice. It has certainly increased unemployment in the United States. The Fed must stop paying the banks to hold reserves instead of lending it to businesses. And if they do that, they have to be very careful that the money supply doesn't balloon out or we will have a huge inflation. They will have to slightly raise their target interest rate to about a half percent. They should be doing that. They have been at zero long enough, and you can see what good that has done for the country.

Mr. LUETKEMEYER. Thank you very much. I yield back.

Chairman PAUL. Thank you.

I have one more question for the two of you. We talk about the transparency, and how to get information out, and how dangerous it is if someone gets the information, they can make some money on it because they anticipate what the market will do. And also, there is so often the unintended consequences of manipulating what they do, the economic consequences. And we talk and discuss, and there was a slight disagreement on exactly when we release information, when did the Fed do this, and when do we get a record of the history.

My question is a little bit different. It has actually to do with monetary policy per se, not how we tell—how the Fed manages monetary policy. My viewpoint, they have had two mandates, full employment, and I don't think either one of you enjoy that. If you really look at the old-fashioned way of measuring it, it is probably over 20 percent. Dr. Auerbach admitted that price stability, they are not doing very well there. But I got the indication from both of you that it wasn't the principle of setting the interest rates, it is how they do it, and when it is released, and the details of it.

But what about the question of whether or not they should be messing around with interest rates? Most economists these days, ever since the 1970s, they have played down wage and price controls. Wage and price controls aren't very good as a solution to solve the problem of price inflation created by too much money.

But setting interest rates is a pretty big deal. If interest rates— if prices are the signal that tells the businessman what to do and the consumer what to do, the supply and demand—and, of course, free-market economists predicted that socialism would absolutely fail without a pricing structure—why is it that we have accepted this idea that the Fed is all-knowing with their record?

So could you each tell me, do you think it would be bad to have a system where the Fed wasn't involved with setting interest rates, and maybe market rates would help? Maybe market rates would help savings. Maybe interest rates would go up, and the people who tend not to want to gamble in the stock market and the bond market, wouldn't this be a help to the economy? Could both of you make a comment about whether or not the Fed should be setting interest rates?

Mr. AUERBACH. I think that is a really good question. In 1979, we had a little party right here in this room, and the new Chairman was coming on board. He was a very good Chairman, Chairman Volcker. And at that time, by 1980, the inflation of the United States was going over 13 percent. Interest rates went up over 20 percent. There were mass bankruptcies in the country. And Volcker was laughing with us and said to two of us from the University of Chicago, you give me a pain in my you know what, and we laughed together. But then Volcker decided he wouldn't control interest rates, he would control the money supply and stop printing so much money, which he did. He paid a big price, but he stopped the country from going into a terrible inflation. I was in the Reagan Administration, and we had a double-dip recession, 10 percent unemployed, but then we had a long period of no inflation. So he did a great job, but we paid a terrible price.

But when Alan Greenspan came in, the idea of controlling the money supply was considered, oh, that is University of Chicago "monetarists," and they don't know what they are doing. So by the end of the 1980s, he decided the Fed would no longer target money. He would do what other central banks do: just target the interest rates.

And I think they should do both. They should watch the money supply, but they should do what Congressman Paul said: try to let the interest rates go to market rates instead of sitting on them.

Mr. CALABRIA. I would start by saying that I believe there is probably no more important price in the economy than the interest rate. You really do balance savings investment and you balance time preferences. Accordingly, when we get that wrong, we get a whole lot wrong, and you can have all sorts of disruptions to the economy. So ultimately, the answer should be a very strong "no," we should not have the Fed manipulating what is the most important price in the economy.

Chairman PAUL. I thank the panel for appearing. The Chair notes that some of the members may have additional questions for

the first and second panel of witnesses which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

This committee is now adjourned.

{Whereupon, at 11:40 a.m., the hearing was adjourned.}

QUESTIONS

FOR THE RECORD

[GAO] ADDENDUM TO THREE RESPONSES PROVIDED BY
MS. ORICE WILLIAMS BROWN

The first is a clarification and amplification to my response to Rep. Leutkemeyer's questions on the risk of the dollar swap line transactions to the Federal Reserve. As stated on p.19 of our report (GAO-11-696), in a typical swap line transaction, the Federal Reserve Bank of New York (FRBN[Y]) exchanged dollars for the foreign central bank's currency at the prevailing exchange rate and the foreign central bank agreed to buy back its currency (to "unwind" the exchange) at this same exchange rate at an agreed upon future date. The foreign central bank would then lend the dollars to banks in its jurisdiction. Foreign central banks assumed the risk of losses on these dollar loans and paid FRBNY the interest collected on these loans. FRBNY did not pay interest on the foreign currency it received under the swap lines. To avoid difficulties that could arise for foreign central banks in managing the level of their currency reserves, FRBNY agreed not to lend or invest the foreign currency. However, as I noted at the hearing, in the unlikely event that a foreign central bank would fail to repay the dollars, FRBNY would be exposed to currency risk related to the foreign currency it held to collateralize the dollar swap transaction. For example, if a foreign central bank defaulted on a dollar swap line, the value of its currency held by FRBNY could decline significantly in value, exposing FRBNY to losses.

The second item is a follow up to my response to Rep. Schweikert's question on GAO's opinion with respect to the Federal

Reserve Inspector General's additional duties to audit the Consumer Financial Protection Bureau (CFPB). While GAO has not specifically examined the Federal Reserve IG's new duties, we have commented on the consolidation of IG offices in our prior work (see GAO-02-575 and GAO-04-117T). As you know, the Dodd-Frank Act provides that the Federal Reserve IG shall have all the authorities and responsibilities provided by the Inspector General Act of 1978 (IG Act) with respect to CFPB, as if the Bureau were part of the Federal Reserve Board. This provision essentially consolidates the oversight of both the Board and the Bureau under one IG. In our prior report, *Inspectors General: Office Consolidation and Related Issues* (GAO-02-575), we addressed the issue of consolidating IG oversight so that certain IG offices would have oversight authorities and responsibilities for a number of other federal agencies, much like the Dodd-Frank Act tasks FRB IG with the oversight of CFPB. Our report stated that such consolidation would serve to enhance the overall independence, economy, efficiency, and effectiveness of the IG community. We also stated that consolidation of IG offices would serve to strengthen the ability of IGs to improve the allocation of human and financial resources. Our report added that any weaknesses associated with IG consolidation could be mitigated by providing an IG presence at each agency to plan oversight and provide adequate audit coverage. Therefore, the Federal Reserve IG would be expected to maintain a presence at CFPB to provide adequate oversight. Also, as our report explains, this type of consolidation is already being applied across the government with examples of the State Department IG providing oversight for the Broadcasting Board of Governors; the Agency for International Development IG providing oversight of the Overseas Private Investment Corporation and the Millennium Challenge Corporation; and the Transportation IG providing oversight of the National Transportation Safety Board. In addition, our report recommended that the Congress consider elevating the FRB IG to appointment by the President with Senate confirmation rather than appointment by the FRB Chairman .

Finally, table 1 [Table 4] responds to Rep. Huizenga's question on the usage of broad-based emergency lending facilities by entities with a foreign parent company. As I testified, the use by U.S. branches and agencies of foreign-owned banks varied by program. While there are eight broad-based programs, not all were used by entities owned by a foreign-parent company. The dollar swap lines were used by foreign central banks, for example.

Table 1: Lending to Entities with a Foreign Parent Company as a Percentage of the Total Dollar Transaction Amount for Each Broad-Based Emergency Facility

Facility Name	Percent of Total Lending
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)	0.1%
Commercial Paper Funding Facility (CPFF)	59.5
Money Market Investor Funding Facility (MMIFF)	N/A ^a
Primary Dealer Credit Facility (PDCF)	7.5
Term Asset-Backed Securities Loan Facility (TALF)	See note
Term Auction Facility (TAF)	64.6
Term Securities Lending Facility (TSLF)	51.0

Source: GAO analysis of Federal Reserve Bank of New York data

^aMMIFF was never used.

Note: The Federal Reserve Board's analysis of TALF showed that while the majority of the U.S. companies that received TALF loans had U.S. domiciled material investors, 36 percent had one or more non-U.S. domiciled "material investors." A "material investor" was defined as an investor who owned, directly or indirectly, an interest in any class of securities of a borrower that was greater than or equal to a 10 percent interest in such outstanding class of securities.

Table 4

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

In his 1974 Nobel Prize address, the late Austrian economist Friedrich von Hayek attacked the pretense of knowledge, the idea that policymakers have sufficient knowledge and power to shape society as they wish. Our political leaders failed to take Hayek's message to heart, as succeeding generations have continued to allow this intellectual arrogance to continue unabated. Just as the New Mandarins squandered America's wealth, resources, and young men during the 1960s, today's economic Mandarins seem hell-bent on destroying every last vestige of the free market and driving the economy into ruin. Congress has abdicated its oversight over these "expert" economists at the Federal Reserve, to the detriment of the economic well-being of the American people. Despite overwhelming grassroots support behind auditing the Fed, only incremental progress has been made toward unmasking the Federal Reserve's activities. Full transparency of the Fed's operations remains an elusive goal, but one towards which I intend to devote my remaining time in Congress.

The Fed has been given a monopoly by Congress to conduct monetary policy, and in so doing it tinkers with the most important price of all, the rate of interest. Interest rates reflect the price of time, and changes in the interest rate affect the structure of production. Forcing changes to the interest rate, as the Fed does, has a more pronounced effect on the economy than any law Congress has ever passed. Interest rates are used by individuals to make decisions

about what type of investments they undertake, how much money they invest, and for how long. The higher the interest rate, the more likely an individual is to save money; the lower the interest rate, the less likely he is to save. Borrowers take the interest rate into account when borrowing money to buy a house, pay college tuition, or start or expand a business. The lower the interest rate, the cheaper it becomes to borrow money and the more likely individuals are to borrow; the higher the interest rate, the less likely they are to borrow. In a free market, some people will want to save while others will want to borrow, and the interest rate is the price that coordinates the actions of borrowers and savers.

Manipulating the interest rate as the Federal Reserve does causes an enormous ripple effect throughout the economy. Most people do not think about how interest rates came to be, they merely make their economic calculations and decisions based on what the prevailing rate of interest is. Every day people go to work, buy and sell goods, and move their money in and out of the banking system. The isolated actions undertaken by individuals combine to create the market. The market is a truly awesome thing which most of us take for granted. No one marvels that bananas and oranges are available in supermarkets year-round, that cars from Germany and Japan travel our roads, or that our houses have electric lighting and indoor plumbing. Yet it was the actions of millions of people, each acting in his own self-interest and without any knowledge of how his actions might affect other people down the road, that resulted in each of those things happening. When government begins to interfere in that process, it leads to all sorts of problems.

As we meet here in this hearing room, the Federal Reserve is engaging in the second coming of Operation Twist, attempting to force already-low interest rates even lower. This crisis was begun because of the Federal Reserve's low interest rate policy which distorted the economy by shuttling resources and investment that would have been better allocated elsewhere into the housing sector. Instead of recognizing the futility of trying to inflate our way to prosperity with artificially low interest rates, and allowing the interest rates to reset to a true, market-determined rate, and allowing prices to fall so as to allow malinvested resources to be put to better use, the Fed repeated the mistakes of the past by pumping more money into the economy. With an official inflation rate of nearly four percent, interest rates on savings accounts of well less than one percent, and a stock market that has stagnated over the past three years, there is no incentive whatsoever for consumers to

save or invest. Money sitting in the bank a year ago would have lost nearly four percent of its value by now, money invested in the stock market just as much, and money invested in Treasury bonds over one and a quarter percent. Is it any wonder that people have decided to consume rather than to save?

Savings and investment are required for economic growth, deferring present consumption in the hopes of gaining some greater future consumption. Imagine savings and investment in terms of wheat. Most of the wheat that is grown will be consumed after harvest, but a small amount will have to be saved for seed, in order to grow next year's crop. The more that is able to be saved for seed, the larger the crop will be in future years, enabling increased wheat consumption. What the Federal Reserve's actions are telling people is: don't save, there is no need. Consume that seed and don't worry about the future. And that is what this country has been doing for years. Capital is being consumed through the government's spurring of consumption, encouraging people to take on debt to fund frivolous spending and failing not only to increase present capital but also failing to replenish capital that is used up in the production process.

This all leads us to the need for Federal Reserve transparency. Congressional oversight of the Fed amounts to about twelve hours of hearings per year, and that's as far as it goes. Of those twelve hours, no more than five or ten minutes goes to any one Congressman, who has the opportunity to ask at most one question of Chairman Bernanke every six months. To claim that this is effective oversight is laughable. Even the increased amount of data disclosure mandated by the Dodd-Frank Act, a relative sea change, is only due to be released two years after the fact. The legislative cycle in Congress is so fast that many of us up here do not even remember what took place two weeks ago, let alone two years ago. Trying to set up a hearing such as this one requires weeks, if not months, of advance planning. To imagine that two years after the fact Congress will really seek to dig into the details of the Federal Reserve's lending activities defies common sense. Two years ago the Fed was already well into its first round of quantitative easing, it has since completed a second round, and it is now embarking on a third intervention into bond markets.

Attempting to audit the Fed through passage of new legislation is time-consuming as well. It took nearly a year and a half of effort to enact the few measures that made it into the Dodd-Frank Act. And this year my Audit the Fed bill has been referred, not to the Financial Services Committee as Fed audit bills have been for 40+ years, but to

the Oversight and Government Reform Committee. While I am hopeful that Chairman Issa will act on that bill, which has over 180 cosponsors, time is quickly slipping away for this Congress to act.

While the Federal Reserve is not fully transparent, what is transparent are the effects the Fed's policy actions have on everyday people. A young couple is thrilled that interest rates are at historic lows so they take out a mortgage in order to buy the house they had always wanted. But as the Fed continues to print money in order to suppress interest rates, the price of food and heating begins to rise. Expenses rise faster than their paycheck, and they find themselves falling behind on their mortgage and eventually face foreclosure. Or imagine the elderly retiree dependent on Social Security and a small amount of savings. She has not received a cost of living increase to her Social Security in years, despite the ever-increasing cost of food and health care. Extended low interest rates mean that her savings account earns almost no interest each year, so her savings are rapidly depleting. She fears that within a couple of years she may be left with no money and no way to support herself. And then there is the single mother who has been laid off from work for the past 18 months because the rising prices of production inputs caused by the Fed's inflationary monetary policy forced her employer to downsize the company in order to reduce costs. And with prices for the company's finished goods continuing to rise as the Fed continues pumping new money into the economy, consumer demand has dropped, making it all the more likely that her company will never be able to rehire her.

But rest assured, the Fed tells us, as long as the bankers are doing alright, everything will be fine. Indeed, the banks do appear to be doing fine. Flush with cash and receiving interest payments from the Fed on their excess reserves, the financial sector has continued to record amazing profits. Every time a new piece of disappointing economic data comes out, we hear renewed cries from Wall Street for more action on the part of the Federal Reserve. Amazingly, some people are complaining that the latest round of \$400 billion in bond purchases is too small. The fact that a \$400 billion operation, equivalent to half the size of the Fed's pre-crisis balance sheet, is considered paltry is a sad indicator of how easily so many Americans are willing to accept big government. Bailouts of the financial sector are the new normal, only now they are conducted covertly through the Fed rather than through Congressional action so as not to arouse public ire as in 2008.

The Federal Reserve is a creature of Congress and should be treated as such, not as an organization exempt from Congressional

oversight. Claims from the Fed and its defenders that a full audit of the Fed would endanger the Fed's independence are an attempt at provoking fears that Congress would directly intervene in the conduct of monetary policy. A bill that sets interest rates would endanger the Fed's independence; a bill that audits the Fed does not. Nowhere in any audit proposals has anyone ever expressed the desire that Congress dictate monetary policy or attempt to set interest rates. Congress does not have this power, nor should it, but it is accountable to the people through the ballot box; not so with the Federal Reserve, which tries to remain unaccountable both to Congress and to the American people. Pumping trillions of dollars into the economy with no oversight and accountability cannot be allowed to continue. Audit the Fed now.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF ORICE WILLIAMS BROWN

MANAGING DIRECTOR
FINANCIAL MARKETS AND COMMUNITY INVESTMENT
GOVERNMENT ACCOUNTABILITY OFFICE

FEDERAL RESERVE SYSTEM: OPPORTUNITIES EXIST TO STRENGTHEN POLICIES AND PROCESSES FOR MANAGING EMERGENCY ASSISTANCE

Highlights of GAO-12-122T, a testimony before the Subcommittee on Domestic Monetary Policy and Technology, Committee on Financial Services, House of Representatives

Why GAO Did This Study

The Dodd-Frank Wall Street Reform and Consumer Protection Act directed GAO to conduct a one-time audit of the emergency loan programs and other assistance authorized by the Board of Governors of the Federal Reserve System (Federal Reserve Board) during the recent financial crisis. This testimony summarizes the results of GAO's July 2011 report (GAO-11-696) examining the emergency actions taken by the Federal Reserve Board from December 1, 2007, through July 21, 2010. For these actions, where relevant, this statement addresses (1) accounting and financial reporting internal controls; (2) the use, selection, and payment of vendors; (3) management of conflicts of interest; (4) policies in place to secure loan repayment; and (5) the treatment of program participants. To meet these objectives, GAO reviewed program documentation, analyzed

program data, and interviewed officials from the Federal Reserve Board and Reserve Banks (Federal Reserve System).

What GAO Recommends

GAO made seven recommendations to the Federal Reserve Board to strengthen policies for managing noncompetitive vendor selections, conflicts of interest, risks related to emergency lending, and documentation of emergency program decisions. The Federal Reserve Board agreed that GAO's recommendations would benefit its response to future crises and agreed to strongly consider how best to respond to them.

What GAO Found

On numerous occasions in 2008 and 2009, the Federal Reserve Board invoked emergency authority under the Federal Reserve Act of 1913 to authorize new broad-based programs and financial assistance to individual institutions to stabilize financial markets. Loans outstanding for the emergency programs peaked at more than \$1 trillion in late 2008. The Federal Reserve Board directed the Federal Reserve Bank of New York (FRBNY) to implement most of these emergency actions. In a few cases, the Federal Reserve Board authorized a Reserve Bank to lend to a limited liability corporation (LLC) to finance the purchase of assets from a single institution. In 2009 and 2010, FRBNY also executed large-scale purchases of agency mortgage-backed securities to support the housing market. The Reserve Banks' and LLCs' financial statements, which include the emergency programs' accounts and activities, and their related financial reporting internal controls, are audited annually by an independent auditing firm. These independent financial statement audits, as well as other audits and reviews conducted by the Federal Reserve Board, its Inspector General, and the Reserve Banks' internal audit function, did not report any significant accounting or financial reporting internal control issues concerning the emergency programs.

The Reserve Banks, primarily FRBNY, awarded 103 contracts worth \$659.4 million from 2008 through 2010 to help carry out their emergency activities. A few contracts accounted for most of the spending on vendor services. For a significant portion of the fees, program recipients reimbursed the Reserve Banks or the fees were paid from program income. The Reserve Banks relied more extensively on vendors for programs that assisted a single institution than for broad-based programs. Most of the contracts, including 8 of the 10 highest-value contracts, were awarded noncompetitively,

primarily due to exigent circumstances. These contract awards were consistent with FRBNY's acquisition policies, but the policies could be improved by providing additional guidance on the use of competition exceptions, such as seeking as much competition as practicable and limiting the duration of noncompetitive contracts to the exigency period. To better ensure that Reserve Banks do not miss opportunities to obtain competition and receive the most favorable terms for services acquired, GAO recommended that they revise their acquisition policies to provide such guidance.

FRBNY took steps to manage conflicts of interest for its employees, directors, and program vendors, but opportunities exist to strengthen its conflict policies. In particular, FRBNY expanded its guidance and monitoring for employee conflicts, but new roles assumed by FRBNY and its employees during the crisis gave rise to potential conflicts that were not specifically addressed in the Code of Conduct or other FRBNY policies. For example, FRBNY's existing restrictions on its employees' financial interests did not specifically prohibit investments in certain nonbank institutions that received emergency assistance. To manage potential conflicts related to employees' holdings of such investments, FRBNY relied on provisions in its code that incorporate requirements of a federal criminal conflict of interest statute and its regulations. Given the magnitude of the assistance and the public's heightened attention to the appearance of conflicts related to Reserve Banks' emergency actions, existing policies and procedures for managing employee conflicts may not be sufficient to avoid the appearance of a conflict in all situations. As the Federal Reserve System considers revising its conflict policies given its new authority to regulate certain nonbank institutions, GAO recommended it consider how potential conflicts from emergency lending could inform any changes. FRBNY managed vendor conflict issues through contract protections and actions to help ensure compliance with relevant contract provisions, but these efforts had limitations. For example, while FRBNY negotiated important contract protections, it lacked written guidance on protections that should be included to help ensure vendors fully identify and remediate conflicts. Further, FRBNY's on-site reviews of vendor compliance in some instances occurred as far as 12 months into a contract. FRBNY implemented a new vendor management policy but has not yet finalized another new policy with comprehensive guidance on vendor conflict issues. GAO recommended FRBNY finalize this new policy to reduce the risk that vendors may not be required to take steps to fully identify and mitigate all conflicts.

While the Federal Reserve System took steps to mitigate risk of losses on its emergency loans, opportunities exist to strengthen risk management practices for future crisis lending. The Federal Reserve Board approved program terms and conditions designed to mitigate risk of losses and one or more Reserve Banks were responsible for managing such risk for each program. Reserve Banks required borrowers under several programs to post collateral in excess of the loan amount. For programs that did not have this requirement, Reserve Banks required borrowers to pledge assets with high credit ratings as collateral. For loans to specific institutions, Reserve Banks negotiated loss protections with the private sector and hired vendors to help oversee the portfolios that collateralized loans. The emergency programs that have closed have not incurred losses and FRBNY does not project any losses on its outstanding loans. To manage risks posed by these new lending activities, Reserve Banks implemented new controls and FRBNY strengthened its risk management function. In mid-2009, FRBNY created a new risk management division and enhanced its risk analytics capabilities. But neither FRBNY nor the Federal Reserve Board tracked total exposure and stressed losses that could occur in adverse economic scenarios across all emergency programs. Further, the Federal Reserve System's procedures for managing borrower risks did not provide comprehensive guidance for how Reserve Banks should exercise discretion to restrict program access for higher-risk borrowers that were otherwise eligible for the Term Auction Facility (TAF) and emergency programs for primary dealers. To strengthen practices for managing risk of losses in the event of a future crisis, GAO recommended that the Federal Reserve System document a plan for more comprehensive risk tracking and strengthen procedures to manage program access for higher-risk borrowers.

While the Federal Reserve System took steps to promote consistent treatment of eligible program participants, it did not always document processes and decisions related to restricting access for some institutions. Reserve Banks generally offered assistance on the same terms to institutions that met announced eligibility requirements. For example, all eligible borrowers generally could borrow at the same interest rate and against the same types of eligible collateral. Because Reserve Banks lacked specific procedures that staff should follow to exercise discretion and document actions to restrict higher-risk eligible borrowers for a few programs, the Federal Reserve System lacked assurance that Reserve Banks applied such restrictions consistently. Also, the Federal Reserve Board did not

fully document its justification for extending credit on terms similar to the Primary Dealer Credit Facility (PDCF) to affiliates of a few PDCF-eligible institutions and did not provide written guidance to Reserve Banks on types of program decisions that would benefit from consultation with the Federal Reserve Board. In 2009, FRBNY allowed one entity to continue to issue to the Commercial Paper Funding Facility, even though a change in program terms by the Federal Reserve Board likely would have made it ineligible. FRBNY staff said they consulted the Federal Reserve Board regarding this situation, but did not document this consultation and did not have any formal guidance as to whether such continued use required approval by the Federal Reserve Board. To better ensure an appropriate level of transparency and accountability for decisions to extend or restrict access to emergency assistance, GAO recommended that the Federal Reserve Board set forth its process for documenting its rationale for emergency authorizations and document its guidance to Reserve Banks on program decisions that require consultation with the Federal Reserve Board.

[Testimony]

Chairman Paul, Ranking Member Clay, and Members of the Subcommittee:

Thank you for the opportunity to discuss our work on the emergency assistance the Federal Reserve System provided to certain financial markets and financial institutions during the financial crisis that began in summer 2007.³⁴¹ From late 2007 through mid-2010, Reserve Banks provided more than a trillion dollars in emergency loans to the financial sector to address strains in credit markets and to avert failures of individual institutions believed to be a threat to the stability of the financial system. The scale and nature of this assistance amounted to an unprecedented expansion of the Federal Reserve System's traditional role as lender-of-last-resort to depository institutions. In March 2008, the Federal Reserve Board cited "unusual and exigent circumstances" in invoking its emergency authority under section 13(3) of the Federal Reserve Act of 1913 to authorize a Reserve Bank to extend credit to nondepository

³⁴¹ The Federal Reserve System consists of the Board of Governors of the Federal Reserve System—a federal agency—and 12 regional Reserve Banks. For this testimony, I use Federal Reserve Board to refer to the federal agency and Federal Reserve System to refer collectively to the federal agency and one or more of the Reserve Banks.

institutions. For the first time since the Great Depression, a Reserve Bank extended credit under this authority. The Federal Reserve Board would invoke this authority on three other occasions within that month and on several occasions in late 2008 when the failure of Lehman Brothers Holdings Inc. (Lehman Brothers) triggered a severe intensification of the financial crisis.³⁴² The Federal Reserve Bank of New York (FRBNY), which operated most of these programs under authorization from the Federal Reserve Board, faced a number of unique operational challenges related to implementation and oversight for numerous emergency programs, many of which required large vendor procurements to fill gaps in Federal Reserve System expertise. To date, most of the Reserve Banks' emergency loans have been repaid, and FRBNY projects repayment on all outstanding loans.

My statement today is based on our July 2011 report.³⁴³ We completed this work in response to a mandate contained in Title XI of the Dodd-Frank Wall Street Reform and Consumer Protection Act. Table 1 [Table 5] lists all programs covered by our review, including the broad-based programs and assistance extended to individual institutions. For these emergency programs or actions, where relevant, I will discuss (1) the Reserve Banks' controls over financial reporting and accounting; (2) the Reserve Banks' policies and practices for the use, selection, and payment of vendors; (3) the effectiveness of policies and practices for identifying and managing conflicts of interest for Reserve Bank employees, Reserve Bank vendors, and members of Reserve Banks' boards of directors; (4) the effectiveness of security and collateral policies in place to mitigate risk of losses; and (5) the extent to which program implementation resulted in consistent and equitable treatment of eligible participants.

³⁴² Lehman Brothers was an investment banking institution that offered equity, fixed-income, trading, investment banking, asset management, and other financial services. According to the bankruptcy examiner appointed by the bankruptcy court, Lehman Brothers originated mortgages, securitized them, and then sold the securitized assets. Although headquartered in New York, Lehman Brothers operated globally. Lehman Brothers had \$639 billion in total assets and \$613 billion in total debts as of May 31, 2008, the date of its last audited financial statements.

³⁴³GAO, *Federal Reserve System: Opportunities Exist to Strengthen Policies and Processes for Managing Emergency Assistance*, GAO-11-696 (Washington, D.C.: July 21, 2011).

Table 1: List of Federal Reserve Emergency Programs and Assistance Covered by Our Review

Programs and Assistance	Description	Reserve Bank
Broad-based programs		
Term Auction Facility (Dec. 12, 2007)	Auctioned one-month and three-month discount window loans to eligible depository institutions	All 12 Reserve Banks
Dollar Swap Lines (Dec. 12, 2007)	Exchanged dollars with foreign central banks for foreign currency to help address disruptions in dollar funding markets abroad	FRBNY
Term Securities Lending Facility (Mar. 11, 2008)	Auctioned loans of U.S. Treasury securities to primary dealers against eligible collateral	FRBNY
Primary Dealer Credit Facility (Mar. 16, 2008)	Provided overnight cash loans to primary dealers against eligible collateral	FRBNY ^a
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (Sept. 19, 2008)	Provided loans to depository institutions and their affiliates to finance purchases of eligible asset-backed commercial paper from money market mutual funds	Federal Reserve Bank of Boston
Commercial Paper Funding Facility (Oct. 7, 2008)	Provided loans to a special-purpose vehicle to finance purchases of new issues of asset-backed commercial paper and unsecured commercial paper from eligible issuers	FRBNY
Money Market Investor Funding Facility (Oct. 21, 2008, but never used)	Created to finance the purchase of eligible short-term debt obligations held by money market mutual funds	FRBNY

Table 5

Programs and Assistance	Description	Reserve Bank
Term Asset-Backed Securities Loan Facility (Nov. 25, 2008)	Provided loans to eligible investors to finance purchases of eligible asset-backed securities	FRBNY
Assistance to individual institutions		
Bear Stearns Companies, Inc. acquisition by JP Morgan Chase & Co.		
Bridge Loan (Mar. 14, 2008)	Overnight loan provided to JP Morgan Chase & Co. bank subsidiary, with which this subsidiary made a direct loan to Bear Stearns Companies, Inc.	FRBNY
Maiden Lane (Mar. 16, 2008)	Special purpose vehicle created to purchase approximately \$30 billion of Bear Stearns's mortgage-related assets	FRBNY
American International Group, Inc. (AIG)		
Revolving Credit Facility (Sept. 16, 2008)	Revolving loan for the general corporate purposes of AIG and its subsidiaries, and to pay obligations as they came due	FRBNY
Securities Borrowing Facility (Oct. 8, 2008)	Provided collateralized cash loans to reduce pressure on AIG to liquidate residential mortgage-backed securities (RMBS) in its securities lending portfolio	FRBNY
Maiden Lane II (Nov. 10, 2008)	Special purpose vehicle created to purchase residential mortgage-backed securities from the securities lending portfolios of AIG subsidiaries	FRBNY
Maiden Lane III (Nov. 10, 2008)	Special purpose vehicle created to purchase collateralized debt obligations on which AIG Financial Products had written credit default swaps	FRBNY
Life Insurance Securitization (March 2, 2009, but never used)	Authorized to provide credit to AIG that would be repaid with cash flows from its life insurance businesses	FRBNY

Credit extensions to affiliates of some primary dealers <i>(Sept. 21, 2008)</i>	Loans provided to broker-dealer affiliates of four primary dealers on terms similar to those for Primary Dealer Credit Facility	FRBNY
Citigroup lending commitment <i>(Nov. 23, 2008)</i>	Commitment to provide nonrecourse loan to Citigroup against ring-fence assets if losses on asset pool reached \$56.2 billion	FRBNY
Bank of America lending commitment <i>(Jan. 16, 2009)</i>	Commitment to provide nonrecourse loan facility to Bank of America if losses on ring-fence assets exceeded \$18 billion (agreement never finalized)	Federal Reserve Bank of Richmond
Open market operations		
Agency Mortgage-Backed Securities Purchase Program <i>(Nov. 25, 2008)</i>	Purchased agency mortgage-backed securities to provide support to mortgage and housing markets and to foster improved conditions in the financial markets more generally	FRBNY

Source: GAO summary of Federal Reserve Board documents.

Note: Dates in parentheses are the program announcement dates. On October 3, 2008, the Federal Reserve Board authorized the Direct Money Market Mutual Fund Lending Facility (DMLF) and rescinded this authorization one week later. DMLF was not implemented.

³PDCF was administered by FRBNY with operational assistance provided by the Federal Reserve Banks of Atlanta and Chicago.

To conduct the work for our report, we reviewed documentation supporting the Federal Reserve Board's authorizations for the emergency programs, Federal Reserve System documents and press releases describing the purpose of the programs, and other relevant program documentation, including announced terms and conditions. To assess Reserve Banks' controls over financial reporting and accounting, we developed an audit strategy designed to leverage, to the extent possible, the audit work specific to the emergency programs performed by the Federal Reserve System's external and internal auditors. For example, we reviewed the external auditor's key audit documentation including audit strategy, planning, and accounting memoranda; internal control and account balance testing audit procedures and results; and summary memoranda. We evaluated the quality of this documentation against relevant auditing standards. To evaluate the Reserve Banks' policies and practices for the use, selection, and payment of vendors, we analyzed Reserve Banks' acquisition policies and guidance, vendor contracts, and vendor payment information. To evaluate the effectiveness of Reserve Bank policies and practices for managing conflicts of interest, we reviewed relevant Reserve Bank policies, including FRBNY's Code of Conduct, and relevant statutory prohibitions on conflicts of interest that apply to federal government and Federal Reserve System employees and federal government guidance for agencies' management of employee conflicts of interest. To assess the effectiveness of security and collateral policies in place to mitigate risk of losses, we reviewed relevant documentation to identify key features of security and collateral policies and determine how these policies were designed to mitigate risk of losses for each emergency program. We obtained and analyzed documentation of steps taken by the Reserve Banks to develop risk governance structures and practices needed to manage the risks associated with the emergency programs. To examine the extent to which program implementation resulted in consistent and equitable treatment of eligible participants, we reviewed and analyzed documentation of the basis for the Federal Reserve Board's decisions about which types of institutions would be eligible to participate in the emergency programs. To determine the extent to which the Reserve Banks offered the same terms and conditions to all participants, which for some programs included financial institutions affiliated with Reserve Bank directors, we reviewed documentation of program terms and conditions and obtained and analyzed program transaction data. For parts of our methodology that involved the analysis of computer-processed data, we assessed the reliability of these data and

determined that they were sufficiently reliable for our purposes. For all objectives, we interviewed staff at the Federal Reserve Board, FRBNY, the Federal Reserve Bank of Boston, and the Federal Reserve Bank of Richmond.

The work on which this statement is based was conducted from August 2010 through July 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

The Federal Reserve Act of 1913 established the Federal Reserve System as the country's central bank. The Federal Reserve System consists of the Federal Reserve Board located in Washington, D.C.; 12 Reserve Banks, which have 24 branches located throughout the nation; and the Federal Open Market Committee (FOMC), which is responsible for directing open market operations to influence the total amount of money and credit available in the economy. Each Reserve Bank is a federally chartered corporation with a board of directors. The Federal Reserve Act authorizes the Reserve Banks to make discount window loans, execute monetary policy operations at the direction of the FOMC, and examine bank holding companies and member banks under rules and regulations prescribed by the Federal Reserve Board, among other things.

The Federal Reserve Board and the Reserve Banks are self-funded entities that deduct their expenses from their revenue and transfer the remaining amount to Treasury.³⁴⁴ Federal Reserve System revenues transferred to Treasury have increased substantially in recent years, chiefly as a result of interest income earned from the Federal Reserve System's large-scale emergency programs. To the extent that Reserve Banks suffer losses on emergency loans, these losses would be deducted from the excess earnings transferred to Treasury.

Between late 2007 and early 2009, the Federal Reserve Board created more than a dozen new emergency programs to stabilize financial

³⁴⁴ These excess earnings remitted to Treasury consist of Reserve Bank earnings after providing for operating expenditures, capital paid out in dividends to banks that are members of the Federal Reserve System, and an amount reserved by Reserve Banks to equate surplus with capital paid in.

markets and provided financial assistance to avert the failures of a few individual institutions. The Federal Reserve Board authorized most of this emergency assistance under emergency authority contained in section 13(3) of the Federal Reserve Act.³⁴⁵ Three of the programs covered by this review—the Term Auction Facility, the dollar swap lines with foreign central banks, and the Agency Mortgage-Backed Securities Purchase Program—were authorized under other provisions of the Federal Reserve Act that do not require a determination that emergency conditions exist, although the swap lines and the Agency MBS program did require authorization by the FOMC. In many cases, the decisions by the Federal Reserve Board, the FOMC, and the Reserve Banks about the authorization, initial terms of, or implementation of the Federal Reserve System’s emergency assistance were made over the course of only days or weeks as the Federal Reserve Board sought to act quickly to address rapidly deteriorating market conditions. FRBNY implemented most of these emergency activities under authorization from the Federal Reserve Board. In a few cases, the Federal Reserve Board authorized FRBNY to lend to a limited liability corporation (LLC) to finance the purchase of assets from a single institution. The LLCs created to assist individual institutions were Maiden Lane, Maiden Lane II, and Maiden Lane III. In 2009, FRBNY, at the direction of the FOMC, began large-scale purchases of mortgage-backed securities (MBS) issued by the housing government-sponsored enterprises, Fannie Mae and Freddie Mac, or guaranteed by Ginnie Mae.³⁴⁶ Purchases of these agency MBS were intended to provide support to the mortgage and housing markets and to foster improved conditions in financial markets more generally. Most of the Federal Reserve Board’s broad-based emergency programs closed on February 1, 2010. Figure 1 [

Figure 38] provides a timeline for the establishment, modification, and termination of Federal Reserve System emergency programs subject to this review.

³⁴⁵ At the time of these authorizations, section 13(3) allowed the Federal Reserve Board, in “unusual and exigent circumstances,” to authorize any Reserve Bank to extend credit in the form of a discount to individuals, partnerships, or corporations when the credit was indorsed or otherwise secured to the satisfaction of the Reserve Bank, after obtaining evidence that the individual, partnership, or corporation was unable to secure adequate credit accommodations from other banking institutions. As a result of amendments to section 13(3) made by the Dodd-Frank Act, the Federal Reserve Board can now authorize 13(3) lending only through programs or facilities with broad-based eligibility.

³⁴⁶ Mortgage-backed securities are securities that represent claims to the cash flows from pools of mortgage loans, such as mortgages on residential property.

Figure 1: Timeline of Federal Reserve Emergency Actions, December 2007–June 2010

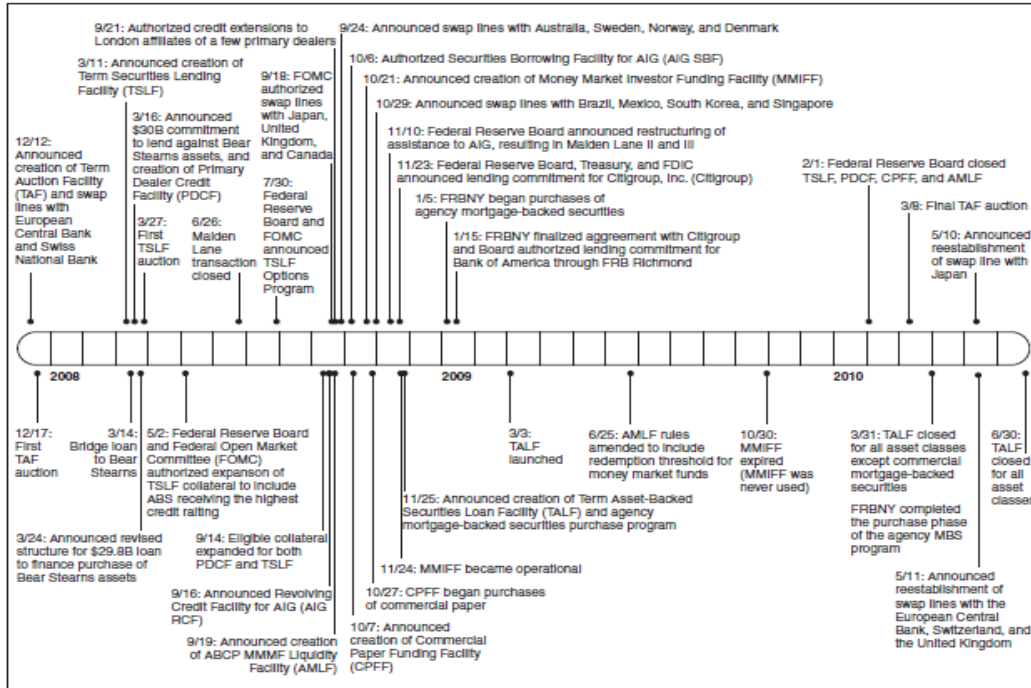


Figure 38

The Federal Reserve System and Its Emergency Activities Were Subject to Multiple Audits and Reviews

The Reserve Banks' and LLCs' financial statements, which include the emergency programs' accounts and activities, and their related financial reporting internal controls, are audited annually by an independent auditing firm. In addition, the Federal Reserve System has a number of internal entities that conduct audits and reviews of the Reserve Banks, including the emergency programs. As shown in figure 2 [Figure 39], these other audits and reviews were conducted by the Federal Reserve Board's Division of Reserve Bank Operations and Payment Systems (RBOPS), the Federal Reserve Board's Office of Inspector General, and individual Reserve Bank's internal audit function. The independent financial statement audits and other reviews did not identify significant accounting or financial reporting internal control issues concerning the emergency programs.

Figure 2: Audit and Review Coverage of the Emergency Programs

Program	External auditor ^a	Internal audit function	Reserve Bank Operations and Payment Systems	Office of Inspector General
Agency MBS	✓	✓	✓	
AIG ^b	✓		✓	
AMLF	✓	✓		✓
Bank of America Corporation	✓			
Citigroup, Inc.	✓			
CPFF	✓	✓	✓	✓
Swap Lines	✓	✓	✓	
Maiden Lane LLC	✓	✓	✓	
Maiden Lane II LLC	✓	✓	✓	
Maiden Lane III LLC	✓	✓	✓	
MMIFF	✓			✓
PDCF ^c	✓	✓	✓	✓
TAF	✓	✓		
TALF	✓	✓	✓	✓
TSLF	✓	✓	✓	✓

Source: GAO analysis of audit reports and reviews.

Note: See figure 1 for abbreviations of program names. This figure does not include the Bear Stearns bridge loan, which was a one-time loan and was not a program.

^aAudit coverage was provided as part of the overall audit of the Reserve Bank or LLC financial statements.

^bIncludes the AIG RCF, AIG SBF, and Life Insurance Securitization.

^cIncludes the credit extensions to affiliates of some primary dealers.

Figure 39

Reserve Banks Would Benefit From Strengthening Guidance for Noncompetitive Contracts Awarded in Exigent Circumstances

Reserve Banks Relied Extensively on Vendors to Establish and Operate the Emergency Programs, Particularly Those Designed to Assist Single Institutions

From 2008 through 2010, vendors were paid \$659.4 million across 103 contracts to help establish and operate the Reserve Banks' emergency programs. The 10 largest contracts accounted for 74 percent of the total amount paid to all vendors. FRBNY was responsible for creating and operating all but two emergency programs and assistance and therefore awarded nearly all of the contracts.³⁴⁷ See table 2 for the total number and value of contracts for the emergency programs and assistance.

As shown in table 2 [Table 6], the Reserve Banks relied on vendors more extensively for programs that assisted single institutions than for broad-based emergency programs. The assistance provided to individual institutions was generally secured by existing assets that either belonged to or were purchased from the institution, its subsidiaries, or counterparties.³⁴⁸ The Reserve Banks did not have sufficient expertise available to evaluate these assets and therefore used vendors to do so. For example, FRBNY used a vendor to evaluate divestiture scenarios associated with the assistance to AIG. It also hired vendors to manage assets held by the Maiden Lanes. For the broad-based emergency programs, FRBNY hired vendors primarily for transaction-based services and collateral monitoring. Under these programs, the Reserve Banks purchased assets or extended loans in accordance with each program's terms and conditions. Because of this, the services that vendors provided for these programs were focused more on assisting with transaction execution than analyzing and managing securities, as was the case for the single institution assistance.

³⁴⁷ The Federal Reserve Bank of Boston entered into a single \$25,000 contract for AMLF and the Federal Reserve Bank of Richmond entered into three contracts totaling \$22.8 million for the Bank of America ring-fencing agreement.

³⁴⁸ Any loans made under the Bank of America or Citigroup ring-fencing agreements were to be secured by specified pools of assets belonging to each institution. However, no loans were extended under the programs.

Table 2: Number of Contracts and Fees Paid, By Emergency Program, Calendar Years 2008–2010

Dollars in millions			
	Program	Number of contracts ^a	Total fees paid
Broad-based programs	Agency MBS program	6	\$81.4
	AMLF	1	0.025
	CPFF	5	43.4
	MMIFF	1	0.4
	TALF	18	29.2
Programs that assisted a single institution	AIG Revolving Credit Facility	19	\$212.9
	Bank of America lending commitment	3	22.8
	Citigroup lending commitment	3	21.4
	Maiden Lane (Bear Stearns)	42	158.4
	Maiden Lane II (AIG)	9	27.9
	Maiden Lane III (AIG)	12	57.0
	General ^b	4	4.5
Total		103	\$659.4

Source: GAO analysis of Reserve Bank data.

Note: Reserve Bank programs and assistance listed include only those for which the Reserve Banks used vendors. See figure 1 for abbreviations of program names.

^aBecause some contracts included work on multiple programs, the sum of the contracts for each program is greater than the 103 total contracts identified in the table. Also, 36 subvendors were paid \$3.3 million for the three Maiden Lane programs, CPFF, and TALF. The table does not include fees for subcontracts.

^bOf the four general contracts, two were for advisory services related to how FRBNY managed the emergency programs overall. The other two included work on multiple programs, but FRBNY could not separate out what proportion of the total fees was assigned to each program.

Table 6

Reserve Banks Awarded Largest Contracts Noncompetitively and Would Benefit From Additional Guidance on Seeking Competition

Most of the contracts, including 8 of the 10 highest-value contracts, were awarded noncompetitively, primarily due to exigent circumstances. These contract awards were consistent with FRBNY's existing acquisition policy, which applied to all services associated with the emergency programs and single-institution assistance.³⁴⁹ Under FRBNY policy, noncompetitive processes can be used in special circumstances, such as when a service is available from only one vendor or in exigent circumstances. FRBNY cited exigent circumstances for the majority of the noncompetitive contract awards.³⁵⁰ FRBNY officials said that the success of a program was often dependent on having vendors in place quickly to begin setting up the operating framework for the program. FRBNY's policy did not provide additional guidance on the use of competition exceptions, such as seeking as much competition as practicable and limiting the duration of noncompetitive contracts to the exigency period. To better ensure that Reserve Banks do not miss opportunities to obtain competition and receive the most favorable terms for services acquired, we recommended that they revise their acquisition policies to provide such guidance.

Vendor Fees Generally Came from Program Income or Participants

From 2008 through 2010, vendors were paid \$659.4 million through a variety of fee structures. For a significant portion of the fees, program recipients reimbursed the Reserve Banks or the fees were paid from program income. The Reserve Banks generally used traditional market conventions when determining fee structures. For example, investment managers were generally paid a percentage of the portfolio value and law firms were generally paid an hourly rate. Fees for these contracts were subject to negotiation between the Reserve Banks and vendors. For some of the large contracts that were awarded noncompetitively, FRBNY offered vendors a series of counterproposals and was able to negotiate lower fees than initially proposed.

³⁴⁹ FRBNY is a private corporation and not subject to the Federal Acquisition Regulation.

³⁵⁰ Of the noncompetitive contracts we reviewed, FRBNY awarded three under the sole-source exception, when a service was available from only one vendor.

Opportunities exist to strengthen conflict policies for employees, directors, and program vendors

During the crisis, FRBNY took steps to manage conflicts of interest related to emergency programs for its employees, program vendors, and members of its Board of Directors, but opportunities exist to strengthen its conflicts policies.

During the Crisis, FRBNY Expanded Its Efforts to Manage Employee Conflicts

Historically, FRBNY has managed potential and actual conflicts of interest for its employees primarily through enforcement of its Code of Conduct, which outlines broad principles for ethical behavior and specific restrictions on financial interests and other activities, such as restrictions on employees' investments in depository institutions and bank holding companies, and incorporates the requirements of a federal criminal statute and its regulations. During the crisis, FRBNY expanded its guidance and monitoring for employee conflicts. However, while the crisis highlighted the potential for Reserve Banks to provide emergency assistance to a broad range of institutions, FRBNY has not yet revised its conflict policies and procedures to more fully reflect potential conflicts that could arise with this expanded role. For example, specific investment restrictions in FRBNY's Code of Conduct continue to focus on traditional Reserve Bank counterparties—depository institutions or their affiliates and the primary dealers—and have not been expanded to further restrict employees' financial interests in certain nonbank institutions that have participated in FRBNY emergency programs and could become eligible for future ones, if warranted. Given the magnitude of the assistance and the public's heightened attention to the appearance of conflicts related to Reserve Banks' emergency actions, existing policies and procedures for managing employee conflicts may not be sufficient to avoid the appearance of a conflict in all situations. During our review, Federal Reserve Board and FRBNY staff told us that the Federal Reserve System plans to review and update the Reserve Banks' Codes of Conduct as needed given the Federal Reserve System's recently expanded role in regulating systemically significant financial institutions. In light of this ongoing effort, we recommended that the Federal Reserve System consider how potential conflicts from emergency lending could inform any changes.

FRBNY Primarily Used Contract Protections to Manage Risks Related to Vendor Conflicts, and the Lack of a Comprehensive Policy Created Certain Limitations

FRBNY managed risks related to vendor conflicts of interest primarily through contract protections and oversight of vendor compliance with these contracts, but these efforts have certain limitations. For example, while FRBNY's Legal Division negotiated contract provisions intended to help ensure that vendors took appropriate steps to mitigate conflicts of interest related to the services they provided for FRBNY, FRBNY lacked written guidance on protections that should be included to help ensure vendors fully identify and remediate conflicts. Rather than requiring written conflict remediation plans that were specific to the services provided for FRBNY, FRBNY generally reviewed and allowed vendors to rely on their existing enterprisewide policies for identifying conflicts. However, in some situations, FRBNY requested additional program-specific controls be developed. Further, FRBNY's on-site reviews of vendor compliance in some instances occurred as far as 12 months into a contract. In May 2010, FRBNY implemented a new vendor management policy but had not yet finalized more comprehensive guidance on vendor conflict issues. As a result, we recommended that FRBNY finalize this new policy to reduce the risk that vendors may not be required to take steps to fully identify and mitigate all conflicts.

Reserve Bank Directors Are Generally Subject to the Same Conflict Rules as Federal Employees and a Few Directors Played a Limited Role in Risk Oversight of the Programs

Individuals serving on the boards of directors of the Reserve Banks are generally subject to the same conflict-of-interest statute and regulations as federal employees. A number of Reserve Bank directors were affiliated with institutions that borrowed from the emergency programs, but Reserve Bank directors did not participate directly in making decisions about authorizing, setting the terms, or approving a borrower's participation in the emergency programs. Rather FRBNY's Board of Directors assisted the Reserve Bank in helping ensure risks were managed through FRBNY's Audit and Operational Risk Committee.³⁵¹ According to the Federal Reserve

³⁵¹ FRBNY's Audit and Operational Risk Committee, which includes directors, is appointed by its Board of Directors to assist the board in monitoring, (1) the integrity of the financial statements of the Reserve Bank, (2) the Reserve Bank's external auditor's qualifications and independence, (3) the performance of the Reserve Bank's internal audit function and external

Board officials, Reserve Banks granted access to borrowing institutions affiliated with Reserve Bank directors only if these institutions satisfied the proper criteria, regardless of potential director-affiliated outreach or whether the institution was affiliated with a director. Our review of the implementation of several program requirements did not find evidence that would indicate a systemic bias towards favoring one or more eligible institutions.

Opportunities Exist to Strengthen Risk Management Policies and Practices for Future Emergency Programs

The Federal Reserve Board approved key program terms and conditions that served to mitigate risk of losses and delegated responsibility to one or more Reserve Banks for executing each emergency lending program and managing its risk of losses. The Federal Reserve Board's early broad-based lending programs—Term Auction Facility, Term Securities Lending Facility, and Primary Dealer Credit Facility—required borrowers to pledge collateral in excess of the loan amount as well as other features intended to mitigate risk of losses.³⁵² The Federal Reserve Board's broad-based programs launched in late 2008 and early 2009 employed more novel lending structures to provide liquidity support to a broader range of key credit markets. These later broad-based liquidity programs included Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, Commercial Paper Funding Facility, Money Market Investor Funding Facility, and Term Asset-Backed Securities Loan Facility. These liquidity programs, with the exception of the Term Asset-Backed Securities Loan Facility, did not require overcollateralization. To help mitigate the risk of losses, the Term Asset-Backed Securities Loan Facility, as well as the programs that did not require overcollateralization, accepted only highly-rated assets as collateral. In addition, Commercial Paper Funding Facility, Money Market Investor Funding Facility, and Term Asset-Backed Securities Loan Facility incorporated various security features, such as the accumulation of excess interest and fee income to absorb

auditors, (4) internal controls and the measurement of operational risk, and (5) the compliance by the Reserve Bank with legal and regulatory requirements. The Audit and Operational Risk Committee also assesses the effectiveness of (2), (3), (4), and (5).

³⁵² We use the term "overcollateralized" to refer to Reserve Bank lending for which borrowers were required to pledge collateral in excess of the loan amount. By using this term, we do not intend to suggest that the amount of excess collateral required was inappropriately excessive given the Federal Reserve Board's policy objectives.

losses, to provide additional loss protection. Also, for the assistance to specific institutions, the Reserve Banks negotiated loss protections with the institutions and hired vendors to help oversee the portfolios collateralizing loans. For each of the Maiden Lane transactions, FRBNY extended a senior loan to the LLC and this loan was collateralized by the portfolio of assets held by the LLC. JP Morgan Chase & Co. agreed to take a first loss position of \$1.15 billion for Maiden Lane and AIG agreed to assume a similar first loss position for Maiden Lanes II and III. As of July 2011, most of the Federal Reserve Board's emergency loan programs had closed and all of those that had closed had closed without losses. Moreover, currently, the Federal Reserve Board does not project any losses on FRBNY's outstanding loans to Term Asset-Backed Securities Loan Facility borrowers and the Maiden Lane LLCs.

Opportunities Exist for the Reserve Banks to Continue to Strengthen Policies for Future Emergency Programs

To manage risks posed by the emergency programs, Reserve Banks developed new controls and FRBNY strengthened its risk management practices over time. In particular, FRBNY expanded its risk management function and enhanced its risk reporting and risk analytics capabilities. For example, in summer 2009, FRBNY expanded its risk management capabilities by adding expertise that would come to be organized as two new functions, Structured Products and Risk Analytics. Although FRBNY has improved its ability to monitor and manage risks from emergency lending, opportunities exist for FRBNY and the Federal Reserve System as a whole to strengthen risk management procedures and practices for any future emergency lending. Specifically, neither FRBNY nor the Federal Reserve Board tracked total potential exposures in adverse economic scenarios across all emergency programs. Moreover, the Federal Reserve System's existing procedures lack specific guidance on how Reserve Banks should exercise discretion to restrict or deny program access for higher-risk borrowers that were otherwise eligible for the Term Auction Facility and emergency programs for primary dealers. To strengthen practices for managing risk of losses in the event of a future crisis, we recommended that the Federal Reserve System document a plan for more comprehensive risk tracking and strengthen procedures to manage program access for higher-risk borrowers.

While the Federal Reserve Board Took Steps to Promote Consistent Treatment of Participants, It Lacked Guidance and Documentation for Some Access Decisions

The Federal Reserve Board and the Reserve Banks took steps to promote consistent treatment of eligible program participants and generally offered assistance on the same terms and conditions to eligible institutions in the broad-based emergency programs. However, in a few programs, the Reserve Banks placed restrictions on some participants that presented higher risk but lacked specific guidance to do so. Further, certain Federal Reserve Board decisions to extend credit to certain borrowers were not fully documented.

The Federal Reserve Board Designed Program Eligibility Requirements to Target Assistance to Groups of Institutions Facing Liquidity Strains

The Federal Reserve Board created each broad-based emergency program to address liquidity strains in a particular credit market and designed program eligibility requirements primarily to target significant participants in these markets. The emergency programs extended loans both directly to institutions facing liquidity strains and through intermediary borrowers. For programs that extended credit directly, the Federal Reserve Board took steps to limit program eligibility to institutions it considered to be generally sound. For example, Term Auction Facility loans were auctioned to depository institutions eligible to borrow from the discount window and expected by their local Reserve Bank to remain primary-credit-eligible during the term the Term Auction Facility loan would be outstanding.³⁵³ For programs that provided loans to intermediary borrowers, the Federal Reserve Board based eligibility requirements in part on the ability of borrowing institutions, as a group, to channel sufficient liquidity support to eligible sellers. For example, eligible Term Asset-Backed Securities Loan Facility borrowers included a broad range of institutions ranging from depository institutions to U.S. organized investment funds. Federal Reserve Board officials told us that broad participation in Term Asset-Backed Securities Loan Facility was

³⁵³ The Reserve Banks extend discount window credit to U.S. depository institutions (including U.S. branches and agencies of foreign banks) under three programs, one of which is the primary credit program. Primary credit is available to generally sound depository institutions, typically on an overnight basis. To assess whether a depository institution is in sound financial condition, its Reserve Bank can regularly review the institution's condition, using supervisory ratings and data on adequacy of the institution's capital.

intended to facilitate the program goal of encouraging the flow of credit to consumers and small businesses.

While Reserve Banks Generally Offered the Same Terms to Eligible Participants, Some Programs Lacked Documented Procedures to Systematically Apply Special Restrictions

The Federal Reserve Board promoted consistent treatment of eligible participants in its emergency programs by generally offering assistance on the same terms and conditions to all eligible participants. For example, institutions that met the announced eligibility requirements for a particular emergency program generally could borrow at the same interest rate, against the same types of collateral, and where relevant, with the same schedule of haircuts applied to their collateral. As previously discussed, for a few programs, FRBNY's procedures did not have specific guidance to help ensure that restrictions were applied consistently to higher-risk borrowers. Moreover, the Federal Reserve Board could not readily provide documentation of all Term Auction Facility restrictions placed on individual institutions. By having written procedures to guide decision-making for restrictions and suggestions for documentation of the rationale for such decisions, the Federal Reserve Board may be able to better review such decisions and help ensure that future implementation of emergency lending programs will result in consistent treatment of higher-risk borrowers. Our review of Federal Reserve System data for selected programs found that incorrect application of certain program requirements was generally infrequent and that cases of incorrect application of criteria did not appear to indicate intentional preferential treatment of one or more program participants.

The Federal Reserve Board Did Not Fully Document the Basis for Extending Credit to a Few Affiliates of Primary Dealers

The Federal Reserve Board did not fully document the basis for its decisions to extend credit on terms similar to those available at PDCF to certain broker-dealer affiliates of four of the primary dealers. In September and November of 2008, the Federal Reserve Board invoked section 13(3) of the Federal Reserve Act to authorize FRBNY to extend credit to the London-based broker-dealer subsidiaries of Merrill Lynch, Goldman Sachs, Morgan Stanley, and Citigroup, as well as the U.S. broker-dealer subsidiaries of Merrill Lynch, Goldman Sachs, and Morgan Stanley. Federal Reserve Board officials told us that the Federal Reserve Board did not consider the extension of credit to these subsidiaries to be a legal extension of

PDCF but separate actions to specifically assist these four primary dealers by using PDCF as an operational tool. Federal Reserve Board officials told us that the Federal Reserve Board did not draft detailed memoranda to document the rationale for all uses of section 13(3) authority but that unusual and exigent circumstances existed in each of these cases as critical funding markets were in crisis. However, without more complete documentation, how assistance to these broker-dealer subsidiaries satisfied the statutory requirements for using this authority remains unclear. Moreover, without more complete public disclosure of the basis for these actions, these decisions may not be subject to an appropriate level of transparency and accountability. The Dodd-Frank Act includes new requirements for the Federal Reserve Board to report to Congress on any loan or financial assistance authorized under section 13(3), including the justification for the exercise of authority; the identity of the recipient; the date, amount, and form of the assistance; and the material terms of the assistance. To address these new reporting requirements, we recommended that the Federal Reserve Board set forth its process for documenting its rationale for emergency authorizations.

The Federal Reserve Board Generally Has Not Provided Documented Guidance to Reserve Banks on Types of Program Decisions That Require Consultation with the Federal Reserve Board

In authorizing the Reserve Banks to operate its emergency programs, the Federal Reserve Board has not provided documented guidance on the types of program policy decisions—including allowing atypical uses of broad-based assistance—that should be reviewed by the Federal Reserve Board. Standards for internal control for federal government agencies provide that transactions and other significant events should be authorized and executed only by persons acting within the scope of their authority. Outside of the established protocols for the discount window, FRBNY staff said that the Federal Reserve Board generally did not provide written guidance on expectations for types of decisions or events requiring formal Federal Reserve Board review, although program decisions that deviated from policy set by the Federal Reserve Board were generally understood to require Board staff consultation. In 2009, FRBNY allowed an AIG-sponsored entity to continue to issue to the Commercial Paper Funding Facility, even though a change in program terms by the Federal Reserve Board likely would have made it ineligible. FRBNY staff said they consulted the Federal Reserve Board regarding this situation, but did not document this consultation and did not have

any formal guidance as to whether such continued use required approval by the Federal Reserve Board. To better ensure an appropriate level of transparency and accountability for decisions to extend or restrict access to emergency assistance, we recommended that the Federal Reserve Board document its guidance to Reserve Banks on program decisions that require consultation with the Federal Reserve Board.

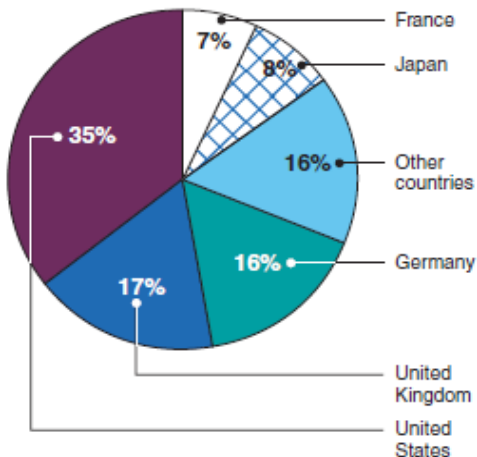
The Federal Reserve Board Took Steps to Prevent Use that Would Be Inconsistent with Its Policy Objectives

To assess whether program use was consistent with the Federal Reserve Board's announced policy objectives, we analyzed program transaction data to identify significant trends in borrowers' use of the programs. Our analysis showed that large global institutions were among the largest users of several programs. U.S. branches and agencies of foreign banks and U.S. subsidiaries of foreign institutions received over half of the total dollar amount of Commercial Paper Funding Facility and Term Auction Facility loans (see fig. 3) [Figure 40].

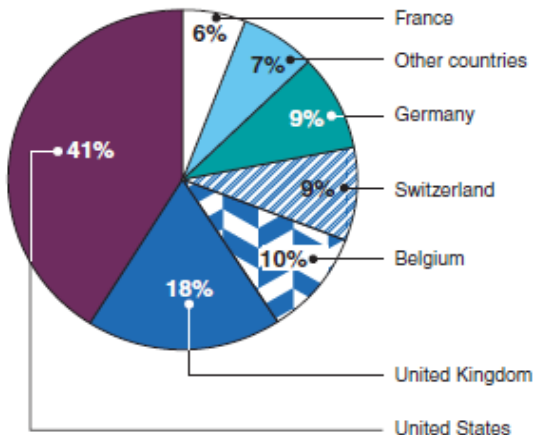
According to Federal Reserve Board staff, they designed program terms and conditions to discourage use that would have been inconsistent with program policy objectives. Program terms—such as the interest charged and haircuts applied—generally were designed to be favorable only for institutions facing liquidity strains. Use of the programs generally peaked during the height of the financial crisis and fell as market conditions recovered (see fig. 4) [Figure 41]. Within and across the programs, certain participants used the programs more frequently and were slower to exit than others. Reserve Bank officials noted that market conditions and the speed with which the participant recovered affected use of the program by individual institutions. As a result of its monitoring of program usage, the Federal Reserve Board modified terms and conditions of several programs to reinforce policy objectives and program goals.

Figure 3: Total Transaction Amount by Parent Company Country of Domicile for the Term Auction Facility and Commercial Paper Funding Facility

TAF



CPFF

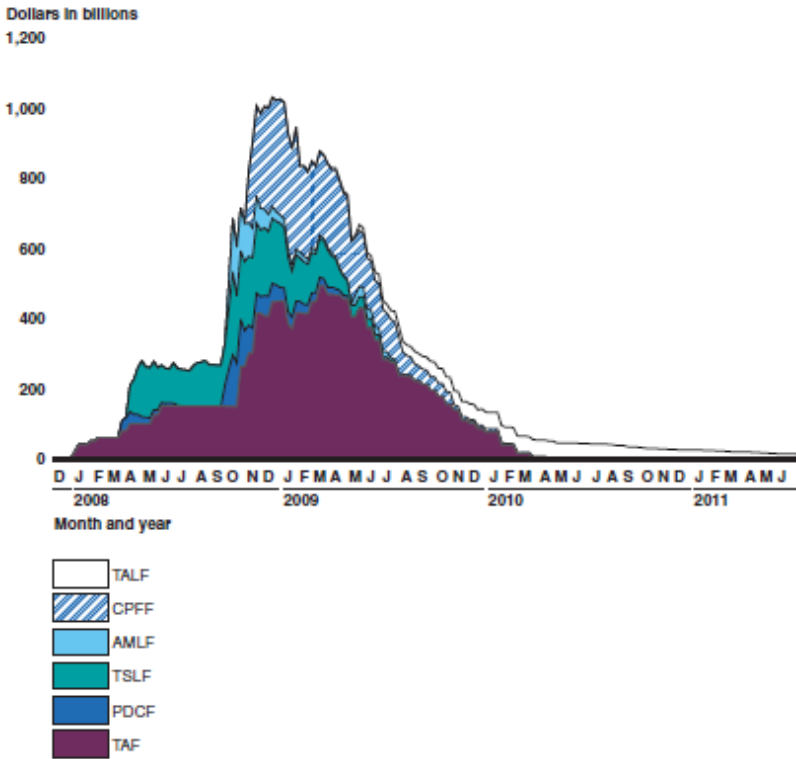


Source: GAO analysis of Federal Reserve System data.

Note: For Term Auction Facility, the total dollar amount of loans are aggregated at the level of the parent company for participating depository institutions. For Commercial Paper Funding Facility, the total dollar amount of issuance is aggregated at the parent company level and includes asset-backed commercial paper issuance by entities sponsored by the parent company or one of its subsidiaries. The country of domicile for parent companies is based on SNL Financial data.

Figure 40

Figure 4: Total Loans Outstanding for Broad-Based Programs, December 1, 2007–June 29, 2011



Source: GAO analysis of Federal Reserve System data.

Note: See figure 1 for abbreviations of program names.

Figure 41

Concluding Observations

During the financial crisis that began in the summer of 2007, the Federal Reserve System took unprecedented steps to stabilize financial markets and support the liquidity needs of failing institutions that it considered to be systemically significant. To varying degrees, these emergency actions involved the Reserve Banks in activities that went beyond their traditional responsibilities. Over time, FRBNY and the other Reserve Banks took steps to improve program management and oversight for these emergency actions, in many cases in response to recommendations made by their external auditor, Reserve Bank internal audit functions, or the Federal

Reserve Board's RBOPS. However, the Reserve Banks have not yet fully incorporated some lessons learned from the crisis into their policies for managing use of vendors, risk of losses from emergency lending, and conflicts of interest. Such enhanced policies could offer additional insights to guide future Federal Reserve System action, should it ever be warranted. We made seven recommendations to the Chairman of the Federal Reserve Board to further strengthen Federal Reserve System policies for selecting vendors, ensuring the transparency and consistency of decision making involving implementation of any future emergency programs, and managing risks related to these programs. In its comments on our report, the Federal Reserve Board agreed to give our recommendations serious attention and to strongly consider how to respond to them.

Mr. Chairman, Ranking Member Clay, and Members of the Subcommittee, this completes my prepared statement. I am prepared to respond to any questions you or other Members of the Subcommittee may have at this time.

**WRITTEN TESTIMONY OF
ROBERT D. AUERBACH, Ph.D.**

PROFESSOR OF PUBLIC AFFAIRS
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UNIVERSITY OF TEXAS AT AUSTIN

Introduction

Thank you Chairman Ron Paul, Ranking Member William Lacy Clay and members of the subcommittee for this opportunity to testify on transparency at the Federal Reserve. My name is Robert Auerbach. I am a Professor of Public Policy at the Lyndon B. Johnson School of Public Affairs at the University of Texas in Austin. On two separate occasions I had the honor to serve as an economist on the staff of this Committee (1977-81 and 1992-1997) and my 2008 book, *Deception and Abuse at the Fed: Henry B. Gonzalez Battles Alan Greenspan's Bank* details the oversight investigations that I staffed while serving Committee Chairman Henry S. Reuss in the late 1970's and Committee Chairman/Ranking Member Henry B. Gonzalez in the 1990's. I have also served as an economist in the U.S. Treasury's Office of Domestic Monetary Affairs during the Reagan Administration and at the Federal Reserve System.

The Fed is the powerful central bank of the United States that controls the money supply, regulates the banking system and, since 1962, makes loans to foreign countries without Congressional authorization.³⁵⁴ The historical record summarized below, describing Federal Reserve officials blocking transparency and individual accountability, including destroying source records of its policymaking committee since 1995, leads to the following suggested remedies:

- **Independent Inspector General:** The Inspector General of the Federal Reserve should not be appointed by the chairman of the Federal Reserve Board as is currently the case. The IG should be a Presidential nominee whose credentials, abilities and independence are examined during a Senate confirmation process.
- **Preserve Transcripts:** The Federal Reserve should stop destroying the source transcripts and should stop turning off the recording system at its policy making committee, the Federal Open Market Committee (FOMC). This practice was

³⁵⁴ Auerbach, *Deception and Abuse at the Fed*, pp. 69 - 73.

approved in 1995 by an unrecorded vote of the FOMC directed by then-Chairman Alan Greenspan.³⁵⁵

- **Provide Minutes to Congress:** The minutes of the boards of directors meetings at the Federal Reserve's 12 district banks and the transcripts of the meetings of the Federal Reserve Board of Governors and of the FOMC, should be sent to the House and Senate banking committees within six months of the meetings. Trained archivists at the National Archives and Records Administration should edit those records to remove prescribed items in cooperation with the Federal Reserve.
- **Senate Confirmation of Bank Presidents:** The 12 Federal Reserve regional bank presidents who are eligible to vote on the money supply as members of the FOMC should be confirmed by the Senate. The presidents wield enormous power as members of the FOMC and they should be fully vetted in the confirmation process. I want to commend full committee Ranking Member Bernie Frank for addressing the regional bank presidents' role on the FOMC with H.R. 1512, although rather than removing them from the FOMC as proposed in the bill I would recommend Senate confirmation.

Fed Audits

Chairman Ron Paul and Senator Bernie Sanders deserve great praise for their leadership in enacting the current Government Accountability Office (GAO) audit of the Federal Reserve as part of the Dodd-Frank Act. The Senate unanimously approved, by a 90 to 0 vote, the Sanders amendment to require disclosure of the recipients of the Fed's emergency loans. Hopefully this Congressional action set a precedent for fuller continuing audits of Federal Reserve operations.

In 1976, House Committee on Banking, Finance and Urban Affairs Chairman Henry Reuss proposed a GAO audit of the Fed. The Fed orchestrated a massive lobbying campaign using the officials of private banks to lobby to stop the audit bill.

Evidence of the lobbying campaign came from minutes of the board of directors of each of the 12 district Federal Reserve Banks. Chairman Reuss requested minutes from district bank meetings from 1972, 1974, and 1975. After a six-month delay with letters back and forth and meetings between Chairman Reuss and Federal Reserve Chairman Arthur Burns, the minutes arrived at the Congress. One

³⁵⁵ Auerbach, *Deception and Abuse at the Fed*, pp. 103 - 104.

response to the Reuss request for records was given by a St. Louis Fed President, as reported on the transcript:

"I would also think that if this involves a lot of work, which it will, needless work, that someone on Mr. Reuss' Committee, a friendly individual should know what we're being called upon to do. Because I think this can be used against Reuss if we react intelligently and as I see it in the St. Louis case, it's appalling how skimpy or meaningless our minutes are, I'm sure we did this with great wisdom knowing that a man named Reuss would ask for them. The minutes are really terribly shallow. Tell nothing."³⁵⁶ (Emphasis added)

Chairman Reuss' delivered a floor speech in 1976 detailing the evidence of the Fed's orchestrated lobby against the audit bill entitled: "What the Secret Minutes of the Federal Reserve Banks Meetings Disclose". The speech led to the passage of the Federal Reserve Reform Act of 1977 which brought Fed Bank directors under the federal government conflict of interest laws.

Despite this victory, the Fed won the first round on the audit effort. Chairman Reuss's audit bill could not garner enough support to pass out of the Committee. It was shunted to the Government Operations Committee where it passed in 1978, but only after glaring no-audit barriers on any Fed operations connected to monetary policy or international transactions were added.

In the Fed's monetary policy operations billions of dollars can be made from inside information from leaks of Fed policy. It is very difficult to police these leaks of inside information. One necessary step to stop leaks is to severely limit the interest rate policy information in the Federal Reserve to a few people. This has not happened. Many hundreds of Federal Reserve employees -- over 500 employees -- are directly involved in the secret meetings or in preparing information that has been discussed at these meetings.

The House Banking Committee received information in 1997 about non-Federal Reserve employees at Federal Reserve meetings where inside information was discussed. Congressmen Gonzalez and Maurice Hinchey asked Greenspan about the apparent leak of discount rate information and the presence of these people at Federal Reserve meetings. Greenspan was forced to admit that some non-Federal Reserve people had attended Federal Reserve meetings where the Federal Reserve's future interest rate policy was discussed.³⁵⁷ Greenspan included a 23-page enclosure listing

³⁵⁶ November 16, 1976 FOMC transcript, p.17.

³⁵⁷ Greenspan letter of April 25, 1997.

hundreds of people at the Board of Governors in Washington, D.C. and in the 12 Federal Reserve Banks around the country who have access to at least some secret Federal Reserve information about non-public Federal Reserve interest rate policy.

Names of Avisiting scholars@ were listed who had attended pre-FOMC meetings at three Federal Reserve Banks. Greenspan also wrote:

At the Federal Reserve Bank of Kansas City, over the 3-year period, a total of 28 foreign central bankers have attended 16 different Board of Directors meetings, including the discussion and vote on discount rates. Those attending included Acentral bankers from Bulgaria, China, the Czech Republic, Hungry, Poland, Romania and Russia.³⁵⁸

At the December 19, 1989 FOMC meeting Greenspan warned about the ill effects of continuing leaks from the FOMC's supposedly secret meetings and said that "we're beginning to look like buffoons":

[. . .] I would like to raise again a problem that continues to confront this organization with continuous damaging and corrosive effects, and that is the issue of leaks out of this Committee. We have two extraordinary leaks, and perhaps more, in recent days: in which John Berry at The Washington Post in late November had the time and content of a telephone conference; previous to that we had The Wall Street Journal knowing about telephone conferences and knowing a number of things that could only have come out of this Committee.

As best I can judge from feedback I'm getting from friends of ours the credibility of this organization is beginning to recede and we're beginning to look like buffoons to some of them. [. . .]³⁵⁹

FOMC Records

In 1976 two threats to Fed secrecy created high anxiety at the Federal Reserve Board of Governors. First, David Merrill, a law student at Georgetown University, brought a legal action challenging the 45-day delay in releasing the "Directive" on monetary policy.³⁶⁰ It is a short report on policy actions that were authorized at the FOMC

³⁵⁸ Greenspan letter to Chairman Gonzalez, April 25, 1997, p. 2.

³⁵⁹ Chapter 9, "Valuable Secrets and the Return of Greenspan's "Prophetic Touch" in *Deception and Abuse at the Fed*.

³⁶⁰ The secret meetings at the Board of Governors in Washington D.C. revealed great alarm about transparency at the Arthur Burns Fed. This response was revealed in the FOMC transcripts Burns left upon his death in 1987 to the President R. Gerald Ford Library on the University of Michigan campus. The archivists of the National Archives and Records Administration lightly edited the transcripts.

meeting. The Federal District Court agreed with Merrill. The Fed appealed up to the Supreme Court which remanded it back to the district court. Lacking funds for further extensive adjudication Merrill could not pursue the case. The Fed has all the money it needs or can order from the Bureau of Engraving and Printing to hire private law firms and fight any legal action.

The second attack on the Fed's secrecy was Congressional consideration of the "Government in the Sunshine Act" that was signed into law September 13, 1976. That law required that: "The agency shall make promptly available to the public, in a place easily accessible to the public, the transcript, electronic recording or minutes of the meeting." The Fed frantically tried to protect itself from such transparency and individual accountability.

Fearing the new legislation and the pending legal action for the disclosure of their records, Federal Reserve Chairman Arthur Burns led the Federal Reserve Open Market Committee in a 10 to 1 vote to discontinue transcripts of its meetings in 1976. That vote began the official 17-year Fed lie asserting that no transcripts were being maintained of FOMC meetings.

In 1992 I returned to the Banking Committee staff of then-Chairman Henry B. Gonzalez. Chairman Gonzalez and I could not believe that the most powerful central bank in the world, operating in our great democracy, had no complete records of its policy making committee, the FOMC. On October 19, 1993, Chairman Gonzalez convened a Fed oversight hearing focusing on transcripts. Seventeen officials of the Fed, seven members of the Board of Governors and ten of the twelve presidents of the Federal Reserve District Banks, testified in the Banking Committee chamber. Chairman Greenspan sat in the center of the long row of Fed officials. Prior to the hearing, Chairman Gonzalez sent the witnesses specific instructions that they reveal details of what records are kept by the Fed of their meetings.

A top Fed staff person, who would become vice chairman of the Board of Governors, explained on a confidential FOMC conference call four days before their Congressional testimony that Greenspan clearly intended to mislead Congress about written records of the FOMC: "The Chairman is not highlighting these transcripts ... We're not waving red flags."³⁶¹

Jim McTague, now the Washington editor of Barron's, wrote about Greenspan's testimony: "In a performance that would have made professor Irwin Corey weep with admiration Mr. Greenspan

³⁶¹ FOMC conference call transcript, October 15, 1993, p. 20.

avoided drawing attention to the existence of transcripts ..." Corey famously performed as a double-talking comedian.³⁶²

Several days after the hearing, the Cleveland Fed broke the silence and misdirection and informed the Congress of the deception. Chairman Greenspan then sent a letter admitting that transcripts existed. He claimed to have had memory problems. I led a group of Republican and Democratic staff to the Board of Governors where Fed staff showed us 17 years of neatly typed transcripts around the corner from Chairman Greenspan's office. Under pressure from this Gonzalez investigation the Fed ended its 17-year lie by again issuing the transcripts but only with a 5-year lag, too long to establish timely individual accountability.

In 1995 Greenspan held a non-recorded vote of the FOMC – no finger prints – to destroy the source FOMC transcripts. I was informed by the Fed Vice Chairman Donald Kohn that this destruction would continue and that it was legal.³⁶³ Previously these source records had been sent to the National Archives.

That same year the shredding machines at the Fed destroyed the source FOMC records when Fed officials bypassed the Congress and voted \$5 billion to support the Mexican peso. That loan was collateralized by revenue from Mexico's oil industry. When the loan authorization was sent to the New York Federal Reserve Bank and was public information the peso stopped falling. The loan to Mexico that had been authorized was then not needed and was not made.

Investigations of Fed Operations

Congresswoman Carolyn Maloney joined Chairman Gonzalez in an investigation from 1995 to 1997 of the Fed's more than 50 contracted airplanes that were delivering paper checks across the country. The investigation found evidence of corruption in this system typified by the "backup plane" at Teterboro Airport. The Fed paid for this contracted plane that people at that Fed facility called the phantom plane because it was not present at Teterboro much of the time. We also uncovered evidence of nearly nonexistent in-house audits. Officials covered losses in the airplane fleet operations by transferring money from the Fed's employee pension fund.

³⁶² "Greenspan Has Himself to Blame for Fervid Interest in Transcripts," *American Banker*, December 1, 1993, p. 24.

³⁶³ A letter from then Vice Chairman Donald Kohn to Robert Auerbach September 1, 2001. Included in Auerbach, "Stop the Fed From Shredding Its Record," *Huffington Post*, December 9, 2001.

The Reno Justice Department refused the Gonzalez request to investigate the extensive corruption found in the management of the airplane fleet and referred the Gonzalez inquiry to the Fed's Inspector General. The IG told me he did not know if he had jurisdiction because the fleet was managed by the Boston regional Fed Bank.

That weak dodge is consistent with my prior experience and underlies the importance of changing the structure of the Fed's IG. The Fed's Report to Congress and the Dodd-Frank law grant the Chairman of the Federal Reserve the authority to appoint his own Inspector General who is charged with investigating the Fed bureaucracy and who also serves as the IG for the new Consumer Financial Protection Bureau. This is a clear conflict as Chairman Bernanke can "prohibit the Fed's Inspector General from carrying out or completing an audit or investigation or from issuing a subpoena ..."³⁶⁴

Another Gonzalez investigation began in 1997 when the Congress received information about alleged corrupt accounting at the cash section of the Los Angeles branch of the San Francisco Federal Reserve Bank that includes vaults containing cash and coins. The GAO assisted the Gonzalez's investigation. During the investigation Chairman Greenspan informed Ranking Member Gonzalez that the Federal Reserve knew that nearly \$500 thousand that had been stolen from Fed vaults by Fed employees from 1987 to 1996.³⁶⁵ The Gonzalez/GAO investigation indicated this was an understatement.

The following selections are from the September 30, 1996 published report of an excellent GAO team that investigated the cash section at the Los Angeles Branch of the Federal Reserve in coordination with a Gonzalez investigation. The report indicates how desperately the Fed operations need a complete competent audit. It is a matter of national security:

A bank had brought a deposit of \$432,000 to the Fed and Fed employees mistakenly entered the transaction as \$8,640,000. When

³⁶⁴ Section 1081 of the Dodd-Frank Wall Street Reform and Consumer Protection Act states that, "...the Chairman of the Board of Governors of the Federal Reserve System shall appoint the Inspector General of the Board of Governors of the Federal Reserve System and the Bureau of Consumer Financial Protection. The Inspector General of the Board of Governors of the Federal Reserve System and the Bureau of Consumer Financial Protection shall have all of the authorities and responsibilities provided by this Act with respect to the Bureau of Consumer Financial Protection, as if the Bureau were part of the Board of Governors of the Federal Reserve System."

³⁶⁵ Federal Reserve Board of Governors Chairman Alan Greenspan letter to Ranking Member Gonzalez, December 5, 1996.

Fed employees in the cash department counted the deposit they discovered an \$8,208,000 mistake “they overrode the system control in the cash inventory system and forwarded the money for further processing. Although this error was corrected when the problem was detected at the end of the day, this resulted in an erroneous entry being made in the L.A. Bank’s ledger for \$8,640,000 that increased the cash in the vault amount and the depository institution’s account. L.A. Bank officials had no explanation for why this occurred.”

The GAO also reported: “We found that the October, November, and December 1995 monthly currency activity reports of the L.A. Bank were prepared and reported incorrectly. We confirmed that the reported receipts from currency deposited in the L.A. Bank by depository institutions (receipts from circulation) were not taken from the L.A. Bank’s cash inventory records (in other words, independently determined) but rather ‘forced’ to ensure that the currency activity reports agreed with the daily balance sheet for the last day of the month.” “The reports were prepared incorrectly at the direction of the L.A. Bank’s management. L.A. Bank officials stated that the practice of forcing the reports to agree had been in place for some time.” “We found that problems in currency reporting are linked to the limitations in the design of the underlying cash inventory system.” “The L.A. Bank’s inability to precisely summarize currency activity from its cash inventory records raises serious questions about the integrity of its accounting and internal controls.” “We attempted to perform a comprehensive review of the L.A. Bank’s internal controls and accounting practices over the money flowing through the Bank. Our efforts to perform a comprehensive review were substantially limited by the L.A. banks inability to provide the information needed for such a review.[...] we requested that the Bank provide us with [. . .] a general ledger history of all of the activity in its general ledger cash accounts for October through December 1995” [The bank did not provide the] general ledger of cash transactions because Bank officials stated that it would take them 3 weeks.”³⁶⁶

This excellent GAO report demonstrates that the agency is capable of conducting exemplary audits of Fed operations if it is not constrained by statutory limitations and as long as experienced staff lead the investigations. The Fed vault facilities are a crucial part of

³⁶⁶ “Federal Reserve Banks, Inaccurate Reporting of Currency at the Los Angeles Branch, Report to the Ranking Minority Member [The Honorable Henry B. Gonzalez], Committee on Banking and Financial Services,” House of Representatives. GAO/AIMD-96-146, September 30, 1996. See also “EMBEZZLING FED MONEY AND FALSIFYING ACCOUNTING RECORDS,” Deception and Abuse At the Fed, pp. 55-60.

the nation's payment system and should be a national security priority with full accountability to the Congress. The Fed banks contain uncirculated currency and coin transferred from the Bureau of Engraving and Printing. They also receive cash from banks throughout the country. The cash sections and vaults of the Federal Reserve District Banks and branches need to be investigated and audited with personnel who are experienced in central bank operations, independent of Fed officials and instructed to make thorough audits.

Academic Independence

Future GAO audits should target the massive number of Fed payments to academics who are not employed at the Federal Reserve. A Gonzalez investigation found that the Federal Reserve sent money and provided other benefits to economists throughout academia who specialize in monetary and financial subjects, and who were not employees of the Federal Reserve. The Fed itself employed over 500 economists so the need to make all these outside payments is highly questionable.³⁶⁷ Some academics received checks from a number of (up to five) district Fed Banks. Reuters reported Milton Friedman's views on this problem in 1993: "the Fed's relatively enhanced standing among the public has been aided 'by the fact the Fed has always paid a great deal of attention to soothing the people in the media and buying up its most likely critics' Recognizing that the Fed employs 'probably half of the monetary economists in the U.S. and has visiting appointments for two-thirds of the rest' he [Friedman] saw few among the academic community who were prepared to criticize the Fed policy."³⁶⁸

Conclusion

The current GAO audit of the Federal Reserve is a historic step towards greater transparency at the central bank. The Fed has a long history of fighting outside audits as various Fed officials have complained that they would constitute an infringement on central bank independence. In fact, the Fed's mythical flag of independence from politics, a favorite Fed mantra to avoid individual responsibility,

³⁶⁷ After the chapter in my book, "When 500 economists are not enough," was published on *Huffington Post*, September 7, 2009, Ryan Grim followed up with an up to date article: "Priceless: How the Fed Bought the Economics Profession," September 7, 2009.

³⁶⁸ Reuters interview reported July 7, 1993.

is merely a shield intended to protect the institution from being forced to act in a more transparent fashion. Ongoing audits do not infringe on the Fed's independence which is protected in a myriad of ways, including self-funding and terms for members of the Board of Governors of 14 years. Board of Governor members can only be removed by impeachment and that has never happened.

Their long terms and very little chance of being impeached should allow independent votes. It has not prevented the fact that monetary policy has been very poor in periods such as the 1970's and since October 2008. I have been writing and speaking about the Federal Reserve's present misguided policy since 2009.³⁶⁹

Complete GAO audits and the other improvements I have described are essential for establishing a timely authentic record of policy actions and individual responsibility for the powerful unelected officials at the nation's central bank.

³⁶⁹ "The Bernanke Fed Is in a Deep Hole With a \$1.6 Trillion Time Bomb," *Huffington Post/AOL*, August 29, 2011.

WRITTEN TESTIMONY OF
MARK A. CALABRIA, Ph.D.
DIRECTOR OF FINANCIAL REGULATION STUDIES
CATO INSTITUTE

Chairman Paul, Ranking Member Clay, and distinguished members of the Subcommittee, I thank you for the invitation to appear at today's important hearing. I am Mark Calabria, Director of Financial Regulation Studies at the Cato Institute, a nonprofit, non-partisan public policy research institute located here in Washington, DC. Before I begin my testimony, I would like to make clear that my comments are solely my own and do not represent any official policy positions of the Cato Institute. In addition, outside of my interest as a citizen and taxpayer, I have no direct financial interest in the subject matter before the Committee today, nor do I represent any entities that do.

The Federal Reserve and the Financial Crisis

As the Subcommittee is well aware, the events of 2008 witnessed not only unprecedented disruptions to our financial markets, but also extraordinary responses on the part of our financial regulators and central bank. No entity was more deeply involved than the Federal Reserve System ("Fed"), particularly the Federal Reserve Bank of New York.

Yet the Fed has consistently and repeatedly resisted efforts to bring any accountability and transparency to its actions. Congress and the public were regularly warned that if the details of the Fed's actions became public, further panic would ensue in our financial markets. For instance I distinctly remember, as a staffer for the Senate Banking Committee, listening to then Fed Vice Chair Donald Kohn tell that Committee that making the names of AIG's derivatives counterparties public would severely harm our financial markets. When those names were eventually released our world did not come to an end. In short, the Fed has a long tradition and strong preference for secrecy. Despite some notable attempts by the Fed to increase its communications with the public, I believe, given its track record, the public cannot rely on the Fed to voluntarily provide us with sufficient information to monitor its activities and judge the effectiveness of its actions. And while the requirements of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank"), in relation to auditing the Fed's activities are an important

advance, they fall far too short of providing sufficient oversight of the Fed.

What auditing has been conducted has so far been focused on the Fed's response to the crisis. Among economists, on both the right and the left, there remains considerable concern and debate over the Fed's role in helping to create the crisis via its easy money policies in the aftermath of the dot-com bubble and the events of 9/11. If we truly wish to end financial crises, then I believe it is absolutely essential that Congress receive a full and objective evaluation of the Fed's role in fostering the housing bubble, particularly as it relates to monetary policy decisions made between 2002 and 2005.

Federal Reserve Audit Requirements under Dodd-Frank

The primary audit requirements of Dodd-Frank, as they relate to the Fed's actions during the financial crisis, are contained in Section 1109, which directs GAO to:

conduct a onetime audit of all loans and other financial assistance provided during the period beginning on December 1, 2007 and ending on the date of enactment of this Act by the Board of Governors or a Federal reserve bank under the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Term Asset-Backed Securities Loan Facility, the Primary Dealer Credit Facility, the Commercial Paper Funding Facility, the Term Securities Lending Facility, the Term Auction Facility, Maiden Lane, Maiden Lane II, Maiden Lane III, the agency Mortgage-Backed Securities program, foreign currency liquidity swap lines, and any other program created as a result of section 13(3) of the Federal Reserve Act.

That audit was delivered to Congress in July. Importantly, the audit required by Dodd-Frank goes beyond a simple accounting of what was lent to whom, but also requires GAO to evaluate the effectiveness and policies of the various lending facilities. As GAO's audit makes clear, the Fed, and in particular the New York Fed, exercised considerable discretion in designing these lending programs and often did so in an extremely ad hoc manner. While it does appear that the Fed made attempts to treat all program participants fairly and equally, a lack of appropriate internal controls within these programs left open considerable potential for abuse.

In addition to the audit requirements of Section 1109, Dodd-Frank also requires under Section 1103(b) that the Fed provide:

disclosure in a timely manner consistent with the purposes of this Act of information concerning the borrowers and counterparties

participating in emergency credit facilities, discount window lending programs, and open market operations authorized or conducted by the Board or a Federal reserve bank...

The importance of Section 1103(b) is that participants in future discount window lending will eventually be identified to the public, along with the terms of such lending. Given that Dodd-Frank gives the Fed approximately two years to disclose such information in relation to discount window lending, I believe the risk that such disclosure will dissuade financial institutions from the use of the discount window has been minimized. Of course, if such disclosure encourages financial institutions to manage their operations in such a way to avoid the need for access to the discount window, then the strength of our financial system would likely be improved.

While Sections 1102, 1103 and 1109 of Dodd-Frank are without doubt improvements in Federal Reserve transparency, and some of the few positive provisions in the Act, they fall short of truly bringing the operations of the Fed into the light of day.

Although I believe it to be a grave mistake to continue to entrust the Federal Reserve with bank supervision and regulation, Congress has chosen to maintain, and extend, that situation. The requirements of Section 1108(b) of Dodd-Frank requiring the Fed's Vice Chair for Supervision to regularly appear before Congress should increase transparency and improve Congressional oversight as it relates to the Fed's bank supervision responsibilities.

The Federal Reserve Needs a Full and Continuous Audit

The non-monetary actions of the Federal Reserve in 2008 and 2009 will likely be debated for decades among economists and historians. Just as the causes of the Great Depression and the effectiveness of the New Deal remain in contention, so will recent actions. What we all can perhaps agree on, or at least hope, is that the extraordinary measures, by Congress, the Federal Reserve and the Treasury, will not be repeated soon or repeated often. Accordingly, much of the audit requirements in Dodd-Frank have something of an "historical" feel to them. However, it is not enough to just get history right, but also to insure that future mistakes are avoided. I can think of few areas requiring as much mistake-avoidance as monetary policy.

Others have already laid out the case that easy money contributed to the crisis,³⁷⁰ so I will not repeat that argument here. I do believe, however, that the role of easy money in the fostering a

³⁷⁰ See John Taylor, *Getting Off Track*. Hoover Institute Press. 2009.

housing bubble demonstrates the need for an on-going GAO audit of the Federal Reserve's monetary functions. Disagreement as to the appropriate stance of current monetary policy also demonstrates the need for objective, independent analysis.

What's GAO for?

GAO, the US Government Accountability Office, states its mission is "to support the Congress in meeting its constitutional responsibilities and to help improve the performance and ensure the accountability of the federal government for the benefit of the American people. We provide Congress with timely information that is objective, fact-based, nonpartisan, nonideological, fair, and balanced." (www.gao.gov).

Quite simply GAO is not a political organization. As someone who has interacted repeatedly and regularly with GAO over the last decade, including serving as a Congressional staff liaison for requested GAO reports, I can say they are independent, unbiased and non-political. I have not always agreed with the conclusions of GAO, but I have never felt as if such disagreements were the result of politics or bias.

Subjecting the Federal Reserve's monetary policy function to a GAO audit does not subject the Fed to "politics" – such a claim is not only insulting to GAO, it is insulting to the very concept of Congressional oversight. GAO exists for the very simple reason that no one member of Congress, or their staff, fully understand and are knowledgeable about the functioning of the various government agencies. GAO exists to inform. And there are few areas less understood by Congress than monetary policy and macroeconomics. Hence there are few areas more in need of a GAO audit than the Fed. While the impact of getting wheat support prices or fair market rents wrong is not insignificant, getting monetary policy wrong can be disastrous for an economy.

On Fed Independence

A common objection to a GAO audit of the Fed is that such would "compromise" the Fed's independence and subject its actions to political influence. Such an objection confuses the very nature of Fed independence. The Fed's authority to regulate the value of money is one delegated from Congress. As Congress can, and has, legislated changes to the Fed, it should be clear beyond a doubt that the Fed is not "independent" of Congress. It is a creature of Congress.

Setting aside the debate over the desirability and legitimacy of so-called independent agencies, it should be clear that their independence, in an operational sense, is from the Executive Branch. It should also be clear, however, that in recent years the Fed has coordinated its actions quite closely with the Treasury Department, eroding any real independence. The revolving door, both at the political and career levels, between the Fed and the Treasury Department further undermines the Fed's operational independence. A GAO audit could shine a light on this relationship, helping to insulate the Fed from continued interference by the Treasury Department.

Improving Federal Reserve Transparency

The Dodd-Frank Act made important advances in bringing transparency and accountability to the Federal Reserve. Unfortunately it falls short in allowing Congress, and the public, to truly gauge the effectiveness of the Federal Reserve.

In order to improve Federal Reserve Transparency, Congress should mandate a regular GAO audit of all Fed activities, including monetary policy. Such audits can be performed in such a manner so as to minimize their disruptions to any on-going deliberations of the Federal Open Market Committee (FOMC). For instance audits can be kept confidential for a year after each FOMC meeting.

Evaluating the effectiveness of any government agency is made all the more difficult when that agency faces a variety of competing and sometimes conflicting objectives. If the Fed feels it is free to abandon price stability in order to achieve other objectives, such as supporting the financial industry or misguided attempts to influence the labor market, then an audit will have limited value. At a minimum Congress should restrict the Federal Reserve to a single goal, that of price stability. Congress should also restrict the Fed's discretion in implementing that goal. A central bank that is free to define price stability as whatever it wants is a central bank without any meaningful constraint.

Chairman Paul, Ranking Member Clay and members of the Subcommittee, I again thank you for the invitation to appear at today's important hearing. I firmly believe our monetary system was a central driver of the financial crisis and that its deep flaws remain in place. In order to both prevent future financial crises and protect our society from the significant harm that results from inflation, a vigorous debate as to the performance of the Federal Reserve is long overdue.

*H*EARING XII.

**FEDERAL RESERVE AID TO THE EUROZONE: ITS
IMPACT ON THE U.S. AND THE DOLLAR**

TUESDAY, MARCH 27, 2012

WITNESSES

Dudley, William C., President, Federal Reserve Bank of New York
Kamin, Steven B., Director, Division of International Finance,
Board of Governors, Federal Reserve System

*B*ACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Federal Reserve Aid to the Eurozone: Its Impact on the U.S. and the Dollar” at 10:00 a.m. on Tuesday, March 27, 2012 in Room 2128 of the Rayburn House Office Building.

The hearing examined the Federal Reserve’s assistance to the Eurozone and the effect of that assistance on the U.S. economy, the U.S. monetary system, and the dollar. In particular, this hearing explored the central bank currency swap line arrangements set up between the Federal Reserve and the central banks of England, Switzerland, Japan, Canada, and the European Central Bank (ECB). This was a one-panel hearing with the following witnesses:

- Mr. William C. Dudley, President and Chief Executive Officer, Federal Reserve Bank of New York
- Dr. Steven B. Kamin, Director, Division of International Finance, Board of Governors of the Federal Reserve System

The Eurozone Crisis

In late 2009, the revelation that the Greek government had misrepresented the extent of its indebtedness triggered a crisis that spread from Greece to other European countries as financial markets became concerned, first about the extent to which financial institutions were exposed to Greek debt, and then about the extent to which other European countries were facing budget problems similar to Greece. Concerns about the stability and solvency of the Eurozone³⁷¹ and its member nations made it more difficult and more

³⁷¹ The Eurozone comprises the 17 nations in the European Monetary Union that adopted the euro as their common currency. These nations are Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

expensive for European nations to borrow, which has in turn resulted in a sovereign debt crisis that affected several Eurozone countries and created economic instability throughout Europe.

The underlying cause of this crisis was that some members of the Eurozone had borrowed too much. Under the 1997 Stability and Growth Pact, an agreement among the member states of the European Union to facilitate and maintain the stability of the European Monetary Union, member states were required to run budget deficits no larger than 3% of their gross domestic product (GDP) and to cap their national debts below 60% of their GDP. Without any punishment for transgressing the limits, however, these fiscal limits were largely ignored by member states, and in recent years particularly those states in the Eurozone periphery such as Greece, Ireland, and Portugal, and even larger member states such as Spain and Italy.

Under the Basel II capital adequacy standards, all Eurozone sovereign debt was treated as “risk-free,” which meant that financial institutions holding sovereign debt could earn interest on that debt without having to hold additional capital against it. (The Basel III capital adequacy standards continue to treat all sovereign debt as risk-free.) But as the extent of the budget deficits being run by countries in the Eurozone periphery became known, financial markets began charging risk premiums on the debt issued by those countries that reflected the risk that those countries might default. These premiums, in turn, dried up financing to European banks as investors became increasingly wary of lending to Europe. In the Eurozone, medium- and long-term dollar funding declined significantly as market sentiment deteriorated; unsecured dollar funding could not be obtained for terms longer than a week.

Central Bank Liquidity Swap Lines

To offset the shortfall in private dollar funding to the Eurozone and to improve dollar liquidity in global money markets, in May 2010 the Federal Reserve re-established temporary reciprocal currency agreements – known as swap lines – with the central banks of England, Japan, Switzerland, Canada, and the ECB. Under these swap lines, the Federal Reserve swapped dollars for foreign currencies for a fixed period of time and at fixed exchange rates, charging interest. Fixed exchange rates were supposed to ensure that fluctuations in the price of currencies would not affect repayments and that the Federal Reserve was repaid in dollars exactly what it had swapped. The terms of the swaps ranged from

one week to three months and the swaps were managed primarily by the Federal Reserve Bank of New York.

Originally set to expire in January 2011, the swap lines were renewed several times. In November 2011, the Federal Reserve re-authorized the swap lines until February 2013 and reduced the interest rate, which had been set at 100 basis points over the overnight index swap (OIS) rate, to 50 basis points over the OIS. Before the Federal Reserve reduced the interest rate, the swap lines were little-used and rarely reached more than \$2 billion outstanding at any one time. After the Federal Reserve reduced the interest rate on these swap lines in November 2011, use of the swap lines jumped to nearly \$55 billion, and peaked at \$109 billion in February 2012. While this is a comparatively small sum compared to swap line use at the peak of the 2008-2009 financial crisis, when they totaled \$583 billion, nonetheless the amount outstanding as of March 14, 2012 was nearly equal to the U.S.'s IMF quota of approximately \$65 billion.

The Federal Reserve explained that swap lines were “designed to improve liquidity conditions in global money markets and to minimize the risk that strains abroad could spread to U.S. markets, by providing foreign central banks with the capacity to deliver U.S. dollar funding to institutions in their jurisdictions.”³⁷² By providing liquidity to central banks rather than directly to foreign financial institutions, the Federal Reserve maintained that credit risks from the currency swaps were borne by the foreign central bank and not by the U.S. taxpayer. For example, if the Federal Reserve held euros that it received in exchange for providing dollars to the ECB then the ECB would be liable for returning those dollars once the swaps mature. It is therefore the ECB's responsibility to collect adequate collateral from the financial institutions to which it lends dollars in order to ensure that it can repay the dollars it received from Federal Reserve when the swap unwinds.

In February 2012, Federal Reserve Chairman Ben Bernanke stated in testimony before the Financial Services Committee that the Federal Reserve's swap lines were “a very safe proposition. First, our counterparty is the ECB. It is not banks. It is not Greece. It is the European Central Bank itself, which in turn is well-capitalized and has behind it the national central banks of 17 countries.”

³⁷²Federal Reserve Bank of New York, “Central Bank Liquidity Swaps,” March 19, 2012, available at http://www.newyorkfed.org/markets/liquidity_swap.html. Last accessed December 11, 2012. [should probably check all other hyperlinks in other memos to make sure they still work and add their access date.]

European Central Bank as Counterparty

The composition of the ECB's balance sheet, however, generated concern about the ECB's capitalization and the counterparty risk it posed to the Federal Reserve. The ECB significantly expanded its role in response to the Eurozone crisis. In December 2011 the ECB reduced its policy interest rate (the ECB's equivalent to the federal funds rate), reduced reserve requirements, expanded the categories of collateral it would accept for ECB refinancing operations, and began providing three-year loans to banks in the form of long-term refinancing operations (LTRO). LTRO was a significant departure from the ECB's usual practice: the ECB historically supplied short-term loans to European banks, usually for terms no longer than three months. In its first LTRO offering in December 2011, the ECB lent €489 billion (\$638 billion³⁷³) to more than 500 Eurozone banks, the largest infusion of cash into the banking system since the introduction of the euro in 1999. In its second LTRO offering in February 2012, which was advertised as the final offering, the ECB lent €530 billion (\$708 billion³⁷⁴) to 800 Eurozone banks. These large operations raised concerns about the quality of the collateral securing the loans made by the ECB as well as concerns about the ECB's leverage ratio.

Before its first LTRO offering, the ECB relaxed its rules regarding the collateral that banks could post as security for ECB loans. For the first time in its history, the ECB began accepting lower-rated securities, including lower-rated government bonds, as collateral. But subsequent to the February LTRO offering, the ECB began to use margin calls to require banks to increase the collateral posted with the ECB. These collateral increases were requested after the loans had been made and appeared on the ECB's balance sheet as "deposits related to margin calls on credit extended to counterparties." While this line item was normally around €2 billion or less, the margin calls increased to over €17.3 billion (\$22.7 billion³⁷⁵) as of March 13, 2012. The increase in margin calls led to concerns about the deteriorating value of the collateral held by the ECB, and some speculated that the deterioration was being driven by the falling value of the large amounts of Greek, Italian, and Spanish bonds held by the ECB.

³⁷³ According to the exchange rate of 12/21/11, when LTRO 1 took place.

³⁷⁴ According to the exchange rate of 2/29/12, when LTRO 2 took place.

³⁷⁵ According to the exchange rate of 3/13/12

The ECB's capital and reserves stood in March 2012 at €83 billion (\$111 billion³⁷⁶) with total assets at €3 trillion (about \$4 trillion), creating a leverage ratio of 36 to 1. By way of comparison, the Federal Reserve had a leverage ratio of about 54 to 1 (\$3 trillion in assets with \$55 billion in capital). While the ECB's may have looked better on paper, some remained concerned that that ratio was too high for it to be a safe counterparty to the Federal Reserve, particularly because the ECB's balance sheet largely consisted of sovereign debt that had a high risk of default, such as Greek bonds. Former ECB Executive Board Member Juergen Stark said that the ECB's "balance sheet is not only gigantic in its dimension but also alarming in its quality."³⁷⁷

Macroeconomic Effects of Increased Dollar Liquidity

By making it easier and cheaper for Eurozone institutions to borrow dollars, the swap lines raised concerns about the effects that increased dollar liquidity would have on the international economy. A few smaller central banks, including those of Switzerland and Israel, began investing part of their dollar reserves directly in U.S. stocks. Eurozone banks began to move out of euro assets into dollar assets because it was cheaper to borrow dollars than euros. While the provision of dollar liquidity by the Federal Reserve was intended to help mitigate the effects of the Eurozone crisis, it was not clear whether Eurozone banks' purchases of dollar-denominated assets instead of euro-denominated assets was reducing risk or increasing it. While dollar-denominated assets may have been a less-risky asset in the short term in order to help strengthen the balance sheets of Eurozone banks, the decision of Eurozone banks to opt out of euro markets and into safer dollar markets may have played a role in reducing liquidity to euro bond markets, putting an even greater financial strain on Eurozone governments, banks, and financial markets.

In addition, critics of the swap lines, such as Gerald P. O'Driscoll, Jr., former vice president of the Federal Reserve Bank of Dallas, contended that the swap lines amounted to a U.S. bailout of European banks and fostered moral hazard, distorting the economy as a result of credit allocation by the government. But the President of the Federal Reserve Bank of New York, William Dudley, pointed

³⁷⁶ According to exchange rate of 3/27/12

³⁷⁷ Andrea Thomas, "Ex-ECB Stark: Bank's balance sheet 'alarming,'" Wall Street Journal MarketWatch, March 8, 2012, accessed available at <http://www.marketwatch.com/story/ex-ecb-stark-banks-balance-sheet-alarming-2012-03-08>. Last accessed December 11, 2012.

out that the swap lines helped “support the availability of credit to U.S. households and businesses.”³⁷⁸ Because foreign financial institutions provided roughly \$900 billion in financing within the U.S., Mr. Dudley expressed concerns that an impairment of access to dollar funding could have raised the costs for borrowing and lending in the U.S.

Increases in the cost of dollar funding, however, did not necessarily mean that funding was unavailable, but rather that the cost of lending had risen to reflect more accurately the risks of lending to Eurozone institutions, given their exposure to European sovereign debt. By providing dollar liquidity at lower rates than the market was then offering, the Federal Reserve was encouraging unsound investments or impeding economic recovery by preventing the liquidation of bad investments. Given that financial institutions held \$1.6 trillion in excess reserves at the Federal Reserve, it was not clear that U.S. financial markets would have been affected if foreign financing had declined because European access to dollar funding was curtailed.

Additional Federal Reserve Assistance

Chairman Bernanke indicated to Members of Congress that the Federal Reserve had neither the authority nor the intention to bail out European governments or financial institutions. But in testimony before Congress in December 2011, Mr. Dudley said that the Federal Reserve has the authority to buy sovereign debt and that that option should not be ruled out.

Central Banks and Monetary Policy

Since the onset of the financial crisis in 2008, the world's central banks have injected large amounts of liquidity into the economy in an attempt to stave off further crisis. Accommodative monetary policy resulted in central banks moving from a focus on maintaining price stability to a policy of supporting the banking sector and providing relief from sovereign debt problems. While the actions of central banks were once perceived as necessary to stem the economic crisis, it remains to be seen how these large increases in the supply of money worldwide will affect economic activity. In the U.S. as of March 2012, price inflation appeared to be picking up in various economic sectors.

³⁷⁸ William Dudley, Federal Reserve Bank of New York, “Letter to the Editor Regarding Central Bank Liquidity Swaps,” March 19, 2012, available at http://www.newyorkfed.org/markets/statement_0105_2012.html. Last accessed December 11, 2012.

Oil and gasoline prices rose sharply over the preceding month, the consumer price index increased at an annual rate of nearly 3%, and 10-year Treasury bond yields spiked roughly 40 basis points in the first quarter of 2012.

If the accommodative monetary policies undertaken by the world's central banks prevent needed readjustments from taking place in the global economy, or if inexpensive financing misdirects resources and results in malinvestment and unsustainable booms, these policies could sow the seeds for an even greater crisis.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 10:03 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul (chairman of the subcommittee) presiding.

Members present: Representatives Paul, McHenry, Luetkemeyer, Huizenga, Schweikert; Clay, Maloney, and Green.

Chairman PAUL. This hearing will now come to order.

Without objection, all Members' opening statements will be made a part of the record.

I will now recognize myself for 5 minutes to make an opening statement.

First, I would like to thank Dr. Kamin and Dr. Dudley for appearing today to discuss a very important subject that the world is looking at constantly: a major debt crisis that exists around the world.

It has a great deal of significance not only for world finance, but also for the American taxpayer and the value of the U.S. dollar, and indirectly, the deficits that are run up because they are all interconnected.

The crisis we face right now is a crisis in debt and how we handle this debt. Who gets stuck with the debt? Who gets the bailout? How does the debt get defaulted on? How do you liquidate the debt?

And there are different ways of liquidating debt. When you can't pay the bills and you write them off the books, that is liquidating debt and that helps to solve the problem.

Other times, governments and central banks participate in liquidating debt by diminishing real debt, and that is by purposely devaluing the currency and, of course, that has been used historically many, many times and is one of the most common ways of liquidating debt.

So if you can devalue a currency by 50 percent, you can get rid of real debt by half if your prices go up. And there certainly seems to be

a concerted effort around the world, and even within our own country, to handle debt in that fashion.

But in the process, the question really is: Who gets stuck with it? Who gets the most penalties? And if you happen to be on the receiving end of being too-big-to-fail and you get some benefits from the system, but the debt is not liquidated, it is passed on, it is transferred from one group of individuals to another. Nevertheless, it is still a pain. But it is just a matter of picking and choosing who will receive the most harm.

The problem I see right now in dealing with this debt crisis is can the U.S. dollar and the U.S. economy and the U.S. taxpayer bear the burden? And this is the way it seems because now, the European Central Bank (ECB) is asking us to continue to do what we have done over these last few years, to use the dollar to actually bail them out.

On paper, it looks like the balance sheet is better with the Europeans. Their assets-to-capital ratio is better than our bank. And yet, the dependency is for the United States to bail them out and it seems like it is working.

Of course, we have the advantage of issuing the reserve currency of the world which has given us, in a deceptive way, some advantages over many, many decades. But the big question is: How long can that happen? Will we always have the benefits? Will other countries finally get together, as they talk about constantly, and replace the dollar? And certainly, the dollar isn't getting to be a stronger reserve currency; if anything, it is getting slightly weaker. And someday, there may be some real challenges to the dollar, so there has to be a limit to this.

We talk about the Greek crisis, which is major and significant, and we are dealing with it on a daily basis. This might just be the beginning of a much bigger crisis when you look at the different countries, whether it is Portugal or Spain or Italy. And this thing could—it is much bigger than we are willing to admit. In many, many ways, I think we are in denial of how serious this problem is.

So we have to face up to the fact that there is a cost. I see it is going to be a cost against the value of the dollar. Some people say, "This is good. We want a weaker dollar because it is going to help our trade; it is going to help our exports."

And now, there are currency wars going on. All we do is complain about the Chinese having too weak a currency. At the same time, we triple our balance sheet and triple the monetary base.

Now, that is deliberately trying to weaken a currency too. So there will be limits on that. I think we are facing that. We are up

against the wall on this. And very soon, I think we are going to have to admit that you can't solve the problem of debt with more debt.

You can't solve the problem of a weak currency by making the currency even weaker. You can't solve the problem by having the moral hazard of a guaranteed bailout that people—there is always going to be a lender of last resort, and if you are too-big-to-fail, you are going to be taken care of. Some people may suffer, but others will be taken care of.

I think there are limits. I think we are facing that. I think we are in denial. We won't admit how serious it is; but I believe that we will be forced to, not because of the politics of it as much as because of the economics.

I complain about the power of governments and central banks, but ultimately, there are economic rules and laws—economic laws probably much stronger than all of us. And you can't dictate and mandate forever. You can kid people for a long time. But right now, it is an illusion that we can trust the dollar to bail out the world. And soon, we are going to see the end of that and that is why many of us believe that the crisis is far from over and that we have to face up to those facts.

Now, I would like to recognize Mr. Clay for his opening statement.

Mr. CLAY. Thank you, Chairman Paul, and thank you for holding this hearing to examine the Federal Reserve's assistance to the Eurozone and the effect of that assistance on the U.S. economy, monetary system, and the dollar.

The focus of this hearing is to examine the Federal Reserve's Central Bank's currency swap-line arrangements with central banks of Europe, England, Switzerland, Japan, and Canada.

Also, I want to thank the witnesses for appearing before us today.

When the new Greek government came into power in late 2009, they revealed that the previous Greek government had not been reporting the budget deficit accurately. This has led to major economic challenges and concerns to other parts of Europe and the United States.

The first concern is the high levels of public debt in some Eurozone countries. Three Eurozone major governments—Greece, Ireland and Portugal—have had to borrow money from the European Central Bank and the International Monetary Fund in order to avoid defaulting on their debt.

Currently, the Greek government is negotiating losses on bonds held by private creditors. Investors have started to demand higher

interest rates for buying and holding Italian and Spanish bonds. The Italian government debt is forecast to be \$2.8 billion in 2012, which is greater than Spain, Portugal, Greece, and Ireland combined.

The second concern is the lack of growth and the high unemployment in the Eurozone. In January of this year, the IMF downgraded its growth forecast for the Eurozone from growing by 1.1 percent in 2012 to contracting by 0.5 percent.

The third concern is the weakness of the Eurozone's banking system, which holds high levels of public debt. In December of last year, the European Banking Authority estimated that European banks need about \$152 billion of additional capital in order to withstand a range of shocks and still maintain adequate capital.

The fourth concern is persistent trade imbalances within the Eurozone. The Eurozone core countries tend to run trade surpluses with the Eurozone periphery countries. And the periphery countries tend to run trade deficits with the core countries.

To help ease the financial crisis in the Eurozone, the Federal Reserve opened the currency swap line. Under a swap line with the European Central Bank, the ECB temporarily receives U.S. dollars and the Federal Reserve temporarily receives euros.

After a fixed period of time, the transaction is reversed. Interest on swaps is paid to the Federal Reserve at the rate that the foreign central bank charges to its dollar borrower. The temporary swaps are repaid at the exchange rate prevailing at the time of the original swap, meaning that there is no downside risk for the Federal Reserve if the dollar appreciates in the meantime.

All of these concerns have raised questions about the economic stability of the Eurozone countries. I look forward to the witnesses' comments regarding these concerns and actions taken by the Federal Reserve Bank to address these concerns.

And again, thank you for conducting this hearing. I yield back.

Chairman PAUL. I thank the gentleman.

Now, I will recognize Mr. Luetkemeyer for his opening statement.

Mr. LUETKEMEYER. Thank you, Mr. Chairman. Over the past several years, many of my colleagues and I have expressed serious concerns regarding U.S. exposure to the Eurozone.

Like many of my colleagues, my concerns have been met at times with cynicism and assurance of an efficient recovery with little or no contagion. Yet here we sit today, continuing to talk about the Eurozone crisis, and hearing once again that our Nation won't be dramatically impacted.

Certain scholars and fellow officials said that the crisis wouldn't spread. It has now impacted several European nations with effects ranging from default and upheaval in Greece to bank failures and increased risk in the perceived financial stalwart of France. This hasn't badly taken a toll on U.S. markets. I believe it has a potential to take a toll on our Nation's economy as a whole.

Chairman Bernanke testified recently in this committee that the two greatest threats to our economy are rising gas prices and the Eurozone problems. Secretary Geithner testified in this committee just last week, and seemed concerned as well about the possibility of a eurozone contagion, although he was optimistic things would work themselves out.

Regardless of what we hear today, we are in fact exposed. Our financial institutions, industries, and government are all exposed, and as a result, so are the taxpayers. Our economies are and always will be deeply connected. It is our responsibility to ensure that this exposure is managed thoughtfully and to ensure that the

U.S. taxpayers are not again on the hook for the failure of the financial institutions not only domestic but foreign as well.

Mr. Chairman, I look forward to an enlightened discussion with our panel. This is an important topic and one that merits great transparency and attention. I thank you, and I yield back.

Chairman PAUL. I thank the gentleman.

Now, I would like to introduce our witnesses for today. Dr. William Dudley is the President of the Federal Reserve Bank of New York. Before taking over as President of the New York Fed in 2009, Dr. Dudley had been Executive Vice President of the Markets Group at the New York Fed, where he managed the System's open market account for the Federal Open Market Committee.

Prior to joining the New York Fed in 2007, Dr. Dudley was a partner and managing director at Goldman Sachs and company, and was Goldman's chief U.S. economist for a decade. Dr. Dudley also serves as chairman of the Committee on Payments and Settlement Systems of the Bank for International Settlements and as a member of the Board of Directors of the Bank for International Settlements. Dr. Dudley received his bachelor's degree from New College of Florida and received his Ph.D. in economics from the University of California, Berkeley.

Dr. Steven Kamin is the Director of the Division of International Finance for the Board of Governors of the Federal Reserve System. He joined the Federal Reserve System Board in 1987, and was appointed to the official staff in 1999.

Prior to taking over the Division of International Finance in December of 2011, Dr. Kamin was Deputy Director of the Division. He has also served as a visiting economist at the Bank for International Settlements, a senior economist for international financial affairs at the Council of Economic Advisors, and as a consultant for the World Bank.

Dr. Kamin received his bachelor's degree from the University of California, Berkeley and received his Ph.D. in economics from the Massachusetts Institute of Technology.

Without objection, your full written statements will be made a part of the record. You will now each be recognized for a 5-minute summary of your testimony.

Dr. Dudley?

STATEMENT OF WILLIAM C. DUDLEY³⁷⁹
PRESIDENT
FEDERAL RESERVE BANK OF NEW YORK

Mr. DUDLEY. Thank you. Chairman Paul, Ranking Member Clay, and members of the subcommittee, my name is Bill Dudley and I am the President of the Federal Reserve Bank of New York. It is an honor to testify today about the economic and fiscal challenges facing Europe and the Federal Reserve's effort to support financial stability in the United States.

Let me preface these remarks by stating that the views expressed in my written and oral testimony are solely my own and do not represent the official views of the Federal Reserve Board, the Federal Open Market Committee or any other part of the Federal Reserve System.

Additionally, because I am precluded by law from discussing confidential supervisory information, I will not be able to speak about the financial condition or regulatory treatment or rating of any individual financial institution.

The economic situation in Europe has been unsettled for the better part of 2 years with pressure on sovereign debt markets and local banking systems. The strains in European markets have affected the U.S. economy.

The euro area has the capacity, including the fiscal capacity, to overcome its challenges. However, the politics are very difficult, both because the problem has many dimensions and because many different countries and institutions in the euro area have to coordi-

³⁷⁹ [The prepared statement of Dr. Dudley can be found on page 1357.]

nate their actions in order to achieve a coherent and effective policy response.

Europe's leadership has affirmed its commitment to the European Union and a single-currency union on numerous occasions. And the leadership is working harder than ever to achieve greater policy coordination in areas such as fiscal policy. A more robust and resilient European Union would be a welcome development for the United States. Three recent developments are especially encouraging in that regard.

First, liquidity concerns have eased significantly following the European Central Bank's long-term financing operations in December and February. Through this program, the ECB provides 3-year loans to European banks at low rates, accepting a wider range of collateral in return.

Second, earlier this month the Greek government worked with European leaders and its largest creditors to restructure the bulk of its 206 billion euros of outstanding privately held bonds. This not only helped reduce Greeks' total indebtedness, it also helped calm persistent worries that a disorderly Greek default could become the trigger for a global economic crisis.

Third, leaders in most euro-area countries have approved a new treaty designed to increase fiscal coordination. The new rules already appear to be making a difference. While difficult work still lies ahead, countries in the euro area have made meaningful progress towards achieving long-term fiscal sustainability.

Looking to the future, the difficult work that remains also presents special risks, both for Europe and for the United States. If Europe fails to chart an effective course forward, this could have a number of negative implications here. In particular, there are three areas of potential risk that I would like to highlight for the subcommittee today.

First, if economic conditions in Europe were to weaken significantly, the demand for U.S. exports would decrease. This would hurt domestic growth and have a negative impact on U.S. jobs. It is important to recognize that the euro area is the world's second largest economy after the United States, and it is an important trading partner for us. Also, Europe is a significant investor in the U.S. economy and vice versa.

Second, deterioration in the European economy could put pressure on U.S. banking systems. As the recent round of stress tests reveals, U.S. banks are much more robust and resilient than they were a few years ago. They have bolstered their capital significantly,

built up their loan loss reserves, and have significantly higher liquidity bumpers.

The good news in the United States means that we are better able to handle bad news from Europe. With that said, the exposures of U.S. banks climb sharply when one also considers their exposures to the core European countries and to the overall European banking system.

Third, severe stresses in European financial markets would disrupt financial markets here, which could harm the real economy. Stress in the financial markets causes banks to more carefully husband their balance sheets. When that phenomenon occurs, the availability of credit to U.S. households and businesses becomes constrained.

Such conditions could also cause equity prices to fall, impairing the value of American pension and 401(k) holdings. This would damage the U.S. recovery and result in slower output growth and less job creation. At a time when the U.S. employment rate is very high, this is a particularly unacceptable outcome.

In the extreme, U.S. financial markets could become so impaired that the flow of credit to households and businesses could dry up. In today's globally integrated economy, banks headquartered abroad play an important role in providing credit and other financial services in the United States. About \$1 trillion in worldwide dollar financing comes from foreign banks; \$700 billion in the form of loans within the United States.

For these banks to provide U.S. dollar loans, they have to maintain access to U.S. dollar funding. At a time when it is already hard enough for American families and businesses to get the credit they need, they have a strong interest in making sure these banks continue to be active in the U.S. dollar markets.

It is in our national interest to make sure that non-U.S. banks remain able to access the U.S. dollar funding that they need to be able to continue to finance their U.S. dollar assets. If access to dollar funding were to become severely impaired, this could necessitate the abrupt forward sales of dollar assets by these banks, which could seriously disrupt U.S. markets and adversely affect American businesses, consumers, and jobs.

One way we can help to support the availability of dollar funding and ensure that credit continues to flow to American households and businesses is by engaging in currency swaps with other central banks. Such swaps are a policy tool that the Federal Reserve has used to support dollar liquidity for nearly 50 years.

More recently, the Federal Reserve established dollar-swap lines with major central banks during the global financial crisis of 2008, and reactivated them in May 2010. The swaps are intended to create a credible backstop to support but not supplant private markets. Banks with surplus dollars are more likely to lend to banks in need of dollars if they know that the borrowing bank will be able to obtain the dollars it needs to repay the loan if necessary from its central bank.

Our principal aim is to protect U.S. banks, businesses, and consumers from adverse economic trends abroad. I am pleased that the swaps seem to be working. In conjunction with ECB's long-term refinancing operations, the swaps have helped European banks avoid the significant liquidity pressures we feared a few months ago. And they have reduced the risks that they would need to sell off their U.S. dollar assets abruptly.

In conclusion, I am hopeful that Europe can effectively address its current fiscal challenges. The Federal Reserve is actively and carefully assessing the situation and the potential impact on the U.S. economy.

At this time, although I do not anticipate further efforts by the Federal Reserve to address the potential spillover effect of Europe on the United States, we will continue to monitor the situation closely.

Thank you for your invitation to testify today and I look forward to answering your questions.

Chairman PAUL. Thank you, Dr. Dudley.

Dr. Kamin?

**STATEMENT OF STEVEN B. KAMIN³⁸⁰
DIRECTOR, DIVISION OF INTERNATIONAL FINANCE
BOARD OF GOVERNORS, FEDERAL RESERVE SYSTEM**

Mr. KAMIN. Thank you, Chairman Paul, and members of the subcommittee, for inviting me to talk about the economic situation in Europe and actions taken by the Federal Reserve in response to this situation.

In the past several months, European authorities have provided additional liquidity to banks, bolstered bank capital requirements, developed rules to strengthen fiscal discipline, and explored means of enlarging the euro-area financial backstop.

Stresses in financial markets have eased, but these markets remain under strain. The fiscal and financial strains in Europe have

³⁸⁰ [The prepared statement of Dr. Kamin can be found on page 1362.]

spilled over to the United States by restraining our exports, depressing confidence, and adding to the pressure on U.S. financial markets.

Of note, foreign financial institutions, especially those in Europe, have found it more difficult to borrow dollars. These institutions make loans to U.S. households and firms as well as to borrowers in other countries who use those loans to purchase U.S. goods and services.

While strains have eased somewhat of late, difficulties borrowing dollars by European institutions may make it harder for U.S. households and firms to get loans and for U.S. businesses to sell their products abroad. Moreover, these disruptions could spill over into U.S. money markets, raising the cost of funding for U.S. financial institutions.

To address these risks to the United States, on November 30th, the Federal Reserve announced, jointly with the European Central Bank or ECB, and the central banks of Canada, Japan, Switzerland, and the United Kingdom that it would revise, extend, and expand its swap lines with these institutions.

The measures were motivated by the need to ease strains in global financial markets which, if left unchecked, could impair the supply of credit to households and businesses in the United States and impede our economic recovery.

Three steps were described in the announcement.

First, we reduced the pricing of the dollar swap lines from a spread of 100 basis points over the overnight index swap rate to 50 basis points over that rate. This has enabled foreign central banks to reduce the cost of the dollar loans they provide to financial institutions in their jurisdictions. This, in turn, has helped alleviate global financial strains and put foreign institutions in a better position to maintain their supply of credit, including to U.S. residents.

Second, we extended the closing date for these lines from August 1, 2012, to February 1, 2013, demonstrating that central banks are prepared to work together for a sustained period to support global liquidity conditions.

Third, we agreed to establish swap lines in the currencies of other participating central banks. These lines would allow the Federal Reserve to draw foreign currencies and provide them to U.S. financial institutions on a secured basis. U.S. financial institutions are not experiencing any foreign currency liquidity pressures at present, but

we judged it prudent to make such arrangements should the need arise in the future.

Information on the swap lines is fully disclosed on the Web sites of the Federal Reserve Board and the Federal Reserve Bank of New York. I also want to underscore that the swap transactions are safe and secure.

First, the swap transactions present no exchange rate or interest rate risk because the terms of each drawing and repayment are set at the time the draw is initiated.

Second, each drawing on the swap lines must be approved by the Fed, providing us with control over the use of the facility.

Third, the foreign currency held by the Fed during the term of the swap provides an important safeguard.

Fourth, our counterparties are the foreign central banks, not the private institutions to which the central banks lend. The Fed's history of close interaction with these central banks provides a track record justifying a high degree of trust and cooperation.

Finally, the short tenor of the swaps means that positions could be wound down relatively quickly were it judged appropriate to do so. Notable, the Fed has not lost a penny on these swap lines since they were established in 2007. In fact, fees on these swaps have added to the earnings that the Fed remits to taxpayers.

To conclude, following the changes that we made to our swap line arrangements last November, the amount of dollar funding for the swap lines increased substantially. Subsequently, as measures of dollar funding costs declined, usage of the swap lines has fallen back.

Ultimately, however, a sustained further easing of financial strains here and abroad will require European authorities to follow through on their policy commitments in the months ahead. We are closely monitoring events in Europe and their spillovers to the U.S. economy and financial system.

Thank you, again, for inviting me to appear before you today. I would be happy to answer any questions you may have.

Chairman PAUL. Thank you, Dr. Kamin.

[QUESTIONS & ANSWERS]

I will start off with the questioning.

For Dr. Dudley, I wanted to see if we could start off by seeing if we could agree with what the problem is—in my opening statement, I emphasize that the debt is the problem; that we are in a worldwide debt crisis.

Do you generally agree with that and how serious to you think it is?

Mr. DUDLEY. I think you are certainly correct that there is a question of debt sustainability in Europe in terms of the fiscal budget deficit path for some countries—not all countries, some countries—and there is also—and that is also implicated some of the European banks to have large exposures to that sovereign debt.

And so what is important is that these countries have an opportunity to undertake the fiscal consolidations that they need to demonstrate to the market that they can actually be on a sustainable path.

ECB's long-term refinancing operations and, I think, the dollar swaps have helped create some time for this to take place, but for this to work out well, these countries still have to take the appropriate steps.

Chairman PAUL. So far, if we date the crisis back to 2008 and 2009, and if it was a debt crisis that was a problem, if you look at everybody's debt, it is exploding, including ours. How do you solve the problem of debt with exponentially increasing the debt? It seems like our problems are just compounded.

How do you get around to either stop accumulating more debt or do you believe you have to liquidate debt? Some people believe you have to get rid of the debt in order to get growth again because the debt will consume us and interest rates are bumping up already.

And as I said in my opening statement, the Fed will have some ability to manipulate interest rates in the economy, but ultimately, the economic laws are pretty powerful, so interest rates are liable to go up.

So how can we solve the problem of debt with more debt, and what is your opinion of liquidating that? Is that important?

Mr. DUDLEY. I think that you are right, obviously, more debt does not solve the problem of too much debt. I think the good news in the United States, and I will speak about the United States, is that there has actually been a significant amount of deleveraging that has taken place among U.S. households over the last few years.

Debt-to-income ratios have come down. Debt service relative to income has come down. So U.S. households, I think, are in significantly better shape than they were a few years ago.

The second area where we see a pretty big change in terms of deleveraging of the United States is in the state of health of the

U.S. banking system. U.S. banks, compared to 5 or 6 years ago, have much more capital and much bigger liquidity buffers.

So while I think it is too soon to say that the deleveraging process in the United States is over, we have made a considerable amount of progress in working our way out of the problems that we faced in 2007 and 2008.

Chairman PAUL. But isn't it true that mortgage debt is still on the books? It has been transferred; maybe the Fed owns that debt. We don't even know what the real value is of most of it.

And banks still hold some mortgage debt and it might be at a nominal value so in that sense of that debt being liquidated, maybe some individuals have straightened out their bank accounts, but there are still millions of people—if they really were improving, they could make their payments again, but debt is still the problem.

You say that some are deleveraged, but has there been any real liquidation of debt when it comes to mortgage and the derivatives because governments are involved in that—either the Central Bank or some of our programs are involved. It seems like none of that has been deleveraged. If anything, that looks like it is getting worse.

Mr. DUDLEY. On the mortgage front, there has been some deleveraging, because banks have taken mortgage losses. Also, in certain cases, especially among private holders of mortgage debt, there has been some principal forgiveness, principal reductions.

So you have actually seen, for example, last year, total household debt outstanding, according to the flow of funds, which is the broadest measure of household credit, was roughly flat last year; so nominal GDP was growing. Debt that was held by households was flat. So you are actually seeing the debt burden become less overwhelming.

Chairman PAUL. Yes. The promises that we made and the involvement we have with Europe that our finances are so good with our debt and our dollar that we have been standing and saying, "Yes, we will be there."

The Chairman of the Fed has said, "We are not ignoring this. If necessary, we have been there before, we will be back again."

What is the limit to this? What is the limit to us making these promises that we can always be available? Isn't there a limit to what the dollar will sustain?

Won't it eventually have to stop or do you think we can do this—if another crisis hits and there is a big downturn, and you have to inject trillions of dollars again, what is the limiting factor to the dollar and the United States economy bailing out the world?

Mr. DUDLEY. I think that, from my perspective, we want to make the decisions based on what is in our self-interest, what is best for

households and businesses. And, in that calculation, if we decide that intervention can help

household and businesses, at higher benefits than cost, then we want to proceed. If we don't reach that calculation, if we think that there is too much risk involved in the program or that the program is going to lead to moral hazard and is going to be counterproductive, then we don't want to undertake it.

So I don't think that the Federal Reserve has made any decisions about what future interventions we would or would not do, except that we will do interventions that are consistent with our dual mandate, as set by Congress, to achieve maximum employment and price stability, sustain financial stability in the United States, and do what is best for households and businesses here.

That is why we are doing this program; not for Europe, but for ourselves.

Chairman PAUL. Dr. Kamin, did you want to make a comment?

Mr. KAMIN. Yes, do you mind? Could I add a few words, Chairman Paul?

Just to add to the comments that President Dudley made—our purpose in the swap lines, in particular, is not to, in some sense, fully back or to make whole all the debts that have accumulated around the world. That is very far from our purpose.

Our key strategy and our key intent in this regard is to make sure that foreign financial institutions could maintain the flow of credit, both to U.S. households and firms, and to firms and households around the world that in turn buy U.S. goods and services.

So the intent was mainly to help alleviate the liquidity pressures that could lead these foreign institutions to wind down their assets too quickly, and thus injure the U.S. recovery.

Thank you.

Chairman PAUL. Thank you.

Mr. Clay?

Mr. CLAY. Thank you, Chairman Paul.

Let me follow Chairman Paul's line of questioning.

Dr. Dudley, in your opening statement you mention that severe stress in European markets will create stress in the U.S. economy. Are we that tied to the European economy and that married to that system that it would have that kind of reaction, a chain reaction?

Mr. DUDLEY. I think we live in a global economy, and what happens in the other big economies of the world definitely affects us. As I noted in my testimony, there are sort of three channels by which Europe could affect us in a negative fashion. One, if the European

economy is in recession or very weak, that is going to reduce the demand for our exports. So that has effects on U.S. production and employment here in the United States.

Two, if Europe were to be in a difficult position, and the European banking system were to worsen, that would have consequences for U.S. banks that have exposure to the European banks.

And three, if Europe were to perform badly, that would have negative effects on financial markets around the world. And that would have implications for our financial markets, and therefore, investment and growth here in the United States.

So there are definitely significant channels by how Europe can affect the United States.

Mr. CLAY. Dr. Dudley, have actions taken by the Federal Reserve regarding the currency swap line arrangements been beneficial or detrimental to the U.S. economy?

Mr. DUDLEY. We think that the swap lines have had their desired effects, because they have basically given a source of a backstop to other sources of funding to European banks. So as a consequence of them having this backstop available, if they were to need it, they don't have to be as fearful about their ability to obtain funding. And therefore, they can manage their dollar loans to U.S. businesses and households in a more orderly fashion.

We follow the activities of European banks in the United States through their U.S. branches and subsidiaries, and they are definitely reducing their exposure in the United States. But I think because of the dollar swaps, this is happening in an orderly way, rather than a disorderly way.

And so, we don't see that their reduction in the business that they are doing in the United States is having any damaging effects on the U.S. economy, which is really what our goal is; to prevent any damaging effects on the U.S. economy.

Mr. CLAY. Okay.

Dr. Kamin, would you like to add something?

Mr. KAMIN. Yes, thank you, if I could just add to those remarks.

Over the past couple of years, as the crisis in Europe has progressed, we have seen several periods when the financial situation in Europe deteriorated fairly dramatically. And during those periods, we could see some very obvious spillovers to financial markets, both in the United States and around the world.

During those periods of deterioration, investors became worried, and around the world they retreated from assets they perceived to be more risky. And what that led to, both in Europe and the United

States and elsewhere, was sharp declines in stock prices, increases in interest rates line of credits, and other developments that were associated with retreats from risk and flights to quality. So, we have seen those episodes very clearly.

Now, more recently, since we changed the pricing of our swap lines, since the ECD introduced many measures to add liquidity to banks, and since European leaders have taken other actions, we have seen financial conditions in Europe—this is more or less since December—improve quite markedly. And that has been an important contributing factor to the improvement to the tone in financial markets in the United States. So those connections are definitely there.

Mr. CLAY. Dr. Kamin, share with us the effects that the rise in gasoline prices around the world and in the United States—what effects will this rise in gas prices have on the economies of Europe and the United States?

Mr. KAMIN. The effects that higher oil prices will have on both the United States and on Europe are, in broad qualitative terms, relatively similar. Both broad economies import oil. There is a greater dependence on imported oil in Europe than in the United States, but both do.

So, when oil prices rise, that acts as a tax on consumers of oil in both countries. And as a result, that diminishes the purchasing power that consumers in those counties have to basically spend on other goods. So, it basically acts as a brake on economic recovery and all else being equal, may make it more difficult to create jobs.

In addition to the effects on unemployment and economic activity, increases in oil prices have the effect of raising at least some portion of the consumer basket of prices. As long as oil prices will continue to rise, that should lead to a temporary increase in inflation. But that also poses concerns.

So obviously, recent increases in oil and gasoline prices are something that we monitor very carefully.

Mr. CLAY. Thank you.

And my time is up.

Chairman PAUL. I thank the gentleman.

Now, I recognize Mr. Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

Gentlemen, correct me if I am wrong, but I believe that the swap dollars that are—I guess euros—that are on the other end with the European Central Bank, they secure those, do they not, whenever they loan them back out on their other end?

And would you agree that there is a problem from the standpoint that what we have been told and what we find recently is they are taking a little more exposure, a little more risk, with some of the investments that they are taking as collateral for those? Would that be a fair statement?

Mr. DUDLEY. They have broadened out the collateral eligibility, but they also have significant haircuts for that collateral. So, they take more collateral than the value of the money that they are actually lending out.

Mr. LUETKEMEYER. Instead of one-to-one, it may be two-to-one, as they take additional collateral?

Mr. DUDLEY. They adjust for what they perceive to be the quality of the collateral.

Mr. LUETKEMEYER. Because I know that former executive board member Juergen Stark recently said that the balance sheet of the ECB is not only gigantic in dimension, but also alarming in its quality. Would you agree with that statement?

Mr. DUDLEY. I don't have enough information to assess the quality of the ECB balance sheet. But my dealings with the ECB suggest that they are quite prudent in terms of how they run their operations.

Mr. LUETKEMEYER. Yes, but aren't you one of the leading experts on swaps between the United States and Europe?

Mr. DUDLEY. But I do not conduct the daily operations of the ECB in lending money to their banks, versus collateral that they take.

Mr. LUETKEMEYER. Okay.

One of the concerns that I have is with regard to the quality of the economies over there. We keep talking saying, "They have dodged the bullet. They are getting better. They are improving."

And yet, we see, and we had Secretary Geithner here just last week, and he acknowledged that the European continent as a whole is still struggling. I think the comment was made in testimony today that it is a negative position as far as the growth of the economy yet. Greece is probably 4/10ths or 4 percent negative growth.

It is fine to sit here and go through a workout and restructure your debt, but if you don't have the ability to repay it, because you don't have an economy that grows fast enough to repay it, what do you have? I think we have to look at the revenue side.

We may be able to restructure the debt so that it can work. But if you don't have enough cash flow, enough revenue coming in, we are still in trouble. Where do you see that going?

Mr. DUDLEY. I certainly accept your observation that the European economy is very weak, and that weakness is going to persist for a while as these governments engage in further fiscal actions to get their budget deficits on a sustainable course.

But that fact I think in no way creates risk for us in terms of our swap agreements with the European Central Bank. We think we are very well secured in those transactions. We fully anticipate being fully repaid.

During the depths of the financial crisis in 2008 and 2009, a far worse economic environment than the one in which we are today, with far greater amounts of swaps outstanding, we were fully repaid. We didn't lose a penny. In fact, the total profit to the U.S. taxpayers for the swaps that were engaged in during that period was about \$4 billion of profit to the U.S. taxpayer.

Mr. LUETKEMEYER. The point I am getting to, though, is if you have weak collateral for the European Central Bank swap lines and their economy is not going anywhere, that even gets—to me, that makes the debt that is—or the collateral that is securing that line—even weaker.

And so therefore, whether we may have two-to-one or three-to-one, if you have nothing supplying—you have 2 or 3 times nothing securing the debt, that is pretty concerning to me.

Quick question for you—do you think that the swap lines enhance the dollar as the world reserve currency, or do you think it hurts it?

Mr. DUDLEY. I think—

Mr. LUETKEMEYER. I would like a comment from both of you, please.

Mr. DUDLEY. I don't think it is a major factor, but I think at the margin it probably enhances the dollar as a reserve currency. In other words, the fact that the Federal Reserve is willing to engage in dollar swaps probably makes people more comfortable to use the dollars to finance international transactions around the world.

I don't think this is a major factor though in terms of why we are engaging in swaps, or should be a major factor in terms of why we are engaging in swaps. I think the main reason why we are engaging in swaps is we don't want European banks to quickly exit their dollar lending business here in the United States, with that exit causing harm to U.S. households and businesses.

Mr. LUETKEMEYER. Dr. Kamin?

Mr. KAMIN. If I could add to that, clearly, key factors that are underpinning the dollar's status as a global reserve currency are the breadth and depth of U.S. financial markets. And in particular,

including but not limited to the status of U.S. Treasuries. All that is underpinned by the vitality of the U.S. economy and its consistent record of being able to innovate and grow.

The purpose of the swap lines is ultimately focused on continuing to preserve the vitality of the American economy and by making sure that foreign financial institutions have the funding they need to continue the flow of credit to American households and firms.

Insofar, then, as the swap lines can contribute to the continued vitality, the continued recovery of the U.S. economy, it undoubtedly is a plus as far as the dollar's reserve status. Although, as President Dudley has pointed out, it is probably one of many factors and not necessarily the most important.

Mr. LUETKEMEYER. Okay. Thank you very much. I see my time has expired.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I now recognize the gentlelady from New York, Mrs. Maloney.

Mrs. MALONEY. Thank you.

I want to welcome both of the panelists, particularly Dr. William Dudley, who is the President of the Federal Reserve Banks of New York. So welcome, Dr. Dudley.

And I would like to begin questioning by asking you, regarding the Federal Reserve's foreign exchange swap lines, can you tell me what your track record has been with these programs? Have they been successful? Have there been any losses to the taxpayers? Have there been any gains for the taxpayers; and if so, how much? And welcome.

Mr. DUDLEY. Thank you.

Mrs. MALONEY. Thank you for your service, both of you. Thank you.

Mr. DUDLEY. Thank you, Congressman Maloney. The track record is excellent, in two dimensions. One, the swap lines that we have engaged with have accomplished the goal that we set for them, which is basically to support U.S. financial markets and ensure the flow of credit to U.S. households and businesses.

And two, we have managed to do so in a way that has been extraordinarily safe. As I noted earlier, there have been no losses on any swap programs that we have ever engaged in, going back to 1962; and in terms of the swaps that we enacted during the financial crisis in 2008 and 2009 and ongoing, total profits for the taxpayers of about \$4 billion.

So no losses, profit for the taxpayers; has had the beneficial effect that we wanted in terms of supporting the financial system and supporting the flow of credit to U.S. households and businesses. So I think that they have worked very well. Thank you.

Mrs. MALONEY. Thank you very much.

And I would like to ask Dr. Kamin about a statement that Treasury Undersecretary Brainard has stated; that the Administration's position in Europe is not to seek additional funding for the IMF. And to quote her directly, she said, "The challenge Europe faces is within the capacity of the Europeans to manage."

Europe accounts for roughly 16 percent of our exports; in my opinion, and correct me if I am wrong, accounting for the stabilization of many jobs here in the United States, probably thousands of jobs. What occurs abroad is going to have a direct effect on the recovery here at home in the United States.

Do you believe the stabilization of European markets is critical to our economic recovery here at home, making systems like the Federal Reserve foreign exchange swap lines crucial?

Mr. KAMIN. Thank you, Congresswoman Maloney.

In response to your questions, first of all, I absolutely agree that it is critical that the Europe financial and economic situation be stabilized. As you have pointed out, Europe is a major trading partner of the United States. And as we discussed earlier, its financial conditions in Europe are highly intertwined with those in the United States.

So a stabilization of the European situation really is very important, both for the United States financial conditions as well as the continued growth of exports and the real economy, and thus jobs. Now, as regards the issue of IMF policy, the Treasury Department is our liege on that, on the issue of IMF policy, so I can't speak directly to their statements.

But I will note, as Treasury officials have noted as well, as well as Federal Reserve officials, that Europe is a very—the euro area is a very large and comparatively wealthy economy relative to many others in the world. And they do have very many substantial resources that could be brought to bear on their situation. And so it is critical for them to do so. Thank you.

Mrs. MALONEY. Thank you.

And Dr. Dudley, I would like to ask you, as countries and international markets form individual firewalls to stave off residual financial distress, are we always and likewise creating firewalls through various other areas in policies involving capital and liquidity

requirements that could have an effect on our economy here in the United States?

Mr. DUDLEY. We think it is very important to have a financial system that is resilient and robust. And towards that end, Congress, the Administration, and the regulatory community in the United States have been working hard to bolster the capital and liquidity among U.S. financial firms.

I have to say that we are in much better shape than we were a few years ago in both those regards. And I think that is good news because it means that if there are shocks emanating from abroad or emanating in the United States, that U.S. banks are in much better shape to absorb those shocks and to continue to function and supply credit to U.S. households and businesses.

Mrs. MALONEY. Could I ask for an additional 10 seconds?

Do you believe that we should do everything we can to contain the European crisis, to ensure that there is no spillover here in the United States, and to stabilize that region and our own economy? Yes or no?

Mr. DUDLEY. I think we should do everything that is prudent to stabilize the European economy. Obviously, we should do what is in our self-interest in terms of what is best for the United States; and all our policies are enacted through that prism.

Mrs. MALONEY. Okay.

Dr. Kamin?

Mr. KAMIN. Yes. That was exactly my thought. Definitely everything that is prudent and appropriate.

Mrs. MALONEY. Okay. Thank you.

I yield back. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

Did Mr. Luetkemeyer have a unanimous consent request?

Mr. LUETKEMEYER. Yes, Mr. Chairman. I would like to ask unanimous consent to place in the record the article which I referred to this morning. It is a MarketWatch article by Andrea Thomas with regards to the comment of executive board member Juergen Stark.³⁸¹

Chairman PAUL. Without objection, it is so ordered.

Mr. LUETKEMEYER. Thank you, sir.

Chairman PAUL. I now recognize Mr. Schweikert from Arizona.

³⁸¹ [The article Rep. Luetkemeyer placed in the hearing record can be found in Appendix E.]

Mr. SCHWEIKERT. Thank you, Mr. Chairman. Congressman Luetkemeyer stole one of the number-one questions I was interested in pursuing, and that was the credit quality of what is being pledged.

Can I get into something that is a little more conceptual? But this one actually really does bother me.

I am trying to get my head around the interconnectivity of euro-yen, euro's relationship to Singapore. And ultimately, as we are providing interlocking swap facilities, what happens when the debt cascade happens somewhere else in the world? Does that cascade end up tagging Europe, which tags us?

And how much ultimately is there in true net reserves in central banks around the world when you start looking at the net borrowing compared to the net savings countries? Dr. Kamin, I would love it if you would start with that one.

Mr. KAMIN. Thank you. I will be happy to.

So to start with, as we have come to recognize only too well, we have a very globalized financial system. And disturbances that occur in one part of the world are transmitted around the world through numerous channels and through numerous markets.

That was quite evident during the global financial crisis of 2008 and 2009. And we have seen it more recently with the European fiscal and financial crisis as deteriorations there—

Mr. SCHWEIKERT. Can I beg of you to pull the microphone a little closer to you?

Mr. KAMIN. Thank you. We have seen it more recently during the European financial crisis in the last couple of years. So—

Mr. SCHWEIKERT. And almost to the—what I am somewhat hunting is I have been tracking some data coming out of Japan, and there are some very worrisome signs in the net debt. How does that play into this interconnectivity?

Mr. KAMIN. What we have seen, then, is that in situations that occur like this, some dollar-funding problems, which is to say problems with banks getting funding in dollars in order to continue their flow of financing, they tend not to basically stay in one part of the world. There is a very easy capacity for those problems to spill out all over the world.

And it was in large part for that reason that we didn't just establish the swap lines with the ECB. We also established them with central banks around the world so that problems as they arose in different parts of the world could be addressed.

And as is evident from the data on the swap lines that we publish on our Web site, the take-up of these swap lines, in other words the

distribution of funds to institutions in different regions, has not been limited exclusively to the euro area, although that is where most of the money has gone.

Mr. SCHWEIKERT. Dr. Dudley?

Mr. DUDLEY. I certainly agree with Dr. Kamin's answer to that. The world is very interconnected, and problems in one part of the world can definitely have ripple effects through the other parts of the world.

That is why we did set up these swap lines with five central banks rather than just the European Central Bank. And there are some draws on those swap lines from some of these other central banks.

Mr. SCHWEIKERT. Dr. Dudley, as to that concept, help me get my head around it.

Considering the nature of our balance sheets today after the 2008 crisis, both Europe and the United States, some of our partners in Japan, around other places in the world, if today Europe—this became a very hard recession and we had something like the Tequila Crisis from 15 years ago or some sort of cascade out there, do we have enough capacity, particularly if we also had different regions of the world competing for access to those swap lines? Do you believe our balance sheets are capable of stabilizing?

Mr. DUDLEY. It is hard to know what would happen in a given scenario, so it is hard to speculate.

One thing that I think is important though is that the foreign countries around the world are a bit better protected themselves in terms of sharp changes in capital inflows to capital outflows in the sense that they have very large foreign exchange reserves compared to what they had 20 or 30 years ago.

So, the ability of countries to bear a reversal from capital inflows to capital outflows is much better generally around the world than it was 20 or 30 years ago.

And part of that is my concern over the interest-rate spike, particularly with our net debt coverage; the interest rate spike and where our WAM is on our U.S. sovereign debt. A couple of years of higher interest rates would be devastating budget-wise. So, I am fearful of a cascade somewhere else truly affecting us.

Mr. SCHWEIKERT. I talked in a recent speech about debt service problems for the United States that are not really visible yet because U.S. interest rates are so low.

And if the United States does not get its fiscal house in order over the medium term, there is a chance that U.S. interest rates will rise.

And that debt interest burden on the U.S. fiscal position will become quite significant. So, this is just another reason why the United States does need to get its fiscal house in order over the medium to longer term.

Thank you for your tolerance, Mr. Chairman. Thank you.

Chairman PAUL. I thank the gentleman.

Now, I recognize the gentleman from North Carolina, Mr. McHenry.

Mr. MCHENRY. Thank you, Mr. Chairman.

And thank you both for being here. We had a similar hearing in my subcommittee of the Committee on Oversight and Government Reform. And the times have changed slightly in the last couple of months, so I do want to touch on some of the things that I raised then, just to see if things have changed.

Dr. Dudley, can you explain under what circumstances the Fed would consider purchasing European sovereigns directly?

Mr. DUDLEY. The Federal Reserve has a small foreign exchange reserve portfolio that we manage for ourselves and for Treasury. And so we do actually own a very small amount of European sovereign debt as part of that foreign exchange reserve portfolio.

With the exception of that portfolio, which we periodically roll over maturing securities, I think the bar, as I said in our hearing a few months ago, was extraordinarily high for the Federal Reserve to actually go out and buy foreign sovereign debt for its own portfolio apart from these very small foreign exchange reserves holdings that we have.

Mr. MCHENRY. So, roughly what dollar amount do we have?

Mr. DUDLEY. I think it is on the order of \$20 billion, \$25 billion total. It consists of cash, sovereign debt of a couple countries, and then there are some reversed repurchase agreements where we basically have executed against dealers and taken—

Mr. MCHENRY. So, for context—

Mr. DUDLEY. It is a tiny—and it is based—

Mr. MCHENRY. \$25 billion to what of your total holdings, just so we have—

Mr. DUDLEY. The total portfolio is about almost \$3 trillion, not quite \$3 trillion.

Mr. MCHENRY. Okay. So, it is de minimis—

Mr. DUDLEY. It is de minimis and it hasn't changed in size or composition over—

Mr. MCHENRY. Do you have statutory authority to expand that? Could you ramp it up to \$500 billion?

Mr. DUDLEY. We have legal authority under the Federal Reserve Act to buy foreign sovereign debt. I don't see the circumstances under which we would ever be willing to do that, except with the exception of managing this foreign exchange reserve portfolio.

Mr. MCHENRY. Okay. Now, in terms of the long-term refinancing operation the European Central Bank has undertaken with the 3-year notes, in essence it looks similar in concept to TARP, doesn't it?

Mr. DUDLEY. It is a little different in the sense that TARP was money that Congress appropriated and then was used by the Treasury as capital to put into banks or put into other entities to recapitalize them.

The long-term refinancing operation is a loan from the European Central Bank to its banks against collateral that they pledged. So, it is a lending operation, not a capital investment.

Mr. MCHENRY. So, the TARP really wasn't a lending operation so you had to pay it back with fines and penalties and interest? It seems to me—

Mr. DUDLEY. TARP could be used for many purposes. It could be lent out and it could be used as capital. But if you look at how the TARP money was used and the bulk of it, the bulk of it was used for capital investments.

Mr. MCHENRY. I think we are battling semantics here because in essence they are similar in dollar amounts, similar in terms of their intent.

Now, really at the root, what is the European problem? Is it a problem of indebted countries? Is that the root of what we are contending with right now?

Mr. DUDLEY. I think that is part of it. Part of it is you have some countries in Europe that have budget deficits that are unsustainably high and debt burdens that are continuing to climb. So, that is problem number one.

But problem number two is they are doing so in a system of 17 countries with a common currency where the individual countries don't have control over their own monetary policy. They don't have their own currency and there is a lack of fiscal transfers within Europe to support countries that are in a weaker position relative to those that are in a stronger position.

So, there are some things that are very special about Europe's that are part of the European Union, the system of how the system is

arranged that are very different than anything that applies to the United States.

Mr. MCHENRY. So, what happened with much of this long-term refinancing operation, that capital; it flowed into sovereign debt of a few countries and in large part that is where much of this flowed.

But Dr. Kamin, in terms of what that actually did—we have actually bought some time and space for a few highly indebted countries. Is that basically what has happened?

Mr. KAMIN. I think that it is possible that the sect of the Long-Term Refinancing Operations (LTRO), in combination with the other measures that have been taken, basically might have some somewhat longer-term benefits.

To be specific about that, it is true, as you say, that probably some of the LTRO money did flow to the purchase of sovereign bonds. But perhaps the more important thing that the LTRO funds did was alleviate many concerns by the market about the liquidity position and the financial position more generally of European banks.

And so the way in which that may have led to reductions in the sovereign yields of some embattled European governments was not just directly—they had the funds and they could use them; but indirectly because European banks felt more solid in their financial position and more comfortable being able to buy these bonds.

In turn, that improved situation in terms of European banks in the eyes of the markets may have led investors to believe that, therefore, European governments would not in turn be called upon to support banks. So, there was sort of a virtuous circle in process here, which has so far been very beneficial in terms of improving the tenor of markets.

Now, all that said, you are absolutely right that the LTRO is the provision of liquidity by itself cannot be the only thing that will solve the European crisis. It is very important that European leaders work on a number of more lasting fundamental issues.

One of them is they need to actually make the financial backstops for European governments higher and stronger, and that is a discussion they are having. They also need, quite obviously, and this is very challenging, to actually follow through on their many commitments to improve their fiscal situation.

And finally, as we have discussed here today, improved fiscal performance must be buttressed by improved growth performance, and that is particularly challenging for the peripheral European economies. And so, they are going to have to follow through on a lot of fairly rigorous structural reforms.

Thank you.

Mr. MCHENRY. Thank you.

It sounds like psychology and economics are getting closer and closer in these current crisis times.

Mr. KAMIN. I think they always have been.

Chairman PAUL. I thank the gentleman.

I want to follow up on this issue about how it is going to help our consumers here at home when we make these loans overseas. And I think, Dr. Dudley, you indicated that you already have some evidence that it has been helpful? Or are you just saying that if we do it, it could be helpful?

Mr. DUDLEY. The evidence is—it is soft evidence rather than hard evidence. But we have been monitoring the performance of the European banks who do business in the United States quite closely because they were having trouble getting dollar funding.

Money market mutual funds which were providing dollar funding to the European banks during the summer and fall were pulling back. Other lenders, large asset managers, were also pulling back from the European banks. And this was causing those banks to start to get out of their dollar book of business. They were trying to sell off loans and pull back in terms of their willingness to provide credit.

This was going on at a pretty feverish pitch through the late fall and in through the early winter. And I wouldn't say that it stopped, but the sense we get is it is happening now in a much more orderly way and not leading to the fire sale of assets at low prices; not leading to downward pressure on financial markets; not leading to a constraint in credit availability of U.S. households and businesses.

So, from what I can tell, we are seeing that the leveraging of the European banks is continuing. But it is happening in an orderly way rather than a disorderly way, which is what our objective is.

Chairman PAUL. You don't actually have a quantity, a number that you can—

Mr. DUDLEY. No, we don't have—

Chairman PAUL. —to say that they did such and such to the consumers back here at home?

Mr. DUDLEY. We don't have the details or data on that. But we do have discussions with those banks.

Chairman PAUL. It seems like there is a conflict, at least in my mind, of the need to send more currency swaps over there when the banks—I think the top eight banks in Europe actually had a tremendous increase in their reserves, a 50 percent increase in 1

year. So, why do they need more money? Why do they need more? It is already there.

What about our banks? Our banks have \$1.5 trillion. If it is a good deal and it needs these bailouts or these purchases that you want them to do by having these currency swaps to help the banks—give the central banks to help buy some of this debt. If it is a good deal for anybody, why wouldn't some of our banks—they have \$1.5 trillion?

It seems like you are doing something that the market doesn't want you to do. And there is a reason. Maybe it is way too risky. And if we are sending money over to the European banks with the hope, but no evidence, actually, of some of this money coming back and actually stimulating our economy, why is it that just more credit and more money in the system is going to work if our banks are holding \$1.5 trillion?

There is something more to it than the lack of the ability or the lack of the willingness of the Fed to just endlessly create more and more credit. Why is it going to work better by just pumping more into, say, a European bank if the goal—see, you emphasized the help it is going to—you do it out of the interest of the American consumer.

You diminish the possibility that it might be done to just prop up the banks because they are in over their heads—that they may have credit default swaps. And the banks over there are—it is global. They have branches over there. It is just to prop up a system that is not viable.

So why is there a disconnect? There seems to be a lot of money there. Why do you feel compelled that we have to keep sending more in order that hopefully it will help our consumers here at home?

Mr. DUDLEY. I think that the U.S. banking system is a very different place than the European banking system. The U.S. banks have plenty of dollar assets that they can—monies that they can lend. They gather deposits through their retail branch networks here. So they don't have any shortage of dollar funds which they can lend.

The European banks were in a different position because they were dependent on the wholesale funding market providing them with dollars. And as the European situation deteriorated last summer and fall, U.S. investors that had been providing dollars to these European banks were pulling back.

And it was that pulling back and that difficulty for European banks to gain access to the wholesale dollar funding markets which was forcing them to pull back in terms of their willingness to lend to

U.S. households and businesses. U.S. banks don't need dollar liquidity right now, so there is no—and they are not deleveraging.

The issue is the European banks, their dollar book of business. They were having trouble funding that book of business, and that is why they were pulling back.

Chairman PAUL. But they are holding all the reserves. If it were any advantage at all, they would do it. Obviously, there is no advantage to even helping out Europe. There is no law against them loaning the money, is there? Why do you feel compelled that you have to do something that the banks that are holding all this money won't do?

Mr. DUDLEY. I think that the European situation was creating a lot of anxiety about the health of the European banking system because the health of the European banking system was tied up with the health of the individual national economies in terms of their fiscal positions. And the ECB basically has been trying to find a way to cut that tie.

I think that long-term refinancing operations and the dollar swaps have sort of calmed down the anxiety in the market. And what we have actually seen now since the long-term refinancing operations have been put in place by the ECB and the dollar swaps have been put in place by us, is we have actually seen financing pressures in Europe subside.

So the rates that the European banks have to borrow from other European banks or to borrow from U.S. banks in dollars, those rates have actually been coming down. So that is actually a beneficial consequence of the long-term refinancing operations and the dollar-swap programs. The pressure on the markets is abating, which I think is a good thing.

Chairman PAUL. I will recognize Mr. Luetkemeyer from Missouri.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

I am kind of curious. Who determines the rate for the swap lines, the interest rate?

Mr. DUDLEY. The interest rate is established by the Federal Open Market Committee in discussions with the foreign central banks. Obviously, they have to agree to the rate that we are willing to—

Mr. LUETKEMEYER. How often is it reviewed to go up or down? How often do you review that: quarterly; semi-annually; once a year?

Mr. DUDLEY. The swap lines are outstanding. For example, the current set of swap lines are outstanding until February 1, 2013. But we certainly could review them at any—

Mr. LUETKEMEYER. The rate doesn't float?

Mr. DUDLEY. —at any point in time. The rate is set essentially at the Federal funds rate plus 50 basis points. So right now, it is about 0.6 percent of the interest rate.

Mr. LUETKEMEYER. Okay, but the amount above the Fed funds rate—that stays constant for the entire length of the swap? Or do you float that or adjust that as well?

Mr. DUDLEY. It had been at 100 basis points over the Federal funds rate up until last fall. And then, we lowered that spread from 100 basis points to 50 basis points. And the reason why we lowered that rate is that European banks were reluctant to use the swaps because they felt that using the swaps at that rate would be a sign of weakness.

The swaps were actually not being very effective in containing pressure in financial markets. So a decision was made by us and the foreign central banks in which we have engaged with the swaps to lower the rate from 100 basis points over the Federal funds rate to 50 basis points over the Federal funds rate.

Mr. LUETKEMEYER. If the European banks felt it was in their own best interests not to borrow money, not to swap because the rate was too high, why would you want to entice them into this with a lower rate?

Mr. DUDLEY. They were reluctant to use the swap because they felt that if they used it, it would be a sign that they were particularly weak institutions.

Mr. LUETKEMEYER. Why are they not viewed as weak now because they are using it now?

Mr. DUDLEY. Because when the swap rate was lowered from 100 basis points over the Federal funds rate to 50 basis points over the Federal funds rate, it became broadly attractive to the rates that were then in place in markets.

Mr. LUETKEMEYER. It made them look like better investors?

Mr. DUDLEY. Pardon?

Mr. LUETKEMEYER. It made them look like better investors, better money managers?

Mr. DUDLEY. There was an economic rationale for borrowing from the swap lines at the lower rate, so lots of banks participated. And since lots of banks participated, there was very little stigma from participating in that program.

Mr. LUETKEMEYER. This whole thing is held together by confidence and the perception that everybody is doing okay, isn't it?

Mr. DUDLEY. I think we have seen both in the case of the swaps and in the case of our own discount window in the United States, that there are times that banks don't want to use liquidity facilities, backstop facilities, because they are afraid that it is going to show that they are weak relative to other institutions. And that is just a problem in terms of these type of liquidity facilities.

Mr. LUETKEMEYER. I am just kind of curious. I will follow up on Chairman Paul's line of questioning with regards to the ECB loaning it to the banks, and the banks turning around and loaning it to our American, I guess, companies and investors here.

Why would they do that? Why are they not borrowing the money from us directly, our banks here?

Mr. DUDLEY. The European banks have big books of business in the United States, especially in areas like trade finance, project finance, and reserve energy. They lend against oil-and-gas drilling, energy reserves. And they have specialized expertise in these areas. And so, that is why they undertake this business around the world.

And in the United States, when they partake in this business, they do it in terms of lending dollars because obviously that is what the currency that we do business here in the United States. And so, they have a need for dollars to be able to sustain that business.

Mr. LUETKEMEYER. So what you are saying is that there are banks in Europe that are better experts at lending in certain areas, certain fields, than we have lending institutions in this country. Is that what you just said?

Mr. DUDLEY. I am saying that there are European banks that are specialized in certain areas. Now whether they are better or worse than U.S. banks that participate in the same areas, there is some overlap in the areas of competition.

But there are certain areas where European banks historically have concentrated their lending. Project finance, trade finance, and energy reserve lending are probably three of the most predominant examples.

Mr. LUETKEMEYER. Do the American corporations or entities that borrow from them, are they buying goods and services from Europe then, or are they buying goods and services from someplace else in the world, or the United States? Or is it kind of—does it kind of work like our export-import bank here, or how does that work?

Mr. DUDLEY. I would presume that if you are borrowing in dollars, you are using those dollars to buy U.S. goods and services.

Otherwise, you wouldn't need the dollars. You would need some other form of currency.

Mr. KAMIN. Congressman, if I could add—this is a very global financial system, and we are in the middle of a very global economic system.

So, large banks operate all around the world and compete with each other. And that actually ends up being beneficial to non-financial—

Mr. LUETKEMEYER. I understand that, Dr. Kamin, but I am trying to get at—I am kind of concerned here because we have foreign banks that are apparently competing against American banks, which is what you just said, yet we are loaning money to the ECB, to those banks, to be able to loan back and compete against our banks. Is that what you just said?

Mr. KAMIN. What I said was just that both financial institutions and non-financial institutions compete with each other all around the world.

Mr. LUETKEMEYER. Yes, but my concern is that if we, through these swap lines, are funding these international banks, and they are in turn competing against our banks, I don't think we need to be doing that. Do you?

Mr. KAMIN. The primary concern of the Federal Reserve in setting up the swap lines was to maintain the flow of credit to American households and firms. That was key because that is what is needed in order to maintain the economic recovery and to move toward achieving our dual mandate of both price stability and maximum sustainable employment.

So, that was the critical factor that motivated.

Mr. DUDLEY. I think the U.S. banks also are interested in having a healthy U.S. economy, just like the European banks are. And I think that they probably broadly recognize that a forced liquidation of assets by European banks would have negative consequences for the U.S. economy and for their banks.

Mr. LUETKEMEYER. I see my time is up. Thank you, Mr. Chairman.

Chairman PAUL. I now recognize Mr. McHenry for 5 minutes.

Mr. MCHENRY. Thank you, Mr. Chairman. To follow up on the earlier question I had about the long-term refinancing operation, it is interesting to me, Dr. Kamin—you did walk through the whole thought process. And I do appreciate that, the willingness of a witness from an independent institution the Congress oversees to walk

through in sort of a very broad form; your thinking on this is rather impressive, and, dare I say, revolutionary.

But it was very much appreciated because this is really just about trying to make sure policymakers on the Hill have an awareness of what the Fed is doing. And I don't have to explain to the Fed the chairman of this subcommittee's vigorous intention of oversight of the Federal Reserve. That may be the understatement of the day.

So with this injection of funds, of low-interest-rate loans for an extended period of time, much of this capital—a large portion of this capital, I should say—of all the categories has gone to sovereign debt.

Mr. KAMIN. This is the LTROs?

Mr. MCHENRY. Yes.

Mr. KAMIN. Thank you.

Mr. MCHENRY. Yes. I am sorry.

So in that operation, money is flowed to sovereign debt. So it has had one of the intended effects from the ECB, it appears. The question is, of course, "What is our exposure to Europe?" Right? In terms of a quantifiable dollar amount, by our private sector; that is one question.

But really the bigger question here for policymakers is what is our exposure as a government, and the Federal Reserve's exposure to Europe?

Mr. KAMIN. Thank you, Congressman McHenry, for your kind remarks earlier, and for these questions.

The Federal Reserve exposure to Europe would be basically encompassed by the value of our swap lines, which is around \$50 billion or so, to the ECB, and then a very small amount to the Swiss National Bank.

As we have discussed earlier, we think that those exposures are very secure. We have provided them with dollars. In exchange, they have provided us with their currency. And we appreciate the prudent management and the strong financial position of the ECB.

The exposure of our private financial institutions to Europe is obviously much, much larger, both our banks and our money market funds. Those exposures to the most embattled so-called countries in Europe, particularly like Greece and Portugal and Ireland, are really very small; the exposures to Spain and Italy—somewhat larger. But we have had many discussions with the banks that we supervise, and those are viewed to be quite manageable. Obviously, the exposures to core European banks which are, in turn, exposed to peripheral Europe are much larger.

But we are, in terms of thinking about the channels of spillover and how this exposure really works—what is probably more of concern is not so much these direct financial exposures to European institutions, but rather the fact that if the situation in Europe took a turn for the worse, there will be these ancillary channels that we have talked about before; the disruptions of financial markets; the retreat from risk-taking that could disrupt financial markets around the world.

And that is really the matter of greater concern, and that is where we focus a lot of our efforts in working with the banks that we supervise, and other regulatory institutions taking the same standpoint that the banks—

Mr. MCHENRY. Sir, explain to me how the swap lines benefit the American economy. Just in layman's terms.

Mr. KAMIN. Sure. To begin with, many European financial institutions, as we have discussed, are engaged in direct extensions of credit to U.S. households and firms. Any situation where these European banks were unable to get the dollar funding they needed, they would be forced to pull back on lending from U.S. households and firms. They might be forced to sell assets, which would then depress asset values in the U.S. economy more generally. And both of those effects would directly affect the ability of the U.S. households and firms to grow and prosper.

On top of that, funding difficulties by these European banks would lead to their cutback on credit, in terms of dollar lending, to other firms around the world; firms which buy a lot of the U.S. exports. And so, that would be an additional channel through which a funding shortage could hurt the U.S. economy. And that is what we hope to alleviate through the provision of these funds.

Finally, in the event that the dollar funding was not available—say in the absence of our swaps lines—and European banks ran into more severe difficulties, this could be a contributing factor to a further and renewed deterioration of European financial conditions, that not only could severely impact the European economy and prolong the recession, but lead to distressed conditions around the world.

So there might be larger, more ancillary effects from dollar funding problems than, again, the dollar swap lines are intended to alleviate.

Mr. MCHENRY. Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I recognize the gentleman from Michigan, Mr. Huizenga.

Mr. HUIZENGA. Thank you, Mr. Chairman.

I appreciate the opportunity, and I thank the witnesses for coming in. I want to maybe touch on a couple of quick things and continue on the currency swaps.

How far are we going to bring this along, I guess would be part of my question? How long are we going to stick into this game and be part of it? If Europe remains dependent on currency swaps, these same swaps become increasingly risky. Are you prepared to allow these currency swaps to wind down? Or what is going to happen there?

And then, the short-term dollar funding in Europe seemed to be the discussion point; right? How would you define short term versus medium term and long term?

Mr. KAMIN. I will start. Or, why don't you go ahead?

Mr. DUDLEY. Okay.

What we would hope is that the European countries do the right thing in terms of getting their fiscal houses in order and improving their competitiveness, so that investors start to have more confidence in the sustainability of the European Union and how all these countries are going to persist.

If that happens, and at the same time, the European banks are shown to have good earnings, liquidity, and capital, then I think that the willingness of private lenders to provide dollar liquidity to the European banks will emerge very much intact.

And in that situation, our swaps will be at rates that are actually higher than the market, and the swap programs will just sort of wind down automatically.

This is what we saw during 2007, 2008, 2009, during the first big wave of swaps; that as market conditions normalized, the swap usage came down pretty automatically.

Mr. HUIZENGA. I am kind of curious about that, because I am looking at some information in front of me here that says interest rates on dollar loans from the ECB are around 0.6 percent; interest rate on ECB charges for its euro loans is 1 percent. I don't have my Ph.D. in economics, however, I can see the incentive there. Why by making dollar financing cheaper than euro financing, how are they ever going to get out of that cycle?

Mr. DUDLEY. I am not sure that I would agree with that, if that is the right comparison. The 1 percent is to borrow euros. The 0.6 percent is to borrow dollars. And the alternative is to borrow dollars from a U.S. bank when the Federal Reserve is paying 25 basis points on the interest rate that we pay on excess reserves.

There is quite a bit of room between the 25 basis points we pay on the reserves here in the United States, and the 0.6 percent on the dollar swaps. So we would expect that if the conditions in Europe were to continue to improve, that the rate at which European banks could borrow dollars would be somewhat north of 25 basis points perhaps, but below that 0.6 percent. So we would think that there is plenty of room in that difference for the European banks to obtain credit from private entities.

And, in fact, we have actually seen private suppliers of dollars to the European banks return subsequently to the large, long-term refinancing operations and the dollar swap programs. So it looks like—

Mr. HUIZENGA. But doesn't that—

Mr. DUDLEY. —the market is already starting to normalize the dollar swaps.

Mr. HUIZENGA. But doesn't that weaken the value of the euro, what they are doing?

Mr. DUDLEY. I think the euro has really basically been trading in line with how the situation in Europe looks. As the European situation worsens, the euro depreciates. As the European situation improves, the euro appreciates. So it is really based on the outlook for Europe, of course relative to the outlook in the United States.

Mr. HUIZENGA. Help me to understand how if it is a weaker euro, doesn't that mean a typically a weaker Eurozone, since we have sort of flagged this off as a European issue, and trying not to get dragged into it here from the U.S. side?

Mr. DUDLEY. You are certainly right that if the European outlook were to deteriorate, the euro would probably weaken as a consequence. The good news is that over the last 4 or 5 months, the euro has actually strengthened a bit, because Europe has actually made some progress in terms of addressing some of their issues.

Mr. HUIZENGA. Okay.

And then, my time is almost up, and I will—Dr. Kamin, do you want to say something as well?

But I am just curious: What keeps you up at night? What other countries? You specifically—I think in Dr. Kamin's testimony, he talked briefly about Greece.

And then, you just were touching on Spain and Portugal. But where are we at with Italy and Ireland? Are we on solid footing— are they on solid footing in France and Germany and some of those other countries that have been leading this?

Mr. KAMIN. Certainly, the euro crisis in general is what keeps me up at night, and what occupies much of my thinking time during the day as well.

Obviously, the situation in Greece has been very difficult. And we have been following that very closely. We also, obviously, are very focused on, basically, Ireland and Portugal, which are the recipients of IMF funds. And we think it is critically important that these problems not move further into Spain and Italy, which have also been the focus of market attention.

And we think it is absolutely critical to make sure that you don't have further contagion beyond that. So far, things have been looking on the brighter side. There have been improvement in markets. But we have continued to monitor the situation as closely as ever.

And then, while most of my thinking lately is focused on Europe, obviously I am thinking about oil prices as well, because that is another area that poses a potential threat at least down the road.

Mr. HUIZENGA. Thank you.

Chairman PAUL. Thank you.

I have a couple of additional questions I would like to ask.

I am interested in one line on the Federal Reserve sheet at each week on other assets, other Federal Reserve assets. And it has been growing a bit. It used to be a small number, but even in recent years, it has gone up. I think it is about \$160 billion now.

What does that include? Does that include anything foreign? Is there any type of a foreign asset or a swap or anything involved in there that would help me understand this international financial crisis that we are in?

Mr. KAMIN. Chairman Paul, we definitely put on our balance sheet—we list our holdings of foreign assets. I don't recall offhand if that is where the "other assets" are. I don't think so. The "other assets" have, as you point out, risen over time. And there is one main contributing factor to that, which is when we buy securities in the markets, sometimes we buy them at a value that is above their par or face value, because interest rates had declined since they were first issued. That raises the value of those securities.

So then, we place the par value of the securities in one line on our balance sheet, and then that additional part that is over the par value, the premium, that is placed in our "other assets" line. So as we have continued to purchase securities in the market, the amount of the premium part of our purchases, which has gone into the "other assets" line, has continued to rise.

Chairman PAUL. So you say you are buying securities. Would this be like mortgage securities?

Mr. DUDLEY. This would be predominantly the maturity extension program, in which we are selling short-dated Treasury securities and buying long-dated Treasury securities. We are also buying mortgage-backed securities, but with emphasis to rolling over existing maturing mortgage-backed securities, so the size of the mortgage-backed securities portfolio is pretty constant.

Chairman PAUL. So, the significant increase of \$160 billion of just saying they are “other,” it is definitely related to the international financial crisis that we are involved in right now?

Mr. DUDLEY. As Steve related, it is related to the expansion of the Fed’s balance sheet and the types of assets that we are buying in the market. The maturity extension program—we are selling short-dated Treasuries; we are buying long-dated Treasuries. To the extent that we are buying Treasuries that are selling above par because interest rates has declined, that is different than what Steve was saying is booked in the other assets category.

Chairman PAUL. What does this mean, if this were to continue to grow at the rate it is growing now?

Mr. DUDLEY. No. I would expect that once the maturity extension program or other asset purchase programs are ended, then I would expect the other assets category actually to probably come down over time as that premium was amortized over time. So, I would view this as a temporary phenomenon.

Chairman PAUL. But there is no one place in the Federal Reserve reports that would give me a full explanation of exactly what the \$160 billion is? You don’t send out a report each month and say exactly what that is made up of?

Mr. KAMIN. There is an interactive portion of our Web site that offers more analysis of the different lines. That is the first thing.

The second thing I want to follow up on is having checked, the “other assets”—I just think the “other assets” category does indeed, as you suggest, also include foreign currency denominative assets, but not the swap lines. It is the other European and the undenominated securities that we hold.

Chairman PAUL. Okay.

The other thing I have noticed since 2008 is if you look at a long-term chart of currency in circulation, it is a steady increase and very predictable. But since 2008, it has been going up much more rapidly. This is cash as currency. Where is the demand for more cash? Do you

know exactly where that goes? Does that end up overseas? Is that in circulation here? Or is it in a shoebox someplace?

Mr. DUDLEY. Probably in both places. With interest rates this low, the opportunity costs of holding more currency obviously is very low. If you hold the currency, you get a 0 percent return. But if you have gone to your bank these days, you don't get much more than that.

So, people probably are carrying around more currency in their pockets because there is less cost of holding the currency versus holding it in a bank. This may also be true internationally, although I am not familiar with how much currency is held here versus abroad. I know historically, it has been about one third here, and two thirds abroad. But I don't know how that has been changing recently.

Chairman PAUL. I have one quick question for both of you. You can probably answer this rather easily.

You are very much involved in dealing with the value of our money, the value of our dollar and our financial system. But I have trouble finding the legal definition for the unit of account that we have as a dollar. Can you tell me your definition of—what is a dollar?

Mr. DUDLEY. I view the dollar as the legal tender in the United States, so that if someone pays a dollar as payment, the shopkeeper has to accept that dollar for that transaction.

Mr. KAMIN. Also the classic definition of money, I think of it as three things. It is store value, which it is a medium of transaction.

Mr. DUDLEY. And usually has portability.

Mr. KAMIN. Yes. And then it is a medium of accounts. In other words, you measure value by using a dollar.

Chairman PAUL. But you do realize there was a more precise definition of a dollar most of our history where you could actually know what it meant. But it seems like there is no definition at all. You say it is just a unit of account. And that is probably the reason why we have lost about 98 percent of the value of that dollar since 1913, since it has been the responsibility of the Federal Reserve to protect the value of our currency.

So, I have trouble believing that we will be able to solve any of our problems financially or even fiscally if we can create money endlessly and out of thin air and accommodate the politicians who spend money, who spend money overseas, who spend money on foreign policy that indirectly you have to deal with. Look how the sanctions and the threat of war in Iran affects the finances of the world, not only perception-wise in trade and pushing up oil prices, but also the need to keep monetizing this debt.

Federal Reserve Chairmen endlessly, for all the years I have been here, have said, “If the Congress would quit spending so much money and didn’t have so much debt, we wouldn’t have such a tough problem managing the currency.” At the same time, the debt wouldn’t be there if the Federal Reserve wasn’t there willing to monetize the debt, because you are the lender of last resort.

You guarantee the moral hazard that politicians are going to spend money. And it seems like to coordinate the two and have a sound economic system instead of a financial bubble that is based on debt and a monetary standard based on debt with the world awash in an exploding amount of debt. I don’t know how we will ever get out of this unless we finally come up with a definition, once again, of what the unit of account is and what a dollar means.

This hearing is now adjourned.

The Chair notes that some Members may have additional questions for the panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for Members to submit written questions to these witnesses and to place their responses in the record.

[Whereupon, at 11:42 a.m., the hearing was adjourned.]

QUESTION
FOR THE RECORD

FROM CHAIRMAN RON PAUL TO
WILLIAM C. DUDLEY, PRESIDENT
FEDERAL RESERVE BANK OF NEW YORK

Question 1:

The Federal Reserve receives no appropriations from Congress and is completely dependent on funding itself through its own operations. During your testimony you stated that the Federal Reserve made a \$4 billion profit from the central bank liquidity swap arrangements during 2008 and 2009. Considering that the Federal Reserve's annual operating budget is roughly \$4 billion, and money is fungible, could it be said that the Fed is funded by foreign central banks rather than through returns on its portfolio of Treasuries?

Answer:

While the Federal Reserve's current operating budget and the profit to date on our liquidity swaps are roughly the same, it would not be accurate to say that the Federal Reserve is funded by foreign central banks. Profits on the liquidity swaps did not come in the regular course of the Federal Reserve's operations, and, unlike income derived from our portfolio of government securities, are not a typical source of revenue for the Federal Reserve System.

Question 2:

With respect to the swap lines with the European Central Bank (ECB), you stated during the hearing that, "We think we are very well secured in those transactions. We fully anticipate to be fully

repaid.” You also stated that you “don’t have enough information to assess the quality of the ECB balance sheet.”

As I stated in my testimony, we believe that these swap transactions are secure. First, at the initiation of each transaction, the Federal Reserve takes ownership of foreign currency that it holds for the duration of the trade. This provides an important safeguard: if a central bank failed to repay us, we could sell the currency into the market for dollars, which would limit the consequences to the Fed’s balance sheet and to the taxpayer of a failure to repay.

Second, fluctuations in exchange or interest rates between initiation and maturity do not alter the contractual repayment amounts. At the end of each swap transaction, the Federal Reserve gets back all the dollars it provided plus a fee.

Third, the Federal Reserve must agree to any request to draw on the swap lines. We are in frequent contact with our counterparts at each foreign central bank regarding developments abroad. If we became uncomfortable with our exposure at any time, we could stop further swap transactions with the central bank (or central banks) in question.

Answer:

As I stated in my testimony, we believe that these swap transactions are secure. First, at the initiation of each transaction, the Federal Reserve takes ownership of foreign currency that it holds for the duration of the trade. This provides an important safeguard: if a central bank failed to repay us, we could sell the currency into the market for dollars, which would limit the consequences to the Fed’s balance sheet and to the taxpayer of a failure to repay.

Second, fluctuations in exchange or interest rates between initiation and maturity do not alter the contractual repayment amounts. At the end of each swap transaction, the Federal Reserve gets back all the dollars it provided plus a fee.

Third, the Federal Reserve must agree to any request to draw on the swap lines. We are in frequent contact with our counterparts at each foreign central bank regarding developments abroad. If we became uncomfortable with our exposure at any time, we could stop further swap transactions with the central bank (or central banks) in question.

Fourth, with respect to the ECB, the Federal Reserve has a

long track record of conducting successful operations not only with the ECB itself, but also with the national central banks of the euro area countries. Those national central banks – and their national governments behind them – are shareholders in the ECB and would be expected to backstop the ECB's obligations in the highly unlikely event that the ECB failed to repay us.

Question 3:

Has the Federal Reserve provided any other assistance either financial or technical in nature, aside from the central bank liquidity swap lines, to help mitigate the financial crisis in Europe? If so, please provide a thorough list and explanation of such assistance.

Answer:

I respectfully refer you to the response to this question provided by Steven Kamin, Director of the Division of International Finance at the Federal Reserve Board of Governors, and my co-panelist at the March 27th hearing.

Question 4:

Does the Federal Reserve have the ability and authority to provide financial assistance to Europe, aside from the central bank liquidity swap lines? If so, under what statute(s) does the Federal Reserve have such authority and what form(s) could such assistance take?

Answer:

The Federal Reserve derives its authority exclusively from the Federal Reserve Act, and all of our operations and actions are conducted pursuant to that statute.

The Federal Open Market Committee (FOMC) established central bank liquidity swap arrangements with five foreign central banks, including the ECB, between 2007 and 2008 and reauthorized them in successive votes from May 2010 through the present. The current authorization runs through February 1, 2013. I am not aware of any additional plans or intentions within the Federal Reserve to provide financial assistance to European central banks or governments.

Question 5:

The International Monetary Fund (IMF) is not permitted to accept funds directly from the Federal Reserve. Notwithstanding the

restraint on the IMF, does the Federal Reserve have the authority to provide funding directly to the IMF? If so, please cite the legal statute(s).

Answer:

I respectfully refer you to the response to this question provided by Steven Kamin, Director of the Division of International Finance at the Federal Reserve Board of Governors, and my co-panelist at the March 27th hearing.

Question 6:

What would the ramifications be to the Federal Reserve if the ECB is unable to repay the dollars it has borrowed? Does the Federal Reserve have a contingency plan in the event the ECB does not repay the dollars? If so, what is this plan?

Answer:

The dollars involved in our swaps with the ECB are not borrowed; they are swapped in exchange for euros provided by the ECB. The ECB is bound by contract to return any dollars it draws from the swap line, and we believe it will uphold its obligation in every instance. Our expectation that the ECB will repay us the dollars we have swapped for euros is based on the financial strength of that institution and its shareholders – the national central banks of the euro area countries. As mentioned above, the Federal Reserve has a long history of conducting successful operations with the ECB and with the national central banks of the euro area countries.

Question 7:

Payment transactions in the Eurozone are settled using the TARGET 2 system, a settlement system owned and operated by the Eurosystem, which is comprised of the 17 national central banks of the European monetary union and the ECB. Under TARGET 2, the various national central banks accumulate assets and liabilities amongst themselves.

- a. Is there a credit risk between the various national central banks of Europe as a result of the TARGET system?
- b. If so, under what circumstances could a national central bank incur a write-down or loss on its TARGET 2 assets?
- c. If such losses could occur, how does the Federal Reserve assess credit risk to the Federal Reserve's loans to the ECB?

Answer:

I respectfully refer you to the response to this question provided by Steven Kamin, Director of the Division of International Finance at the Federal Reserve Board of Governors, and my co-panelist at the March 27th hearing.

FROM CHAIRMAN RON PAUL TO
STEVEN B. KAMIN, DIRECTOR
DIVISION OF INTERNATIONAL FINANCE
BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Question 1:

Has the Federal Reserve provided any other assistance either financial or technical in nature, aside from the central bank liquidity swap lines, to help mitigate the financial crisis in Europe? If so, please provide a thorough list and explanation of such assistance.

Answer:

The Federal Reserve has no programs in place other than the central bank liquidity swaps that involve financial institutions in Europe. I would not that the main purpose of the swap lines is to protect financial markets in the United States from disruption in foreign markets and to help support the flow of credit to U.S. households and businesses.

We have of course been in continual contact with our European counterparts and have closely monitored the situation, with an eye toward minimizing the potential spillovers to the U.S. economy.

Question 2:

Does the Federal Reserve have the ability and authority to provide financial assistance to Europe, aside from the central bank liquidity swap lines? If so, under what statute(s) does the Federal Reserve have such authority and what form(s) could such assistance take?

Answer:

As noted above, the Federal Reserve has no programs in place that involve financial institutions in Europe other than the central bank liquidity swaps, and participates in these swaps in order to protect U.S. financial markets and maintain the flow of credit in the U.S. economy. The Federal Reserve operates its swpal lines under the authority of Section 14 of the

Federal Reserve Act, which permits the Federal Reserve Banks to conduct operations in foreign exchange and to open and maintain accounts in foreign currency with foreign central banks. Any other action taken in response to the situation in Europe would be the decision of the Federal Reserve Board or the FOMC and would be taken in accordance with relevant statutes.

Question 3:

The International Monetary Fund (IMF) is not permitted to accept funds directly from the Federal Reserve. Notwithstanding the restraint on the IMF, does the Federal Reserve have the authority to provide funding directly to the IMF? If so, please cite the legal statute(s).

Answer:

No, the Federal Reserve System would be prohibited by statute from extending credit to the Fund without Congressional approval.

The Bretton Woods Agreements Act (BWA) reserves for Congress the ability to authorize certain actions to be taken on behalf of the United States with respect to the IMF. Under the Act, “[u]nless Congress by law authorizes such action, neither the President nor any person or agency shall on behalf of the United States...make any loan to the Fund...”. For purposes of the BWA, a reserve bank would likely be considered a “person” and may be considered an “agency”, to the extent that it would be acting at the request of the Board or the FOMC.

Question 4:

What would the ramifications be to the Federal Reserve if the ECB is unable to repay the dollars it has borrowed? Does the Federal Reserve have a contingency plan in the event the ECB does not repay the dollars? If so, what is this plan?

Answer:

The dollars involved in our swaps with the ECB are not borrowed, they are swapped in exchange for euros provided by the ECB. The ECB is bound by contract to return any dollars it draws from the swap line, and we believe it will uphold its obligation in every instance. Our expectation that the ECB will repay us the dollars we have swapped for euros is based

on the financial strength of that institution and its history of prudent decision-making: the Federal Reserve has a long track record of conducting successful operations not only with the ECB, but also with the national central banks of the euro area countries. As shareholders of the ECB – the national central banks – and their national governments behind them – would be expected to further backstop the ECB's obligations.

Question 5:

Payment transactions in the Eurozone are settled using the TARGET 2 system, a settlement system owned and operated by the Eurosystem, which is comprised of the 17 national central banks of the European monetary Union and the ECB. Under TARGET 2, the various national central banks accumulate assets and liabilities amongst themselves.

- a. Is there a credit risk between the various national central banks of Europe as a result of the TARGET system?

Answer:

The TARGET2 system settles domestic and cross-border interbank payments in the euro area by crediting and debiting banks' reserve accounts at their respective national central banks. Any accumulation of assets and liabilities in the TARGET2 system by the various national central banks are claims on and liabilities to the ECB, not one another. The ECB and euro-area national central banks control for credit risk in their operations with monetary and financial institutions by applying haircuts in valuing the collateral they receive and by requiring their counterparties to adjust the marketable assets they post as collateral as the prices of those assets change.

- b. If so, under what circumstances could a national central bank incur a write-down or loss on its Target 2 assets?

Answer:

In the event that there is a credit loss despite these precautions, then according the Eurosystem rules, capital losses are allocated according the respective capital shares of the national central banks in the Eurosystem,

not according to TARGET2 balances.

- c. If such losses could occur, how does the Federal Reserve assess credit risk to the Federal Reserve's loans to the ECB?

Answer:

The credit standing of the ECB is of the highest caliber, it has a very strong financial position, and we continue to view our swap lines with the ECB as safe. TARGET2 losses would not diminish either the effectiveness or the safety of the Federal Reserve's swap operations with the ECB.

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

The Federal Reserve has recently begun to engage in an ongoing bailout of the European monetary system. Under the guise of providing dollar liquidity to strained European financial markets, the Fed is creating hundreds of billions of dollars out of thin air to prop up the euro. While still well under their 2008 peak, these latest dollar swap agreements are nonetheless a thinly-disguised bailout. Congress has been far too lenient in allowing the Fed to engage in unprecedented monetary policy operations without informing or explaining its actions to Congress. The American people need to understand the effects these actions have on the dollar so that the Fed can be held accountable. I hope that this hearing will get much-needed answers to the very important questions surrounding the Fed's involvement in bailing out Europe.

For over 40 years, the Fed has been creating money out of thin air, propping up Wall Street while destroying the value of the dollar. This excessive money creation is what caused the financial crisis, yet just as a dog returns to its vomit, the Fed thinks that continuing to print money will somehow end the crisis. The trillions of dollars the Fed has created have eviscerated the purchasing power of American consumers, as anyone who has set foot inside a grocery store can see. While the government's official inflation rate is hovering around three percent, the original method of calculating the price index indicates that price inflation is over ten percent, which is more in line with what consumers are experiencing.

Despite a world awash in dollars, the Fed continues to view the cause of every financial problem as a dearth of liquidity. When the banks say they do not have enough money, the Fed unquestionably believes them and provides them with new dollars created from nothing. But a bank saying that there is not enough money is like a broke college student saying that there are not enough Ferraris. What he really means is that there are not enough Ferraris for sale at a price that he can afford. The same is true with banks; there are plenty of dollars available for banks to borrow, but the banks don't want to pay the going interest rate on loans, so they run to the central bank for cheap money.

Much of the Fed's intervention in the U.S. has been undertaken in an attempt to reflate the housing market. Rather than allowing house prices to fall so that supply and demand will re-equilibrate, the Fed has pumped liquidity into the system in an attempt to keep prices elevated. The federal funds rate has been kept artificially low for over three years now, and according to the Fed will be kept near zero for at least three years more. Because the Federal Reserve is so used to manipulating interest rates, it fails to see that interest rates are a price, the price of money and credit. While American banks may not be willing to lend dollars short-term to ailing European banks at 0.25 or 0.50%, you can bet that there would be a lot more dollars available to loan at 2, 3, or 4%. But in order for the markets to adjust and price loans at a market-clearing rate, the Fed needs to abstain from intervening to short-circuit this price discovery process.

The Federal Reserve has pumped trillions of dollars into the American financial system, with banks now holding \$1.5 trillion of excess reserves at the Fed, money which is literally just sitting there. The Fed pays an 0.25% interest rate on those excess reserves, which lessens the incentive of the banks to loan those funds to anyone, regardless of how safe the loan might be. This leads to a lessened availability of credit both domestically and abroad, with the result that credit markets are more contracted than they otherwise might be. The Fed views this credit market contraction as having its root in insufficient liquidity, which it then attempts to counteract by creating more money.

This time around, the newly created dollars are being loaned through swap lines to the European Central Bank (ECB) in exchange for euros. The ECB loans the dollars to struggling European banks in exchange for collateral. Once those loans are repaid and the swap lines expire, the ECB returns the dollars to the Fed and takes back its euros. The interest rate on these loans is about 0.6%, so it is not

surprising that American banks are keeping their excess reserves safe at the Federal Reserve. After all, why loan dollars to weak and risky European banks at 0.6% when you can get a guaranteed 0.25% from the Federal Reserve? So the dollar markets dry up and the Fed steps in to “fix” the problem it created.

We have to question what will happen if these loans from the ECB to European banks go bad. What happens if a major bank fails? If the ECB cannot return dollars to the Fed, does the Fed keep the euros it received from the ECB? Does it receive European government bonds, perhaps Greek bonds? Does it have recourse to the ECB's gold, as Chairman Bernanke alluded to last week?

Even more importantly, what is the impact of these programs on the dollar and on the U.S. economy? While the Fed seems to think that these swap lines eventually will be drawn back down to zero, what happens in the meantime? These hundreds of billions of dollars may be created out of thin air, but their effects on the real economy are anything but ephemeral. And the Fed has failed to consider the possibility that these swap lines may rise even higher than the \$600 billion level that was reached in 2008. Given the still precarious position of European governments and the European financial system, it would not be surprising to see a few hundred billion dollars more being created to continue the bailout of the euro.

The Fed's continued intervention in financial markets creates a climate of uncertainty. For almost five years, financial institutions have had to wonder from one day to the next what the Fed will do. Will it continue with more asset purchases under its policy of quantitative easing? Will it bailout large firms in danger of collapse or allow them to fail? Will it allow markets to function or continue its intervention? In such uncertain times it is only natural for firms to sit back and wait to see what happens. And every action by the Fed, every attempt at stimulus, rather than placating that uncertainty, instead exacerbates it. The Fed's actions destroy markets, erode the earnings and savings of Americans, and sow the seeds for the next great crisis. I hope that this hearing is yet another step in holding the Fed accountable and will help both Members and the American people reconsider the necessity of a central bank.

WITNESS TESTIMONY

WRITTEN TESTIMONY OF WILLIAM C. DUDLEY PRESIDENT AND CHIEF EXECUTIVE OFFICER FEDERAL RESERVE BANK OF NEW YORK

I. Introduction

Chairman Paul, Ranking Member Clay, and members of the Subcommittee, my name is Bill Dudley, and I am President of the Federal Reserve Bank of New York. It is an honor to testify today about the economic and fiscal challenges facing Europe, and the Federal Reserve's efforts to support financial stability in the United States. Financial stability enables U.S. businesses and households to maintain their access to credit and ensures sustained economic growth. This is why promoting financial stability is an important objective of the Federal Reserve, and other central banks around the world.

Let me preface these remarks by stating that the views expressed in my written and oral testimony are solely my own and do not represent official views of the Federal Reserve Board, the Federal Open Market Committee ("FOMC") or any other part of the Federal Reserve System. Additionally, because I am precluded by law from discussing confidential supervisory information, I will not be able to speak about the financial condition or regulatory treatment or rating of any individual financial institution.

The U.S. economy is currently expanding at a moderate pace, and strains in global financial markets, although having eased recently, continue to pose significant downside risks to the economic outlook. Because developments in Europe will have an important bearing on

the prospects for growth and jobs here in the U.S., the Federal Reserve is monitoring the situation there closely. This is also why we have taken special steps in recent months, together with other central banks, to support the flow of credit to households and businesses.

II. Europe

The economic situation in Europe has been unsettled for the better part of two years, with pressure on sovereign debt markets and local banking systems. High debts, large deficits, and slow growth in several European countries have called into question the sustainability of the entire euro area. The resulting strains in European markets have affected the U.S. economy.

The euro area has the capacity, including the fiscal capacity, to overcome its challenges. However, the politics are very difficult, both because the problem has many dimensions, and because many different countries and institutions in the euro area have to coordinate their actions in order to achieve a coherent and effective policy response.

Europe's leadership has affirmed its commitment to the European Union and its single currency union on numerous occasions. And the leadership is working harder than ever to achieve greater coordination in areas such as fiscal policy. A more robust and resilient European Union would be a welcome development for the United States. Three recent developments are especially encouraging in that regard.

First, liquidity concerns have eased significantly following the European Central Bank's long-term refinancing operations in December and February. Through this program, the ECB provides three-year loans to European banks at low rates, accepting a wide array of collateral in return. Hundreds of banks accessed the program in each operation, and the ECB lent nearly €1 trillion in total. As a result, the cost of funding throughout Europe has declined since the program began, the Euro has stabilized, and the sovereign bond market has improved. Changes in the ECB's collateral rules and reserve requirements have also had a positive impact.

Second, earlier this month, the Greek government worked with European leaders and its largest creditors to restructure the bulk of its €206 billion of outstanding privately-held bonds.

This not only reduced Greece's total indebtedness, it helped calm persistent worries that a

disorderly Greek default could become the trigger for a global

economic crisis. Shortly after the debt restructuring, the EU approved a €130 billion aid package for Greece. Together, these measures will provide key support to Greek leaders as they pursue the difficult fiscal reforms that are essential over the long term.

Third, leaders in most euro area countries have approved a new treaty designed to increase fiscal coordination. The new rules already appear to be making a difference. Both Spain and Italy recently completed 2012 budgets that move their deficits closer to EU targets. Further, Spain and Italy took their fiscal actions in close consultation with finance ministers from other countries in the euro area, demonstrating a healthy ability to work together. While difficult work still lies ahead, countries in the euro area have made meaningful progress toward achieving long-term fiscal sustainability.

Looking to the future, the difficult work that remains also presents special risks – both for Europe and the United States. If Europe fails to chart an effective course forward, this could have a number of negative implications here. In particular, there are three areas of potential risk that I would like to highlight for the Subcommittee today.

First, if economic conditions in Europe were to weaken significantly, demand for U.S. exports would decrease. This would hurt domestic growth and have a negative impact on U.S. jobs. It is important to recognize that the euro area is the world's second largest economy after the U.S. and an important trading partner for us. Also, Europe is a significant investor in the

U.S. economy, and vice versa. Thus, what happens in Europe has significant implications for our economy.

Second, deterioration in the European economy could put pressure on the U.S. banking

system. As the recent round of stress tests revealed, U.S. banks are much more robust and resilient than they were a few years ago. They have bolstered their capital significantly, built up their loan loss reserves, and have significantly larger liquidity buffers. The direct net exposures of U.S. banks to the so-called “peripheral” European countries are actually quite modest. The good news in the United States means that we are better able to handle bad news from Europe.

With that said, the exposures of U.S. banks climb sharply when one also considers their exposures to the core European countries and to the overall European banking system. U.S. money market mutual funds, in particular, have significant European holdings. This means that if the crisis were to broaden further and intensify, it would put

pressure on the capital and liquidity buffers of U.S. banks and other financial institutions.

Third, severe stresses in European financial markets would disrupt financial markets here, which could harm the real economy. Stress in the financial markets causes banks to more carefully husband their balance sheets. When that phenomenon occurs, the availability of credit to U.S. households and businesses becomes constrained. Such conditions could also cause equity prices to fall, impairing the value of Americans' pension and 401(k) holdings. This would damage the U.S. recovery and result in slower output growth and less job creation. At a time when U.S. unemployment is very high, this is a particularly unacceptable outcome. In the extreme, U.S. financial markets could become so impaired that the flow of credit to households and businesses would dry up.

III. U.S. Dollar Swaps

In today's globally integrated economy, banks headquartered abroad play an important role in providing credit and other financial services in the United States. About \$1 trillion in worldwide dollar financing comes from foreign banks, \$700 billion in the form of loans within

the U.S. For these banks to provide U.S. dollar loans, they have to maintain access to U.S. dollar funding. At a time when it is already hard enough for American families and firms to get the credit they need, we have a strong interest in making sure that these banks can continue to be active in the U.S. dollar markets.

Banks headquartered outside the U.S. make extensive use of dollars in their financing activities. In part, this results from the fact that the U.S. dollar is the world's number one currency – a status that brings with it many benefits for our country. It is in our national interest to make sure that non-U.S. banks remain able to access the U.S. dollar funding they need to continue financing their U.S. dollar assets. If access to dollar funding were to become severely impaired, this could necessitate the abrupt, forced sales of dollar assets by these banks, which could seriously disrupt U.S. markets and adversely affect American businesses, consumers, and jobs.

One way we can help to support the availability of dollar funding, and ensure that credit continues to flow to American households and businesses, is by engaging in currency swaps with other central banks. Such swaps are a policy tool the Federal Reserve has used to support dollar liquidity for nearly fifty years. Most recently, the Federal Reserve established dollar swap lines with major central

banks during the global financial crisis of 2008, and reactivated them in May 2010. Last November, the FOMC, cooperating with five other central banks, reduced the rate being charged on these swaps to increase usage.

The swaps are intended to create a credible backstop to support – but not supplant – private markets. Banks with surplus dollars are more likely to lend to banks in need of dollars if they know that the borrowing bank will be able to obtain the dollars it needs to repay the loan, if necessary, from its central bank.

Ultimately, these dollar swaps are designed to support financial stability, and avoid an unnecessary tightening in financial conditions, so that economic activity and job creation in the United States can continue to recover. Our principal aim is to protect U.S. banks, businesses, and consumers from adverse economic trends abroad. I am pleased that the swaps seem to be working. In conjunction with the ECB's long-term refinancing operations, the swaps have helped European banks avoid the significant liquidity pressures we feared a few months ago and have reduced the risk that they would need to sell off their U.S. dollar assets abruptly.

IV. Conclusion

In sum, I am hopeful that Europe can effectively address its current fiscal challenges. The Federal Reserve is actively and carefully assessing this situation and the potential impact on the U.S. economy. At this time, although I do not anticipate further efforts by the Federal Reserve to address the potential spillover effects of Europe on the United States, we will continue to monitor the situation closely.

Thank you for your invitation to testify today, and I look forward to answering your questions.

**WRITTEN TESTIMONY OF
STEVEN B. KAMIN**

DIRECTOR OF THE DIVISION OF INTERNATIONAL FINANCE
BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Thank you, Chairman Paul, Ranking Member Clay, and members of the Subcommittee for inviting me today to talk about the economic situation in Europe and actions taken by the Federal Reserve in response to this situation.

For two years now, developments in Europe have played a critical role in shaping the tenor of global financial markets. The combination of high debts, large deficits, and poor growth prospects in several European countries using the euro has raised concerns about their fiscal sustainability. Such concerns were initially focused on Greece but have since spread to a number of other euro-area countries, leading to substantial increases in their sovereign borrowing costs. Pessimism about these countries' fiscal situation, in turn, has helped to undermine confidence in the strength of European financial institutions, increasing the institutions' borrowing costs and threatening to curtail their supply of credit. These developments have strained global financial markets and weighed on global economic activity.

In the past several months, European leaders have taken a number of policy actions that have helped reduce financial market stresses. In early December, the European Central Bank (ECB) reduced its policy interest rate, cut its reserve requirement, eased collateral rules for its lending, and, perhaps most important, began providing three-year secured loans to banks. Second, euro-area leaders, the Greek government, and private-sector holders of Greek debt are taking steps to put that country on a more sustainable fiscal path. Additionally, European leaders announced and have started to implement proposals to strengthen fiscal rules and European fiscal coordination. Discussions to expand the euro-area financial backstop are on-going. These steps are positive developments and signify the commitment of European leaders to alleviate the crisis.

Since early December, borrowing costs for several vulnerable European governments have declined, funding pressures for European banks have eased, and the tone of investor sentiment has improved. However, financial markets remain under strain. Europe's authorities continue to face difficult challenges as they seek to stabilize their fiscal and financial situation, and it will be critical

for them to follow through on their policy commitments in the months ahead.

Here at home, the financial stresses in Europe have undoubtedly spilled over to the United States by restraining our exports, weighing on business and consumer confidence, and adding to pressures on U.S. financial markets and institutions. Of note, as concerns about the financial system in Europe mounted, many foreign banks, especially those in Europe, faced a rise in the cost of dollar funding and a decline in its availability. A great deal of trade and investment the world over is financed in dollars, so many foreign financial institutions have heavy borrowing needs in our currency. These institutions also borrow heavily in dollars because they are active in U.S. markets, purchasing government and corporate securities and lending to households and firms. While strains have eased somewhat of late, difficulty acquiring dollar funding by European and other financial institutions could ultimately make it harder and more costly for U.S. households and businesses to get loans. Moreover, disruptions to European access to dollar funding could spill over into the market for borrowing and lending in U.S. dollars more generally, raising the cost of funding for U.S. financial institutions. Although the breadth and size of all of these effects on the U.S. economy are difficult to gauge, it is clear that the situation in Europe poses a significant risk to U.S. economic activity and bears close watching.

Swap Lines with Other Central Banks

To address these potential risks to the United States, as described in an announcement on November 30, the Federal Reserve agreed with the ECB and the central banks of Canada, Japan, Switzerland, and the United Kingdom to revise, extend, and expand its swap lines with these institutions.³⁸² The measures were taken to ease strains in global financial markets, which, if left unchecked, could significantly impair the supply of credit to households and businesses in the United States and impede our economic recovery. Such strains were particularly evident in Europe, and these actions were designed to help prevent them from spilling over to the U.S. economy.

Three steps were described in the November 30 announcement. First, we reduced the pricing of drawings on the dollar liquidity swap lines. The previous pricing had been at a spread of 100 basis points

³⁸² See Board of Governors of the Federal Reserve System (2011), "Coordinated Central Bank Action to Address Pressures in Global Money Markets," press release, November 30, www.federalreserve.gov/newsevents/press/monetary/20111130a.htm. Similar announcements appeared on the web sites of the other participating central banks.

over the overnight index swap rate.³⁸³ We reduced that spread to 50 basis points. The lower cost to the ECB and other foreign central banks enabled them to reduce the cost of the dollar loans they provide to financial institutions in their jurisdictions. Reducing these costs has helped alleviate pressures in U.S. money markets generated by foreign financial institutions, strengthen the liquidity positions of European and other foreign institutions, and boost confidence at a time of considerable strain in international financial markets. Through all of these channels, the action should help support the continued supply of credit to U.S. households and businesses.

Second, we extended the authorization for these lines through February 1, 2013. The previous authorization had been through August 1, 2012. This extension demonstrated that central banks are prepared to work together for a sustained period, if needed, to support global liquidity conditions.

Third, we agreed to establish, as a precautionary measure, swap lines in the currencies of the other central banks participating in the announcement. (The Federal Reserve had established similar lines in April 2009, but they were not drawn upon and were allowed to expire in February 2010.) These lines would permit the Federal Reserve, if needed, to provide euros, Canadian dollars, Japanese yen, Swiss francs, or British pounds to U.S. financial institutions on a secured basis, much as the foreign central banks provide dollars to institutions in their jurisdictions now.

U.S. financial institutions are not experiencing any foreign currency liquidity pressures at present, but we judged it prudent to make arrangements to offer such liquidity should the need arise in the future.

I would like to emphasize that information on the swap lines is fully disclosed on the Federal Reserve's website--through our weekly balance sheet release and other materials--and information on swap transactions each week is provided on the website of the Federal Reserve Bank of New York.³⁸⁴

³⁸³ The dollar overnight index swap rate is the fixed rate that one party agrees to pay in exchange for the average of the overnight federal funds rates over the life of the swap. As such, it is a measure of the average federal funds rate expected over the term of the swap.

³⁸⁴ For the outstanding amount of dollar funding through the swap lines as it appears each week in the Federal Reserve balance sheet, see www.federalreserve.gov/releases/h41. For other relevant information and materials on the Federal Reserve's website, see www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm. For weekly information on the Federal Reserve's swap transactions with other central banks, see www.newyorkfed.org/markets/fxswap/fxswap.cfm. Finally, for copies of the agreements

I also want to underscore that these swap agreements are safe from the perspective of the Federal Reserve and the U.S. taxpayer, for five main reasons:

- First, the swap transactions themselves present no exchange rate or interest rate risk to the Fed. Because the terms of each drawing and repayment are set at the time that the draw is initiated, fluctuations in exchange rates and interest rates that may occur while the swap funds are outstanding do not alter the amounts eventually to be repaid.
- Second, each drawing on the swap lines must be approved by the Federal Reserve, which provides the Federal Reserve with control over use of the facility by the foreign central banks.
- Third, the foreign currency held by the Federal Reserve during the term of the swap drawings provides added security.
- Fourth, our counterparties in these swap agreements are the foreign central banks. In turn, it is they who lend the dollars they draw from the swap lines to private institutions in their own jurisdictions. The foreign central banks assume the credit risk associated with lending to these institutions. The Federal Reserve has had long and close relationships with these central banks, and our interactions with them over the years have provided a track record that justifies a high degree of trust and cooperation.
- Finally, the short tenor of the swap drawings, which have maturities of at most three months, also offers some protection, in that positions could be wound down relatively quickly were it judged appropriate to do so.

The Federal Reserve has not lost a penny on any of the swap line transactions since these lines were established in 2007, even during the most intense period of activity at the end of 2008. Moreover, at the maturity of each swap transaction, the Federal Reserve receives the dollars it provided plus a fee. These fees add to overall earnings on Federal Reserve operations, thereby increasing the amount the Federal Reserve remits to taxpayers.

Conclusion

The changes in swap arrangements that I have discussed have had some positive effects on dollar funding markets. After the announcement of the changes at the end of November, draws on the swap lines increased considerably, peaking at \$109 billion in mid-February, and measures of the cost of dollar funding declined. In recent weeks, reflecting the improvement in market conditions, usage of the swap lines has fallen back to about \$65 billion.

That being said, many financial institutions, especially those from Europe, continue to find it difficult and costly to acquire dollar funding, in large part because investors remain uncertain about Europe's economic and financial prospects. Ultimately, the easing of strains in

U.S. and global financial markets will require concerted action on the part of European authorities as they follow through on their announced plans to address their fiscal and financial difficulties. The situation in Europe is continuously evolving. Thus, we are closely monitoring events in the region and their spillovers to the U.S. economy and financial system.

Thank you again for inviting me to appear before you today. I would be happy to answer any questions you may have.

EXPERT COMMENTARY

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GLOBAL FIAT CURRENCY COOPERATION

The Supremacy of the Dollar

The global fiat currency cooperation is organized by the Federal Reserve (FED) in a form of hegemonic cooperation (Mises 1998, 196). In practice, the FED is the world's central bank.

The hegemony of the FED is explained by the role of the dollar as the world reserve currency and the political power of the U.S. government. Due to the wealth created by the economic liberty³⁸⁵ that exceeds the one most other countries enjoy, the U.S. government could command enough resources to be the determining factor in two world wars. The U.S. have been maintaining the most powerful army with troops stationed in approximately 130 countries around the globe (Politifact 2011). Its defense budget is almost as high as that of all other countries combined (U.S. military spending is currently at 41% of the world military spending, Stockholm International Peace Institute 2011).

The military and political power has been used to impose a dollar based global fiat currency regime after World War II when the British

³⁸⁵ The size of the US economy is another important reason for the dollar being world reserve currency. The US has the biggest and most liquid financial markets. However, the economic factor alone does not explain why foreign central banks hold on to continuously depreciating dollar reserves.

Empire faded. Along the British political and military power the British pound, the former world reserve currency, lost its status. At the same time the U.S. emerged as world power number one (Hoppe 1990) and with it the dollar as the world reserve currency.³⁸⁶

The Bretton Woods System designed in 1944 made the dollar the backbone of the international monetary system. Currencies maintained fixed exchange rates to the dollar which was still linked to gold; and in fact, the only currency redeemable into the yellow metal. Foreign central banks did not exchange their own currencies into gold, but they could redeem dollars into gold at the FED. In this system central banks expanded their reserves on top of dollar reserves, which supposedly were as good as gold.

The Bretton Woods System allowed the U.S. to import goods and services in exchange for dollars that would accumulate in the vaults of foreign central banks or in the hands of private persons living in high inflation countries. A steady flow into the U.S. of goods and services in exchange for dollars developed. The great advantage for the U.S. government was and still is that due to the status of the dollar, part of the costs of money production could be externalized on foreigners. Foreign governments accepted the system not only due to the economic status of the U.S. as the largest economy, but mainly due to the political power and pressure by the U.S. government.

Allied governments that hoped for protections were pressured to accumulate and hold on to their dollar reserves, in the same way that Great Britain in its heydays had ensured that countries under its influence held pound reserves. In the famous Blessing letter of 1967, the President of the Bundesbank Karl Blessing assured his U.S. colleague that Germany would not redeem dollars into gold in order to “support” the U.S. with the cost of American troops occupying Germany. Indeed, the countries with the highest number of U.S. troops, Germany and Japan, were the most “loyal” to their dollar reserves and did not redeem their reserves massively against gold in the Bretton Woods System.

Despite of this loyalty the U.S. slowly lost gold reserves, as the government used the printing press to finance its expenditures such as the Vietnam War. It was French President Charles de Gaulle that gave the order to massively redeem French dollar reserves into gold. Thereby independent France, that also withdrew its troops from NATO command, contributed decisively to the end of the Bretton

³⁸⁶ On the substitution of the pound by the dollar as the world reserve currency see Schenk (2009).

Woods System. In 1971 U.S. President Richard Nixon broke the U.S.' redemption promises and the last links to gold disappeared.

Even though, the Bretton Woods System disappeared, U.S. dominance did not. Dollars that had not been redeemed into gold in time remained in the vaults of foreign central banks. Thanks to the U.S. economic and military power, the U.S. dollar still is the main world reserve currency. U.S. allies cannot be expected to massively sell its dollar reserves. Fittingly, countries that want military protection from the US, such as Japan, Taiwan and Saudi Arabia hold very high dollar reserves.³⁸⁷ As long as the U.S. hegemony lasts, the dollar is likely to remain the world reserve currency. The status of being the world reserve currency still allows the U.S. to enjoy advantages similar to the ones it enjoyed in the Bretton Woods System. By producing and exporting dollars the U.S. can partially finance its government and trade deficit.

Issuing the World Reserve Currency

The status of being the world reserve currency also implies that the central bank issuing this currency becomes the world central bank coordinating central bank cooperation. As dollars are held to a large extent outside the U.S. and are used in international transactions, international financial markets trade mainly in dollars.

One of the main businesses of banks today is maturity mismatching: Borrowing short and lending long. Banks have engaged in this practice extensively during the last 10-15 years and internationalized this practice. Indeed, banks' foreign claims increased from 2000 to 2007 from \$10 trillion to \$34 trillion (McGuire and von Peter 2009, 9). Banks borrowed dollars short term in international wholesale markets (from money market funds, in the interbank market or in the foreign exchange swap market) and invested them long term, by granting loans to companies or households. Maturity mismatching is quite risky, because if the bank cannot roll-over the short term debt, it gets into liquidity problems.³⁸⁸ It may be forced to fire sale its long term assets, incurring in losses

³⁸⁷ As an exception to the rule China, not a traditional U.S. ally, holds a lot of dollar reserves. These reserves stem from the deliberate undervaluation of the Chinese currency in order to foster export growth on cost of internal consumption. They are a result of a form of forced savings. China, in contrast, to allies as Japan, Taiwan or Saudi Arabia, could actually sell its reserves and put the dollar under enormous pressure in the future.

³⁸⁸ For an analysis of the causes and consequences of maturity mismatching see Bagus (2010a) and Bagus and Howden (2010).

and triggering solvency problems. These risks are alleviated if there exists a lender of last resort that will come to help in times of trouble. The global lender of last resort is the central bank that issues the reserve currency.

The FED as the Dollar Lender of Last Resort in the Financial Crisis

Banks world-wide played the game of maturity mismatching, because they expected that in case of emergency, a lender of last resort would come to rescue. The lender of last resort of the world reserve currency was the FED: The world central bank. During the financial crisis, the FED came to fulfill the expectations and bailed out the world financial system via two main instruments.

Dollar Liquidity Swap Lines

First, when international interbank lending showed the first signs of stress, the Fed instituted dollar liquidity swap lines with the ECB and the Swiss National Bank (SNB) in December 2007.³⁸⁹ In such a swap transaction, the FED sells dollars to the ECB or SNB and buys them back later at the same price, receiving interests. This construction resembles a dollar loan to the ECB or SNB. The ECB or SNB can then use these dollars to lend them to troubled Eurozone and Swiss banks.³⁹⁰

The institution of swap lines solved the predicament that, for instance, the ECB could not have saved European banks that were short on dollars. These banks owned long term dollar assets in dollars financed with short-term funding, i.e. they had a foreign currency funding gap. MacGuire and von Peter (2009) estimate that the short term dollar shortage of European banks in 2007 was between \$1 trillion and \$6.5 trillion.

When in 2008 investment banks Lehman Brothers collapsed, international short term liquidity dried up even more drastically, the

³⁸⁹ This is not the first incident where the Fed used swap lines to support the international banking system as it has employed this instrument already after the terrorist attacks of September 11, 2001 (Fleming and Klagge 2009, 3).

³⁹⁰ The same applies mutatis mutandis for the SNB.

FED doubled the swap lines in size, instituted new lines with additional central banks and lowered interest rates. Central bank cooperation continues also along other lines. In the beginning of October 2008 the FED, the ECB, the Bank of England, the SNB, the Bank of Japan, the Swedish Central Bank and the Bank of Canada in an unprecedented coordinated move lowered interest rates. Major central banks also lengthened maturities of their lending operations and expanded the range of collateral accepted.

By the end of 2008, the Fed had instituted swap lines with a dozen central banks: Reserve Bank of Australia, the Banco Central do Brasil, the Bank of Canada, Danmarks Nationalbank, the Bank of England, the European Central Bank, the Bank of Japan, the Bank of Korea, the Banco de Mexico, the Reserve Bank of New Zealand, Norges Bank, the Monetary Authority of Singapore, Sveriges Riksbank, and the Swiss National Bank (Federal Reserve 2011).³⁹¹ In mid October the FED opened the dollar floodgates totally and removed limits to the swap lines to the ECB, Bank of England, the Bank of Japan and SNB lending as many dollars as demanded at a fixed rate at 100 basis points over OIS. At its heights in December 2008, the Fed lent through its swap lines to foreign central banks about \$620 bn. (Goldberg, Kennedy and Miu 2011).

In sum, major central banks cooperated during the financial crisis to maintain the global fiat system afloat. If the system had broken down, their respective governments would have gotten into severe funding problems and, indeed, central banks could have lost their reasons to exist. It is all in the interest of central banks to cooperate.³⁹²

³⁹¹ While the FED provides lender of last reserve services to the world, other central banks have also lent to foreign national banks. The ECB provided euros to countries such as Hungary, Poland and Denmark via central bank swap lines. The Swiss National Bank provided swap lines to Poland and Hungary as well. The Norwegian, Danish and Swedish National Banks provided swap lines to the Central Bank of Iceland. While the dollar is the basis of the global fiat money system on which credit is expanded, there are additional layers of credit expansion on top of secondary reserve currencies such as the euro or the swiss franc.

³⁹² In practice this coordination was achieved through occasional meetings and phone calls (Bernanke 2008). The main coordination occurred between Bernanke and Trichet. One reason why the U.S. government favored and supported the introduction of the euro was that with the

Dollar Lending to U.S. Subsidiaries of Foreign Banks

Second, during the financial crisis between 2007 and 2009 (Kuntz and Ivry 2011), European banks were bailed out by the FED through secret emergency loans to their subsidiaries in the United States (Bloomberg 2011). For instance, a subsidiary of Deutsche Bank in the U.S. could take mortgage backed securities and offer them as collateral for a new dollar loan from the FED.

Of course, these bailouts were not altruistic. In a fractional reserve fiat currency system (also in its global variety), a central bank has to bail out important banks if it wants to maintain its power. Important banks are “too big to fail” in the sense that their collapse threatens through bank’s interconnectivity and general losses of confidence, the very stability of the system. The system depends on the confidence that the central bank will bailout the banking system. In other words, if the dollar based global fiat currency regime was to be maintained, and a general panic with mass bankruptcies be prevented, the FED had to bail out foreign banks in its role of the world’s central bank. A collapse of the world financial system could mean the end of the dollar as the main reserve currency, and thereby mean the end of the advantages derived from it. Without the dollar privilege, the U.S. government would have had to downsize importantly.

Another Covert Bail Out

After drowning the market with liquidity, the financial crisis was stalled in 2009 and conditions improved. In February 2010 central bank swap lines expired. However, already two months later in May 2010, the FED reestablished swap lines with the Bank of Canada, the Bank of England, the European Central Bank, the Bank of Japan, and the Swiss National Bank. This time the liquidity problem had its source in Europe.

But why did European banks need help from the FED again? European banks had continued to borrow dollars short term in international wholesale markets and lent these dollars for the long term to US companies or households. Again, the maturity mismatch

euro monetary coordination between the U.S. and Europe got easier. Bernanke only had to call Trichet instead of calling the presidents of the different central banks in today’s Eurozone.

is highly risky, because once a bank cannot renew its short-term debts it becomes illiquid.

The situation of European banks deteriorated in 2010 and 2011.³⁹³ European banks had been pressured by their governments to buy their governments' debts. Italian banks are loaded with Italian government bonds, Spanish banks with Spanish bonds and so on. As the sovereign-debt crisis increased once again in the summer of 2011 with governments short of collapsing, European banks had increasing difficulties renewing their short-term loans in wholesale markets. Quickly the ECB provided the missing short-term euro liquidity. However, as the ECB can only print euros, not dollars, European banks got nervous. While US banks did not want to lend to European banks anymore, in November 2011, the FED stepped in and reduced the swap rate from the U.S. dollar OIS rate plus 100 basis points to the OIS rate plus 50 basis points. Effectively, the FED bailed out European banks and assumed its role as the international lender of last resort again.

This time the FED abstained from the second option: emergency loans to European bank subsidiaries in the U.S. since when these FED loans to foreign banks had been made public the FED had received harsh critics for having helped foreign financial institutions. Thus this time the FED used exclusively instruments that were less direct and obvious such as liquidity swap lines with foreign central banks in a covert bailout of European banks (O'Driscoll 2011).

Interestingly, in a March 2012 meeting of the Committee of Financial Services FED officials did not deny the bailout of European banks by the FED. Rather, they claimed that the bailouts are basically a free lunch for U.S. taxpayers, as they would get an almost-risk-free benefit in the form of the interest on the swap.

Further, the FED officials maintained that the bailout was necessary because a default of European banks would cause stress in financial markets. Through the interconnectivity of financial markets, U.S. banks would get into problems; lending to US households and companies would be affected negatively.

³⁹³ For an overview of the European sovereign debt crisis see Bagus (2010).

Lastly, they made assurances that the FED would end the swap-bailout policy once it becomes imprudent and the costs and risks of such a policy exceed the benefits for the US public.

Let's have a look at these startling arguments.

First, there ain't no such a thing as a free lunch; not even for the FED, the ultimate money producer. Just remember that US banks did not want to lend to European banks, because they regarded it as too risky. Even the central-bank swap is not risk free. It is true that the FED has locked in the exchange rate and expects to get back the same amount of dollars plus interest. Yet there remains counterparty risk: what if the ECB, goes bust? Then the creditors, including the FED, will take over the ECB's assets. Creditors would receive assets such as Greek government bonds, or loans to Portuguese banks. These banks depend on ECB liquidity lines and are collateralized by bonds issued by the Portuguese government, which also depends on the ECB to support it.

In the end, the ECB balance sheet is backed to a large extent by bonds from insolvent governments that are only kept afloat thanks to the ECB's promises to keep printing money and the pledged support of German taxpayers.

While an ECB bankruptcy does not seem imminent, the ECB has increased its capital to make good for potential losses already back in 2010 (ECB 2010), and the Bundesbank increased its provisions for losses in 2011 (Mallien 2012). In the mean time, the ECB has bought even more Greek government debt. The ECB is probably one of the most highly leveraged banks in history.

Of course, the FED hopes that eurozone governments will always recapitalize the ECB if it is necessary, so that ultimately taxpayers return the dollars to the FED. But what if Germany leaves the eurozone? While this is unlikely in the short term, the possibility exists for the long run. Then southern European governments will default on their debts — and take their banks and the ECB down with them. Then who will pay back dollar swaps to the FED?

The swap is also no free lunch as opportunity costs are involved. By abstaining from producing dollars and lending them to the ECB, the US-dollar money supply would be smaller or backed by better-quality assets (not indirectly by Greek government bonds). The dollar

production also implies a redistribution toward the first receivers of the new dollars, the ECB, European banks, and their borrowers (mainly irresponsible and insolvent governments) to the detriments of the last receivers, mainly US citizens, who are confronted with a debased dollar.

There are other opportunity costs. The FED could have produced the same amount of dollars and not invested in the central-bank liquidity swap lines. These swaps earn very low interest. Instead of the swaps, the FED could have purchased other assets, like stocks of Apple or gold, which may rise more in value.

One cost of the swap operation acknowledged by the officials in the hearing is the moral hazard created. Banks and governments worldwide may expect that the FED will come to save them, too, especially if they are well connected with the US financial system. So why be prudent?

The highest cost of the swaps, though, may be something else. Through the swaps, the FED is helping the ECB to bail out European banks that finance insolvent and irresponsible governments. The FED is indirectly bailing out countries like Greece, Portugal, and Spain, debasing the dollar with unlimited swap lines. The FED has promised to print unlimited amount of dollars and lent it to insolvent European banks via the ECB. Thanks to the bailouts, the political project of the euro continues. Without the swaps, some European banks might have failed, and with them their sovereigns. Thanks to the swaps, the eurozone stays intact.

The project of the euro leads to an ever-increasing rescue fund, and gradually toward a fiscal union and more centralization. A European financial government and the European super state, which would most likely abolish tax competition in Europe, are on the horizon. The highest cost of the FED policy, therefore, may be liberty in Europe.

The FED officials also made clear that they think the swap arrangement benefits the US public by keeping stress away from US banks and financial markets. The FED does not want stock markets to fall or interest rates to increase. For them, low interest rates are the panacea for all economic ills. However, having artificially low interest rates climb back to more normal levels is no disaster.

Sustainable investments are always restricted by real savings. Lowering interest rates does not increase the amount of real savings at all. Moreover, an important feature of a market economy is that people take responsibility for their actions. If US banks have granted loans to European banks and governments, they should assume the losses from their risky behavior.

Finally, the FED claims to be prudent. But how can the FED know the point at which it is no longer prudent to bail out foreign banks? How can it know when the costs of the bailouts start to exceed the benefits to the US public? How can they know what is best for the United States? Interpersonal-utility comparisons are arbitrary. Thanks to the bailouts, some banks may win, some stock owners may win, but at the cost of liberty in Europe and to the detriment of dollar users. Moreover, bailouts produce moral hazards, crises, and losses for individuals in the future. Yet the FED claims to know what to do: social engineering at its best — or, as Hayek would put it, a fatal conceit on the part of central (banking) planners.

Conclusion

International central bank cooperation is coordinated by the FED, which issues the world reserve currency. The dollar is not only a reserve asset for central banks, it is also the currency of international financial transaction implying important advantages for the producers of dollars who can externalize part of the costs of money production on foreigners. To maintain the fragile fractional reserve fiat currency system, the FED has to act as a lender of last resort, thereby contributing to its instability encouraging risky behavior and financing indirectly government spending.

As the financial crisis and the European debt crisis illustrate, the FED cooperates with other central banks in stabilizing the global fiat currency system. To this effect, the FED provided emergency loans to European banks and installed liquidity lines for foreign central banks. In short, the FED has assumed the task of bailing out the financial industry and governments worldwide by debasing the dollar.

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*H*EARING XIII.

**INVESTIGATING THE GOLD: H.R. 1495,
THE GOLD RESERVE TRANSPARENCY
ACT OF 2011 AND THE OVERSIGHT OF
UNITED STATES GOLD HOLDINGS**

THURSDAY, JUNE 23, 2011

WITNESSES

Thorson, Hon. Eric M., Inspector General, U.S. Department of the
Treasury

Engel, Gary T., Director, Financial Management and Assurance,
U.S. Government and Accountability Office

BACKGROUND

The Subcommittee on Domestic Monetary Policy and Technology held a hearing entitled “Investigating the Gold: H.R. 1495, the Gold Reserve Transparency Act and the Oversight of United States Gold Holdings” at 2:00 p.m. on Thursday, June 23, 2011 in Room 2128 of the Rayburn House Office Building.

H.R. 1495 requires the Department of the Treasury to assay, inventory, and audit gold reserves held by the United States government. This hearing focused on previous audits of U.S. gold reserves; the methodology for conducting the audit called for by the legislation; the proposed review of that audit by the U.S. Government Accountability Office (GAO); and possible improvements to the legislation.

This was a one-panel hearing with the following witnesses:

- The Hon. Eric M. Thorson, Treasury Department Inspector General (Treasury IG)
- Gary T. Engel, Director of Financial Management and Assurance, GAO

Summary of the Legislation

H.R. 1495, the “Gold Reserve Transparency Act of 2011,” was introduced on April 12, 2011 by Subcommittee Chairman Paul and was referred to the Domestic Monetary Policy Subcommittee. The bill directs the Secretary of the Treasury to complete a full accounting of the U.S. government’s gold reserves within six months of date of enactment of the legislation. The bill requires the Treasury Department to take a full inventory of the U.S.’s gold reserves; assay the reserves; and then conduct a full audit. The Treasury Department is directed to visit all locations where gold reserves are

held, and to assess the sufficiency of measures taken to ensure the security of the reserves.

After the Treasury Department completes its audit of the U.S.'s gold reserves, the bill directs the GAO to review the Treasury Department's work and to report to Congress within nine months with any additional findings regarding the state of the gold reserve. The legislation grants the GAO access to any facility where gold reserves are held. The bill also directs the Treasury Department to give the GAO full access to any relevant material pertaining to its review of the gold reserves.

Gold in the Monetary System

Like most other countries in the eighteenth century, at its founding the United States monetary system was based on gold and silver coins. In 1933, President Franklin Roosevelt, under Executive Order 6102, criminalized the possession of gold coins, gold bullion, and gold certificates. All individuals, with very minimal exceptions, were required to surrender their gold coins, bullion, and gold certificates to the Federal Reserve Banks or member banks of the Federal Reserve System. Thereafter any privately-held gold certificates, United States Notes, Federal Reserve Notes, National Bank Notes, or gold-denominated savings bonds were no longer redeemable for gold. In 1934, all gold held by the Federal Reserve System was ordered to have its title transferred to the federal government. The overwhelming majority of the 261.5 million troy ounces of gold owned by the United States is from this transfer of gold from the people to the government in the 1930s.

From that point on, only foreign governments could redeem their dollars for gold. This practice, however, ended on August 15, 1971, when President Nixon took the U.S. entirely off the gold standard by closing the U.S. government's "gold window," thereby preventing other central banks from converting the dollar to gold directly.

In the current international monetary regime, gold no longer plays a role as money, and members of the International Monetary Fund (IMF) are even forbidden from linking their currencies to gold. As a result, gold is now primarily used as one of many assets held by national central banks. Despite the lack of an official monetary role for gold, many countries hold gold reserves in significant quantities to defend the value of their currencies and to hedge against the dollar, which forms the bulk of their liquid currency reserves. Because gold is sufficiently scarce and can be easily traded, it has served as a store of value, a unit of account, and a medium of exchange for millennia,

and does not appear to have lost this standing even in a global fiat monetary system.

Despite the demonetization of gold by President Roosevelt and subsequently President Nixon, the U.S. Mint still issues a number of gold commemorative coins and investment-grade bullion coins in gold, silver, and platinum. The U.S. gold coins issued today by the Mint bear nominal face values that are not at all indicative of the commodity value of the gold contained in the coin. Bullion coins are sold for a price that includes the spot price of the metal plus a small manufacturing fee, while commemorative and collector versions have an additional markup.

Gold Holdings of the U.S. Government

The United States government is the world's largest single holder of gold, with 261.5 million fine troy ounces³⁹⁴. The majority of the gold is held in the form of 700,000 bars, many of which were made by melting gold coins collected after President Roosevelt's gold seizure in 1933. Some of the gold is in the form of coins held for historic or exemplar purposes.

About 95 percent of the United States government's gold stock is held in three deep storage vault locations, the most famous of these storage locations being in Fort Knox, KY; The other storage facilities are the U.S. Mint's production facility in Denver, CO, and the Mint's production facility at West Point, NY. Small amounts of gold are held in the Mint's production facility in Philadelphia and in the Mint's headquarters in Washington, DC. The precise amount of gold held by the Mint varies because it uses some of its gold to produce bullion coins and collector coins, which it then sells. The gold it uses to make coins is processed, sold, and replaced. Otherwise the U.S. stock has been relatively stable since the early 1970s.

The Federal Reserve Bank of New York stores 5 percent of the United States government's gold holdings in its vault. The New York Fed also holds gold on behalf of other governments or central banks, although that amount has been steadily dropping and does not count as part of the total U.S. gold stock.

The Federal Reserve once held sizeable stocks of physical gold with which to back the Federal Reserve Notes it issued, it was forced to surrender this gold stock to the Treasury in 1934, and now owns no

³⁹⁴ Gold is weighed in troy ounces rather than the avoirdupois ounces to which most Americans are accustomed. One troy ounce is 480 grains, or roughly 31.1 grams, while a troy pound is 12 troy ounces; an avoirdupois ounce is 437.5 grains, or around 28.35 grams, while an avoirdupois pound is 16 avoirdupois ounces (7000 grains).

gold. The Federal Reserve today carries on its books gold certificates issued by the Treasury in exchange for that gold surrendered by the Federal Reserve. The certificates are valued at about \$11 billion, or \$42.22 per ounce of gold surrendered.

The gold held by the United States government is officially valued for accounting purposes at \$42.22 per ounce. Gold had been officially valued at \$35 per ounce until President Nixon closed the gold window in 1971. Thereafter the dollar was officially devalued by revaluing gold at \$38 per ounce, and then again at \$42.22 per ounce in 1973. Even at that time the official accounting price was significantly under the market price of gold. At the time this hearing was held, the market price for gold was over \$1500 per ounce. In 2012, the market price for gold peaked near \$1800 per ounce.

Storage and Custody of U.S. Gold Holdings

The U.S. Mint is the custodian of a significant portion of the United States government's gold and silver reserves. "Deep storage" is the U.S. gold and silver bullion reserve secured by the U.S. Mint in sealed vaults, which comprises the vast majority of U.S. reserves and consists primarily of gold bars. The U.S. Mint prepares the custodial schedule for the deep storage gold and silver reserves, establishes and maintains internal controls for securing the reserves, and is responsible for complying with laws and regulations applicable to its custodial responsibilities for the reserves.

In October 2010, the Treasury Department's Inspector General released a report on its audit of the U.S. Mint's deep storage gold reserves.³⁹⁵ The Treasury IG concluded that in all material respects, the balance of the deep storage gold and silver reserves in Mint custody were in conformity with U.S. generally accepted accounting principles. The Treasury IG also rendered an unqualified opinion that there were no material weaknesses related to internal control over financial reporting and no instances of reportable noncompliance with laws and regulations.

Unfortunately, these regular financial audit reports from the Treasury IG show a limited picture of the condition of the U.S. gold holdings, focusing solely on an examination and approval of financial statements. They do not detail important information such as the last

³⁹⁵ Department of the Treasury Office of Inspector General, "Audit of the United States Mint's Schedule of Custodial Deep Storage Gold and Silver Reserves as of September 30, 2010 and 2009," Oct. 21, 2010, available at <http://www.treasury.gov/about/organizational-structure/ig/Documents/oig11004.pdf>.

time it was assayed (examined for purity) or inventoried. As a result, the condition of the U.S. gold holdings has been a topic of much debate, prompting questions as to whether the gold is encumbered in financial transactions, whether its quality is accurately reflected on financial statements, and, for some, whether it is even in the vaults at all.

It was not until the preparation for this hearing that a more complete picture emerged as to the audits that have been conducted and the condition of the gold reserves. While not available in any widely distributed reports, the U.S. Mint and other Federal agencies have been performing audits of the U.S. gold holdings periodically since 1975.

Gold Audit Timeline

In preparation for this hearing, the Treasury IG reported that between 1975 and 1986 an extremely thorough audit of the gold storage vaults was conducted: the vaults were inventoried, some bars were assayed on a random basis, and those results were audited. The vaults then were sealed with tamper-proof seals, signed by representatives of the U.S. Mint, the bureau that was the predecessor of the Treasury Department's Financial Management Service, and the Federal Reserve Bank of New York, all of whom were present for the entire audit process. This audit covered roughly 92 percent of the gold in the custody of the Mint.

After 1986 gold audits and inventories continued but were conducted solely by the Mint, without independent parties present for the sealing of the vaults. In 1993, the Treasury IG began conducting inventories again, and between 1993 and 2008 the OIG examined the 8 percent of the Mint's gold holdings not audited during the 1975-1986 audits. Another 13 percent of the gold was examined during this period for a total audit of roughly 21% of the Mint's custodial gold. In the process, the vaults were inventoried, bars were assayed on a selective basis, the results audited, and the vaults sealed and signed. Seals from the 1975-1986 audits were reviewed and some of the older ones were replaced where they were found to have begun deteriorating.

According to the U.S. Mint, all of the United States' gold reserves (aside from those held at the New York Fed) have thus been audited, inventoried, and assayed, and the vaults in which the reserves are held have been sealed. The gold cannot be moved out of the vaults without breaking the seal. If a seal needs to be replaced for any reason – if, for example, a light bulb in a vault burns out and

must be replaced – the Treasury IG must witness the old seal being broken and the affixing of a new one.

In 2012, the U.S. Mint undertook an audit of the gold held at the Federal Reserve Bank of New York. As of December 2012, the results of that audit were not made available to the public.

*T*RANSCRIPT

The subcommittee met, pursuant to notice, at 9:31 a.m., in room 2128, Rayburn House Office Building, Hon. Ron Paul {chairman of the subcommittee} presiding.

Members present: Representatives Paul, Jones, Luetkemeyer, Huizenga, Schweikert; Clay, Maloney, and Green.

Chairman PAUL. This hearing will come to order. Without objection, all members' opening statements will be made a part of the record.

I will start with my opening statement and proceed to anybody else who is anxious to do the same.

For far too long, the United States Government has been less than transparent in releasing information relating to its gold holdings. Not surprisingly, this secrecy has given rise to a number of theories about the gold at Fort Knox and other depositories.

Some people speculate that the gold has been involved in gold swaps with foreign governments or bullion banks. Others believe that the gold has been secretly shipped out of Fort Knox and sold. And, still others believe that the bars at Fort Knox are actually gold-plated tungsten.

Historically, the Treasury and the Mint have dismissed these theories rather than addressing these concerns with substantive rebuttals. No one from Congress has been allowed to view the gold at Fort Knox in nearly 40 years. Recent photographs of gold holdings seem to be hard to come by. And the Mint and the Inspector General's audit statements contain only the bare minimum of information.

Because the Government has for so long refused to provide substantive information on its gold holdings, it is not surprising that so much confusion abounds, both within and without the Government.

The difference between custody and ownership, questions about the responsibility for U.S. gold held at the New York Fed, and that issue of which division at Treasury is ultimately responsible for the gold reserves are just some of the questions that have come up during the research for this hearing. In a way, it seems as though someone decided to lock up the gold, put the key in a desk somewhere, and walk off without telling anyone anything.

Only during the preparation for this hearing was my office informed that the Mint has in fact conducted assays of statistically representative samples of gold bars, and we were provided with a sample assay report.

This type of information should be reported, or at least tabulated and published, so that the public knows exactly how many bars of gold exist, what their fineness is, and whether they are encumbered in any way through loans or swaps.

While the various agencies concerned have been very accommodating to my staff in attempting to shed some light on this issue, it should not require the introduction of legislation or a congressional hearing to gain access to this information. This information should be published and available to the American people.

This gold belongs to the people, especially since much of it was forcibly taken from them in the 1930s, and the Government owes it to the people to provide them with the details of these holdings.

We would greatly benefit from a full, accurate inventory audit and assay with detailed explanations of who owns the gold and who is responsible for ownership, custody, and auditing.

While the Mint and the Inspector General trust the accuracy of the audits performed between 1975 and 1986, this still means that at least two-thirds of the gold reserves were last audited over a quarter century ago. Surely, a full audit every 25 years is not too much to ask.

I look forward to the testimony of the witnesses regarding the conditions of the gold reserves, the accounting audits that are regularly performed, and the inventories and assays that have been conducted on some of this gold over the years.

I am also very interested to hear the comments on the Gold Reserve Transparency Act, so that we may put forward a measure that provides the public with accurate and complete information on their gold.

I yield back the remaining time of my 5 minutes, and yield to Mr. Clay for his 5 minutes.

Mr. CLAY. Thank you, Mr. Chairman. And thank you for holding this hearing, entitled, "Investigating the Gold: H.R. 1495, the Gold

Reserve Transparency Act of 2011 and the Oversight of United States Gold Holdings.”

I, too, look forward to the witnesses’ testimony.

And I also noted that in the Treasury Inspector General’s written testimony, he wrote that the IG is required by law to perform an annual audit of the Mint public enterprise fund’s financial statements. And those statements include the balance of custodial deep storage gold reserve held by the Mint.

It seems as though there is already an annual audit that both the IG and the GA believe is required of them.

However, Mr. Chairman, one other suggestion is perhaps we, as a subcommittee, may consider taking a tour of Fort Knox and the other place or places that house the gold and really witness for ourselves if it is going—I don’t know if that would be enough to determine if the gold is authentic.

But, it may be something for the committee to consider. So I look forward to the witnesses’ testimony. And, again, I thank the chairman.

Chairman PAUL. I thank the gentleman. I also thank the gentleman for his suggestion. I think it is a good idea to go and at least show our interest. But I personally would feel like I would have shortcomings on looking at a bar and knowing exactly what I was looking at. But there is no reason why we can’t at least consider that as a starting point.

Would any other member like to make an opening statement?

Okay. I will proceed to the witnesses.

I would like introduce our two witnesses. Mr. Gary Engel is the Director of Financial Management and Assurance at the Government Accounting Office. He directs GAO’s annual audit of the U.S. Government’s consolidated financial statements, as well as audits of key financial statements at the Department of the Treasury.

And I want to welcome Mr. Engel, as well as the honorable Eric M. Thorson, who has been the Inspector General of the Department of the Treasury since 2008. He manages oversight of the Treasury through independent audits, investigations, and review.

And we will go ahead and proceed with the testimony of Mr. Thorson.

**STATEMENT OF THE HONORABLE ERIC M. THORSON³⁹⁶
INSPECTOR GENERAL
U.S. DEPARTMENT OF THE TREASURY**

³⁹⁶ [The prepared statement of Inspector General Thorson can be found on page 1432.]

Mr. THORSON. I thank you for the opportunity to appear before you this afternoon.

My testimony will cover the audits done by my office on the United States Mint's Schedule of Custodial Deep Storage Gold Reserves. Hereafter, I will mostly refer to them simply as the gold reserves.

Before I discuss the details of the audits that are the topic of this hearing, I want to make one point very clear: 100 percent of the

U.S. Government's gold reserves in the custody of the Mint has been inventoried and audited. Furthermore, these audits found no exceptions of any consequence.

I also want to assure you that the physical security over the gold reserves is absolute. I can say that without any hesitation, because I have observed the gold and the security of the gold reserves myself.

Accordingly, the requirements of H.R. 1495, which calls for a full assay, inventory, and audit of gold reserves of the United States, together with an analysis of the sufficiency of the measures taken for the security of such reserves, is redundant of audit work already done.

Since 1993, my office has performed annual audits of the Government's deep storage gold reserves held by the Mint. In fact, our Fiscal Year 2011 audit of the gold reserves is currently under way.

My testimony today will briefly describe what the Mint gold reserves include, and the annual audits performed by my office since 1993.

The Mint maintains its storage gold reserves in three highly secure locations: Fort Knox, Kentucky; West Point, New York; and Denver, Colorado. While it would be inappropriate for me to discuss the details of the security arrangements in place at these facilities, I can tell you that they are multilayered and include substantial physical barriers, armed guards, cameras, and metal detectors.

In all, 42 compartments at these 3 hardened facilities hold 699,515 gold bars with a fineness or purity ranging from 0.47 to 0.9999, with an average fineness of 0.9006.

As of September 30, 2010, the audited quantity of the gold reserves held by the Mint was over 245 million fine troy ounces, weighing over 9,300 tons, with a market value of \$320.6 billion. I might add that each gold bar weighs about 27 pounds and has an average value of about \$0.5 million.

In June 1975, the Treasury Secretary authorized and directed a continuing audit of U.S. Government-owned gold for which Treasury is accountable. Pursuant to that order, the Committee for Continuing

Audit of the U.S. Government-owned Gold performed annual audits of Treasury's gold reserves from 1975 to 1986, placing all inventoried gold that it observed and tested under an official joint seal.

The committee was made up of staff from Treasury, the Mint, and the Federal Reserve Bank of New York. The annual audits by the committee ended in 1986 after 97 percent of the Government-owned gold held by the Mint had been audited and placed under official joint seal.

It should be noted that during the entire period of these audits and up to today, no discrepancies of any consequence have ever been found.

This is an example of the seal—and I have put pictures of these in my testimony. This is an actual seal that came off one of the compartments.

My office began conducting annual audits of the gold reserves in Fiscal Year 1993. Since 2005, these audits have supported the annual audits of the Treasury Department's consolidated financial statements, which incorporate the balances of the gold reserves held by the Mint.

The financial statement audit is performed by KPMG under contract with my office. KPMG has relied on our audits of the gold reserves when rendering its opinions on the Mint's and Treasury's financial statements. They have assured themselves as to the independence, reputation, and qualifications of my audit staff.

In addition, they have satisfied themselves with the adequacy of the audit procedures performed. The audit work performed by both my office and KPMG is done in accordance with Government auditing standards established by the GAO.

Since 1993, when we assumed responsibility for the audit, my office has continued to directly observe the inventory and test the gold. In fact, my auditors signed the official joint seals—such as the one I showed you—placed on those compartments, inventoried and tested in their presence.

At the end of Fiscal Year of 2008, all 42 compartments had been audited by either the GAO, the Committee for Continuing Audit of the U.S. Government-owned Gold, or my office, and placed under official joint seals. There has not been any movement of inventoried gold since that time.

Furthermore, in addition to observing the inventory of the gold for all of the audit periods, we selected and tested a statistically valid random sample of gold bars using a 95 percent confidence level. We found, without fail, that any differences between the fineness

reported by the Mint and the fineness based on our independently obtained assay reports were immaterial and negligible.

For example, during our Fiscal Year 2008 audit, we sampled gold valued at \$75 million. Based on the independent assay of those samples, we projected the dollar value of the difference, based on the assay report and the Mint's inventory records, to be \$3,820, or 0.005 of 1 percent of the gold inventory.

As discussed earlier, by the end of Fiscal Year 2008, all of the gold reserves in the Mint's custody had been 100 percent inventoried and audited.

In closing, based on the work performed by my office and by my own personal observations, I can assure the subcommittee and, as you said, sir, the American people, that both the quantities and the value of the U.S. Government's deep storage gold reserves held and reported by the Mint are reliable and fully audited. I mentioned the American people because, as you said, sir, they own this gold.

The reason we go through all of the procedures that I just mentioned is to give the American people the absolute confidence that the gold reserves are as represented. Fort Knox, for instance, isn't just a huge stockpile of gold. It is also a symbol of the stability and financial soundness of their Government.

To create doubt about the value or the security or even the very presence of the gold reserves without reason contributes to the distrust in Government that seems to be a growing trend today.

It is the obligation of every Inspector General to report to the Congress, and to the public, areas of concern that need to be fixed. But I believe it is also my obligation to report to you when something is being done right, and that is the case here today.

That concludes my statement.

Chairman PAUL. I thank the gentleman, and we will proceed with Mr. Engel.

**STATEMENT OF GARY T. ENGEL³⁹⁷
DIRECTOR, FINANCIAL MANAGEMENT AND ASSURANCE,
U.S. GOVERNMENT ACCOUNTABILITY OFFICE (GAO)**

Mr. ENGEL. Thank you, Mr. Chairman, Ranking Member Clay, and other members of the subcommittee. I am pleased to be here today to discuss H.R. 1495, the Gold Reserve Transparency Act of 2011.

As of September 30, 2010, about 95 percent of the reported U.S. gold reserves were in the custody of the Mint, of which nearly all is

³⁹⁷ [The prepared statement of Mr. Engel can be found on page 1444.]

deep storage gold. The remaining U.S. gold reserves were in the custody of the Federal Reserve Bank of New York.

In 1974, in response to congressional interest and in conjunction with the Mint, GAO assisted in the planning and observed the inventory of U.S. gold reserves in the depository at Fort Knox. GAO selected and audited 3 of the 13 compartments at that depository.

As part of this audit, GAO recommended that a cyclical inventory of the gold in Mint custody be performed annually to ensure that the gold in all compartments would be inventoried over a specified period of years.

Acting on this recommendation, in 1975 Treasury established the Committee for Continuing Audit of the U.S. Government-owned Gold. Treasury OIG officials estimate that about 92 percent of the

U.S. gold reserves have been audited by either GAO or the Committee for Continuing Audit as of September 30, 1986. Of this percent, GAO's audit in 1974 represented about 13 percent.

More recently, the U.S. gold reserves have been presented in various financial reports and have therefore been subject to various audit efforts. For example, since issuing its audit report covering the Mint's custodial schedule for Fiscal Year 1993, the Treasury OIG has annually audited the deep storage gold reserves in the custody of the Mint.

For each of the fiscal years under audit, the Treasury OIG has issued a clean opinion on the Mint's custodial schedules. Also, the Treasury OIG did not report any material weaknesses in internal control over financial reporting relating to these schedules for those fiscal years.

1495 provides for the Secretary of the Treasury to conduct and complete a full assay, inventory, and audit of the U.S. gold reserves, and an analysis of the sufficiency of the measures taken for the security of such reserves. In considering the provisions of H.R. 1495, it will be important to consider the cost, benefit, and timing of actions needed to implement the proposed requirements.

1495, if enacted, may result in duplication of certain past and current efforts. Nevertheless, GAO would be capable of reviewing the results of Treasury's actions as called for in the bill, should it be enacted. GAO's review would include visits to the facilities where the gold reserves are held to selectively observe the inventorying and the auditing of the gold. We would also examine various documentation supporting the required assay, inventory, and audit.

1495 also provides for GAO to transmit to the Congress not later than 9 months after enactment of the Act a report of GAO's findings

from such review and the results of Treasury's efforts. According to Treasury officials, because of the enormous quantity of gold that would need to be inventoried and assayed, it is unclear whether Treasury can complete such actions within the 6-month period provided for in H.R. 1495.

If Treasury's efforts are not completed within this period, there would be limitations on the scope of GAO's work if GAO were still to be required to report out within the 9-month period.

GAO stands ready to work with the subcommittee on developing changes to the provisions of H.R. 1495 that would most efficiently utilize the results of past and current gold reserve assay, inventory, and audit efforts.

Mr. Chairman, and Ranking Member Clay, this concludes my prepared remarks. I would be pleased to answer any questions that you may have.

[QUESTIONS & ANSWERS]

Chairman PAUL. I thank the gentleman.

I will start off with yielding 5 minutes to myself for questions. I wanted to ask both of you this question. It has to do with what is happening in New York, because that has been a little more difficult to understand.

There is a lot of uncertainty surrounding who has responsibility of the gold reserves held at the New York Fed. You did mention it in your testimony, but conversations with the Mint and the Office of the Inspector General, the main Treasury and the New York Fed, have all resulted in one or the other of these entities saying to check with the other, so we never got a full answer.

The OIG has stated that it does receive financial statements from the New York Fed attesting to the gold held in storage there for purposes of their financial statement audits. However, there seems to be no definite answer as to who has the responsibility for the New York Fed gold, and no one seems to know the last time it was assayed or inventoried.

A common rejoinder has been that it is just a small part of the gold reserves; it is only 5 percent. But when you look at the total amount of gold we have, 5 percent is pretty significant, because it is more than 13 million ounces of gold. And at \$1,500 an ounce, we are talking about \$20 billion that seems to be floating around out there and we just really can't pin it down. I know we are used to talking in trillions, but this just seems like poor governance.

Could either of you comment on the New York Fed-held gold, whether it has been assayed or inventoried, and whether it deserves to be thoroughly examined, as the legislation calls for?

Mr. ENGEL. My understanding is that the gold reserves in the Federal Reserve Bank of New York have not been assayed. That is just based upon my reading of reports, not from work that GAO has done. But it is also my understanding from reading a Treasury OIG report from back in 1987, that pretty much 99.9 percent of the gold reserves that were in the Federal Reserve Bank of New York at that time—and I think that the amounts of fine troy ounces, when I looked, has not really changed to what it is now—were being audited over periods of time by the Federal Reserve examiners, and that those inventories had been observed by members of the Committee for Continuing Audit that we spoke of earlier.

Because it had not been assayed and because it is not under the control of that committee, they have not considered that as audited. But, there have apparently been inventories of it, and there have been observations of that inventory. The last report that I saw that said that was from back in 1986. So, I don't know what has been done since then.

Chairman PAUL. Thank you.

Mr. Thorson?

Mr. THORSON. You are correct that we don't audit that. It is done by a third-party confirmation, which is an accepted practice under audit. But it is the Treasury's gold—5 percent of it is there and it is really at this point is immaterial to the statement and the total numbers.

Chairman PAUL. It is immaterial?

Mr. THORSON. As an auditing term, I mean. It is not included in what we listed in the statements.

Chairman PAUL. But it is a relevant amount of gold, obviously?

Mr. THORSON. Right.

Chairman PAUL. Since this is held at the New York Fed, and the New York Fed is obviously very much involved in international arrangements during the financial crisis, essentially every single transaction to the tune of trillions of dollars that they transacted involved foreign central banks. And over the last decade or two, central banks have been very much involved in gold swaps and loaning gold and selling gold.

And to date, of course, we have no evidence that our Government has ever been involved. But it seems to me that if there was ever one place where they might have gotten involved, since the New York Fed

is involved in international transactions with—you probably don't have the answer on whether or not they did or did not—but could it be conceivable that they could have done it without your knowledge?

Mr. THORSON. I don't believe so, no. And as far as any encumbrances other than the gold certificates that are held by the Fed, we did ask that question before coming here. What I was told was as far as encumbrances, "Not one troy ounce is encumbered."

Chairman PAUL. Okay.

I yield back, and now I yield 5 minutes to Mr. Clay.

Mr. CLAY. Again, thank you, Mr. Chairman, for conducting this hearing. And let me thank both witnesses for your testimony today.

According to the U.S. Mint, which is the custodian of nearly 95 percent of America's gold reserves, the time required to move, weigh, assay, and re-store the bars of gold averages 6 minutes per bar with a team of 19 people. Now, the Mint points out that extrapolating that to 700,000 bars, as the legislation requires, would require nearly 1.3 million manhours of incremental labor.

Therefore, to complete the inventory of just the gold bullion bars within 6 months, as this proposal specifies, would require approximately 1,280 individuals. And we know that since this is a domestic issue that, Mr. Chairman, your leadership would require an offset, so we would have to find the money to do this since this is a domestic issue, and we have to pay for all of those things.

Would either of the witnesses view this bill as a prudent use of taxpayer funds?

Mr. Thorson?

Mr. THORSON. The numbers that you quote are probably—just on my unscientific judgment having been there—pretty accurate. It is a remarkably small area. It is really surprisingly so when you are actually standing there with the compartments. You are going to be able to use very few people in that area. I think you gave the figure of about 1,200 people? That is almost laughable when you actually see the space.

So that means it is going to take a great deal longer than what you would normally think. And if you could put 1,200 people together, have them move the bars, it is going to take a very long time.

I, obviously, as I said in my statement, don't see the benefit at any cost really. It is what we do; it is what we do every year. As I said, it almost loses its effect to stand there and actually see it all, because there is so much of it. It is there.

Mr. CLAY. Thank you for that response.

Mr. Engel, is this a good use of taxpayers' money, if this bill becomes law?

Mr. ENGEL. I think, as I said in our testimony, that we would be willing to work with the subcommittee on possibly building off of the assays, the inventories and audits that have already been done to address concerns that there may be things within these vaults that are no longer there.

I agree that they have been through an audit process. Auditors have checked these seals. But if the subcommittee wanted to have something done there, I would think we would be talking, rather than a full assay, maybe some sort of sampling, if you wanted to just get a feel that nothing has happened over the years since those vaults were sealed. But outside of that, it seems quite a bit redundant with what has already been done.

Mr. CLAY. All right.

I thank both witnesses for their responses.

And Mr. Chairman, I yield back.

Chairman PAUL. I thank the gentleman.

I yield 5 minutes to Mr. Jones from North Carolina.

Mr. JONES. Mr. Chairman, thank you very much.

And Mr. Engel, it is nice to see you. I had a very pleasant business relationship with Mr. Thorson on a number of issues. And I thank you for always being there to be helpful.

I think the reason that I wanted to be here to listen to the witnesses, and certainly my colleagues on both sides, is that as a Member of Congress, one of my biggest concerns is not so much the gold, whether it is there or not there. But it is the Americans' distrust of all of us in Congress, quite frankly.

And I was reading—my staff got for me this—I will read it. It has nothing to do with this hearing, but it will lead to something in a moment:

“The Federal Reserve Bank of New York is refusing to tell U.S. Government investigators how much money it sent to Iraq during the first years of the American invasion. The Iraqi officials suggested the missing and possibly stolen funds from that era is more than \$18 billion.”

And there is Stuart Bowen—a wonderful Inspector General who has always exposed all the lost American money—going to the New York Fed, and they won't meet with him. And I think that is the reason that maybe this bill has been introduced, and maybe not. It is for other reasons as well.

But, if the American people could just regain a little bit of confidence in Washington, whether it be an agency or the Congress itself, it would really, I think, help the environment of America.

And I was wondering, I was thinking when Mr. Clay was suggesting, and Mr. Paul, the chairman, kind of agreed, does it make any sense for there to be a congressional delegation of five people, three people, six people, that every so often when you do the audit—I think you said once a year, or I might have missed that in the testimony, you may have to correct me—but is it already in the guidelines or the statute that there would be a couple of Representatives from the Senate and the House who would be able to accompany the inspectors when they go to—or the auditors, not the inspectors, the auditors?

To me, this is about—there is so much—if I could change one thing in America and Iraq, or I—if I could control one thing, it would be the Internet. There is more misinformation on the internet than there is accurate information. And all there has to be is some person who is challenged—I am going to be careful about this—who puts on the Internet that you cannot find the gold at Fort Knox. Then all of a sudden, thousands or millions of people are seeing that. They are not hearing what you are saying.

So I just wonder, if it makes any sense, if it is in your regulations, or if it needs to be in the statute, that there would be a team of two Senators or two Representatives who would have the option of accompanying your inspectors to one of the sites?

Mr. THORSON. Actually, that has happened under a situation very similar to this one in 1974.

In September of 1974, I believe it was Congressman Rousselot took a delegation which included, I believe, one Senator, Senator Huddleston, and they went down with, I assume permission probably would have come from either the Secretary of the Treasury or the White House, and did tour the gold and there were pictures taken and there are video clips of that.

I think that is exactly what you are describing. And it was done in 1974. Obviously, I don't think either one of us have any authority to say anything about such a visit. But it certainly is something that the committee can make a request for, because there is a precedent for having done it.

Mr. JONES. I appreciate you sharing that. And I will close in just one second. But I think in the world we live in today, there is such distrust that it would be I think for at least during this deep recession that we are in, that if that could be accomplished, it would help, I think, with the public's trust.

Not so much that they should believe Members of Congress, but I think that if this was an announced group meeting and Members, then it gets some publicity, and maybe there could be a news conference after this.

I don't know. I think there is validity in why we are having this hearing today, and I just wanted to share those thoughts with the panel and you, Mr. Chairman, and my colleagues.

I yield back.

Chairman PAUL. I thank the gentleman.

I now recognize Mr. Luetkemeyer from Missouri for 5 minutes.

Mr. LUETKEMEYER. Thank you, Mr. Chairman.

In your testimony, I didn't hear any comments about the golds that we use to mint coins. Is that held separately, or is that not included in this report, or am I missing something?

Mr. THORSON. You said the Federal Reserve gold is separate?

Mr. LUETKEMEYER. Okay, the Federal Reserve has a separate— of gold they use to mint coins. Is that the same?

Mr. THORSON. Right. It is all part of Treasury's gold, but it is not reported on the Mint's financial statement. It is reported on the Treasury's consolidated financial statements.

Mr. LUETKEMEYER. Okay, so they are the ones then that will mint the coins and they don't have anything to do with the gold that we are talking about here today?

Mr. ENGEL. No, there might be a misunderstanding. In the Mint locations, they have basically two types of gold. They have the deep storage gold, and then they have working-stock gold. I believe what you are talking about is the working-stock gold. Yes, there is working-stock gold that is kept in the different Mint locations. I think at the end of last year, it was about 3 million fine troy ounces. About 1 percent of the total is working-stock gold. And that is the kind that is used for minting coins, medallions, things like that.

Mr. LUETKEMEYER. Okay, so is that audited as well, I assume, as part of—

Mr. ENGEL. Yes, that is part of the Mint's financial statements. That is not part of the custodial schedules, but it is part of the Mint's financial statements.

Mr. LUETKEMEYER. Okay, so how do you replenish that stock then? Are you just using existing stock, or do you get new gold shipments in that you use up? Or how do you continue to be able to mint new gold coins?

Mr. ENGEL. I am not involved with it. But my understanding is that they replenish that by purchasing stock, you know purchasing from the outside—

Mr. LUETKEMEYER. —just on the open market somewhere?

Mr. ENGEL. Yes.

Mr. LUETKEMEYER. Okay. That is kind of interesting. I was listening to the discussion here of my colleagues with regards to the congressional review of the actual gold. And I think it might be a good idea to do that from the standpoint of also looking at the protection and procedures—all the stuff that goes into it from the standpoint of, again, some reassurance that there are adequate procedures in place for protection of it. So it is kind of interesting to listen to that debate.

Along the same lines, with regard to the amount of gold that we have, according to testimony in the documents that I have been reading here, we are carrying it on our books at \$41, \$42.22, I believe. Is that correct?

Mr. ENGEL. That is the per fine troy ounce statutory value.

Mr. LUETKEMEYER. Okay. And you evaluated a while ago at about \$320 billion, is that right?

Mr. ENGEL. At market.

Mr. LUETKEMEYER. At the current value today?

Mr. THORSON. That was September 30th of last year. And yesterday, we pulled it up, it would be \$1,552 an ounce and \$300 and—roughly—let us see, we don't have the—roughly \$340 billion.

Mr. LUETKEMEYER. Okay. Mr. Chairman a while ago asked the question with regards to using and swapping it out with regards to other things. It is not used as collateral for anything either right now, is it, other than the gold certificates? There is no—

Mr. ENGEL. I am not aware of anything—

Mr. LUETKEMEYER. —in any other way—

Mr. ENGEL. —especially in financial statements, there is nothing—or in the Department-wide—there is nothing disclosed about—

Mr. LUETKEMEYER. So, it is just sitting there right now, right?

Mr. ENGEL. Yes, it is a reserve.

Mr. LUETKEMEYER. Right, the reserve.

Mr. THORSON. Right, it is—and I would back up his statement as far as we are not aware of anything like that.

Mr. LUETKEMEYER. Okay, what would happen—there is some discussion about going back to the gold standard. I don't know if we have a will, or if it is a good idea, a bad idea. But if we would, how would that change your operation?

Mr. ENGEL. I cannot speak to the gold standard and how it would change—

Mr. THORSON. On the gold standard issue?

Mr. LUETKEMEYER. Yes, if we went back to the gold standard, how it will it change the operation of what you do?

Mr. THORSON. I am not sure how—

Mr. LUETKEMEYER. But we have to have some more—would it be some transactions going on with regards to how you take care of it? Would it be that we would have to raise and lower the amounts that we have all the time, or things like that? Or how would we do that?

Mr. THORSON. I would have to tell you, as far as any discussion regarding returning to the gold standard, that is—you are really getting into a much more a policy issue. We are—both of us, we are auditors, we will—

Mr. LUETKEMEYER. Okay.

Mr. THORSON. We will certainly be able to look at any process or procedure or plan if that ever happened. But as far as commenting on that as a policy as to whether it is a good idea or a bad idea, that is really out of our realm.

Mr. LUETKEMEYER. Okay.

Thank you, Mr. Chairman. I appreciate the opportunity.

Chairman PAUL. I thank the gentleman, and we will go on and have a second round of questions, if you care to.

It seems that a portion of the Mint and the U.S. gold reserves were audited in an assay between 1993 and 2008, as you acknowledged. The Mint estimated that as much as one-third of the gold reserves were examined during this period. The other two-thirds, however, have not been inventoried—that is according to my understanding—or assayed since somewhere between 1975 and 1986. Do you think it would be worthwhile, at least, to inventory and assay this portion of the Mint-held gold?

Mr. THORSON. By—I forget which date it was, I believe by 1986, we—hold on just one second here, I got it.

It basically covered—by 1986, 97 percent of the Government-owned gold held by the Mint had been audited and placed under joint seal. So once you have done that, and that seal remains unbroken, then I am not sure what other benefit there would be to going back into it at that point. But by 1986, you had 97 percent was audited—

Chairman PAUL. But it just seems like, it is quite a bit different the way you described audits compared to, I think a general understanding of audits. They don't audit small portions over 20 and 30

years. An audit, I thought, was supposed to be audited as quickly as possible.

Mr. THORSON. I think it is a little different. Because what you have as opposed to, for instance, if I am auditing inventory of a company, product goes out, product comes in, it is replaced, etc., etc. In this case, there is no movement.

Those doors are not opened. There is nothing there that can happen, because once those doors are sealed—and I have given you a couple of show-and-tell examples here—it is very obvious if those seals are ever broken. And it is not like, and as I mentioned in a normal audit, where product is moved out and I replace it and I move on. That is not what happens here.

There is no movement. Those doors are not opened, if they are and a seal is broken, then those people who did—it is replaced, the seal is put in place.

So I guess, it is hard to imagine what benefit there would be, if in fact the seals that cover those doors are unbroken.

Chairman PAUL. It just seems like it doesn't conform to my idea of what an audit is all about. But let me go on to another question dealing with the audits.

There has been a lot of speculation as to the condition of the gold reserves. As I mentioned in my opening statement, it was not until legislation was introduced and a hearing scheduled that information surrounding assays and inventories conducted by the Mint and the Office of the Inspector General was forthcoming. And your offices have been very accommodating in the process.

But it seems to me that all this information about the activities of the Mint and the IG have been engaged with respect to the gold reserves and the results of these activities should be gathered together in one place and made readily available, like it was mentioned on the Internet, maybe we could have it available to the public? That is what my bill proposes, assay and inventory the gold, evaluate whether it is encumbered in any transaction by the Treasury, have the Treasury issue a report.

The GAO independently verifies that report as Congress' investigative arm. Could you comment on the reporting element of the legislation, as well as the GAO's independent review?

Could you also comment on the extent to which the information already available could be published? Can we get the information a little easier instead of dragging it out?

If, for no other reason, for reassurance, because the questions have been building over the years. And when you say, "Well, but

when was it fully audited?" My understanding, a full audit of the gold, most people give me the date 1953. So what about the facilitating of information to give the American people the absolute reassurance that they are asking for?

Mr. THORSON. I guess it would depend on what you wanted. We have published all of the audit reports on our Web site, they are public. You all asked for assay reports, which we certainly provided. We keep them for a while.

There is really no secret about it. There was one thing, I guess, on the press release for this hearing that kind of got my attention when you said we were less than forthcoming, I believe, was the term. I don't understand that, sir, to be honest with you. We don't publish our work papers on the Internet. I don't think any auditor does that.

But for the period which we have them, we keep them in the normal course of events. But this is an example of a public audit report on the gold. It is out there. And the assay reports, I believe your staff asked for, we provided them. The work papers, like I said, we don't normally do that. But I don't think any auditor in America does that.

So whatever it is that we can do reasonably and under the proper rules of auditing, we are happy to do. Because I agree, transparency is our business. That is why we do what we do. If there are any suggestions, we are happy to listen to them.

Chairman PAUL. What we were looking for was to get—we thought we would see a list of the bars or the assay details. There were gross numbers, but not a list of the bars and the precise assay results.

Mr. THORSON. Clearly, the results of them are published. I think in my statement which is there is nothing hidden were all in the statement. I mentioned the range of from the assay reports, I think it was 0.6 to 0.999, something like that. That is what the assay tells you and then we gave you an average.

So, those numbers are out there. I am not sure I understand why there is some confusion about that.

Chairman PAUL. But I think it was incomplete and there weren't total numbers. I think we have a much smaller number in a single report. Anyway, we might be able to work that out and figure it out. But there is still some confusion there.

My 5 minutes is up, and I yield to Mr. Luetkemeyer for his 5 minutes

Mr. LUETKEMEYER. Thank you, Mr. Chairman. I just have a couple of follow-up questions.

What is the annual cost to store and protect our U.S. holdings? Do you have an idea?

Mr. THORSON. The cost? I am sorry?

Mr. LUETKEMEYER. The annual cost to protect and hold these holdings?

Mr. THORSON. What it would cost to follow through on this bill?

Mr. LUETKEMEYER. No. Right now, we have the gold sitting in Fort Knox and Denver and—

Mr. THORSON. We don't really, because we do audits—we are doing many audits at the same time and that sort of thing, I don't think we have really ever broken down what it costs to do this particular—at least, what it costs my office to do this—

Mr. LUETKEMEYER. Let me ask you what it costs—what is the cost to, I guess, the Government or the Mint or whomever pays the bill to protect the gold—

Mr. THORSON. Oh, the security.

Mr. ENGEL. I think that would probably be something that the Mint would be able to tell you—what that cost is. Neither of us I think would know that, but they would probably know what it costs for them to maintain the facilities and the depositories and things.

Mr. LUETKEMEYER. That is not in your report? You don't go back and check the costs for the procedures of maintaining the—

Mr. THORSON. We are auditing the inventory of the gold, not the—that would be a separate job and it is something that if your committee or somebody asked us to do, we could certainly look at that.

Mr. LUETKEMEYER. All right.

Mr. THORSON. But as you can see, that is really a different issue than how much gold is present at the locations.

Mr. LUETKEMEYER. I would think protecting the gold would be pretty important, being able to count the gold. If you don't have it protected, you can't count what is not there if somebody takes it from you.

Mr. THORSON. Having gone there, I have never—I am former Air Force and been involved with everything from nuclear weapons—seen security like I saw in that vault.

Mr. LUETKEMEYER. That is great and wonderful on that. But my question is, what does it cost us?

Okay, move on.

The IMF has the fourth largest gold reserves in the world. And my understanding is that the members who belong to the IMF have contributed gold to it. I guess my question is, is the gold that we

contributed, does IMF hold it, or do we maintain it here and just pledge it to the IMF? Or do you know?

Mr. THORSON. State the last part, please, sir.

Mr. LUETKEMEYER. Okay. All of the people who are members of the IMF have contributed gold to their reserve. The United States is a member of the IMF.

Mr. THORSON. Right.

Mr. LUETKEMEYER. When we pledged this gold, did we take it and physically move it to the IMF, or did we just have it pledged?

Mr. THORSON. There are no encumbrances on that; there is no reason to move it. We have been assured that there is not one troy ounce that is encumbered; therefore—

Mr. LUETKEMEYER. Okay. So we have moved the gold to the IMF?

Mr. THORSON. The gold. The encumbrances that I am aware of, the only ones are to gold certificates held by the Fed. And if they were to go to the physical side of it, what you are talking about is, if they were to redeem those gold certificates, they would be paid in currency. They wouldn't be paid in gold. The gold is collateral. It wouldn't be redeemed that way.

Mr. LUETKEMEYER. Okay. According to my resources here, it says there are 261 million ounces that are reported as U.S. Treasury-owned gold that are part of the IMF reserve. And so, we don't hold it ourselves. The IMF holds it in their reserve, wherever that is at? Do we count it as ours?

Mr. THORSON. Not that I know of.

Mr. LUETKEMEYER. We don't count it as ours then? We count it as the IMF count it as theirs? Or we don't—it is just sort of an account. It is kind of like having a savings account with another bank?

Mr. THORSON. No.

Mr. LUETKEMEYER. So, it is not our gold anymore? Is it IMF's, or is part of—is it ours as well?

Mr. THORSON. I think what you are talking about is the three purposes the gold can be used for, and the third one is what you are discussing, of which we are not aware of any use in that category at all. I believe it says the third one is consistent with the obligations of the Government and the IMF on orderly exchange agreements and a stable system of exchange rates, etc., made with the approval of the President, and may deal in gold. We are not aware of any case where that is occurring.

Mr. LUETKEMEYER. You are saying we have never done this?

Mr. THORSON. It is what?

Mr. LUETKEMEYER. You are saying that we have never done this?

Mr. THORSON. Not that—

Mr. LUETKEMEYER. We have never transferred—

Mr. THORSON. I am not aware of any time we have done that and, at least, certainly not that it affects the amount or the type of gold in the reserves—no.

I think you were talking about physically moving them back and forth. That has not happened in recent history. Going back all the way to, at least, we cover the 70s and more. So, no, I don't believe it has.

Mr. LUETKEMEYER. Okay. Perhaps after the hearing today, we can get together and find out the answer to the question, because I am kind of concerned now that we don't know whether we have lost 261 million ounces. Either we gave it to, and have now an account with, the IMF, or we still have it in our possession and it is encumbered.

Mr. THORSON. We know we still have it in our possession.

Mr. LUETKEMEYER. Or we still have it in our possession, or we do not know where it is at, and it is encumbered. One or the other.

Mr. THORSON. I can say, there has been no physical removal of any of the gold during that time. I think what you are asking is, "Is there any obligation or something that would cause that?" In other words, "Who owns that gold?" is really what you are saying, and to our understanding, that has not occurred. And we can certainly get you a more definitive answer.

Mr. LUETKEMEYER. Okay. The information could be correct. But it is information that I would think would be correct. So it tells me that we would like a little more research to be done here. Thank you very much.

Mr. THORSON. I guess my answer, to be really clear, was that we do not believe that has occurred.

Mr. LUETKEMEYER. Okay. Thank you.

Thank you, Mr. Chairman.

Chairman PAUL. Thank you.

I want to follow up on that, because you may have given the answer, but I still don't think it is very clear.

Is it possible that the gold is counted twice—once in the IMF, and also on our balance sheet of the 261 ounces? Is the gold at the IMF part of the 261 ounces that we claim we own?

Mr. THORSON. I don't think it is possible that it could be counted.

Chairman PAUL. So you don't—

Mr. THORSON. Do we count it twice, is it that it would affect the statement? Is that what you are asking?

Chairman PAUL. We have pledged gold to the IMF. Every country has to put so much gold in the IMF. So, is it sitting over here in the IMF and we no longer own it, right?

Mr. THORSON. We do not audit—obviously, we do not audit the IMF so I can't make any comment on that.

Chairman PAUL. Yes, but we are trying to figure out the accounting procedures on whether when you go and audit the gold, maybe you don't know that you audit and check the gold and look at these bars, but they really have been pledged to the IMF. Is that a possibility?

Mr. THORSON. No. I don't believe—no. I am not going to comment on IMF or what they are doing, because we don't audit the IMF. But the statements that I have made regarding the gold reserves in the Mint, our Mint, our Treasury Department Mint, that is pretty absolute.

And we know where it is. We know how much it is. And we know that it is there and none of it has been removed to, and nor do we believe there are any encumbrances it, other what I mentioned by gold certificates of the Fed.

Chairman PAUL. We have the certificates, the Fed holds certificates that are called gold certificates. The Treasury holds the material in gold. What if a law was passed and we instructed Treasury to sell \$20 billion worth of gold?

Mr. THORSON. Right.

Chairman PAUL. Can we do that, or do we have to get permission from the IMF? Maybe the encumbrance is to the Federal Reserve; maybe they are in charge and not Treasury. What can we do with that gold and who really owns it?

Mr. THORSON. I think you are trying to back into the same question there, which I think if you wanted to do that, that would be a question that would go to the Secretary of the Treasury with consultation, I am sure, by the President, who could do that. I don't think they're going to have to get permission from the IMF to do that, because there is no encumbrance on that gold, other than the gold certificates held by the Fed.

Chairman PAUL. That would change the balance sheet of the Fed, because they count that. So, I don't know whether that would—the Fed is pretty secret, you know. Congress doesn't have much to say about what is going on over there. And they do a lot of hiding. So, I am not so sure the answer could be that helpful.

Mr. THORSON. I understand you are asking the question. I have tried my best to reassure you that isn't the case. But, on the other

hand, remember, if somebody did try and redeem those gold certificates—let us say, they were pledged to somebody. They brought them forward and they wanted to redeem them. They would be paid in currency at the statutory rate. They would not be paid in gold. The gold is collateral. It is not the method of payment.

So, they would receive whatever the value is of those certificates. The gold would remain in the custody of the United States and would no longer be collateral for those certificates that were redeemed.

Mr. ENGEL. I could maybe add something to that. As it relates to the gold certificates, the gold certificates do not represent that the Federal Reserve has ownership of that gold. There is a liability that is actually recorded in the financial statements for about \$11 billion that represents what Treasury owes the Federal Reserve for those gold certificates.

Now, if we were to go to sell some of that gold, my understanding is that Treasury would have to retire those gold certificates. And then I think, as Mr. Thorson was saying, there would be a reduction in the cash balance that Treasury has over at the Federal Reserve at \$42.22 per fine troy ounce for whatever amount of the gold certificates you were redeeming.

But there is an actual liability that is recorded currently and has been for years on the Government's financial statements for the amount that they owe the Federal Reserve for those gold certificates.

Mr. THORSON. Yes. And that is what I meant by the fact that if they were redeemed, obviously because it is a liability—if they presented those, there is an obligation to pay those. But it would not be paid in gold bars.

Chairman PAUL. I want to go back to asking for suggesting that we have more thorough reports in our request from you on these reports. We did get one assay report, which was given as an example. There were 86 bars involved and you showed the details on what you found. But, of course, there is a lot more.

Why can't we get this list of each compartment, how many bars, what percentage, whether it is 0.999 or 0.90, and have the entire gold reserves that we have audited in that manner? So we see this one report, but we are asking—since there is a claim that all this has been audited and checked, couldn't that be all into one report, since we only got one assay report?

Mr. THORSON. I think what you are describing is really what the Mint does as far as—remember, the Mint inventories and assays, we audit. And there is a difference there. What you are asking for, I believe, really you need to direct that to the Mint and they can

probably satisfy you as to what kind of records you are really looking for there.

Mr. ENGEL. The Mint should have records by bar and what the fineness is of each of those bars. I would think they would have records as to what has been assayed of those bars as part of the inventorying and all of that process. But, I think they are the ones that would have that type of detail.

Chairman PAUL. All right, okay.

I see Mr. Schweikert has come in.

Are you ready to ask a question at this time?

Okay. I will go back to Mr. Luetkemeyer, if he asked all of them.

Mr. LUETKEMEYER. I just have one follow up here with regard to the last line of questioning. The more I think about it, the more concerned I am, because we need to know if the gold that the United States has contributed to the IMF is still counted as the

U.S. gold reserve?

In other words, if it is, then it is an encumbered amount of gold that we have sitting there and should be reported as such. If it is not, it should be reported like a savings account for an individual on their financial statement, and should be reported then on our financial statement of our Government as an asset sitting in the IMF.

Mr. THORSON. I think what you are saying, clearly if it was encumbered or belonged to IMF or anyone else, that would need to be reflected on the statement, because we are representing that this is the Treasury's gold, and therefore, that would not be an accurate statement if it were encumbered.

We have been assured that none of that is encumbered and, therefore, that is the total amount. And so I guess there are a number of theories you could put onboard as to how—

Mr. LUETKEMEYER. As the auditors of our gold, you should know whether that gold, if it is sitting in the IMF, is reported on our balance sheet somewhere for the Government.

Mr. THORSON. And gold held by the IMF is—it would not be— like I said, we don't audit IMF, so I am not going to try and—

Mr. LUETKEMEYER. Yes, but aren't you auditing the gold?

Mr. THORSON. —guess what is going on there. But if it were— what we do represent is the Treasury's gold, the U.S. gold reserves, which we know where they are and they are not held by IMF or controlled by IMF.

Mr. LUETKEMEYER. Who owns what is in the IMF then?

Mr. THORSON. Who does?

Mr. LUETKEMEYER. Yes, who owns the gold—that is the United States Government's gold—who owns that then if it is sitting in the IMF? Do we not own that?

Mr. THORSON. I want to make sure I give you an accurate answer, so I am going to defer until I can get you the proper answer that is absolutely accurate, because I can't give you an answer on that off the top of my head.

Mr. LUETKEMEYER. Okay. We are supposed to have 17 percent of the IMF, and if we own 17 percent of the 90 million ounces, that is a whole lot of money. And we need to know where it is.

Mr. THORSON. Right.

Mr. LUETKEMEYER. But I certainly appreciate your willingness to work with us to find out, number one, is it counted among our reserves and we are not aware of it. And if we are not—out there— and if it is not, where does it appear on our balance sheet as an asset to the United States Government.

Mr. THORSON. You asked a good question and that is why I said I don't want to give you an answer off the top of my head. I want a real answer.

Mr. LUETKEMEYER. I want to work with you to find out and make sure where it is at.

Mr. THORSON. And I will get you one.

Mr. LUETKEMEYER. I appreciate it.

I yield back. Thank you, Mr. Chairman.

Chairman PAUL. I thank the gentleman.

Mrs. Maloney?

Mrs. MALONEY. Welcome.

And thank you for this hearing, Mr. Chairman.

I would like to ask both of the witnesses whether you believe this is a good use of your resources and funds, especially if it is true, as you testified, that it is duplicative of what you already have to do with respect to gold reserves.

And I am mentioning basically Bill 1495. And in this the GAO wrote, "Bill 1495, if enacted, may result in duplication of certain past and current efforts, especially with regard to inventorying and auditing the gold reserves of the United States." And the Treasury's IG wrote, "I believe that the inventory and audit requirements proposed in The Gold Reserve Transparency Act of 2011 (H.R. 1495) to be redundant of the work that my office and the Mint currently perform."

And basically, why should Congress pass legislation that both the IG and the GAO believe is not needed? That is my question.

It is good to see you both.

Mr. Thorson, would you begin first, and then Mr. Engel?

Mr. THORSON. In our statement, we did say we believe it is redundant, because the things that are called for in the Act are things we believe we are already doing, and that is a proper audit and assay. We do assay to a statistical sampling. We don't assay every bar of gold, but we do it to a 95 percent confidence level. So I am not sure what it is that you would want us to do that we aren't already doing.

Mrs. MALONEY. Mr. Engel?

Mr. ENGEL. The one area that we talked about a little bit earlier is that maybe if you wanted to have something looked at, it is the gold reserves that are over at the Federal Reserve Bank of New York.

Now, there has been some audit of work that was done years ago by the examiners of the Federal Reserve and apparently the Committee for Continuing Audit had observed some of that. But that has not been labeled as audited per se, as I understood it by the Committee for Continuing Audit.

So if you did want to have something done, I guess you could have some work done over on the Federal Reserve Bank of New York. In terms of some of the other, it would be very redundant of what has been already done.

Mrs. MALONEY. Can each of you comment on what you believe would be the cost to taxpayers of implementing H.R. 1495, since we are being very cautious about our deficit at this point?

Mr. THORSON. I think both of us would agree. I think the Mint has worked up some numbers that are somewhere above \$60 million or more. It would be in that range, but I think that is a question you should probably direct to the Mint.

Mrs. MALONEY. Mr. Engel, do you have a comment?

Mr. ENGEL. Yes. We do not know. We haven't heard from the Mint what the amounts are. It is our understanding they were working up what they would estimate it would cost.

In addition to the cost of actually doing the inventorying and moving all the bars, when you assay it, you are taking a drill and taking a part of the bar to be tested, and that is basically destroyed, whatever that piece is.

So there will be some loss of the gold from the bars through the assaying process if you do that for every single bar that is out there. So that would be a loss from that process as well.

Mrs. MALONEY. I have no further questions, so I yield back to the chairman.

Thank you.

Chairman PAUL. I would like to address the subject of the cost, because our first estimate—oh, okay.

I will yield 5 minutes to Mr. Schweikert from Arizona.

Mr. SCHWEIKERT. You are kind, Mr. Chairman.

And forgive me if this has already been discussed. I am curious, so please educate a freshman. The different places that U.S. gold assets are held, IMF, you were just saying with the New York Fed, the Treasury, any other places?

Mr. THORSON. Not that I can see. No.

Mr. SCHWEIKERT. So those three would cover it? Is any of that pledged to loan facilities that would be World Bank or anything else we also touched?

Mr. THORSON. No, and to go back to the IMF a little bit, like I said, I would like to find a direct answer for that one as well.

Mr. SCHWEIKERT. Okay. My understanding from listening for a moment, Mr. Chairman, was that it has been how long since both of the—was it the New York Fed which actually would handle a lot of international transactions so, therefore, they would not only hold our gold reserves for the United States, but a number of other member nations?

Mr. ENGEL. I believe they do hold gold for other nations in their vault.

Mr. SCHWEIKERT. Just for the fun of it, any guess what is there?

Mr. ENGEL. I don't know.

Mr. SCHWEIKERT. Any guess on the number of participating countries?

Mr. ENGEL. No.

Mr. SCHWEIKERT. Okay.

Mr. ENGEL. That would be something the Federal Reserve would obviously be able to answer, but I don't know.

Mr. SCHWEIKERT. Okay. So if we have functionally three places, two that you are telling me we already have some audit history, Treasury, we have an audit history on gold supply? Yes? No?

Mr. ENGEL. Gold reserves, yes.

Mr. SCHWEIKERT. And we are still a little fuzzy was it on IMF?

Mr. THORSON. I am—like I said, I am still a little concerned about that particular question. So, but no, that is it.

Mr. SCHWEIKERT. And in a previous question just a moment ago, didn't we just tell the gentlewoman from New York it was how much to do the audit?

Mr. THORSON. To do the audit? The Mint's figure to do—the one that this bill would call for—was in the neighborhood of \$60 million,

but that was—you need to—that is a Mint number and you need to ask them that.

And just to be clear, the ratio of money held by the Mint and held by the Fed is 95 and 5 percent, 5 percent is at the Fed. But as far as the cost of this bill to perform that, I believe your staff has already made an inquiry to the Mint on that. But that is really—we can certainly audit that as it plays out and that kind of thing. But it is their number.

Mr. SCHWEIKERT. Okay. It is just that it seems stunningly high, and it is always fun when you are having to audit the audits where we feel like we are in some of this very unusual circle. And it would be fun to find out how much of that is just counting, and how much of it is doing assay work.

And Mr. Chairman, I know you wanted to inquire more on that point, so I yield back my time.

Chairman PAUL. I thank the gentleman.

I do have a few more short questions for you.

Do you have any idea what the current audits cost? You do partial audits each year. What kind of expense does that involve?

Mr. THORSON. No. As I mentioned, we use people on different audits at the same time and that kind of thing, so we have not really broken down per audit what this costs.

Chairman PAUL. Okay. Where do you get the \$60 million?

Mr. THORSON. It was—we asked the same questions that you did as far as what would it be from the Mint when we were wondering what their statement might be. And that was a rough number that we were told that off the top of their head it would be in somewhere in that vicinity.

Chairman PAUL. Of course, we have Treasury's statement that claimed that it would be \$15 million, so we would like to—if you can enlighten us more maybe in writing about really whether it is \$60 million or \$15 million. That is a big difference.

And to suggest that I might be participating in the not being careful with the taxpayers' money, I happen to be the most conservative Member of Congress when it comes to spending. But, we don't even need to appropriate money for this. The Mint could easily take care of this. When you have a monopoly, you tend to be able to make some money, and last year they made \$400 million.

So even if the high number was correct, we don't have a problem there. One of the few legitimate functions of Government is to check our ownership and be fiscally responsible to find out just what we

own and whether it is really there. So I think the total amount is not, in comparison to other things, very much.

Also, back to this request that we get more details on the thing, and you said defer to the—maybe I should ask the Mint that. And, of course, the Mint is in transition now and we couldn't get anybody over here from the Mint. But I believe it was your staff who told my staff that you got the reports and not the Mint, that you get the detailed reports on all these audits.

Mr. THORSON. The assay reports, we do get the assay reports, sure. And I think we provided you some of those. The inventory of the bars, like you describe, as each one—that is definitely up to the Mint. As I said, we audit the work that they do and the records that they keep, so that would be under them.

Chairman PAUL. Of course, if you have an assay, but you don't know how many bars there are, you don't know where it applies to which. It seems like you have to have both, together and matched up.

But anyway, I believe we will follow up on that and ask for some more details. But if the gentleman from Arizona has no more questions, I will go ahead and adjourn the committee.

The Chair notes that some members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 30 days for members to submit written questions to these witnesses and to place their responses in the record.

{Whereupon, at 11:27 a.m., the hearing was adjourned.}

QUESTIONS
FOR THE RECORD

FROM CHAIRMAN RON PAUL TO
THE HONORABLE ERIC M. THORSON
INSPECTOR GENERAL, DEPARTMENT OF THE TREASURY

Question 1:

As the Inspector General of the Department of the Treasury, can you get a definitive answer on when the last time the U.S. gold reserves held at the Federal Reserve Bank of New York were last assayed and inventoried? If so, what were the results of that assay and inventory?

Answer:

My office has not observed the assay and inventory of the U.S. gold reserves held at the Federal Reserve Bank of New York (FRB-NY). Members of the Committee for Continuing Audits of United States Government-owned Gold, however, did observe FRB Board of Governors examiners' audit of 13.451 million fine troy ounces of the U.S. gold reserves held at the FRB-NY as of September 30, 1985. That represented 99.9 percent of the 13.452 million fine troy ounces under the custody of the FRB. The Board of Governors examiners' audit procedures were essentially the same as those used by the Committee for Continuing Audits of United States Government-owned Gold when they performed their work at the Mint's deep storage facilities, except that assay samples were not taken.

With that as background, the following provides a broad

overview and understanding of the custodial gold services provided by FRB-NY (this information was provided to us by FRB-NY representatives). The FRB-NY holds gold deposits on behalf of a number of account-holders, including the U.S. Government. Upon depositing gold, FRB-NY matches the markings on each bar to the customer's deposit manifest, and verifies the gross weight of the bars deposited. The FRB-NY refers to this process as earmarking the gold. Once the gold is earmarked, it is physically segregated, for the most part, by account holder. Once segregated, the gold is physically safeguarded and held under what the FRB-NY calls a triple control, continuous audit process. According to the FRB-NY, its continuous audit process includes three-party certification/presence anytime a vault is opened. So, when a vault is opened, it must be done in the presence of one representative from vault custodian team one, one representative from vault custodian team two, and one representative from the internal audit staff. Furthermore, there are two separate combination locks (the combination of each known only to the respective vault custodian team representative), one audit lock, and an audit seal on every compartment containing customer gold. The FRB-NY also confirms the gold holdings of its respective customers upon request.

It should be noted that we are currently working with the Department and the FRB-NY to inventory and audit the Treasury gold that is on deposit with the FRB-NY. As part of the audit, we plan to obtain independent assays of a sample of the gold bars.

Question 2:

With regard to the issue of gold possibly being encumbered in swaps or loans, 31 U.S.C. 5302 gives the Secretary of the Treasury the authority to deal in gold. It also states that "Decisions of the Secretary are final and may not be reviewed by another officer or employee of the Government." Is it conceivable that the Secretary could be encumbering U.S. gold reserves in gold swaps without your knowledge, for instance through overnight or short-term repo agreements? Would such short-term agreements be reflected in any way in the OIG's audit report?

Answer:

In my opinion, it is not conceivable. If the deep storage gold reserves were involved in swaps or loans, it would be incumbent upon the Department to record those transactions in its accounting records and disclose them in its financial statements. The Department's financial statements are currently audited by KPMG under our supervision. Similarly, the Mint would also be obligated to disclose such encumbrances in its financial reports as well. In this regard, we are not aware of the gold reserves ever being encumbered in swaps or loans through our audits of the Department or the Mint.

Question 3:

The Treasury's Office of the Inspector General provided my office with an example of an assay report which dealt with 86 samples that were assayed during the summer of 2008. Due to the nature of the assay process, a total of nearly 1.9 ounces of gold was destroyed during the assay. However, the Treasury Department's Financial Management Service website continues to maintain that Treasury-owned gold totals 261,498,899.316 fine troy ounces. This number has remained the same, quoted to a thousandth of an ounce, since at least 2007. How can the Treasury continue to report this same number when gold is, in fact, destroyed during the assay process? Does this not throw into doubt the accuracy of the Treasury's financial statements, as well as the independent auditor's opinion? Your testimony contains an example of a Mint Bureau official joint seal, which reflects the loss of some gold due to assaying, so why would subsequent losses to assay not be reflected in the financial statements?

Answer:

When the audit verification of custodial deep storage gold involved testing for purity, assay samples were taken to verify/determine the fineness of the gold. This process did, in fact, result in a small loss of gold. However, it has been the Mint's policy that the balance of custodial deep storage gold reserves remains unchanged, including when losses resulted from the assaying process. Therefore, in order to keep the balance unchanged, the small losses of gold that occurred during the assaying process were replaced with gold from working stock material, which is charged to the Mint's Public Enterprise Fund (PEF). To accomplish this, the amount of material taken during the assay sample was concurrently

replaced with PEF working stock material, in the form of "granules." The granules were of equal fine troy ounce weight of that taken for assaying. This process was carried out in its entirety, in our presence and under our direct observation. As a result, the reported quantity of the custodial deep storage gold has properly remained unchanged.

Question 4:

When I asked you about the "precise assay results" you responded by saying "Clearly, the results of them are published." The assay results are not, in fact, published in the OIG's audit reports, or in the Mint's financial statements. Can you provide the published materials that contain the results of those assays to my office and/or the Financial Services Committee?

Answer:

You are correct, the assay results are not published in our audit reports or in the Mint's financial statements, only the balance of custodial deep storage gold reserves is reported. When requested, we did provide an example to your staff of the assay results we received for a 2008 statistically selected sample of inventoried gold bars by our office. We are also providing as Attachment 1,³⁹⁸ the assay reports obtained during our fiscal years 2004, 2005, 2006, and 2008 audits of the Mint's Schedule of Custodial Deep Storage Gold and Silver Reserves.

Question 5:

In your opening remarks, you stated that any discrepancies found by the Inspector General's office between the fineness reported by the U.S. Mint and the fineness determined by independent assay reports were "immaterial and negligible." How do you define immaterial and negligible? What is the largest discrepancy of fineness found between an independent assay and the fineness reported by the Mint? Could you provide a list of the independent assays performed comparing the fineness determined in the assay to that listed by the Mint?

Answer:

Professional auditing standards define materiality as the magnitude of an omission or misstatement of accounting

³⁹⁸ Attachment 1 can be found in Appendix F.

information in a financial report that makes it probable that the judgment of a reasonable person relying on the information would have been changed or influenced by the omitted or misstated item's inclusion or correction. With respect to our fiscal year 2010 audit of the Mint's Schedule of Custodial Deep Storage Gold and Silver Reserves, we determined, consistent with auditing standards, that the materiality level for financial reporting purposes was \$311 million. We considered differences individually or aggregated less than this amount to be immaterial for purposes of the Schedule. In other words, if audited differences were \$311 million or more, we would not render a "clean" audit opinion.

However, given the sensitive nature and the extraordinary physical security measures provided over these U.S. Government assets, we would expect discrepancies to be small. In this regard, the discrepancies in fineness identified in our audit tests over the years have been extremely small. The largest discrepancy of fineness identified between an independent assay report and the fineness reported by the Mint for a bar, in recent audits where independent assay reports were obtained (for the fiscal years 2004, 2005, 2006, and 2008 audits), was 0.0003 fine troy ounces. The market and statutory value of this difference, as of September 30, 2010, was \$0.39 and \$0.01, respectively, using the market and statutory value per fine troy ounce of gold of \$1,307 and \$42.2222, respectively. The net total of discrepancies for these years was 0.0078 fine troy ounces. The market and statutory value of the net total of these discrepancies, as of September 30, 2010, was \$10.19 and \$0.33, respectively, using a market and statutory value of gold per fine troy ounce of \$1,307 and \$42.2222, respectively. These discrepancies in my judgment are negligible.

A list of bars assayed in recent Mint custodial deep storage gold reserves audits in which assays were performed (FY 2004, 2005, 2006 and 2008 audits), including a comparison of the fineness determined by the independent assayer to the fineness included in the Mint records, is presented in Attachment 2.³⁹⁹

³⁹⁹ Attachment 2 can be found in Appendix F.

Question 6:

In your opening remarks you stated that the " ... entire period of these audits and up to today [1975-present], no discrepancies of any consequence have ever been found." According to a GAO report to the Director of the U.S. Mint in 1978, a discrepancy was found in 1977 in which two melts had to be remelted, after which the fineness was still below that listed on the inventory schedule. How do you reconcile this fact with your statement? Do you consider the need to remelt gold to be "no discrepancy of any consequence"? Could you provide a list of all the discrepancies found, whether of consequence or not?

Answer:

As you indicated, that audit was conducted by GAO who reported that the difference between the level of fineness determined by the assay and the fineness reported on the inventory records resulted in a \$158.77 adjustment to the records. Also in that same audit report, GAO determined that amount to be insignificant. I agree with GAO's assessment, only I described differences such as these as not of any consequence.

Discrepancies of fineness identified between independent assay reports and the fineness reported by the Mint of gold bars, noted in recent Mint custodial deep storage gold and silver reserves audits where assays were performed (FY 2004, 2005, 2006 and 2008 audits), are presented in Attachment 2.⁴⁰⁰

Question 7:

Could you provide a report, or an otherwise comprehensive document on the following items related to U.S. gold holdings? If such a report cannot be compiled in time for submission in the record of this hearing in response to this question, please indicate whether such a report could be generated and approximately how long it would take.

- a) A complete history of the audits, assays, and inventories conducted, at least as far back as 1975 if not earlier.

Answer:

⁴⁰⁰ Attachment 2 can be found in Appendix F.

A list of audits of U.S. gold holdings by GAO, the Committee for Continuing Audits of United States Government-owned Gold, and my office, is included in Attachment 3.⁴⁰¹ It should be noted that most workpapers associated with our reports issued prior to 2004 have been destroyed in accordance with our records retention policy.

- b) The inventory schedules of the gold in the custody of the U.S. Mint, including information regarding the fineness and quantity of the gold.

Answer:

See Attachment 4⁴⁰² for the Mint's detail inventory schedules of custodial deep storage gold reserves including fineness and quantity.

- c) The inventory schedules of the gold in the custody of the Federal Reserve Bank of New York, including information regarding the fineness and quantity of the gold.

Answer:

See Attachment 5⁴⁰³ for the Federal Reserve Bank of New York's detail inventory schedules of gold held in its vault including fineness and quantity. The Federal Reserve Banks also hold gold bars and coins for display purposes, totaling 2,371 fine troy ounces.

- d) Any assay reports related to U.S. gold holdings.

Answer:

See Attachment 1⁴⁰⁴ for independent assay reports obtained during our fiscal years 2004, 2005, 2006, and 2008 audits of the Mint's Schedule of Custodial Deep Storage Gold and Silver Reserves.

Question 8:

You claim that it would cost \$60 million to carry out a full audit and assay of the gold reserves. Can you provide my office and/or the Financial Services Committee the precise methodology and calculations used to arrive at this figure?

⁴⁰¹ Attachment 3 can be found in Appendix F.

⁴⁰² Attachment 4 can be found in Appendix F.

⁴⁰³ Attachment 5 can be found in Appendix F.

⁴⁰⁴ Attachment 1 can be found in Appendix F.

Answer:

In my testimony, I was merely recalling a figure that I had remembered the Mint estimating for performing a full inventory and assay of the gold reserves, which is what H.R. 1495 calls for (see line 1169). Since a full audit and assay of the gold reserves would be predicated on a full inventory and assay by the Mint, I indicated that the question should be directed to the Mint.

For purposes of trying best to answer your question, I have included as Attachment 6,⁴⁰⁵ a letter dated July 22, 2011 to the Honorable Ron Paul, Chairman of the Subcommittee on Domestic Monetary Policy and Technology, from Richard Peterson, Acting Director, United States Mint, where the Mint estimates that it would cost \$235 million to conduct and complete a full assay, inventory, and audit of the gold reserves it holds. The Mint estimates with a 10 percent assay, the total cost would be slightly over \$71 million. It should be noted that on the face of what the Mint has included in its letter, these estimates do not include travel or per diem costs for individuals involved in the process. Furthermore, my office has not validated the Mint's estimate.

Question 9:

Recent advances in ultrasound and X-ray technology have led to the development of hand-held devices that allegedly are able both to determine the authenticity of precious metal bars as well as their fineness. If such claims are true, one would imagine that using such devices would obviate the need for destructive assay testing and reduce the time required for assaying. This would lead to potential savings both by ending losses of gold through destructive assay testing, as well as reducing costs incurred through drilling, shipping, assaying, and returning gold samples. Has the Office of the Inspector General ever considered using non-destructive methods of assaying gold reserves? If not, would the OIG consider studying the possible use of such technologies in future?

Answer:

If, in the future, gold is moved or otherwise needs to be re-inventoried, we will work with the Mint to consider the

⁴⁰⁵ Attachment 6 can be found in Appendix F.

cost/benefit of using such technology. Of course this would only be in the event that the accuracy of such technology is determined to be reliable and accepted as an industry practice.

FROM CHAIRMAN RON PAUL AND REP. BLAINE LUETKEMEYER TO
THE HONORABLE ERIC M. THORSON, INSPECTOR GENERAL, DEPARTMENT
OF THE TREASURY

Question 1:

The IMF has the 3rd largest gold reserves in the world, most of which the IMF acknowledges as belonging to the member country who contributed it. The U.S. contributed a large portion of the IMF's gold reserves. How and where on the financial statements of the U.S. government is the portion of gold contributed by the U.S. to the IMF accounted? Is the U.S. portion of the IMF gold counted among U.S. gold reserves? Where is the gold contributed by the U.S. to the IMF held?

Answer:

The U.S. gold contributions to the IMF are not included in the U.S. gold reserves reported by the Mint or Treasury. From 1947 through 1970, the U.S. paid its initial quota subscription and subsequent increases to that quota subscription to the IMF in four separate contributions. Those contributions were in the form of gold and were each valued at the time the payments were made. Overall, the U.S. contributed 47.9 million ounces of gold, to the IMF. The total value of the U.S. gold contributions to the IMF, valued at the time the contributions were made, is \$1,675.5 million.

This amount is included as part of the line item "Reserve Position in the International Monetary Fund" on Treasury's consolidated balance sheet. The total line item reported as of September 30, 2010, was \$12,938 million. It should be noted that once the gold contribution to the IMF was made, it became the property of the IMF. In return, the U.S. received a claim on the IMF equal to the amount of its gold payment. To reiterate, this amount is not included in the U.S. gold reserves.

It is our understanding that the gold contributed by the U.S.,

as well as gold contributed by other countries, to the IMF is comingled. We have been told that the IMF holds its gold in the following Central Banks: the Federal Reserve Bank of New York, the Bank of England, the Bank of France, and the Central Bank of India.

Question 2:

What is the cost of protecting the gold in the custody of the U.S. Mint?

Answer:

It is the Mint's responsibility to protect U.S. assets stored in its facilities. However, while the protection of the gold and silver bullion reserves are significant, they represent only a portion of what the Mint is responsible for protecting; it also protects its employees, facilities, products, and equipment. The Mint's total protection cost for FY 2010, reported in its financial statements was \$41.5 million. The actual cost for protecting only the gold in the custody of the Mint, including its working stock, would be a question more appropriately addressed to the Mint.

Question 3:

What has been the cost of audits performed on U.S. gold reserves in the past?

Answer:

The cost of our recent audits (labor and travel) of the Mint's Schedule of Custodial Deep Storage Gold and Silver Reserves was approximately \$31 thousand per audit when we observed the Mint perform an inventory count (fiscal years 2004 through 2008) and approximately \$20 thousand per audit when our work was limited to inspecting the integrity of the previously placed seals (fiscal years 2009 and 2010).

STATEMENTS

STATEMENT FOR THE RECORD
HON. RON PAUL
REPRESENTATIVE, 14TH DISTRICT OF TX
CHAIRMAN, SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES

For far too long, the United States government has been less than transparent in releasing information relating to its gold holdings. Not surprisingly, this secrecy has given rise to a number of theories about the gold at Fort Knox and other depositories. Some people speculate that the gold has been involved in gold swaps with foreign governments or bullion banks, others believe that the gold has secretly been shipped out of Fort Knox and sold, and still others believe that the bars at Fort Knox are actually gold-plated tungsten. Historically, the Treasury and Mint have dismissed these theories, rather than addressing these concerns with substantive rebuttals. No one from Congress has been allowed to view the gold at Fort Knox in nearly 40 years, recent photographs of the gold holdings seem to be hard to come by, and the Mint's and Inspector General's audit statements contain only the bare minimum of information.

Because the government has for so long refused to provide substantive information on its gold holdings, it is not surprising that so much confusion abounds, both within and without the government. The difference between custody and ownership, questions about responsibility for US gold held at the New York Fed, and the issue of which division at Treasury is ultimately responsible for the gold reserves are just some of the questions that have come up during the research for this hearing. In a way, it seems as though someone

decided to lock up the gold, put the key in a desk somewhere, and walk off without telling anyone anything. Only during the preparation for this hearing was my office informed that the Mint has in fact conducted assays of statistically representative samples of gold bars, and we were provided with a sample assay report. This type of information should be reported or at least tabulated and published, so that the public knows how many bars of gold exist, what their fineness is, and whether they are encumbered in any way through loans, swaps, etc.

While the various agencies concerned have been very accommodating to my staff in attempting to shed some light on this issue, it should not require the introduction of legislation or a Congressional hearing to gain access to this information. This information should be published and available to the American people. This gold belongs to the people, especially since much of it was forcibly taken from them in the 1930s, and the government owes it to the people to provide them with the details of these holdings. We would greatly benefit from a full, accurate inventory, audit, and assay, with detailed explanations of who owns the gold and who is responsible for ownership, custody, and auditing. While the Mint and the Inspector General trust the accuracy of the audits performed between 1975 and 1986, this still means that at least two-thirds of the gold reserves were last audited over a quarter century ago. Surely a full audit every 25 years is not too much to ask?

I look forward to the testimony of the witnesses regarding the condition of the gold reserves, the accounting audits that are regularly performed, and the inventories and assays that have been conducted on some of this gold over the years. I am also very interested to hear their comments on the Gold Reserve Transparency Act so that we may put forward a measure that provides the public with accurate and complete information on their gold.

Since the U.S. Mint was unable to send a representative to testify at this hearing in person, here is an excerpt of their remarks sent to me regarding H.R. 1495:

Dear Chairman Paul:

I appreciate the opportunity to provide this statement for the record and to describe the role the United States Mint might have in carrying out the requirements of H.R. 1495, the Gold Reserve Transparency Act, upon its enactment. As of July 6, 2011, H.R. 1495 proposes, among other things, that the Secretary of the Treasury conduct and complete a full assay, inventory, and audit of the gold reserves of the United States within six months of the date of enactment.

Both the United States Mint and the Federal Reserve Bank of New York have physical custody of the gold reserves of the United States. The attached table shows that the Treasury Department maintains gold reserves totaling **261,498,899.316 fine troy** ounces.¹ Almost all of these reserves are held at three United States Mint sites across the country and at the Federal Reserve Bank of New York. The United States Mint maintains custody of **248,046,115.696** ounces,² and the Federal Reserve Bank of New York maintains custody of **13,452,783.620** ounces.³ The statutory value of the gold is \$42.22 per ounce, as established in 1976.⁴ Accordingly, the aggregate statutory value of the gold in the reserves is \$11,041,058,821.09. At a prevailing market gold price of \$1500 per ounce, the value of the gold reserves is \$392,248,348,974.00.

As the legal custodian of 95 percent of America's gold reserves, the United States Mint is absolutely confident in the security, accountability, and integrity of these significant

¹ All references to "ounces" are to "fine troy ounces."

² This includes 245,262,897.040 ounces in deep storage, and 2,783,218.656 ounces available as working stock (the portion of the gold reserve that the United States Mint is authorized to use as the raw material for minting legislatively-mandated coins).

³ This figure includes gold not only held in the vault at the Federal Reserve Bank of New York, but also 2,013,515 ounces in the form of gold bars and gold coins held by Federal Reserve Banks for display purposes.

⁴ 31 U.S.C. § 5117(b) ("The amount of outstanding certificates may be not more than the value (for the purpose of issuing those certificates, of 42 and two-ninths dollars a fine troy ounce) of the gold held against gold certificates").

national financial assets. The United States Mint recognizes that the gold reserves are owned by the United States Government, and serve as collateral for gold certificates issued to the Federal Reserve Banks. Accordingly, we believe that the United States Mint's responsibility with respect to commenting on H.R. 1495 is limited to making the Committee aware of the impact it would have on the United States taxpayer and United States Mint operations.

Audit

The gold in the custody of the United States Mint is in the form of 699,515 gold bullion bars (including 94,828 unparted bars containing both gold and silver), gold coins, gold coin blanks, and gold in miscellaneous forms. Based on the United States Mint's experience in 2008 and earlier audits, inventories, and assays, we anticipate that the time required to move, weigh, obtain assay samples, and restore bars averages six minutes per bar, assuming a team of 19 people. Expanding that to 699,515 bars would require nearly 1.3 million man-hours of incremental labor. Therefore, to complete the inventory of just the gold bullion bars within the six months, as H.R. 1495 specifies, would require approximately 1,280 individuals.

It is not physically possible to accommodate 1,280 individuals inside the small vaults and balance rooms at the three United States Mint sites. However, if the United States Mint was provided with sufficient funds and staffing that the space would reasonably accommodate, it would take three to four years to complete the inventory of all 699,515 bars. Based on these assumptions, we estimate the personnel cost to move, weigh, obtain assay samples, and restore the bars would total approximately \$53 million.⁵

Assay

The cost of assaying services is about \$230 per bar;⁶ therefore, the total cost of assaying services for the 699,515 gold bars in the reserves would be about \$161 million.⁷ Moreover, the process of assaying a gold bar requires the removal and destructive testing of a portion of a one-tenth-ounce sample of the gold. Consequently, assaying all of the bars would consume about 14,000 ounces of gold at a present market value of about \$21 million (assuming a market value of \$1,500 per ounce).⁸ Based on these figures, the United States Mint estimates a total cost to conduct and complete a full

⁵ These assumptions contemplate a 100-percent inventory and assay of each gold bullion bar. An alternative approach would be to inventory 100 percent of the bars but assay only 10 percent of them. Potential savings due to reduced samples and loss in gold from assay tests would be substantial.

⁶ The cost of assaying services charged by White Sands Laboratories for the 2008 audit was \$232 per gold bar and required approximately one month to complete.

⁷ With a ten-percent assay, we estimate that the cost of assaying services would be approximately \$16 million.

⁸ With a ten-percent assay, the loss of 1400 ounces of gold to assay at the market rate of \$1500 would be approximately \$2.1 million.

assay, inventory, and audit of the gold reserves held by the United States Mint of approximately \$235 million.⁹ This figure does not include travel and per diem costs for individuals involved in the process.

Concerns over the significant cost of conducting a full assay, inventory, and audit of the gold reserves held by the United States Mint are not unprecedented. As you may be aware, in 1979, Representative Larry McDonald of Georgia introduced H.R. 555, "A bill to provide for an audit by the General Accounting Office of all gold owned by the United States." In response to Representative McDonald's proposal, the Chief of the United States Mint's Internal Audit Staff prepared the following estimate of the resources that would be needed for a 100-percent audit of the gold in the bureau's custody:

From 1974 through 1978 during which 50 percent of the gold stock was audited--an estimated 2900 direct staff days were required for the work. About three-fourths of this time was provided by Mint resources other than auditors. If the GAO was required to perform a 100 percent audit each year, I presume that the Mint would probably be called upon to provide the same support which would amount to about 4400 staff days annually.¹⁰ The Mint would still have to establish committees including security personnel, technicians experienced in taking assay samples from bars, assaying, weighing and bar handling.¹¹

Similarly, the Department of the Treasury's Fiscal Assistant Secretary at the time stated the following about a 100 percent inventory of the gold reserves:

[A]udits contemplated by the proposed legislation would be extremely disruptive of operations at the Bureau of the Mint, would be very costly, and would require extra personnel at a time when efforts are being made not to increase Federal employment.¹²

Finally, the Deputy General Counsel of the Department of the Treasury reported the following about H.R. 555 to Representative Jack Brooks, then-Chairman of the House Committee on Government Operations:

⁹ For a full inventory and audit, with a ten-percent assay, we estimate that the total cost would be slightly over \$71 million.

¹⁰ This figure was based on the Chief of the United States Mint's Internal Audit Staff's assumption that only a two-percent assay would be performed.

¹¹ Memorandum from Chief, Internal Audit Staff, United States Mint, to Counsel to the Mint, subject: Request for Input for Treasury Proposing Gold Audits by GAO (Feb. 16, 1979).

¹² Memorandum from Fiscal Assistant Secretary, Department of the Treasury, to Chief, Legislative Section, Office of the General Counsel, Department of the Treasury, subject: H.R. 555, 96th Congress, 1st Session, Requiring Audit of Gold Held by the United States (Feb. 21, 1979).

The testing and inventory requirements of the bill would overwhelm the Bureau of the Mint laboratories and staff. Further, space limitations in vault areas are restricted as they were designed for security reasons. Therefore, the number of personnel required to conduct the proposed audit could not be accommodated. Thus, an attempt to make the audits contemplated by the proposed legislation would be extremely disruptive of operations at the Bureau of the Mint. Further, at a time when efforts are being made to reduce the Federal expenditures, the proposed audits would be very costly because of the extra personnel and testing procedures that would be required.¹³

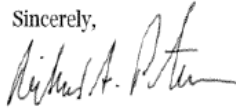
The physical requirements for such an audit at the three locations where the United States Mint holds gold reserves have not changed appreciably in the past three decades since United States Mint and Treasury officials made these statements.

Therefore, the statements made by the Chief of the United States Mint's Internal Audit Staff, the Fiscal Assistant Secretary, and the Deputy General Counsel—that such an audit would require significant additional staffing and would be extremely disruptive of operations of the United States Mint—are as accurate today as they were in 1979. Indeed, the heightened vigilance required in today's post-9/11 environment would exacerbate the significant costs involved, as well as the disruptive effect on bureau operations—particularly at the United States Mints at Denver and West Point.

The United States Mint estimates that H.R. 1495 would cost taxpayers approximately \$235 million and be of little benefit. As the Treasury Inspector General testified on June 23, 2010, "One hundred percent of the U.S. government's gold reserves in the custody of the Mint has been inventoried and audited. Furthermore, these audits found no exceptions of any consequence."

However, should the bill be enacted, you have my assurance that the United States Mint will dutifully and cooperatively facilitate the assay, inventory, and audit of the gold reserves to the best of its ability.

Sincerely,



Richard A. Peterson
Acting Director
United States Mint

Attachment:

Table of Treasury-Owned Gold Holdings

¹³ Letter from Deputy General Counsel, Department of the Treasury, to Chairman, Committee on Government Operations, U.S. House of Representatives (May 18, 1979).

Attachment

Department of the Treasury STATUS REPORT OF U.S. TREASURY-OWNED GOLD May 31, 2011 Source: Financial Management Service		
Summary	Fine Troy Ounces	Book Value
Gold Bullion	258,641,851.485	\$10,920,427,976.14
Gold Coins, Blanks, Miscellaneous	2,857,047.831	120,630,844.95
Total	261,498,899.316	11,041,058,821.09
United States Mint-Held Gold in Deep Storage		
Denver, CO	43,853,707.279	1,851,599,995.81
Fort Knox, KY	147,341,858.382	6,221,097,412.78
West Point, NY	54,067,331.379	2,282,841,677.17
Subtotal - Deep Storage Gold	245,262,897.040	10,355,539,085.76
United States Mint-Held Gold in Working Stock		
All locations - Coins, blanks, miscellaneous	2,783,218.656	117,513,614.74
Subtotal - Working Stock Gold	2,783,218.656	117,513,614.74
Grand Total of United States Mint-Held Gold	248,046,115.696	10,473,052,700.50
Federal Reserve Bank-Held Gold		
Gold Bullion:		
Federal Reserve Banks - NY Vault	13,376,961.126	564,804,727.98
Federal Reserve Banks - display	1,993.319	84,162.40
Subtotal - Gold Bullion	13,378,954.445	564,888,890.38
Gold Coins:		
Federal Reserve Banks - NY Vault	73,808.979	3,116,377.47
Federal Reserve Banks - display	20.196	852.74
Subtotal - Gold Coins	73,829.175	3,117,230.21
Grand Total of Federal Reserve Bank-Held Gold	13,452,783.620	568,006,120.59
Grand Total of Treasury-Owned Gold	261,498,899.316	\$11,041,058,821.09

WITNESS TESTIMONY

WRITTEN TESTIMONY OF HON. ERIC M. THORSON INSPECTOR GENERAL DEPARTMENT OF THE TREASURY

Chairman Paul, Ranking Member Clay, and Members of the Subcommittee, thank you for the opportunity to appear before you this afternoon for the hearing entitled “Investigating the Gold: H.R. 1495, the Gold Reserve Transparency Act of 2011 and the Oversight of United States Gold Holdings.”

My testimony will cover the audits that my office has and is conducting on the United States Mint’s Schedule of Custodial Deep Storage Gold Reserves.

Before I discuss the details of the audits that are the topic of this hearing, I would like to make one point very clear – 100 percent of the U.S. Government’s deep storage gold reserves in the custody of the Mint has been inventoried and audited. Furthermore, these audits have not found any noteworthy exceptions. I also want to make it clear that the physical security over the gold reserves is absolute. I can say that without hesitation because I have personally observed the gold myself. Accordingly, H.R. 1495, which calls for a full assay, inventory, and audit of gold reserves of the United States together with an analysis of the sufficiency of the measures taken for the security of such reserves, is redundant of audit work already done.

My office has been extensively involved in the audit of the Department’s consolidated financial statements and related entities since the enactment of the Chief Financial Officer’s Act of 1990. Since 1993, our financial statement audit work has included, and continues

to include, independent annual audits of the U.S. Government's deep storage gold reserves held by the Mint. In fact, our fiscal year 2011 audit of those deep storage gold reserves is currently underway. As background, I will briefly describe what the Mint's custodial deep storage gold reserves include, provide a short history of the audits conducted over the gold reserves from 1974 through 1986, and the annual audits performed by my office since 1993.

The Mint's Custodial Deep Storage Gold Reserves

The Mint maintains its custodial deep storage gold reserves at the United States Bullion Depository, Fort Knox, KY; the United States Mint, West Point, NY; and the United States Mint, Denver, CO. The Department's deep storage gold reserves are stored at these three locations, in 42 compartments. In all, these compartments hold 699,515 gold bars with fineness⁴⁰⁶, or purity, ranging from 0.4701 to 0.9999 with an average fineness of 0.9006. Fort Knox houses 60 percent of the fine troy ounces of the deep storage gold reserves, Denver 18 percent, and West Point 22 percent. As of September 30, 2010, the audited quantity of custodial deep storage gold reserves held by the Mint was 245,262,897 *fine* troy ounces, over 9,300 tons, with a market value of \$320.6 billion.⁴⁰⁷ Each gold bar weighs about 27 pounds and has an average value of about \$500 thousand.

All three of the deep gold storage facilities are highly secured. While it would not be appropriate for me to discuss the details of the security arrangements in place at these facilities, I can tell you that they are multi-layered and include substantial physical barriers, armed guards, cameras, and metal detectors.

Audits of the Mint's Custodial Deep Storage Gold Reserves Over the Years

In 1974, in response to public and Congressional inquiries, the General Accounting Office (GAO), known as the Government Accountability Office since July 2004, in cooperation with the Department of the Treasury, conducted an audit of about 21 percent of the gold bars stored at the United States Bullion Depository, Fort Knox, KY, and concluded that the gold stored at that facility agreed with the records of the depository. Auditors from the United States Mint, the Bureau of Government Financial Operations (BGFO),⁴⁰⁸ the

⁴⁰⁶ The fineness of a precious metal refers to the ratio of the primary metal to the total weight.

⁴⁰⁷ Market value was based on the London Gold Fixing price for gold as of September 30, 2010. On that date, gold was priced at \$1,307.00 per fine troy ounce.

⁴⁰⁸ BGFO was established in 1974 as a bureau of the Treasury. In October 1984, BGFO was renamed the Financial Management Service.

U.S. Customs Service,⁴⁰⁹ and the Department of the Treasury's Office of the Secretary and GAO were part of a special audit committee established by the Director of the Mint to maintain physical control over the gold during the conduct of the inventory. In the report, *Accountability and*

Physical Controls of the Gold Bullion Reserves, FOD-75-10, GAO also recommended that the Secretary of the Treasury request the Director of the Mint to include, as part of each depository's annual settlement of accounts, a cyclical inventory of the Mint's custodial gold holdings.

It should be noted that the audit by GAO followed a Congressional visit to the Fort Knox facility. In this regard, the House Congressional Report for September 24, 1974, included the following statement by the Honorable John H. Roussetot:

"Mr. Speaker, the Congress can now be assured that there is gold bullion at the Fort Knox Depository. Several of us went there yesterday to try to make sure that many of these rumors and counterrumors were either correct or not correct. Members of the Committee on Banking and Currency and Senator Huddleston of Kentucky actually entered the Fort Knox Depository to check the validity of claims that U.S. gold bullion had been depleted. We can be assured that our civil servants are watching the gold at Fort Knox. It is there."

On June 3, 1975, the Secretary of the Treasury issued Treasury Department Order No. 234-1 (TDO 234-1), *Audit of Gold Stock*, authorizing and directing the Fiscal Assistant Secretary, with the cooperation and assistance of the Director of the Mint, to conduct a continuing audit of U.S. Government-owned gold for which the Department is accountable.⁴¹⁰ Pursuant to TDO 234-1, the Committee for Continuing Audit of the U.S. Government-owned Gold performed annual audits of Treasury's deep storage gold reserves from 1975 to 1986, placing all inventoried gold that it observed and tested under Official Joint Seal.⁴¹¹ The Committee was made up of Internal Audit

⁴⁰⁹ The U.S. Customs Service was a bureau of the Treasury until March 2003 when it was transferred to the Department of Homeland Security.

⁴¹⁰ The Mint is directly responsible for safeguarding all of Treasury's deep storage gold reserves and working stock. Overall, the deep storage gold reserves account for about 94 percent and working stock about 1 percent of Treasury's gold holdings; the other 5 percent is held by the Federal Reserve Bank of New York. Treasury reports the value of its deep storage gold reserves held by the Mint and the Federal Reserve Bank of New York in its consolidated financial statements.

⁴¹¹ An Official Joint Seal is a pre-numbered document that includes wax seals. It is attached to an inventoried compartment door with tamperproof cloth tape. The pre-numbered document

staff from the BGFO and the Mint, and the General Auditor staff from the Federal Reserve Bank of New York. The annual audits by the Committee for Continuing Audit of the U.S. Government-owned Gold ended in 1986, after 97 percent of the U.S. Government-owned gold held by the Mint had been audited and placed under Official Joint Seal. It should be noted that during the entire period of these audits, and up to today, no significant discrepancies have ever been found.

From 1986 to 1992, the Mint continued to perform an annual inventory and verification of the gold reserves in accordance with its own policies over those compartments that had not been placed under Official Joint Seal by the Committee for Continuing Audit of the U.S. Government-owned Gold. According to Mint officials, this was done to comply with the 1975 GAO recommendation discussed earlier.

My office began conducting annual audits of the Mint's Schedule of Custodial Deep Storage Gold Reserves in fiscal year 1993. Our audits are made pursuant to 51 U.S.C. § 5136, United States Mint Public Enterprise Fund, and the Government Management Reform Act (GMRA). In this regard, we are required to perform an annual audit of the Mint Public Enterprise Fund's financial statements, and those statements include the balances of custodial deep storage gold reserves held by the Mint. Under GMRA, my office is also responsible for the annual audit of the Department of the Treasury's consolidated financial statements. Those financial statements incorporate the balances of the custodial deep storage gold reserves. It should be noted that the Mint's financial statements and the Department's consolidated financial statements are audited by a contractor under our supervision -- the independent public accounting firm, KPMG LLP. KPMG has performed the audit of the Mint's financial statements since fiscal year 2005 and the Department's consolidated financial statements since fiscal year 2004. Starting with the fiscal year 2005 audit, KPMG has taken responsibility for our work on the custodial deep storage gold reserves when rendering its opinions on the Mint's and Treasury's financial statements. In order for KPMG to do that, they must satisfy themselves as to the independence, reputation, and qualifications of my audit staff. In addition, they must also satisfy themselves with the adequacy of the audit procedures performed. This has included, among other things,

includes all relevant information of the compartment inventoried and audited, e.g., the number of gold bars, gross weight, and fine troy ounces). The document is signed by those present at the inventory of the compartment (a representative from the storage facility, a representative from the Mint headquarters, and an OIG/independent observer).

accompanying my auditors on a number of observations of the deep gold storage facilities. By doing this KPMG can express its opinion on the Mint's and Treasury's financial statements without making reference to us in their report. That also means that KPMG concurs with the amount and value of the gold as it is reported. The audit work performed by both my office and KPMG is done in accordance with government auditing standards established by GAO.

For each of the fiscal years under audit, we have rendered unqualified or "clean" opinions on the Mint's Schedule of Custodial Deep Storage Gold Reserves. In addition, for each such fiscal year under audit, we have not identified any material weaknesses in internal control over financial reporting related to these schedules, nor have we reported any instances of noncompliance with laws and regulations.

When we assumed responsibility for the audit, reliance was placed on verification procedures performed by GAO and the Committee for Continuing Audit of the U.S. Government-owned Gold. Additionally, we relied on the intact Official Joint Seals that the Committee placed on the inventoried compartments that it observed and tested. If an Official Joint Seal had been tampered with, it would have been immediately evident as the wax on the seal would have been broken and the cloth tape used to attach it would have been detached. Since we assumed responsibility for the audit, my office has continued to directly observe the inventory and test the gold.

Furthermore, my auditors sign the Official Joint Seals placed on those compartments inventoried and tested in their presence. At the end of fiscal year 2008, all 42 compartments had been audited by either GAO, the Committee for Continuing Audit of the U.S. Government-owned Gold, or Treasury OIG, and placed under Official Joint Seals. There has not been any movement of the inventoried gold since that time. Furthermore, for all of the audit periods where compartment inventories were observed by my auditors, as part of our work, in addition to observing the Mint's physical inventory of the gold, we selected and tested a statistically-valid random sample of gold bars using a 95 percent confidence level and found, without fail, that any differences between the fineness reported by the Mint in its inventory records and the fineness projected based on our independently obtained assay reports to be immaterial and negligible. For example, during our fiscal year 2008 audit, we sampled gold statistically representing inventory valued at \$75,036,352.12. Based on the independent assayer's report on those samples, we projected the dollar value of the difference between the fine troy ounces

determined by the independent assay report and the fine troy ounces recorded in the Mint's inventory records to be \$3,819.84 or 0.005 percent (five thousandths of one percent) of the gold inventoried.

The annual audit work performed by my office to verify the existence, quality, and valuation of Treasury's deep storage gold reserves⁴¹² has included two parts:

**DIRECT PHYSICAL OBSERVATION OF THE GOLD RESERVES IN THE
DEEP STORAGE IN COMPARTMENTS INVENTORIED**

This included:

- Reviewing and evaluating internal control, to include the physical controls over the deep storage gold
- Verifying the existence of the gold bars in each compartment by visually inspecting the gold bars comparing the records for each compartment inventoried to the identifying information stamped into the gold bars
- Statistically selecting and testing a sample of the gold bars from the compartments inventoried for fineness re-weighing the statistically selected bars re-assaying the statistically selected bars (the selected bars are drilled, gold fragments are removed from the drilled hole, and those gold fragments are sent by us to an independent laboratory for assaying – the independent laboratory directly provides us with its reports)
- Comparing the fineness recorded in the inventory records to the fineness reported by the independent assayer for the sample of gold bars selected from the compartments inventoried (any differences are projected to the universe of the gold bars inventoried)
- Participating in the placement of an Official Joint Seal on each compartment inventoried by the Mint and tested by my auditors
- Verifying the mathematical accuracy of the inventory records

⁴¹² For the gold reserves held by the Federal Reserve Bank of New York (which are not part of the deep storage gold reserves), my office obtains relevant evidence supporting the existence and valuation of the gold through a signed third party confirmation (confirmations are a widely accepted audit procedure for purposes of placing reliance on the item being confirmed).

VISUAL INSPECTION OF OFFICIAL JOINT SEALS ON PREVIOUSLY INVENTORIED COMPARTMENTS

This includes:

- Reviewing and evaluating internal control, to include the physical controls over the deep storage gold
- Inspecting the Official Joint Seals used to control compartments containing previously inventoried gold to determine whether the seals have been altered or compromised in any way
- Preparing an Official Joint Seal Inspection Report that includes identifying the condition of the Official Joint Seal, determining if the signatures on the Seal agree with the signatures on the copy of the original Official Joint Seal, and whether the Seal and lock had any evidence of tampering and whether the compartment door was locked

As discussed earlier, by the end of fiscal year 2008, all of the deep storage gold reserves in the Mint's custody had been 100 percent inventoried and audited. During our fiscal year 2010 and 2009 audits of the deep storage gold, our audit procedures consisted primarily of inspecting the Official Joint Seals on the previously inventoried compartments to determine whether they had been altered or compromised in any way. We found no exceptions.

More recently, the Mint decided to replace all of the previously-placed Official Joint Seals with new seals. The new seals are more durable, having a double security barrier seal that can only be removed by two cuts with a strong cable cutter.

The Mint replaced all of the previously-placed Official Joint Seals with new ones during fiscal year 2010.⁴¹³ The seal replacement process consisted of two steps:

- a) inspection of all previously-placed Official Joint Seals on all the compartments containing deep storage gold to determine whether they had been altered or compromised in any way, and
- b) placement of a new Official Joint Seal. The seal inspection and replacement process was carried out for all 42 deep storage gold compartments, in the presence of a Treasury

⁴¹³ Pictures of the old and new Official Joint Seals are provided as Exhibit 1 [Figure 42 & Figure 43] and Exhibit 2 [Figure 44], respectively.

OIG auditor, by a Mint headquarter staff person, representing the Mint Director, and a Mint storage facility staff person, representing the facility's Plant Manager. For each Official Joint Seal removed, the Mint headquarters representative, the Mint storage facility representative, and the observing Treasury OIG auditor signed an inspection report; the same parties also signed the new Official Joint Seal that replaced the one removed.

In September 2010, I took part in that process at Fort Knox. At that time, I personally saw the deep storage gold reserves located there. During my visit, I witnessed, along with officials from the Mint and one of my auditors, the replacement of all previously-placed Official Joint Seals with new Official Joint Seals. I would also like to note that shortly after my visit to the Mint's Fort Knox facility I sent a letter to you, Doctor Paul, regarding my observations. A copy of that letter is provided as Exhibit 3.

In closing, based on the work performed by my office and my own personal observations, I can assure the Subcommittee, and anyone else for that matter, that both the quantities and value the U.S. Government's deep storage gold reserves held and reported by the Mint are reliable and sufficiently audited. Therefore, I believe that the inventory and audit requirements proposed in *The Gold Reserve Transparency Act* of 2011, H.R. 1495, to be redundant of the work that my office and the Mint have and currently perform.

That concludes my prepared statement. I will be happy to answer any questions that you may have. Thank you.

Old Official Joint Seal Old Official Joint Seal New Official Joint Seal
Seal Inspector General Thorson Letter to the Honorable Ron Paul

Exhibit 1: Old Official Joint Seal

SEAL SERIAL NUMBER 932
UNITED STATES TREASURY DEPARTMENT
 MINT BUREAU
OFFICIAL JOINT SEAL

COMPARTMENT CONTROL No. _____ VAULT J
 GRIP LOCK SERIAL A13632 COMPARTMENT 2
 UNITED STATES Mint Denver, Colorado September 2, 1982
(DATE SEALING)

WE, WHOSE SIGNATURES APPEAR HEREON, CERTIFY THAT THE ENTIRE CONTENTS OF THE SEALED COMPARTMENT ABOVE SPECIFIED HAVE BEEN PERSONALLY VERIFIED BY US IN THE MANNER PRESCRIBED FOR SUCH DUTY IN JOINT SEALING REGULATIONS AS DESCRIBED BELOW AND THAT THE CONTENTS ARE: "Accepted in accordance with Method 5 of the Official Joint Sealing Regulations, Official Joint Seal Serial No. 949 dated September 3, 1981. Relocated from Vault J, Compartment 19."

	Number of Bars	Gross Weight	Fine Ozs. Gold
Coin Gold Bars	4,243	3,615,544.89	3,253,472.469
Less Assay Samples	-0-	10.43	9.388
"Total covered by this seal."	<u>4,243</u>	<u>3,615,534.46</u>	<u>3,253,463.081</u>

REPRESENTING THE INSTITUTION
W. A. Sweeney
George J. ...
John W. ...
Joseph J. ...

REPRESENTING THE DIRECTOR OF THE MINT
William H. ...
Karl L. ... (IL-BLFO)
Donald W. ...
Karl W. ... (IL-BLFO)

WE, WHOSE SIGNATURES APPEAR HEREON, BELOW, CERTIFY THAT WE HAVE INSPECTED THIS SEAL AND FOUND IT UNIMPAIRED AND HAVE THIS DAY REMOVED IT.

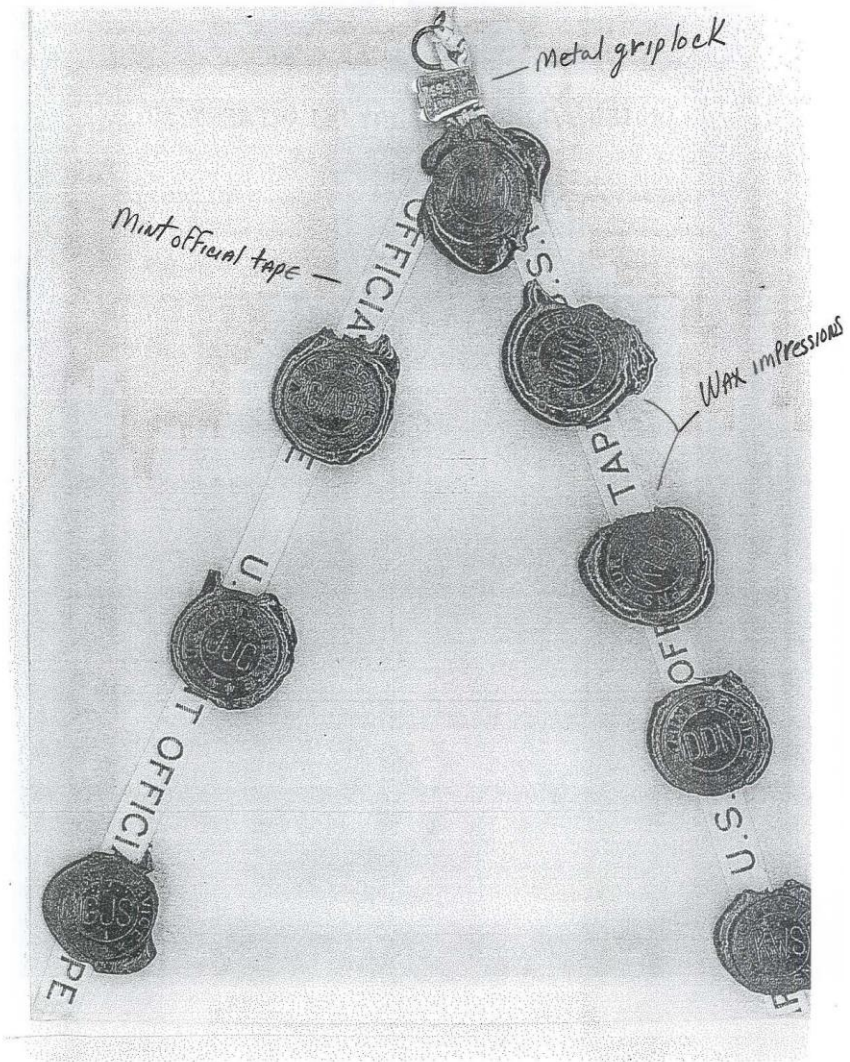
DATE OF REMOVAL 08.25.2010 PURPOSE REMOVED 4 NEW TYPE SEAL

REPRESENTING THE INSTITUTION
Julius ...

REPRESENTING THE DIRECTOR OF THE MINT
Arthur J. ...
Joseph T. ...

Figure 42

Exhibit 1: Old Official Joint Seal



2

Figure 43

Exhibit 2: New Official Joint Seal

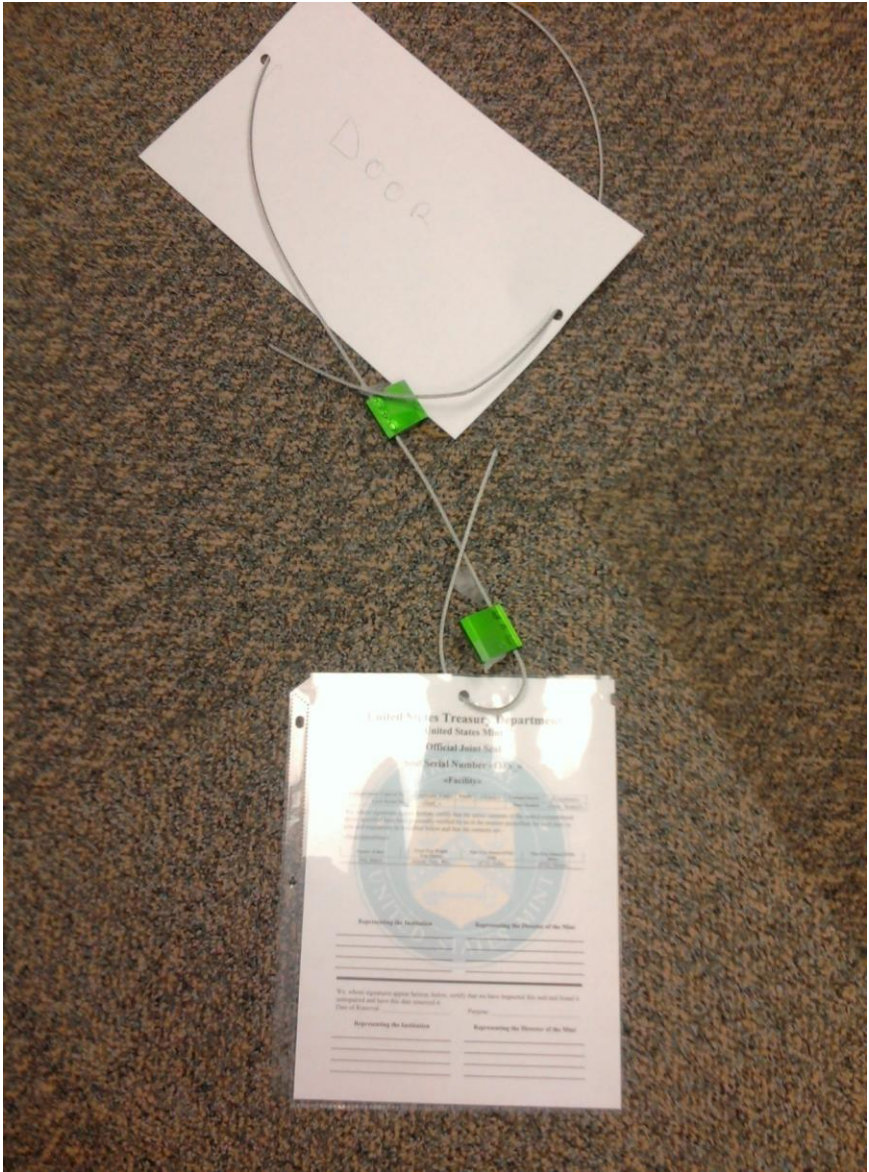


Figure 44

Exhibit 3: Inspector General Thorson Letter to Honorable Ron Paul



INSPECTOR GENERAL

DEPARTMENT OF THE TREASURY
WASHINGTON

September 24, 2010

The Honorable Ron Paul
U.S. House of Representatives
203 Cannon House Office Building
Washington, D.C. 20515

Dear Mr. Paul:

Recent media reports have indicated that you have concerns about the United States Government's gold reserves and plan to introduce legislation to provide for an annual audit. As the Inspector General of the Department of the Treasury – with the statutory responsibility of auditing all Treasury programs except for the Internal Revenue Service, I want to assure you that the gold reserves have been independently audited by my office on an annual basis since 1993. In fact, I visited Fort Knox earlier this week as part of the Fiscal Year 2010 audit where I personally observed the gold reserves located in each of the deep storage compartments.

My office, on an annual basis, directly observes the gold inventory by reviewing and evaluating internal control and physical security surrounding the gold storage, verifying the inventory of gold bars in each compartment and placing an Official Joint Seal on the compartment inventoried. In addition, we verify the mathematical accuracy of the inventory records, compare the inventoried gold to the Mint's records and compare the quantities on the Mint's records to the accounts for gold maintained by the Financial Management Service. We also visually inspect the Official Joint Seals on previously inventoried compartments.

During my visit, I witnessed, along with U.S. Mint officials, the current operation to replace the original Official Joint Seals on all the compartments containing deep storage gold with a new seal. I can tell you unequivocally that the gold reserves do exist in the amounts reported and the controls over it ensure absolute security.

I would be happy to answer any questions that you might have and can be reached at (202) 622-1090.

Sincerely,

A handwritten signature in blue ink, appearing to read "Eric M. Thorson", written over a horizontal line.

Eric M. Thorson
Inspector General

**WRITTEN TESTIMONY OF
GARY T. ENGEL**
DIRECTOR, FINANCIAL MANAGEMENT AND ASSURANCE
GOVERNMENT ACCOUNTABILITY OFFICE

**H.R. 1495
GOLD RESERVE TRANSPARENCY ACT OF 2011**

Mr. Chairman, Ranking Member Clay, and Other Members of the Subcommittee:

I am pleased to be here today to discuss H.R. 1495,⁴¹⁴ the Gold Reserve Transparency Act of 2011. This proposed legislation, which was recently referred to your Subcommittee, provides for an audit of the gold reserves of the United States. Specifically, the bill calls for the Secretary of the Treasury to conduct and complete, not later than 6 months after passage of the act, a full assay,⁴¹⁵ inventory, and audit of gold reserves of the United States at the place or places where such reserves are kept, together with an analysis of the sufficiency of the measures taken for the security of such reserves. The bill also calls for the Government Accountability Office (GAO) to review the results of such assay, inventory, audit, and analysis and, not later than 9 months after passage of the act, prepare and transmit to the Congress a report of GAO's findings together with the results of the work performed by the Secretary of the Treasury.

My testimony today will focus on (1) the reported holdings of gold reserves of the United States as of September 30, 2010; (2) past and current audit efforts regarding gold reserves of the United States, including those of the Department of the Treasury's (Treasury) Office of Inspector General (OIG); and (3) the requirements of H.R. 1495.

We conducted our work from June 3, 2011, to June 21, 2011, in accordance with all sections of GAO's Quality Assurance Framework that are relevant to our objectives. The framework requires that we plan and perform the engagement to obtain sufficient and appropriate evidence to meet our stated objectives and to discuss any limitations in our work. We believe that the information and data obtained, and the analysis conducted, provide a reasonable basis for any findings and conclusions in this product.

⁴¹⁴ Gold Reserve Transparency Act of 2011, H.R. 1495, 112th Congress (2011).

⁴¹⁵ To verify the fineness (the percentage of gold content at the time of melting) of a gold bar, it is assayed. This involves analyzing a sample from the bar to determine the quantity of gold in it.

Gold Reserves of the United States

The holdings of gold reserves of the United States are presented in various financial reports, including the United States Mint's (Mint) Schedule of Custodial Deep Storage Gold and Silver Reserves (Mint's Custodial Schedule), the Mint's financial statements, and Treasury's departmentwide financial statements. As of September 30, 2010, most, or approximately 95 percent, of the reported gold reserves of the United States were in the custody of the Mint. The gold reserves in the custody of the Mint are comprised of deep storage and working stock gold. Deep storage gold, which consists primarily of gold bars, represented nearly all of the gold reserves in the custody of the Mint and was maintained in three locations: the United States Bullion Depository at Fort Knox, Kentucky; the Mint at Denver, Colorado; and the Mint at West Point, New York. Working stock— which consists of bars, blanks, unsold coins, and condemned coins— represented about 1 percent of the reported gold reserves in the custody of the Mint and can be used as the raw material for minting coins. The remaining reported holdings of gold reserves of the United States were in the custody of the Federal Reserve Bank of New York. Table 1 presents the reported amounts as of September 30, 2010, of fine troy ounces (FTOs)⁴¹⁶ of gold reserves of the United States by category and the financial reports in which such categories were presented. From September 30, 2006, through September 30, 2010, the reported fiscal year-end amounts of FTOs of (1) deep storage gold reserves in the custody of the Mint and (2) gold reserves in the custody of the Federal Reserve Bank of New York have not changed.

⁴¹⁶ Fine troy ounces represent the gold content of the melt (that is, the melting, pouring, and casting of metal into molds) as determined by multiplying the melt's gross weight by its fineness.

Table 1: Gold Reserves of the United States as of September 30, 2010

	FTOs	Treasury's Departmentwide Financial Statements	Mint's Financial Statements	Mint's Custodial Schedule
Gold reserves in the custody of the Mint:				
Deep storage	245,262,897		X	X
Working stock	<u>2,783,219</u>		X	
Total gold reserves in the custody of the Mint	248,046,116	X		
Gold reserves in the custody of the Federal Reserve Bank of New York				
	<u>13,452,784</u>	X		
Total gold reserves of the United States	261,498,900			

Source: GAO analysis of Treasury financial reports.

Past and Current Audit Efforts Regarding Gold Reserves of the United States

In 1974, in response to congressional interest and in conjunction with the Mint, GAO assisted in the planning and observed the inventory of gold reserves of the United States maintained by the United States Bullion Depository at Fort Knox.⁴¹⁷ GAO selected 3 of the 13 compartments at this depository to be audited. The audit procedures included observing and participating in a physical inventory of the entire contents of the three compartments. GAO did not report any differences between the gold stored in these compartments and the Fort Knox depository's records. In addition, GAO's procedures included observing the assaying of a sample of gold bars. The results of the assays indicated that the recorded finenesses were within the tolerances the Mint established.

In connection with this audit, GAO recommended that the Secretary of the Treasury request the Director of the Mint to annually perform a cyclical inventory of its gold holdings to ensure that the gold holdings in all compartments would be inventoried over a specified period of years. Acting on this recommendation, Treasury established the Committee for Continuing Audits of United States Government-owned Gold (Committee for Continuing Audits) in 1975 to oversee and provide guidelines and general direction for continuing

⁴¹⁷ See GAO, *Accountability and Physical Controls of the Gold Bullion Reserves, Department of the Treasury*, FOD-75-10 (Washington, D.C.: February 1975).

audits.⁴¹⁸ The objectives of the continuing audits were to verify the accuracy of the inventory of gold and the adequacy of related accounting records and internal controls in accordance with Treasury audit policies. A March 1982 report to the Congress by the Gold Commission⁴¹⁹ noted that the continuing audit of such gold was conducted on a cyclical basis because of the enormous quantity of gold to be handled and the related costs.⁴²⁰ In an April 1987 report on continuing audits of the United States government-owned gold,⁴²¹ the Treasury OIG stated that the continuing audits were designed to ensure that about 10 percent of the United States government-owned gold was audited annually.⁴²² Further, the Treasury OIG stated that on September 19, 1986, the Inspector General had recommended canceling Treasury Department Order No. 234-1, which had resulted in the creation of the Committee for Continuing Audits, because it was unnecessary in view of the authority of the Inspector General to conduct audits of the gold stock under other Treasury Orders. It was also stated that annual audits of government-owned gold were no longer necessary because (1) virtually all of the gold in the custody of the Mint had been audited and placed under seal and (2) there had been essentially no discrepancies found as a result of those audits. Moreover, it was noted that Treasury Department Order No. 234-1 was subsequently canceled. According to the Treasury OIG, about 92 percent of the United States government-owned gold had been

⁴¹⁸ This committee was created as a result of the June 3, 1975, Department Order No. 234-1, issued by the Secretary of the Treasury authorizing and directing the Fiscal Assistant Secretary, with the cooperation and assistance of the Director of the Mint, to conduct a continuing audit of the United States government-owned gold for which the Treasury is accountable.

⁴¹⁹ Pursuant to Public Law 96-389, 94 Stat. 1551, 1555, § 10 (Oct. 7, 1980), the members of the Gold Commission were appointed by the Secretary of the Treasury to conduct a study to assess and make recommendations with regard to the policy of the U.S. government concerning the role of gold in domestic and international systems.

⁴²⁰ *Report to the Congress of the Commission on the Role of Gold in the Domestic and International Monetary Systems, Volume II, Annex D: Continuing Audit of the United States Government-Owned Gold*, March 1982.

⁴²¹ Department of the Treasury, Office of the Inspector General, *Summary Report of Continuing Audits of United States Government-owned Gold as of September 30, 1986*, OIG-87-42, (Apr. 24, 1987).

⁴²² In this report, the Treasury OIG stated that the Committee for Continuing Audits was headed by the Chief of the Internal Audit Staff of Treasury's Bureau of Government Financial Operations and included the Chief of the Internal Audit Staff of the Mint and the Assistant General Auditor of the Federal Reserve Bank of New York. The Treasury OIG also stated that (1) effective October 1, 1982, the internal audit staffs of the Bureau of Government Financial Operations and the Mint were reorganized under the Treasury OIG, and (2) on October 10, 1984, the Bureau of Government Financial Operations became the Financial Management Service.

audited by either GAO⁴²³ or the Committee for Continuing Audits as of September 30, 1986.

More recently, the gold reserves of the United States have been presented in various financial reports and have therefore been subject to various audit efforts. For example, while the deep storage gold reserves are a primary focus of the audit of the Mint's Custodial Schedule, which is audited by the Treasury OIG, the deep storage gold reserves are also within the scope of the audit of the Mint's financial statements, which are audited by independent public accountants. Also, as a bureau within Treasury, the balances and activity of the Mint are included on Treasury's departmentwide financial statements, which are required by law to annually be prepared, audited, and submitted to the Congress and the Director of the Office of Management and Budget. Specifically, 31 U.S.C. §3515(b) requires that the financial statements of covered executive agencies, of which Treasury is one, include the overall financial position of the offices, bureaus, and activities covered by the statements, including the assets and liabilities thereof; and the results of operations of those offices, bureaus, and activities.

Treasury OIG's Audits of Gold Reserves in the Custody of the Mint

The Inspector General Act of 1978, as amended,⁴²⁴ (IG Act) created offices of inspector general at major federal departments, including the Treasury OIG,⁴²⁵ to provide independent audits and investigations; promote economy, efficiency, and effectiveness; and prevent and detect fraud, waste, and abuse in the respective department's programs and operations.⁴²⁶ The Treasury OIG performs annual audits of the Mint's Custodial Schedule,⁴²⁷ which reports the deep storage gold reserves. As shown in table 1, the deep

⁴²³ Of the about 92 percent of the United States government-owned gold that had been audited as of September 30, 1986, GAO audited approximately 13 percent in 1974.

⁴²⁴ Pub. L. No. 95-452, 92 Stat. 1101 (Oct. 12, 1978) (codified, as amended, at 5 U.S.C. App.).

⁴²⁵ The Treasury OIG was established by the Inspector General Act Amendments of 1988 (Public Law 100-504).

⁴²⁶ In accordance with the IG Act, the Treasury OIG was appointed by the President and confirmed by the Senate, which, among other provisions of the IG Act, allows the Treasury's OIG to perform audits in compliance with the independence requirements of *Government Auditing Standards* (See GAO, *Government Auditing Standards, July 2007 Revision*, [GAO-07-731G](#) (Washington, D.C.: July 2007), issued by the Comptroller General of the United States), 5 U.S.C. App. § 4(b).

⁴²⁷ Prior to fiscal year 2000, the Mint's Custodial Schedule was called a Statement of Custodial Gold and Silver Reserves. Additionally, beginning in fiscal year 2006, "deep storage" was added to the title.

storage gold reserves represent nearly all of the gold reserves in the custody of the Mint.

Since issuing its first audit report on the Mint's Custodial Schedules in 1995, which presented the results of its audit of the Mint's Custodial Schedules as of September 30, 1994, and 1993, the Treasury OIG has annually audited the deep storage gold reserves in the custody of the Mint as reported in the respective Mint's Custodial Schedules. For each of the fiscal years under audit, the Treasury OIG rendered unqualified or "clean" opinions on the Mint's Custodial Schedules. In addition, the Treasury OIG did not report any material weaknesses⁴²⁸ in internal control over financial reporting relating to the schedules for these fiscal years. The Treasury OIG's most recent audit report on the Mint's Custodial Schedules, which presented the deep storage gold reserves in the custody of the Mint as of September 30, 2010, was issued on October 21, 2010.

In connection with the Treasury OIG's annual audits of the Mint's Custodial Schedules, Treasury OIG officials told us that the Treasury OIG reviews the physical controls (e.g., security fences, armed guards, security cameras, metal detectors) at each of the three Mint locations where the deep storage gold reserves are maintained. According to Treasury OIG officials, as of September 30, 2010, there were 42 compartments of deep storage gold reserves spread among these three Mint locations. As previously noted, Treasury OIG officials estimate that about 92 percent of the United States government-owned gold was audited by either GAO or the Committee for Continuing Audits as of September 30, 1986. These officials told us that once the inventory of a compartment being audited was completed, the compartment was sealed with an official joint seal. A joint seal is intended to place the gold contained in a compartment under such control that subsequent representatives can accept the verification made by previous representatives as to the weight and count of the gold.

According to Treasury OIG officials, the official joint seals, for all of the compartments that were audited by either GAO or the committee and that had not been opened since such audits, were inspected by the Treasury OIG, as part of its audits of the Mint's

⁴²⁸ A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected, on a timely basis. A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis.

Custodial Schedules, to verify that the seals had not been compromised. These officials also told us that over the course of the Treasury OIG's audits of the Mint's Custodial Schedules for fiscal years 1993 through 2008, the compartments containing the deep storage gold reserves not audited by either GAO or the committee, along with any previously sealed compartments that were opened, were selected and audited. These officials told us that such audits included verifying the following to the Mint's inventory records:

- (1) the number of gold bars in each melt;
- (2) the melt number for each gold bar in the melt; and
- (3) the fineness stamped on each gold bar in the melt.

In addition, as part of the audits of the selected compartments, Treasury OIG officials stated that the Treasury OIG's audit procedures have included selecting a statistical sample of gold bars from the selected compartments to be weighed and assayed and that no material differences were noted. These officials also told us that once the inventory of a selected compartment being audited was completed, the compartment was sealed with an official joint seal to control the gold reserves contained in the compartment. According to Treasury OIG officials, opening and sealing compartments require the presence of three individuals—a representative of the facility where the gold reserves are held, a representative of the Director of the Mint, and a representative of the Treasury OIG. They also told us that, as of the end of fiscal year 2008, an inventory of each of the 42 compartments had been observed either by GAO, the Committee for Continuing Audits, or the Treasury OIG and that there has been no movement of deep storage gold reserves since that time. As such, in addition to considering internal control over financial reporting related to the Mint's Custodial Schedules, Treasury OIG officials stated that the Treasury OIG's audit procedures since fiscal year 2008 have primarily focused on inspecting the official joint seals each year for all 42 compartments to verify that they had not been compromised.

Independent Public Accountants' Audits Covering Gold Reserves in the Custody of the Federal Reserve Bank of New York and the Mint

The gold reserves of the United States on Treasury's departmentwide financial statements consist of the gold reserves in the custody of the Mint and those in the custody of the Federal

Reserve Bank of New York. Since fiscal year 2004, independent public accountants have rendered clean opinions on these financial statements. According to Treasury OIG officials, these independent public accountants' primary audit procedure regarding the gold reserves in the custody of the Federal Reserve Bank of New York involves annually obtaining a confirmation from the Federal Reserve regarding the gold reserves of the United States that are in the Federal Reserve Bank of New York's custody as of fiscal year-end, including the amount of FTOs. The gold reserves in the custody of the Mint are also reported on the Mint's annual financial statements. Independent public accountants have rendered clean opinions on the Mint's financial statements for fiscal years 2005 through 2010.⁴²⁹ According to Treasury OIG officials, these independent public accountants' procedures with regard to the deep storage gold reserves in the custody of the Mint have included reviewing the Treasury OIG's audit documentation, accompanying the Treasury OIG on site visits to the Mint's storage locations, reviewing the physical controls at the locations visited, and reperforming certain of the Treasury OIG's audit procedures.

Requirements of H.R. 1495

H.R. 1495 provides for the Secretary of the Treasury to conduct and complete a full assay, inventory, and audit of gold reserves of the United States and an analysis of the sufficiency of the measures taken for the security of such reserves. In considering the provisions of H.R. 1495, it will be important to consider the cost, benefit, and timing of actions needed to implement the proposed requirements. H.R. 1495, if enacted, may result in duplication of certain past and current efforts, especially with regard to inventorying and auditing the gold reserves of the United States. Nevertheless, GAO would be capable of carrying out the required review of the results of the Secretary of the Treasury's actions called for by the bill, should it be enacted. GAO's review would include visits to the facilities at which the gold reserves of the United States are held to selectively observe the inventorying and auditing of the gold reserves and examinations of various documentation supporting the required assay, inventory, and audit.

⁴²⁹ With regard to the Mint's financial statements for fiscal years 1993 through 2004, the Mint's independent public accountants reported that they did not audit the gold reserves included in the Mint's Custodial Schedules. Their opinions on these financial statements, in so far as they related to such gold reserves, were based solely on the reports of the Treasury OIG regarding the related Mint Custodial Schedule.

H.R. 1495 also provides for GAO to prepare and transmit to the Congress, not later than 9 months after enactment of the act, a report of GAO's findings from such review together with the results of the assay, inventory, audit, and analysis conducted by the Secretary of the Treasury. According to Treasury officials, because of the enormous quantity of gold that would need to be inventoried and assayed, there is uncertainty regarding the ability of Treasury to complete such actions within the 6-month period provided in H.R. 1495. If Treasury's efforts are not completed within the 6-month period, there would be limitations on the scope of GAO's work if GAO were required to report within 9 months after enactment of the act. GAO stands ready to work with the Subcommittee on developing changes to the provisions of H.R. 1495 that would most efficiently utilize the results of past and current gold reserve assay, inventory, and audit efforts.

Mr. Chairman and Ranking Member Clay, this concludes my prepared statement. I would be pleased to respond to any questions that you or other members of the Subcommittee may have at this time.

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Ron Paul's
MONETARY POLICY
ANTHOLOGY



MATERIALS FROM THE
CHAIRMANSHIP OF THE
SUBCOMMITTEE ON DOMESTIC
MONETARY POLICY & TECHNOLOGY
U.S. HOUSE OF REPRESENTATIVES
112TH CONGRESS

VOL. II.
APPENDICES

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PUBLISHED BY THE U.S. HOUSE OF REPRESENTATIVES
OFFICE OF CONGRESSMAN RON PAUL
14TH DISTRICT OF TEXAS
DECEMBER 2012

"... all those who wish to stop the drift toward increasing government control should concentrate their effort on monetary policy."

F. A. Hayek

Ron Paul's Monetary Policy Anthology

VOL. II

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SUPPLEMENTAL MATERIALS FROM THE
“IMPROVING THE FEDERAL RESERVE SYSTEM:
EXAMINING LEGISLATION TO REFORM THE FED
AND OTHER ALTERNATIVES”
HEARING OF THE SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY AND TECHNOLOGY

Tuesday, May 8th, 2012

ATTACHMENT TO CHAIRMAN PAUL'S STATEMENT

MONETARY HISTORY EXCERPTS FROM
THE MINORITY REPORT OF THE U.S. GOLD COMMISSION

II. A HISTORY OF MONEY AND BANKING IN THE UNITED STATES BEFORE THE 20TH CENTURY

As an outpost of Great Britain, colonial America of course used British pounds, pence, and shillings as its money. Great Britain was officially on a silver standard, with the shilling defined as equal to 86 pure Troy grains of silver, and with silver as so defined legal tender for all debts (i.e., creditors were compelled to accept silver at that rate). However, Britain also coined gold and maintained a bimetallic standard by fixing the gold guinea, weighing 129.4 grains of gold, as equal in value to a certain weight of silver. In that way, gold became, in effect, legal tender as well. Unfortunately, by establishing bimetallicism, Britain became perpetually subject to the evils known as Gresham's Law, which states that when government compulsorily overvalues one money and undervalues another, the undervalued money will leave the country or disappear into hoards, while the overvalued money will flood into circulation. Hence, the popular catchphrase of Gresham's Law: "Bad money drives out good." But the important point to note is that the triumph of "bad" money is the result, *not* of perverse free-market competition, but of government using the compulsory legal tender power to privilege one money above another.

In 17th- and 18th-century Britain, the government maintained a mint ratio between gold and silver that consistently overvalued gold and undervalued silver in relation to world market prices, with the resultant disappearance and outflow of full-bodied silver coins, and an influx of gold, and the maintenance in circulation of only eroded and "lightweight" silver coins. Attempts to rectify the fixed bimetallic ratios were always too little and too late.¹

In the sparsely settled American colonies, money, as it always does, arose in the market as a useful and scarce commodity and

¹ In the late 17th and early 18th centuries, the British maintained fixed mint ratios of from 15.1:1 of silver grains in relation to gold grains, to about 15.5:1. Yet the world market ratio of weight, set by forces of supply and demand, was about 14.9:1. Thus, silver was consistently undervalued and gold overvalued. In the 18th century, the problem got even worse, for increasing gold production in Brazil and declining silver production in Peru brought the market ratio down to 14.1:1 while the mint ratios fixed by the British government continued to be the same.

began to serve as a general medium of exchange. Thus, beaver fur and wampum were used as money in the North for exchanges with the Indians, and fish and corn also served as money. Rice was used as money in South Carolina, and the most widespread use of commodity money was tobacco, which served as money in Virginia. The pound-of-tobacco was the currency unit in Virginia, with warehouse receipts in tobacco circulating as money backed 100 percent by the tobacco in the warehouse.

While commodity money continued to serve satisfactorily in rural areas, as the colonial economy grew, Americans imported gold and silver coins to serve as monetary media in urban centers and in foreign trade. English coins were imported, but so too were gold and silver coins from other European countries. Among the gold coins circulating in America were the French guinea, the Portuguese “joe,” the Spanish doubloon, and Brazilian coins, while silver coins included French crowns and livres.

It is important to realize that gold and silver are international commodities, and that therefore, when not prohibited by government decree, foreign coins are perfectly capable of serving as standard moneys. There is no need to have a national government monopolize the coinage, and indeed foreign gold and silver coins constituted much of the coinage in the United States until Congress outlawed the use of foreign coins in 1857. Thus, if a free market is allowed to prevail in a country, foreign coins will circulate naturally. Silver and gold coins will tend to be valued in proportion to their respective weights, and the ratio *between* silver and gold will be set by the market in accordance with their relative supply and demand.

Shilling/Dollar Manipulations

By far the leading specie coin circulating in America was the Spanish silver dollar, defined as consisting of 387 grains of pure silver. The dollar was divided into “pieces of eight,” or “bits,” each consisting of one-eighth of a dollar. Spanish dollars came into the North American colonies through the lucrative trade with the West Indies. The Spanish silver dollar had been the world’s outstanding coin since the early 16th century, and was spread partially by dint of the vast silver output of the Spanish colonies in Latin America. More important, however, was the fact that the Spanish dollar, from the 16th to the 19th century, was relatively the most stable and least debased coin in the Western world.²

² The name “dollar” came from the “thaler,” the name given to the coin of similar weight, the “Joachimsthaler” or “schlicken thaler,” issued since the early 16th century by the Count of Schlick in Joachimsthal in Bohemia. The Joachimsthalers weigh 451 Troy grains of silver. So

Since the Spanish silver dollar consisted of 387 grains, and the English shilling consisted of 86 grains of silver, this meant the natural, free-market ratio between the two coins would be 4 shillings 6 pence per dollar.³

Constant complaints, both by contemporaries and by some later historians, arose about an alleged “scarcity of money,” especially of specie, in the colonies, allegedly justifying numerous colonial paper money schemes to remedy that “shortage.” In reality, there was no such shortage. It is true that England, in a mercantilist attempt to hoard specie, kept minting for its own prerogative and outlawed minting in the colonies; it also prohibited the export of English coin to America. But this did not keep specie from America, for, as we have seen, Americans were able to import Spanish and other foreign coin, including English, from other countries. Indeed, as we shall see, it was precisely paper money issues that led, by Gresham’s Law, to outflows and disappearance of specie from the colonies.

In their own mercantilism, the colonial governments early tried to hoard their own specie by debasing their shilling standards in terms of Spanish dollars. Whereas their natural weights dictated a ratio of 4 shillings per 6 pence to the dollar, Massachusetts, in 1642, began a general colonial process of competitive debasement of shillings. Massachusetts arbitrarily decreed that the Spanish dollar be valued at 5 shillings; the idea was to attract an inflow of Spanish silver dollars into that colony, and to subsidize Massachusetts exports by making their prices cheaper in terms of dollars. Soon, Connecticut and other colonies followed suit, each persistently upping the ante of debasement. The result was to increase the supply of nominal units of account by debasing the shilling, inflating domestic prices and thereby bringing the temporary export stimulus to a rapid end. Finally, the English government brought a halt to this futile and inflationary practice in 1707.

But the colonial governments had already found another, and far more inflationary, arrow for their bow: the invention of government fiat paper money.

Government Paper Money

Apart from medieval China, which invented both paper and printing centuries before the West, the world had never seen

successful were these coins that similar thalers were minted in Burgundy, Holland, France; most successful of these was the Maria Theresa thaler, which began being minted in 1751, and formed a considerable portion of American currency after that date. The Spanish “pieces of eight” adopted the name “dollar” after 1690.

³ Since 20 shillings make £1, this meant that the natural ratio between the two currencies was £1 = \$4.44.

government paper money until the colonial government of Massachusetts emitted a fiat paper issue in 1690.^{4,5} Massachusetts was accustomed to launching plunder expeditions against the prosperous French colony in Quebec. Generally, the expeditions were successful, and would return to Boston, sell their booty, and pay off the soldiers with the proceeds. This time, however, the expedition was beaten back decisively, and the soldiers returned to Boston in ill-humor, grumbling for their pay. Discontented soldiers are ripe for mutiny, so the Massachusetts government looked around in concern for a way to pay the soldiers. It tried to borrow 3-4,000 pounds from Boston merchants, but evidently the Massachusetts credit rating was not the best. Finally, Massachusetts decided in December 1690 to print £7,000 in paper notes and to use them to pay the soldiers. Suspecting that the public would not accept irredeemable paper, the government made a twofold pledge when it issued the notes: that it would redeem them in gold or silver out of tax revenue in a few years and that absolutely no further paper notes would be issued. Characteristically, however, both parts of the pledge went quickly by the board: The issue limit disappeared in a few months, and all the bills continued unredeemed for nearly 40 years. As early as February 1691, the Massachusetts government proclaimed that its issue had fallen “far short” and so it proceeded to emit £40,000 of new money to repay all of its outstanding debt, again pledging falsely that this would be the absolutely final note issue.

But Massachusetts found that the increase in the supply of money, coupled with a fall in the demand for paper because of growing lack of confidence in future redemption in specie, led to a rapid depreciation of new money in relation to specie. Indeed, in a year after the initial issue, the new paper pound had depreciated on the market by 40 percent against specie.

By 1692, the government moved against this market evaluation by use of force, making the paper money compulsory legal tender for all debts at par with specie, and by granting a premium of five percent on all payment of debts to the government made in paper

⁴ Government paper redeemable in gold began in the early 9th century, and after three centuries the government escalated to irredeemable fiat paper, with the usual consequence of boom-bust cycles, and runaway inflation. See Gordon Tullock, “Paper Money—A Cycle in Cathay,” *Economic History Review*, vol. IX, no. 3 (1957), pp. 393-396.

⁵ The only exception was a curious form of paper money issued five years earlier in Quebec, to become known as Card Money. The governing *intendant* of Quebec, Monsieur Mueles, divided some playing cards into quarters, marked them with various monetary denominations, and then issued them to pay for wages and materials sold to the government. He ordered the public to accept the cards as legal tender, and this particular issue was later redeemed in specie sent from France.

notes. This legal tender law had the unwanted effect of Gresham's Law: the disappearance of specie circulation in the colony. In addition, the expanding paper issues drove up prices and hampered exports from the colony. In this way, the specie "shortage" became the creature rather than the cause of the fiat paper issues. Thus, in 1690, before the orgy of paper issues began, £200,000 of silver money was available in New England; by 1711 however, with Connecticut and Rhode Island having followed suit in paper money issue, £240,000 of paper money had been issued in New England but the silver had almost disappeared from circulation.

Ironically, then, Massachusetts' and her sister colonies' issue of paper created rather than solved any "scarcity of money." The new paper drove out the old specie. The consequent driving up of prices and depreciation of paper scarcely relieved any alleged money scarcity among the public. But since the paper was issued to finance government expenditures and pay public debts, the *government*, not the public, benefited from the fiat issue.

After Massachusetts had emitted another huge issue of £500,000 in 1711 to pay for another failed expedition against Quebec, not only was the remainder of the silver driven from circulation, but despite the legal tender law, the paper pound depreciated 30 percent against silver. Massachusetts pounds, officially seven shillings to the silver ounce, had now fallen on the market to nine shillings per ounce. Depreciation proceeded in this and other colonies despite fierce governmental attempts to outlaw it, backed by fines, imprisonment, and total confiscation of property for the high crime of not accepting the paper at par.

Faced with a further "shortage of money" due to the money issues, Massachusetts decided to press on; in 1716, it formed a government "land bank" and issued £100,000 in notes to be loaned on real estate in the various counties of the province.

Prices rose so dramatically that the tide of opinion in Massachusetts began to turn against paper, as writers pointed out that the result of the issues was a doubling of prices in the past 20 years, depreciation of paper, and the disappearance of Spanish silver through the operation of Gresham's Law. From then on, Massachusetts, pressured by the Crown, tried intermittently to reduce the bills in circulation and return to a specie currency, but was hampered by its assumed obligations to honor the paper notes at par of its sister New England colonies.

In 1744, another losing expedition against the French led Massachusetts to issue an enormous amount of paper money over the next several years. From 1744 to 1748, paper money in circulation

expanded from £300,000 to £2.5 million, and the depreciation of Massachusetts was such that silver had risen on the market to 60 shillings an ounce, 10 times the price at the beginning of an era of paper money in 1690.

By 1740, every colony but Virginia had followed suit in fiat paper money issues, and Virginia succumbed in the late 1750s in trying to finance part of the French and Indian War against the French. Similar consequences—dramatic inflation, shortage of specie, massive depreciation despite compulsory par laws—ensued in each colony. Thus, along with Massachusetts' depreciation of 11:1 of its notes against specie compared to the original par, Connecticut's notes had sunk to 9:1 and the Carolinas' at 10:1 in 1740, and the paper of virulently inflationist Rhode Island had sunk to 23:1 against specie. Even the least-inflated paper, that of Pennsylvania, had suffered an appreciation of specie to 80 percent over par.

A detailed study of the effects of paper money in New Jersey shows how it created a boom-bust economy over the colonial period. When new paper money was injected into the economy, an inflationary boom would result, to be followed by a deflationary depression when the paper money supply contracted.⁶

At the end of King George's War with France in 1748, Parliament began to pressure the colonies to retire the mass of paper money and return to a specie currency. In 1751, Great Britain prohibited all further issues of legal tender paper in New England and ordered a move toward redemption of existing issues in specie. Finally, in 1764, Parliament extended the prohibition of new issues to the remainder of the colonies and required the gradual retirement of outstanding notes.

Following the lead of Parliament, the New England colonies, apart from Rhode Island, decided to resume specie payment and retire their paper notes rapidly at the current depreciated market rate. The panicky opponents of specie resumption and monetary contraction made the usual predictions in such a situation: that the result would be a virtual absence of money in New England and the consequent ruination of all trade. Instead, however, after a brief adjustment, the resumption and retirement led to a far more prosperous trade and production—the harder money and lower prices attracting an inflow of specie. In fact, with Massachusetts on specie and Rhode Island still on depreciated paper, the result was that Newport, which had been a flourishing center for West Indian

⁶ Donald L. Kemmerer, "Paper Money in New Jersey, 1668-1775," *New Jersey Historical Society, Proceedings* 74 (April 1956): 107-144.

imports for Western Massachusetts, lost its trade to Boston and languished in the doldrums.^{7,8}

In fact, as one student of colonial Massachusetts has pointed out, the return to specie occasioned remarkably little dislocation, recession, or price deflation. Indeed, wheat prices fell by less in Boston than in Philadelphia, which saw no such return to specie in the early 1750s. Foreign exchange rates, after the resumption of specie, were highly stable, and “the restored specie system operated after 1750 with remarkable stability during the Seven Years War and during the dislocation of international payments in the last years before the Revolution.”⁹

Not being outlawed by government decree, specie remained in circulation throughout the colonial period, even during the operation of paper money. Despite the inflation, booms and busts, and shortages of specie caused by paper issues, the specie system worked well overall: “Here was a silver standard ... in the absence of institutions of the central government intervening in the silver market, and in the absence of either a public or private central bank adjusting domestic credit or managing a reserve of specie or foreign exchange with which to stabilize exchange rates. The market ... kept exchange rates remarkably close to the legislated par. ... What is most remarkable in this context is the continuity of the specie system through the seventeenth and eighteenth centuries.”¹⁰

Private Bank Notes

In contrast to government paper, private bank notes and deposits, redeemable in specie, had begun in Western Europe in Venice in the

⁷ Before Massachusetts went back to specie, it was committed to accept the notes of the other New England colonies at par. This provided an incentive for Rhode Island to inflate its currency wildly, for this small colony, with considerable purchases to make in Massachusetts, could make these purchases in inflated money at par. Thereby Rhode Island could export its inflation to the larger colony, but make its purchases with the new money before Massachusetts prices could rise in response. In short, Rhode Island could expropriate wealth from Massachusetts and impose the main cost of its inflation on the latter colony.

⁸ If Rhode Island was the most inflationary of the colonies, Maryland's monetary expansion was the most bizarre. In 1733, Maryland's public land bank issued £ 70,000 of paper notes, of which £ 30,000 was *given away* in a fixed amount to each inhabitant of the province. This was done to universalize the circulation of the new notes, and is probably the closest approximation in history of Milton Friedman's “helicopter” model, in which a magical helicopter lavishes new paper money in fixed amounts of proportions to each inhabitant. The result of the measure, of course, was rapid depreciation of new notes. However, the inflationary impact of the notes was greatly lessened by tobacco still being the major money of the new colony. Tobacco was legal tender in Maryland and the paper was not receivable for all taxes.

⁹ Roger W. Weiss, “The Colonial Monetary Standard of Massachusetts,” *Economic History Review* 27 (November 1974): 589.

¹⁰ *Ibid.*, p. 591.

14th century. Firms granting credit to consumers and businesses had existed in the ancient world and in medieval Europe, but these were “money lenders” who loaned out their own savings. “Banking” in the sense of lending out the savings of others only began in England with the “scriveners” of the early 17th century. The scriveners were clerks who wrote contracts and bonds and were therefore in a position to learn of mercantile transactions and engage in money lending and borrowing.¹¹

There were, however, no banks of deposit in England until the Civil War in the mid-17th century. Merchants had been in the habit of storing their surplus gold in the King’s Mint for safekeeping. The habit proved to be unfortunate, for when Charles I needed money in 1638, shortly before the outbreak of the Civil War, he confiscated the huge sum of £200,000 of gold, calling it a “loan” from the owners. Although the merchants finally got their gold back, they were understandably shaken by the experience, and forsook the Mint, depositing their gold instead in the coffers of private goldsmiths, who, like the Mint, were accustomed to storing the valuable metal. The warehouse receipts of the goldsmiths soon came to be used as a surrogate for the gold itself. By the end of the Civil War, in the 1660s, the goldsmiths fell prey to the temptation to print pseudo-warehouse receipts not covered by gold and lend them out; in this way fractional-reserve banking came to England.¹²

Very few private banks existed in colonial America, and they were shortlived. Most prominent was the Massachusetts Land Bank of 1740, issuing notes and lending them out on real estate. The Land Bank was launched as an inflationary alternative to government paper, which the royal governor was attempting to restrict. The land bank issued frankly irredeemable notes, and fear of its unsound issue generated a competing private silver Bank, which emitted notes redeemable in silver. The Land Bank promptly issued over £ 49,000 in irredeemable notes, which depreciated very rapidly. In six months’ time the public was almost universally refusing to accept the bank’s notes and Land Bank sympathizers vainly accepting the notes. The

¹¹ During the 16th century, before the rise of the scriveners, most English money-lending was not even conducted by specialized firms, but by wealthy merchants in the clothing and woolen industries, as outlets for their surplus-capital. See J. Milnes Holden, *The History of Negotiable Instruments in English Law* (London: The Athlone Press, 1955), pp. 205-206.

¹² Once again, ancient China pioneered in deposit banking, as well as in fractional-reserve banking. Deposit banking *per se* began in the 8th century A.D., when shops would accept valuables, in return for warehouse receipts, and receive a fee for keeping them safe. After a while, the deposit receipts of these shops began to circulate as money. Finally, after two centuries, the shops began to issue and lend out more receipts than they had on deposit; they had caught on to fractional reserve banking. (Tullock, “Paper Money,” p. 396.)

final blow came in 1741, when Parliament, acting at the request of several Massachusetts merchants and the royal governor, outlawed both the law and the silver banks.

One intriguing aspect of both the Massachusetts Land Bank and other inflationary colonial schemes is that they were advocated and lobbied for by some of the wealthiest merchants and land speculators in the respective colonies. Debtors benefit from inflation and creditors lose; realizing this fact, older historians assumed that debtors were largely poor agrarians and creditors were wealthy merchants and that therefore the former were the main sponsors of inflationary nostrums. But, of course, there are no rigid “classes” of debtors and creditors; indeed, wealthy merchants and land speculators are often the heaviest debtors. Later historians have demonstrated that members of the latter group were the major sponsors of inflationary paper money in the colonies.^{13,14}

Revolutionary War Finance

To finance the Revolutionary War, which broke out in 1775, the Continental Congress early hit on the device of issuing fiat paper money. The leader in the drive for paper money was Gouverneur Morris, the highly conservative young scion of the New York landed aristocracy. There was no pledge to redeem the paper, even in the future, but it was supposed to be retired in seven years by taxes levied pro rata by the separate states. Thus, a heavy future tax burden was supposed to be added to the inflation brought about the new paper money. The retirement pledge, however, was soon forgotten, as Congress, enchanted by this new, seemingly costless form of revenue, escalated its emissions of fiat paper. As a historian

¹³ On the Massachusetts Land Bank, see the illuminating study by George Athan Billias, “The Massachusetts Land Bankers of 1740.” *University of Maine Bulletin* LXI (April 1959). On merchant enthusiasm for inflationary banking in Massachusetts, see Herman J. Belz, “Paper Money in Colonial Massachusetts,” Essex Institute, *Historical Collections* 101 (April 1965): 146-163; and Belz, “Currency Reform in Colonial Massachusetts, 1749-1750.” Essex Institute, *Historical Collections* 103 (January 1967): 66-84. On the forces favoring colonial inflation in general, see Bray Hammond, *Banks and Politics in America* (Princeton University Press, 1957), Chap. 1; Joseph Dorfman, *The Economic Mind in American Civilization, 1606-1865* (New York: Viking Press, 1946), p. 142.

¹⁴ For an excellent bibliographical essay on colonial money and banking, see Jeffrey Rogers Hummel, “The Monetary History of America to 1789: A Historiographical Essay,” *Journal of Libertarian Studies* 2 (Winter 1978): 373-389. For a summary of colonial monetary experience, see Murray N. Rothbard, *Conceived in Liberty, Vol. II, Salutary Neglect, The American Colonies in the First Half of the 18th Century* (New Rochelle, N.Y.: Arlington House, 1975), pp. 123-140. A particularly illuminating analysis is in the classic work by Charles Jesse Bullock, *Essays on the Monetary History of the United States* (1900, New York: Greenwood Press, 1969), pp. 1-59. Up-to-date data on the period is in Roger W. Weiss, “The Issue of Paper Money in the American Colonies, 1720-1774,” *Journal of Economic History* 30 (December 1970): 770-784.

has phrased it, “such was the beginning of the ‘federal trough,’ one of America’s most imperishable institutions.”¹⁵

The total money supply of the United States at the beginning of the Revolution has been estimated at \$12 million. Congress launched its first paper issue of \$2 million in late June 1775, and before the notes were printed it had already concluded that another \$1 million was needed. Before the end of the year, a full \$6 million in paper issues were issued or authorized, a dramatic increase of 50 percent in the money supply in one year.

The issue of this fiat “continental” paper rapidly escalated over the next few years. Congress issued \$6 million in 1775, \$19 million in 1776, \$13 million in 1777, \$64 million in 1778, and \$125 million in 1779. This was a total issue of over \$225 million in five years superimposed upon preexisting money supply of \$12 million. The result was, as could be expected, a rapid price inflation in terms of the paper notes, and a corollary accelerating depreciation of the paper in terms of specie. Thus, by the end of 1776, the Continentals were worth \$1 to \$1.25 in specie; by the fall of the following year, its value had fallen to 3 to 1; by December 1778 the value was 6.8 to 1; and by December 1779 to the negligible 42 to 1. By the spring of 1781, the Continentals were virtually worthless, exchanging on the market at 168 paper dollars to one dollar in specie. This collapse of the Continental currency gave rise to the phrase, “not worth a Continental.”

To top this calamity, the several states issued their own paper money, and each depreciated at varying rates. Virginia and the Carolinas led the inflationary move, and by the end of the war, state issues added a total of 210 million depreciated dollars to the nation’s currency.

In an attempt to stem the inflation and depreciation, various states levied maximum price controls and compulsory par laws. The result was only to create shortages and impose hardships on large sections of the public. Thus, soldiers were paid in Continentals, but farmers understandably refused to accept payment in paper money despite legal coercion. The Continental Army then moved to “impress” food and other supplies, seizing the supplies and forcing the farmers and shopkeepers to accept depreciated paper in return. By 1779, with Continental paper virtually worthless, the Continental Army stepped up its impressments, “paying” for them in newly issued paper tickets or “certificates” issued by the army quartermaster and commissary departments. The states followed suit with their own massive

¹⁵ Edmund Cody Burnett, *The Continental Congress* (New York: W.W. Norton, 1964), p. 83.

certificate issues. It understandably took little time for these certificates, federal and state, to depreciate in value to nothing; by the end of the war, federal certificate issues alone totaled \$200 million.

The one redeeming feature of this monetary calamity was that the federal and state governments at least allowed these paper issues to sink into worthlessness without insisting that taxpayers shoulder another grave burden by being forced to redeem these issues specie at par, or even to redeem them at all.¹⁶ Continentals were not redeemed at all, and state paper was only redeemed at depreciating rates, some at the greatly depreciated market value.¹⁷ By the end of the war, all the wartime state paper had been withdrawn from circulation.

Unfortunately, the same policy was not applied to another important device that Congress turned to after its Continental paper had become almost worthless in 1779: loan certificates. Technically, loan certificates were public debt, but they were scarcely genuine loans. They were simply notes issued by the government to pay for supplies and accepted by the merchants because the government would not pay anything else. Hence, the loan certificates became a form of currency, and rapidly depreciated. As early as the end of 1779, they had depreciated to 24 to 1 in specie. By the end of the war, \$600 million of loan certificates had been issued. Some of the later loan certificate issues were liquidated at a depreciated rate, but the bulk remained after the war to become the substantial core of the permanent, peacetime federal debt.

The mass of federal and state debt could have depreciated and passed out of existence by the end of the war, but the process was stopped and reversed by Robert Morris, wealthy Philadelphia merchant and virtual economic and financial czar of the Continental Congress in the last years of the war. Morris, leader of the nationalist forces in American politics, moved to make the depreciated federal debt ultimately redeemable in par and also agitated for federal assumption of the various state debts. The reason was twofold: (a) to confer a vast subsidy on speculators who had purchased the public debt at highly depreciated values, by paying interest and principal at

¹⁶ As one historian explained, "Currency and certificates were the 'common debt' of the Revolution, most of which at war's end had been sunk at its depreciated value. Public opinion ... tended to grade claims against the government according to their real validity. Paper money had the least status. ..." E. James Ferguson, *The Power of the Purse: A History of American Public Finance, 1776-1790* (Chapel Hill, N.C.: University of North Carolina Press, 1961), p. 68.

¹⁷ In Virginia and Georgia, the state paper was redeemed at the highly depreciated market rate of 1,000 to 1 in specie.

par in specie;¹⁸ and (b) to build up the agitation for taxing power in the Congress, which the Articles of Confederation refused to allow to the federal government. The decentralist policy of the states' raising taxes or issuing new paper money to pay off the pro rata federal debt as well as their own was thwarted by the adoption of the Constitution, which brought about the victory of the nationalist program, led by Morris's youthful disciple and former aide, Alexander Hamilton.

The Bank of North America

Robert Morris's nationalist vision was not confined to a strong central government, the power of the federal government to tax, and a massive public debt fastened permanently upon the taxpayers. Shortly after he assumed total economic power in Congress in the spring of 1781, Morris introduced a bill to create the first commercial bank, as well as the first central bank, in the history of the new Republic. This bank, headed by Morris himself, the Bank of North America, was not only the first fractional-reserve commercial bank in the U.S.; it was to be a privately owned central bank, modeled after the Bank of England. The money system was to be grounded upon specie, but with a controlled monetary inflation pyramiding an expansion of money and credit upon a reserve of specie.

The Bank of North America, which quickly received a federal charter and opened its doors at the beginning of 1782, received the privilege from the government of its notes being receivable in all duties and taxes to all governments, at par with specie. In addition, no other banks were to be permitted to operate in the country. In return for its monopoly license to issue paper money, the bank would graciously lend most of its newly created money to the federal government to purchase public debt and be reimbursed by the hapless taxpayer. The Bank of North America was made the depository for all congressional funds. The first central bank in America rapidly loaned \$1.2 million to the Congress, headed also by Robert Morris.¹⁹

¹⁸ As Morris candidly put it, this windfall to the public debt speculators at the expense of the taxpayers would cause wealth to flow "into those hands which could render it most productive." (Ferguson, *Power of the Purse*, p. 124).

¹⁹ When Morris failed to raise the legally required specie capital to launch the Bank of North America, Morris, in an act tantamount to embezzlement, simply appropriated specie loaned to the U.S. by France and invested it for the government in his own Bank. In this way, the bulk of specie capital for his Bank was appropriated by Morris out of government funds. A multiple of these funds was then borrowed back from Morris's bank by Morris as government financier for the pecuniary benefit of Morris as banker; and finally, Morris channeled most of the money into war contracts for his friends and business associates. Murray N. Rothbard, *Conceived in Liberty, Vol. IV, The Revolutionary War, 1775-1784* (New Rochelle, N.Y.: Arlington House, 1979), p. 392.

Despite Robert Morris's power and influence, and the monopoly privileges conferred upon his bank, it was perceived in the market that the Bank's notes were being inflated compared with specie. Despite the nominal redeemability of the Bank of North America's notes in specie, the market's lack of confidence in the inflated notes led to their depreciation outside its home base in Philadelphia. The Bank even tried to shore up the value of its notes by hiring people to urge redeemers of its notes not to ruin everything by insisting upon specie—a move scarcely calculated to improve ultimate confidence in the Bank.

After a year of operation, however, Morris, his political power slipping after the end of the war, moved quickly to end his Bank's role as a central bank and to shift it to the status of a private commercial bank chartered by the state of Pennsylvania. By the end of 1783, all of the federal government's stock in the Bank of North America, which had the previous year amounted to 5/8 of its capital, had been sold by Morris into private hands, and all the U.S. government debt to the bank had been repaid. The first experiment with a central bank in the United States had ended.²⁰

At the end of the Revolutionary War, the contraction of the swollen mass of paper money, combined with the resumption of imports from Great Britain, combined to cut prices by more than half in a few years. Vain attempts by seven state governments, in the mid-1780s, to cure the "shortage of money" and reinflate prices were a complete failure. Part of the reason for the state paper issues was a frantic attempt to pay the wartime public debt, state and *pro rata* federal, without resorting to crippling burdens of taxation. The increased paper issues merely added to the "shortage" by stimulating the export of specie and the import of commodities from abroad. Once again, Gresham's Law was at work. State paper issues—despite compulsory par laws—merely depreciated rapidly, and aggravated the shortage of specie. A historian discusses what happened to the paper issues of North Carolina:

In 1787-1788 the specie value of the paper had shrunk by more than 50 percent. Coin vanished, and since the paper had practically no value outside the state, merchants could not use it to pay debts they owed abroad; hence they suffered severe losses when they had to accept it at inflated values in the settlement of local debts. North Carolina's performance warned merchants anew of the menace of depreciating paper money which they were forced to receive at par

²⁰ See Rothbard, *The Revolutionary War*, pp. 409-410. On the Bank of North America and on Revolutionary War finance generally, see Curtis P. Nettels, *The Emergence of a National Economy, 1775-1815* (New York: Holt, Rinehart, and Winston, 1962), pp. 23-34.

from their debtors but which they could not pass on to their creditors.²¹

Neither was the situation helped by the expansion of banking following the launching of the Bank of North America in 1782. The Bank of New York and the Massachusetts Bank (Boston) followed two years later, with each institution enjoying a monopoly of banking in its region.²² Their expansion of bank notes and deposits helped to drive out specie, and in the following year the expansion was succeeded by a contraction of credit, which aggravated the problems of recession.²³

The United States: Bimetallic Coinage

Since the Spanish silver dollar was the major coin circulating in North America during the colonial and Confederation periods, it was generally agreed that the “dollar” would be the basic currency unit of the new United States of America.²⁴ Article I, section 8 of the new Constitution gave to Congress the power “to coin money, regulate the value thereof, and of foreign coin”; the power was exclusive because the state governments were prohibited, in Article I, section 10, from coining money, emitting paper money, or making anything but gold and silver coin legal tender in payment of debts. (Evidently the Founding Fathers were mindful of the bleak record of colonial and revolutionary paper issues and provincial juggling of the weights and denominations of coin.) In accordance with this power, Congress passed the Coinage Act of 1792 on the recommendation of Secretary of Treasury Alexander Hamilton’s *Report on the Establishment of a Mint* of the year before.²⁵

The Coinage Act established a bimetallic dollar standard for the United States. The dollar was defined as *both* a weight of 371.25 grains of pure silver *and/or* a weight of 24.75 grains of pure gold—a fixed ratio of 15 grains of silver to 1 grain of gold.²⁶ Anyone could bring gold and silver bullion to the Mint to be coined, and silver and gold coins were both to be legal tender at this fixed ratio of 15:1. The

²¹ Nettels, *National Economy*, p. 82.

²² See Hammond, *Banks and Politics*, pp. 67, 87-88.

²³ Nettels, *National Economy*, pp. 61-62. Also see *ibid*; pp. 77-80, 85.

²⁴ As Jefferson put it at the time: “The unit or dollar is a known coin, and the most familiar of all to the mind of the public. It is already adopted from South to North, has identified our currency, and therefore happily offers itself a unit already introduced.” Cited in J. Laurence Laughlin, *The History of Bimetallism in the United States*, 4th ed. (New York: D. Appleton and Co., 1901), p. 11n.

²⁵ The text of the Coinage Act of 1792 may be found in Laughlin, *History of Bimetallism*, pp. 300-301. Also see *ibid*; pp. 21-23; Hepburn, *History of Currency*, pp. 43-45.

²⁶ The current Spanish silver dollars in use were lighter than the earlier dollars weighing 387 grains. See Laughlin, *History of Bimetallism*, pp. 16-18.

basic silver coin was to be the silver dollar, and the basic gold coin the 10-dollar eagle, containing 247.5 grains of pure gold.²⁷

The 15:1 fixed bimetallic ratio almost precisely corresponded to the market gold/silver ration of the early 1790s,²⁸ but of course the tragedy of any bimetallic standard is that the fixed mint ratio must always come a cropper against inevitably changing market ratios, and that Gresham's Law will then come inexorably into effect. Thus, Hamilton's express desire to keep both metals in circulation in order to increase the supply of money was doomed to failure.²⁹

Unfortunately for the bimetallic goal, the 1780s saw the beginning of a steady decline in the ratio of the market values of silver to gold, largely due to the massive increases over the next three decades of silver production from the mines of Mexico. The result was that the market ratio fell to 15.5:1 by the 1790s, and after 1805 fell to approximately 15.75:1. The latter figure was enough of a gap between the market and mint ratios to set Gresham's Law into operation so that by 1810 gold coins began to disappear from the United States and silver coins to flood in. The fixed government ratio now significantly overvalued silver and undervalued gold, and so it paid people to bring in silver to exchange for gold, melt the gold coins into bullion and ship it abroad. From 1810 until 1834, only silver coin, domestic and foreign, circulated in the United States.³⁰

Originally, Congress in 1793 provided that all foreign coins circulating in the United States be legal tender. Indeed, foreign coins have been estimated to form 80 percent of American domestic specie circulation in 1800. Most of the foreign coins were Spanish silver, and while the legal tender privilege was progressively cancelled for various foreign coins by 1827, Spanish silver coins continued as legal tender and to predominate in circulation.³¹ Spanish dollars however, soon began to be heavier in weight by one to five percent over their American equivalents, even though they circulated at face value here, and so the American mint ratio overvalued American more than

²⁷ Golden half-eagles (worth \$5) and quarter-eagles (worth \$2.50) were also to be coined, of corresponding proportional weights, and, for silver coins, half-dollars, quarter-dollars, dimes, and half-dimes of corresponding weights.

²⁸ Silver had declined in market value from the 14.1:1 ratio of 1760, largely due to the declining production of gold from Russian mines in this period and therefore the rising relative value of gold.

²⁹ See Laughlin, *History of Bimetallism*, p. 14.

³⁰ For a lucid explanation of the changing silver/gold ratios and how Gresham's Law operated in this period, see Laughlin, *History of Bimetallism*, pp. 10-51. Also see Laughlin, *A New Exposition of Money, Credit and Prices* (Chicago: University of Chicago Press, 1931), pp. 93-111.

³¹ These "Spanish" coins were almost exclusively minted in the Spanish colonies of Latin America. After the Latin American nations achieved independence in the 1820s, the coins circulated freely in the United States without being legal tender.

Spanish dollars. As a result, the Spanish silver dollars were re-exported, leaving American silver dollars in circulation. On the other hand, fractional Spanish silver coins—half-dollars, quarter-dollars, climes, and half dimes—were considerably over-valued in the U.S., since they circulated at face value and yet were far lighter weight. Gresham’s Law again came into play, and the result was that American silver fractional coins were exported and disappeared, leaving Spanish silver fractional coins as the major currency. To make matters still more complicated, American silver dollars, though lighter weight than the Spanish, circulated equally by name in the West Indies. As a result, American silver dollars were exported to the Caribbean. Thus, by the complex workings of Gresham’s Law, the United States was left, especially after 1820, with no gold coins and only Spanish fractional silver coin in circulation.³²

The First Bank of the United States 1791-1811

A linchpin of the Hamiltonian financial program was a central bank, the First Bank of the United States, replacing the abortive Bank of North America experiment. Hamilton’s *Report on a National Bank* of December 1790 urged such a bank, to be owned privately with the government owning one-fifth of the shares. Hamilton argued that the alleged “scarcity” of specie currency needed to be overcome by infusions of paper, and the new Bank was to issue such paper, to be invested in the assumed federal debt and in subsidy to manufacturers. The Bank notes were to be legally redeemable in specie on demand, and its notes were to be kept at par with specie by the federal government’s accepting its notes in taxes—giving it a quasi-legal tender status. Also, the federal government would confer upon the Bank the prestige of being depository for its public funds.

In accordance with Hamilton’s wishes, Congress quickly established the First Bank of the United States in February 1791. The charter of the Bank was for 20 years, and it was assured a monopoly of the privilege of having a national charter during that period. In a significant gesture of continuity with the Bank of North America, the latter’s long-time president and former partner of Robert Morris, Thomas Willing of Philadelphia, was made president of the new Bank of the United States.

The Bank of the United States promptly fulfilled its inflationary potential by issuing millions of dollars in paper money and demand deposits, pyramiding on top of \$2 million in specie. The Bank of the

³² On the complex workings of fractional as against dollar coins in this period, see the excellent article by David A. Martin, “Bimetallism in the United States before 1850,” *Journal of Political Economy* 76 (May-June 1968): 428-434.

United States invested heavily in loans to the United States government. In addition to \$2 million invested in the assumption of preexisting long-term debt assumed by the new federal government, the Bank of the United States engaged in massive temporary lending to the government, which reached \$6.2 million by 1796.³³ The result of the outpouring of credit and paper money by the new Bank of the United States was an inflationary rise in prices. Thus, wholesale prices rose from an index of 85 in 1791 to a peak of 146 in 1796, an increase of 72 percent.³⁴ In addition, speculation boomed in government securities and real estate values were driven upward.³⁵ Pyramiding on top of the Bank of the United States expansion and aggravating the paper money expansion and the inflation was a flood of newly created commercial banks. Whereas there were only three commercial banks before the founding of the United States, and only four by the establishment of the Bank of the United States, eight new banks were founded shortly thereafter, in 1791 and 1792, and 10 more by 1796. Thus, the Bank of the United States and its monetary expansion spurred the creation of 18 new banks in five years.³⁶

The establishment of the Bank of the United States precipitated a grave constitutional argument, the Jeffersonians arguing that the Constitution gave the federal government no power to establish a bank. Hamilton, in turn, paved the way for virtually unlimited expansion of federal power by maintaining that the Constitution “implied” a grant of power for carrying out vague national goals. The Hamiltonian interpretation won out officially in the decision of

³³ Schultz and Caine are severely critical of these operations: “In indebting itself heavily to the Bank of the United States, the Federal Government was obviously misusing its privileges and seriously endangering the Bank’s stability.” They also charged that “the Federalists had saddled the government with a military and interest budget that threatened to topple the structure of federal finances. Despite the addition of tax after tax to the revenue system, the Federal Government’s receipts through the decade of the 90’s were barely able to cling to the skirts of its expenditures.” William J. Schultz and M.R. Caine, “Federalist Finance,” in G.R. Taylor, ed. *Hamilton and the National Debt* (Boston: D.C. Heath and Co., 1950), pp. 6-7.

³⁴ Similar movements occurred in wholesale prices in Philadelphia, Charleston, and the Ohio River Valley. U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1957* (Washington, D.C.: Government Printing Office, 1960), pp. 116, 119-121.

³⁵ Nettels, *National Economy*, pp. 121-122.

³⁶ J. Van Fenstermaker, “The Statistics of American Commercial Banking, 1782-1818,” *Journal of Economic History* (September, 1965), p. 401.; Van Fenstermaker, *The Development of American Commercial Banking 1782-1837* (Kent, Ohio: Kent State University, 1965), pp. 111-183; William M. Gouge, *A Short History of Paper Money and Banking in the United States* (1833, New York: Augustus M. Kelley, 1968), p. 42.

Supreme Court Justice John Marshall in *McCulloch v. Maryland* (1819).³⁷

Despite the Jeffersonian hostility to commercial and central banks, the Democratic-Republicans, under the control of quasi-Federalist moderates rather than militant Old Republicans, made no move to repeal the charter of the Bank of the United States before its expiration in 1811 and happily multiplied the number of state banks and bank credit in the next two decades.³⁸ Thus, in 1800 there were 28 state banks; by 1811, the number had escalated to 117, a fourfold increase. In 1804, there were 64 state banks, of which we have data on 13, or 20 percent of the banks. These reporting banks had \$0.98 million in specie, as against notes and demand deposits outstanding of \$2.82 million, a reserve ratio of .35 (or, a notes + deposits pyramiding on top of specie of 2.88:1). By 1811, 26 percent of the 117 banks reported a total of \$2.57 million; but the two-and-a-half fold increase in specie was more than matched by an emission of \$10.95 million of notes and deposits, a nearly fourfold increase. This constituted a pyramiding of 4.26:1 on top of specie, or a reserve ratio of these banks of .23.³⁹

As for the Bank of the United States, which acted in conjunction with the federal government and with the state banks, in January 1811 it had specie assets of \$5.01 million, and notes and deposits outstanding of \$12.87 million, a pyramid ratio of 2.57:1, or a reserve ratio of .39.⁴⁰

Finally, when the time for rechartering the Bank of the United States came in 1811, the recharter bill was defeated by one vote each in the House and Senate. Recharter was fought for by the Madison

³⁷ Marshall, a disciple of Hamilton, repeated some of Hamilton's arguments virtually word for word in the decision. See Gerald T. Dunne, *Monetary Decisions of the Supreme Court* (New Brunswick, N.J.: Rutgers University Press, 1960), p. 30.

³⁸ On the quasi-Federalists as opposed to the Old Republicans, on banking and on other issues, see Richard E. Ellis, *The Jeffersonian Crisis: Courts and Politics in the Young Republic* (New York: Oxford University Press, 1971), p. 277 and *passim*.

³⁹ Van Fenstermaker notes that there has been a tendency of historians to believe that virtually all bank emissions were in the form of notes, but that actually a large portion was in the form of demand deposits. Thus, in 1804, bank liabilities were \$1.70 million in notes and \$1.12 million in deposits; in 1811 they were \$5.68 million and \$5.27 respectively. He points out that deposits exceeded notes in the large cities such as Boston and Philadelphia, sometimes by two or threefold, whereas bank notes were used far more widely in rural areas for hand-to-hand transactions. Van Fenstermaker, "Statistics," pp. 406-411.

⁴⁰ Of Bank of the United States liabilities, bank notes totaled \$5.04 million and demand deposits \$7.83 million. John Jay Knox, *A History of Banking in the United States* (New York: Bradford Rhodes & Co., 1900), p. 39. There are no other reports for the Bank of the United States extant except for 1809. The others were destroyed by fire. John Thorn Holdsworth, *The First Bank of the United States* (Washington, D.C.: National Monetary Commission, 1910), pp. 111ff., 138-144.

administration aided by nearly all the Federalists in Congress, but was narrowly defeated by the bulk of the Democratic-Republicans, including the hard-money Old Republican forces. In view of the widely held misconception among historians that Central Banks serve, and are looked upon, as restraints upon state or private bank inflation, it is instructive to note that the major forces in favor of recharter were merchants, chambers of commerce, and most of the state banks. Merchants found that the Bank had expended credit at cheap rates and had eased the eternal complaint about a “scarcity of money.” Even more suggestive is the support of the state banks, which hailed the Bank as “advantageous” and worried about the contraction of credit if the Bank were forced to liquidate. The Bank of New York, which had been founded by Alexander Hamilton, in fact lauded the Bank of the United States because it had been able “in case of any sudden pressure upon the merchants to step forward to their aid in a degree which the state institutions were unable to do.”⁴¹

The War of 1812 and Its Aftermath

War has generally had grave and fateful consequences for the American monetary and financial system. We have seen that the Revolutionary War occasioned a mass of depreciated fiat paper, worthless Continentals, a huge public debt, and the beginnings of central banking in the Bank of North America. The Hamiltonian financial system, and even the Constitution itself, was in large part shaped by the Federalist desire to fund the federal and state public debt via federal taxation, and a major reason for the establishment of the First Bank of the United States was to contribute to the funding of the newly assumed federal debt. The Constitutional prohibition against state paper money, and the implicit rebuff to all fiat paper were certainly influenced by the Revolutionary War experience.

The War of 1812-15 had momentous consequences for the monetary system. An enormous expansion in the number of banks and in bank notes and deposits was spurred by the dictates of war finance. New England banks were more conservative than in other regions, and the region was strongly opposed to the war with England, so little public debt was purchased in New England. Yet imported goods, textile manufactures, and munitions had to be purchased in that region by the federal government. The government

⁴¹ Holdsworth, *First Bank*, p. 83. Also see *ibid.*, pp. 83-90. Holdsworth, the premier historian of the First Bank of the United States, saw the overwhelming support by the state banks, but still inconsistently clung to the myth that the Bank of the United States functioned as a restraint on their expansion: “The state banks, *though their note issues and discounts had been kept in check by the superior resources and power of the Bank of the United States*, favored the extension of the charter, and memorialized Congress to that effect.” (italics added) *Ibid.*, p. 90.

therefore encouraged the formation of new and recklessly inflationary banks in the Mid-Atlantic, Southern, and Western states, which printed huge quantities of new notes to purchase government bonds. The federal government thereupon used these notes to purchase manufactured goods in New England.

Thus, from 1811 to 1815 the number of banks in the country increased from 117 to 212; in addition, there had sprung up 35 private unincorporated banks, which were illegal in most states but were allowed to function under war conditions. Specie in the 30 reporting banks, 26 percent of the total number of 1811, amounted to \$2.57 million in 1811; this figure had risen to \$5.40 million in the 98 reporting banks in 1815, or 40 percent of the total. Notes and deposits, on the other hand, were \$10.95 million in 1811 and had increased to \$31.6 million in 1815 among the reporting banks.

If we make the heroic assumption that we can estimate the money supply for the country by multiplying by the proportion of unreported banks and we then add in the BUS totals for 1811, specie in all banks would total \$14.9 million in 1811 and \$13.5 million in 1815, or a 9.4 percent decrease. On the other hand, total bank notes and deposits aggregated to \$42.2 million in 1811, and \$79.0 million four years later, so that an increase of 87.2 percent, pyramided on top of a 9.4 percent decline in specie. If we factor in the Bank of the United States, then, the bank pyramid ratio was 3.70:1 and the reserve ratio .27 in 1811; while the pyramid ratio four years later was 5.85:1 and the reserve ratio .17.

But the aggregates scarcely tell the whole story since, as we have seen, the expansion took place solely outside of New England, while New England banks continued on their relatively sound basis and did not inflate their credit. The record expansion of the number of banks was in Pennsylvania, which incorporated no less than 41 new banks in the month of March 1814, contrasting to only four banks which had existed in that state—all in Philadelphia—until that date. It is instructive to compare the pyramid ratios of banks in various reporting states in 1815: only 1.96:1 in Massachusetts, 2.7:1 in New Hampshire, and 2.42:1 in Rhode Island, as contrasted to 19.2:1 in Pennsylvania, 18.46:1 in South Carolina, and 18.73:1 in Virginia.⁴²

This monetary situation meant that the United States government was paying for New England manufactured goods with a mass of inflated bank paper outside the region. Soon, as the New

⁴² Van Fenstermaker, "Statistics," pp. 401-409. For the list of individual incorporated banks, see Van Fenstermaker, "Development," pp. 112-183, with Pennsylvania on pp. 169-173.

England banks called upon the other banks to redeem their notes in specie, the mass of inflating banks faced imminent insolvency.

It was at this point that a fateful decision was made by the U.S. government and concurred in by the governments of the states outside New England. As the banks all faced failure, the governments, in August 1814, permitted all of them to suspend specie payments—that is to stop all redemption of notes and deposits in gold or silver—and yet to continue in operation. In short, in one of the most flagrant violations of property rights in American history, the banks were permitted to waive their contractual obligations to pay in specie while they themselves could expand their loans and operations and force their own debtors to repay their loans as usual.

Indeed, the number of banks, and bank credit, expanded rapidly during 1815 as a result of this governmental *carte blanche*. It was precisely during 1815 when virtually all the private banks sprang up, the number of banks increasing in one year from 208 to 246. Reporting banks increased their pyramid ratios from 3.17:1 in 1814 to 5.85:1 the following year, a drop of reserve ratios from .32 to .17. Thus, if we measure bank expansion by pyramiding and reserve ratios, we see that a major inflationary impetus during the War of 1812 came during the year 1815 after specie payments had been suspended throughout the country by government action.

Historians dedicated to the notion that central banks restrain state or private bank inflation have placed the blame for the multiplicity of banks and bank credit inflation during the War of 1812 on the absence of a central bank. But as we have seen, both the number of banks and bank credit grew apace during the period of the First BUS, pyramiding on top of the latter's expansion, and would continue to do so under the Second Bank, and, for that matter, the Federal Reserve System in later years. And the federal government, not the state banks themselves, is largely to blame for encouraging new, inflated banks to monetize the war debt. Then, in particular, it allowed them to suspend specie payment in August 1814, and to continue that suspension for two years after the war was over, until February 1817. Thus, for two and a half years banks were permitted to operate and expand while issuing what was tantamount to fiat paper and bank deposits.

Another neglected responsibility of the U.S. government for the wartime inflation was its massive issue of treasury notes to help finance the war effort. While this treasury paper was interest-bearing and was redeemable in specie in one year, the cumulative amount outstanding functioned as money, as they were used in transactions among the public and were also employed as reserves or "high-

powered money” by the expanding banks. The fact that the government received the treasury notes for all debts and taxes gave the notes a quasi-legal tender status. Most of the treasury notes were issued in 1814 and 1815, when their outstanding total reached \$10.65 million and \$15.46 million respectively. Not only did the treasury notes fuel the bank inflation, but their quasi-legal tender status brought Gresham’s Law into operation and specie flowed out of the banks and public circulation outside of New England, and into New England and out of the country.⁴³

The expansion of bank money and treasury notes during the war drove up prices in the United States. Wholesale price increases from 1811 to 1815 averaged 35 percent, with different cities experiencing a price inflation ranging from 28 percent to 55 percent. Since foreign trade was cut off by the war, prices of imported commodities rose far more, averaging 70 percent.⁴⁴ But more important than this inflation, and at least as important as the wreckage of the monetary system during and after the war, was the precedent that the two-and-a-half year-long suspension of specie payment set for the banking system for the future. From then on, every time there was a banking crisis brought on by inflationary expansion and demands for redemption in specie, state and federal governments looked the other way and permitted general suspension of specie payments while bank operations continued to flourish. It thus became clear to the banks that in a general crisis they would not be required to meet the ordinary obligations of contract law or of respect for property rights, so their inflationary expansion was permanently encouraged by this massive failure of government to fulfill its obligation to enforce contracts and defend the rights of property.

Suspensions of specie payments informally or officially permeated the economy outside of New England during the Panic of 1819, occurred everywhere outside of New England in 1837, and in all states south and west of New Jersey in 1839. A general suspension of specie payments occurred throughout the country once again in the panic of 1857.⁴⁵

⁴³ For a perceptive discussion of the nature and consequences of treasury note issue in this period, see Richard H. Timberlake, Jr., *The Origins of Central Banking in the United States* (Cambridge: Harvard University Press, 1978), pp. 13-18. The Gresham Law effect probably accounts for the startling decline of specie held by the reporting banks, from \$9.3 million to \$5.4 million, from 1814 to 1815. Van Fenstermaker, “Statistics,” p. 405.

⁴⁴ *Historical Statistics*, pp. 115-124; Murray N. Rothbard, *The Panic of 1819: Reactions and Policies* (New York: Columbia University Press, 1962), p. 4.

⁴⁵ On the suspensions of specie payments, and on their importance before the Civil War, see Vera C. Smith, *The Rationale of Central Banking* (London: P.S. King & Son, 1936), pp. 38—46. Also see Dunne, *Monetary Decisions*, p. 26.

It is important to realize, then, in evaluating the American banking system before the Civil War, that even in the later years when there was no central bank, the system was not “free” in any proper economic sense. “Free” banking can only refer to a system in which banks are treated as any other business, and that therefore failure to obey contractual obligations—in this case, prompt redemption of notes and deposits in specie—must incur immediate insolvency and liquidation. Burdened by the tradition of allowing general suspensions that arose in the United States in 1814, the pre-Civil War banking system, despite strong elements of competition when not saddled with a central bank, must rather be termed in the phrase of one economist, as “Decentralization without Freedom.”⁴⁶

From the 1814-17 experience on, the notes of state banks circulated at varying rates of depreciation, depending on public expectations of how long they would be able to keep redeeming their obligations in specie. These expectations, in turn, were heavily influenced by the amount of notes and deposits issued by the bank as compared with the amount of specie held in its vaults.

In that era of poor communications and high transportation cost, the tendency for a bank note was to depreciate in proportion to its distance from the home office. One effective, if time-consuming, method of enforcing redemption on nominally specie-paying banks was the emergence of a class of professional “money brokers.” These brokers would buy up a mass of depreciated notes of nominally specie-paying banks, and then travel to the home office of the bank to demand redemption in specie. Merchants, money brokers, bankers, and the general public were aided in evaluating the various state bank notes by the development of monthly journals known as “bank note detectors.” These “detectors” were published by money brokers

⁴⁶ Smith, *Rationale*, p. 36. Smith properly defines “free banking” as “a regime where note-issuing banks are allowed to set up in the same way as any other type of business enterprise, so long as they comply with the general company law. The requirement for their establishment is not special conditional authorization from a government authority, but the ability to raise sufficient capital, and public confidence, to gain acceptance for their notes and ensure the profitability of the undertaking. Under such a system all banks would not only be allowed the same rights, but would also be subjected to the same responsibilities as other business enterprises. If they failed to meet their obligations they would be declared bankrupt and put into liquidation, and their assets used to meet the claims of their creditors, in which case the shareholders would lose the whole or part of their capital, and the penalty for failure would be paid, at least for the most part, by those responsible for the policy of the bank. Notes issued under this system would be ‘promises to pay,’ and such obligations must be met on demand in the generally accepted medium which we will assume to be gold. No bank would have the right to call on the government or on any other institution for special help in time of need. ... A general abandonment of the gold standard is inconceivable under these conditions, and with a strict interpretation of the bankruptcy laws any bank suspending payments would at once be put into the hands of a receiver.” *Ibid.*, pp. 148-149.

and periodically evaluated the market rate of various bank notes in relation to specie.⁴⁷

“Wildcat” banks were so named because in that age of poor transportation, banks hoping to inflate and not worry about redemption attempted to locate in “wildcat” country where money brokers would find it difficult to travel. It should be noted that if it were not for periodic suspension, there would have been no room for wildcat banks or for varying degrees of lack of confidence in the genuineness of specie redemption at any given time.

It can be imagined that the advent of the money broker was not precisely welcomed in the town of an errant bank, and it was easy for the townspeople to blame the resulting collapse of bank credit on the sinister stranger rather than on the friendly neighborhood banker. During the panic of 1819, when banks collapsed after an inflationary boom lasting until 1817, obstacles and intimidation were often the lot of those who attempted to press the banks to fulfill their contractual obligation to pay in specie.

Thus, Maryland and Pennsylvania, during the panic of 1819, engaged in almost bizarre inconsistency in this area. Maryland, on February 15, 1819, enacted a law “to compel ... banks to pay specie for their notes, or forfeit their charters.” Yet two days after this seemingly tough action, it passed another law relieving banks of any obligation to redeem notes held by money brokers, “the major force ensuring the people of this state from the evil arising from the demands made on the banks of this state for gold and silver by brokers.” Pennsylvania followed suit a month later. In this way, these states could claim to maintain the virtue of enforcing contract and property rights while moving to prevent the most effective method of ensuring such enforcement.

During the 1814-1817 general suspension, noteholders who sued for specie payment seldom gained satisfaction in the courts. Thus, Isaac Bronson, a prominent Connecticut banker in a specie-paying region, sued various New York banks for payment of notes in specie. He failed to get satisfaction, and for his pains received only abuse in the New York press as an agent of “misery and ruin.”⁴⁸

The banks south of Virginia largely went off specie payment during the panic of 1819, and in Georgia at least general suspension

⁴⁷ See Richard H. Timberlake, Jr., *Money, Banking and Central Banking* (New York: Harper & Row, 1965), p. 94.

⁴⁸ Hammond, *Banks and Politics*, p. 179-180. Even before the suspension, in 1808, a Bostonian named Hireh Durkee who attempted to demand specie for \$9,000 in notes of the state-owned Vermont State Bank, was met by an indictment for an attempt by this “evil-disposed person” to “realize a filthy gain” at the expense of the resources of the state of Vermont and the ability of “good citizens thereof to obtain money.” *Ibid.*, p. 179. Also see Gouge, *Short History*, p. 84.

continued almost continuously down to the 1830s. One customer complained during 1819 that in order to collect in specie from the largely state-owned Bank of Darien, Georgia, he was forced to swear before a justice of the peace in the bank that each and every note he presented to the bank was his own and that he was not a money broker or an agent for anyone else; he was forced to swear to the oath in the presence of at least five bank directors and the bank's cashier; and he was forced to pay a fee of \$1.36 on each note in order to acquire specie on demand. Two years later, when a noteholder demanded \$30,000 in specie at the Planters' Bank of Georgia, he was told he would be paid in pennies only, while another customer was forced to accept pennies handed out to him at the rate of \$60 a day.⁴⁹

During the panic, North Carolina and Maryland in particular moved against the money brokers in a vain attempt to prop up the depreciated notes of their states' banks. In North Carolina, banks were not penalized by the legislature for suspending specie payments to "brokers," while maintaining them to others. Backed by government, the three leading banks of the state met and agreed, in June 1819, not to pay specie to brokers or their agents. Their notes immediately fell to a 15 percent discount outside the state. However, the banks continued to require—ignoring the inconsistency—that their own debtors pay them at par in specie. Maryland, during the same year, moved to require a license of \$500 per year for money brokers, in addition to an enormous \$20,000 bond to establish the business.

Maryland tried to bolster the defense of banks and the attack on brokers by passing a compulsory par law in 1819, prohibiting the exchange of specie for Maryland bank notes at less than par. The law was readily evaded, however, the penalty merely adding to the discount as compensation for the added risk. Specie furthermore was driven out of the state by the operation of Gresham's Law.⁵⁰

In Kentucky, Tennessee, and Missouri, stay laws were passed requiring creditors to accept depreciated and inconvertible bank paper in payment of debts, else suffer a stay of execution of the debt. In this way, quasi-legal tender status was conferred on the paper.⁵¹

⁴⁹ Gouge, *Short History*, pp. 141-142. Secretary of the Treasury William H. Crawford, a Georgia politician, tried in vain to save the Bank of Darien from failure by depositing Treasury funds there during the panic. Rothbard, *The Panic of 1819*, p. 62.

⁵⁰ Rothbard, *Panic of 1819*, pp. 64-68. Other compulsory par laws were passed by Ohio and Delaware.

⁵¹ The most extreme proposal was that of Tennessee politician Felix Grundy's scheme, never adopted, to compel creditors to accept bank notes of the state bank or forfeit the debt: that would have conferred full legal tender status on the bank. Rothbard, *Panic of 1819*, p. 91;

Many states permitted banks to suspend specie payment, and four Western states—Tennessee, Kentucky, Missouri, and Illinois—established state-owned banks to try to overcome the depression by issuing large issues of inconvertible paper money. In all states trying to prop up inconvertible bank paper, a quasi-legal status was also conferred on the paper by agreeing to receive the notes in taxes or debts due to the state. The result of all the inconvertible paper schemes was rapid and massive depreciation, disappearance of specie, succeeded by speedy liquidation of the new state-owned banks.⁵²

An amusing footnote on the problem of banks being protected against their contractual obligations to pay in specie occurred in the course of correspondence between one of the earliest economists in America, the young Philadelphia State Senator Condé Raguey, and the eminent English economist David Ricardo. Ricardo had evidently been bewildered by Raguey's statement that banks technically required to pay in specie were often not called upon to do so. On April 18, 1821, Raguey replied, explaining the power of banks in the United States:

You state in your letter that you find it difficult to comprehend, why persons who had a right to demand coin from the Banks in payment of their notes, so long forebore to exercise it. This no doubt appears paradoxical to one who resides in a country where an act of parliament was necessary to protect a bank, but the difficulty is easily solved. The whole of our population are either stockholders of banks or in debt to them. It is not the *interest* of the first to press the banks and the rest are *afraid*. This is the whole secret. An independent man who was neither a stockholder or debtor, who would have ventured to compel the banks to do justice, would have been persecuted as an enemy of society. ...⁵³

The Second Bank of the United States, 1816-1833

The United States emerged from the War of 1812 in a chaotic monetary state, with banks multiplying and inflating ad lib, checked only by the varying rates of depreciation of their notes. With banks freed from redeeming their obligations in specie, the number of

Joseph H. Parks, "Felix Grundy and the Depression of 1819 in Tennessee," *Publications of the East Tennessee Historical Society* X (1938): 22.

⁵² Only New England, New York, New Jersey, Virginia, Mississippi, and Louisiana were comparatively untouched by the inconvertible paper contagion, either in the form of suspended specie banks continuing in operation or new state-owned banks emitting more paper. For an analysis of the events and controversies in each state, see Rothbard, *Panic of 1819*, pp. 57-111.

⁵³ Raguey to Ricardo, April 18, 1821, in David Ricardo, *Minor Papers on the Currency Question, 1809-23*, J. Hollander, ed. (Baltimore: Johns Hopkins Press, 1932), pp. 199-201; Rothbard, *Panic of 1819*, pp. 10-11. Also see Hammond, *Banks and Politics*, p. 242.

incorporated banks increased during 1816, from 212 to 232.⁵⁴ Clearly, the nation could not continue indefinitely with the issue of fiat money in the hands of discordant sets of individual banks. It was apparent that there were two ways out of the problem: one was the hard-money path, advocated by the Old Republicans and, for their own purposes, the Federalists. The federal and state governments would have sternly compelled the rollicking banks to redeem promptly in specie, and, when most of the banks outside of New England could not, to force them to liquidate. In that way, the mass of depreciated and inflated notes and deposits would have been swiftly liquidated, and specie would have poured back out of hoards and into the country to supply a circulating medium. The inflationary experience would have been over.

Instead, the Democratic-Republican establishment in 1816 turned to the old Federalist path: a new central bank, a Second Bank of the United States. Modeled closely after the First Bank, the Second Bank, a private corporation with one-fifth of the shares owned by the federal government, was to create a national paper currency, purchase a large chunk of the public debt, and receive deposits of Treasury funds. The BUS notes and deposits were to be redeemable in specie, and they were given quasi-legal tender status by the federal government's receiving them in payment of taxes.

That the purpose of establishing the BUS was to support the state banks in their inflationary course rather than crack down on them is seen by the shameful deal that the BUS made with the state banks as soon as it opened its doors in January 1817. At the same time it was establishing the BUS in April 1816, Congress passed the resolution of Daniel Webster, at that time a Federalist champion of hard money, requiring that after February 20, 1817, the United States should accept in payments for debts or taxes only specie, Treasury notes, BUS notes, or state bank notes redeemable in specie on demand. In short, no irredeemable state bank notes would be accepted after that date. Instead of using the opportunity to compel the banks to redeem, however, the BUS, in a meeting with representatives from the leading urban banks, excluding Boston, agreed to issue \$6 million worth of credit in New York, Philadelphia, Baltimore, and Virginia before insisting on specie payments from debts due to it from the state banks. In return for that agreed-upon massive inflation, the state banks graciously consented to resume

⁵⁴ New note issue series by banks reached a heavy peak in 1815 and 1816 in New York and Pennsylvania. D.C. Wismar, *Pennsylvania Descriptive List of Obsolete State Bank Notes, 1782-1866* (Frederick, Md.: J.W. Stovell Printing Co., 1933); and idem, *New York Descriptive List of Obsolete Paper Money* (Frederick, Md.: J.W. Stovell Printing Co., 1931).

specie payments.⁵⁵ Moreover, the BUS and the state banks agreed to mutually support each other in any emergency, which of course meant in practice that the far stronger BUS was committed to the propping up of the weaker state banks.

The BUS was pushed through Congress by the Madison administration and particularly by Secretary of the Treasury Alexander J. Dallas, whose appointment was lobbied for, for that purpose. Dallas, a wealthy Philadelphia lawyer, was a close friend, counsel, and financial associate of Philadelphia merchant and banker Stephen Girard, reputedly one of the two wealthiest men in the country. Toward the end of its term, Girard was the largest stockholder of the first BUS, and during the War of 1812 Girard became a very heavy investor in the war debt of the federal government. Both as a prospective large stockholder and as a way to unload his public debt, Girard began to agitate for a new BUS. Dallas's appointment as Secretary of Treasury in 1814 was successfully engineered by Dallas and his close friend, wealthy New York merchant and fur trader John Jacob Astor, also a heavy investor in the war debt. When the BUS was established, Stephen Girard purchased the \$3 million of the \$28 million that remained unsubscribed, and he and Dallas managed to secure for the post of president of the new bank their good friend William Jones, former Philadelphia merchant.⁵⁶

Much of the opposition to the founding of the BUS seems keenly prophetic. Thus, Senator William H. Wells, Federalist from Delaware, in arguing against the Bank bill, said that it was "ostensibly for the purpose of correcting the diseased state of our paper currency by restraining and curtailing the overissue of bank paper, and yet it came prepared to inflict upon us the same evil, being itself nothing more than simply a paper-making machine."⁵⁷ In fact, the result of the deal with the state banks was that their resumption of specie payments after 1817 was more nominal than real, thereby setting the

⁵⁵ On the establishment of the BUS and on the deal with the state banks, see Ralph C.H. Catterall, *The Second Bank of the United States* (Chicago: University of Chicago Press, 1902), pp. 9-26, 479-490. Also see Hammond, *Banks and Politics*, pp. 230-248; David R. Dewey, *The Second United States Bank* (Washington, D.C.: National Monetary Commission, 1910), pp. 148-176.

⁵⁶ On the Girard-Dallas connection, see Hammond, *Banks and Politics*, pp. 231-246, 252; Philip H. Burch, Jr., *Elites in American History, Vol. I The Federalist Years to the Civil War* (New York: Holmes & Meier, 1981), pp. 88, 97, 116-117, 119-121; Kenneth L. Brown, "Stephen Girard, Promoter of the Second Bank of the United States." *Journal of Economic History*, November 1942, pp. 125-132.

⁵⁷ *Annals of Congress*, 14 Cong., 1 sess., April 1, 1816, pp. 267-270. Also see *ibid.*, pp. 1066, 1091, 1110ff. Cited in Murray N. Rothbard, *The Case for a 100 Percent Gold Dollar* (Washington, D.C.: Libertarian Review Press, 1974), p. 18n. Also see Gouge, *Short History*, pp. 79-83.

stage for the widespread suspensions of the 1819-21 depression. As Bray Hammond writes:

...specie payments were resumed, with substantial shortcomings. Apparently the situation was better than it had been, and a pretense was maintained of its being better than it was. But redemption was not certain and universal; there was still a premium on specie and still a discount on bank notes, with considerable variation in both from place to place. Three years later, February 1820, Secretary [of the Treasury] Crawford reported to Congress that during the greater part of the time that had elapsed since the resumption of specie payments, the convertibility of bank notes into specie had been nominal rather than real in the largest portion of the Union.⁵⁸

One problem is that the BUS lacked the courage to insist on payment of its notes from the state banks. As a result, state banks had large balances piled up against them at the BUS, totaling over \$2.4 million during 1817 and 1818, remaining on the books as virtual interest-free loans. As Catterall points out, “so many influential people were interested in the [state banks] as stockholders that it was not advisable to give offense by demanding payment in specie, and borrowers were anxious to keep the banks in the humor to lend.” When the BUS did try to collect on state bank notes in specie, President Jones reported, “the banks, our debtors, plead inability, require unreasonable indulgence, or treat our reiterated claims and expostulations with settled indifference.”⁵⁹

From its inception, the Second BUS launched a spectacular inflation of money and credit. Lax about insisting on the required payment of its capital in specie, the Bank failed to raise the \$7 million legally supposed to have been subscribed in specie; instead, during 1817 and 1818, its specie held never rose above \$2.5 million. At the peak of its initial expansion, in July 1818, BUS specie totaled \$2.36 million, and its aggregate notes and deposits totaled \$21.8 million. Thus, in a scant year-and-a-half of operation, the BUS had added a net of \$19.2 million to the nation's money supply, for a pyramid ratio of 9.24, or a reserve ratio of .11.

⁵⁸ Hammond, *Banks and Politics*, p. 248. Also see Condé Raguet, *A Treatise on Currency and Banking* (2nd ed., 1840, New York: Augustus M. Kelley, 1967), pp. 302-303; Catterall, *Second Bank*, pp. 37-39; Walter Buckingham Smith, *Economic Aspects of the Second Bank of the United States* (Cambridge: Harvard University Press, 1953), p. 104.

⁵⁹ Catterall, *Second Bank*, p. 36.

Outright fraud abounded at the BUS, especially at the Philadelphia and Baltimore branches, particularly the latter. It is no accident that three-fifths of all of the BUS loans were made at these two branches.⁶⁰ Also, the BUS attempt to provide a uniform currency throughout the nation floundered on the fact that the western and southern branches could inflate credit and bank notes and that the inflated notes would wend their way to the more conservative branches in New York and Boston, which would be obligated to redeem the inflated notes at par. In this way, the conservative branches were stripped of specie while the western branches could continue to inflate unchecked.⁶¹

The expansionary operations of the BUS, coupled with its laxity toward insisting on specie payment by the state banks, impelled a further inflationary expansion of state banks on top of the spectacular enlargement of the central bank. Thus, the number of incorporated state banks rose from 232 in 1816 to 338 in 1818. Kentucky alone chartered 40 new banks in the 1817-18 legislative session. The estimated total money supply in the nation rose from \$67.3 million in 1816 to \$94.7 million in 1818, a rise of 40.7% in two years. Most of this increase was supplied by the BUS.⁶²

The huge expansion of money and credit impelled a full-scale inflationary boom throughout the country. Import prices had fallen in 1815, with the renewal of foreign trade after the war, but domestic prices were another story. Thus, the index of export staples in Charleston rose from 102 in 1815 to 160 in 1818; the prices of Louisiana staples at New Orleans rose from 178 to 224 in the same period. Other parts of the economy boomed; exports rose from \$81 million in 1815 to a peak of \$116 million in 1818. Prices rose greatly in real estate, land, farm improvement projects, and slaves, much of it fueled by the use of bank credit for speculation in urban and rural real estate. There was a boom in turnpike construction, furthered by

⁶⁰ On the expansion and fraud at the BUS, see Catterall, *Second Bank*, pp. 28-50, 503. The main culprits were James A. Buchanan, president of the Baltimore mercantile firm of Smith & Buchanan, and the Baltimore BUS cashier James W. McCulloch, who was simply an impoverished clerk at the mercantile house. Smith, an ex-Federalist, was a senator from Maryland and a powerful member of the national Democrat-Republican establishment.

⁶¹ As a result of the contractionary influence on the Boston branch of the BUS, the notes of the Massachusetts banks actually declined in this period, from \$1 million in June 1815 to \$850,000 in June 1818. See Rothbard, *Panic of 1819*, p. 8.

⁶² Total notes and deposits of 39 percent of the nation's reporting state banks was \$26.3 million in 1816, while 38 percent of the banks had total notes and deposits of \$27.7 million two years later. Converting this pro rata to 100 percent of the banks gives an estimated \$67.3 million in 1816, and \$72.9 million in 1818. Add to the latter figure \$21.8 million for BUS notes and deposits, and this yields \$94.7 million in 1818, or a 40.7 percent increase. Adapted from tables in Van Fenstermaker, "Statistics," pp. 401, 405, 406.

vast federal expenditures on turnpikes. Freight rates rose on steamboats, and shipbuilding shared in the general prosperity. Also, general boom conditions expanded stock trading so rapidly that traders, who had been buying and selling stocks on the curbs on Wall Street for nearly a century, found it necessary to open the first indoor stock exchange in the country, the New York Stock Exchange, in March 1817. Also, investment banking began in the United States during this boom period.⁶³

Starting in July 1818, the government and the BUS began to see what dire straits they were in; the enormous inflation of money and credit, aggravated by the massive fraud, had put the BUS in real danger of going under and illegally failing to sustain specie payments. Over the next year, the BUS began a series of heroic contractions, forced curtailment of loans, contractions of credit in the south and west, refusal to provide uniform national currency by redeeming its shaky branch notes at par, and seriously enforcing the requirement that its debtor banks redeem in specie. In addition, it purchased millions of dollars of specie from abroad. These heroic actions, along with the ouster of President William Jones, managed to save the BUS, but the massive contraction of money and credit swiftly brought the United States its first widespread economic and financial depression. The first nationwide “boom-bust” cycle had arrived in the United States, impelled by rapid and massive inflation, quickly succeeded by contraction of money and credit. Banks failed, and private banks curtailed their credits and liabilities and suspended specie payments in most parts of the country.

Contraction of money and credit by the BUS was almost unbelievable, total notes and deposits falling from \$21.9 million in June 1818 to \$11.5 million only a year later. The money supply contributed by the BUS was thereby contracted by no less than 47.2 percent in one year. The number of incorporated banks at first remained the same, and then fell rapidly from 1819 to 1822, falling from 341 in mid-1819 to 267 three years later. Total notes and deposits of state banks fell from an estimated \$72.0 million in mid-1818 to \$62.7 million a year later, a drop of 14.0 percent in one year. If we add in the fact that the U.S. Treasury contracted total treasury notes from \$8.81 million to zero during this period, we get the

⁶³ Rothbard, *Panic of 1819*, pp. 6-10; *Historical Statistics*, pp. 120, 122, 563. Also see George Rogers Taylor, *The Transportation Revolution, 1815-1860* (New York: Rinehart & Co., 1951), pp. 334-336.

following estimated total money supply: in 1818, \$103.5 million; in 1819, \$74.2 million, a contraction in one year of 28.3 percent.⁶⁴

The result of the contraction was a massive rash of defaults, bankruptcies of business and manufacturers, and liquidation of unsound investments during the boom. There was a vast drop in real estate values and rents and in the prices of freight rates and of slaves. Public land sales dropped greatly as a result of the contraction, declining from \$13.6 million in 1818 to \$1.7 million in 1820.⁶⁵ Prices in general plummeted: The index of export staples fell from 158 in November 1818 to 77 in June 1819, an annualized drop of 87.9 percent during those seven months. South Carolina export staples dropped from 160 to 96 from 1818 to 1819, and commodity prices in New Orleans dropped from 200 in 1818 to 119 two years later.

Falling money incomes led to a precipitous drop in imports, which fell from \$122 million in 1818 to \$87 million the year later. Imports from Great Britain fell from \$43 million in 1818 to \$14 million in 1820, and cotton and woolen imports from Britain fell from over \$14 million each in the former year to about \$5 million in the latter. The great fall in prices aggravated the burden of money debts, reinforced by the contraction of credit. Bankruptcies abounded, and one observer estimated that \$100 million of mercantile debts to Europe were liquidated by bankruptcy during the crisis. Western areas, shorn of money by the collapse of the previously swollen paper and debt, often returned to barter conditions, and grain and whiskey were used as media of exchange.⁶⁶

In the dramatic summing up of the hard-money economist and historian William Gouge, by its precipitous and dramatic contraction “the Bank was saved, and the people were ruined.”⁶⁷

The Jacksonian Movement and the Bank War

Out of the bitter experiences of the Panic of 1819 emerged the beginnings of the Jacksonian movement, dedicated to hard money, the eradication of fractional-reserve banking in general, and of the Bank of the United States in particular. Andrew Jackson himself, Senator Thomas Hart (“Old Bullion”) Benton of Missouri, future President James K. Polk of Tennessee, and Jacksonian economists

⁶⁴ These estimates are adapted from the tables in Van Fenstermaker, “Statistics,” pp. 401-406; Van Fenstermaker, *Development*, pp. 66-68. The data for 38 percent of incorporated banks in 1818, and for 54 percent in 1819, are converted pro rata to 100 percent figures. BUS figures are in Catterall, *Second Bank*, p. 502. On the contraction by the BUS see *ibid.*, pp. 51-72.

⁶⁵ On Treasury note contraction in this period, see Timberlake, *Origins*, pp. 21-26.

⁶⁶ See Rothbard, *Panic of 1819*, pp. 11-16.

⁶⁷ Gouge, *Short History*, p. 110.

Amos Kendall of Kentucky and Condy Raguet of Philadelphia, were all converted to hard money and 100 percent reserve banking by the experience of the Panic of 1819.⁶⁸ The Jacksonians adopted, or in some cases pioneered in, the Currency School analysis, which pinned the blame for boom-bust cycles on inflationary expansions followed by contractions of bank credit. Far from being the ignorant bumpkins that most historians have depicted, the Jacksonians were steeped in the knowledge of sound economics, particularly of the Ricardian Currency School.

Indeed, no movement in American politics has been as flagrantly misunderstood by historians as the Jacksonians. They were emphatically not, as historians until recently have depicted, either “ignorant anti-capitalist agrarians,” or “representatives of the rising entrepreneurial class,” or “tools of the inflationary state banks,” or embodiments of an early proletarian anti-capitalist movement or a non-ideological power group or “electoral machine.” The Jacksonians were libertarians, plain and simple. Their program and ideology were libertarian; they strongly favored free enterprise and free markets, but they just as strongly opposed special subsidies and monopoly privileges conveyed by government to business or to any other group. They favored absolutely minimal government, certainly at the federal level, but also at the state level. They believed that government should be confined to upholding the rights of private property. In the monetary sphere, this meant the separation of government from the banking system and a shift from inflationary paper money and fractional-reserve banking to pure specie and banks confined to 100 percent reserves.

In order to put this program into effect, however, the Jacksonians faced the grueling task of creating a new party out of what had become a one-party system after the War of 1812, in which the Democrat-Republicans had ended up adopting the Federalist program, including the reestablishing of the Bank of the United States. The new party, the Democratic Party, was largely forged in the mid-1820s by New York political leader, Martin Van Buren, newly converted by the aging Thomas Jefferson to the laissez-faire cause. Van Buren cemented an alliance with Thomas Hart Benton of Missouri and the Old Republicans of Virginia, but he needed a charismatic leader to take the Presidency away from Adams and what was becoming known as the National Republican Party. He found that leader in Andrew Jackson, who was elected President under the new Democratic banner in 1828.

⁶⁸ Rothbard, *Panic of 1819*, p. 188.

The Jacksonians eventually managed to put into effect various parts of their free-market and minimal-government economic program, including a drastic lowering of tariffs, and for the first and probably the last time in American history, paying off the federal debt. But their major concentration was on the issue of money and banking. Here they had a coherent program, which they proceeded to install in rapidly succeeding stages.

The first important step was to abolish central banking, in the Jacksonian view the major inflationary culprit. The object was not to eliminate the BUS in order to free the state banks for inflationary expansion, but, on the contrary, to eliminate the major source of inflation before proceeding, on the state level, to get rid of fractional reserve banking. The BUS charter was up for renewal in 1836, but Jackson denounced the Bank in his first annual message, in 1829. The imperious Nicholas Biddle,⁶⁹ head of the BUS, decided to precipitate a showdown with Jackson before his reelection effort, so Biddle filed for renewal early, in 1831. The host of National Republicans and non-Jacksonian Democrats proceeded to pass the recharter bill, but Jackson, in a dramatic message, vetoed the bill, and Congress failed to pass it over his veto.

Triumphantly reelected on the Bank issue in 1832, President Jackson lost no time in disestablishing the BUS as a central bank. The critical action came in 1833, when Jackson removed the public Treasury deposits from the BUS and placed them in a number of state banks (soon labeled as “pet banks”) throughout the country. The original number of pet banks was seven, but the Jacksonians were not interested in creating a privileged bank oligarchy to replace the previous monopoly; so the number of pet banks had increased to 91 by the end of 1836.⁷⁰ In that year, Biddle managed to secure a Pennsylvania charter for his bank, and the new United States Bank of Pennsylvania functioned as a much reduced but still influential state bank for a few years thereafter.

Orthodox historians have long maintained that by his reckless act of destroying the BUS and shifting government funds to the numerous pet banks, Andrew Jackson freed the state banks from the restraints imposed on them by a central bank. Thus, the banks were supposedly allowed to pyramid notes and deposits rashly on top of

⁶⁹ Biddle continued the chain of control over both BUSs by the Philadelphia financial elite, from Robert Morris and William Bingham, to Stephen Girard and William Jones. See Burch, *Elites*, p. 147. Also see Thomas P. Govan, *Nicholas Biddle: Nationalist and Public Banker, 1786-1844* (Chicago: University of Chicago Press, 1959), pp. 45, 74-75, 79.

⁷⁰ Hammond, *Banks and Politics*, p. 420.

existing specie and precipitate a wild inflation that was later succeeded by two bank panics and a disastrous deflation.

Recent historians, however, have totally reversed this conventional picture.⁷¹ In the first place, the record of bank inflation under the regime of the BUS was scarcely ideal. From the depth of the post-1819 depression in January 1820 to January 1823, under the regime of the conservative Langdon Cheves, the BUS increased its notes and deposits at an annual rate of 5.9 percent. The nation's total money supply remained about the same in that period. Under the far more inflationist regime of Nicholas Biddle, however, BUS notes and deposits rose, after January 1823, from \$12 million to \$42.1 million, an annual rate increase of 27.9 percent. As a consequence of this base of the banking pyramid inflating so sharply, the total money supply during this period vaulted from \$81 million to \$155 million, an annual increase of 10.2 percent. It is clear that the driving force for monetary expansion was the BUS, which acted as an inflationary rather than restraining force upon the state banks. Looking at the figures another way, the 1823 data represented a pyramid ratio of money liabilities to specie of 3.86:1 on the part of the BUS and 4:1 of the banking system as a whole, or respective reserve ratios of .26 and .25. By 1832, in contrast, the BUS reserve ratio had fallen to .17 and the country as a whole to .15. Both sets of institutions had inflated almost precisely proportionately on top of specie.⁷²

The fact that wholesale prices remained about the same over this period is no indication that the monetary inflation was not improper and dangerous. As "Austrian" business cycle theory has pointed out, any bank credit inflation sets up conditions for boom-and-bust; there is no need for prices actually to rise. The reason that prices did not rise was that the increased production of goods and services sufficed to offset the monetary expansion during this period. But similar conditions of the 1920s precipitated the great crash of 1929, an event which shocked most economists, who had adopted the proto-monetarist position of Irving Fisher and other economists of the day that a stable wholesale price level cannot, by definition, be inflationary. In reality, the unhampered free-market economy will usually increase the supply of goods and services and thereby bring about a gently falling price level, as happened in most of the 19th century except during wartime.

⁷¹ For an excellent bibliographical essay and critique of historical interpretations of Jacksonism and the Bank War, see Jeffrey Rogers Hummel, "The Jacksonians, Banking, and Economic Theory: A Reinterpretation," *Journal of Libertarian Studies* 2 (Summer 1978): 151-165.

⁷² For the BUS data, see Catterall, *Second Bank*, p. 503; for total money supply, see Peter Temin, *The Jacksonian Economy* (New York: W.W. Norton, 1969), p. 71.

What, then, of the consequences of Jackson's removal of the deposits? What of the fact that wholesale prices rose from 84 in April 1834, to 131 in February 1837, a remarkable increase of 52 percent in a little less than three years? Wasn't that boom due to the abolition of central banking?

An excellent reversal of the orthodox explanation of the boom of the 1830s, and indeed of the ensuing panic, has been provided by Professor Temin.⁷³ First, he points out that the price inflation really began earlier, when wholesale prices reached a trough of 82 in July 1830 and then rose by 20.7 percent in three years to reach 99 in the fall of 1833. The reason for the price rise is simple: The total money supply had risen from \$109 million in 1830 to \$159 million in 1833, an increase of 45.9 percent or an annual rise of 15.3 percent. Breaking the figures down further, the total money supply had risen from \$109 million in 1830 to \$155 million a year and a half later, a spectacular expansion of 35 percent. Unquestionably, this monetary expansion was spurred by the still flourishing BUS, which increased its notes and deposits from January 1830 to January 1832, from a total of \$29 million to \$42.1 million, a rise of 45.2 percent.

Thus, the price and money inflation in the first few years of the 1830s were again sparked by the expansion of the still dominant central bank. But what of the notable inflation after 1833? There is no doubt that the cause of the price inflation was the remarkable monetary inflation during the same period. For the total money supply rose from \$150 million at the beginning of 1833 to \$267 million at the beginning of 1837, an astonishing rise of 84 percent, or 21 percent per annum.

But as Temin points out, this monetary inflation was not caused by the liberated state banks expanding to a fare-thee-well. If it were true that the state banks used their freedom and their new federal government deposits to pyramid wildly on the top of specie, then their pyramid ratio would have risen a great deal, or, conversely, their reserve ratio of specie to notes and deposits would have fallen sharply. Yet the banks' reserve ratio was .16 at the beginning of 1837. During the intervening years, the reserve ratio was never below this figure. But this means that the state banks did no more pyramiding after the demise of the BUS as a central bank than they had done before.⁷⁴

⁷³ Temin, *Jacksonian Economy*, passim. Also see Hugh Rockoff, "Money, Prices, and Banks in the Jacksonian Era," in R. Fogel and S. Engerman, eds., *The Reinterpretation of American Economic History* (New York: Harper & Row, 1971), pp. 448-458.

⁷⁴ Temin, *Jacksonian Economy*, pp. 68-74.

Conventional historians, believing that the BUS *must* have restrained the expansion of state banks, naturally assumed that they were hostile to the central bank. But now Jean Wilburn has discovered that the state banks overwhelmingly supported the BUS:

We have found that Nicholas Biddle was correct when he said, "state banks in the main are friendly." Specifically, only in Georgia, Connecticut, and New York was there positive evidence of hostility. A majority of state banks in some states of the South, such as North Carolina and Alabama, gave strong support to the Bank as did both the Southwest states of Louisiana and Mississippi. Since Virginia gave some support, we can claim that state banks in the South and Southwest for the most part supported the Bank. New England, contrary to expectations, showed the banks of Vermont and New Hampshire behind the Bank, but support of Massachusetts was both qualitatively and quantitatively weak. The banks of the Middle states all supported the Second Bank except for those of New York.⁷⁵

What, then, was the cause of the enormous monetary expansion of the 1830s? It was a tremendous and unusual expansion of the stock of specie in the nation's banks. The supply of specie in the country had remained virtually constant at about \$32 million, from the beginning of 1823 until the beginning of 1833. But the proportion of specie to bank notes, held by the public as money, dropped during this period from 23 percent to 5 percent, so that more specie flowed from the public into the banks to fuel the relatively moderate monetary expansion of the 1820s. But starting at the beginning of 1833, the total specie in the country rose swiftly from \$31 million to \$73 million at the beginning of 1837, for a rise of 141.9 percent or 35.5 percent per annum. Hence, even though increasing distrust of banks led the public to withdraw some specie from them, so that the public now held 13 percent of its money in specie instead of 5 percent, the banks were able to increase their notes and deposits at precisely the same rate as the expansion of specie flowing into their coffers.

Thus, the Jackson administration is absolved from blame for the 1833-37 inflation. In a sense, the state banks are as well; certainly, they scarcely acted as if being "freed" by the demise of the BUS. Instead, they simply increased their money issues proportionately with the huge increase of specie. Of course, the basic fractional reserve banking system is scarcely absolved from responsibility, since

⁷⁵ Jean Alexander Wilburn, *Biddle's Bank: The Crucial Years* (New York: Columbia University Press, 1970), pp. 118-119, Quoted in Hummel, "Jacksonians," p. 155.

otherwise the monetary expansion in absolute terms would not have been as great.⁷⁶

The enormous increase in specie was the result of two factors: first and foremost, a large influx of silver coin from Mexico, and secondly, the sharp cut in the usual export of silver to the Orient. The latter was due to the substantial increases in China's purchase of opium instead of silver from abroad. The influx of silver was the result of paper money inflation by the Mexican government, which drove Mexican silver coins into the United States, where they circulated as legal tender. The influx of Mexican coin has been attributed to a possible increase in the productivity of the Mexican mines, but this makes little sense, since the inflow stopped permanently as soon as 1837. The actual cause was an inflation of the Mexican currency by the Santa Anna regime, which financed its deficits during this period by minting highly debased copper coins. Since the debased copper grossly overvalued copper and undervalued gold and silver, both of the later metals proceeded to flow rapidly out of Mexico until they virtually disappeared. Silver, of course, and not gold, was flowing into the United States during this period. Indeed, the Mexican government was forced to rescind its actions in 1837 by shifting the copper coinage to its proper ratio. The influx of Mexican silver into the U.S. promptly ceased.⁷⁷

A bank credit inflation of the magnitude of the 1830s is bound to run into shoals that cause the banks to stop the expansion and begin to contract. As the banks expand, and prices rise, specie is bound to flow out of the country and into the hands of the domestic public, and the pressure on the banks to redeem in specie will intensify, forcing cessation of the boom and even monetary contraction. In a sense, the immediate precipitating cause is of minor importance. Even so, the Jackson administration has been unfairly blamed for precipitating the Panic of 1837 by issuing the Specie Circular in 1836.

In 1836 the Jackson administration decided to stop the enormous speculation in Western public lands that had been fueled during the past two years by the inflation of bank credit. Hence, Jackson decreed that public land payments would have to be made in specie. This had the healthy effect of stopping public land speculation, but recent studies have shown that the Specie Circular had very little impact in

⁷⁶ Moreover, if the Jacksonians had been able to move more rapidly in returning the banking system to a 100 percent specie basis, they could have used the increase in specie to ease the monetary contraction required by a return to a pure specie money.

⁷⁷ Mexico was pinpointed as the source of the inflow of specie by Temin, *Jacksonian Economy*, p. 80, while the disclosure of the cause in Mexican copper inflation came in Rockoff, "Money, Prices, and Banks," p. 454.

putting pressure on the banks to pay specie.⁷⁸ From the point of view of the Jacksonian program, however, it was as important as moving toward putting the U.S. government finances on a purely specie basis.

Another measure advancing the Jacksonian program was also taken in 1836. Jackson, embarrassed at the government having amassed a huge budget surplus during his eight years in office, ordered the Treasury to distribute the surplus proportionately to the states. The distribution was made in notes presumably payable in specie. But again, Temin has shown that the distribution had little impact on movements of specie between banks and therefore in exerting contractionist pressure upon them.⁷⁹

What, then, was the precipitating factor in triggering the Panic of 1837? Temin plausibly argues that the Bank of England, worried about inflation in Britain, and the consequent outflow of gold, tightened the money supply and raised interest rates in the latter half of 1836. As a result, credit contraction severely restricted the American cotton export trade in London, exports declined, cotton prices fell, capital flowed into England, and contractionist pressure was put upon American trade and the American banks. Banks throughout the United States—including the BUS—promptly suspended specie payments in May 1837, their notes depreciated at varying rates, and interregional trade within the country was crippled.

While banks were able to evade specie payments and continue operations, they were still obliged to contract credit in order to go back on specie eventually, since they could not hope to be creating fiat money indefinitely and be allowed to remain in business. Finally, the New York banks were compelled by law to resume paying their contractual obligations, and the other banks followed in the fall of 1838. During the year 1837, the money supply fell from \$276 million to \$232 million, a large drop of 15.6 percent in one year. Total specie in the country continued to increase in 1837, up to \$88 million, but increased public distrust of the banks (reflected in an increased proportion of money held as specie from 13 to 23 percent) put enough

⁷⁸ Public land sales by the federal government, which had been going steadily at approximately \$4-6 million per year, suddenly spurted upward in 1835 and 1836, to \$16.2 million and \$24.9 million respectively. The latter was the largest sale of public lands in American history, and the 1835 figure was the second largest. Temin, *Jacksonian Economy*, p. 124.

The first demonstration of the negligible impact of the Specie Circular on the position of the banks was Richard H. Timberlake, Jr., "The Specie Circular and Distribution of the Surplus," *Journal of Political Economy* 68 (April 1960): 109-117, reprinted in Timberlake, *Origins*, pp. 50-62. Timberlake defended his thesis in idem, "The Specie Circular and the Sale of Public Lands: A Comment," *Journal of Economic History* 25 (September 1965): 414-416.

⁷⁹ Temin, *Jacksonian Economy*, pp. 128-136.

pressure upon the banks to force the contraction. The banks' reserve ratio rose from .16 to .20. In response to the monetary contraction, wholesale prices fell precipitately, by over 30 percent in seven months, declining from 131 in February 1837 to 98 in September of that year.

In 1838 the economy revived. Britain resumed easy credit that year, cotton prices rose, and a short-lived boomlet began. Public confidence in the banks unwisely returned as they resumed specie payment, and as a result, the money supply rose slightly during the year, and prices rose by 25 percent, increasing from 98 in September 1837 to 125 in February 1839.

Leading the boom of 1838 were state governments, who, finding themselves with the unexpected windfall of a distributed surplus from the federal government, proceeded to spend the money wildly and borrow even more extravagantly on public works and other uneconomic forms of "investment." But the state governments engaged in rashly optimistic plans that their public works would be financed heavily from Britain and other countries, and the cotton boom on which these hopes depended again collapsed in 1839. The states had to abandon their projects en masse. Cotton prices declined, and severe contractionist pressure was put on trade. Furthermore, the Philadelphia-based BUS had heavily invested in cotton speculation, and the falling price of cotton forced the BUS, once again, to suspend payments in October 1839. This touched off a wave of general bank suspensions in the South and West, but this time the banks of New York and New England continued to redeem their obligations in specie. Finally, the Bank of the United States, having for the last time played a leading role in generating a recession and monetary crisis, was forced to close its doors two years later.

With the crisis of 1839 there ensued four years of massive monetary and price deflation. Unsound banks were finally eliminated; unsound investments generated in the boom were liquidated. The number of banks during these four years fell by 23 percent. The money supply fell from \$240 million at the beginning of 1839 to \$158 million in 1843, a seemingly cataclysmic drop of 34 percent, or 8.5 percent per annum. Prices fell even further, from 125 in February 1839 to 67 in March 1843, a tremendous drop of 42 percent or 10.5 percent per year.

During the boom, as we have indicated, state governments went heavily into debt, issuing bonds to pay for wasteful public works. In 1820, the total indebtedness of American states was a modest \$12.8 million; by 1830, it rose to \$26.5 million. But then it started to escalate, reaching \$66.5 million in 1835 and skyrocketing to \$170

million by 1839. The collapse of money, credit banking, and prices after 1839 brought these state debts into jeopardy. At this point, the Whigs, taking a leaf from their forebearers, the Federalists, agitated for the federal government to bail out the states and assume their debts.⁸⁰ After the crisis of 1839 arrived, some of the southern and western states were clearly in danger of default, their plight made worse by the fact that the bulk of the debt was held by British and Dutch capitalists and that specie would have to be sent abroad to meet the heavy interest payments. The Whigs pressed further for federal assumption of the debt, with the federal government to issue \$200 million worth of bonds in payment. Furthermore, British bankers put severe pressure on the United States to assume the state debts if it expected to float further loans abroad.

The American people, however, spurned federal aid, including even the citizens of the states in difficulty, and the advent of the Polk administration ended any prospects for federal assumption. The British noted in wonder that the average American was far more concerned about his personal debts to other individuals and banks than about the debts of his state. In fact, the people were quite willing to have the states repudiate their debts outright. Demonstrating an astute perception of the reckless course the states had taken, the typical American response to the problem: "Suppose foreign capitalists did not lend any more to the states?" was the sharp retort: "Well who cares if they don't? We are now as a community heels over head in debt and can scarcely pay the interest."⁸¹ The implication was that the disappearance of foreign credit to the states would have the healthy effect of cutting off their wasteful spending—as well as avoiding the imposition of a crippling tax burden to pay for the interest and principal. There was in this response an awareness by the public that they and their government were separate and sometimes even hostile entities rather than one and the same organism.⁸²

By 1847, four western and southern states (Mississippi, Arkansas, Michigan, and Florida) had repudiated all or part of their debts. Six other states (Maryland, Illinois, Indiana, Louisiana,

⁸⁰ See Reginald C. McGrane, *Foreign Bondholders and American State Debts* (New York: Macmillan, 1935), pp. 6-7, 24ff.

⁸¹ McGrane, *Foreign Bondholders*, pp. 39-40.

⁸² The Americans also pointed out that the banks, including the Bank of the United States, who were presuming to denounce repudiation of state debt, had already suspended specie payments and were largely responsible for the contraction. "Let the bondholders look to the United States Bank and to the other banks for their payment declared the people." McGrane, *Foreign Bondholders*, p. 48.

Arkansas, and Pennsylvania) had defaulted from three to six years before resuming payment.

It is evident, then, that the 1839-43 contraction was healthful for the economy in liquidating unsound investments, debts and banks, including the pernicious Bank of the United States. But didn't the massive deflation have catastrophic effects—on production, trade, and employment, as we have been led to believe? In a fascinating analysis and comparison with the deflation of 1929-33 a century later, Professor Temin shows that the percentage of deflation over the comparable four years (1839-43, and 1929-33) was almost the same.⁸³ Yet the effects on real production of the two deflations were very different. Whereas in 1929-33 real gross investment fell catastrophically by 91 percent, real consumption by 19 percent, and real GNP by 30 percent; in 1839-43, investment fell by 23 percent, but real consumption increased by 21 percent and real GNP also rose by 16 percent. The interesting problem is to account for the enormous fall in production and consumption in the 1930s, as contrasted to the rise in production and consumption in the 1840s. It seems that only the initial months of the contraction worked a hardship on the American public and that most of the earlier deflation was a period of economic growth. Temin properly suggests that the reason can be found in the downward flexibility of prices in the 19th century, so that massive monetary contraction would lower prices but not particularly cripple the world of real production or standards of living. In contrast, in the 1930s government placed massive roadblocks on the downward fall of prices and wage rates and hence brought about severe and continuing depression of production and living standards.

The Jacksonians had no intention of leaving a permanent system of pet banks, and so after the retirement of Jackson, his successor, Martin Van Buren, fought to establish the Independent Treasury System, in which the federal government conferred no special privilege or inflationary prop on any bank; instead of a central bank or pet banks, the government was to keep its funds purely in specie, in its own treasury vaults—or its “subtreasury” branches—and simply take in and spend funds from there. Van Buren finally managed to establish the Independent Treasury System, which would last until the Civil War. At long last, the Jacksonians had achieved their dream of severing the federal government totally from the

⁸³ From 1839-43, the money supply, as we have seen, fell by 34 percent, wholesale prices by 42 percent, and the number of banks by 23 percent. In 1929-33, the money supply fell by 27 percent, prices by 31 percent, and the number of banks by 42 percent. Temin, *Jacksonian Economy*, pp. 155ff.

banking system and placing its finances on a purely hard-money, specie basis.

The Jacksonians and the Coinage Legislation of 1834

We have seen that the Coinage Act of 1792 established a bimetallic system in which the dollar was defined as equaling both 371.25 grains of pure silver and 24.75 grains of pure gold—a fixed weight ratio of 15 grains of silver to 1 grain of gold. But bimetallism foundered on Gresham's Law. After 1805, the world market value of silver fell to approximately 15.75 to 1, so that the U.S. fixed mint ratio greatly undervalued gold and overvalued silver. As a result gold flowed out of the country and silver flowed in, so that after 1810 only silver coin, largely overvalued Spanish-American fractional silver coin, circulated within the United States. The rest of the currency was inflated bank paper in various stages of depreciation.

The Jacksonians, as we have seen, were determined to eliminate inflationary paper money and substitute a hard money consisting of specie—or, at the most—of paper 100 percent-backed by gold or silver. On the federal level, this meant abolishing the Bank of the United States and establishing the Independent Treasury. The rest of the fight would have to be conducted, during the 1840s and later, at the state level where the banks were chartered. But one thing the federal government could do was readjust the specie coinage. In particular, the Jacksonians were anxious to eliminate small denomination bank notes (\$20 and under) and substitute gold and silver coins for them. They reasoned that the average American largely used these coins, and they were the ones bilked by inflated paper money. For a standard to be really gold and silver, it was vital that gold or silver coins circulate and be used as a medium of exchange by the average American.

To accomplish this goal, the Jacksonians set about to establish a comprehensive program. As one vital step, one of the Coinage Acts of 1834 readjusted the old mint ratio of 15:1 that had undervalued gold and driven it out of circulation. The Coinage Act devalued the definition of the gold dollar from the original 24.75 grains to 23.2 grains, a debasement of gold by 6.26 percent. The silver dollar was left at the old weight of 371.25 grains, so that the mint ratio between silver and gold was now fixed at a ratio of 16:1, replacing the old 15:1. It was unfortunate that the Jacksonians did not appreciate silver (to

396 grains) instead of debasing gold, for this set a precedent for debasement that was to plague America in 1933 and after.⁸⁴

The new ratio of 16:1, however, now undervalued silver and overvalued gold, since the world market ratio had been approximately 15.79:1 in the years before 1834. Until recently, historians have assumed that the Jacksonians deliberately tried to bring in gold and expel silver and establish a monometallic gold standard by the back door. Recent study has shown, however, that the Jacksonians only wanted to give gold inflow a little push through a slight undervaluation and that they anticipated a full coin circulation of both gold and silver.⁸⁵ In 1833, for example, the world market ratio was as high as 15.93:1. Indeed, it turns out that for two decades the Jacksonians were right, and that the slight one percent premium of silver over gold was not enough to drive the former coins out of circulation.⁸⁶ Both silver and gold were imported from then on, and silver and gold coins both circulated successfully side-by-side until the early 1850s. Lightweight Spanish fractional silver remained overvalued even at the mint ratio, so it flourished in circulation, replacing depreciated small notes. Even American silver dollars were now retained in circulation since they were “shielded” and kept circulating by the presence of new, heavyweight Mexican silver dollars, which were exported instead.⁸⁷

In order to stimulate the circulation of both gold and silver coin instead of paper notes, the Jacksonians also passed two companion Coinage Acts in 1834. The Jacksonians were not monetary nationalists; specie was specie, and they saw that there was no reason that foreign gold or silver coins should not circulate with the same full privileges as American-minted coins. Hence, the Jacksonians, in two separate measures, legalized the circulation of all

⁸⁴ Probably the Jacksonians did so in order to preserve the illusion that the original silver dollar, the “dollar of our fathers” and the standard currency of the day, remained fixed in value. Laughlin, *History of Bimetallism*, p. 70.

⁸⁵ For the illuminating discovery that the Jacksonians were interested in purging small bank notes by bringing in gold, see Paul M. O’Leary, “The Coinage Legislation of 1834,” *Journal of Political Economy* 45 (February 1937): 80-94. For the development of this insight by Martin, who shows that the Jacksonians anticipated a coinage of both gold and silver, and reveals the comprehensive Jacksonian coinage program, see David A. Martin, “Metallism, Small Notes, and Jackson’s War with the B.U.S.,” *Explorations in Economic History*, 11 (Spring 1974): 227-247.

⁸⁶ For the next 16 years, from 1835-1850, the market ratio averaged 15.8:1, a silver premium of only 1 percent over the 16:1 mint ratio. For the data, see Laughlin, *History of Bimetallism*, p. 291.

⁸⁷ Martin, “Bimetallism,” pp. 435-437. Spanish fractional silver coins were from 5 to 15 percent underweight, and so their circulation in the U.S. at par by name (or “tale”) meant that they were still considerably overvalued.

foreign silver and gold coins, and they flourished in circulation until the 1850s.^{88,89}

A third plank in the Jacksonian coinage platform was to establish branch U.S. mints so as to coin the gold found in newly-discovered mines in Georgia and North Carolina. The Jackson administration finally succeeded in getting Congress to do so in 1835 when it set up branch mints to coin gold in North Carolina and Georgia, and silver and gold at New Orleans.⁹⁰

Finally, on the federal level, the Jacksonians sought to levy a tax on small bank notes and to prevent the federal government from keeping its deposits in state banks, issuing small notes, or from accepting small bank notes in taxes. They were not successful, but the Independent Treasury eliminated public deposit in state banks and the Specie Circular, as we have seen, stopped the receipt of bank notes for public land sales. From 1840 on, the hard-money battle would be waged at the state level.

In the early 1850s, Gresham's Law finally caught up with the bimetalist idyll that the Jacksonians had forged in the 1830s, replacing the earlier de facto silver monometallism. The sudden discovery of extensive gold mines in California, Russia, and Australia greatly increased gold production, reaching a peak in the early 1850s. From the 1720s through the 1830s, annual world gold production averaged \$12.8 million, never straying very far from that norm. Then, world gold production increased to an annual average of \$38.2 million in the 1840s, and spurted upward to a peak of \$155 million in 1853. World gold production then fell steadily from that peak to an annual average of \$139.9 million in the 1850s and to \$114.7 million from 1876-1890. It was not to surpass this peak until the 1890s.⁹¹

⁸⁸ As Jackson's Secretary of the Treasury Levi Woodbury explained the purpose of this broad legalization of foreign coins: "to provide a full supply and variety of coins, instead of bills below five and ten dollars," for this would be "particularly conducive to the security of the poor and middling classes, who, as they own but little in, and profit but little by, banks, should be subjected to as small risk as practicable by their bills." Quoted in Martin, "Metallism," p.242.

⁸⁹ In 1837 another Coinage Act made a very slight adjustment in the mint ratios. In order to raise the alloy composition of gold coins to have them similar to silver, the definition of the gold dollar was raised slightly from 23.2 to 23.22 grains. With the weight of the silver dollar remaining the same, the silver/gold ratio was now very slightly lowered from 16.002:1 to 15.998:1. Further slight adjustments in valuations of foreign coins in another Coinage Act of 1843 resulted in the undervaluation of many foreign coins and their gradual disappearance. The major ones—Spanish fractional silver—continued, however, to circulate widely. Martin, "Bimetallism," p. 436.

⁹⁰ Martin, "Metallism," p. 240.

⁹¹ On gold production, see Laughlin, *History of Bimetallism*, pp. 283-286; David A. Martin, "1853: The End of Bimetallism in the United States," *Journal of Economic History* 33 (December 1973): 830.

The consequence of the burst in gold production was, of course, a fall in the price of gold relative to silver in the world market. The silver/gold ratio declined from 15.97 in January 1849 to an average of 15.70 in 1850 to 15.46 in 1851 and to an average of 15.32:1 in the eight years from 1853 to 1860.⁹² As a result, the market premium of American silver dollars over gold quickly rose above the one-percent margin, which was the estimated cost of shipping silver coin abroad. That premium, which had hovered around one percent since the mid-1830s, suddenly rose to 4.5 percent at the beginning of 1851, and after falling back to about 2 percent at the turn of 1852, bounced back up and remained at the 4-5 percent level.

The result was a rapid disappearance of silver from the country, the heaviest and therefore most undervalued coins vanishing first. Spanish-milled dollars, which contained 1 percent to 5 percent more silver than American dollars, commanded a premium of 7 percent and went first. Then went the full-weight American silver dollars and after that, American fractional silver coins, which were commanding a 4 percent premium by the fall of 1852. The last coins left were the worn Spanish and Mexican fractions, which were depreciated by 10 to 15 percent. By the beginning of 1851, however, even these worn foreign silver fractions had gone to a one-percent premium, and were beginning to go.

It was clear that America was undergoing a severe small coin crisis. Gold coins were flowing into the country, but they were too valuable to be technically usable for small denomination coins. The Democratic Pierce administration saw with horror a flood of millions of dollars of unauthorized private small notes flood into circulation in early 1853 for the first time since the 1830s. The Jacksonians were in grave danger of losing the fight for hard-money coinage, at least for the smaller and medium denominations. Something had to be done quickly.⁹³

The ultimate breakdown of bimetallism had never been clearer. If bimetallism is in the long run not viable, this leaves two free-market, hard-money alternatives: (a) silver monometallism with the dollar defined as a weight of silver only, and gold circulating freely by weight at freely-fluctuating market rates; or (b) gold monometallism with the dollar defined only as a weight of gold, with silver circulating by weight. Each of these is an example of what has been called "parallel standards" or "free metallism," in which two or more metal coins are allowed to fluctuate freely within the same area and

⁹² The silver/gold ratio began to slide sharply in October and November 1850. Laughlin, *History of Bimetallism*, pp. 194, 291.

⁹³ Martin, "Metallism," p. 240

exchange at free-market prices. As we have seen, colonial America was an example of such parallel standards, since foreign gold and silver coins circulated freely and at fluctuating market prices.⁹⁴

The United States could have taken this opportunity of monetary crisis to go on either version of a parallel standard.⁹⁵ Apparently, however, few thought of doing so. Another viable though inferior solution to the problem of bimetallism was to establish a monometallic system, either de facto or de jure, with the other metal circulating in the form of lightweight, and therefore overvalued, or “token” coinage. Silver monometallism was immediately unfeasible since it was rapidly flowing out of the country, and because gold, being far more valuable than silver, could not technically function easily as a lightweight, subsidiary coin. The only feasible solution, then, within a monometallic framework, was to make gold the basic standard and let highly overvalued, essentially token, silver coins function as subsidiary small coinage. Certainly if a parallel standard was not to be adopted, the latter solution would be far better than allowing depreciated paper notes to function as small currency.

Under pressure of the crisis, Congress decided, in February 1853, to keep the de jure bimetallic standard but to adopt a de facto gold

⁹⁴ For an account of how parallel standards worked in Europe from the medieval period through the 18th century, see Luigi Einaudi, “The Theory of Imaginary Money from Charlemagne to the French Revolution,” in F. Lane and J. Riemersma, eds., *Enterprise and Secular Change* (Homewood, 111.: Irwin, 1953), pp. 229-261. Robert Lopez contrasts the ways in which Florence and Genoa each returned to gold coinage in the mid-13th century, after a gap of half a millennium: “Florence, like most medieval states, made bimetallism and trimetallism a base of its monetary policy ... it committed the government to the Sisyphian labor of readjusting the relations between different coins as the ratio between the different metals changes, or as one or another coin was debased ... Genoa on the contrary, *in conformity with the principle of restricting state intervention as much as possible* [italics ours], did not try to enforce a fixed relation between coins of different metals ... Basically, the gold coinage of Genoa was not meant to integrate the silver and bullion coinages but to form an independent system.” Robert Sabatino Lopez, “Back to Gold, 1252,” *Economic History Review*, April 1956, p.224. Also see James Rolph Edwards, “Monopoly and Competition in Money,” *Journal of Libertarian Studies* IV (Winter 1980): 116. For an analysis of parallel standards, see Ludwig von Mises, *The Theory of Money and Credit* 3rd ed. (Indianapolis: Liberty Classics, 1980), pp. 87, 89-91, 205-207.

⁹⁵ Given parallel standards, the ultimate, admittedly remote solution would be to eliminate the term “dollar” altogether, and simply have both gold and silver coins circulate by regular units of weight: “Grain,” “Ounce,” or “Gram.” If that were done, all problems of bimetallism, debasement, Gresham’s Law, etc., would at last disappear. While such a pure free-market solution seems remote today, the late 19th century saw a series of important international monetary conferences trying to move toward a universal gold or silver gram, with each national currency beginning as a simple multiple of each other, and eventually only units of weight being used. Before the conferences foundered on the gold/silver problem, such a result was not as remote or Utopian as we might now believe. See the fascinating account of these conferences in Henry B. Russell, *International Monetary Conferences* (New York: Harper & Bros., 1898).

monometallic standard, with fractional silver coins circulating as a deliberately overvalued subsidiary coinage, legal tender up to a maximum of only five dollars. The fractional silver coins were debased by 6.91 percent. With silver commanding about a 4 percent market premium over gold, this meant that fractional silver was debased 3 percent below gold. At that depreciated rate, fractional silver was not overvalued in relation to gold, and remained in circulation. By April, the new subsidiary quarter dollars proved to be popular and by early 1854 the problem of the shortage of small coins in America was over.

In rejecting proposals either to go over completely to de jure gold monometallism, or to keep the existing bimetallic system, Congress was choosing a gold standard temporarily, but keeping its options open. The fact that it continued the old full-bodied silver dollar, the “dollar of our fathers,” demonstrates that an eventual return to de facto bimetalism was by no means being ruled out—albeit Gresham’s Law could not then maintain the American silver dollar in circulation.⁹⁶

In 1857, an important part of the Jacksonian coinage program was repealed, as Congress, in an exercise of monetary nationalism, eliminated all legal tender power of foreign coins.⁹⁷

Decentralized Banking from the 1830s to the Civil War

After the central bank was eliminated in the 1830s, the battle for hard money largely shifted to the state governmental arena. During the 1830s, the major thrust was to prohibit the issue of small notes, which was accomplished for notes under five dollars in 10 states by 1832, and subsequently, five others restricted or prohibited such notes.⁹⁸

The Democratic Party became ardently hard-money in the various states after the shock of the financial crisis of 1837 and 1839. The Democratic drive was toward the outlawry of all fractional reserve bank paper. Battles were fought, also, in the late 1840s, at constitutional conventions of many states, particularly in the West. In some western states the Jacksonians won temporary success, but soon the Whigs would return and repeal the bank prohibition. The Whigs, trying to find some way to overcome the general revulsion against banks after the crisis of the late 1830s, adopted the concept of

⁹⁶ For an excellent portrayal of the congressional choice in 1853, see Martin, “1853,” pp. 825-844.

⁹⁷ Only Spanish-American fractional silver coins were to remain legal tender, and they were to be received quickly at government offices and immediately reminted into American coins. Hepburn, *History of Currency*, pp. 66-67.

⁹⁸ See Martin, “Metallism,” pp. 242-243.

“free” banking, which had been enacted by New York and Michigan in the late 1830s. From New York, the idea spread outward to the rest of the country and triumphed in 15 states by the early 1850s. On the eve of the Civil War, 18 out of the 33 states in the Union had adopted “free” banking laws.⁹⁹

It must be realized that “free” banking, as it came to be known in the United States before the Civil War, was unrelated to the philosophic concept of free banking analyzed by economists. As we have seen earlier, genuine free banking is a system where entry into banking is totally free, the banks are neither subsidized nor regulated, and at the first sign of failure to redeem in specie payments, the bank is forced to declare insolvency and close its doors.

“Free” banking before the Civil War, on the other hand, was very different.¹⁰⁰ As we have pointed out, the government allowed periodic general suspensions of specie payments whenever the banks over-expanded and got into trouble—the latest episode was in the Panic of 1857. It is true that bank incorporation was now more liberal since any bank which met the legal regulations could become incorporated automatically without lobbying for special legislative charters, as had been the case before. But the banks were not subject to a myriad of regulations, including edicts by state banking commissioners and high minimum capital requirements which greatly restricted entry into the banking business. But the most pernicious aspect of “free” banking was that the expansion of bank notes and deposits was directly tied to the amount of state government securities which the bank had invested in and posted as bond with the state. In effect, then, state government bonds became the reserve base upon which the banks were allowed to pyramid a multiple expansion of bank notes and deposits. Not only did this system provide explicitly or implicitly for fractional reserve banking; but the pyramid was tied rigidly to the amount of government bonds purchased by the banks. This provision deliberately tied banks and bank credit expansion to the public debt; it meant that the more public debt the banks purchased, the more they could create and lend out new money. Banks, in short, were encouraged to monetize the public debt, state governments were thereby encouraged to go into debt, and hence, government and bank inflation were intimately linked.

⁹⁹ Hugh Rockoff, *The Free Banking Era: A Re-Examination* (New York: Arno Press, 1975), pp. 3-4.

¹⁰⁰ Rockoff goes so far as to call free banking the “antithesis of *laissez-faire* banking laws.” Hugh Rockoff, “Varieties of Banking and Regional Economic Development in the United States, 1840-1860,” *Journal of Economic History* 35 (March 1975): 162. Quoted in Hummel, “Jacksonians,” p. 157.

In addition to allowing periodic suspension of specie payments, federal and state governments conferred upon the banks the privilege of their notes being accepted in taxes. Moreover, the general prohibition of interstate branch banking—and often of intrastate branches as well—greatly inhibited the speed by which one bank could demand payment from other banks in specie. In addition, state usury laws, pushed by the Whigs and opposed by the Democrats, made credit excessively cheap for the riskiest borrowers and encouraged inflation and speculative expansion of bank lending.

Furthermore, the desire of state governments to finance internal improvements was an important factor in subsidizing and propelling expansion of bank credit. As Hammond admits: “The wildcats lent no money to farmers and served no farmer interest. They arose to meet the credit demands not of farmers (who were too economically astute to accept wildcat money) but of states engaged in public improvements.”¹⁰¹

Despite the flaws and problems, the decentralized nature of the pre-Civil War banking system meant that banks were free to experiment on their own with improving the banking system. The most successful such device was the creation of the Suffolk system.

A Free-Market “Central Bank”

It is a fact, almost never recalled, that there once existed an American private bank that brought order and convenience to a myriad of privately issued banknotes. Further, the Suffolk Bank restrained the over-issuance of these notes. In short, it was a private central bank that kept the other banks honest. As such, it made New England an island of monetary stability in an America contending with currency chaos.

Chaos was, in fact, that condition in which New England found herself just before the Suffolk Bank was established. There were a myriad of banknotes circulating in the area’s largest financial center, Boston. Some were issued by Boston banks which all in Boston knew

¹⁰¹ Hammond, *Banks and Politics*, p. 627. On free banking, see Hummel, “Jacksonians,” pp. 154-160; Smith, *Rationale*, pp. 44-45; and Hugh Rockoff, “American Free Banking Before the Civil War: A Reexamination,” *Journal of Economic History* 32 (March 1972): 417-420. On the effect of usury laws, see William Graham Sumner, *A History of American Currency* (New York: Henry Holt & Co., 1876), p. 125. On the Jacksonians versus their opponents on the state level after 1839, see William G. Shade, *Banks or No Banks: The Money Issue in Western Politics, 1832-1865* (Detroit: Wayne State University Press, 1972); Herbert Ershkowitz and William Shade, “Consensus or Conflict? Political Behavior in the State Legislatures During the Jacksonian Era,” *Journal of American History* 58 (December 1971): 591-621; and James Roger Sharp, *Jacksonians versus the Banks: Politics in the States After the Panic of 1837* (New York: Columbia University Press, 1970).

to be solvent. But others were issued by state-chartered banks. These could be quite far away, and in those days such distance impeded both general knowledge about their solvency and easy access in bringing the banks' notes in for redemption into gold or silver. Thus, while at the beginning these country notes were accepted in Boston at par value, this just encouraged some far-away banks to issue far more notes than they had gold to back them. So country bank notes began to be generally traded at discounts to par, of from 1 percent to 5 percent.

City banks finally refused to accept country bank notes altogether. This gave rise to the money brokers mentioned earlier in this chapter. But it also caused hardship for Boston merchants, who had to accept country notes whose real value they could not be certain of. When they exchanged the notes with the brokers, they ended up assuming the full cost of discounting the bills they had accepted at par.

A False Start

Matters began to change in 1814. The New England Bank of Boston announced it too would go into the money broker business, accepting country notes from holders and turning them over to the issuing bank for redemption. The note holders, though, still had to pay the cost. In 1818, a group of prominent merchants formed the Suffolk Bank to do the same thing. This enlarged competition brought the basic rate of country note discount down from three percent in 1814 to one percent in 1818 and finally to a bare one-half of one percent in 1820. But this did not necessarily mean that country banks were behaving more responsibly in their note creation. By the end of 1820 the business had become clearly unprofitable, and both banks stopped competing with the private money brokers. The Suffolk became just another Boston bank.

Operation Begins

During the next several years city banks found their notes representing an ever smaller part of the total New England money supply. Country banks were simply issuing far more notes in proportion to their capital (i.e., gold and silver) than were the Boston banks.

Concerned about this influx of paper money of lesser worth, both Suffolk and New England Bank began again in 1824 to purchase country notes. But this time they did so not to make a profit on redemption, but simply to reduce the number of country notes in circulation in Boston. They had the foolish hope that this would

increase the use of their (better) notes, thus increasing their own loans and profits.

But the more they purchased country notes, the more notes of even worse quality (particularly from far-away Maine banks) would replace them. Buying these latter involved more risk, so the Suffolk proposed to six other city banks a joint fund to purchase and send these notes back to the issuing bank for redemption. These seven banks, known as the Associated Banks, raised \$300,000 for this purpose. With the Suffolk acting as agent and buying country notes from the other six, operations began March 24, 1824. The volume of country notes bought in this way increased greatly, to \$2 million per month by the end of 1825. By then, Suffolk felt strong enough to go it alone. Further, it now had the leverage to pressure country banks into depositing gold and silver with the Suffolk, to make note redemption easier. By 1838, almost every bank in New England did so, and were redeeming their notes through the Suffolk Bank.

The Suffolk ground rules from beginning (1825) to end (1858) were as follows: Each country bank had to maintain a permanent deposit of specie of at least \$2,000 for the smallest bank, plus enough to redeem all its notes that Suffolk received. These gold and silver deposits did not have to be at Suffolk, so long as they were at some place convenient to Suffolk, so that the notes would not have to be sent home for redemption. But in practice, nearly all reserves were at Suffolk. (City banks had only to deposit a fixed amount, which decreased to \$5,000 by 1835.) No interest was paid on any of these deposits. But, in exchange, the Suffolk began performing an invaluable service: It agreed to accept at par all the notes it received as deposits from other New England banks in the system, and credit the depositor banks' accounts on the following day.

With the Suffolk acting as a "clearing bank," accepting, sorting, and crediting bank notes, it was now possible for any New England bank to accept the notes of any other bank, however far away, and at face value. This drastically cut down on the time and inconvenience of applying to each bank separately for specie redemption. Moreover, the certainty spread that the notes of the Suffolk member banks would be valued at par: It spread at first among other bankers and then to the general public.

The Country Banks Resist

How did the inflationist country banks react to this? Not very well, for as one can see the Suffolk system put limits on the amount of notes they could issue. They resented par redemption and detested systematic specie redemption because that forced them to stay honest. But the country banks knew that any bank that did not play

by the rules would be shunned by the banks that did (or at least see their notes accepted only at discount, and not in a very wide area, at that). All legal means to stop Suffolk failed: The Massachusetts Supreme Court upheld in 1827 Suffolk's right to demand gold or silver for country bank notes, and the state legislature refused to charter a clearing bank run by country banks; probably rightly assuming that these banks would run much less strict operations. Stung by these setbacks, the country banks played by the rules, bided their time, and awaited their revenge.

Suffolk's Stabilizing Effects

Even though Suffolk's initial objective had been to increase the circulation of city banks, this did not happen. In fact, by having their notes redeemed at par, country banks gained a new respectability. This came, naturally, at the expense of the number of notes issued by the worst former inflationists. But at least in Massachusetts, the percentage of city bank notes in circulation fell from 48.5 percent in 1826 to 35.8 percent in 1833.

Circulation of the Notes of Massachusetts Banks (in Thousands)

Date	All Banks	Boston Banks	Boston Percentage
1823	\$3,129	\$1,354	43.3
1824	3,843	1,797	46.8
1825	4,091	1,918	46.9
1826	4,550	2,206	48.5
1827	4,936	2,103	42.6
1828	4,885	2,067	42.3
1829	4,748	2,078	43.8
1830	5,124	2,171	42.3
1831	7,139	3,464	44.8
1832	7,123	3,060	43.0
1833	7,889	2,824	35.8

Source: Wilfred S. Lake, *The End of the Suffolk System*, p. 188.

The biggest, most powerful weapon Suffolk had to keep stability was the power to grant membership into the system. It accepted only banks whose notes were sound. While Suffolk could not prevent a bad bank from inflating, denying it membership ensured that the notes would not enjoy wide circulation. And the member banks which were

mismanaged could be stricken from the list of Suffolk-approved New England banks in good standing. This caused the offending banks' notes to trade at a discount at once, even though the bank itself might be still redeeming its notes in specie.

In another way, Suffolk exercised a stabilizing influence on the New England economy. It controlled the use of overdrafts in the system. When a member bank needed money, it could apply for an overdraft, that is, a portion of the excess reserves in the banking system. If Suffolk decided that a member bank's loan policy was not conservative enough, it could refuse to sanction that bank's application to borrow reserves at Suffolk. The denial of overdrafts to profligate banks thus forced those banks to keep their assets more liquid. (Few government central banks today have succeeded in that.) This is all the more remarkable when one considers that Suffolk—or any central bank—could have earned extra interest income by issuing overdrafts irresponsibly.

But Dr. George Trivoli, whose excellent monograph, *The Suffolk Bank*, we rely on in this study, states that by providing stability to the New England banking system “it should not be inferred that the Suffolk bank was operating purely as public benefactor.” Suffolk, in fact, made handsome profits. At its peak in 1858, the last year of existence, it was redeeming \$400 million in notes, with a total annual salary cost of only \$40,000. The healthy profits were derived primarily from loaning out those reserve deposits which Suffolk itself, remember, did not pay interest on. These amounted to over \$1 million in 1858. The interest charged on overdrafts augmented that. Not surprisingly, Suffolk stock was the highest priced bank stock in Boston, and by 1850, regular dividends were 10 percent.

The Suffolk Difference

That the Suffolk system was able to provide note redemption much more cheaply than the U.S. government was stated by a U.S. Comptroller of the Currency. John Jay Knox compared the two systems from a vantage point of half a century: “...in 1857 the redemption of notes by the Suffolk Bank was almost \$400,000,000 as against \$137,697,696 in 1875, the highest amount ever reported under the National Banking system. The redemptions in 1898 were only \$66,683,476 at a cost of \$1.29 per thousand. The cost of redemption under the Suffolk system was ten cents per \$1,000, which does not appear to include transportation. If this item is deducted from the cost of redeeming National Bank notes, it would reduce it to about ninety-four cents. This difference is accounted for by the relatively small amount of redemptions by the Treasury, and the increased expense incident to the necessity of official checks by the

Government, and by the higher salaries paid. But allowing for these differences, the fact is established that private enterprise could be entrusted with the work of redeeming the circulating notes of the banks, and it could thus be done as safely and much more economically than the same services can be performed by the Government.”¹⁰²

The volume of redemptions was much larger under Suffolk than under the National Banking system. During Suffolk's existence (1825-57) they averaged \$229 million per year. The average of the National system from its start in 1863 to about 1898 is put by Mr. Knox at only \$54 million. Further, at its peak in 1858, \$400 million was redeemed. But the New England money supply was only \$40 million. This meant that, astoundingly, the average note was redeemed 10 times per year, or once every five weeks.

Bank capital, note circulation, and deposits, considered together as “banking power,” grew in New England on a per capita basis much faster than in any other region of the country from 1803 to 1850. And there is some evidence that New England banks were not as susceptible to disaster during the several banking panics during that time. In the Panic of 1837 not one Connecticut bank failed, nor did any suspend specie payments. All remained in the Suffolk system. And when in 1857 specie payment was suspended in Maine, all but three banks remained in business. As the Bank Commission of Maine stated, “The Suffolk system, though not recognized in banking law, has proved to be a great safeguard to the public; whatever objections may exist to the system in theory, its practical operation is to keep the circulation of our banks within the bounds of safety.”

The Suffolk's Demise

The extraordinary profits—and power—that the Suffolk had by 1858 attained spawned competitors. The only one to become established was a Bank for Mutual Redemption in 1858. This bank was partially a response to the somewhat arrogant behavior of the Suffolk by this time, after 35 years of unprecedented success. But further, and more importantly, the balance of power in the state legislature had shifted outside of Boston, to the country bank areas. The politicians were more amenable to the desires of the overexpanding country banks. Still, it must be said that Suffolk acted toward the Bank of Mutual Redemption with spite where conciliation would have helped. Trying to force Mutual Redemption out of business, Suffolk, starting October 9, 1858, refused to honor notes of

¹⁰² John Jay Knox, *A History of Banking in the United States* (New York: Augustus M. Kelley, 1969 [1900]), pp. 368-69.

banks having deposits in the newcomer. Further, Suffolk in effect threatened any bank withdrawing deposits from it. But country banks rallied to the newcomer, and on October 16, Suffolk announced that it would stop clearing any country bank notes, thus becoming just another bank.

Only the Bank for Mutual Redemption was left, and though it soon had half the New England banks as members, it was much more lax toward overissuance by country banks. Perhaps the Suffolk would have returned amid dissatisfaction with its successor, but in 1861, just over two years after Suffolk stopped clearing, the Civil War began and all specie payments were stopped. As a final nail in the coffin, the National Banking System Act of 1863 forbade the issuance of any state bank notes, giving a monopoly to the government that has continued ever since.

While it lasted, though, the Suffolk banking system showed that it is possible in a free-market system to have private banks competing to establish themselves as efficient, safe, and inexpensive clearing houses limiting overissue of paper money.

The Civil War

The Civil War exerted an even more fateful impact on the American monetary and banking system than had the War of 1812. It set the United States, for the first time except for 1814-17, on an irredeemable fiat currency that lasted for two decades and led to reckless inflation of prices. This “greenback” currency set a momentous precedent for the post-1933 United States, and even more particularly for the post-1971 experiment in fiat money.

Perhaps an even more important consequence of the Civil War was the permanent change wrought in the American banking system. The federal government in effect outlawed the issue of state bank notes, and created a new, quasi-centralized, fractional reserve national banking system which paved the way for the return of outright central banking in the Federal Reserve System. The Civil War, in short, ended the separation of the federal government from banking, and brought the two institutions together in an increasingly close and permanent symbiosis. In that way, the Republican Party, which inherited the Whig admiration for paper money and governmental control and sponsorship of inflationary banking, was able to implant the soft-money tradition permanently in the American system.

Greenbacks

The Civil War led to an enormous ballooning of federal expenditures, which skyrocketed from \$66 million in 1861 to \$1.30 billion four years later. To pay for these swollen expenditures, the Treasury initially attempted, in the fall of 1861, to float a massive \$150 million bond issue, to be purchased by the nation's leading banks. However, Secretary of the Treasury Salmon P. Chase, a former Jacksonian, tried to require the banks to pay for the loan in specie that they did not have. This massive pressure on their specie, as well as an increased public demand for specie due to a well-deserved lack of confidence in the banks, brought about a general suspension of specie payments a few months later, at the end of December 1861. This suspension was followed swiftly by the Treasury itself, which suspended specie payments on its Treasury notes.

The U.S. government quickly took advantage of being on an inconvertible fiat standard. In the Legal Tender Act of February 1862, Congress authorized the printing of \$150 million in new "United States Notes" (soon to be known as "greenbacks") to pay for the growing war deficits. The greenbacks were made legal tender for all debts, public and private, except that the Treasury continued its legal obligation of paying the interest on its outstanding public debt in specie.¹⁰³ The greenbacks were also made convertible at par into U.S. bonds, which remained a generally unused option for the public, and was repealed a year later.

In creating greenbacks in February, Congress resolved that this would be the first and last emergency issue. But printing money is a heady wine, and a second \$150 million issue was authorized in July, and still a third \$150 million in early 1863. Greenbacks outstanding reached a peak in 1864 of \$415.1 million.

Greenbacks began to depreciate in terms of specie almost as soon as they were issued. In an attempt to drive up the price of government bonds, Secretary Chase eliminated the convertibility of greenbacks in July 1863, an act which simply drove down their value further. Chase and the Treasury officials, instead of acknowledging their own premier responsibility for the continued depreciation of the greenbacks, conveniently placed the blame on anonymous "gold speculators." In March 1863, Chase began a determined campaign, which would last until he was driven from office, to stop the depreciation by controlling, assaulting, and eventually eliminating

¹⁰³ To be able to keep paying interest in specie, Congress provided that customs duties, at least, had to be paid in gold or silver. For a comprehensive account and analysis of the issue of greenbacks in the Civil War, see Wesley Clair Mitchell, *A History of the Greenbacks* (Chicago: University of Chicago Press, 1903). For a summary, see Paul Studenski and Herman E. Kross, *Financial History of the United States* (New York: McGraw-Hill, 1952), pp. 141-149.

the gold market. In early March, he had Congress levy a stamp tax on gold sales and to forbid loans on a collateral of coin above its par value. This restriction on the gold market had little effect, and when depreciation resumed its march at the end of the year, Chase decided to de facto repeal the requirement that customs duties be paid in gold. In late March 1864, Chase declared that importers would be allowed to deposit greenbacks at the Treasury and receive gold in return at a premium below the market. Importers could then use the gold to pay the customs duties. This was supposed to reduce greatly the necessity for importers to buy gold coin on the market and therefore to reduce the depreciation. The outcome, however, was that the greenback, at 59 cents in gold when Chase began the experiment, had fallen to 57 cents by mid-April. Chase was then forced to repeal his customs duties scheme. With the failure of this attempt to regulate the gold market, Chase promptly escalated his intervention. In mid-April, he sold the massive amount of \$11 million in gold in order to drive down the gold premium of greenbacks. But the impact was trifling, and the Treasury could not continue this policy indefinitely, because it had to keep enough gold in its vaults to pay interest on its bonds. At the end of the month, the greenback was lower than ever, having sunk to below 56 cents in gold.

Indefatigably, Chase tried yet again. In mid-May 1864, he sold foreign exchange in London at below-market rates in order to drive down pounds in relation to dollars, and, more specifically, to replace some of the U.S. export demand for gold in England. But this, too, was a failure, and Chase ended this experiment before the end of the month.

Finally, Secretary Chase decided to take off the gloves. He had failed to regulate the gold market; he would therefore end the depreciation of greenbacks by destroying the gold market completely. By mid-June, he had driven through Congress a truly despotic measure to prohibit under pain of severe penalties all futures contracts in gold, as well as all sales of gold by a broker outside his own office.

The result was disaster. The gold market was in chaos, with wide ranges of prices due to the absence of an organized market. Businessmen clamored for repeal of the “gold bill,” and, worst of all, the object of the law—to lower the depreciation of the paper dollar—had scarcely been achieved. Instead, public confidence in the greenback plummeted, and its depreciation in terms of gold got far worse. At the beginning of June, the greenback dollar was worth over 52 cents in gold. Apprehensions about the emerging gold bill drove the greenback down slightly to 51 cents in mid-June. Then, after the

passage of the bill, the greenback plummeted, reaching 40 cents at the end of the month.

The disastrous gold bill was hastily repealed at the end of June, and perhaps not coincidentally, Secretary Chase was ousted from office at the same time. The war against the speculators was over.^{104,105}

As soon as greenbacks depreciated to less than 97 cents in gold, fractional silver coins became undervalued and so were exported to be exchanged for gold. By July 1862, in consequence, no coin higher than the copper/nickel penny remained in circulation. The U.S. government then leaped in to fill the gap with small tickets, first issuing postage stamps for the purpose, then bits of unglued paper, and finally, after the spring of 1863, fractional paper notes.¹⁰⁶ A total of \$28 million in postage currency and fractional notes was issued by the middle of 1864. Even the nickel/copper pennies began to disappear from circulation, as greenbacks depreciated, and the nickel/copper coin began to move toward being undervalued. The expectation and finally the reality of undervaluation drove the coins into hoards and then into exports. Postage and fractional notes did not help matters, because their lowest denominations were 5 cents and 3 cents respectively. The penny shortage was finally alleviated when a debased and lighter weight penny was issued in the spring of 1864, consisting of bronze instead of nickel and copper.¹⁰⁷

As soon as the nation's banks and the Treasury itself suspended specie payments at the end of 1861, Gresham's Law went into operation and gold coin virtually disappeared from circulation, except for the government's interest payments and importers' customs

¹⁰⁴ Chase and the administration should have heeded the advice of Sen. Jacob Collamer (R-Vt): "Gold does not fluctuate in price ... because they gamble in it; but they gamble in it because it fluctuates ... But the fluctuation is not in the gold; the fluctuation is in the currency, and it is a fluctuation utterly beyond the control of individuals." Mitchell, *History of Greenbacks*, pp. 229-230.

¹⁰⁵ On the war against the gold speculators, see Mitchell, *History of Greenbacks*, pp. 223-235. The greenbacks fell further to 35 cents in mid-July on news of military defeats for the North. Military victories, and consequently rising prospects of possible future gold redemption of the greenbacks, caused a rise in greenbacks in terms of gold, particularly after the beginning of 1865. At war's end the greenback dollar was worth 69 cents in gold. *Ibid.*, pp. 232-238, 423-428.

¹⁰⁶ Some of the greenbacks had been decorated with portraits of President Lincoln (\$5) and Secretary Chase (\$1). However, when Spencer Clark, chief clerk of the Treasury's National Currency Division, put his own portrait on 5-cent fractional notes, the indignant Rep. Martin R. Thayer (R-Pa.) put through a law, still in force, making it illegal to put the picture of any living American on any coin or paper money. See Gary North, "Greenback Dollars and Federal Sovereignty, 1861-1865," in H. Sennholz, ed., *Gold Is Money* (Westport, Conn.: Greenwood Press, 1975), pp. 124,150.

¹⁰⁷ See Mitchell, *History of Greenbacks*, pp. 156-163.

duties. The swift issuance of legal tender greenbacks, which the government forced creditors to accept at par, insured the continued disappearance of gold from then on.

The fascinating exception was California. There were very few banks during this period west of Nebraska, and in California the absence of banks was insured by the fact that note-issuing banks, at least, were prohibited by the California constitution of 1849.¹⁰⁸ The California gold discoveries of the late 1840s insured a plentiful supply for coinage.

Used to a currency of gold coin only, with no intrusion of bank notes, California businessmen took steps to maintain gold circulation and avoid coerced payment in greenbacks. At first, the merchants of San Francisco, in November 1862, jointly agreed to refrain from accepting or paying out greenbacks at any but the (depreciated) market value, and to keep gold as the monetary standard. Any firms that refused to abide by the agreement would be blacklisted and required to pay gold in cash for any goods which they might purchase in the future.

Voluntary efforts did not suffice to overthrow the federal power standing behind legal tender, however, and so California merchants obtained the passage in the California legislature of a “specific contracts act” at the end of April 1863. The specific contract provided that contracts for the payment of specific kinds of money would be enforceable in the courts. After passage of that law, California businessmen were able to protect themselves against tenders of greenbacks by inserting gold coin payment clauses in all their contracts. Would that the other states, and even the federal government, had done the same!¹⁰⁹ Furthermore, the private banks of deposit in California refused to accept greenbacks on deposit, newspapers used their influence to warn citizens about the dangers of greenbacks, and the state government refused to accept greenbacks in payment of taxes. In that way, all the major institutions in California joined in refusing to accept or give their imprimatur to federal inconvertible paper.

Judicial institutions also helped maintain the gold standard and repel the depreciated U.S. paper. Not only did the California courts

¹⁰⁸ Banks of deposit existed in California, but of course they could not supply the public's demand for cash. See John Jay Knox, *A History of Banking in the United States* (New York: Bradford Rhodes & Co., 1900), pp. 843-845.

¹⁰⁹ This experience illustrates a continuing problem in contract law: It is not sufficient for government to allow contracts to be made in gold or gold coin. It is necessary for government to enforce specific performance of the contracts so that debtors must pay in the weight or value of the gold (or anything else) required in the contract, and not in some paper dollar equivalent decided by law or the courts.

uphold the constitutionality of the specific contracts act, but the California Supreme Court ruled in 1862 that greenbacks could not be accepted in state or county taxes, since the state constitution prohibited any acceptance of paper money for taxes.

The state of Oregon was quick to follow California's lead. Oregon's constitution had also outlawed banks of issue, and gold had for years been the exclusive currency. Two weeks after the agreement of the San Francisco merchants, the merchants of Salem, Oregon, unanimously backed gold as the monetary standard and refused to accept greenbacks at par. Two months later, the leading merchants of Portland agreed to accept greenbacks only at rates current in San Francisco; the merchants in the rest of the state were quick to follow suit. The Portland merchants issued a circular warning of a blacklist of all customers who insisted on settling their debts in greenbacks, and they would be quickly boycotted, and dealings with them would only be in cash.

Oregon deposit banks also refused to accept greenbacks, and the Oregon legislature followed California a year and a half later in passing a specific performance law. Oregon, too, refused to accept greenbacks in taxes and strengthened the law in 1864 by requiring that "all taxes levied by state, counties, or municipal corporations therein, shall be collected and paid in gold and silver coin of the United States and not otherwise."¹¹⁰

In the same year, the Oregon Supreme Court followed California in ruling that greenbacks could not constitutionally be received in payment of taxes.

The banking story during the Civil War is greatly complicated by the advent of the national banking system in the latter part of the war. But it is clear that the state banks, being able to suspend specie and to pyramid money and credit on top of the federal greenbacks, profited greatly by being able to expand during this period. Thus, total state bank notes and deposits were \$510 million in 1860, and by 1863 the amount rose to \$743 million, an increase in state bank demand liabilities in those three years of 15.2 percent per year.¹¹¹

It is no wonder, then, that contrary to older historical opinion, many state banks were enthusiastic about the greenbacks, which provided them with legal tender that could function as a reserve base

¹¹⁰ Cited in Richard A. Lester, *Monetary Experiments* (1939, London: David & Charles Reprints, 1970), p. 166. On the California and Oregon maintenance of the gold standard during this period, see *ibid.*, pp. 161-171. On California, see Bernard Moses, "Legal Tender Notes in California," *Quarterly Journal of Economics*, (October 1892): 1-25; Mitchell, *History of Greenbacks*, pp. 142-144. On Oregon, see James H. Gilbert, *Trade and Currency in Early Oregon* (New York: Columbia University Press, 1907), pp. 101-122.

¹¹¹ *Historical Statistics*, pp. 625, 648-649.

upon which they could expand. As Hammond puts it, “Instead of being curbed (as some people supposed later), the powers of the banks were augmented by the legal tender issues. As the issues increased, the deposits of the banks would increase.”¹¹² Indeed, Sen. Sherman (R-Ohio) noted that the state banks favored greenbacks. And the principal author of the greenback legislation, Rep. Elbridge G. Spaulding (R-N.Y.), the chairman of the House Ways and Means subcommittee that introduced the bill, was himself a Buffalo banker.

The total money supply of the country (including gold coin, state bank notes, subsidiary silver, U.S. currency including fractional and greenbacks) amounted to \$745.4 million in 1860. By 1863, the money supply had skyrocketed to \$1,435 billion, an increase of 92.5 percent in three years, or 30.8 percent per annum. By the end of the war, the money supply, which now included national bank notes and deposits, totalled \$1,773 billion, an increase in two years of 23.6 percent or 11.8 percent per year. Over the entire war, the money supply rose from \$45.4 million to \$1,773 billion, an increase of 137.9 percent, or 27.69 percent per annum.¹¹³

The response to this severe monetary inflation was a massive inflation of prices. It is no wonder that the greenbacks, depreciating rapidly in terms of gold, depreciated in terms of goods as well. Wholesale prices rose from 100 in 1860, to 210.9 at the end of the war, a rise of 110.9 percent or 22.2 percent per year.¹¹⁴

The Republican administration argued that their issue of greenbacks was required by stern wartime “necessity.” The spuriousness of this argument is seen by the fact that greenbacks were virtually not issued after the middle of 1863. There were three alternatives to the issuance of legal tender fiat money. 1) The government could have issued paper money but not made it legal tender; it would have depreciated even more rapidly. At any rate, they would have had quasi-legal tender status by being receivable in federal dues and taxes. 2) It could have increased taxes to pay for the war expenditures. 3) It could have issued bonds and other securities and sold the debt to banks and non-bank institutions. In fact, the

¹¹² Bray Hammond, *Sovereignty and an Empty Purse: Banks and Politics in the Civil War* (Princeton: Princeton University Press, 1970), pp. 246, 249-250. Also see North, “Greenback Dollars,” pp. 143-148.

¹¹³ *Historical Statistics*, pp. 625, 648-649. In a careful analysis North estimates the total money supply at approximately \$2 billion, and also points out that counterfeit notes in the Civil War have been estimated to amount to no less than one-third of the total currency in circulation. North, “Greenback Dollars,” p. 134. The counterfeiting estimates are in William P. Donlon, *United States Large Size Paper Money, 1861 to 1923*, 2nd ed. (Iola, Wis.: Krause, 1970), p. 15.

¹¹⁴ Ralph Andreano, ed., *The Economic Impact of the American Civil War* (Cambridge, Mass: Schenckman, 1961), p. 178.

government employed both the latter alternatives, and after 1863 stopped issuing greenbacks and relied on them exclusively, especially a rise in the public debt. The accumulated deficit piled up during the war was \$2,614 billion, of which the printing of greenbacks only financed \$431.7 million. Of the federal deficits during the war, greenbacks financed 22.8 percent in fiscal 1862, 48.5 percent in 1863, 6.3 percent in 1864, and none in 1865.¹¹⁵ This is particularly striking if we consider that the peak deficit came in 1865, totaling \$963.8 million. All the rest was financed by increased public debt. Taxes also increased greatly, revenues rising from \$52 million in 1862 to \$333.7 million in 1865. Tax revenues as a percentage of the budget rose from the miniscule 10.7 percent in fiscal 1862 to over 26 percent in 1864 and 1865.

It is clear, then, that the argument from “necessity” in the printing of greenbacks was specious, and indeed the greenback advocates conceded that it was perfectly possible to issue public debt, provided that the administration was willing to see the prices of its bonds rise and its interest payments rise considerably. At least for most of the war, they were not willing to take their chances in the competitive bond market.¹¹⁶

The Public Debt and the National Banking System

The public debt of the Civil War brought into American financial history the important advent of one Jay Cooke. The Ohio-born Cooke had joined the moderately successful Philadelphia investment banking firm of Clark and Dodge as a clerk at the age of 18. In a few years, Cooke worked himself up to the status of junior partner, and, in 1857, he left the firm to branch out on his own in canal and railroad promotion and other business ventures. There he doubtless would have remained, except for the lucky fact that he and his

¹¹⁵ The Confederacy, on the other hand, financed virtually all of its expenditures through mammoth printing of fiat paper, the Southern version of the greenback. Confederate notes, which were first issued in June 1861 to a sum of \$1.1 million, skyrocketed until the total supply of confederate notes in January 1864 was no less than \$826.8 million, an increase of 750.6 percent for three and a half years, or 214.5 percent per year. Bank notes and deposits in the Confederacy rose from \$119.3 million to \$268.1 million in this period, so that the total money supply rose from \$120.4 million to \$1,095 billion, or an increase of 1,060 percent—302.9 percent per year. Prices in the Eastern Confederacy rose from 100 in early 1861 to no less than over 4,000 in 1864, and 9,211 at the end of the war in April 1865. Thus, in four year, prices rose by 9,100 percent or an average of 2,275 percent per annum. See Eugene M. Lerner, “Inflation in the Confederacy, 1862-65,” in M. Friedman, ed., *Studies in the Quantity Theory of Money* (Chicago: University of Chicago Press, 1956), pp. 163-175; Lerner, “Money, Prices and Wages in the Confederacy, 1861-65,” in Andreano, *Economic Impact*, pp. 11-40.

¹¹⁶ Mitchell, *History of the Greenbacks*, pp. 61-74; 119f., 128-131. Also see Don C. Barrett, *The Greenbacks and Resumption of Specie Payments, 1862-1879* (Cambridge: Harvard University Press, 1931), pp. 25-57.

brother Henry, editor of the leading Republican newspaper in Ohio, the *Ohio State Journal*, were close friends of U.S. Sen. Salmon P. Chase. Chase, a veteran leader of the anti-slavery movement, fought for and lost the Republican Presidential nomination in 1860 to Abraham Lincoln. At that point, the Cookes determined that they would feather their nest by lobbying to make Salmon Chase Secretary of the Treasury. After heavy lobbying by the Cookes, the Chase appointment was secured, so Jay Cooke quickly set up his own investment banking house of Jay Cooke & Co.

Everything was in place; it now remained to seize the opportunity. As the Cookes' father wrote of Henry: "I took up my pen principally to say that H.S.'s [Henry's] plan in getting Chase into the Cabinet and [John] Sherman into the Senate is accomplished, and that now is the time for making money, by honest contracts out of the government."¹¹⁷

Now indeed was their time for making money, and Cooke lost no time in doing so. It did not take much persuasion, including wining and dining, for Cooke to induce his friend Chase to take an unprecedented step in the fall of 1862: granting the House of Cooke a monopoly on the underwriting of the public debt. With enormous energy, Cooke hurled himself into the task of persuading the mass of public to buy U.S. government bonds. In doing so, Cooke perhaps invented the art of public relations and of mass propaganda; certainly, he did so in the realm of selling bonds. As Kirkland writes:

With characteristic optimism, he [Cooke] flung himself into a bond crusade. He recruited a small army of 2,500 subagents among bankers, insurance men, and community leaders and kept them inspired and informed by mail and telegraph. He taught the American people to buy bonds, using lavish advertising in newspapers, broadsides, and posters. God, destiny, duty, courage, patriotism—all summoned "Farmers, Mechanics, and Capitalists" to invest in loans...¹¹⁸

—loans which of course they had to purchase from Jay Cooke.

And purchase the loans they did, for Cooke's bond sales soon reached the enormous figure of one to two million dollars a day. Perhaps \$2 billion in bonds were bought and underwritten by Jay Cooke during the war. Cooke lost his monopoly in 1864, under pressure of rival bankers; but a year later he was reappointed to keep that highly lucrative post until the House of Cooke crashed in the Panic of 1873.

¹¹⁷ In Henrietta Larson, *Jay Cooke, Private Banker* (Cambridge: Harvard University Press, 1936), p. 103. Also see Edward C. Kirkland, *Industry Comes of Age: Business, Labor and Public Policy, 1860-1897* (New York: Holt, Rinehart and Winston, 1961), p. 20.

¹¹⁸ Kirkland, *Industry*, pp. 20-21.

In the Civil War, Jay Cooke began as a moderately successful promoter; he emerged at war's end a millionaire, a man who had spawned the popular motto, "as rich as Jay Cooke." Surely he must have counted the \$100,000 he had poured into Salmon Chase's political fortunes by 1864 one of the most lucrative investments he had ever made. It is not surprising that Jay Cooke acquired enormous political influence in the Republican administration of the Civil War and after. Hugh McCulloch, Secretary of the Treasury from 1865 to 1869, was a close friend of Cooke's and when McCulloch left office he assumed the post of head of Cooke's London office. The Cooke brothers were also good friends of General Grant, so they wielded great influence during the Grant administration.

No sooner had Cooke secured the monopoly of government bond underwriting than he teamed up with his associates, Secretary of the Treasury Chase and Ohio's Senator John Sherman, to drive through a measure which was destined to have far more fateful effects than greenbacks on the American monetary system: the National Banking Acts. The National Banking Acts destroyed the previously decentralized and fairly successful state banking system, and substituted a new, centralized, and far more inflationary banking system under the aegis of Washington and a handful of Wall Street banks. Whereas the effects of the greenbacks were finally eliminated by the resumption of specie payments in 1879, the effects of the National Banking System are still with us. Not only was this system in place until 1913, but it paved the way for the Federal Reserve System by instituting a quasi-central banking type of monetary system. The "inner contradictions" of the National Banking System were such that the nation was driven either to go onward to a frankly central bank or else to scrap centralized banking altogether and go back to decentralized state banking. Given the inner dynamic of state intervention to keep intensifying, coupled with the almost universal adoption of statist ideology after the turn of the 20th century, which course the nation would take was unfortunately inevitable.

Chase and Sherman drove the new system through under cover of war necessity, but it was designed to alter the banking system permanently. The wartime ground was to set up national banks, which were so structured as to necessarily purchase large amounts of U.S. government bonds. Patterned after the "free" banking systems, this tied in the nation's banks with the federal government and the public debt in a close symbiotic relationship. The Jacksonian embarrassment of the independent treasury was de facto swept away, and the Treasury would now keep its deposits in a new series of "pets": the national banks, chartered directly by the federal

government. In this way, the Republican Party was able to use the wartime emergency to fulfill the Whig-Republican dream of a federally-controlled centralized banking system able to inflate the supply of money and credit in a uniform manner. Meshing with this was a profound political goal: As Sherman expressly pointed out, a vital object of the National Banking System was to eradicate the embarrassing doctrine of state's rights and to nationalize American politics.¹¹⁹

As established in the Bank Acts of 1863 and 1864, the National Banking System provided for the chartering of national banks by the Comptroller of the Currency in Washington, D.C. The banks were "free" in the sense that any institution meeting the requirements could obtain a charter, but the requirements were so high (from \$50,000 for rural banks to \$200,000 in the bigger cities) that small national banks were ruled out, particularly in the large cities.¹²⁰

The National Banking System created three sets of national banks: *central reserve city*, which was only New York; *reserve city*, other cities with over 500,000 population; and *country*, which included all other national banks.

Central reserve city banks were required to keep 25 percent of their notes and deposits in reserve of vault cash or "lawful money," which included gold, silver, and greenbacks. This provision incorporated the "reserve requirement" concept which had been a feature of the "free" banking system. Reserve city banks, on the other hand, were allowed to keep one-half of their required reserves in vault cash, while the other half could be kept as demand deposits (checking deposits) in central reserve city banks. Finally, country banks only had to keep a minimum reserve ratio of 15 percent to their notes and deposits; and only 40 percent of these reserves had to be in the form of vault cash. The other 60 percent of the country banks'

¹¹⁹ In his important work on Northern intellectuals and the Civil War, George Frederickson discusses an influential article by one Samuel Fowler written at the end of the war: "The Civil War which has changed the current of our ideas, and crowded into a few years the emotions of a lifetime,' Fowler wrote, 'has in measure given to the preceding period of our history the character of a remote state of political existence.' Fowler described the way in which the war, a triumph of nationalism and a demonstration of 'the universal tendency to combination,' had provided the *coup de grace* for the Jefferson philosophy of government with its emphasis on decentralization and the protection of local and individual liberties." George Frederickson, *The Inner Civil War: Northern Intellectuals and the Crisis of the Union* (New York: Harper & Row, 1965), p. 184. Also see Merrill D. Peterson, *The Jeffersonian Image in the American Mind* (New York: Oxford University Press, 1960), pp. 217-218.

¹²⁰ For a particularly lucid exposition of the structure of the national banking system, see John J. Klein, *Money and the Economy*, 2nd ed. (New York: Harcourt, Brace and World, 1970), pp. 140-147.

reserves could be in the form of demand deposits either at the reserve city or central reserve city banks.

The upshot of this system was to replace the individualized structure of the pre-Civil War state banking system by an inverted pyramid of country banks expanding on top of reserve city banks, which in turn expanded on top of New York City banks. Before the Civil War, every bank had to keep its own specie reserves, and any pyramiding of notes and deposits on top of that was severely limited by calls for redemption in specie by other, competing banks as well as by the general public. But now, reserve city banks could keep half of their reserves as deposits in New York City banks, and country banks could keep most of theirs in one or the other, so that as a result, all the national banks in the country could pyramid in two layers on top of the relatively small base of reserves in the New York banks. And furthermore, those reserves could consist of inflated greenbacks as well as specie.

A simplified schematic diagram can portray the essence of this revolution in American banking:

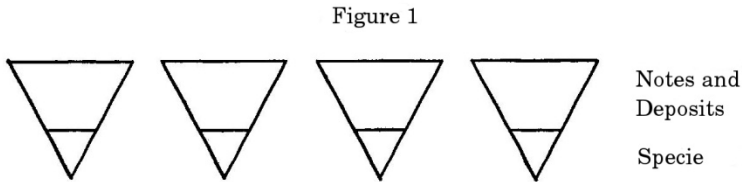


Figure 1 shows state banks in the decentralized system before the Civil War. Every bank must stand or fall on its bottom. It can pyramid notes and deposits on top of specie, but its room for such inflationary expansion is limited, because any bank's expansion will cause increased spending by its clients on the goods or services of other banks. Notes or checks on the expanding bank will go into the coffers of other banks, which will call on the expanding bank for redemption. This will put severe pressure on the expanding bank, which cannot redeem all of its liabilities as it is, and whose reserve ratio has declined, and so it will be forced to contract its loans and liabilities or else go under.

Figure 2

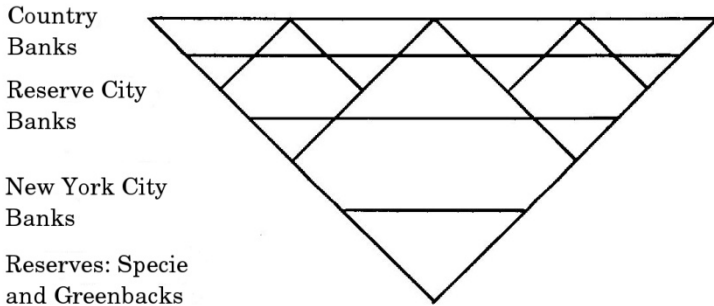


Figure 2 depicts the inverted pyramid of the National Banking System. New York City banks pyramid notes and deposits on top of specie and greenbacks; reserve city banks pyramid their notes and deposits on top of specie, greenbacks *and* deposits at New York City; and country banks pyramid on top of both. This means that, for example, if New York City banks inflate and expand their notes and deposits, they will not be checked by other banks calling upon them for redemption. Instead, reserve city banks will be able to expand their own loans and liabilities by pyramiding on top of their own increased deposits at New York banks. In turn, the country banks will be able to inflate their credit by pyramiding on top of their increased deposits at both reserve city and New York banks. The whole nation is able to inflate uniformly and relatively unchecked by pyramiding on top of a few New York City banks.

The national banks were not compelled to keep part of their reserves as deposits in larger banks, but they tended to do so—in the long run, so that they could expand uniformly on top of the larger banks, and in the short run because of the advantages of having a line of credit with a larger “correspondent” bank as well as earning interest on demand deposits at that bank.¹²¹

Let us illustrate in another way how the National Banking System pyramided by centralizing reserves. Let us consider the hypothetical balance sheets of the various banks.¹²² Suppose that the country banks begin with \$1 million in vault cash as their reserves. With the National Banking System in place, the country banks can

¹²¹ Banks generally paid interest on demand deposits until the practice was outlawed in 1934.

¹²² Adapted from Klein, *Money and the Economy*, pp. 144-145.

now deposit three-fifths, or \$600,000 of their cash in reserve city banks, in return for interest-paying demand deposits at those banks.

The balance-sheet changes are now as follows:

Country Banks	
Assets	Liabilities + Equity
Reserves	
Vault cash	-\$600,000
Deposits at reserve city banks	+\$600,000

Reserve City Banks	
Assets	Liabilities + Equity
Reserves	
Vault cash	+\$600,000
	Demand deposits due country banks
	+\$600,000

Total reserves for the two sets of banks have not changed. But now because the country banks can use as their reserves deposits in reserve city banks, the same total reserves can now be used by the banks to expand far more of their credit. For now \$400,000 in cash supports the same total of notes and deposits that the country banks had previously backed by \$1 million, and the reserve city banks can now expand \$2.4 million on top of the new \$600,000 in cash—or rather, \$1.8 million in addition to the \$600,000 due to the city banks. In short, country bank reserves have remained the same, but reserve city bank reserves have increased by \$600,000, and they can engage in 4:1 pyramiding of credit on top of that.

But that is not all. For the reserve city banks can deposit half of their reserves at the New York banks. When they do that, the balance sheets of the respective banks change as follows:

Reserve City Banks	
Assets	Liabilities + Equity
Reserves	
Vault cash	+\$300,000

Deposits at central reserve city banks	+ \$300,000	Demand deposits due country banks	+ \$600,000
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Central Reserve City Banks

Assets		Liabilities + Equity	
Vault cash	+ \$300,000	Demand deposits due reserve city banks	+ \$300,000

Note that since the reserve city banks are allowed to keep half of their reserves in the central reserve city banks, the former can still pyramid \$2.4 million on top of their new \$600,000, and yet deposit \$300,000 in cash at the New York banks. The latter, then, can expand another 4:1 on top of the new cash of \$300,000, or increase their total notes and deposits to \$1.2 million.

In short, not only did the national banking system allow pyramiding of the entire banking structure on top of a few large Wall Street banks, the very initiating of the system allowed a multiple expansion of all bank liabilities by centralizing a large part of the nation's cash reserves from the individual state banks into the hands of the larger, and especially the New York, banks. For the expansion of \$1.2 million on top of the new \$300,000 at New York banks served to expand the liabilities going to the smaller banks, which in turn could pyramid on top of their increased deposits. But even without that further expansion, \$1 million which, we will assume, originally supported \$6 million in notes and deposits, will now support, in addition to that \$6 million, \$2.4 million issued by the reserve city banks, and \$1.2 million by the New York banks—to say nothing of further expansion by the latter two sets of banks which will allow country banks to pyramid more liabilities.

In June 1874, the fundamental structure of the National Banking System was changed when Congress, as part of an inflationist move after the Panic of 1873, eliminated all reserve requirements on notes, keeping them only on deposits. This released over \$20 million of lawful money from bank reserves, and allowed a further pyramiding of demand liabilities.¹²³ In the long run, it severed the treatment of notes from deposits, with notes tied rigidly to bank holdings of government debt, and demand deposits pyramiding on top of reserve ratios in specie and greenbacks.

¹²³ See Hepburn, *History of Currency*, pp. 317-318.

But this centralized inverse pyramiding of bank credit was not all. For, in a way modeled by the “free” banking system, every national bank’s expansion of notes was tied intimately to its ownership of U.S. government bonds. Every bank could only issue notes if it deposited an equivalent of U.S. securities as collateral at the U.S. Treasury,¹²⁴ so that national banks could only expand their notes to the extent that they purchased U.S. government bonds. This provision tied the National Banking System intimately to the federal government, and more particularly, to its expansion of public debt. The federal government had an assured, built-in market for its debt, and the more the banks purchased that debt, the more the banking system could inflate. Monetizing the public debt was not only inflationary per se, it provided the basis—when done by the larger city banks—of other banks pyramiding on top of their own monetary expansion.

The tie-in and the pyramiding process were cemented by several other provisions. Every national bank was obliged to redeem the obligations of every other national bank at par. Thus, the severe market limitation on the circulation of inflated notes and deposits—depreciation as the distance from the bank increases—was abolished. And while the federal government could not exactly make the notes of a private bank legal tender, it conferred quasi-legal tender status on every national bank by agreeing to receive all its notes and deposits at par for dues and taxes.¹²⁵ It is interesting and even heartening to discover that despite these enormous advantages conferred by the federal government, national bank notes fell below par with greenbacks in the financial crisis of 1867, and a number of national banks failed the next year.¹²⁶

Genuine redeemability, furthermore, was made very difficult under the National Banking System. Laxity was insured by the fact that national banks were required to redeem the notes and deposits of every other national bank at par, and yet it was made difficult for them to actually redeem those liabilities in specie; for one of the problems with the pre-Civil War state banking system is that interstate or even intrastate branches were illegal, thereby hobbling the clearing system for swiftly redeeming another bank’s notes and deposits. One might think that a national banking system would at least eliminate this problem, but on the contrary, branch banking

¹²⁴ Originally, national banks could only issue notes to the value 90 percent of their U.S. government bonds. This limitation was changed to 100 percent in 1900.

¹²⁵ Except, of course, as we have seen with the greenbacks, for payment of customs duties, which had to be paid in gold, to build up a fund to pay interest on the government debt in gold.

¹²⁶ See Smith, *Rationale*, p. 48.

continued to be prohibited, and interstate branch banking is illegal to this day.¹²⁷ A bank would only have to redeem its notes at its own counter in its home office. Furthermore, the redemption of notes was crippled by the fact that the federal government imposed a maximum limit of \$3 million a month by which national bank notes could be contracted.¹²⁸

Reserve requirements are now considered a sound and precise way to limit bank credit expansion, but the precision can work two ways. Just as government safety codes can decrease safety by setting a lower limit for safety measures and inducing private firms to reduce safety downward to that common level, so reserve requirements can and ordinarily do serve as lowest common denominators for bank reserve ratios. Free competition can and generally will result in banks voluntarily keeping higher reserve ratios. But a uniform legal requirement will tend to push all the banks down to that minimum ratio. And indeed we can see this now in the universal propensity of all banks to be “fully loaned up,” that is, to expand as much as is legally possible up to the limits imposed by the legal reserve ratio. Reserve requirements of less than 100 percent are more an inflationary than a restrictive monetary device.

The National Banking System was intended to replace the state banks, but many state banks continued aloof and refused to join, despite the special privileges accorded to the national banks. The reserve and capital requirements were more onerous, and at that period, national banks were prohibited from making loans on real estate. With the state banks refusing to come to heel voluntarily, Congress, in March 1865, completed the Civil War revolution of the banking system by placing a prohibitive 10 percent tax on all bank notes—which had the desired effect of virtually outlawing all note issues by the state banks. From 1865 on, the national banks had a legal monopoly on the issue of bank notes.

At first, the state banks contracted and disappeared under the shock, and it looked as if the United States would only have national banks. The number of state banks fell from 1,466 in 1863 to 297 in 1866, and total notes and deposits in state banks fell from \$733 million in 1863 to only \$101 million in 1866. After several years, however, the state banks readily took their place as an expanding element in the banking system, albeit subordinated to the national banks. In order to survive, the state banks had to keep deposit accounts at national banks, from whom they could “buy” national bank notes in order to redeem their deposits. In short, the state banks

¹²⁷ [Interstate branch banking was legalized in the late 1990s.]

¹²⁸ See Smith, *Rationale*, p. 132.

now became the fourth layer of the national pyramid of money and credit, on top of the country and other banks, for the reserves of the state banks became, in addition to vault cash, demand deposits at national banks, which they could redeem in cash. The multi-layered structure of bank inflation under the National Banking System was intensified.

In this new structure, the state banks began to flourish. By 1873, the total number of state banks had increased to 1,330, and their total deposits were \$789 million.¹²⁹

The Cooke-Chase connection with the new National Banking System was simple. As Secretary of the Treasury, Chase wanted an assured market for the government bonds that were being issued so heavily during the Civil War. And as the monopoly underwriter of U.S. government bonds for every year except one from 1862 to 1873, Jay Cooke was even more directly interested in an assured and expanding market for his bonds. What better method of obtaining such a market than creating an entirely new banking system, the expansion of which was directly tied to the banks' purchase of government bonds—from Jay Cooke?

The Cooke brothers played a major role in driving the National Banking Act of 1863 through a reluctant Congress. The Democrats, devoted to hard-money, opposed the legislation almost to a man. Only a majority of Republicans could be induced to agree on the bill. After John Sherman's decisive speech in the Senate for the measure, Henry Cooke—now head of the Washington Office of the House of Cooke—wrote jubilantly to his brother: "It will be a great triumph, Jay, and one to which we have contributed more than any other living man. The bank had been repudiated by the House, and was without a sponsor in the Senate, and was thus virtually dead and buried when I induced Sherman to take hold of it, and we went to work with the newspapers."¹³⁰

Going to work with the newspapers meant something more than mere persuasion for the Cooke brothers; as monopoly underwriter of government bonds, Cooke was paying the newspapers large sums for advertising, and so the Cookes thought—as it turned out correctly—that they could induce the newspapers to grant them an enormous amount of free space "in which to set forth the merits of the new national banking system." Such space meant not only publicity and articles, but even more important, the fervent editorial support of most of the nation's press. And so the press, implicitly bought for the

¹²⁹ *Historical Statistics*, pp. 628-629.

¹³⁰ Quoted in Robert P. Sharkey, *Money, Class and Party: An Economic Study of Civil War and Reconstruction* (Baltimore: Johns Hopkins Press, 1959), p. 245.

occasion, kept up a drumfire of propaganda for the new National Banking System. As Cooke himself related: “For six weeks or more nearly all the newspapers in the country were filled with our editorials [written by the Cooke brothers] condemning the state bank system and explaining the great benefits to be derived from the national banking system now proposed.” And every day the indefatigable Cookes put on the desks of every Congressman the relevant editorials from newspapers in their respective districts.¹³¹

While many state bankers, especially the conservative old-line New York bankers, opposed the National Banking System, Jay Cooke, once the system was in place, plunged in with a will. Not only did he sell the national banks their required bonds, he also set up new national banks which would have to buy his government securities. His agents formed national banks in the smaller towns of the South and West. Furthermore, he set up his own two large national banks, the First National Bank of Philadelphia and the First National Bank of Washington, D.C.

But the National Banking System was in great need of a mighty bank in New York City to serve as the base of the inflationary pyramid for a host of country and reserve city banks. Shortly after the inception of the system, three national banks had been organized in New York, but none of them was large or prestigious enough to serve as the key fulcrum of the new banking structure. Jay Cooke, however, was happy to oblige, and he quickly established the Fourth National Bank of New York, capitalized at a huge \$5 million. After the war, Jay Cooke favored resumption of specie payments, but only if greenbacks could be replaced one-to-one by new national bank notes. In his unbounded enthusiasm for national bank notes and their dependence on the federal debt, Cooke urged repeal of the \$300 million legal limit on national bank note issue. In 1865, he published a pamphlet proclaiming that in less than 20 years national bank note circulation would total \$1 billion.¹³² The title of the pamphlet Cooke published is revealing: *How Our National Debt May Be A National Blessing. The Debt is Public Wealth, Political Union, Protection of Industry, Secure Basis for National Currency.*¹³³

By 1866, it was clear that the National Banking System had replaced the state as the center of the monetary system of the United States. Only a year earlier, in 1865, state bank notes had totaled \$142.9 million; by 1866 they had collapsed to \$20 million. On the

¹³¹ See Hammond, *Sovereignty*, pp. 289-290.

¹³² Actually, Cooke erred, and national bank notes never reached that total. Instead, it was demand deposits that expanded, and reached the billion-dollar mark by 1879.

¹³³ See Sharkey, *Money, Class, and Party*, p. 247.

other hand, national bank notes grew from a mere \$31.2 million in 1864, their first year of existence, to \$276 million in 1866. And while, as we have seen, the number of state banks in existence was falling drastically from 1,466 to 297, the number of national banks grew from 66 in 1863 to 1,634 three years later.

The Post-Civil War Era: 1865-1879

The United States ended the war with a depreciated inconvertible greenback currency, and a heavy burden of public debt. The first question on the monetary agenda was what to do about the greenbacks. A powerful group of industrialists calling for continuation of greenbacks, opposing resumption and, of course, any contraction of money to prepare for specie resumption, was headed by the Pennsylvania iron and steel manufacturers. The Pennsylvania ironmasters, who had been in the forefront of the organized protective tariff movement since its beginnings in 1820,¹³⁴ were led here and instructed by their intellectual mentor—himself a Pennsylvania ironmaster—the elderly economist Henry C. Carey. Carey and his fellow iron manufacturers realized that during an inflation, since the foreign exchange market anticipates further inflation, domestic currency tends to depreciate faster than domestic prices are rising. A falling dollar and rising price of gold, they realized, make domestic prices cheaper and imported prices higher, and hence functions as a surrogate tariff. A cheap money, inflationist policy, then, could not only provide easy credit for manufacturing, it could also function as an extra tariff because of the depreciation of the dollar and the rise in the gold premium.

Imbibers of the Carey gospel of high tariffs and soft money were a host of attendees at the famous “Carey Vespers”—evenings of discussion of economics and politics. Influential Carey disciples included economist and Pennsylvania ironmaster Stephen Colwell; Eber Ward, president of the Iron and Steel Association; John A. Williams, editor of the Association’s journal *Iron Age*; Rep. Daniel Morrell, Pennsylvania iron manufacturer; I. Smith Homans, Jr., editor of the *Bankers’ Magazine*; and the powerful Rep. William D. Kelley of Pennsylvania, whose lifelong devotion to the interest of the ironmasters earned him the proud sobriquet of “Old Pig Iron.” The Carey circle also dominated the American Industrial League and its successor, the Pennsylvania Industrial League, which spread the Carey doctrines of protection and paper money. Influential allies in Congress, if not precisely Carey followers, were the radical leader

¹³⁴ The leader of the protectionists in Congress in 1820 was Rep. Henry Baldwin, a leading iron manufacturer from Pittsburgh. Rothbard, *Panic of 1819*, pp. 164ff.

Rep. Thaddeus Stevens, himself a Pennsylvania ironmaster, and Rep. John A. Griswold, an ironmaster from New York.

Also sympathetic to greenbacks were many manufacturers who desired cheap credit, gold speculators who were betting on higher gold prices, and railroads, who as heavy debtors to their bondholders, realized that inflation benefits debtors by cheapening the dollar whereas it also tends to expropriate creditors by the same token. One of the influential Carey disciples, for example, was the leading railroad promoter, the Pennsylvanian Thomas A. Scott, leading entrepreneur of the Pennsylvania and Texas & Pacific Railroads.¹³⁵

One of the most flamboyant advocates of greenback inflation in the post-war era was the Wall Street stock speculator Richard Schell. In 1874, Schell became a member of Congress, where he proposed an outrageous pre-Keynesian scheme in the spirit of Keynes' later dictum that so long as money is *spent*, it doesn't matter what the money is spent on, be it pyramid-building or digging holes in the ground.¹³⁶ Schell seriously urged the federal government to dig a canal from New York to San Francisco, financed wholly by the issue of greenbacks. Schell's enthusiasm was perhaps matched only by the notorious railroad speculator and economic adventurer George Francis Train, who called repeatedly for immense issues of greenbacks. "Give us greenbacks we say," Train thundered in 1867, "and build cities, plant corn, open coal mines, control railways, launch ships, grow cotton, establish factories, open gold and silver mines, erect rolling mills. ... Carry my resolution and there is sunshine in the sky."¹³⁷

The Panic of 1873 was a severe blow to many overbuilt railroads, and it was railroad men who led in calling for more greenbacks to stem the tide. Thomas Scott, Collis P. Huntington, leader of the Central Pacific Railroad, Russel Sage, and other railroad men joined in the call for greenbacks. So strong was their influence that the *Louisville Courier-Journal*, in April 1874, declared: "The strongest

¹³⁵ On the Carey circle and its influence, see Irwin Unger, *The Greenback Era: A Social and Political History of American Finance, 1865-1879* (Princeton: Princeton University Press, 1964), pp. 53-59; and Joseph Dorfman, *The Economic Mind in American Civilization, Vol. III, 1864-1918* (New York: Viking Press, 1949), pp. 7-8. Dorfman notes that Kelley dedicated his collected *Speeches, Addresses and Letters* of 1872 to "The Great Master of Economic Science, the Profound Thinker, and the Careful Observer of Social Phenomena, My Venerable Friend and Teacher, Henry C. Carey." *Ibid.*, p. 8. On the link between high tariffs and greenbacks for the Pennsylvania ironmasters, see Sharkey, *Money, Class and Party*, chap. 4.

¹³⁶ Thus, Keynes wrote: " 'To dig holes in the ground,' paid for out of savings will increase, not only employment, but the real national dividend of useful goods and services." John Maynard Keynes, *The General Theory of Employment Interest and Money* (New York: Harcourt, Brace, 1936), p. 220. On pyramid-building, see *ibid.*, pp. 220 and 131.

¹³⁷ Unger, *Greenback Era*, pp. 45-48.

influence at work in Washington upon the currency proceeded from the railroads. ... The great inflationists after all, are the great trunk railroads.”¹³⁸

The greenback problem after the Civil War was greatly complicated by the massive public debt that lay over the heads of the American people. A federal debt, which had tallied only \$64.7 million in 1860, amounted to the huge amount of \$2.32 billion in 1866. Many ex-Jacksonian Democrats, led by Sen. George H. Pendleton of Ohio, began to agitate for further issue of greenbacks *solely* for the purpose of redeeming the principal of federal debts contracted in greenbacks during the war.¹³⁹ In a sense, then, hard-money hostility to both inflation and the public debt were now at odds. In a sense, the Pendletonians were motivated by a sense of poetic justice, of paying inflated debts in inflated paper, but in doing so they lost sight of the broader hard money goal.¹⁴⁰ This program confused the party struggles of the post-Civil War period, but ultimately it is safe to say that the Democrats had a far greater proportion of congressmen devoted to hard money and to resumption than did the Republicans. Thus, Secretary of the Treasury Hugh McCulloch's "Loan Bill" of March 1866, which provided for contraction of greenbacks in preparation for resumption of specie payments, was passed in the House by a Republican vote of 56-52, and a Democratic vote of 27-1. And in April 1874, the "Inflation Bill," admittedly vetoed later by President Grant, which provided for expansion of greenbacks and of national bank notes, was passed in the House by a Republican vote of 105 to 64, while the Democrats voted against by the narrow margin of 35 to 37.¹⁴¹

In the meantime, despite repeated resolutions for resumption of specie payments in 1865 and 1869, the dominant Republican Party continued to do nothing for actual resumption. The Pendleton Plan was adopted by the Democrats in their 1868 platform, and the Republican victory in the presidential race that year was generally taken as a conclusive defeat for that idea. Finally, however, the Democratic sweep in the congressional elections of 1874 forced the Republicans into a semblance of unity on monetary matters, and, in

¹³⁸ *Ibid.*, p. 222.

¹³⁹ The federal government had contracted to redeem the *interest* on the wartime public debt in gold, but nothing was contracted about the repayment of the principal.

¹⁴⁰ Similar motivations had impelled many hard-money anti-Federalists during the 1780s to advocate the issue of state paper money for the sole purpose of redeeming swollen wartime public debts.

¹⁴¹ On the McCulloch Loan Bill, see Sharkey, *Money, Class, and Party*, p. 75; on the Inflation Bill, see Unger, *Greenback Era*, p. 410.

the lame-duck congressional session led by Sen. John Sherman, they came up with the Resumption Act of January 1875.

Despite the fact that the Resumption Act ultimately resulted in specie resumption, it was not considered a hard-money victory by contemporaries. Sherman had forged a compromise between hard and soft money forces. It is true that the U.S. government was supposed to buy gold with government bonds to prepare for resumption on January 1, 1879. But this resumption was four years off, and Congress had expressed intent to resume several times before. And in the meantime, the soft-money men were appeased by the fact that the bill immediately eliminated the \$300 million limit on national bank notes, in a provision known as “free banking.” The only hard-money compensation was an 80 percent pro-rata contraction of greenbacks to partially offset any new national bank notes.¹⁴² The bulk of the opposition to the Resumption Act was by hard-money congressmen, who, in addition to pointing out its biased ambiguities, charged that the contracted greenbacks could be reissued instead of retired. Hard-money forces throughout the country had an equally scornful view of the Resumption Act. In a few years, however, they rallied as resumption drew near.

That the Republicans were generally less than enthusiastic about specie resumption was revealed by the Grant administration’s reaction to the Supreme Court’s decision in the first legal tender case. After the end of the war, the question of the constitutionality of legal tender came before the courts (we have seen that the California and Oregon courts decided irredeemable paper to be unconstitutional). In the large number of state court decisions on greenbacks before 1870, every Republican judge but one upheld their constitutionality, whereas every Democratic judge but two declared them unconstitutional.¹⁴³

The greenback question reached the U.S. Supreme Court in 1867, and was decided in February 1870, in the case of *Hepburn v. Griswold*. The Court held, by a vote of 5 to 3, with all the Democratic judges voting with the majority and the Republicans in the minority. Chief Justice Salmon P. Chase, who delivered the decision denouncing his own action as Secretary of the Treasury as unnecessary and unconstitutional, had swung back to the Democratic

¹⁴² This political and compromise interpretation of the Resumption Act successfully revises the previous hard-money view of this measure. See Unger, *Greenback Era*, pp. 249-263.

¹⁴³ See Charles Fairman, “Mr. Justice Bradley’s Appointment to the Supreme Court and the Legal Tender Cases,” *Harvard Law Review* (May 1941), p. 1131; cited in Unger, *Greenback Era*, p. 174.

Party and had actually been a candidate for the presidential nomination at the 1868 convention.

The Grant administration was upset by *Hepburn v. Griswold*, as were the railroads, who had accumulated a heavy long-term debt, which would now be payable in more valuable gold. As luck would have it, however, there were two vacancies on the Court, one of which was created by the retirement of one of the majority judges. Grant appointed not only two Republican judges, but two railroad lawyers whose views on the subject were already known.¹⁴⁴ The new 5-4 majority dutifully and quickly reconsidered the question, and, in May 1871, reversed the previous Court in the fateful decision of *Knox v. Lee*. From then on, paper money would be held consonant with the U.S. Constitution.

The National Banking System was ensconced after the Civil War. The number of banks, national bank notes, and deposits all pyramided upward, and after 1870 state banks began to boom as deposit-creating institutions. With lower requirements and fewer restrictions than the national banks, they could pyramid on top of national banks. The number of national banks increased from 1,294 in 1865 to 1,968 in 1873, while the number of state banks rose from 349 to 1,330 in the same period. Total state and national bank notes and deposits rose from \$835 million in 1865 to \$1,964 billion in 1873, an increase of 135.2 percent or an increase of 16.9 percent per year. The following year, the supply of bank money leveled off as the Panic of 1873 struck and caused numerous bankruptcies. As a general overview of the national banking period, we can agree with Klein that “The financial panics of 1873, 1884, 1893, and 1907 were in large part an outgrowth of ... reserve pyramiding and excessive deposit creation by reserve city and central reserve city banks. These panics were triggered by the currency drains that took place in periods of relative prosperity when banks were loaned up.”¹⁴⁵ And yet it must be pointed out that the total money supply, even merely the supply of bank money, did not decrease after the Panic, but merely leveled off.

¹⁴⁴ The first new justice, William Strong of Pennsylvania, had been a top attorney for the Philadelphia and Reading Railroad, and a director of the Lebanon Valley Railroad. The second jurist, Joseph P. Bradley, was a director of the Camden and Amboy Railroad and of the Morris and Essex Railroad, in New Jersey. On the railroad ties of Strong and Bradley, see Philip H. Burch, Jr., *Elites in American History, Vol. II, The Civil War to the New Deal* (New York: Holmes & Meier, 1981), pp. 44-45. On the reaction of the Grant administration, see Unger, *Greenback Era*, pp. 172-178. For a legal analysis of the decisions, see Hepburn, *History of Currency*, pp. 254-264; and Henry Mark Holzer, ed., *Government's Money Monopoly* (New York: Books in Focus, 1981), pp. 99-168.

¹⁴⁵ Klein, *Money and the Economy*, pp. 145-146.

Orthodox economic historians have long complained about the “Great Depression” that is supposed to have struck the United States in the Panic of 1873 and lasted for an unprecedented six years in 1879. Much of this stagnation is supposed to have been caused by a monetary contraction leading to the resumption of specie payments in 1879. Yet what sort of “depression” is it which saw an extraordinarily large expansion of industry, of railroads, of physical output, of net national product, or real per capita income? As Friedman and Schwartz admit, the decade 1869 to 1879 saw a 3.0 percent per annum increase in money national product, an outstanding real national product growth of 6.8 percent per year in this period, and a phenomenal rise of 4.5 percent per year in real product per capita. Even the alleged “monetary contraction” never took place, the money supply increasing by 2.7 percent per year in this period. From 1873-1878, before another spurt of monetary expansion, the total supply of bank money rose from \$1,964 billion to \$2,221 billion—a rise of 13.1 percent or 2.6 percent per year. In short, a modest but definite rise, and scarcely a *contraction*.

It should be clear, then, that the Great Depression of the 1870s is merely a myth—a myth brought about by the misinterpretation of the fact that prices in general fell sharply during the entire period. Indeed they fell from the end of the Civil War until 1879. Friedman and Schwartz estimated that prices in general fell from 1869 to 1879 by 3.8 percent per annum. Unfortunately, most historians and economists are conditioned to believe that steadily and sharply falling prices *must* result in depression: hence their amazement at the obvious prosperity and economic growth during this era. For they have overlooked the fact that in the natural course of events, when government and the banking system do not increase the money supply very rapidly, free-market capitalism will result in an increase of production and economic growth so great as to swamp the increase of money supply. Prices will fall, and the consequences will be not depression or stagnation, but prosperity (since costs are falling, too) economic growth, and the spread of the increased living standard to all the consumers.¹⁴⁶

Indeed, recent research has discovered that the analogous “Great Depression” in England in this period was also a myth, and due to a confusion between a contraction of prices and its alleged inevitable

¹⁴⁶ For the bemusement of Friedman and Schwartz, see Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (New York: National Bureau of Economic Research, 1963), pp. 33-44. On totals of bank money, see *Historical Statistics*, pp. 624-625.

effect on a depression of prices and its alleged inevitable effect on a depression of business activity.¹⁴⁷

It might well be that the major effect of the Panic of 1873 was, not to initiate a Great Depression, but to cause bankruptcies in overinflated banks and in railroads riding on the tide of vast government subsidy and bank speculation. In particular, we may note Jay Cooke, one of the creators of the National Banking System and paladin of the public debt. In 1866, he favored contraction of the greenbacks and early resumption because he feared that inflation would destroy the value of government bonds. By the late 1860s, however, the House of Cooke was expanding everywhere, and in particular, had gotten control of the new Northern Pacific Railroad. Northern Pacific had been the recipient of the biggest federal largesse to railroads during the 1860s: a land grant of no less than 47 million acres. Cooke sold Northern Pacific bonds as he had learned to sell government securities: hiring pamphleteers to write propaganda about the alleged Mediterranean climate of the Northwest. Many leading government officials and politicians were on the Cooke/Northern Pacific payroll, including President Grant's private secretary, Gen. Horace Porter.

In 1869, Cooke expressed his monetary philosophy in keeping with his enlarged sphere of activity: "Why," he asked, "should this Grand and Glorious Country be stunted and dwarfed—its activities chilled and its very life blood curdled by these miserable 'hard coin' theories—the musty theories of a bygone age—These men who are urging on premature resumption know nothing of the great and growing west which would grow twice as fast if it was not cramped for the means necessary to build railroads and improve farms and convey the produce to market." But in 1873, a remarkable example of poetic justice struck Jay Cooke. The overbuilt Northern Pacific was crumbling, and a Cooke government bond operation provided a failure. So the mighty House of Cooke—"stunted and dwarfed" by the market economy—crashed and went bankrupt, touching off the Panic of 1873.¹⁴⁸

After passing the Resumption Act in 1875, the Republicans finally stumbled their way into resumption in 1879, fully 14 years after the end of the Civil War. The money supply did not contract in the late 1870s because the Republicans did not have the will to contract in order to pave the way for resumption. Resumption was finally achieved after substantial sales of U.S. bonds for gold in Europe by Secretary of the Treasury Sherman.

¹⁴⁷ S.B. Saul, *The Myth of the Great Depression, 1873-1896* (London: Macmillan, 1969).

¹⁴⁸ Unger, *Greenback Era*, pp. 46-47, 221.

Return to the gold standard in 1879 was almost blocked, in the last three years before resumption, by the emergence of a tremendous agitation, heavily in the West but also throughout the country, for the free coinage of silver. The United States mint ratios had been undervaluing silver since 1834, and in 1853 de facto gold monometallism was established because silver was so far undervalued as to drive fractional silver coins out of the country. Since 1853, the United States, while de jure on a bimetallic standard at 16:1, with the silver dollar still technically in circulation though nonexistent, was actually on a gold monometallic standard with lightweight subsidiary silver coins for fractional use.

In 1872, it became apparent to a few knowledgeable men at the U.S. Treasury that silver, which had held at about 15.5 to 1 since the early 1860s, was about to suffer a huge decline in value. The major reason was the realization that European nations were shifting from a silver to a gold standard, thereby decreasing their demand for silver. A subsidiary reason was the discovery of silver mines in Nevada and other states in the West. Working rapidly, these Treasury men, along with Sen. Sherman, slipped through Congress in February 1873 a seemingly innocuous bill which in effect discontinued the minting of any further silver dollars. This was followed by an act of June 1874, which completed the demonetization of silver by ending the legal tender quality of all silver dollars above the sum of \$5. The timing was perfect, since it was in 1874 that the market value of silver fell to greater than 16:1 to gold for the first time. From then on, the market price of silver fell steadily, declining to nearly 18:1 in 1876, over 18:1 in 1879, and reaching the phenomenal level of 32:1 in 1894.

In short, after 1874 silver was no longer undervalued but overvalued, and increasingly so, in terms of gold, at 16:1. Except for the acts of 1873 and 1874, labeled by the pro-silver forces as “The Crime of 1873,” silver would have flowed into the United States, and the country would have been once again on a de facto monometallic silver standard. The champions of greenbacks, the champions of inflation, saw a “hard-money” way to increase greatly the amount of American currency: the remonetization of a flood of new overvalued silver. The agitation was to remonetize silver by “the free and unlimited coinage of silver at 16 to 1.”

It should be recognized that the silverites had a case. The demonetization of silver was a “crime” in the sense that it was done shiftily, deceptively, by men who knew that they wanted to demonetize silver before it was too late and have silver replace gold. The case for gold over silver was a strong one, particularly in an era

of rapidly falling value of silver, but it should have been made openly and honestly. The furtive method of demonetizing silver, the “crime against silver,” was in part responsible for the vehemence of the silver agitation for the remainder of the century.¹⁴⁹

Ultimately, the administration was able to secure the resumption of payments in gold, but at the expense of submitting to the Bland-Allison Act of 1878, which mandated that the Treasury purchase \$2-\$4 million of silver per month from then on.

It should be noted that this first silver agitation of the late 1870s, at least, cannot be considered an “agrarian” or a particularly Southern and Western movement. The silver agitation was broadly based throughout the nation, except in New England, and was, moreover, an urban movement. As Weinstein points out:

Silver began as an urban movement, furthermore, not an agrarian crusade. Its original strongholds were the large towns and cities of the Midwest and middle Atlantic states, not the country's farming communities. The first batch of bimetallist leaders were a loosely knit collection of hard money newspaper editors, businessmen, academic reformers, bankers, and commercial groups.¹⁵⁰

With the passage of the Silver Purchase Act of 1878, silver agitation died out in America, to spring out again in the 1890s.

The Gold Standard Era with the National Banking System, 1879-1913

The record of 1879-1896 is very similar to the first stage of the alleged Great Depression from 1873 to 1879. Once again, we have a phenomenal expansion of American industry, production, and real output per head. Real reproducible, tangible wealth per capita rose at the decadal peak in American history in the 1880s, at 3.8 percent per annum. Real net national product rose at the rate of 3.7 percent per year from 1879 to 1897, while per capita net national product increased by 1.5 percent per year.

Once again, orthodox economic historians are bewildered, for there should have been a Great Depression, since prices fell at a rate of over 1 percent per year in this period. Just as in the previous period, the money supply grew, but not fast enough to overcome the great increase in productivity and the supply of products. The major difference in the two periods is that money supply rose more rapidly from 1879-1897, by 6 percent per year, compared with the 2.7 percent

¹⁴⁹ For the best discussion of the crime against silver, see Allen Weinstein, *Prelude to Populism: Origins of the Silver Issue, 1867-1878* (New Haven: Yale University Press, 1970), pp. 8-32. Also see Paul M. O'Leary, “The Scene of the Crime of 1873 Revisited: A Note,” *Journal of Political Economy* 68 (1960): 388-392.

¹⁵⁰ Weinstein, *Prelude to Populism*, p. 356.

per year in the earlier era. As a result, prices fell by less, by over 1 percent per annum as contrasted to 3.8 percent. Total bank money, notes and deposits, rose from \$2.45 billion to \$6.06 billion in this period, a rise of 10.45 percent per annum—surely enough to satisfy all but the most ardent inflationists.¹⁵¹

For those who persist in associating a gold standard with deflation, it should be pointed out that price deflation in the gold standard 1879-1897 period was considerably less than price deflation from 1873 to 1879, when the United States was still on a fiat greenback standard.

After specie resumption occurred successfully in 1879, the gold premium to greenbacks fell to par and the appreciated greenback promoted confidence in the gold-backed dollar. More foreigners willing to hold dollars meant an inflow of gold into the United States and greater American exports. Some historians have attributed the boom of 1879-1882, culminating in a financial crisis in the latter year, to the inflow of gold coin in the U.S., which rose from \$110.5 million in 1879 to \$358.3 million in 1882.¹⁵² In a sense this is true, but the boom would never have taken on considerable proportions without the pyramiding of the national banking system, the deposits of which increased from \$2,149 billion in 1879 to \$2,777 billion in 1882, a rise of 29.2 percent, or 9.7 percent per annum. Wholesale prices were driven up from 90 in 1879 to 108 three years later, a 22.5 percent increase, before resuming their long-run downward path.

A financial panic in 1884, coming during a mild contraction after 1882, lowered the supply of bank money in 1884. Total bank notes and deposits dropped slightly, from \$3.19 billion in 1883 to \$3.15 billion the following year. The panic was triggered by an overflow of gold abroad, as foreigners began to lose confidence in the willingness of the United States to remain on the gold standard. This understandable loss of confidence resulted from the inflationary sop to the pro-silver forces in the Bland-Allison Silver Purchase Act of 1878. The shift in Treasury balances from gold to silver struck a disquieting note in foreign financial circles.¹⁵³

Before examining the critical decade of the 1890s, it is well to point out in some detail the excellent record of the first decade after the return to gold, 1879-1889.

America went off the gold standard in 1861 and remained off after the war's end. Arguments between hard-money advocates who

¹⁵¹ Friedman and Schwartz, *Monetary History*, pp. 91-93; *Historical Statistics*, p. 625.

¹⁵² Friedman and Schwartz, *Monetary History*, pp. 98-99.

¹⁵³ See Rendigs Fels, *American Business Cycle, 1865-1897* (Chapel Hill, N.C.: University of North Carolina Press, 1959), pp. 130-131.

wanted to eliminate unbacked greenbacks and soft-money men who wanted to increase them raged through the 1870s until the Grant administration decided in 1875 to resume redemption of paper dollars into gold at pre-war value on the first day of 1879. At the time (1875) greenbacks were trading at a discount of roughly 17 percent against the pre-war gold dollar. A combination of outright paper-money deflation and increase in official gold holdings enabled a return to gold four years later, which set the scene for a decade of tremendous economic growth.

Economic recordkeeping a century ago was not nearly as well developed as today, but a clear picture comes through nonetheless. The *Encyclopedia of American Economic History* calls the period under review “one of the most expansive in American history. Capital investment was high; ... there was little unemployment; and the real costs of production declined rapidly.”

Prices, Wages, and Real Wages

This is shown most graphically with a look at wages and prices during the decade before and after convertibility. While prices fell during the 1870s and 1880s, wages fell only during the greenback period, and rose from 1879 to 1889.

Wholesale Price Index

(1910-1914 = 100)

Year	Index	% change
1869	151	—
1879	90	-40.4%
1889	81	-10.0%

Consumer Price Index

1869	138	—
1879	97	-28.8%
1889	93	-4.2%

Wages

(1900-1914 = 100)

	Urban Labor	Farm Labor	Combined
1869	77	96	87
1879	61	61	61
1889	72	78	75

These figures tell a remarkable story. Both consumer prices and nominal wages fell about 30 percent during the last decade of greenbacks. But from 1879-1889, while prices kept falling, wages rose 23 percent. So real wages, after taking inflation—or the lack of it—into effect, soared.

No decade before or since produced such a sustainable rise in real wages. Two possible exceptions are the period from 1909-1919 (when the index rose from 99 to 140) and 1929-1939 (134-194). But during the first decade real wages plummeted the next year—to 129 in 1920, and did not reach 1919's level until 1934. And during the 1930s real wages also soared, for those fortunate enough to have jobs.

In any event, the contrast to this past decade is astonishing. And while there are many reasons why real wages increase, three necessary conditions must be present. Foremost, an absence of sustained inflation. This contributes to the second condition, a rise in savings and capital formation.

People will not save if they believe their money will be worth less in the future. Finally, technological advancement is obviously important. But it is not enough. The 1970s saw this third factor present, but the absence of the first two caused real wages to fall.

Interest Rates

Sidney Homer writes in his monumental *History of Interest Rates, 2000 B.C. to the Present* that “during the last two decades of the nineteenth century (1880-1900), long-term bond yields in the United States declined almost steadily. The nation entered its first period of low long-term interest rates” finally experiencing the 3-3½ long-term rates which had characterized Holland in the 17th century and Britain in the 18th and 19th: in short, the economic giants of their day.

To gauge long-term rates of the day, it is best not to use the long-term government bonds we would use today as a measure. The National Banking Acts of 1863-1864 stipulated that these bonds had to be used to secure bank notes. This created such a demand for them that, as Homer says, “by the mid 1870's [it] put government bond prices up to levels where their yields were far below acceptable rates of long-term interest.” But the Commerce Department tracks the unadjusted index of yields of American railroad bonds. We list the yields for 1878, the year before gold, 1879, and 1889.

Railroad Bond Yields

1878	6.45%
1879	5.98%

1889 4.43%

We stress that with consumer prices about 7 percent lower in 1889 than they had been the decade before, the real rate of return by decade's end was well into double-digit range, a bonanza for savers and lenders.

Short-term rates during the last century were considerably more skittish than long-term rates. But even here the decennial averages of annual averages of both three-to six-month commercial paper rates and (overnight) call money during the 1880s declined from what it had been the previous decades:

	Commercial Paper	Call Money
1870-1879	6.46%	5.73%
1880-1889	5.14%	3.98%

A Burst in Productivity

By some measures the 1880s was the most productive decade in our history. In their *A Monetary History of the United States, 1867-1960*, Professors Friedman and Schwartz quote R.W. Goldsmith on the subject: “ ‘The highest decadal rate [of growth of real reproducible, tangible wealth per head from 1805 to 1950] for periods of about ten years was apparently reached in the eighties with approximately 3.8%.’ ” The statistics give proof to this outpouring of new wealth.

Gross National Product		
(1958 prices)		
	Total (billions of dollars)	Per capita (in dollars)
Decade average 1869-78	\$23.1	\$531
” 1879-88	\$42.4	\$774
” 1889-98	\$49.1	\$795

This dollar growth was occurring, remember, in the face of general price declines.

Gross Domestic Product	
(1929 prices in billions of dollars)	

1869-1878	\$11.6 (average per year)
1879-1888	\$21.2 (average per year)

Gross domestic product almost doubled from the decade before, a far larger percentage jump decade-on-decade than any time since.

Labor Productivity
Manufacturing Output per Man-Hour

(1958 = 100)

1869	14.7
1879	16.2
1889	20.5

The 26.5 percent increase here ranks among the best in our history. Labor productivity reflects increased capital investment.

Capital Formation

From 1869 to 1879 the total number of business establishments barely rose, but the next decade saw a 39.4 percent increase. Not surprisingly, a decade of falling prices, rising real income, and lucrative interest returns made for tremendous capital investment, insuring future gains in productivity.

Purchase of Structures and Equipment

(total, in 1958 prices, in billions of dollars)

1870	\$.4
1880	\$.4
1890	\$2.0

This massive 500 percent decade-on-decade increase has never since been even closely rivaled. It stands in particular contrast to the virtual stagnation witnessed by the 1970s.

Private and Public Capital Formation

(total gross, in billions, 1929 prices)

Average	1872-1876	\$2.6
"	1877-1881	\$3.7
"	1882-1886	\$4.5
"	1887-1891	\$5.9

These five-year averages are not as “clean” as some other figures, but still show a rough doubling of total capital formation from the '70s to the '80s.

It has repeatedly been alleged that the late 19th century, the “golden age of the gold standard” in the United States, was a period especially harmful to farmers. The facts, however, tell a different story. While manufacturing in the 1880s grew more rapidly than did agriculture (“The Census of 1890,” report Friedman and Schwartz, “was the first in which the net value added by manufacturing exceeded the value of agricultural output”), farmers had an excellent decade.

Number of Farms

(in thousands)

1880 4,009

1890 4,565

Farm Land

(in millions of acres)

1880 536,182

1890 623,219

Farm Productivity

(persons supplied by farm worker)

1880 5.1

1890 5.6

Value of Farm Gross Output and Product

(1910-1914 dollars, in millions)

1880 \$4,129

1890 \$4,990

So farms, farmland, productivity, and production all increased in the 1880s, even while commodities prices were falling. And as we see below, farm wage rates, even in nominal terms, rose during this time.

Farm Wage Rates

(per month, with board and room, in 1879, 1889 dollars)

1879 or 1880 \$11.50

1889 or 1890 \$13.50

This phenomenal economic growth during the decade immediately after the return to gold convertibility cannot be attributed solely to the gold standard. Indeed all during this time there was never a completely free-market monetary system. The National Banking Acts of 1863-1864 had semicartelized the banking system.

Only certain banks could issue money, but all other banks had to have accounts at these. The financial panics throughout the late 19th century were a result of the arbitrary credit-creation powers of the banking system. While not as harmful as today's inflation mechanism, it was still a storm in an otherwise fairly healthy economic climate.

The fateful decade of the 1890s saw the return of the agitation for free silver, which had lain dormant for a decade. The Republican Party intensified its longtime flirtation with inflation, by passing the Sherman Silver Purchase Act of 1890, which roughly doubled the Treasury purchase requirement of silver. The Treasury was not mandated to buy 4.5 million ounces of silver per month. Furthermore, payment was to be made in a new issue of redeemable greenback currency, Treasury Notes of 1890, which were to be a full legal tender, redeemable in either gold or silver at the discretion of the Treasury. Not only was this an increased commitment to silver, it was a significant step on the road to bimetallism which—at the depreciated market rates—would mean inflationary silver monometallism. In the same year, the Republicans passed the high McKinley Tariff Act of 1890, which reaffirmed their commitment to high tariffs and soft money.

Another unsettling inflationary move made in the same year was that the New York Subtreasury altered its longstanding practice of settling its clearing house balances in gold coin. Instead, in August 1890, it began using the old greenbacks and the new Treasury notes of 1890. As a result, these paper currencies largely replaced gold paid in customs receipts in New York.¹⁵⁴

Uneasiness about the shift from gold to silver and the continuing free-silver agitation caused foreigners to lose further confidence in the U.S. gold standard, and to cause a drop in capital imports and severe gold outflows from the country. This loss of confidence exerted contractionist pressure on the American economy and reduced potential economic growth during the early 1890s.

¹⁵⁴ See Friedman and Schwartz, *Monetary History*, pp. 106, 106n.

Fears about the American gold standard were intensified in March 1891, when the Treasury suddenly imposed a stiff fee on the export of gold bars taken from its vaults so that most gold exported from then on was American gold coin rather than bars. A shock went through the financial community, in the U.S. and abroad, when the United States Senate passed a free-silver coinage bill in July 1892; the fact that the bill went no further was not enough to restore confidence in the gold standard. Banks began to insert clauses in loans and mortgages requiring payment in gold coin; clearly the dollar was no longer trusted. Gold exports intensified in 1892, the Treasury's gold reserve declined, and a run ensued on the U.S. Treasury. In February 1893, the Treasury persuaded New York banks, which had drawn down \$6 million on gold from the Treasury by presenting treasury notes for redemption, to return the gold and re-acquire the paper. This act of desperation was scarcely calculated to restore confidence in the paper dollar. The Treasury was paying the price for specie resumption without bothering to contract the paper notes in circulation. The gold standard was therefore inherently shaky, resting only on public confidence, and that was giving way under the silver agitation and under desperate acts by the Treasury.

Poor Grover Cleveland, a hard-money Democrat, assumed the Presidency in the middle of this monetary crisis. Two months later, the stock market collapsed, and a month afterwards, in June 1893, distrust of the fractional-reserve banks led to massive bank runs and bank failures throughout the country. Once again, however, many banks, national and state, especially in the West and South, were allowed to suspend specie payments. The Panic of 1893 was on. In a few months, Eastern bank suspension occurred, beginning with New York City. The total money supply—gold coin, treasury paper, national bank notes, and national and state bank deposits—fell by 6.3 percent in one year, from June 1892 to June 1893. Suspension of specie payments resulted in deposits—which were no longer immediately redeemable in cash—going to a discount in relation to currency during the month of August. As a result, deposits became less useful, and the public tried its best to intensify its exchange of deposits for currency.

By the end of 1893, the panic was over as foreign confidence rose with the Cleveland administration's successful repeal of the Sherman Silver Purchase Act in November of that year. Further silver agitation of 1895 endangered the Treasury's gold reserve, but heroic acts of the Treasury, including buying gold from a syndicate of bankers headed by J. P. Morgan and August Belmont, restored

confidence in the continuance of the gold standard.¹⁵⁵ The victory of the free-silver Bryanite forces at the 1896 Democratic convention caused further problems for gold, but the victory of the pro-gold Republicans put an end to the problem of domestic and foreign confidence in the gold standard.

1896: The Transformation of the American Party System

Orthodox economic historians attribute the triumph of William Jennings Bryan in the Democratic Convention of 1896, and his later renominations for President, as a righteous rising up of the “people” demanding inflation over the “interests” holding out for gold. Friedman and Schwartz attribute the rise of Bryanism to the price contraction of the last three decades of the 19th century, and the triumph of gold and disappearance of the “money” issue to the price rise after 1896.¹⁵⁶

This conventional analysis overlooks several problems. First, if Bryan represented the “people” versus the “interests,” why did Bryan lose and lose soundly, not once but three times? Why did gold triumph long before any price inflation became obvious, in fact at the depths of price contraction in 1896?

But the main neglect of the conventional analysis is the disregard of the highly illuminating insights provided in the past 15 years by the “new political history” of 19th-century American politics and its political culture. The new political history began by going beyond national political issues (largely economic) and investigating state and local political contests.¹⁵⁷ It also dug into the actual voting records of individual parishes, wards, and counties, and discovered how people voted and why they voted the way they did. The work of the new political history is truly interdisciplinary, for its methods range from sophisticated techniques for voting analysis to illuminating insights into American ethnic religious history.

¹⁵⁵ On silver agitation, the gold reserves, and the Panic of 1893, see Friedman and Schwartz, *Monetary History*, pp. 104-133, 705.

¹⁵⁶ Friedman and Schwartz, *Monetary History*, pp. 113-119.

¹⁵⁷ The *locus classicus* of the new political history in late 19th-century politics is Paul Kleppner, *The Cross of Culture: A Social Analysis of Midwestern Politics, 1850-1900* (New York: The Free Press, 1970). Also see other writings of the prolific Kleppner, especially his magnum opus, *The Third Electoral System, 1853-1892: Parties, Voters, and Political Cultures* (Chapel Hill, N.C.: University of North Carolina, 1979). On the late 19th century, see also Richard J. Jensen, *The Winning of the Midwest: Social and Political Conflict, 1888-1896* (Chicago: University of Chicago Press, 1971). On the Civil War period and earlier, see the works of Ronald Formisano, Joel Sibley, and William Shade. For Eastern confirmation on the Kleppner and Jensen findings on the Middle West, see Samuel T. McSeveney, *The Politics of Depression: Political Behavior in the Northeast, 1893-1896* (Oxford: Oxford University Press, 1972).

In the following pages, we shall present a summary of the findings of the new political history on the American party structure of the late 19th century and after, and on the transformation of 1896 in particular.

First, the history of American political parties is one of successive “party systems.” Each “party system” lasts several decades, with each particular party having a certain central character; in many cases, the name of the party can remain the same but its essential character can drastically change—in the so-called “critical elections.” In the 19th century the second party system (Whigs v. Democrats), lasting from about 1832 to 1854, was succeeded by the third party system (Republicans v. Democrats), lasting from 1854 to 1896.

Characteristic of both party systems was that each party was committed to a distinctive ideology clashing with the other, and these conflicting worldviews made for fierce and close contests. Elections were particularly hard fought. Interest was high since the parties offered a “choice not an echo,” and so the turnout rate was remarkably high, often reaching 80 to 90 percent of eligible voters. More remarkably, candidates did not, as we are used to in the 20th century, fuzz their ideology during campaigns in order to appeal to a floating, ideologically indifferent, “independent voter.” There were very few independent voters. The way to win elections, therefore, was to bring out your vote, and the way to do that was to intensify and strengthen your ideology during campaigns. Any fuzzing over would lead the Republican or Democratic constituents to stay home in disgust, and the election would be lost. Very rarely would there be a crossover to the other, hated party.

One problem that strikes anyone interested in 19th-century political history is: How come the average person exhibited such great and intense interest in such arcane economic topics as banking, gold and silver, and tariffs? Thousands of half-literate people wrote embattled tracts on these topics, and voters were intensely interested. Attributing the answer to inflation or depression, to seemingly evident economic interests, as do Marxists and other economic determinists, simply won't do. The far greater depressions and inflations of the 20th century have not educed nearly as much mass interest in economics as did the milder economic crises of the past century.

Only the findings of the new political historians have cleared up this puzzle. It turns out that the mass of the public was not necessarily interested in what the elites, or national politicians, were talking about. The most intense and direct interest of the voters was applied to local and state issues, and on these local levels the two

parties waged an intense and furious political struggle that lasted from the 1830s to the 1890s.

The beginning of this century-long struggle began with the profound transformation of American Protestantism in the 1830s. This transformation swept like wildfire across the Northern states, particularly Yankee territory, during the 1830s, leaving the South virtually untouched. The transformation found particular root among Yankee culture, with its aggressive and domineering spirit.¹⁵⁸

This new Protestantism—called “pietist”—was born in the fires of Charles Finney and the great revival movement of the 1830s. Its credo was roughly as follows: Each individual is responsible for his own salvation, and it must come in an emotional moment of being “born again.” Each person can achieve salvation; each person must do his best to save everyone else. This compulsion to save others was more than simple missionary work; it meant that one would go to hell unless he did his best to save others. But since each person is alone and facing the temptation to sin, this role can only be done by the use of the State. The role of the State is to stamp out sin and create a new Jerusalem on Earth.^{159,160}

The pietists defined sin very broadly. In particular, the most important politically was “Demon rum,” which clouded men’s minds and therefore robbed them of their theological free will. In the 1830s, the evangelical pietists launched a determined and indefatigable prohibitionist crusade on the state and local level which lasted a century. Second was any activity on Sunday except going to church, which led to a drive for Sabbatarian blue laws. Drinking on Sunday was of course a double sin, and hence particularly heinous. Another vital thrust of the new Yankee pietism was to try to extirpate Roman Catholicism, which robs communicants of their theological free will by subjecting them to the dictates of priests who are agents of the Vatican. If Roman Catholics could not be prohibited per se, their immigration could be slowed down or stopped. And since their adults were irrevocably steeped in sin, it became vital for crusading pietists

¹⁵⁸ “Yankees” originated in rural New England and then emigrated westward in the early 19th century, settling in upstate (particularly western) New York, northern Ohio, northern Indiana, and northern Illinois.

¹⁵⁹ These pietists have been called “evangelical pietists” to contrast them with the new Southern pietists, called “salvational pietists,” who did not include the compulsion to save everyone else in their doctrine.

¹⁶⁰ These pietists are distinguished from contemporary “fundamentalists” because the former were “post-millennialists” who believe that the world must be shaped up and Christianized for a millennium before Jesus will return. In contrast, contemporary fundamentalists are “pre-millennials” who believe that the Second Coming of Jesus will usher in the millennium. Obviously, if everyone must be shaped up before Jesus can return, there is a much greater incentive to wield State power to stamp out sin.

to try to establish public schools as compulsory forces for Protestantizing society or, as the pietists liked to put it, to “Christianize the Catholics.” If the adults are hopeless, the children must be saved by the public school and compulsory attendance laws.

Such was the political program of Yankee pietism. Not all immigrants were scorned. British, Norwegian, or other immigrants who belonged to pietist churches (whether nominally Calvinist or Lutheran or not) were welcomed as “true Americans.” The Northern pietists found their home, almost to a man, first in the Whig Party, and then in the Republican Party. And they did so, too, among the Greenback and Populist parties, as we shall see further below.

There came to this country during the century an increasing number of Catholic and Lutheran immigrants, especially from Ireland and Germany. The Catholics and High Lutherans, who have been called “ritualists” or “liturgicals,” had a very different kind of religious culture. Each person is not responsible for his own salvation directly; if he is to be saved, he joins the church and obeys its liturgy and sacraments. In a profound sense, then, the church is responsible for one’s salvation, and there is no need for the State to stamp out temptation. These churches, then, especially the Lutheran, had a *laissez-faire* attitude toward the State and morality. Furthermore, their definitions of “sin” were not nearly as broad as the pietists. Liquor is fine in moderation; drinking beer with the family in beer parlors on Sunday after church was a cherished German (Catholic and Lutheran) tradition; and parochial schools were vital in transmitting religious values to their children in a country where they were in a minority.

Virtually to a man, Catholics and High Lutherans¹⁶¹ found their home during the 19th century in the Democratic Party. It is no wonder that the Republicans gloried in calling themselves throughout this period “the party of great moral ideas,” while the Democrats declared themselves to be “the party of personal liberty.” For nearly a century, the bemused liturgical Democrats fought a defensive struggle against people whom they considered “pietist-fanatics” constantly swooping down trying to outlaw their liquor, their Sunday beer parlors, and their parochial schools.

How did all this relate to the economic issues of the day? Simply that the leaders of each party went to their voting constituents and “raised their consciousness” to get them vitally interested in national

¹⁶¹ Lutherans, then as now, were split into many different synods, some highly liturgical, others highly pietist, and still others in between. Paul Kleppner has shown a one-to-one correlation between the degree of liturgicalness and the percentage of Democratic Party votes among the different synods.

economic questions. Thus, the Republican leaders would go to their rank-and-file and say: “Just as we need Big Paternalistic Government on the local and state level to stamp out sin and compel morality, so we need Big Government on the national level to increase everyone’s purchasing power through inflation, keeping out cheap foreign goods (tariffs), or keeping out cheap foreign labor (immigration restrictions).”

And for their part, the Democratic leaders would go to their constituents and say: “Just as the Republican fanatics are trying to take away your liquor, your beer parlors, and your parochial schools, so the same people are trying to keep out cheap foreign goods (tariffs), and trying to destroy the value of your savings through inflation. Paternalistic government on the federal level is just as evil as it is at home.”

So statism and libertarianism were expanded to other issues and other levels. Each side infused its economic issues with a moral fervor and passion stemming from their deeply held religious values. The mystery of the passionate interest of Americans in economic issues in the epoch is solved.

Both in the second party and third party systems, however, the Whigs and then the Republicans had a grave problem. Partly because of demographics—greater immigration and higher birth rates—the Democratic/liturgicals were slowly but surely becoming the majority party in the country. The Democrats were split asunder by the slavery question in the 1840s and ’50s. But now, by 1890, the Republicans saw the handwriting on the wall. The Democratic victory in the congressional races in 1890, followed by the unprecedented landslide victory of Grover Cleveland carrying both houses of Congress in 1892, indicated to the Republicans that they were becoming doomed to be a permanent minority.

To remedy the problem, the Republicans, in the early 1890s, led by Ohio Republicans William McKinley and Marc Hanna, launched a shrewd campaign of reconstruction. In particular, in state after state, they ditched the prohibitionists, who were becoming an embarrassment and losing the Republicans large numbers of German Lutheran votes. Also, they modified their hostility to immigration. By the mid-1890s, the Republicans had moved rapidly toward the center, toward fuzzing over their political pietism.

In the meanwhile, an upheaval was beginning to occur in the Democratic Party. The South, by now a one-party Democratic region, was having its own pietism transformed by the 1890s. Quiet pietists were now becoming evangelical, and Southern Protestant organizations began to call for prohibition. Then the new, sparsely

settled Mountain states, many of them with silver mines, were also largely pietist. Moreover, a power vacuum, which would ordinarily have been temporary, had been created in the national Democratic Party. Poor Grover Cleveland, a hard-money laissez-faire Democrat, was blamed for the Panic of 1893, and many leading Cleveland Democrats lost their gubernatorial and senatorial posts in the 1894 elections. The Cleveland Democrats were temporarily weak, and the Southern-Mountain coalition was ready to hand. Seizing his opportunity, William Jennings Bryan and his pietist coalition seized control of the Democratic Party at the momentous convention of 1896. The Democratic Party was never to be the same again.¹⁶²

The Catholics, Lutherans, and the laissez-faire Cleveland Democrats were in mortal shock. The “party of our fathers” was lost. The Republicans, who had been moderating their stance anyway, saw the opportunity of a lifetime. At the Republican convention, Rep. Henry Cabot Lodge, representing the Morgans and the pro-gold standard Boston financial interests, told McKinley and Hanna: Pledge yourself to the gold standard—the basic Cleveland economic issue—and drop your silverite and greenback tendencies, and we will all back you. Refuse, and we will support Bryan or a third party. McKinley struck the deal, and from then on, the Republicans, in 19th-century terms, were a centrist party. Their principles were now high tariffs and the gold standard, and prohibition was quietly forgotten.

What would the poor liturgicals do? Many of them stayed home in droves, and indeed the election of 1896 marks the beginning of the great slide downward in voter turnout rates that continues to the present day. Some of them, in anguish at the pietist, inflationist, and prohibitionist Bryanites, actually conquered their anguish and voted Republican for the first time in their lives. The Republicans, after all, had dropped the hated prohibitionists and adopted gold.

The election of 1896 inaugurated the fourth party system in America. From a third party system of closely fought, seesawing races between a pietist/statist Republican vs. a liturgical/libertarian Democratic Party, the fourth party system consisted of a majority centrist Republican party as against a minority pietist Democratic party. After a few years, the Democrats lost their pietist nature, and they too became a centrist, though usually minority party, with a moderately statist ideology scarcely distinguishable from the Republicans. So the fourth party system went until 1932.

¹⁶² Grover Cleveland himself, of course, was neither a Roman Catholic nor a Lutheran. But he was a Calvinist Presbyterian who detested the takeover of the Presbyterian Church by the pietists.

A charming anecdote, told us by Richard Jensen, sums up much of the 1896 election. The heavily German city of Milwaukee had been mainly Democratic for years. The German Lutherans and Catholics in America were devoted, in particular, to the gold standard and were bitter enemies of inflation. The Democratic nomination for Congress in Milwaukee had been obtained by a Populist-Democrat, Richard Schilling. Sounding for all the world like modern monetarists or Keynesians, Schilling tried to explain to the assembled Germans of Milwaukee in a campaign speech that it didn't really matter what commodity was chosen as money, that "gold, silver, copper, paper, sauerkraut or sausages" would do equally well as money. At that point, the German masses of Milwaukee laughed Schilling off the stage, and the shrewdly opportunistic Republicans adopted as their campaign slogan "Schilling and Sauerkraut" and swept Milwaukee.¹⁶³

The Greenbackers and later the pro-silver, inflationist, Bryanite Populist Party were not "agrarian parties"; they were collections of pietists aiming to stamp out personal and political sin. Thus, as Kleppner points out, "The Greenback Party was less an amalgamation of economic pressure groups than an ad hoc coalition of 'True Believers,' 'ideologues,' who launched their party as a 'quasi-religious' movement that bore the indelible hallmark of 'a transfiguring faith.'" The Greenbackers perceived their movement as the "religion of the Master in motion among men." And the Populists described their 1890 free-silver contest in Kansas not as a "political campaign," but as "a religious revival, a crusade, a pentecost of politics in which a tongue of flame sat upon every man, and each spake as the spirit gave him utterance..." The people had "heard the word and could preach the gospel of Populism." It was no accident, we see now, that the Greenbackers almost invariably endorsed prohibition, compulsory public schooling, and crushing of parochial schools. Or that Populists in many states "declared unequivocally for prohibition" or entered various forms of fusion with the Prohibition Party.¹⁶⁴

The Transformation of 1896 and the death of the third party system meant the end of America's great laissez-faire, hard-money libertarian party. The Democratic Party was no longer the party of Jefferson, Jackson, and Cleveland. With no further political embodiment for laissez-faire in existence, and with both parties

¹⁶³ So intense was the German-American devotion to gold and hard money that even German communist-anarchist Johann Most, leader of a movement that sought the abolition of money itself, actually came out for the gold standard during the 1896 campaign! See Jensen, *Winning of the Midwest*, pp. 293-295.

¹⁶⁴ Kleppner, *Third Electoral System*, pp. 291-296.

offering an echo not a choice, public interest in politics steadily declined. A power vacuum was left in American politics for the new corporate statist ideology of progressivism, which swept both parties (and created a short-lived Progressive Party) in America after 1900. The Progressive Era of 1900-1918 fastened a welfare-warfare state on America which has set the mold for the rest of the 20th century. Statism arrived after 1900 not because of inflation or deflation, but because a unique set of conditions had destroyed the Democrats as a laissez-faire party and left a power vacuum for the triumph of the new ideology of compulsory cartelization through a partnership of big government, business, unions, technocrats, and intellectuals.

III. MONEY AND BANKING IN THE UNITED STATES IN THE 20TH CENTURY

After 1896 and 1900, then, America entered a progressive and predominantly Republican era. Compulsory cartelization in the name of “progressivism” began to invade every aspect of American economic life. The railroads had begun the parade with the formation of the ICC in the 1880s, but now field after field was being centralized and cartelized in the name of “efficiency,” “stability,” “progress,” and the general welfare. Theodore Roosevelt, Taft, and Wilson were each in his way progressives, and each advanced the cause of cartelization, with the process culminating in the Presidency of Woodrow Wilson. In particular, various big business groups, led by the J. P. Morgan interests often gathered in the National Civic Federation and other think tanks and pressure organizations, saw that the voluntary cartels and the industrial merger movements of the late 1890s had failed to achieve monopoly prices in industry. Therefore, they decided to turn to governments, state and federal, to curb the winds of competition and to establish forms of compulsory cartels, in the name, of course, of “curbing big business monopoly” and advancing the general welfare.¹⁶⁵

America’s bankers had long chafed to cartelize the banking industry still further. The National Banking System was a long step forward, from their point of view, but it was still only quasi-centralized. Bank credit and money pyramided on top of New York (and after 1887, also Chicago and St. Louis) banks. But this system was, to use a universally adopted term, “inelastic”—that is, it could not assure the pumping in of more money during contractions or runs on banks. “Inelastic” was a code word for not enough assured inflation of the money supply.¹⁶⁶ The growing consensus, then, was to redirect the banking system by establishing, at long last, a central bank. The central bank would have an absolute monopoly of the note issue, and reserve requirements would then ensure a multilayered pyramiding on top of these central bank notes, which could bail out banks in

¹⁶⁵ See in particular, Gabriel Kolko, *The Triumph of Conservatism: A Reinterpretation of American History, 1900-1916* (Glencoe, Ill.: The Free Press, 1963.) While in less harsh a form, variants of this interpretation have now swept the field in Progressive Era historiography. Thus, see the works of Samuel Hays, James Weinstein, Arthur Ekrich, Louis Galambos, William Graebner, Jordan Schwarz, Ellis Hawley, Joan Hoff Wilson, and many others.

¹⁶⁶ National banks also had a particular form of “inelasticity.” Their issue of notes was limited by their deposit of government bonds at the Treasury. Yet government bonds were generally 40 percent over par, which imposed a penalty on further issue. See Robert Craig West, *Banking Reform and the Federal Reserve, 1863-1923*. (Ithaca: Cornell University Press, 1977).

trouble, and, moreover, could inflate the currency in a smooth, controlled, and uniform manner throughout the nation.

In addition to this chronic problem, the large banks, particularly on Wall Street, saw financial control slipping away from them. The state banks and other non-national banks began to grow instead and outstrip the nationals. Thus, while in the 1870s and the 1880s, most banks were national, by 1896 non-national banks comprised 61 percent of the total number of banks, and by 1913, 71 percent. By 1896, these non-national banks had 54 percent of the total banking resources of the country, and 57 percent in 1913. The inclusion of Chicago and St. Louis as central reserve city banks after 1887 diluted Wall Street's power. With Wall Street no longer able to cope, it was time to turn to the United States government to do the centralizing, cartelizing, and controlling instead.¹⁶⁷

It often takes a crisis to focus one's mind, and it takes a financial crisis or notable event to move men to institutional reform. The Civil War was the previous occasion for overhaul of the nation's money and banking system. The Panic of 1907 provided the spark for a return to central banking.

The Republicans fulfilled their promise, and, in March 1900, finally placed the United States officially on a monometallic gold standard. All paper was to be redeemable in gold, and silver continued as a subsidiary metal.

An unusual increase in gold production from discoveries in South Africa and Alaska doubled the world's gold stock from 1890 to 1914, causing a rise of U.S. prices of nearly 50 percent from 1897 to 1914, or two and one-half percent per year. Until after World War II, this was the largest sustained rise in prices in peacetime, but still the rise only returned to approximately 1882 levels. In the United States, the gold supply rose at a rate of seven and one-half percent per year in this period. But despite this impact, the bulk of the increase in the supply of money in the period came from bank deposits pyramiding on top of the increase in gold. Thus, from June 1896 to June 1914, total bank deposits rose from \$3.43 billion to \$14.32 billion, or an increase of 317.5 percent or an annual rise of 17.6 percent—a substantially greater percentage than the seven and one-half percent per year increase of the gold stock. Once again, fractional reserve banking under the National Banking System was far more to blame for price rises than international movements in gold.

There were several mini-panics, averted or stopped by infusions of Treasury money, after 1900; but the Panic of 1907 frightened the

¹⁶⁷ See Kolko, *Triumph*, p. 140.

banks into calling for a new central banking system. Wall Street and the Morgans could not save the New York banks themselves. There was general speculation of specie payment throughout the country, and premiums of currency over deposits. Again, the Treasury was called upon to intervene. The Wall Street banks now knew that they could not cope, and federal government cartelization and support for fractional reserve banking would be necessary.¹⁶⁸

All banks, and both parties, now agreed on some form of central banking, and the rest of the story is jockeying for minor advantage. The Wilson administration finally established central banking with the creation of the Federal Reserve System in 1913—the symbolic end of the Jacksonian hard-money heritage in the Democratic Party. From 1913 until 1933, the United States would be formally under a gold standard, but actually governed by a Federal Reserve System designed to inflate uniformly and bail out banks in trouble. The banking systems would now be pyramiding on the U.S. issue of paper money.

By establishing the Federal Reserve System, the federal government changed the base of the banking pyramid to the Federal Reserve Banks. Only the Federal Reserve could now print cash, and all member banks could now multiply their deposits on top of Federal Reserve deposits. All national banks were required to join the Federal Reserve, and their gold and other lawful money reserves had to be transferred to the Federal Reserve. The Federal Reserve, in turn, could pyramid its deposits by three-to-one on top of gold. This centralization created an enormous potential for inflationary expansion of bank deposits. Not only that, reserve requirements for the nation's banks were deliberately cut in half in the course of establishing the Federal Reserve System, thereby inviting the rapid doubling of the money supply. Average reserve requirements for all banks prior to the Federal Reserve Act is estimated to be 21 percent. In the original Act of 1913, these were cut to 11.6 percent and three years later to 9.8 percent. It is clear then that the Federal Reserve was designed from the very beginning to be an instrument for a uniform and coordinated inflation of bank money.¹⁶⁹

Indeed, total bank deposits were \$14.0 billion at the beginning of the Federal Reserve System in January 1914; after six years, in January 1920, total bank deposits had reached \$29.4 billion, an enormous increase of 110 percent or 18.3 percent per year. The creation of the Federal Reserve had made that expansion possible.

¹⁶⁸ See Kolko, *Triumph*, pp. 153-158; Friedman and Schwartz, *Monetary History*, pp. 156ff.

¹⁶⁹ See the illuminating discussion in C. A. Phillips, T. F. McManus, and R. W. Nelson, *Banking and the Business Cycle* (New York: Macmillan, 1937), pp. 23-29.

The Gold-Exchange Standard

Faced with a global inflation of unprecedented volume and destruction both during World War I and immediately after it, the world attempted to restore monetary stability. But while most officials wanted gold to re-appear as the monetary anchor, they also wanted to be able to keep inflating. Put another way, they wanted to have their cake and eat it too.

Preeminent victims of this delusion were the British; with a burgeoning welfare state in the early 1920s, and especially with rigid wage rates, it was difficult politically to end inflation. Further, Britain wanted to return to gold, but for reasons of national “prestige” she wanted to go back at the pre-war, pre-inflation rate of \$4.86 per pound. In effect, she wanted to pretend that the inflation had never happened. There was only one way Britain could get away with enthroning an artificially overvalued pound: by making other countries play along. Other nations had to be persuaded (or forced) into either likewise returning to gold at an unrealistic rate or inflating their monies so as not to cripple Britain’s exports (also priced artificially high).

Britain accomplished this at the Genoa Conference of 1922. Emerging from that first post-war economic meeting was not a gold standard, but a more slippery “gold-exchange” standard. Here’s how it worked: Only the United States stayed on the old gold-coin standard, where anyone could present notes totaling \$20.67 to the Treasury and receive an ounce of gold in return. But Britain began redeeming pounds not just in gold, but in Federal Reserve notes or dollars. Further, the other nations began predominantly using British pounds as their backing. And importantly, when they did pay gold they only paid in large bullion bars, not coins, so the average citizen was not able to redeem his currency. The Genoa Accord made the pound as well as the dollar as good as gold, even though sterling was not in fact a sound currency. Britain now printed its “gold” with American support—the U.S. agreed to inflate enough to keep Britain’s reserves of dollars or gold from flowing to America.

This inflationary charade was played to buttress Britain’s fading dreams as an imperialist world power. But also involved was the rise of the new doctrines of John Maynard Keynes, who by the early 1920s had become a foe of the “barbarous relic” gold and extolled instead the alleged virtues of a politically managed paper currency. That these ideas became so influential so fast in London banking circles was due in no small part to the catastrophic loss suffered during World War I of truly the finest minds of a generation. These would have normally become leaders during the 1920s. This left a gap which affected

Britain as it did few other countries. For at the risk of broad-brush painting, the British are a people that have always put more stock in practical knowledge than the more philosophical French or Germans. But pragmatism depends less on book knowledge than on skills handed down orally. The annihilation of a generation thus created a gap in the continuity of knowledge those more bookish nations escaped. So as one contemporary observer of London financial circles perceptively explained, by the mid-1920s, there would be few remaining grandfathers who remembered the virtues of sound money. And there would be their grandsons “miseducated by Keynes.” Between them was a gap, which created such “a barrier in ideas that it was not easy for tradition and practical knowledge to pass.”¹⁷⁰

American Inflation 1922-28

With the “discovery” of open-market operations around 1922, the Federal Reserve thought it had found a way to smooth out business cycles. In practice, it caused a substantial six-year bank credit inflation by buying securities on the open market and printing the money to pay for them. This money—bank reserves—was pyramided several-fold by means of the fractional reserve banking system. This policy of stabilizing the price level was deliberately engineered by the leader of the Federal Reserve System, Benjamin Strong, to follow the proto-monetarist theory of Yale economist Irving Fisher.

The 1920s are not often seen as an inflationary period because prices did not rise. But the money supply can rise even without prices rising in absolute terms. The 1920s saw such a burst of American technological advancement and cheaper ways of producing things that the natural tendency was for prices to *fall* (i.e., more goods chasing the same number of dollars). But the inflation caused prices to rise *relative* to what they would have done. So a “stable” price level was masking the fact that inflation was going on and creating distortions throughout the economy.

Between mid-1922 and April 1928, bank credit expanded by over twice as much as it did to help finance World War I. As with all inflations, this caused speculative excess; in this case, new money poured into the stock market and real estate. The cooling of this speculative fever in 1928 by officials who tightened the money supply because they were finally afraid of the overheated economy led to the Depression, which in turn led to the world’s abandonment of the gold standard. We would do well to examine this period closer.

¹⁷⁰ Benjamin Anderson, *Economics and the Public Welfare* (Indianapolis: Liberty Press, 1979), p. 174.

Bailing Out Britain

Britain during this time used her power to treat the pound like gold, as one might expect, keeping interest rates artificially low and inflating recklessly, thus piling up billions of pounds at the Bank of France, which finally began asking for gold. Panicked, the Bank of England in mid-1927 induced the New York Federal Reserve Bank to lower its interest rates and step up open-market purchases of securities, thus fueling inflation further. (This move to make unnecessary the payment of British gold obligations to France and to keep England inflating by causing America to inflate was disguised as “helping the farmer.” It was the Kansas City Federal Reserve Bank which first lowered its discount rate, the others following.)

A major reason for the inflationary pro-British policies of the 1920s was the close personal connection formed between Benjamin Strong, the dominant leader of the Federal Reserve System, and Montagu Norman, head of the Bank of England. In several secret conferences with Norman, unknown to the rest of the Federal Reserve or the American government, Strong agreed to inflate money and credit in order to bail out England. The ties between Norman and Strong were not only personal; both were intimately allied with the House of Morgan. Before he became the first leader of the Federal Reserve, Strong was head of the Morgan-created Bankers Trust Company in New York. He was urged to accept the post by his two closest personal friends, Henry P. Davison and Dwight Morrow, both partners at the Morgan Bank. The Morgan connection with Britain was very close; J. P. Morgan and Company was the fiscal agent for the Bank of England and underwrote the massive sale of British bonds in the United States during World War I. Montagu Norman himself had close personal connections with the United States investment banks and had worked in the offices of Brown Brothers in New York. Only the death of Strong in 1928 ended the inflationary Federal Reserve policy designed to help Britain.

By April of 1928, the new Governors of both the Federal Reserve Board and the New York Federal Reserve Bank, made an effort to hold down bank credit expansion. But those efforts were stymied by following two conflicting goals. Federal Reserve officials wanted both to reduce credit going into stock market speculation yet at the same time not to tighten money either at home or abroad (this latter for fear of pulling gold out of Britain).

And while the anti-inflationist policy predominated, it is not easy to reduce inflation in an economy grown accustomed to it, which by 1928 America had. Further, 1928 was a presidential election year, with great pressure to inflate. It therefore took about a year before

the money supply was under control. But as the tables below show, the long money-supply inflation was over by the end of 1928. At mid-1929 money-supply growth was creeping at an annual rate of only 0.7 percent, a marked deceleration from previous years. The depression caused by years of inflation was about to begin, and with it would come the end of the American gold standard.

Total Money Supply of the United States, 1921-29

(in billions of dollars)

Date	Total Money Supply	Percent Annual Change From Previous
1921 – June 30	45.30	....
1922 – June 30	47.16	4.1
1923 – June 30	51.79	9.8
1923 – Dec. 31	53.06	4.9
1924 – June 30	54.67	6.1
1924 – Dec. 31	57.85	11.6
1925 – June 30	59.86	7.1
1925 – Dec. 31	62.59	9.2
1926 – June 30	63.62	3.3
1926 – Dec. 31	64.96	4.2
1927 – June 30	66.91	6.0
1927 – Dec. 31	69.61	8.1
1928 – June 30	71.12	4.4
1928 – Dec. 31	73.00	5.2
1929 – June 30	73.26	0.7

Federal Reserve Bank Credit, 1914-1934

(\$millions)

End of Year	Reserve bank credit outstanding	
	Total loans And securities	Through purchase of bills and securities
1914	11	0
1915	84	40
1916	222	184
1917	1060	395
1918	2291	526

1919	3090	874
1920	3235	547
1921	1524	379
1922	1326	708
1923	1211	489
1924	1249	927
1925	1395	749
1926	1335	696
1927	1591	1009
1928	1783	717
1929	1548	903
1930	1352	1093
1931	1825	1156
1932	2128	1888
1933	2670	2570
1934	2457	2436

Source: U.S. Department of Commerce, *Historical Statistics of the United States, Colonial Times to 1957*, series X 245-254 (1961), p. 642.

The International Crisis: 1931

The stock market collapse in late 1929 was only a harbinger of things to come. It was not until 1931 that international bank collapses caused abandonment of gold. The first to go was Austria.

Kredit-Anstalt, Austria's largest bank, supported by the Austrian government, had for years been making bad loans on a meager reserve base. Austria had been part of the "sterling bloc," buttressed by Britain—a development resented by France, heavy with gold claims on Britain. The formation of an Austrian customs union with Germany in late March 1931 was feared by France, who saw it as a step to political union. The French central bank now insisted upon immediate repayment of her short-term debts from Austria and Germany. Austrian banks clearly could not meet their liabilities, and in late May, Kredit-Anstalt went bankrupt, taking Austria off the gold standard. A run on German banks now started. That country had been quickly affected by the tightened American credit conditions in mid-1928 and was quite vulnerable. Runs continued, and even though President Hoover declared on June 20 a moratorium on German debt, France was not immediately inclined to go along. She delayed too long; and on July 15 Germany declared national bankruptcy by going off the gold standard.

It must be said that both these nations fought desperately to maintain gold redemption, and when the end came, each regarded the act with shame. Not so with Britain. The country that had caused the others to inflate for her and did more than any other to bring on the crisis went off the gold standard without a fight.

As runs on British gold increased through the summer, Britain refused to defend the pound by raising interest rates. Instead, as gold flowed out of the banks, the Bank of England created new money to replenish the banks' reserves. The Bank of France cooperated loyally and didn't present many claims. The French bank held sterling claims worth fully seven times its capital, and thus feared for a Britain off the gold standard. Indeed, France joined America in offering massive loans to Britain. But the Bank of England didn't even take full advantage of these credit lines, and two days after assuring the Netherlands Bank (with all its capital in sterling) that England would not go off the gold standard, that is exactly what happened. The announcement was made on September 20, 1931, thus capping 17 years of gradual monetary disintegration.

Britain had for centuries been the world's premier financial power, so that announcement left the world stunned. Moreover, other governments had been deliberately deceived. The capital of the central banks of France and Holland had been made worthless in one day. Governments could no longer trust each other's financial promises, and the stage was set for perhaps the most treacherous decade in international economic relations, a decade from which we have not yet recovered. As Chase economist and contemporary eyewitness Benjamin Anderson recalled, "An immense world asset was destroyed when the Bank of England and the British government broke faith with the world. Years later after we in the United States had also broken faith with the world, the head of the national bank of one of the Scandinavian countries said, 'I have lost money in sterling. I have lost money in dollars. I have never lost money by holding gold.'"¹⁷¹

America Breaks Faith

If sterling was not good, the world asked itself, what was? It looked nervously at America, and had presented claims for \$728 million of our gold by the end of October 1931. But Americans thought any such fears were silly. After all, we had continued to pay gold to foreigners even in the crisis of 1895, with a low point of only \$41 million of gold in the Treasury. Alone among belligerents, we had not gone off gold in World War I, although we had stopped the export

¹⁷¹ Anderson, *Economics and the Public Welfare*, p. 254.

of gold. Certainly few Americans cashed in notes for gold in late 1931. They may have doubted the solvency of some banks, but few if any doubted the good faith of the American government's promise to redeem notes for gold. The platforms of both parties in 1932 contained vows that the gold standard would be maintained. The Democratic platform was largely written by Sen. Carter Glass of Virginia and Cordell Hull, later Secretary of State. As events proved, both these men were sincere.

The first sign of shakiness in the American position was a foolish and false statement by President Hoover one month before the November election. He charged that the Federal Reserve had been within two weeks of going off the gold standard earlier that year. The statement was soon proved untrue, but it aroused doubts for the first time in people's minds.

These grew into rumors beginning in late December that President-elect Roosevelt was going to take the country off the gold standard. Roosevelt would not deny them, and American hoarding of gold started for the first time on a grand scale.

The feelings of disquietude were made worse by a paralyzed government. The new President was not to take office until March 4 (the old Inauguration date) and a lame-duck Congress had many members due to retire. In the cabinet departments, anyone whose job was not protected by civil-service rules was preparing to find a new job in the midst of a terrible depression.

Runs on banks by depositors anxious to get cash, and runs on the Federal Reserve Banks by cash holders eager to turn their paper into gold, accelerated. It should not have come as a surprise when on February 14 Michigan became the first state to declare a bank "holiday," i.e., to close the banks to depositors. Michigan had been the home of some of the more reckless lending by banks during the boom. Nine days later Indiana followed, and then a score of states in a cluster. Late on the night of March 3, the big New York banks reluctantly agreed to close; though they were not in trouble, smaller upstate banks were. Roosevelt became President the next day with almost every bank in America closed. He kept them all closed until March 13, when the Federal Reserve banks opened, with others a day or two later. The public, assuaged by FDR's promise that the reopened banks would be good, poured both gold and cash back into the banks. But on March 9 Congress passed, at Roosevelt's request, a bill "to provide relief in the existing national emergency in banking, and other purposes." It gave him the power to do all he pleased regarding money and banking, including authority to seize the American people's gold coins, bullion, and gold certificates.

America Off the Gold Standard

Within a month this power was used. On April 5, it became illegal to own or hold any form of monetary gold, either coins, bullion, or certificates. (Industrial users of gold were not affected.) The banking crisis had been brought on by past inflation. But that crisis, ironically, was made the excuse to abandon the gold standard.

At first, it was stressed that these measures were temporary, only to be used as long as the crisis lasted. But on May 12 a law was passed (the Thomas Amendment to the Agriculture Adjustment Act) which gave the President the ability to increase vastly the money supply and to reduce by up to half the weight of gold dollar. Democratic Senator Glass called it “dishonor. ... This great government, strong in gold, is breaking its promises to pay gold to widows and orphans to whom it has sold government bonds with a pledge to pay gold coin of the present standard value. It is breaking its promise to redeem its paper money in gold coin of the present standard of value. It’s dishonor, sir.”¹⁷² Another Democratic Senator, Thomas Gore of Oklahoma, was asked by the President for his opinion about another law (signed on June 5) abolishing the gold clause in all past debt obligations: “Why, that’s just plain stealing, isn’t it, Mr. President?” Later in Senate debate, Gore also added that “Henry VIII approached total depravity but the vilest thing he ever did was to debase the coin of the realm.”¹⁷³

One final step remained. Using the Gold Reserve Act of January 30, 1934, President Roosevelt arbitrarily reduced the weight of gold that would define each dollar. The “old” dollar had been defined as 25.8 grains of gold, nine-tenths fine. The new devalued dollar would only be worth 15 $\frac{5}{21}$ grains, nine-tenths fine. So even the act of abandoning gold was done with the implicit admission that the dollar was still defined in terms of it.

The London Conference

Just as he had taken America off gold, Roosevelt took steps to ensure that there would be no international return to gold. The Gold Bloc of remaining gold standard nations, France, Belgium, Switzerland, Holland, and Italy, had called the London Conference for June 1933 to persuade Great Britain and the United States that “gold should be reestablished as the international measure of exchange value”—and that non-gold countries should agree that their ultimate objective was to restore the gold standard. Even the official

¹⁷² *Ibid.*, p. 315.

¹⁷³ *Ibid.*, p. 317.

American delegation, which included Secretary of State Cordell Hull, approved this declaration, and all were shocked when Roosevelt's reply rejected the proposals. Said he, "The sound internal economic system of a nation is a greater factor in its prosperity than the price of its currency in changing terms of other nations." He thus missed the point of a gold standard, which defines all currencies as an unchanging weight of gold. Incredibly, the President stated that the new order would mean currency stability: "Let me be frank in saying that the United States seeks the kind of dollar which a generation hence will have the same purchasing and debt-paying power as the dollar value we hope to maintain in the near future." Seven months later, the dollar was devalued by 40.9 percent. And we of "a generation hence" know what has happened to the purchase power of the dollar.

Gold Remains the World's Money

Finding no support, all the remaining Gold Bloc countries stopped redeeming their paper for gold, Holland and Switzerland being the last in 1936. But gold was far from banished. The deteriorating European political situation after 1936 caused everyone from homeless Jews to central bankers to trust gold over any paper currency and to transfer gold to the United States, the safest haven. Further, the stabilization funds set up by governments to stabilize now floating currencies settled their differences in gold. Remembering British and American actions to change arbitrarily the value of their currencies, no one would trust anything else.

Nor was there reason to. Beggar-thy-neighbor policies were the order of the day. International economic peace was shattered during the 1930s by economic nationalism, competitive devaluation, high tariffs, and exchange controls. Moreover, this poisoned atmosphere played its part in causing World War II.

The Coming of Bretton Woods

Try as they might, countries just before World War II were unable to carry on unsound currency and fiscal policies without seeing their currencies depreciate in terms of gold, their capital flee, or their credit markets crippled. The only pre-war exception was Nazi Germany, which achieved those goals at the cost of a complete and unprecedented economic regimentation. With the coming of war, other nations as well achieved far-reaching control over internal and foreign exchange. The end of war found government officials wishing they could retain those controls, which allowed them to inflate and run budget deficits as they pleased while still having access to easy

credit, stable foreign exchange rates, and an absence of international “flight capital.”

This was the root idea behind the international monetary conference in mid-1944 at Bretton Woods, New Hampshire, which set up the monetary order that would break down 25 years later. For while the new Bretton Woods system was supposed to restore the currency stability of the gold standard, it was designed to do so without gold. The system placed its trust, not in the workings of the marketplace, but in the judicious restraint of the American government. It therefore contained within itself the seeds of its own destruction.

The Rules of the Game

While the dollar would be convertible into gold at \$35 an ounce, it would be so only to foreigners, and after 1962 only to foreign governments. All other currencies were defined in terms of the dollar, which itself was defined as 1/35 of an ounce of gold. But the upshot of the arrangement gave America the power to have the dollar treated as gold. The Bretton Woods rules called for stable currency values: No currency was allowed to either rise or fall more than one percent. The Swiss franc, for example, was, at the time of the agreement (1944), fixed at 22.9 cents; it could go no lower than 22.7 cents and no higher than 23.1 cents. If the franc threatened to break these limits, the Swiss central bank was obliged to enter the exchange market and either buy or sell francs to hold its currency within the narrow margin. As the franc was usually bumping against the upper limits of this margin, Swiss authorities were usually selling francs and buying dollars. Most other governments were doing the same, especially those whose currencies were not inflating as much as the dollar was. But all of these nations were soothed with the promise that the dollar was indeed “as good as gold,” and that any foreign holder of dollars, individual or government, could present American currency to the U.S. Treasury at any time to collect one ounce of gold for 35 of their paper dollars. Many, of course, took advantage of this opportunity. The U.S. government continued inflating the dollar, and our gold supply plummeted from a peak of 701 million ounces in 1949 to 296 million ounces in March 1968.

No government in history had held the kind of power handed to the United States in 1944: having its paper money treated like gold. But this action overlooked the stark reality that paper is not gold, that gold cannot be printed wildly, as paper can. Another effect of the Bretton Woods regime was to subsidize American consumers at the expense of foreigners. For a long time, America prospered at the expense of her trading partners. For years, the dollar’s value was

artificially high, and therefore actually bought more than it should have been able to buy. This meant that foreign products were available to Americans at bargain prices. This left foreign consumers less to enjoy. Moreover, the foreigners had to pay more for their own goods, thanks to American “exporting” of inflation by, in effect, forcing foreign central banks to print more of their own currency to absorb the unwanted, overvalued dollars they accepted.

Predictably, those nations who had managed their own monetary affairs most conservatively were the ones hardest hit by the American action. Switzerland, that paragon of monetary restraint, now madly printed francs to pay for all dollars shunned by Swiss commercial banks. Switzerland’s money supply soared 22 percent in 1971 alone. (Ironically, Switzerland had never signed the Bretton Woods agreement, but chose nevertheless to continue to adhere to the strictures—to its own great detriment—long after the system’s founder and chief beneficiary, the United States, had broken its commitment.) Switzerland could not be expected to continue this suicidal policy forever; as we will see later, it was Swiss action which finally brought the injustice of the post-war system to an abrupt end.

The London Gold Pool

Dollars flooded the world through the 1950s, and few worried about the gold reserves leaving the U.S. Treasury. But sometime in the early 1960s the market price of gold threatened to rise above the official \$35 per ounce figure. For many years, the \$35 figure was above the market price, making holding dollars attractive. In response to this rise in gold’s price, the West’s major central banks in 1961 established the London Gold Pool. With the U.S. in the lead, the banks agreed to sell gold whenever the price threatened to rise above \$35. But this was successful only as long as world inflation fears abated. However, by the late 1960s the world had paused to assess the effects of a massive dollar inflation to pay for both the Great Society programs and the Vietnam War. The U.S. dollar had now dearly become overvalued, gold’s price undervalued.

Britain was the first major nation to violate the fixed-exchange regime by devaluing in November of 1967. This caused a massive flight into gold, the first of the post-war era. Billions of dollars were spent by central banks in the next four months trying to force the market gold price down. Finally in March, governments threw in the towel and gave up suppressing the market’s wishes.

The Approaching Crisis

From March 1968 to August 1971, during the period of the “two-tier” gold market, the political world pretended that the dollar was

still convertible, and for most of that time, the monetary scene was placid. This was due in part to the moderate lessening of American inflation during the recession of 1969-1970. But after that brief respite, the printing presses again went into high gear. The results were predictable. By early 1971, astute financial observers began to sense the imminent collapse of the dollar. One of the signs they saw was the lowering of American interest rates compared with European ones. When any nation inflates, money usually becomes cheaper, if only in the beginning, and therefore easier to borrow. The interest rate charged by banks to borrowers of money declines, and the interest rate paid by banks to depositors of money also declines. Money then flows out of those low-interest rate countries into countries where it can enjoy higher returns. During the beginning months of 1971, the outflow of funds from New York to European money markets accelerated. This forced most European currencies hard against their upper ceiling. Because Germany in particular had maintained a very tight credit stance—a low inflation rate—the mark was besieged with an unprecedented flood of buyers. Events now began to move swiftly.

In early May, on the heels of a joint report by major German economic institutes that the mark should be inflated or revalued upward, massive speculation hit that currency. Dollars poured into Germany and the Bundesbank was forced to buy them in mounting volume—more than \$1 billion on May 3-4 and a further \$1 billion during the first 40 minutes of trading on May 5. At that point, the German central bank gave up the struggle, withdrew from the market, and let the mark float. Neighboring countries, afraid of seeing now-homeless dollars careen across their own borders, were quick to join Germany.

The following weekend the central banks of the Netherlands, Switzerland, Belgium, and Austria likewise ceased support operations and set their currencies afloat. In the cases of Austria and Switzerland, revaluations of 5 to 7 percent were also realized. Not surprisingly, the newly-floated currencies continued appreciating, most of them rather sharply. There were rumblings inside the Nixon administration—especially in the Treasury Department—that the gold “window” ought to be slammed unequivocally shut.

It is important to realize that while other governments theoretically could redeem their dollars for gold, most handled the U.S. Treasury with kid gloves: Only a golden trickle left Washington. Some nations, such as Germany, did this because they were obliquely threatened with U.S. troop pullbacks, but there were others who

sincerely believed that their sacrifices were going toward the maintenance of the world monetary order.

As in any unnatural economic imbalance, speculators had jumped into the fray and began betting against the dollar. The reasons for their position were justified by every piece of economic news emerging from the United States by mid-1971. Each monthly figure was worse than its predecessor; the nation had slipped into severe trade and payments deficits. But the allies were patient; only a relatively paltry \$300 million in gold left the U.S. from January to early August 1971. Rumors spread among foreign central banks that the gold window was about to be shut. Rumbblings from the Bank of England suggested that they were preparing to turn in dollars for gold in huge amounts. As Treasury Secretary Connally said (privately) at the time, "We're completely exposed. Anybody can topple us anytime they want to."

On August 6, a congressional subcommittee report concluded that the dollar had become overvalued and called outright for an exchange rate realignment. That same day more than \$1 billion in gold or other reserve assets were drained from the Treasury, and over that next week almost \$4 billion fled the country.

During the week ending Friday, August 13, the U.S. Treasury borrowed almost \$3 billion in foreign currency to try to halt the dollar's decline (by buying dollars with that currency). But it soon became obvious that the anti-dollar forces had too much strength.

President Nixon responded by declaring international bankruptcy. In a televised address on Sunday, August 15, 1971, he announced that no more gold would be given in exchange for dollars. There were now absolutely no checks on the ability of the United States to inflate.

Nixon's speech to the world that night was a cunning attempt to lay the burden of guilt for this assault upon the shoulders of America's trading partners, who had maintained, Nixon astonishingly asserted, "unfair exchange rates." The cause of the problem had indeed been inequitable exchange rates, but not in the way that Nixon meant. The injustice of this statement is unsettling even 10 years after it was made.

"Unfair" Japan

It is interesting to trace the immediate reactions of one of those "unfair" partners, Japan. Unlike Western Europe, whose exchanges were closed when news of the announcement came, it was Monday morning in the Far East. Trading was already underway when Nixon stepped before the cameras. Paralyzed by the news, the Japanese

nevertheless kept their foreign exchange market open—not only for the rest of the day, but for two weeks afterward. As the European markets had sensibly remained closed, Tokyo became the dumping ground for anyone who wanted to get rid of dollars. During those two weeks the Bank of Japan absorbed \$4.5 billion. Finally, on August 28, they threw in the towel and joined the other currencies in floating.

The European markets had remained closed, stunned and confused by the president's action. But they could not remain shut forever, and after efforts to decide upon a common course of action failed, they opened on August 23 on an uncoordinated basis. Even though they all continued to adhere officially to their pre-August 15 parities with the dollar, virtually all of them stopped defending the upper limits of their exchange rates.

In the months that followed, the spotlight turned on the United States as other nations waited for an American move. Their view was the understandable one that since the United States had thrown the monetary system out of kilter, it was up to America to make the first move.

American officials finally revealed a plan whereby most other currencies would be revalued upward against the dollar; no mention at all was made of the United States devaluing its dollar by raising the official price of gold. This overture naturally struck America's trading partners as still one more affront. When the director of the IMF, Pierre-Paul Schmitzer, suggested that the United States might share in this realignment by a minor increase in the gold price, he was immediately moved onto the "most wanted" column of the Nixon administration's enemy list. But the Europeans were intransigent; the American plan made no headway.

The "Greatest Agreement"

Massive runs continued on the dollar, belying Nixon's August 15 claim that a dollar cut from gold would "never again be subject to international speculation." By mid-December—four months later—the dollar had declined by 12.5 percent against the mark, 12.3 percent against the yen, and had even lost ground to the lire and the pound, falling by 5.4 percent and 4.1 percent respectively. The world monetary situation not only continued in disarray, it seemed to be getting worse.

On December 18, 1971, the Smithsonian agreement was announced. For the first time in the post-war era, the dollar was devalued by raising the official gold price from \$35 to \$38 an ounce (8.6 percent). But gold convertibility was not restored, so the devaluation meant little.

Nixon's aim was to recreate an international order with fixed exchange rates—but without gold. He referred to this as “the greatest monetary agreement in the history of the world,” but it was clear that no system would break down faster than a system of fixed rates fixed to nothing, neither to gold nor to anything else.

Nixon's “greatest monetary agreement” was smashed on the shoals of economic reality barely 14 months later, because the dollar and pound sterling continued to be drastically overvalued in terms of the other industrialized nations' currencies and, most importantly, in terms of gold. The lack of confidence in the dollar sent gold prices soaring to \$90 an ounce, almost tripling the formerly sacred \$35 figure. There continued to be periodic flights from the dollar.

Finally, on January 24, 1973, the Swiss government stopped supporting the dollar. Other governments quickly followed: They had all had enough. One month later, the entire fixed-rate order collapsed. The actual story of how it happened would be a dreary repetition of the tales recounted about billions of unwanted dollars reluctantly bought; another frantic but fundamentally ineffective dollar devaluation in an unsuccessful attempt to restore tranquility and, ultimately, a closure of the world exchange markets. When those markets reopened, they did so without fixed rates. And the absence of fixed rates meant, logically, *de facto* floating rates. Floating rates had not really been adopted; rather, fixed rates had been abandoned.

Floating and Sinking

Since 1973 we haven't had the former condition of “public crises” where inflationist governments would be forced to spend millions in the foreign exchange markets defending their currencies until finally giving up and devaluing their currencies. For all its messiness, that system at least called people's attention to the fact that offending governments were in effect publicly confessing their sins. What we have had since is rather a quiet but constant withering away of values of those currencies, which are inflated more than others, and a large drop in the value of all currencies in terms of gold. While the dollar—and even the Swiss franc—is not today what it was in 1973, an ounce of gold remains an ounce of gold.

Even under the flawed Bretton Woods fixed rates, there were limits to how far governments could inflate. Granted, it took a quarter-century, but the United States eventually inflated to such a degree it lost too much gold.

The floating rate system has given, however, complete control of the value of each currency to the respective governments. They need not worry about gold flowing into other central banks. There are thus

no institutional limits to inflate, and it should come as no surprise that the past decade has seen a marked jump in average annual world inflation.

The only effect of internal inflation now is a drop in the currency exchange rate, a currency falling in value. But in each country there are special interests who desire just that. These include domestic businessmen who can't compete with the better-made or lower-cost products of other lands. If these inefficient firms' goods are priced in a currency becoming cheaper, consumers of stronger-currency countries can more easily buy those goods. But the reverse of this is that goods from those stronger currency countries, priced as they are in currencies rising in value, become more expensive for the consumers of the nation whose currency is falling. Their living standards thus fall as they are in effect forced to subsidize inefficient domestic producers. Also, gainers in a depreciating currency country are *all* export firms, inefficient or otherwise. They can exert powerful pressure in favor of international inflation.

But as one can guess, this system does not exactly promote international harmony. Temptations are great for the "competitive" devaluations which so upset world economic peace in the 1930s. As we enter the 1980s, unpleasant rumblings in favor of protectionism and high tariff barriers are being heard on a grand scale for the first time in half a century. The world economy is being pulled apart. It is no coincidence that world trade wars are threatened more now than at any time since the last regime of floating exchange rates, during the depression-ridden 1930s.

Islands of Calm in a Churning Sea

There have been attempts to operate localized fixed rate systems amidst the generalized floating. Foremost among these attempts have been the two efforts of that most cohesive and interdependent group of countries, the European Common Market.

Being linked by culture, geography, and the need for trade, they realize more than America does what havoc floating rates have wreaked, and it is a hopeful sign that these nations are more and more including gold in their dealings.

The first of these stabilizing attempts was the Common Market "snake," so-called because all the currencies moving up or down within predetermined limits called to mind the undulations of a moving snake. Begun in 1972, it was over by 1976 simply because several different governments, each with its own inflation rate, from the start moved away from each other, flinging accusations of bad faith at each other while they did.

Having more flexible limits, Western Europe tried again and in March 1979 inaugurated the European Monetary System (EMS). While the EMS enables countries to revalue more easily, each time a member does, it strains the very cohesion the system was meant to foster. It was nonetheless successful during its first two and a half years of operation. Traditionally strong currencies like the German mark weakened while perpetually weak ones like the French franc and Italian lira were strong.

There was therefore only one major realignment until October 1981. Since then, though, there have been two (the most recent on February 21, 1982) and signs point to European currencies falling back into their usual patterns. But while EMS is likely in for a hard time, in the background of this latest attempt at monetary union has been a gradual but clear remonetization of gold, the only stable unifying force among currencies.

Even before EMS's 1979 birth, both Italy and Portugal borrowed billions of dollars from other European nations and used as collateral part of their gold holdings. But in those cases in the mid-'70s, the gold was valued at around 20 percent below the prevailing free-market price.

With EMS's founding, things took a turn. In exchange for member gold deposits, nations received a new currency called the European Currency Unit (ECU). The hope is that one day ECU will be the European currency. This currency not only represents deposits in gold, but the gold is valued at the free-market rate. Further, under EMS rules, gold can act as a means of settlement between members. So gold now fulfills in the EMS two of three functions of money: It is both a reserve instrument and an instrument of payment. Gold only lacks the final prerequisite for money, a standard of value. This is so because current IMF rules (effective April 1, 1978) forbid all reference to gold in defining currency values. This has led to the absurd situation where currency A is defined in terms of B, C, and D; B in terms of A, C, and D, and so on. Each currency is thus defined in terms of others which themselves depend for definition upon it.

The market has not been fooled by any of this. It knows how to value currencies—in terms of gold. And that valuation has been since 1971 embarrassing for every currency. One-tenth of an ounce of gold will today buy as many dollars as one ounce did 10 years ago. The market has delivered its verdict on the battle between gold and the dollar waged throughout the 1970s by the American government; first the 1971 suspension of any remaining convertibility, and then two devaluations in rapid succession. At the Jamaica Conference of 1976, the IMF approved the U.S. wish to demonetize gold by abolishing the

official price and selling over 600 tons, one-sixth of all IMF holdings (returning another one-sixth to member nations). The U.S. Treasury itself announced in January 1978 that it would sell gold beginning that May. But all during the time of the sales (which totaled about 500 tons) gold's price rose. Finally realizing it was throwing away a precious resource, Treasury ceased its gold sales after November 1979. The Treasury thus implicitly backed up the enhanced roles which Europeans had given gold earlier that year.

Indeed, as pointed out by Yves Laulan, chief economist of Société Générale (one of France's largest banks), the U.S. Treasury, in an attempt to demonetize gold, authorized its sale to end circulation among individual Americans. Paradoxically, that act caused people to value it even more.

This subjective revaluation of gold has since spread to the Treasury, which now realizes that it holds far more gold reserves than any other country. Those who wish to reestablish American dominance in the world are not blind to the fact that gold is a powerful weapon. It is thus unlikely that Washington will wage last decade's war on gold again.

Conclusion

Our historical experience illustrates the overwhelmingly superior case for the gold standard as against any form of paper standard. There has never, in peacetime American history, been any sustained rate of inflation to match the inflation since 1941. The same, in fact, is true of wartime, which at least has never lasted more than a few years. And it is not an accident that the highest, most accelerated rate of inflation has taken place since 1971, when the United States went off the international aspects of the gold standard and went over completely to fiat paper.

The same conclusion is true if we consider price stability. Even deflation has been more acute under the fiat standard than under gold, as happened in the fiat standard war of 1873-79 as contrasted to the gold standard period from 1879-1896.

Bimetallism doesn't work either, as America learned painfully from a century's experience. Gresham's Law, driving out undervalued moneys, works there as it does whenever the government overvalues one money and undervalues another. The dollar must be defined once again as a fixed weight of gold, with coinage and paper dollars always redeemable one into another at that weight. Ideally, full-bodied silver would fluctuate freely alongside the gold dollar; short of that, fractional, subsidiary silver, as well as other metals such as copper, would circulate in minor capacity along with gold.

The dollar must be redefined as a unit of weight of gold again, and gold coins should be encouraged to actually circulate among the public, to be used not simply as long-range investment but as a medium of exchange functioning as money. As Mises' "regression theorem" showed in 1912, new currency units cannot be imposed *de novo* from above, by politicians or economists.¹⁷⁴ They must emerge out of the experience and the valuations of the public on the market. The public is now long used to the "dollar" as the money unit, and therefore the "gold gram" or "gold ounce" cannot be simply adopted by the public as a money out of the clear blue sky. The eventual adoption of a gold gram or gold ounce is basically a two-phase process: First, the "dollar," now of course the common currency unit, must be firmly and permanently tied to gold at a fixed weight; the public must become accustomed to this concept; and then finally, the currency unit can become that fixed weight directly.

What weight we choose to define the dollar is a matter of convenience, since any *initial* definition is arbitrary, and we can pick the most useful one. This is no more "fixing the price of gold" and violating the free market than defining that two nickels as equal to one dime "fixes the prices" of these two entities, or any more than defining that one pound as equal to 16 ounces "fixes the price" of ounces and pounds. What the definition should be depends on the preferred use and what the remainder of the monetary and banking system will look like.

Eventually, too, we must abolish the central government's monopoly of the minting business. Surely the idea that the sovereignty of the king must be expressed through stamping his face on a coin can now be discarded as a relic of a bygone age. There is no reason why private firms cannot mint coins as well, or better, than the national mint. Free competition should come, at long last, to the minting business. The cost would be far cheaper and the quality of the coins much improved.

From our historical analysis, it becomes clear that the problems of money and the business cycle under the gold standard, of inflation and contraction in the 1818-36 era, of World War I inflation, of the boom of the 1920s and the disasters of the Great Depression of 1929-33, stemmed not from the gold standard but from the inflationary fractional-reserve banking system within it. This inflationary banking system was made possible by the government's imposition of a central bank: the Federal Reserve, the Bank of the United States, or by the quasi-centralized system of the national banking era after

¹⁷⁴ See Ludwig Mises, *The Theory of Money and Credit* (Irvington-on-Hudson, New York: The Foundation for Economic Education, 1971).

the Civil War. These booms and busts would not have occurred under “free banking,” i.e., the system in which banks are decentralized, able to issue either notes or deposits, cannot be bailed out by a lender of last resort, and are forced to close their doors permanently if they fail to redeem their liabilities in specie. The quasi-free banking period from the 1830s to the Civil War was far sounder and more stable than any period before or since in American history—as historians are now coming to recognize. It would have been far better but for the periodic suspensions of specie payment that governments continued to permit. The legalization of branch banking would have made it far easier to call upon banks for redemption.

Once again, it was the intervention of government that caused the difficulty, not the market. *Laissez faire* has not been consistently applied to banking. The historical evidence shows that monetary freedom does not fail, intervention by the government does.

ATTACHMENT TO
REP. KEVIN BRADY'S (TX) TESTIMONY

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Monetary policy and the Federal Reserve are often perceived to be shrouded in mystery or incomprehensible to all but central bankers. This three-part monetary history series attempts to remove that veil of mystery by offering an historical vantage point that sheds light upon and makes monetary policy more comprehensible.

Central Banks: Definition & Constitutional Foundation

Central banks are chartered by national governments to have a legal monopoly over a nation's currency and bank reserves. To manage a nation's money supply, they use monetary policy tools, such as open market operations (e.g., buying/selling gold, silver, government debt securities, etc.); setting reserve requirements (i.e., deposits of currency, gold or silver that must be held at the central bank) for commercial banks and financial institutions; and acting as lender of last resort for solvent but illiquid commercial banks and financial institutions during a financial crisis. Central banks also supervise commercial banks and financial institutions.

The United States Constitution provides the legal foundation for a central bank in Article I, Section 8, Clauses 5 and 6, which give Congress the power “to coin money [and] regulate the value thereof,” and Clause 18 to make laws “necessary and proper for carrying [out] the foregoing powers.” America's first central bank was established in 1791 by the 1st Congress.

First Bank of the United States

Secretary of the Treasury Alexander Hamilton issued his “Report on a National Bank” on December 14, 1790, and in 1791—based on his report—Congress chartered the **First Bank of the United States** (1791-1811).

Congressional debate over the First Bank foreshadowed the cataclysmic event to envelope the nation 70 years later with a general north-south divide and fierce exchanges over the role of federal and state governments. Echoes of the early opposition to the First Bank have run throughout our nation's history, even down to some of the populist arguments of the present day. Nevertheless, America's need for a central bank was acute, as the country had to manage the

significant Revolutionary War debt incurred by the states; and the country needed a stable currency to facilitate commerce and trade within the fledgling United States and with countries abroad.

Yet, as economist Richard Timberlake argues, the First Bank was not meant to be a modern central bank. Rather, the bank Hamilton envisioned would be a public bank to help the federal government secure loans, “aid in the sales of public lands ... and eventually provide a uniform paper currency.”¹⁷⁵

After supporters of the First Bank won the debate, the next major development in U.S. monetary policy was Congress’s adoption of the **Coinage Act of 1792**, which placed the United States on a “**bimetallic standard**” of gold and silver (see Appendix for a discussion of the gold standard, the silver standard, and bimetallic standard and how they operated). Confusing as such a bimetallic standard may be in the 21st century, it made sense in the late 18th century when the United Kingdom—the world’s dominant economic power—operated on a gold standard, while France—America’s Revolutionary War ally—operated on a silver standard.

The Coinage Act fixed the mint prices of gold and silver at a ratio of 15:1 (i.e., \$19.39 per troy ounce for gold, \$1.29 for silver) so that, relative to their prevailing market values, gold was slightly overvalued and silver was slightly undervalued. These mint prices encouraged the importation of gold for coinage and accumulation of gold reserves at the First Bank. Beyond the political considerations of Hamilton (favoring relations with Britain) and Thomas Jefferson (favoring relations with France), the accumulation of gold was important since foreign creditors required payment of interest and principal of U.S. government debt in gold.

Hamilton’s economic policies had the effect of transforming the U.S. government debt from a liability into a highly valued asset in domestic and foreign financial markets. Thus, Hamilton created a powerful financial tool for the U.S. government to finance its national defense and meet other needs.

During its 20 years of operation, the First Bank was a hybrid central-commercial bank, modeled on the Bank of England. It was a public-private partnership, in which private investors owned 80% of its stock while the federal government owned the rest, with the Treasury conducting regular examinations of the Bank for safety and soundness. In addition to issuing a uniform currency in the form of First Bank notes (bank notes are paper currency), the First Bank served as the depository and fiscal agent of the federal government;

¹⁷⁵ Timberlake, Richard H., *Monetary Policy in the United States: An Intellectual and Institutional History*, The University of Chicago Press, Chicago, 1993, p.5.

supported the credit of the federal government; and regulated state-chartered banks through the First Bank's acceptance of state bank notes or demanding their redemption in specie (i.e., gold or silver coins and bullion). Consequently, as noted by Timberlake, the First Bank began to exercise modern central-banking functions:

through its currency transactions with other banks. If it felt that credit restraint was called for, it presented the notes of other banks for redemption in specie. If it felt that credit ease was in order, it expanded its own credit availability to businesses and to other banks and generally treated the notes of other banks with 'forbearance.'¹⁷⁶

Although the First Bank was careful not to exert too heavy a hand and generally received favorable reviews for fulfilling its purpose, congressional critics in Jefferson's party continued to question the Bank's constitutionality. They would have their hour when the Bank came up for renewal at the end of its 20-year charter.

Storm Clouds Gather Over the First Bank

When the First Bank's charter came up for renewal in 1811, one of the Bank's harshest 1791 congressional critics and opponents, James Madison, had become president. Yet, the dynamics had changed in the intervening 20 years as Madison's concerns had been allayed through witnessing the value and necessity of the Bank.

However, politics being what they were, Madison was afraid of being seen as ideologically inconsistent (i.e., "flip-flopping" on the Bank question), and he wanted to show deference to his mentor, President Jefferson, who opposed the First Bank. So, Madison did not publicly declare support for renewing the First Bank's charter, though he directed Secretary of the Treasury Albert Gallatin to seek renewal of the First Bank's charter from Congress.

The House of Representatives renewed the charter, but the Senate failed to pass it due to a combination of constitutional questions and fears and allegations that British stockholders were dominating the Bank. How the Bank was defeated in the Senate was especially ironic as Madison's Vice President, George Clinton—who had been elected after the 12th Amendment to the Constitution, which aimed to ensure the President and Vice President would not be ideological opponents—cast the tie-breaking vote against his own administration's bill to renew the Bank. So, with the bill's defeat, the United States was left without a central bank, while on the brink of war.

¹⁷⁶ Ibid., p.10

War of 1812 & Life Without a Central Bank

The Madison administration's failure to renew the First Bank's charter proved consequential in the **interregnum period** (1811-1816) when the United States did not have a central bank. Notably, Madison had an especially difficult time financing the War of 1812; Secretary of the Treasury Gallatin could raise only \$38 million out of an authorization for \$61 million in bonds. Furthermore, in this period, the number of state banks grew from 86 to 246, and total bank notes grew from \$28 million to \$68 million, resulting in a cumulative 34% increase in prices. Had the First Bank continued to operate, many of these difficulties could have been avoided.

Second Bank of the United States

Out of the interregnum experience arose the **Second Bank of the United States** (1816-1836). Speaker of the House Henry Clay worked with the Madison administration to charter the Second Bank on the same basis as the First Bank. However, Madison pressed the Board of Directors of the Second Bank to name as its president his Secretary of the Navy, William Jones. This decision proved disastrous. Through both corruption and incompetence, the Second Bank came close to failing as Jones augmented, rather than restrained, a speculative bubble in western lands. In 1819, Jones was forced to resign, and the board chose former House Speaker Langdon Cheves to replace him as the Second Bank's President.

Meanwhile, the Treasury—now under the leadership of Secretary William Crawford—acted like a central bank, while the Second Bank “proved to be nothing more than a convenient buffer for the unpalatable but ‘necessary’ policies of the Treasury Department” to contract the money supply and bring inflation under control. Under Cheves, total bank notes were reduced to \$45 million by 1819. This saved the Second Bank but at the price of much economic pain including: the financial **Panic of 1819** and resulting recession (the first presidential-induced recession); a 27% decline in prices through 1824; and a growing populist sentiment against the Second Bank. Notably, the Second Bank—rather than President James Monroe's administration, which was really the guilty party in the fiasco—drew the ire of presidential aspirant, General Andrew Jackson.

In 1822, Nicholas Biddle succeeded Cheves as president of the Second Bank. Biddle, who proved especially competent, returned the Second Bank to the First Bank's central banking function of regulating the state banks through its acceptance of state bank notes or its demand for their redemption in species. Under Biddle's

leadership, this central banking function was used to stabilize the U.S. economy and prevent financial panics.

Again though, the storm clouds gathered over the Bank with the 1828 election of President Andrew Jackson. In 1832, Jackson vetoed Sen. Henry Clay's bill to renew the Second Bank's charter. Nonetheless, there was dissent even within Jackson's cabinet over the issue of the Second Bank. Jackson fired two Secretaries of the Treasury, who refused to remove government deposits from Second Bank (the Bank's charter, which ran to 1836, had not yet expired) and place them in Jackson-favored state banks. Finally, in 1833 Jackson's acting Secretary of the Treasury Roger B. Taney complied with the demand, and there is speculation that Taney's reward for this action was a subsequent appointment as Chief Justice of the United States.¹⁷⁷

Bad Monetary Policy & Economic Collapse

Through the **Coinage Act of 1834**, Jackson devalued the U.S. dollar by 6.6% to \$20.67 per troy ounce in terms of gold, but not in terms of silver, thus increasing the gold-to-silver mint price ratio from 15:1 to 16:1, which by slightly overvaluing gold and undervaluing silver relative to prevailing market prices again caused an inflow of gold. This led to a 42% increase of bank deposits and a 36% increase in prices from 1834 to 1836.

Distribution of the Surplus and **Specie Circular** were disastrous policies. The populist reaction against the Second Bank and the ensuing policies caused a 36% drop in the money supply in 1836-37. One such policy came from Jackson signing an 1836 bill that distributed the federal surplus of \$28 million to the states. To pay the states, the Treasury withdrew \$28 million in federal deposits from Jackson-favored state banks in specie. This triggered an immediate contraction in loans and bank notes from the banks that lost their deposits. Of these funds, states deposited \$23 million into other state banks and retained \$5 million in specie. This conversion into specie reduced the aggregate reserves available to support loans and bank notes nationwide. Moreover, banks that eventually received deposits from the states took time to expand their loans and bank notes. (In the 1800's, there were no wire transfers. Rather, specie and notes had to be transferred by wagons, often over uncertain roads.) Finally, Jackson's 1836 Specie Circular, which required payment in gold or silver for the purchase of federal lands,

¹⁷⁷ For background on Taney's appointments, see Abraham, Henry J., *Justices, Presidents, and Senators: A History of the U.S. Supreme Court Appointments from Washington to Clinton*, Rowman & Littlefield Publishers, Inc., New York, 1999, pp. 74-76.

increased the demand for gold and silver coins, compounding the contractionary effects of the distribution of the surplus.

Thus, Jackson left office as the U.S. began to suffer from the **Panic of 1837** and the ensuing depression. This policy-induced depression was the second longest and second deepest depression in U.S. history, only superseded by the Great Depression of the 1930's, and as Milton Friedman noted, the great depression stemming from the Panic of 1837, "is the only depression on record comparable in severity and scope to the Great Depression of the 1930's."¹⁷⁸

Bad policies continued to prevail, including the "Independent Treasury," under which President Martin Van Buren consolidated federal deposits from state banks at the Treasury. Ultimately, the U.S. economy did not recover from the Jackson-induced depression until 1843—two years after the defeat of Jackson successor and one-term President Van Buren.

Central Banking from the Treasury

Though the Whig party won the control of both Congress and the presidency in 1840 on a platform that included a pledge to create a Third Bank of the United States, President John Tyler, who succeeded William Henry Harrison after his brief tenure, vetoed a bill to charter a Third Bank in 1841. Consequently, the Treasury assumed a limited central-banking role in the years preceding the Civil War. Tariff revenues were highly elastic, while federal outlays were relatively constant. This allowed the Treasury to act as an 'automatic stabilizer'—issuing U.S. government debt securities (i.e., Treasuries) when tariff revenue was low and redeeming them when revenue was high.

Currency Problems & Technology Preceding the Civil War

Generally, from 1836—when the Second Bank ceased its interstate operations—until the Civil War, the United States did not have a national currency. Historians have called this the **free banking era** (even though the United States never actually had free banking as defined by economists). With many states liberalizing their laws about chartering banks, the quality of supervision and regulation varied widely, creating many problems. Some states, especially in the south and west, suffered from numerous wildcat banks that opened with insufficient capital. The wildcat banks would make loans and issue bank notes, only to fail in a matter of months. As a result, bank notes did not trade at par (face) value with each

¹⁷⁸ Friedman, Milton, *A Program for Monetary Stability*, Fordham University Press, New York, 1959, p.10.

other. Instead, the value of notes from different banks fluctuated daily (much as national currencies do today in foreign exchange markets).

In this environment, economic development suffered from the bad monetary policy of the period. The fluctuating value of state bank notes and losses on notes from failed wildcat banks were costly, taking a toll on the growth of interstate commerce. Yet, technological advances like the steamboat, railroad, and telegraph were forging a single national economy out of the previously separate local economies, highlighting the need for a single national currency—even absent a central bank.

With this as background, one of the sub-issues of the 1860 campaign was the question of a national currency. The newly formed Republican Party, in the tradition of the Federalist and Whig Parties, favored the creation of a single national currency to replace state bank notes, while the Democrat Party supported the status quo. Regardless, changes would be afoot as the nation was driven into its most devastating war, again, absent a central bank.

APPENDIX: DISCUSSION OF STANDARDS

Gold Standard

Classical gold standard: There are two versions of a classical gold standard—**gold coin standard** and **gold bullion standard**. Under a gold coin standard, a country defines its unit of account in terms of a fixed weight of gold (i.e., mint price). The mint will freely coin gold at the mint price, gold coins are in circulation, and the central bank (or commercial banks in the absence of a central bank) will freely convert bank notes into gold coins at the mint price. Under a gold bullion standard, a country defines its unit of account in terms of a fixed weight of gold (i.e., par value). However, the mint will not freely coin gold and gold coins are not in wide circulation. Instead, the central bank will freely buy or sell gold in large quantities, known as bullion, at par value. Exchange rates among the currencies of all countries operating under a classical gold standard are effectively fixed. A classical gold standard is largely self-regulating through domestic and international gold flows.

The profitability of the gold mining industry—which is affected by the size and frequency of new gold finds, mining and processing costs, and technological progress—effectively determines the monetary base and the price level in all countries operating under a classical gold standard. Therefore, a classical gold standard may not provide long-term price stability. Indeed, decade-long periods of both

price inflation and price deflation occurred under the classical gold standard.

Gold exchange standard: Under a gold exchange standard, a country defines its unit of account in terms of another country's currency (i.e. anchor currency) that is freely convertible into gold at par value. The central bank will freely exchange its bank notes for the anchor currency at the fixed exchange rate.

Like a classical gold standard, the exchange rates among countries operating under a gold exchange standard are fixed to the anchor currency and to each other. Unlike a classical gold standard, however, a gold exchange standard is not self-regulating. It is dependent on the behavior of the central bank in the anchor country.

Silver Standard

A silver standard is similar to a gold standard except silver is the metal used.

Bimetallic Gold and Silver Standard

Under a bimetallic gold and silver coin standard, a country defines its unit of account in terms of a fixed weight of gold and a fixed weight of silver, known as mint prices. The mint will freely coin both gold and silver at their respective mint prices. In theory, both gold and silver coin should be in circulation, and the central bank (or commercial banks in the absence of a central bank) will freely convert bank notes into either gold or silver coins at their respective mint prices. In practice, however, a bimetallic standard is actually an **alternative metallic standard**. When one monetary metal becomes “dearer” (i.e., its market price rises relative to its mint price), coins in the “dearer” monetary metal will go out of circulation, and individuals and firms will drain the dearer monetary metal out of the central bank by exchanging bank notes for coins or bullion in the “dearer” monetary metal. The “cheaper” monetary metal, whose market price falls relative to its mint price, will effectively become the sole monetary metal. This process will reverse as market prices of gold and silver fluctuate relative to their respective mint prices.¹⁷⁹

¹⁷⁹ For reference and further reading, see, Timberlake, Richard H., *Monetary Policy in the United States: An Intellectual and Institutional History*, The University of Chicago Press, Chicago, 1993.

JOINT ECONOMIC COMMITTEE
REPUBLICAN STAFF COMMENTARY
“UNITED STATES MONETARY HISTORY IN BRIEF
PART 2: EXPERIENCE WITHOUT A CENTRAL BANK—
CIVIL WAR TO CREATION OF THE FED”

Monetary policy and the Federal Reserve are often perceived to be shrouded in mystery or incomprehensible to all but central bankers. This three-part monetary history series attempts to remove that veil of mystery by offering an historical vantage point that sheds light upon and makes monetary policy more comprehensible.

Setting the Stage

Part 1 of this series covered the founding of a central bank in the United States by the 1st Congress in 1791; the rise and fall of the First and Second Banks of the United States; and life in America with and without a central bank from 1791-1860. Generally, America’s economy prospered with an independent central bank, managed by competent individuals, and America’s economy did not fare as well absent a central bank or when a central bank endured interference from politicians. The period closed without a central bank—except for the Treasury taking on some central banking functions. Meanwhile, advances in technology were forging a single national economy as the nation headed into the Civil War.

Civil War: From a Gold & Silver Standard to a Fiat Currency

In 1860, the U.S. money supply consisted of \$500 million in both currency and bank deposits. With the opening of Civil War, the public began to hoard gold in anticipation of inflation, and by the war’s end four years later, prices—including that of gold—had doubled.

To combat the hoarding and help finance the Civil War, in December 1861, President Abraham Lincoln suspended the redemption of bank notes for gold or silver at their mint prices, \$20.67 and \$1.29 per troy ounce, respectively. Thus, Americans could no longer demand gold or silver from banks in exchange for dollars, and the effect was to move the U.S. from a bimetallic gold and silver standard to a **fiat currency**. *Fiat money derives its value from government declaration rather than from the value of a metal such as gold.*

The supply of money was then increased in February 1862 by the 37th Congress through the **Legal Tender Act**. This law authorized the issuance of \$150 million in U.S. notes—known as “greenbacks”—and the circulation of these greenbacks was increased to \$400 million

by war's end. Also, Congress authorized the issuance of 3% Treasury notes, which were like savings bonds but could be used as either currency or bank reserves.

Next, the Congress passed the **National Bank Act of 1863** (with significant amendments in 1864 and 1865), which established the Office of the Comptroller of the Currency to charter, supervise, and regulate national banks. National banks could issue up to \$300 million of national bank notes, but unlike pre-war state bank notes, national bank notes traded at par with each other and U.S. notes, thus restoring a national currency.

National bank notes were fully collateralized by U.S. government debt securities (i.e., Treasuries). In other words the notes were fully backed, which increased their demand because the public was protected from losses on notes when a national bank failed. Further, the National Bank Act instituted a punitive 10% tax on state bank notes, which was intended to drive state banks out of business. Nevertheless, state banks survived because of the rapid growth of checkable deposits after the Civil War.

Resumption of the Gold Standard

The U.S. faced difficult challenges following the Civil War, including whether and how to resume the gold standard so that Americans could freely convert dollars to gold. As European countries that had been on either a silver standard or a bimetallic standard were switching to a gold standard during this period, U.S. policymakers did not consider returning to the pre-war bimetallic standard. Four monetary policy options were considered: (1) Contract the money stock, causing a rapid price deflation, reducing the market price of gold to the pre-war mint price of \$20.67 per troy ounce; (2) Freeze the money stock, which (combined with real GDP growth) would cause a gradual price deflation, reducing the market price of gold to the pre-war mint price; (3) Devalue the U.S. dollar by raising the mint price of gold to its market price with convertibility at the new parity; and (4) Abandon the gold standard and have a fiat currency.

During Reconstruction, a combination of the first and second monetary policy options were implemented. From 1865 to 1868, Secretary of the Treasury Hugh McCulloch used federal budget surpluses to retire about \$250 million in greenbacks and 3% T-notes, causing prices to decline by 20%. Then, Congress froze the supply of greenbacks at \$356 million in 1868, though the Civil War era legislation had authorized up to \$400 million, creating a reserve of \$44 million at the Treasury.

President Ulysses S. Grant signed an act into law on July 12, 1870, which increased national bank notes by \$54 million and decreased 3% T-notes by \$45 million with most of the new national bank notes allocated to banks in southern and western states. Yet prices did not fall much and movement toward resumption of the gold standard was minimal during Grant's first term. So, early in his second term, Grant signed the **Coinage Act of 1873**, which demonetized silver and replaced the bimetallic standard with a de facto gold standard.

To those who wanted silver in circulation, this Coinage Act was referred to as the "Crime of 73"—especially following new silver finds in Colorado, which greatly increased the supply of silver and depressed its price. Moreover, gold production slowed beginning in mid-1870's and did not increase until mid-1890's, while real GDP growth boomed in the U.S. and many other countries. Over the next two decades, this combination produced persistent global price deflation and inflamed political disputes about U.S. monetary policy.

Panic of 1873 & the Form-Seasonal Elasticity Problem

During the second half of 19th century, a troubling new policy-induced phenomenon became commonplace—seasonal financial panics. Such was the case with the **Panic of 1873**.

Though technological advances before and during the Civil War helped to forge a single national economy, how individuals operated within the economy varied greatly. For instance, most businesses and urban households used checks to make payments, whereas most farmers and rural households still used cash. As these preferences collided in the national banking system, completely avoidable crises would beset the U.S. economy.

The **form-seasonal elasticity problem** would begin late in the summer as cash would flow out of banks to pay farmers for crops, and then the cash would flow back into banks as farmers paid their bills. Ideally, a monetary system should be sufficiently flexible to allow for seasonal conversions from deposits to cash and back without affecting money supply, prices, or interest rates. However, two principal rigidities in the national banking system of this period limited the form-seasonal elasticity of the U.S. money supply:

- (1) There were federally-established limits on the issuance of U.S. and national bank notes, even though there was rapid population and real GDP growth; and
- (2) Treasuries, which were used as collateral for issuing national bank notes, were in short supply because of the federal budget surpluses of this period, forcing national banks to pay

large premiums to secure Treasuries in the fall.

When cash flowed out the banking system each fall, national banks could not easily expand the supply of national bank notes. To meet the demand for cash, national banks had to build large reserves in the winter and spring. If these reserves proved insufficient, national banks would demand immediate repayment on many of their outstanding loans to generate cash. The ensuing impact on the economy could be devastating. Frequently during the fall, short-term interest rates spiked from less than 2% to more than 30% annualized rates; and asset fire-sales to generate cash resulted in depressed asset prices. Consequently, the U.S. economy was extremely vulnerable to shocks during the months of September and October. This is why panics during this era, such as the Panic of 1873, usually occurred in the fall.

Fallout from the Panic of 1873

The form-seasonal elasticity induced panic of 1873 had national consequences. Treasury receipts dipped below federal outlays in November and December and the Secretary of the Treasury—taking on the role of a central banker—was forced to reissue \$26 million of the \$44 million greenbacks in reserve. The political uproar and populist accusations stemming from this action—the Treasury serving as lender of last resort—flowed freely and in some ways are still echoed in the early 21st century (i.e., Washington favors New York). The resulting political and economic climate for the 1874 election swung control of Congress to the Democrats for the first time since the Civil War.

Populist outcry over the Panic of 1873 remained acute, but it was more targeted at the panic's effects rather than its cause. As a result of the 1874 elections, the outgoing Republican-controlled Congress passed the Specie Payment Resumption Act in January 1875 that required the Treasury to resume the convertibility of dollars to gold at the pre-war mint price of \$20.67 per troy ounce by January 1, 1879.

Free Silver Controversy

Between 1873 and 1896, the United States and major European countries experienced rapid GDP growth while there were no new major find of gold. As a result, long-term price deflation occurred. Consequently, in the U.S., farmers—particularly in the south and west—suffered as the real debt burden of the mortgages on their farmland grew.

So, in opposition to resumption of the gold standard, the free-silver/cheap-money movement emerged. Rep. Richard “Silver Dick” Bland (D-MO) and Democratic presidential nominee William Jennings Bryan became champions of “free silver.” In response, a divided Congress (a Republican-controlled Senate and a Democratic-controlled House) enacted the **Bland-Allison Act** in 1878 after overriding the veto of President Rutherford B. Hayes. This Act was a compromise that required the Treasury to purchase between \$2 million to \$4 million per month of silver and mint it into silver dollars. However, Treasury had discretion about circulating these silver dollars since the federal government was running surpluses. Secretary of the Treasury John Sherman did not circulate the silver dollars, and gradual price deflation continued. Furthermore, through the Bland-Allison Act, Congress froze U.S. notes (greenbacks) at \$346.7 million, which though it prevented a legally mandated reduction of the cap, still maintained a cap, which was again one of the causes of the form-seasonal elasticity problem. Under Sherman, Treasury accumulated gold reserves of \$135 million to back the greenbacks, and resumption at the pre-war mint price of \$20.67 per troy ounce occurred without incident on January 1, 1879.

Nonetheless, free silver advocates were dissatisfied with the implementation of the Bland-Allison Act. In the Republican-controlled 51st Congress, Rep. William McKinley (R-OH) and Sen. John Sherman (R-OH) engineered a legislative compromise between different factions of Republicans. In exchange for the support of pro-silver Republicans from western states for the **McKinley Tariff Act**, Republicans from the northeastern and midwestern states agreed to support the **Sherman Silver Purchase Act**. President Benjamin Harrison signed the Sherman Silver Purchase Act into law on July 14, 1890. This act required the Treasury to purchase an additional 4.5 million ounces of silver bullion every month with a special issue of U.S. notes that could be redeemed for either silver or gold. However, the plan backfired as people turned in the new notes for gold, thus depleting the Treasury's gold reserves. Simultaneously the McKinley tariff increased the average tariff rate to 48%, reducing gold payments to the Treasury.

Panic of 1893

In his second non-consecutive term, President Grover Cleveland presided over the **Panic of 1893** and the subsequent depression—the third worst in U.S. history—which lasted until 1897. The gold drain from the Treasury following the Sherman Silver Purchase Act and the form-seasonal elasticity problem were the primary causes of this panic, though

there were other non-monetary dynamics at work. Among the other things, Cleveland blamed the depression on high tariffs and the Sherman Silver Purchase Act. The Democratic-controlled 53rd Congress repealed the Sherman Silver Purchase Act in 1893 and then enacted the **Gorman-Wilson Tariff Act** in 1894, which reduced tariff rates and imposed a 2% federal income tax on income over \$4,000. However, this income tax was ruled unconstitutional in the 1895 Supreme Court Case **Pollock v. Farmers' Loan & Trust Company**.

The Gold Standard

During the second half of the 1890's, global gold production doubled after major finds of gold ore in South Africa and Alaska, and the invention of new processing technology that increased the yield of pure gold from gold ore. The rapid increase in global gold supply relative to global GDP growth led to mild global price inflation through 1913. In 1900, President William McKinley signed the Currency Act—the Gold Standard Act—that made the gold standard, which had been the de facto standard, the official standard for the United States, marking the high water mark for the classical gold standard.

Combatting the Seasonal Panics

At the dawn of the 20th century, despite three decades of policy-induced economic panics, the root cause of the form-seasonal elasticity problem had still not been addressed. Not until President Theodore Roosevelt appointed Leslie Shaw to serve as Secretary of the Treasury were the first real strides made toward addressing the problem. Shaw was a skilled banker who, as Secretary, engaged in central banking to counter the form-seasonal elasticity problem through: (1) seasonal transfers of federal deposits between the Treasury and national banks; (2) acceptance of other bonds for collateral for federal deposits, freeing Treasuries to collateralize national bank notes; (3) abolishing reserve requirements for federal deposits; and (4) allowing gold importers to use gold interest-free from its purchase abroad until it was delivered to the Treasury. While Shaw served as Secretary from the spring of 1902 to the spring of 1907, the United States was spared from the seasonal panics.

Panic of 1907

Still, something more permanent was necessary than mere reliance on the skills of a talented Secretary of the Treasury like Shaw. This again became apparent in the fall of 1907 when Shaw's successor at the Treasury, George Cortelyou—despite trying to follow

Shaw's policies—was unable to finesse the situation like Shaw, resulting in yet another panic.

During the **Panic of 1907**, Roosevelt worked with banker J.P. Morgan to secure lines of credit from foreign banks and organize national banks to make loans to other solvent, but illiquid banks. Roosevelt sent Cortelyou to Wall Street, depositing \$68 million in national banks in New York City and issuing \$50 million of Panama bonds and \$100 million of Treasuries to provide additional collateral for national bank notes. In essence, Roosevelt asked Morgan to perform the lender-of-last-resort function of a central bank on an ad hoc basis, while Cortelyou supplied additional liquidity.

In response to the Panic of 1907, the following year, the Republican-controlled 60th Congress passed the **Aldrich-Vreeland Act**, which established a **National Monetary Commission**. In 1910, the Commission recommended: (1) Creating the **National Reserve Association** (NRA)—a central bank that would hold the reserves of all commercial banks; (2) Using the NRA's discount rate to regulate the money supply in the context of the gold standard (the discount rate is the interest rate that a central bank charges for fully collateralized loans to commercial banks); (3) Making the NRA the monopoly issuer of bank notes; and (4) Adhering to 'Bagehot principles' related to being a lender of last resort.

Walter Bagehot was an English businessman and editor-in-chief of *The Economist*. In 1873, he published *Lombard Street*, which outlined the principles for lender-of-last-resort operations during financial crises. Central bankers and economists still hold Bagehot's principles in high regard today. In a financial crisis, Bagehot advised, the Bank of England should lend freely to solvent, but illiquid commercial banks and other financial institutions based on collateral that would be good in normal times at a penalty rate of interest.¹⁸⁰

Creation of the Federal Reserve

President Woodrow Wilson, elected in 1912, generally agreed with the recommendations of the National Monetary Commission to create a central bank, though with changes to increase federal oversight.

However, Wilson's support for a central bank faced strong opposition, even from within his own cabinet. In particular, Wilson was presented with a challenging dilemma when his Secretary of State, William Jennings Bryan, threatened to walk out on him and

¹⁸⁰ For further discussion of Bagehot principles, see Joint Economic Committee Report, *An International Lender of Last Resort, the IMF and the Federal Reserve*, 1999.

Available at <http://www.house.gov/jec/imf/lolr.pdf>

lead congressional opposition to the central bank. By acquiescing to Bryan, Wilson would have lost support for reform from bankers and business leaders; by pushing forward in opposition to Bryan, Wilson would have risked a divide within the Democratic Party and a loss of his entire domestic agenda.

Wilson's solution was to work with Rep. Carter Glass (D-VA) and Sen. Robert Owen (D-OK) to find a middle way—the **Federal Reserve Act**—which was enacted in 1913. This act created a Federal Reserve System with:

- (1) A monetary policy mandate to provide an “elastic currency” within the context of a gold standard to combat the form-seasonal elasticity problem;
- (2) 12 regional Federal Reserve Banks, each headed by a Governor;
- (3) A Federal Reserve Board of Directors based in Washington, DC and composed of the Secretary of the Treasury, the Comptroller of the Currency and five other members to supervise the Reserve Banks;
- (4) A requirement that all national banks join the Federal Reserve System by purchasing stock in their respective regional Reserve Bank and an option for state-chartered banks to join; and
- (5) Federal Reserve notes—to replace U.S. and national bank notes—which would be U.S. government obligations.¹⁸¹

The Federal Reserve Act was thus crafted with multiple contradictory provisions, which allowed both advocates and opponents of the central bank to claim victory. On one hand, Bryan Democrats correctly claimed that Board would assure the federal government, not private bankers, would determine monetary policy. However, Bryan Democrats incorrectly assured their constituents that the Federal Reserve was not a central bank because each regional Reserve Bank would conduct an independent monetary policy. On the other hand, northeastern Democrats and Republicans correctly asserted that the Federal Reserve Act had created a central bank. Yet, because of nominal private ownership of the stock in the regional Reserve Banks, northeastern Democrats and Republicans incorrectly assured their constituents that private bankers, not the federal government, would determine monetary policy.

¹⁸¹ In 1913, the Federal Reserve was required to hold gold equal to 40% of the outstanding currency, and 35% of commercial bank reserves.

These contradictory provisions would later ignite a destructive power struggle within the Federal Reserve in 1928, at the front-end of the Great Depression. Further complicating the birth of the Federal Reserve, World War I began before the central bank became operational in 1915, thus requiring Treasury Secretary William McAdoo to once again intervene to prevent a panic in the fall of 1914 by issuing \$363 million in currency under the provisions of the Aldrich-Vreeland Act.

Life in America without a central bank was at an end. The age of seasonal panics—and the recessions and depressions stemming from them—was past. In the coming decades, the country would experience the best and the worst of central banking with the Federal Reserve gradually growing from these experiences into the modern central bank of the 21st century.¹⁸²

¹⁸² For reference and further reading, see, Timberlake, Richard H., *Monetary Policy in the United States: An Intellectual and Institutional History*, The University of Chicago Press, Chicago, 1993.

JOINT ECONOMIC COMMITTEE
REPUBLICAN STAFF COMMENTARY
“UNITED STATES MONETARY HISTORY IN BRIEF
PART 3: THE FEDERAL RESERVE—
A CENTRAL BANK’S GROWTH THROUGH TRIAL & ERROR”

Monetary policy and the Federal Reserve are often perceived to be shrouded in mystery or incomprehensible to all but central bankers. This three-part monetary history series attempts to remove that veil of mystery by offering an historical vantage point that sheds light upon and makes monetary policy more comprehensible.

Setting the Stage

Part 1 (1791-1860) and Part 2 (1861-1914) of this 3-part series explored the monetary and economic history of the United States. The U.S. did not have a central bank from 1836 to the creation of the Federal Reserve in 1913, and in the absence of a bank, the nation suffered from frequent seasonal financial panics, recessions and depressions. The Panic of 1907, in which New York banker JP Morgan acted as a lender of last resort and the Treasury provided additional liquidity, finally spurred the Congress toward enactment of the Federal Reserve Act of 1913, which reinstated a central bank in the United States.

The Federal Reserve Opens Its Doors

With the creation of the Federal Reserve, the seasonal panics that had dominated the American economy since the 1870’s ceased as the Fed effectively used the tools of monetary policy to provide greater elasticity to the U.S. money supply. Meanwhile, the Great War—World War I—raged as the Federal Reserve officially opened its doors for operations.

The now debunked real bills doctrine, which originated with Adam Smith, guided the Federal Reserve during World War I. The essence of the real bills doctrine held that short-term bank loans extended to businesses, based upon anticipated profitability of sales of goods produced, were not inflationary, while other loans were. So, as might be expected, the real bills doctrine tended to be pro-cyclical monetary policy: When the economy was doing well and sales of goods were expected to be strong, the central bank would loosen monetary policy—though lending restraint was in order; conversely, when the economy was doing poorly and sales were expected to lag, the central bank tightened monetary policy—though more liquidity was in order.

As the early Fed was guided by the real bills doctrine, loans were expanded to member banks during the war-related boom, and prices soared by 119% between 1913 and 1919. Learning from this experience the Fed's Board of Directors began to move away from the real bills doctrine, though the doctrine still held sway with the regional Federal Reserve Banks, other than the district of New York.

The U.S. and International Affairs After the Great War

World War I transformed the world, but perhaps because of the same isolationist tendencies that delayed U.S. entrance into the war, the United States failed to accept its new economic responsibilities as the world's emerging economic superpower.

Examples of the change in America's status abound. The nation's international position had gone from being a net debtor of \$2.2 billion (6.4% of GDP) with the rest of the world in 1914 to being a net creditor of \$6.4 billion (8.4% of GDP). The publicly held federal debt rose from \$1.118 billion (3.3% of GDP) in June 1914 to \$24.485 billion (34.9% of GDP) in June 1919. New York had effectively displaced London as the center of international finance, and the Federal Reserve had replaced the Bank of England as the global guardian of the gold standard.

Meanwhile, as the international economic system deteriorated, the U.S. government refused to forgive its allies their war debts, stemming from \$10.4 billion in U.S. loans during the war.¹⁸³ America's refusal to forgive these debts contributed to the allies' refusal to forgive \$16 billion of German war reparations, which were being relied upon to repay the U.S. To make these reparations payments, Germany had to run large trade surpluses. However, this could only happen if the U.S. and its allies reduced their tariffs and removed trade barriers against German imports.

Regrettably, neither the U.S. nor its allies would allow German imports to displace import-competing domestic industries and their workers. This made Germany dependent on loans from U.S. commercial banks to pay reparations. When Belgium and France invaded the Ruhr in January 1923, because Germany was behind on its reparations payments, U.S. commercial banks stopped making loans to Germany, and German workers launched a general strike with the resulting loss of tax revenue exasperating inflationary pressures leading to hyperinflation. The following year, the allies agreed to the **Dawes plan** in an attempt to stabilize the situation. This plan reduced German reparations payments to \$250 million in

¹⁸³ The \$10.4 billion in U.S. World War I loans included \$4.8 billion to the U.K. and \$3.4 billion to France.

year one with gradual increases to \$650 million in year five. In exchange, U.S. commercial banks resumed lending to Germany.¹⁸⁴

In 1925, Chancellor of the Exchequer Winston Churchill resumed convertibility of the British pound into gold at its pre-war parity, but this was a mistake. World War I had destroyed much of Britain's wealth and potential future workforce and output (through lives lost at the front); hence the U.K. was much poorer after the war. Assigning a value to the British pound in terms of gold greater than the amount of gold a pound could buy on the market after the war overvalued the currency, causing prices to be too low for British imports and too high for British exports, leading to a chronic current account deficit. Ultimately, Britain's return to the gold standard at pre-war parity lit the long fuse leading to the Great Depression.

The Strong Fed: The Federal Reserve in the 1920's

The Fed initially began open market operations¹⁸⁵ in the 1920's to provide income to the regional Federal Reserve Banks. By the end of the decade, open market operations became the Fed's primary monetary policy tool.

Also, in the early part of the decade, the Federal Reserve raised interest rates and contracted the money supply to reverse the inflation that had occurred during the war. This action caused a brief, but deep, recession from January 1920 through July 1921. Afterward, Benjamin Strong, who was the first Governor of the Federal Reserve Bank of New York, emerged as the de facto CEO of the Federal Reserve—largely through the force of his personality.

Strong had a close friendship with the Governor of the Bank of England Montagu Norman, and to help the Bank of England maintain convertibility without devaluing the British pound, the Federal Reserve lowered interest rates in 1927 and 1928—even though an accommodative monetary policy was inappropriate for the booming U.S. economy. This action helped to inflate the U.S. stock market bubble of the late 1920's.

The Fed's Greatest Failure: The Great Contraction

Strong's death in 1928, at the beginning of the Great Depression, triggered a three-way power struggle within the Fed—involving the Governor of the Federal Reserve Bank of New York (George Harrison), the Federal Reserve Board in Washington, and the

¹⁸⁴ Felzenberg, Alvin Stephen, *The Leaders We Deserved (And a Few We Didn't)*, Basic Books, New York, 2008, p.207.

¹⁸⁵ As noted in Part 1 of this series, open market operations include buying and selling of gold, silver, and government debt securities.

Governors of the other Federal Reserve Banks. The Board and the other regional Federal Reserve Banks—either because they believed that prices were too high and wanted to reduce prices back to pre-war levels, or because they resented Strong's support for Britain—pushed for a contractionary monetary policy in 1929, repeatedly blocking Harrison from taking the actions needed to counteract the contraction of the money supply. Thus, the **Great Contraction** began in August 1929 and continued until March 1933.

During the Great Contraction, the Fed failed to perform its lender-of-last-resort function of providing loans to otherwise solvent, but temporarily illiquid, commercial banks.¹⁸⁶ This meant that many solvent banks that could have survived ended up failing. Also, the Fed reduced its holdings of Treasuries through open market operations; and despite massive gold inflows in 1930 and 1931—the Federal Reserve effectively went to sleep on the world's gold reserves by allowing its reserve ratio to increase to a peak of 83.4%. Had the Fed not existed, commercial banks would have had \$1.05 billion of reserves to expand deposits and loans at this critical moment.¹⁸⁷

The adverse economic consequences of the Fed's contractionary monetary policy were both global and monumental. These included: massive price deflation (25%); unemployment (1 in 4 Americans); intensifying waves of bank failures; and fire sales of assets, which undermined net worth.

Franklin D. Roosevelt: Monetary Confusion

President Franklin D. Roosevelt took office on March 4, 1933, and his confused and contradictory views on monetary policy prolonged the **Great Depression** in the United States. While some urged “reflation,”¹⁸⁸ which would have been the correct policy, other forces conspired against them.

On April 5, 1933, private households and firms were mandated by an Executive Order to sell gold to the Fed at a price of \$20.67 per ounce; on April 17, 1933, gold exports were forbidden; on June 5, 1933, “gold clauses” (contracts providing the creditor with the option of demanding payment in gold) were abrogated; on June 12, 1933, the London Conference was convened to discuss restoring the gold standard after devaluation; and on July 3, 1933, the London Conference collapsed after FDR sent conflicting instructions to U.S. delegates. In late December,

¹⁸⁶ During the Great Contraction, the Fed actually reduced its loans to banks from \$1.29 billion in 1928 to \$0.12 billion in 1933.

¹⁸⁷ Timberlake, Richard H., *Monetary Policy in the United States: An Intellectual and Institutional History*, The University of Chicago Press, Chicago, 1993, p.266.

¹⁸⁸ Notably George Warren, Irving Fisher, and John R. Commons urged reflation.

FDR required the Federal Reserve to sell its gold to the Treasury at \$20.67 per ounce. Then on January 31, 1934, FDR signed the **Gold Reserve Act**, which devalued the U.S. dollar by 59% by increasing the gold price from \$20.67 to \$35.00 per ounce.

The Eccles Fed: The 1937 Recession and a Record of Failure

Necessary price reflation began to occur, but FDR short-circuited it by appointing Marriner Eccles (November 15, 1934 – February 3, 1948) as Chairman of the Federal Reserve Board. Eccles was a proto-Keynesian, and he opposed devaluation and reflation; blamed the Great Depression on over-investment by firms and under-consumption by households; favored income redistribution; and thought monetary policy was ineffective, and consequently the Federal Reserve did not expand the money supply.

The Federal Reserve was reorganized into its present structure under the **Banking Act of 1935**. The Act was meant to end confusion at the Fed and to centralize decision-making powers in Washington. The Board of Governors of the Federal Reserve System replaced the Board of Directors; the Secretary of the Treasury and Comptroller of the Currency were removed from the Board; the terms of Board members were increased from 10 to 14 years; Governors of regional Federal Reserve Banks were renamed as Presidents; the Board of Governors was placed in charge of the Federal Reserve System; the Chairman of the Board of Governors was given an executive role; and the Federal Open Market Committee (FOMC) was created. The FOMC was designed to be a balanced body, composed of regional Federal Reserve Bank presidents and members of the Federal Reserve Board, though the FOMC quickly came to be dominated by the Chairman.¹⁸⁹

Meanwhile, cautious bankers who survived the Great Contraction wanted to keep large excess reserves in case of future bank runs, but Eccles thought such reserves would cause inflation. So, from August 1936 to May 1937, the Federal Reserve doubled the required level of reserves that commercial banks were required to keep at the Fed. Banks responded by contracting their loans and deposits to build new excess reserves above the now higher level of required reserves. This caused another severe recession from May 1937 to June 1938, showing Eccles's experiment to be an economic failure.

¹⁸⁹ Currently, the FOMC is composed of 12 members: seven members from the Board of Governors; the President of the Federal Reserve Bank of New York; and four of the remaining 11 regional Federal Reserve Bank presidents. (The seven other regional bank presidents currently do not vote.)

Finally, the Federal Reserve began to increase the money supply in 1939 to finance war-related spending, and by 1943 prices finally exceeded their 1929 level—showing that reflation worked, when it was tried.

World War II, Korean Conflict, and "The Accord"

Through World War II, the Federal Reserve assumed a role subservient to the Treasury. To help the Treasury finance the war, the Fed targeted the long-term Treasury bond rate, keeping it at 2.5%. However, this built inflationary pressure during wartime, though price controls and rationing disguised it. Nonetheless, inflation exploded after the war when the price controls were lifted.

The **Bretton Woods system** was instituted after the war. This system created the **International Monetary Fund (IMF)** and the **World Bank** (and eventually the World Trade Organization (WTO)).¹⁹⁰ The Bretton Woods system required the United States to exchange gold for U.S. dollars at a fixed price of \$35.00 per ounce, but only with foreign governments or their central banks—not U.S. households or firms. Simultaneously, Bretton Woods required other countries to maintain a pegged exchange rate with the U.S. dollar.¹⁹¹ This arrangement is sometimes referred to as the **gold exchange standard**.

Because of Eccles's opposition to monetizing the federal debt, President Harry S Truman replaced Eccles with Thomas B. McCabe (April 1948 to April 1951) as Chairman. As the Korean conflict began, inflation soared, and the Federal Open Market Committee (FOMC) challenged the Treasury's interest rate policy. This led to **the Accord** between Chairman McCabe and Secretary of the Treasury John W. Snyder, which was brokered by Assistant Secretary of the Treasury William McChesney Martin, Jr. on March 4, 1951. This Accord provided for the Federal Reserve to conduct open market operations in Treasury "bills only," allowing the market to determine long-term Treasury bond rates; and it began the Fed's operational independence.

Truman then appointed Martin to succeed McCabe as Chairman, believing Martin would allow the Treasury to recapture the Federal Reserve. Instead, Martin supported the Federal Reserve's newly won independence.

The Martin Fed: Unnecessary Volatility

¹⁹⁰ The World Trade Organization was finally created in 1995.

¹⁹¹ The U.S. dollar was fixed at \$35.00 per ounce of gold, but only foreign central banks could demand gold for U.S. dollars. This was not a gold standard, but a gold exchange standard.

During the Martin era (April 2, 1951 – February 1, 1970), monetary policy decisions were largely based on Martin’s “feel of the market.” In practice, Martin targeted interest rates and acted in a pro-cyclical fashion, whereby the Federal Reserve would add reserves to hold down interest rates when output rose and subtract reserves to maintain interest rates when output fell. This contributed to the short business cycles in the 1950’s.

The Federal Reserve’s “bills only” approach was dropped during the Kennedy Administration and replaced with Operation Twist. In **Operation Twist**, the FOMC bought Treasury bonds to lower long-term interest rates and spur domestic investment, while simultaneously selling Treasury bills to increase short-term interest rates. The goal was to attract foreign portfolio investment, support the U.S. dollar, and reduce gold outflows. However, Operation Twist is now regarded as a failure. Eventually, economists Milton Friedman, Karl Brunner, and Allan Meltzer became leading critics of Martin.

The Burns Fed: The Great Inflator; Gunning the Money Supply

Succeeding Martin as Chairman of the Fed was Arthur Burns (February 1, 1970 – March 8, 1978), who became known as the Great Inflator.

In the early 1970’s, attempts were made to save the Bretton Woods system of fixed exchange rates tied to the dollar. On August 15, 1971, President Richard Nixon announced his **New Economic Plan**. This plan imposed a 90-day price freeze followed by comprehensive price controls; a 10% tariff on imports, and effectively ended the gold exchange standard, thus removing the last vestiges of a link from the U.S. dollar to gold.

In reaction to the New Economic Plan, Treasury Secretary John Connolly negotiated the Smithsonian Agreement with other G-10 countries. This agreement provided for a devaluation of the U.S. dollar from \$35.00 per ounce of gold to \$42.22 in exchange for the resumption of the Bretton Woods system. However, this agreement quickly fell apart. By March 1973, the era of freely floating exchange rates, not tied to gold, began.

Chairman Burns succumbed to Nixon’s pressure to “gun the money supply” while price controls were in place to make the economy appear better than it was when Nixon ran for reelection in 1972. Under Burns, the Fed followed a go-stop approach with unpredictable swings from loose to tight monetary policy, and stagflation resulted.

Briefly succeeding Burns as Chairman in 1978 was G. William Miller, who was appointed by President Jimmy Carter. Miller was a Keynesian who opposed higher interest rates to check inflation and blamed inflation on “real” factors such as oil shortages and labor contracts with cost-of-living wage adjustments. Miller continued Burns’s misguided policies. Price inflation soared; and the foreign exchange value of the U.S. dollar collapsed. Carter appointed Miller as Treasury Secretary to remove him from the Fed.

The Volcker Fed: Breaking the Back of Inflation

President Carter next appointed Paul A. Volcker (August 6, 1979 – August 11, 1987) as Chairman. Until 1982, Volcker followed a **pseudo-monetarism**, under which the Federal Reserve stopped targeting the federal funds rate and claimed that it was targeting monetary aggregates. This allowed high nominal and real interest rates to arrest price inflation; but it was mainly a ruse, designed to shield the Federal Reserve from the blame for the resulting recessions. (Under true monetarism, a central bank would focus on the growth rate of money aggregates to achieve price stability. Monetarism assumes that the velocity of money is stable.)

Volcker overreacted to President Reagan’s tax cuts as being inflationary—an error that contributed to the severity of the August 1981 to November 1982 recession. Afterward, Volcker adopted a variety rules-based approaches at different times, and the FOMC abandoned targeting monetary aggregates.

In 1985, Volcker concurred with the **Plaza Accord**, which committed the United States to a depreciation of the foreign exchange value of the U.S. dollar. Then, just two years later in 1987, Volcker concurred with the **Louvre Accord**, which committed the United States to stop the depreciation of the foreign exchange value of the U.S. dollar. The monetary flip-flop from accelerating money supply growth in 1985 to decelerating money supply growth in 1987 to meet U.S. commitments in these accords contributed to the “Black Monday” stock market crash on October 19, 1987.

The Early Greenspan Fed: Rules-Based Policy Works

President Reagan appointed Alan Greenspan (August 11, 1987 – January 31, 2006) to follow Volcker as Federal Reserve Chairman. Greenspan had established strong credibility early in his tenure on “Black Monday” as he issued a statement that affirmed the Fed’s “readiness to serve as a source of liquidity to support the economic and financial system,” and he exerted behind-the-scenes pressure on commercial banks to provide credit to independent investment banks. These actions prevented a wider financial crisis, and Greenspan’s credibility

grew even stronger as he helped to nip inflation during the July 1990 to March 1991 recession.

Greenspan also received high marks for increasing the Fed's transparency. In 1994, he began announcing federal funds rate targets publicly after FOMC meetings; and in 1998, he began releasing even more details. During the great boom of the 1990's, Greenspan tightened monetary policy, increasing U.S. interest rates and the foreign exchange value of dollar.

The era under Volcker and Greenspan is generally referred to as the **Great Moderation** (1983-2000), during which the Fed pursued price stability through rules-based monetary policy, much along the lines of the Taylor rule, devised by Stanford economist John Taylor. Generally, the Taylor rule holds that the Fed should increase the federal funds rate as inflationary forces increase and lower it as they decrease. This approach resulted in two long economic booms, low inflation, and lower unemployment rates.

CONCLUSION

Covering more recent events at the Fed and U.S. monetary policy prescriptions for the future is beyond the reach of this history series. Those subjects will be covered in future JEC Republican papers.

In sum, the monetary history experience in America has been:

- (6) Economic freedom and prosperity with an independent central bank, managed by competent individuals (e.g. the First Bank, the Second Bank from 1822-1828, and the Federal Reserve during the Great Moderation);
- (7) Challenges absent a central bank (e.g. 1811-1816, 1836-1915); and
- (8) Recessions, depressions and stagflation when the central bank endures interference from politicians (e.g. the Second Bank from 1816-1822 and 1828-1836, the Eccles Fed, and the Burns Fed.)

The American experience is that economic freedom and prosperity are best served by monetary policy that is rules-based and non-interventionist.¹⁹²

¹⁹² For reference and further reading, see, Timberlake, Richard H., *Monetary Policy in the United States: An Intellectual and Institutional History*, The University of Chicago Press, Chicago, 1993.

JOINT ECONOMIC COMMITTEE
REPUBLICAN STAFF COMMENTARY
**“UNITED STATES MONETARY POLICY GOING FORWARD: A SINGLE
MANDATE FOR PRICE STABILITY WILL HELP MAXIMIZE JOB
CREATION AND ECONOMIC GROWTH”**

INTRODUCTION

In recent years, the Federal Reserve has shifted away from well-established norms for monetary policy. These policy deviations contributed to the inflation of an unsustainable housing bubble, a global financial crisis, and increased market uncertainty, which has inhibited a robust recovery. Avoiding these policy deviations may well have mitigated the ensuing negative fallout. Therefore, the Federal Reserve should implement a rules-based monetary policy going forward in order to promote long-term price stability, economic growth and job creation.

The Federal Reserve deviated from norms for monetary policy in the period from 2002 to 2005 by holding its target rate for federal funds too low for too long. This deviation contributed to the inflation of an unsustainable housing bubble and, once the Federal Reserve raised interest rates, a dramatic decline in home prices after they peaked in the summer of 2006. When the housing bubble burst, the severe correction in home prices led to an unprecedented increase in residential foreclosure rates.

During the past decade, the proliferation of mispriced derivative financial instruments in the financial services sector resulted in a systemic vulnerability to defaults in home loans. The unexpectedly high default rates occurred because many widely-held derivatives had as reference assets either (1) residential mortgage loans, (2) securities containing residential mortgage loans, or (3) securities of companies engaged in residential mortgage securitization. As a result, disruptions in the housing market cascaded throughout the financial system, and a global financial crisis ensued. Had monetary policy followed its previous policy route, the severity of the crisis and the subsequent recession likely would have been mitigated.

During and after the financial crisis, the Federal Reserve engaged in several additional unconventional policy actions. Some of these actions—such as providing emergency liquidity to the market during the height of the financial crisis—were in keeping with the Federal Reserve’s role as the lender of last resort and its emergency authority. Other actions—such as the Federal Reserve’s controversial intervention into the housing market—are more questionable because they occurred after the acute effects of the crisis had passed. Significantly, these post-crisis actions have sustained the Federal Reserve’s balance sheet at unprecedented levels—triple

its pre-crisis size—thereby risking the possibility of harmful future price inflation.

In light of the housing bubble, the global financial crisis, and the subsequent anemic economic recovery, federal policymakers are reconsidering the oversight and regulation of U.S. financial institutions and markets. So far, federal policymakers have focused on perceived microeconomic causes of the crisis, including: (1) federal housing policies that sought to increase the rate of home ownership; (2) possible market failures; (3) shortcomings in federal oversight and regulatory regimes for financial institutions and markets; and (4) wrongdoing by certain firms and individuals.¹⁹³ However, the financial crisis had both macroeconomic and microeconomic causes. Federal policymakers have paid insufficient attention to the macroeconomic causes of the crisis—especially the Federal Reserve’s monetary policy in the lead-up to, during, and after the crisis.

This study begins with a brief discussion of the advantages of rules-based monetary policy over discretionary monetary policies. It then reviews the Federal Reserve’s implementation of monetary policy in light of the rules-versus-discretion dichotomy and finds that discretionary actions by the Federal Reserve have contributed to past economic disruptions and pose a threat to the economy going forward. It concludes by commenting on the Federal Reserve’s recent adoption of an explicit inflation target guiding its monetary policy decisions and by providing four policy recommendations for implementing a rules-based monetary policy going forward: (1) creating a single mandate for the Federal Reserve to maintain long-term price stability; (2) requiring the Federal Reserve to monitor asset prices for signs of incipient asset price bubbles; (3) restricting open market operations to U.S. Treasuries, repurchase agreements, and reverse repurchase agreements during normal times; and (4) requiring the Federal Reserve to clearly articulate a lender-of-last-resort policy.

Designing Monetary Policy

Well-reasoned, stable and predictable monetary policy reduces economic volatility and promotes long-term economic growth and job creation. Generally, “rules-based” policies reduce uncertainties and facilitate long-term planning and investment. Rules-based policies are most successful when they are designed “with a clear focus on the longer term, and with allowance for future contingencies.”¹⁹⁴

¹⁹³ Initial investigation into these areas culminated in the enactment of the *Dodd-Frank Wall Street Reform and Consumer Protection Act*. PL 111-203 (July 21, 2010).

¹⁹⁴ See Chapter 3, “Design of Fiscal, Monetary, and Financial Policies,” *Economic Report of the President together with the Annual Report of the Council of Economic Advisors* (1990).

Policymakers should set the rules of the game and make a credible commitment to abide by them; but, inflexible or overly prescriptive policies can prevent essential emergency actions during times of crisis.

Conversely, activist, interventionist, and discretionary monetary policies have been historically associated with increased economic volatility and subpar economic performance. Reasons for this are numerous and, in large part, practical. First, it is difficult for policymakers to identify in real time the economic inflection points that mark the beginning of financial crises and recessions; this is due to the extraordinary complexities and dynamism of the economy. Forecasts based on economic models are generally unreliable in identifying such inflection points. Hence, it is very difficult for policymakers to establish a proper baseline from which monetary policy adjustments should be made.

Second, even when economic circumstances are both known and well understood, implementing the appropriate monetary policy response is rife with difficulties. One well-known implementation problem, identified by Nobel laureate Milton Friedman, is the long and variable lag between a monetary policy action and its effects on the economy. Another problem is the “time inconsistency problem,” a theory for which Finn Kydland and Edward Prescott won the 2004 Nobel Prize in Economic Sciences.¹⁹⁵ The time inconsistency problem refers to the difficulties created by the time lapse between the announcement of a policy and its implementation. During this time lapse, the optimal policy response may change, and such changes induce policymakers to shift course over time. Taken together, these shortcomings mean discretionary policies are a drag on the economy because they are unpredictable, may be ill-timed, and inappropriate.

These two conclusions about the rules-versus-discretion dichotomy are quite logical, given that private businesses and households make plans based on expectations of future economic conditions. Unpredictable monetary policy creates uncertainty in markets and increases risk premia, thus boosting the cost of capital for business. An investment must yield a higher expected return to induce a business to invest in it. Consequently, unpredictable monetary policy lowers aggregate investment. This relationship between discretionary policy and reduced investment is particularly

¹⁹⁵ See Kydland, Finn E. and Prescott, Edward C., “Rules Rather than Discretion: The Inconsistency of Optimal Plans,” *Journal of Political Economy* 85/3 (1977); Barro, Robert J. and Gordon, David B., “Rules, Discretion and Reputation in a Model of Monetary Policy,” NBER Working Paper No. 1079 (1983); see also Dennis, Richard, “Time-Inconsistent Monetary Policies: Recent Research,” *Federal Reserve Bank of San Francisco Economic Letter* (2003).

acute in illiquid assets, such as buildings, equipment, and software, which are key drivers of long-term job creation.¹⁹⁶ Similarly, households are less likely to make large purchases, including homes and automobiles as economic uncertainty increases.

RECENT MONETARY POLICY OF THE FEDERAL RESERVE

The Turbulent 1970's and the Great Moderation of the 1980's and 1990's

The distinct impact of discretionary and rules-based policy is readily apparent when viewed within the context of U.S. monetary policy over the past 40 years. During the 1970's, the Federal Reserve implemented "a pattern of 'go-stop' policies, in which swings in policy from ease to tightness contributed to a highly volatile real economy as well as a highly variable inflation rate."¹⁹⁷ These unpredictable and disruptive policies were guided, in part, by a misplaced belief in a simple version of the "Phillips Curve," a widely discredited economic theory that found an inverse relationship between the unemployment rate and the inflation rate. Under the Phillips Curve, the destructive phenomenon of stagflation, which is the combination of stagnant growth, persistent high unemployment, and high inflation, could not occur. However, the Federal Reserve, using the Phillips Curve to guide its monetary policy actions during the 1970's, produced stagflation through its unpredictable policy actions.

A sea change in monetary policy occurred with the appointment of Paul Volcker as Chairman of the Board of Governors of the Federal Reserve System in 1979. His mandate was to break the back of inflation. In order to accomplish this goal, he raised the federal funds target rate from 11% in August of 1979 to a range of 18 to 20% by mid-1981 before lowering it incrementally to 8% in mid-1985. The economy suffered back-to-back recessions (January 1980 to June 1980 and July 1981 to November 1982). However, inflation (measured by the consumer price index) dropped from 13.3% in 1979, the year Volcker joined the Federal Reserve, to 3.8% in 1982, and thereafter averaged 3.0% over the next 20 years as Chairman Volcker and, later, Chairman Alan Greenspan implemented, with some exceptions, a transition toward a more rules-based monetary policy.

Comparing other economic indicators under the "go-stop" monetary policy of the 1970's and the relatively predictable monetary policy climate associated with the 1980's to 1990's (i.e., the "Great

¹⁹⁶ See Greenspan, Alan, "Activism," *Council on Foreign Relations* (March 3, 2011).

¹⁹⁷ "The Great Moderation," Remarks by Governor Ben S. Bernanke at the meetings of the Eastern Economic Association (2004).

Moderation”) highlights the performance advantages of rules-based monetary policy. Most notably, macroeconomic volatility decreased during the 20 years after the 1970’s, with quarterly output volatility (measured by standard deviation) falling in half and quarterly inflation volatility falling by two thirds. Moreover, two robust economic expansions occurred during the same period—the November 1982 to July 1990 economic expansion, which lasted 31 quarters, and the March 1991 to March 2001 expansion, which lasted 40 quarters. Unsurprisingly, the unemployment rate trended down over the same period. By contrast, the longest economic expansion of the 1970’s was only 10 quarters long.¹⁹⁸

The Taylor Rule and a Major Policy Deviation in the 2000’s

Many economic researchers and commentators have suggested that, after a nearly 20 year period of relative predictability, the Federal Reserve deviated from a rules-based monetary policy during the 2002-2005 period by holding the target federal funds rate too low for too long. However, this critique requires a framework for analysis, and it begs the question: from what did the target rate deviate? One particularly useful method for assessing policy deviations is to compare the historical target federal funds rate to the rate prescribed by the “Taylor rule.”¹⁹⁹ The Taylor rule, devised by Stanford economist John Taylor, is a monetary policy rule that derives a recommended federal funds rate based on the level of inflation relative to the Federal Reserve’s target inflation rate and the level of real output relative to potential output.²⁰⁰ Generally speaking, implementing the Taylor rule would result in the Federal Reserve increasing the federal funds rate as inflationary forces increase and lowering the federal funds rate as inflationary forces decrease. The Taylor rule is both descriptive and prescriptive:

One such rule, the original Taylor rule, fit the data particularly well during the late 1980’s and early 1990’s, a period of generally

¹⁹⁸ Blanchard, Olivier and Simon, John, “The Long and Large Decline in U.S. Output Volatility,” *Brookings Papers on Economic Activity* 32/1 (2001).

¹⁹⁹ For a historical overview of the development of the Taylor rule, see Also, Pier Francesco, Kahn, George and Leeson, Robert, “The Taylor Rule and the Transformation of Monetary Policy,” *Federal Reserve Bank of Kansas City Research Working Papers RWP 07-11* (2007).

²⁰⁰ *The general formulation of the Taylor rule is as follows: $i_t = rr^* + \pi_t + \beta(\pi_t - \pi^*) + \gamma(y_t - y^*)$; where i_t is the recommended policy rate; rr^* is the equilibrium real interest rate (assumed to be 2% in the original formulation of the Taylor rule); $(\pi_t - \pi^*)$ is the difference between the inflation rate and its long-run target (with π^* assumed to be 2% in the original version); and $(y_t - y^*)$ is the output gap, or the difference between real GDP and potential GDP; and β and γ are both set to 0.5 in the original version. See Kahn, George A., “Taylor Rule Deviations and Financial Imbalances,” *Federal Reserve Bank of Kansas City* (2010).*

favorable economic performance. Because this rule also performed well in a variety of macroeconomic models, keeping the volatility of inflation and output relatively low, the rule over time became viewed as a normative prescription for how policy should be set, conditional on a few economic indicators.²⁰¹

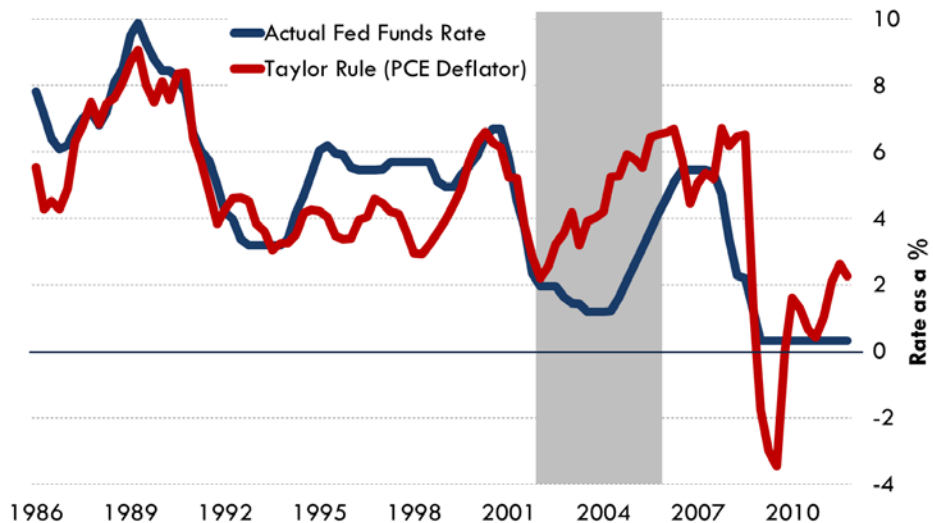
The Taylor rule is also robust with respect to specification, meaning a variety of formulations of the rule itself result in similar prescriptions. These theoretical and practical advantages led to a de-facto institutionalization of Taylor rule guidance in the Federal Open Market Committee's (FOMC's) decision-making process after its initial release in 1993. The FOMC is composed of 12 voting members and directs the Federal Reserve's open market operations, which effectuate the purchase and sale of Treasuries and other securities to influence the federal funds interest rate.²⁰² Members of the Committee often referenced various Taylor rule specifications during the Committee's regular meetings, and utilized it as a baseline for conducting monetary policy actions. The past effectiveness of the Taylor rule establishes it as a reliable tool for assessing Federal Reserve policy discretion.

During much of the period from 1986-2002 following the initial taming of inflationary forces, the target federal funds rate tracked closely the rate prescribed by the Taylor rule, with the exception that the actual federal funds rate was above the Taylor rule prescription for a period during the mid-to-late 1990's when the economy was experiencing explosive productivity growth (Figure 1).

²⁰¹ *Ibid.* at 65.

²⁰² The 12 voting members consist of "the seven members of the Board of Governors of the Federal Reserve System; the president of the Federal Reserve Bank of New York; and four of the remaining eleven Reserve Bank presidents, who serve one-year terms on a rotating basis. The rotating seats are filled from the following four groups of Banks, one Bank president from each group: Boston, Philadelphia, and Richmond; Cleveland and Chicago; Atlanta, St. Louis, and Dallas; and Minneapolis, Kansas City, and San Francisco. The seven non-voting Reserve Bank presidents "attend the meetings of the Committee, participate in the discussions, and contribute to the Committee's assessment of the economy and policy options." Board of Governors of the Federal Reserve System, "Federal Open Market Committee," available at <http://www.federalreserve.gov/monetarypolicy/fomc.htm>

Figure 1. Actual Federal Funds Rate vs. the Rate Prescribed by Taylor Rule, using PCE Deflator since 1986



*Shaded region represents the 2002 to 2005 policy deviations

Source: Federal Reserve Board

The bursting tech stock bubble in early 2000, the economic shock of the terrorist attacks on September 11, 2001, and the 2001 recession precipitated possible deflation concerns among some members of the FOMC. However, subsequent analysis of the economic indicators suggests that such concerns did not have a strong foundation. For example, headline consumer prices never experienced a year-over-year decline during the period from 2001-2005. In fact, the CPI averaged 2.5% year-over-year growth during that period, and experienced a low average of 1.6% year-over-year growth in 2002. Contemporaneous analysis of inflationary data is difficult; however, this analysis certainly refutes the contention that the economy needed aggressive monetary stimulus.

Nevertheless, the FOMC voted to reduce target rates from 6.5% in December of 2000 to 1.82% by December of 2001. It then held the target rate below that level for nearly three years before incrementally raising it back to 5.25% by June of 2006. During that period, the target federal funds rate averaged 2.17 percentage points below the level prescribed by the Taylor rule (using quarterly data).

Professor Taylor has argued that the cumulative effect of this monetary ease contributed to the housing bubble and thereby increased the magnitude of the decline in residential real estate prices on the back end of the bursting bubble.²⁰³ There is growing, but not universal, agreement among economists about Taylor's findings.²⁰⁴ For example, a study by Federal Reserve Bank of Kansas City vice president George Kahn found that "[w]hen the Taylor rule deviations are excluded from [my] forecasting equation, the bubble in housing prices looks more like a bump."²⁰⁵

Of course, Federal Reserve monetary policy from 2002 to 2005 was not the sole cause of the housing bubble. Microeconomic factors, including the housing policies of President Bill Clinton and George W.

²⁰³ Taylor, John, "Housing and Monetary Policy," Presentation for the Policy Panel at the Symposium on Housing, Housing Finance, and Monetary Policy, hosted by the Federal Reserve Bank of Kansas City in Jackson Hole, Wyoming (2007).

²⁰⁴ See, e.g., Kahn, George, "Taylor Rule Deviations and Financial Imbalances," Federal Reserve Bank of Kansas City (2010); Jarocinski, Marek and Smets Frank, "House Prices and the Stance of Monetary Policy," European Central Bank (2008); Ahrend, R., Cournede, B, and Price, R, "Monetary Policy, Market Excesses and Financial Turmoil," *OECD Economics Department Working Papers No. 597* (2008). An alternative theory, posited by Chairman Ben Bernanke, holds that a "global savings glut," which resulted in significant international capital flows into the U.S. economy, was a primary factor in causing the housing bubble. Bernanke, Ben, "International Capital Flows and the Returns to Safe Assets in the United States," *Financial Stability Review No. 15*, Banque de France (2011).

²⁰⁵ Kahn, George, "Taylor Rule Deviations and Financial Imbalances," Federal Reserve Bank of Kansas City (2010).

Bush to expand homeownership among historically disadvantaged and low-income households; pressure from federal regulators to lower credit standards for extending residential mortgage loans; the panoply of federal tax preferences for housing; market-distorting housing finance government-sponsored enterprises (Fannie Mae and Freddie Mac); inaccurate ratings reports; and opaque derivatives markets, among others, contributed to the financial imbalances in the U.S. housing market. Other macroeconomic factors, including, most notably, massive capital inflows to the United States from abroad also contributed to the housing bubble.²⁰⁶ However, the Federal Reserve's monetary policy in the 2002 to 2005 period were undeniably a contributing factor—one that was wholly avoidable had the FOMC simply followed well-established and stable monetary policy norms rather than engage in discretionary policies.

Financial Crisis Monetary Policy

The Federal Reserve responded to the bursting housing bubble and the financial crisis of 2008 by taking a series of unconventional actions (see Appendix A). Some of these actions clearly were in keeping with the Federal Reserve's role as "lender of last resort," and were initiated pursuant to the Federal Reserve's emergency authority under section 13(3) of the **Federal Reserve Act**. In times of crisis, depositors and other creditors cannot distinguish between healthy and unhealthy banks and other financial institutions. As a result, the flow of credit freezes, and all borrowers are penalized. A lender of last resort "ensure[s] that healthy financial institutions have access to sufficient short-term credit, particularly during [such] times of financial stress."²⁰⁷ By addressing the liquidity problems of solvent, but temporarily illiquid banks and other financial institutions during a financial crisis, a lender of last resort can prevent unnecessary failures that could cause a financial crisis to spread to non-financial sectors of the economy and escalate into a depression.

Other Federal Reserve actions—including those preceding and during the crisis, both as general policy and directed to specific individual firms—addressed solvency problems, or selectively allocated credit to markets pre- and post-crisis. Insolvency reflects a fundamental weakness in the balance sheet of a firm because its liabilities are greater than its assets. However, addressing solvency problems in this way can induce firms to take undue risk under the

²⁰⁶ Bernanke, Ben, "International Capital Flows and the Returns to Safe Assets in the United States 2003-2007," Financial Stability Review No. 15, Banque de France (2011).

²⁰⁷ Carlson, John et. al, "Credit Easing: A Policy for a Time of Financial Crisis," Federal Reserve Bank of Cleveland (2009).

assumption that they will later be “bailed out” if the risks don’t pan out. Selectively allocating credit to favored markets can also distort financial decision making and lead to future asset bubbles. Thus, it is unclear whether this second category of actions was necessary, proper, or even helpful. The sum total of the Federal Reserve’s actions over the past four years has been an unprecedented expansion of the Federal Reserve’s balance sheet, which remains a risk to the sustainability of the economic recovery because it increases the danger of accelerating price inflation as the economy strengthens.

The impact of the bursting housing bubble spread throughout the financial system and credit markets deteriorated well before the market crash in the fall of 2008. Within the bounds of traditional monetary policy, the Federal Reserve began lowering the target federal funds rate from 5.25% in August of 2007 to a range of 0 - 0.125% by January 2009. However, it also simultaneously implemented several discretionary policies in the year leading up to the crisis, including creating specialized lending facilities aimed at supporting financial firms with deteriorating balance sheets. Among these lending facilities were the Term Auction Facility (TAF), the Term Securities Lending Facility (TSLF), and the Primary Dealer Credit Facility (PDCF). The TAF was essentially a repackaging of existing Federal Reserve lending capabilities aimed at alleviating the stigma associated with borrowing from the traditional discount window, while the TSLF and the PDCF represented new lending to unconventional non-commercial bank borrowers. During this same period, the Federal Reserve engaged in the first iteration of an on-again, off-again bailout policy by facilitating the sale of the investment bank Bear Stearns to JP Morgan-Chase with a loan of almost \$30 billion.²⁰⁸ It also extended currency swaps to foreign central banks to enable them to stabilize dollar-based markets under their jurisdiction.

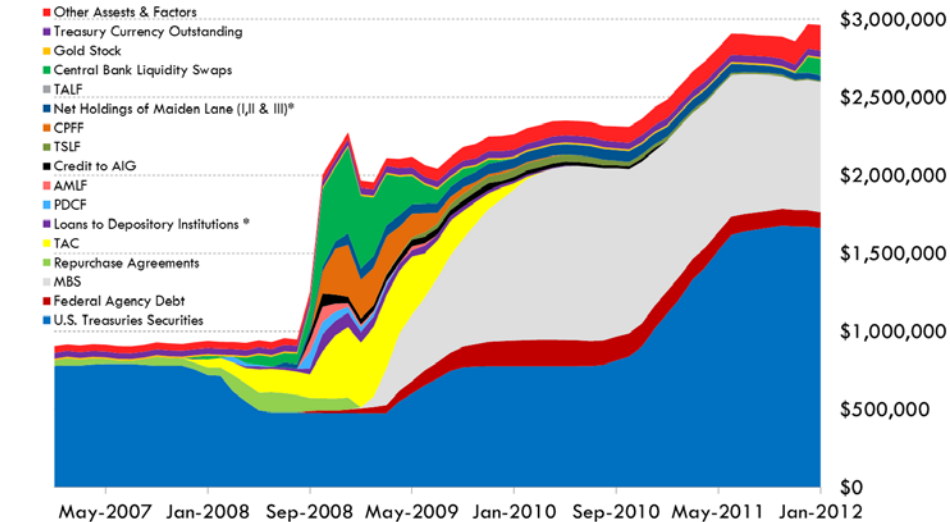
Initially, these pre-crisis actions did not increase the size of the Federal Reserve’s balance sheet because the Federal Reserve “sterilized” (or offset) their effects by selling over \$300 billion of its U.S. Treasury holdings during the first several months of 2008. Then, when credit market deterioration accelerated in September 2008, the Federal Reserve expanded its existing crisis lending facilities and introduced new ones. Between September and November 2008, the Federal Reserve introduced the Asset-backed Commercial Paper Money Market Fund Liquidity Facility (AMLF), the Commercial Paper Funding Facility (CPFF), and the Term Asset-

²⁰⁸ “Maiden Lane Transactions,” Federal Reserve Bank of New York, available at <http://www.newyorkfed.org/markets/maidenlane.html>.

backed Loan Facility (TALF). Each facility sought to stabilize the financial system by providing liquidity to key credit markets outside of the traditional banking system. The Federal Reserve also bailed out American International Group (AIG), a large global insurer after allowing the investment bank Lehman Brothers to file for bankruptcy.

Leading into the fall, the Federal Reserve halted its sterilization efforts because it was concerned about disrupting the Treasury market by flooding it with additional supply. Therefore, as firms began drawing heavily upon the myriad lending facilities, the Federal Reserve's balance sheet expanded massively—doubling to \$2.2 trillion in just six weeks (see Figure 2 on the following page). The Fed's balance sheet remained at this elevated level through the end of 2008.

Figure 2. Massive Expansion of the Federal Reserve Balance Sheet since 2006 (millions \$)



*Net Holdings include Maiden Lane I (Jul. '08), II(Dec. '08 and III(Nov. '08);

*Include Primary, Secondary and Seasonal Loans to Depository Institutions

Source: Federal Reserve Board

The most acute effects of the financial crisis had begun to recede by January 2009. Consequently, borrowing through the Federal Reserve's crisis lending facilities declined sharply, as the Federal Reserve's balance sheet fell by \$300 billion in the first four weeks of the year. The size of the crisis lending facilities continued to taper off into the summer months, and, by the end of 2009, the great bulk of the related borrowing had ceased.

If all else remained equal, the size of the Federal Reserve's balance sheet would have tapered down to pre-crisis levels as well. However, the Federal Reserve instead took additional discretionary actions to maintain and even expand the size of its balance sheet.

In early 2009, the Federal Reserve announced a program of large-scale asset purchases, dubbed "quantitative easing 1" (QE1). The mechanical effect of the program was simply to sustain the size of the central bank's balance sheet as the emergency liquidity facilities tapered off; however, the policy implications of the program were significant. Most importantly, the Federal Reserve began to actively support the housing market by purchasing over \$1.25 trillion of residential mortgage-backed securities (RMBS) and \$172 billion of debt securities issued by Fannie Mae, Freddie Mac, and Ginnie Mae.²⁰⁹ In essence, the Federal Reserve was attempting to manipulate the economy by subsidizing the housing market. It hoped lower home mortgage interest rates would encourage refinancing activity, thereby increasing consumers' disposable income.

Despite the Federal Reserve's extraordinary efforts in 2009, the summer of 2010 brought a marked slowdown in the already anemic economic recovery: job creation sputtered, economic growth slowed and a manufacturing sector recovery melted away. The 2010 mid-term elections drastically changed the composition of Congress, and federal policymakers were unlikely to implement fiscal stimulus programs in an attempt to spur the economy. Within that context, Chairman Bernanke announced in August a second round of quantitative easing (QE2), in which the Federal Reserve would purchase \$600 billion of U.S. Treasury securities over eight months beginning in November 2010. The purchases brought the Federal Reserve's balance sheet to nearly \$3 trillion—more than triple its pre-crisis size.

More recently, in August and September 2011, the Federal Reserve took two additional unconventional policy actions. First, the Federal Reserve announced in its August FOMC statement that

²⁰⁹ Federal Housing Finance Agency, "Data as of October 1, 2010 on Treasury and Federal Reserve Purchase Programs for GSE and Mortgage-Related Securities," *available at* www.fhfa.gov/webfiles/17990/TreasFED10012010.pdf.

economic conditions warranted “exceptionally low levels for the federal funds rate at least through mid-2013.”²¹⁰ Federal Reserve policymakers hoped this so-called “communications channel” would spur economic activity where large-scale asset purchases have fallen flat because it effectively commits the central bank to a highly accommodative monetary policy in the medium-term.²¹¹

Second, the Federal Reserve announced in mid-September that it would implement another unconventional bond-buying program, known as “Operation Twist,” running through the end of June 2012. The program is modeled after the Federal Reserve’s previous “Operation Twist” in the 1960’s, which was considered a failure by most economists because it only lowered long-term interest rates by 10 to 20 basis points at most.²¹² The effect of this program is to extend the average duration of the Federal Reserve’s Treasury holdings by selling \$400 billion of U.S. Treasuries with maturities of three years or less and using the proceeds to purchase \$400 billion of U.S. Treasuries with maturities of six to 30 years.²¹³ Like quantitative easing, which reduces long-term interest rates, the program seeks to stimulate borrowing in order to finance consumer purchases of durable goods and housing and business investment in buildings, equipment, and software. However, unlike quantitative easing, the program will not increase the size of the Federal Reserve’s balance sheet.

In addition to Operation Twist, the Federal Reserve has committed to reinvesting the principal payments from its holdings of federal agency debt and RMBS into agency RMBS. This change is a major policy reversal. Previously, the Federal Reserve had said that its massive intervention into housing finance was temporary and that it would allow its portfolio of federal agency debt and RMBS to decline gradually as principal was repaid. Now, the Federal Reserve has indicated that its portfolio of federal agency debt and RMBS is more or less permanent. Thus, the Federal Reserve will continue to allocate credit selectively toward politically favored borrowers.

Analyzing the impact and appropriateness of the Federal Reserve’s policy over the past four years is challenging. It is difficult

²¹⁰ Press Release, Federal Open Market Committee Statement (August 9, 2011).

²¹¹ Historical evidence demonstrates that clear and credible Federal Reserve communications about forthcoming monetary policy actions can influence the policy’s effectiveness. *See*, “Central Bank Talk and Monetary Policy,” Remarks by Governor Ben S. Bernanke at the Japan Society Corporate Luncheon (2004).

²¹² *See*, Bernanke, Ben, Reinhart, Vince, and Sack, Brian, “Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment,” Federal Reserve Board (2004).

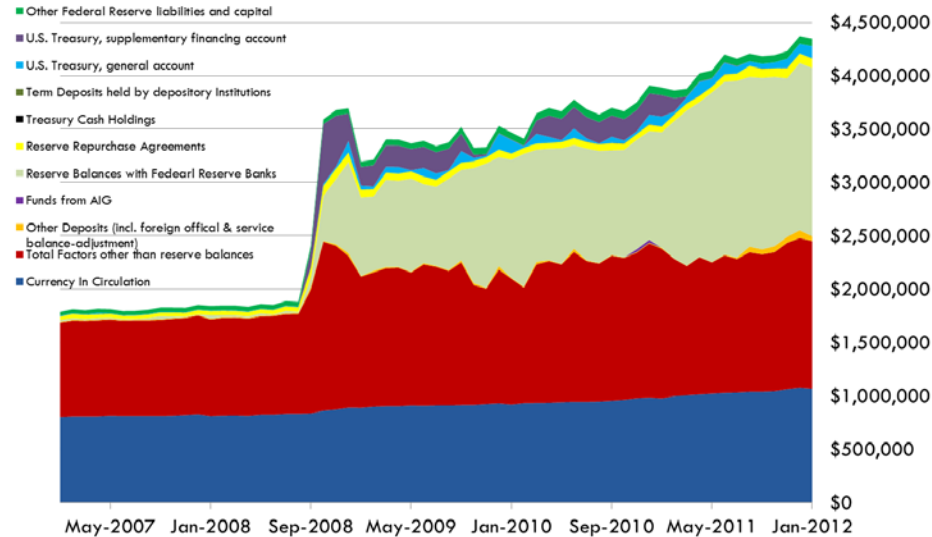
²¹³ Press Release, Federal Open Market Committee Statement (September 21, 2011).

to differentiate between the concepts of liquidity and solvency, which are often interconnected. Moreover, dynamic and complex markets are ill-suited to clean, post-hoc dissection and explanation. A lack of consensus among economists about the ultimate effect of the Federal Reserve's discretionary actions reinforces this view.

However, three observations about the Federal Reserve's recent actions are worth mentioning:

- (9) The Federal Reserve's actions have increased market uncertainty. During the height of the crisis, the Federal Reserve pursued a scattershot approach to addressing market failures. Some programs were poorly articulated, while others were implemented differently than advertised or not at all. With respect to individual firms, the Federal Reserve may have even contributed to the liquidity crisis by "saving" some firms and not others, thereby complicating creditors' risk calculus and creating moral hazard.
- (10) The Federal Reserve's decision to sustain the size of its post-crisis balance sheet through its quantitative easing programs has increased the risk for accelerating price inflation as the recovery strengthens. QE1 and QE2 have jointly extended two trillion dollars of credit to the banking sector, as reflected by the staggering increase in the monetary base beginning in the fall of 2008. To date, banks have chosen not to lend these funds out. As a result, excess reserves held on deposit at the Federal Reserve are over \$1.5 trillion (Figure 3). These funds represent a real risk to the economy because if they are lent out more rapidly than Federal Reserve policy can manage, high and destructive inflation will ensue.

Figure 3. Massive Expansion of Federal Reserve Liabilities since 2006, (millions \$)

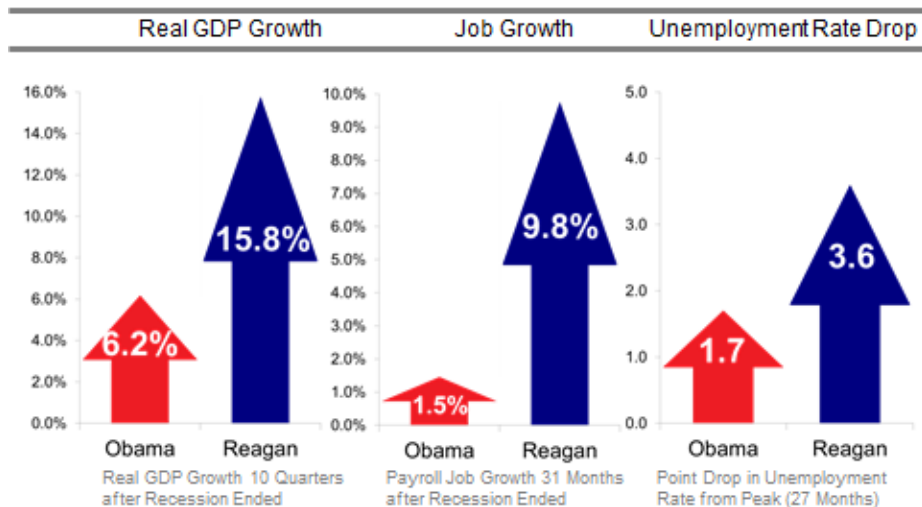


Source: Federal Reserve Board

(11) The discretionary monetary policy climate of recent years has once again correlated with a period of increased economic volatility and subpar performance. For example, the current recovery has greatly underperformed relative to the next most severe recession-recovery cycle, which occurred in the early 1980s under President Reagan. In that recession, the economy grew 15.8 percent and the unemployment rate fell 3.6 percentage points in the first ten quarters of the recovery. By contrast, the economy has grown just 6.2 percent and the unemployment rate has only fallen 1.7 percentage points since the recent economic recovery began in June 2009 (Figure 4).

Figure 4. Growth, Jobs and Unemployment

Obama Recovery Loses to Reagan Recovery on Key Measures



Source: Joint Economic Committee Republicans

A Note on the Federal Reserve's New Inflation Target

In its most recent monetary policy statement (January 2012), the Federal Open Market Committee adopted two new policies. The first policy was an extension of an existing one: the Federal Reserve communicated that it intended to hold the rate for federal funds at extremely low levels for an additional year, until late 2014. This action places the Federal Reserve on an even more aggressive monetary policy footing.

The second policy was even more consequential: the Federal Reserve adopted an explicit inflation target. It noted, “[t]he inflation rate over the longer run is primarily determined by monetary policy, and hence the Committee has the ability to specify a longer-run goal for inflation.”²¹⁴ The FOMC determined that a 2% inflation rate, as measured by the annual change in the price index for personal consumption expenditures, was most appropriate.

Articulating an explicit inflation target was a significant, positive step toward a more rules-based and predictable monetary policy. Many central banks, including the Bank of England, the European Central Bank, and the Reserve Bank of New Zealand, have successfully executed monetary policy by using an explicit target for the price inflation rate.²¹⁵ The benefits of these targets are three-fold: (1) they increase accountability for monetary policy at the central bank; (2) they increase transparency of central bank monetary policy formation; and (3) they increase the independence of the central bank relative to elected policymakers.

However, there exist unknowns related to the Federal Reserve's implementation of its new target. A primary question relates to the Federal Reserve's tolerance for short- to medium-term inflation, which can also be damaging to economic growth and job creation. Does the new 2% long-term inflation target allow for 5% inflation, or perhaps more, over a short-term time horizon? If so, the current articulation would be insufficiently restrictive. What is the highest tolerable rate of inflation over 5 years? 10 years? The answers to these questions go to the heart of the Federal Reserve's commitment to price stability. A related question focuses on the 2% inflation target itself. Is the 2% inflation rate a middle point, a lower bound, or an upper bound? Again, this kind of clarification is important to revealing the Federal Reserve's true intention with its new policy.

POLICY RECOMMENDATIONS

²¹⁴ Press release, Federal Open Market Committee Statement (January 25, 2012).

²¹⁵ Cobham, David (Ed.), “Twenty Years of Inflation Targeting: Lessons Learned and Future Prospects,” Cambridge University Press (2010).

The Federal Reserve's monetary policy deviations in the period between 2002-2005 contributed to a destructive housing bubble; and new discretionary policies in the wake of the financial crisis of 2008 have increased uncertainty in the market and risk higher inflation in the future. These recent decisions represent a distinct shift away from the rules-based policies that characterized the Great Moderation of the 1980's and 1990's. Since it is well understood that predictable, rules-based policies create macroeconomic certainty and spur long-term economic growth and job creation, it would behoove federal policy makers to return to such a rules-based approach. Thus, the Federal Reserve should implement a rules-based monetary policy going forward. This study makes four recommendations that policymakers should adopt, either individually or jointly, in order to increase the likelihood of a more stable monetary policy:

(12) Create A Single Mandate For Long-Term Price Stability

The Federal Reserve's dual mandate—stable prices and maximum employment—has been in place since 1977. However, in practice, most central bankers have focused their efforts on achieving long-term price stability. In fact, among the 47 central banks and monetary authorities surveyed by the Bank of International Settlements in 2009, only the Bank of Canada and the Federal Reserve have additional mandates that are equal to the weight of price stability.²¹⁶ This is because a consensus exists among economists that monetary policy only affects real output and employment levels in the short term, whereas fundamental market factors (e.g., productivity growth and innovation, which are largely driven by budget, tax, and regulatory policies) affect real output and employment levels in the long term. Because an environment of price stability is conducive to long-run economic growth, achieving long-term price stability necessarily maximizes the sustainable positive effect that monetary policy can have on long-term employment levels.

A recent study by the vice president of the Federal Reserve Bank of St. Louis, Daniel Thornton, echoes this analysis and provides an additional perspective through a historical

²¹⁶ Ortiz, Guillermo and Yam, Joseph (Chairs of the Central Bank Governance Group), "Issues in the Governance of Central Banks," Bank of International Settlements (May 2009).

analysis of the FOMC's statement of policy objectives.²¹⁷ Interestingly, until December 2008, the Federal Reserve had never mentioned the maximum employment prong of the dual mandate in its statement of policy objectives (which is found within the policy directive the FOMC votes on every six weeks)—a period covering almost 30 years since the dual mandate was created. This first mention occurred just before the Federal Reserve began its first large-scale asset purchase program (QE1). Again, in November of 2010, as the second program (QE2) program was initiated, “[r]eference to the objective of maximum employment was more prominent.”²¹⁸ Although it is unclear whether these references indicate a substantive change in Federal Reserve policy, they do suggest that Federal Reserve governors might be using the maximum employment prong of the dual mandate as a “cover” for engaging in unconventional and discretionary policies.

The best way to achieve maximum real output and employment through monetary policy is, in fact, to achieve stable prices; and given the Federal Reserve's possible use of the dual mandate as a basis for engaging in disruptive, discretionary policies, policymakers may want to consider simplifying the Federal Reserve's mandate to include only stable prices.²¹⁹

(13) Require the Federal Reserve to Monitor Asset Prices for Signs of Incipient Asset Price Bubbles

The Federal Reserve should monitor whether or not its selected price index fully captures price movements in the economy. In measuring inflation, the Federal Reserve should consider the effects of monetary policy on asset prices and the potential misallocation of capital. While an easy monetary policy usually flows evenly into the prices of goods and services, an easy monetary policy sometimes flows disproportionately into the prices of certain assets. In such cases, broad-based goods and services price indices (e.g., the consumer price index (CPI), the personal consumption expenditure (PCE) deflator) will not fully capture the price

²¹⁷ Thornton, Daniel, “What Does the Change in the FOMC Statement of Objectives Mean?” *Federal Reserve Bank of St. Louis Economic Synopses No. 1* (2011).

²¹⁸ *Ibid.*

²¹⁹ See Thornton, Daniel, “The Case for ‘Inflation First’ Monetary Policy,” *Federal Reserve of St. Louis Economic Synopses No. 47* (2009).

inflation occurring in the economy. As a result, the disproportionate impact of monetary ease on asset prices may cause unsustainable price bubbles in certain assets without broad-based goods and services price indices registering significant price inflation.

The Federal Reserve's response to potential asset price bubbles would vary depending upon the circumstances. No consensus exists as to whether a central bank should simply "lean against" asset price bubbles (i.e., factor them into the mix of indicators signaling inflationary or deflationary forces) or take more aggressive actions to "prick" asset bubbles.²²⁰ The policy response might involve monetary policy tightening, supervisory suasion, or regulatory action to reduce the excessive flow of credit to fund speculation in the asset class. Of course, the correct course of action might require a combination of actions. However, regardless of the outcome of the current debate, the impact of monetary policy on individual asset classes should be considered within the context of monetary policymaking.

(14) Restrict Open Market Operations to U.S. Treasury Securities, repurchase agreements, and reverse repurchase agreements during Normal Times

The Federal Reserve's post-crisis purchase of over \$1.25 trillion of residential mortgage-backed securities has been one of its most controversial actions in recent years, and with good reason. By moving beyond the confines of the U.S. Treasury market (including most repurchase agreements and reverse repurchase agreements, which are collateralized by U.S. Treasuries), the Federal Reserve began allocating credit to selected markets, such as the residential mortgage market, which now features artificially low mortgage rates dampened by the Federal Reserve's purchase program.

The Federal Reserve faces a fundamental threat to its ability to independently conduct U.S. monetary policy when it begins allocating credit outside of the U.S. Treasury market—therein politicizing its actions. Initially, the Federal Reserve's RMBS portfolio was set to run off over time, as mortgages were refinanced, homes were sold, or principal was repaid over

²²⁰ For an example of an analysis suggesting "asset prices are relevant only to the extent they may signal potential inflationary or deflationary forces," see, Bernanke, Ben and Gertler, Mark, "Monetary Policy and Asset Price Volatility," NBER Working Paper No. 7559 (200).

time. However, in September 2011, the Federal Reserve reversed this policy and announced that it would begin reinvesting the principal payments from its holdings of federal agency RMBS—thereby holding constant its position in the market—instead of allowing it to taper off as originally proposed. It may or may not be coincidental that the Fed's policy reversal coincided with intense political pressure to support the ailing housing market in order to spur a more robust recovery. Regardless, what is clear is that the Federal Reserve should not insert itself into political debates unless it is absolutely necessary under circumstances similar to those required for the Federal Reserve to invoke its 13(3) authority to extend emergency loans.

(15) Require the Federal Reserve to Articulate a Clear Lender-of-Last-Resort Policy to Govern Future Crises

In the wake of the financial crisis, Chairman Bernanke justified the extraordinary steps taken by the Federal Reserve to bail out several firms that were previously outside its regulatory purview by noting, “Because the United States has no well-specified set of rules for dealing with the potential failure of systemically critical non-depository financial institutions, we believed that the best of the bad options available was to work with the Treasury to take the actions we did to avoid those collapses.”²²¹ To be sure, in its nearly 100 year history, the Federal Reserve has never clearly articulated its lender-of-last resort strategy.²²² Well-known economist and Federal Reserve historian Allan Meltzer clearly describes the problems this policy void creates:

The absence of a [lender-of-last-resort] policy has three unfortunate consequences. First, uncertainty increases. No one can know what will be done. Second, troubled firms have a stronger incentive to seek a political solution. They ask Congress or the administration for support or to pressure the Federal Reserve or other agencies to save them from failure. Third, repeated rescues encourage banks to take greater risk and increase

²²¹ “Federal Reserve Policies to Ease Credit and Their Implications for the Fed’s Balance Sheet,” Remarks by Chairman Ben S. Bernanke at the National Press Club Luncheon, National Press Club, Washington D.C. (2009).

²²² See Meltzer, Allan H., “Policy Principles: Lessons from the Fed’s Past,” in *The Road Ahead for the Fed*, Hoover Institute (2009).

leverage. This is the well-known moral hazard problem.²²³

Requiring the Federal Reserve to clearly establish a lender-of-last resort policy—or at a minimum, a framework or set of guidelines—will decrease uncertainty in the market during a future crisis and mitigate the moral hazards created by the legacy of the recent “too-big-too-fail” bailouts. A clear lender-of-last resort policy will also provide policymakers a benchmark against which oversight can be conducted.

CONCLUSION

This study suggests four possible Federal Reserve reforms that policymakers may want to consider to ensure a stable monetary policy going forward.

- (16) Creating a single mandate for price stability;
- (17) Requiring the Federal Reserve to monitor asset prices for signs of incipient asset price bubbles;
- (18) Restricting open market operations to U.S. Treasury securities, repurchase agreements, and reverse repurchase agreements during normal times; and
- (19) Requiring a clear lender-of-last-resort policy.

Each reform seeks stability through increased transparency and predictability. Concurrent with policymakers’ consideration of these reforms, the Federal Reserve itself should outline a clear exit strategy from today’s discretionary climate and begin fostering a climate characterized by flexible, rules-based policies.

²²³ *Ibid.* at 22.

APPENDIX A: UNCONVENTIONAL LENDING FACILITIES AND BAILOUTS

<i>Federal Reserve Action</i>	<i>Start Date</i>	<i>Description</i>
Term Auction Facility (TAF)	12/12/2007	The TAF auctioned funds to depository institutions under terms similar to the Federal Reserve's discount window. The TAF initially auctioned up to \$20 billion every two weeks, but this amount was increased on several occasions to as much as \$150 billion every two weeks.
International Swap Lines	12/12/2007	The Federal Reserve provided dollars temporarily to foreign central banks in exchange for foreign currency collateral and interest, enabling them to stabilize dollar-based markets within their jurisdiction.
Term Securities Lending Facility (TSLF)	3/11/2008	The TSLF allowed primary dealers (e.g., investment banks) to post collateral and temporarily swap illiquid assets for highly liquid assets such as U.S. Treasuries in order to increase liquidity in financial markets.
Federal Reserve bails out Bear Stearns	3/14/2008	The Federal Reserve facilitated the sale of the investment bank Bear Stearns to JP Morgan through a nearly \$30 billion loan—the first financing of a non-commercial bank institution in four decades.
Primary Dealer Credit Facility	3/16/2008	The PDCF sought to improve broker dealers' access to liquidity in the overnight loan market banks use to meet their reserve requirements.

(PDCF)		
Federal Reserve bails out AIG after allowing Lehman Brothers to fail	9/16/2008	Just days after allowing the investment bank Lehman Brothers to fail, the Federal government effectively nationalized the insurer American International Group and the Federal Reserve lent the firm \$85 billion.
Asset-backed Commercial Paper Money Market Fund Liquidity Facility (AMLF)	9/19/2008	The AMLF made non-recourse loans to banks to purchase asset-backed commercial paper. The AMLF would soon be superseded in importance by the creation of the Commercial Paper Funding Facility.
Commercial Paper Funding Facility (CPFF)	10/7/2008	The CPFF was used to purchase highly rated secured and unsecured commercial paper from issuers. It was the first Federal Reserve facility in modern times with an ongoing commitment to purchase assets, as opposed to lending against assets, and the first time in 50 years that the Federal Reserve provided financial assistance to non-financial firms.
Money Market	10/21/2008	The MMIFF was created to lend up to \$540 billion to private sector special

Investor Funding Facility (MMIFF)		purpose vehicles that invest in commercial paper, but the facility expired at the end of October 2009 without ever being used.
Term Asset-backed Loan Facility (TALF)	11/25/2008	The TALF addressed problems in the market for asset-backed securities (ABS). Using this facility, the Federal Reserve made non-recourse loans to private U.S. companies that had a relationship with a primary dealer to purchase recently issued, highly rated ABS.
Federal Reserve bails out Citigroup	1/16/2009	The Federal Reserve worked jointly with the U.S. Treasury and the Federal Deposit Insurance Company to provide a package of guarantees, liquidity access and capital to Citigroup.

Appendix B

SUPPLEMENTAL MATERIALS FROM THE
“ROAD MAP TO SOUND MONEY: A LEGISLATIVE HEARING ON
H.R. 1098 AND RESTORING THE DOLLAR”
HEARING OF THE SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY AND TECHNOLOGY

Tuesday, September 13, 2011

QUESTIONS FOR THE RECORD

FROM CHAIRMAN RON PAUL TO
LAWRENCE M. PARKS
EXECUTIVE DIRECTOR, FOUNDATION FOR THE
ADVANCEMENT OF MONETARY EDUCATION

Question 1:

Part of the purpose in discussing H.R.1098 and holding this hearing was to initiate a discussion on how we begin to achieve sound money. Your Foundation for the Advancement of Monetary Education has been educating people for more than 17 years about the benefits of an honest monetary system and the perils of, what you call in your testimony, legal tender irredeemable paper-ticket-electronic money. From your experience, what are your suggestions to expedite implementing an honest monetary system that is in conformity with the Constitution?

Answer:

For the reasons outlined in my written testimony, it is urgent that the United States begin a transition to an honest monetary system to replace our current legal tender irredeemable paper-ticket-electronic monetary system before it completely collapses.

Here is what needs to be done.

Preconditions:

Before the problem of how to change our monetary system can be addressed, there must be widespread recognition that there is a problem. While the symptoms of our dysfunctional and dishonest monetary system are well recognized and complained about, few have traced the cause back to legal tender irredeemable paper-ticket-electronic money.

The parameters of the problem need to be stated and legitimized. That is the role of intellectuals. As a precondition for implementation, those intellectuals who help establish credibility and build support for an honest monetary system must be paid. As I outline the steps, please keep in mind that all of this will need to be financed.

Because of the almost 100 years of misinformation and disinformation about our monetary system, putting what I

call the money issue on the national agenda in a manner that its importance becomes widely recognized is a large task. Here are some of the steps that are usually taken to affect social change and which can be employed:

- (1) Engage “academic cover.” Teaching about the perils of legal tender irredeemable paper-ticketelectronic money and the benefits of an honest monetary system will require some combination of:
 - a. Endowed chair(s);
 - i. There are not many candidates for an endowed chair who are knowledgeable about the perils of legal tender irredeemable paper-ticket-electronic money and the benefits of an honest monetary system. Professor Richard Ebeling, the former von Mises Professor of Economics at Hillsdale College comes to mind. An endowment requires several million dollars. It should be named after a famous person to give the chair the imprimatur of legitimacy. Best if the school is well respected. The holder of an endowed chair many times becomes head of department, which would give one some control of the curriculum, the selection of textbooks, the hiring of additional staff, and a say in awarding tenure appointments.
 - b. Academic prizes;
 - i. Prizes help confer the mantel of being an expert on a prize holder. This is a common technique to legitimize concepts. For example, the so-called *Nobel Prize in Economics* is not one of those prizes that Alfred Nobel established in 1895. The Economics prize came in 1968 and is endowed not by the Nobel Foundation but by the Central Bank of Sweden. It is a *bank* prize, and its real name is the *Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel*. This prize is never awarded anyone who even hints at the dishonesty of legal tender irredeemable paper-ticketelectronic money or questions the

legitimacy of central banking.

- ii. Prizes help spur research and books. For example, the Gilder-Lehrman Institute for the past 12 years has awarded a \$25,000 book prize about Frederick Douglass, an important historical figure, but certainly not one that most people have heard of. If memory serves, at this year's award ceremony it was mentioned that there were 63 books submitted for consideration. Imagine all of the study, articles, academic courses and other activities resulting from this kind of prize.
- c. Honorariums for lectures/presentations;
 - i. Academics, just like everyone else, are quick to respond to financial incentives. In industry, to establish the *bona fides* of concepts, products, etc. it is common to hold events where leading academics make a presentation. Wall Street does this all the time. It is only natural for someone who is being paid, say \$50,000 (not an unheard of amount), to be the keynote speaker at a conference to understand what one is expected to say.
- d. Research grants;
 - i. Later in the process for achieving social change, e.g., getting legislation passed, there will be legislative hearings. Witnesses will be called (who might be the witnesses today to support getting rid of legal tender irredeemable paper-ticket-electronic money?), and evidence will need to be introduced. Lawmakers will require "cover" as well. Research findings will be necessary. Today, the Federal Reserve, for example, sponsors hundreds, maybe thousands, of reports, studies, etc. in support of the current system. Those who back an honest monetary system will need intellectual ammunition and their own expert witnesses to counter these.

- (2) Engage think tanks. There is a worldwide network of think tanks that conduct research and engage in advocacy. They staff recognized experts in almost every area.
 - a. Think tanks produce research reports (which will be needed to support proposed legislation), their experts write op-eds and articles which are published in the general media, they hold conferences and other events that are attended by media people, and they arrange for their experts to appear in the major media. Think-tank sponsored conferences are another distribution channel for imparting legitimacy to ideas.
 - b. Also, when journalists and researchers want information about a topic, they most times approach those who are considered to be “expert.” As with prize winners, heads of department in the Academy and authors, think tanks are many times the source of expert opinion. Think tanks help establish credibility for and legitimize ideas.
 - c. To attract attendees when a business enterprise holds an industry conference, it many times arranges for “entertainment.” A top intellectual from a well-known think tank not only adds the prestige of being a scholar, but also provides name recognition of the think tank that the scholar represents.
 - d. As with other distribution channels, radio and television programs also seek to have “experts” appear. Think tanks many times are sources of authorities.
 - e. It may be beneficial to sponsor new think tanks to address the money issue.
- (3) Engage a public relations firm.
 - a. Public relations firms typically provide a distribution channel to the major media. While they many times also help devise a media strategy for introducing concepts and ideas to the general public, their most

important function is to get publicity for content. To do that, public relations firms are generally staffed by former editors, television producers, and others who have relationships with the major media. That's how many op-eds, articles and television program specials get placed. Public relations firms expedite media appearances and conference participation.

- (4) Make use of Internet technology.
 - a. New innovations, e.g., Facebook, Twitter, mobile device apps, email marketing, etc. should be used to help distribute intellectual ammunition highlighting the perils of legal tender irredeemable paper-ticket-electronic money and the benefits of an honest monetary system.
- (5) Engage lobbyists.
 - a. Legislation will be required to make a transition to an honest monetary system. I think it is fair to say that no important legislation gets passed in the U.S. without significant lobbying. A key issue is: who will pay the lobbyists? (More about this follows.)
- (6) Management: An umbrella organization will be needed to oversee and manage this process.

Rebut stated objections to eliminating paper money

The principal objections to transitioning from paper money must be addressed (that will be the task of experts who will need to present convincing and truthful research). It is not my purpose to counter these objections here except to say that they are all easily addressed with empirical evidence and logical reasoning.

- (1) The proposition that financial markets are inherently unstable.
 - a. The argument is that since financial markets interconnect all other markets, and since financial markets have historically gone through periods of

boom and bust¹, there must be some mechanism, called the “lender-of-last-resort,” to rescue financial markets when they become vulnerable to collapse. Otherwise, the argument goes, society could collapse. If we don’t have paper money, i.e., if we have gold-as-money or money that is somehow linked to, redeemable into, or otherwise connected with gold, there may not be enough gold to go around. Therefore, it is claimed, we must rely on paper money and associated institutions, e.g., central banks.

(2) Need for safety nets.

- a. Sometimes, even without a systemic collapse, such as occurred in the 1930s, there come times when there are severe economic dislocations and high unemployment, as we have now. The argument is that this requires safety nets, e.g., unemployment benefits. If politicians don’t have easy access to legal tender irredeemable paper-ticket-electronic money, then it may not be possible to finance the safety nets. Also, it is further argued that it may be necessary for government to provide “stimuli” in the form of government-sponsored “investments,” say in infrastructure or whatever, to “get the economy moving.” If we don’t have a monetary system that includes legal tender irredeemable paper-ticket-electronic money, such government action may not be possible.

(3) Not enough gold for government to honor entitlement promises, especially Medicare.

- a. Regardless of whether our legal tender irredeemable paper-ticket-electronic monetary system is maintained, Medicare and Medicaid promises cannot be met. Current legislation aimed at reducing payments to providers and limiting coverage is just another way of defaulting. The solution, regardless of the monetary system, is to eliminate the monopoly

¹ Famed economist John Maynard Keynes hypothesized that financial excesses are driven by “animal spirits.” I interpret this to mean that every now and then something in folks’ pituitary gland causes them to go off the rails financially. In my view, this is nonsense, and, to paraphrase Keynes, “nonsense on stilts.”

that doctors have on the delivery of healthcare and the stranglehold that the FDA has on approval of new drugs and devices. It is well-known that whenever there is a monopoly prices increase and the level of service goes down. What is the mystery that this principle should not apply to healthcare?

- a. Social Security can easily be made solvent by increasing the retirement age and other adjustments, as should have been made long ago, again, regardless of the monetary system.

(4) Not enough gold to fund defense.

- a. The argument is that historically, when countries were on the gold standard, which system is not being recommended, the ability to redeem gold certificates for gold was frequently suspended in order to finance war with legal tender irredeemable paper-ticket-money. However, it was always understood that after war was over convertibility would be resumed. In fact, there is always enough gold and accumulated wealth to finance wars that have the support of the people. It is only wars of adventure and the stationing of troops all over the world that will have difficulty being financed.

(5) Without paper money, the ability of politicians to manage the economy would be severely constrained.

- a. This is true. However, for those engaged in producing goods and final services that improve the lives of ordinary people, as opposed to those who profit from moving paper around, the ability of politicians to manage the economy should be constrained, if not totally eliminated.

(6) Limits to the amount of gold to support a growing economy.

- a. The argument is that as an economy grows, there needs to be more money to fund that growth. With gold or other commodity money there may not be enough and growth will be unnecessarily constrained.

Unstated Objections to eliminating paper money

Whenever legislation is proposed or opposed, there is a stated agenda, usually positioned that the legislation will be good or

bad for the country (whenever possible, legislation is also positioned as being good or bad for children). There is also almost always an unstated agenda that the proposed legislation will help or hurt a particular special interest. Proposals to change the monetary system away from legal tender irredeemable paperticket-electronic money are vulnerable to very material unstated objections. The reason they are unstated is that, because few would agree that the objections are valid if they were openly acknowledged.

- (7) Eliminating legal tender irredeemable paper-ticket-electronic money limits politicians' ability to extract "campaign contributions" for granting special privileges and protecting suppose interests. Fewer "campaign contributions" impair politicians' tenure in office.
- (8) The most important unstated objection to eliminating legal tender irredeemable paper-ticketelectronic money is that it limits financial leverage and profits to the financial sector. For example, today there is something north of \$60 trillion under professional management generating a fee stream on the order of \$500 billion (no typo) per year. Additional hundreds of billions are garnered from transaction fees. This fee stream would almost totally evaporate if we don't continue with legal tender irredeemable paper-ticket-electronic money. Those who profit from the current system will mount a spirited defense of it and will denigrate any proposed monetary system based on gold.

Who should decide the parameters of a new monetary system?

On March 11th, 2009, the *Financial Times* ran a large article about who would be called upon to fix the financial debacle². Of the 50 names put forth, only three were from the productive (the article called them "industrialists") sector. The corpus consisted of central bankers, bankers, economists whom they have coopted, financial sector regulators, financial sector investors, heads of financial sector institutions, and politicians whose allegiance that the financial sector has bought off with what are euphemistically referred to as "campaign contributions." If in fact these folks should come up with a plan, I think it fair to say that "the fix would be in."

² Lionel Barber, "Fifty who will frame a way forward", March 11 2009, The Financial Times, <http://www.ft.com/intl/cms/s/0/2fe0826a-0dac-11de-a10d-0000779fd2ac.html#axzz2GWA SA8RI> (last accessed December 30, 2012)

Ideally, the monetary system should serve the needs of ordinary people and those who produce products and final services. Thus, those who should be responsible for determining the structure, i.e., what the money should be, of the monetary system are manufacturers, farmers, end-product service providers (as opposed to intermediaries), private sector organized labor, small countries, savers, seniors, and our trading partners. There may be others, but the point is to exclude financial sector participants for reasons which shall be stated shortly. Others should include the same categories of participants from Canada, Mexico, Germany, the UK, China, France, South Korea, Japan, etc.

The reasons why financial sector participants should be excluded from shaping new monetary system specifications are:

- (9) Financial sector participants do not produce any final service or product. At best, they are intermediaries facilitating production or services. In other words, while their services are necessary, their services are analogous to friction which costs should be minimized; and,
- (10) They have a conflict of interest with everyone else. What producers of products and services want is a monetary system that will minimize the cost of transferring wealth over time along with monetary, foreign exchange, interest rate, and balance sheet stability. The costs which producers want to minimize are revenues to the financial sector. Moreover, because the financial sector garners so much of its profits from trading, it does not want stability. It wants volatility. For the past 100 years at least, the *structure* of the monetary system has been largely left in the hands of financial sector participants. They have rigged that *structure* to their benefit and to the detriment of everyone else.

Those in the public sector, especially politicians, should also not provide input to the monetary structure. Once the parameters are determined by end users, it will be up to the politicians to accept or reject the recommendations.

Implementation

There needs to be broad support from those who have a real and legitimate stake in defining a new monetary system.

Fortunately, there is precedent whereby the major beneficiaries of a proposed system have gotten together on a worldwide basis to design a new system. The model which could easily be emulated is the highly successful Global XML Initiative.

The Global XML Initiative was a joint effort by many of the world's largest companies (cross-industry and cross-geography), especially those engaged in international trade, to develop a set of protocols whereby they could communicate with one another and their suppliers over the Internet to send purchase orders, acknowledgements, etc. and to eliminate, or at least greatly reduce, paper processing. Think of the result as akin to the ability of any bank to send wire transfers to any other bank worldwide across all industries.

The Global XML Initiative, after joint study and conferences, set up protocols that all companies subscribed to. I propose a Global Currency Initiative using a similar methodology.

Who will finance the Global Currency Initiative (the "GCI")?

It is anticipated that funding will come from three principal sources:

- (11) Gold sector participants (gold producers, gold funds, and hedge funds that have allocated significant assets to gold) on the theory that the conclusion of the GCI will be gold-as-money. In that event, gold sector participants can expect material relative asset valuation increases;
- (12) Large industrial enterprises on the theory that the new monetary system will eliminate, or at least greatly reduce, foreign exchange, interest rate and balance sheet volatility. While the costs of foreign exchange and interest rate volatility are not reflected in company financials, revenues to the financial sector are borne largely by productive sector businesses. I estimate those revenues, and the concomitant amounts that will fall to the bottom line for companies in the productive sector to be more than a trillion dollars per year. In addition, current systemic instability introduces enterprise risk for major businesses, i.e., the careful accumulation of productive capital over generations could be obliterated in the blink of an eye; and,
- (13) Foundations and other charities whose mission includes

increasing the standard of living for all people and helping to ensure peace and stability.

The Global Currency Initiative

The primary purpose of the GCI will be to establish criteria for a new monetary system. Then GCI participants will mobilize their already-on-retainer lobbyists to lobby elected representatives to legislate a new system. To signal that the GCI should be considered seriously and to attract high-level participants, someone who has earned worldwide respect in industry should lend his/her name to the project, e.g., Andy Grove or Bill Gates.

It is proposed that the criteria for a new monetary system be consistent with three guiding principles:

- (14) Full disclosure of all relevant information;
- (15) No misrepresentations; and,
- (16) No coercion, i.e., people should be free to accept or reject any particular form of money. The jargon for monetary coercion is legal tender, a power not authorized to the United States Government by the U.S. *Constitution*.

Possible criteria for the new monetary system to be considered should include (but not be limited to):

- (17) Low and stable interest rates;
- (18) Stable foreign exchange rates;
- (19) Price stability;
- (20) Balance sheet stability;
- (21) Conformity with the U.S. *Constitution*;
- (22) Conformity with the teachings of the major religions about money;
- (23) No special privileges for any sector or government (thus eliminating moral hazard);
- (24) Minimize the cost of transferring wealth over time.

After there is agreement on the criteria for the new monetary system, proposals for particulars will be evaluated on the basis of how well they meet the desired criteria. My research indicates that the system that best meets the criteria is gold-as-money. However, it is proposed that the GCI

participants reach their own conclusions.

Gold-as-money monetary system

After the GCI has been consummated, I anticipate that the new monetary system will be the one system that has been the choice of free people whenever gold (and/or silver) was available: a monetary system that uses gold-as-money.

To make the switch-over in the least painful way, mindful that pain is unavoidable as the current legal tender irredeemable paper-ticket-electronic monetary systems implodes, is to leave everything in place: the so-called “dollar,” the Federal Reserve, the “lender-of-last-resort,” the International Monetary Fund, the World Bank, the euro, the yen, the yuan and all central banks and banking institutions worldwide. Any government or company or person who wishes to continue to use and save irredeemable paper-ticket-electronic money should be free to do so.

However, the coercion associated with irredeemable paper-ticket-electronic money, legal tender laws, should be repealed worldwide. Further, there should be no taxes of any kind (sales taxes, income taxes, VAT taxes, etc.) levied against gold or silver. In addition, at least in the U.S., the gold that supposedly resides in Fort Knox and other depositories should be distributed per capita to citizens, and perhaps the same worldwide, and mints should be opened to free coinage. Gold and silver coins should be denominated by weight.

It is anticipated that as irredeemable paper-ticket-electronic money continues to depreciate, transactions for future settlement will more and more be denominated in gold by weight, not dollars or any other paper money. In this way, it is hoped that a monetary transition, as opposed to a monetary discontinuity/collapse, can be made over time.

Question 2:

Answer:

In your testimony, you suggest that H.R.1098 is necessary to implement an honest monetary system in conformity with the Constitution in part because H.R.1098 repeals legal tender laws. However, it would appear that existing legislation already empowers one to contract for payment in gold and compel specific performance. If this is correct, please explain further why you believe H.R.1098 is essential legislation.

In my testimony I highlight how the Founders abhorred legal tender, especially Thomas Jefferson and Tom Paine. I also quote from Justice John Marshall and Daniel Webster who also opposed legal tender. I explain how it came to be that the Supreme Court legitimized legal tender in what today (and at the time when the decisions came down) prominent legal scholars called the decisions questionable at best. As Judge Bork once put it:

[t]his Nation has grown up in ways that do not comport with the intentions of the people who wrote the Constitution -- the commerce clause is one example -- and it is simply too late to go back and tear that up. I cite to you the legal tender cases. These are extreme examples admittedly. Scholarship suggests that the Framers intended to prohibit paper money.³

I also emphasize that Chief Justice Salmon Chase dissent in *Knox vs. Lee* declared: “The legal tender quality [of money] is only valuable for the purposes of dishonesty.” A clearer condemnation is not possible, in my view. One would hope that our government would stop being a party to something that is *prima facie* dishonest.

Professor Lawrence White, while endorsing competition in currency, makes the valid point that there is already an exception to the “Legal Tender Statute,” 31 USC, §5103 in that since 1977 one may insert a “gold clause” in contracts and insist on receiving payments in gold, or in an amount of dollars indexed to the price of gold.

Because gold (with a minor exception being silver, and which is irrelevant) is the only commodity for which there is more than a year’s worth of production above ground that could easily be brought to market—there is in fact more than 65 years’ worth of gold production above ground—gold is the only commodity when used as money that could provide price stability for future payments. Thus, if price stability is to be a criterion for a new monetary system, with full disclosure and absent coercion and misrepresentations, gold-as-money will be a principal candidate.

One might conclude, therefore, that on account of the 1977 exception for gold, HR1098’s repealing legal tender is not

³ Hearings Before Senate Comm. on the Judiciary 100th Cong., 1st Sess. Nomination of Robert H. Bork to be Associate Justice of the Supreme Court of the United States: art 1 at 84-85 (1987), as referenced by: http://www.law.duke.edu/boylesite/bork.htm#N_60 (last accessed December 30, 2012)

necessary, and that if one wants to transact with gold-as-money one could and would do so now. In my view, this is wrong and HR1098 is necessary and essential if we are going to transition away from legal tender irredeemable paper-ticket-electronic money for the following reasons:

- (25) Hardly anyone knows that contracts payable in gold are now legal and supposedly enforceable. All over the world, gold has been “demonetized.” The International Monetary Fund, for example, modified in 1978 its *Articles of Agreement*, Section 4-2b, to prohibit member countries from linking their currencies to gold and only to gold. Irredeemable paper-ticket-electronic money is legal tender in every country, as far as I know. Thus, absent a clear repudiation by the world’s leading monetary power, the United States, legal tender will remain an impediment for using gold-as-money for international transactions as well as domestic transactions.
- (26) U.S. Gold Eagles, authorized by the *Gold Bullion Coin Act of 1985*, have a nominal face value of \$50 and are themselves “legal tender.” The market value of the gold content in Gold Eagles is almost 38 times their face value. Gains on the dollar value of gold using U.S. Gold Eagles for transactions is considered income by the IRS and are subject to special additional income taxes, because the IRS has categorized gold as a “collectible.” In some locales gold and/or bullion coins are subject to sales taxes. These factors alone stymie anyone attempting to switch away from legal tender irredeemable paper-ticket-electronic dollars to gold-as-money.
- (27) As a practical matter, a gold clause requiring payment in gold in contracts is, in my view, a deal killer. For example, how could a debtor have any confidence that he could perform? Further, if one promised gold as payment, where might one reliably get gold at the time that payment is due? Today, on information and belief, commodity exchanges provide that contracts for gold bought for future delivery may be settled in cash, i.e., paper money. In addition, there is material counterparty risk that any arrangements that a debtor makes to pay in gold could be frustrated. Why would a debtor or creditor undertake the risk of payment in gold? Further, to acquire U.S. Gold Eagles, the most reliable form of gold-as-money for use in commercial transactions, one must pay a 3% premium on the dollar market value of the coins, which is charged by the U.S. Mint, plus a commission to a

selling dealer which is generally in the range of one to two percent of the dollar market value of the coins. I am aware of no commercial transactions that use gold-as-money in the form of U.S. Gold Eagles or any other form of physical gold for future payment. In other words, the exception to the Legal Tender Statue cited by Professor White is of no practical significance.

- (28)The notion of fiat money, i.e., arbitrary money whereby a politician(s), under the color of law, designates something that is inherently worthless (such as a piece of paper) gussied up with seals and signatures as having value as money has historically been repugnant to the American sense. These days, in part because the concept of fiat money has been removed from course curricula in almost all government schools, few have any knowledge of the history or threats of fiat money to their economic and political well-being. This was not the case as recently as 1933. Then, ordinary people understood what fiat money was and would not have tolerated it. Evidence for this is that on March 5th, 1933, President Roosevelt, relying on a dubious interpretation of a long-ago lapsed *Trading With the Enemy Act of 1917*, froze all transaction in gold. Seven days later, on March 12th, in the first of his famous Fireside Chats, when he spoke to the nation over radio during which time he explained his actions, he made it a point to declare about [Federal] Reserve Banks issuing currency: “This currency is not fiat currency.” Even in the depths of the Great Depression, the American public would have rejected fiat money, and President Roosevelt knew it. Fiat money became a worldwide phenomenon when on August 15th, 1971 the United States defaulted on its sovereign promise to redeem the dollar, which is widely said to be the world’s “reserve currency,” held by foreign governments and foreign central banks for gold at the rate of one ounce of gold for \$35. The result is that the entire planet is now awash in legal tender irredeemable paper-ticket-electronic money.
- (29)Despite the provisions in U.S. law referred to above, those who are at the pinnacle of the monetary authority understand full well that legal tender is necessary to coerce people into using fiat money. No less authority than Alan Greenspan, then Chairman of the Board of Governors of the Federal Reserve System wrote to Congressman Dr. Ron Paul on November 20,

2003, a copy of which letter is appended hereto, in which Mr. Greenspan states unequivocally: “So long as we issue fiat currency, I see no alternative to a legal tender law.”

- (30) The notion that one can enforce payment in gold by a court is a bad joke. As a practical matter today, non-“small claims” disputes of less than say \$50,000 cannot be adjudicated mostly on account of the monopoly that lawyers have on access to the court system and the monopoly fees that they charge. Larger transactions, where it may be economic to retain an attorney, are at risk because U.S. courts cannot be relied upon to enforce the law as written. There’s a long history in the U.S. whereby the courts, including the Supreme Court, don’t enforce legally binding contracts calling for payment in gold.
- a. For example, pursuant to an Act by Congress of September 24, 1917, the United States issued Liberty Bonds to help finance World War I. These bonds had a gold clause which stated that “The principal and interest hereof are payable in United States gold coin of the present standard of value.” *The Emergency Banking Relief Act of March 9, 1933* empowered the President to regulate or prohibit transactions in gold. Subsequently, in a Joint Resolution of June 5, 1933, Congress nullified all gold clause obligations of the United States. An action on this matter reached the Supreme Court: *Perry v. United States*, 294 U.S. 330 (1935). The Supreme Court decided that the Government, on the theory that it is sovereign, has the power under the *Constitution* to renege on its promises. The explanation was couched in legal gobbledygook, e.g., that since gold ownership had been outlawed, while the plaintiff had a right, there was no remedy. It should be noted that Justice James Clark McReynolds in dissent stated: “The *Constitution* is gone.”⁴
 - b. It has long been held by the courts that “as a legal medium there could be no distinction between notes and gold.”⁵ An example is given of dispute over a contract drawn on June 17, 1862 providing payment “in the current gold coin of the United States, in full

⁴ Henry Mark Holzer, *The Gold Clause*, 1980, ISBN # 0595139671, p65

⁵ George Cyrus Thorpe, “Contracts Payable in Gold”; United States Senate Document #43, 73rd Congress, 1st Session.

tale and count, without regard to any legal tender that may be established or declared by any law of Congress' was held satisfied by payments in the nominal value in any legal tender money. The court said that it was not a contract to be paid in bullion, or in so many pounds or ounces of gold, but in a certain number of dollars, in coin. The transaction did not regard gold as a commodity but as money. The Legal Tender Act had made Treasury notes of like value with gold. As a legal medium there could be no distinction between notes and gold.”⁶

- c. “The theory of the suit brought on contracts payable in specific chattels is that the court’s judgment is not for payment in articles in kind, but for the damages resulting to the creditor in consequences of breach of contract, and this judgment can be paid off and satisfied in whatever money the law has clothed with the attributes of legal tender. Although it was a notorious fact for purposes of trade and in commercial transactions a difference was made between Treasury notes and specie coin, whatever fluctuations might arise from extraneous causes, the debtor’s right to pay in whatever medium he chooses could not be affected. In administering the law, it was necessary that gold and Treasury notes should be considered equal. (*Appel v. Woltman* (1860) 38 Mo. 194.) A note payable “in gold” was held enforceable only for the face value of the note payable in any lawful money, and a judgment for a premium on gold in addition was declared invalid. (*Henderson v. McPike* (1864) 35 Mo. 255.)”⁷
- d. “In New York, the words “in specie, gold, and silver coin” were held not to affect the right to discharge an obligation, for the payment of a certain number of dollars, by paying in legal tender notes. (*Murray v. Harrison* (1867) 47 Barb, 484, affirmed (1868) 52 Barb. 427.) So also a bill of exchange payable “in specie or its equivalent” could be paid in legal tender notes called greenbacks.” (*Jones v. Smith* (1867) 48 Barb. 552.)⁸

⁶ *ibid*

⁷ *ibid*

⁸ *ibid*

- (31) Rather than quote more extensively from the reference cited, suffice it to say that there are myriad examples of courts denying plaintiffs the right to be paid in gold as provided by contract.

Without doubt, Mr. Greenspan has it right. If the U.S. is to transition away from legal tender irredeemable paper-ticket-electronic money, legal tender must be repealed.



BOARD OF GOVERNORS
OF THE
FEDERAL RESERVE SYSTEM
WASHINGTON, D. C. 20551

ALAN GREENSPAN
CHAIRMAN

November 20, 2003

The Honorable Ron Paul
House of Representatives
Washington, D.C. 20515

Dear Congressman:

Thank you for your letter dated October 27, 2003, regarding legal tender laws. You asked me for a more detailed explanation of the Federal Reserve's position on the economic effects of and justification for legal tender laws and for my position on your Honest Money Act (H.R. 2779), which would repeal 31 U.S.C. § 5103, the "Legal Tender Statute."

As I indicated in my letter of September 2, 2003, the Legal Tender Statute specifies those items that, when transferred to a creditor, constitute a legal tender for a preexisting debt. Thus, a person who owes a debt to a creditor can provide United States coins and currency to the creditor in an amount equal to the debt and subsequently conduct his or her business with the knowledge that the creditor cannot successfully sue for further payment. The statute provides legal certainty to the final settlement of debts required for the efficient functioning of the nation's financial system. ~~So long as we issue fiat currency, I see no alternative to a legal tender law.~~

I hope these comments are useful. Please let me know if I can be of further assistance.

Sincerely,
Handwritten signature of Alan Greenspan in black ink.

Appendix C

SUPPLEMENTAL MATERIALS FROM THE
“SOUND MONEY: PARALLEL CURRENCIES AND THE
ROADMAP TO MONETARY FREEDOM”
HEARING OF THE SUBCOMMITTEE ON
DOMESTIC MONETARY POLICY AND TECHNOLOGY

Tuesday, May 8th, 2012

**STATEMENT FOR THE RECORD FROM EDWIN VIEIRA, JR.
“SOME OBSERVATIONS ON THE LEGALITY OF ‘ALTERNATIVE
CURRENCY’ IN THE UNITED STATES”**

27 July 2012

The Honorable Ron Paul Chairman, Subcommittee on Domestic Monetary Policy and Technology Committee on Financial Services United States House of Representatives 203 Cannon House Office Building Washington, D.C. 20515

Dear Dr. Paul:

Attached hereto is a brief study on some of the basic legal issues surrounding the use of “alternative currency” in the United States, which I should appreciate being considered and included in the record of the hearing to be held on this subject on 2 August next.

In the present economic climate, I can think of few matters more important than for Congress to secure the right of all Americans to protect themselves against debasement of their money by having available the option of employing currencies other than Federal Reserve Notes in their day-to-day transactions.

Although these are, of course, simply the views of only a single individual (albeit one who has looked into these matters rather extensively over the years), I hope that the attached study will prove useful to that end.

Your servant,

Edwin Vieira, Jr.

EV:ev
attachment

SOME OBSERVATIONS ON THE LEGALITY OF “ALTERNATIVE CURRENCY” IN THE UNITED STATES

BY EDWIN VIEIRA, JR.

For the purposes of this study, an “alternative currency” will be defined as United States gold or silver coins¹ which are used in normal financial transactions in preference to Federal Reserve Notes² or United States base-metallic coins³. Although the Federal Reserve System and Federal Reserve Notes are burdened with many constitutional infirmities⁴, this study will assume *arguendo* that these problems are not material.

I. Present law already allows Americans to use “alternative currencies”: on the one hand, Federal Reserve Notes irredeemable in either gold or silver⁵; and, on the other hand, United States gold and silver coins, specifically gold “American Eagles” and silver “American Liberty” coins.⁶

A. In general, all “United States coins and currency (including Federal Reserve notes * * *) are legal tender for all debts, public charges, taxes, and dues.”⁷ In particular, American Eagle and American Liberty coins are “legal tender”, too.⁸

In practice, any contract or other obligation for which the medium of payment is denominated in undefined or undifferentiated “dollars”⁹, such as by the use of “the dollar sign” (“\$”) without more, is payable in whatever “legal-tender” United States coin or currency, the value of which Congress has set in some number of “dollars” pursuant to its power “[t]o coin Money[and] regulate the Value thereof”¹⁰, the debtor wishes to tender.

B. Americans can, however, avoid this effect of the “legal-tender” law by entering into so-called “gold-clause contracts”, which specify that *only* a certain type of coin or currency—typically, gold or silver coin—may be used as the medium of payment. As relevant here, “‘gold clause’ means a provision in or related to an obligation” which “give[s]

¹ 1. C. § 5112(a)(7) through (10), and 5112(e).

² See 12 U.S.C. § 411.

³ See, e.g., 31 U.S.C. § 5112(a)(1) through (6).

⁴ See Edwin Vieira, Jr., *Pieces of Eight: The Monetary Powers and Disabilities of the United States Constitution* (Chicago, Illinois: R R Donnelley & Sons, Inc., GoldMoney Foundation Special Edition [2011] of the Second Revised Edition of 2002), Volume 2, at 1401-1524.

⁵ Compare 12 U.S.C. § 411 with 31 U.S.C. § 5118(b) and (c).

⁶ 31 U.S.C. § 5112(a)(7) through (10), and 5112(e).

⁷ 31 U.S.C. § 5103.

⁸ 31 U.S.C. § 5112(h).

⁹ See 31 U.S.C. § 5101.

¹⁰ U.S. Const. art. I, § 8, cl. 5.

the obligee a right to require payment in * * * a particular United States coin".¹¹ Such "particular United States coin" is the *only* "legal tender" for such a contract. "[E]xpress contracts to pay coined dollars can only be satisfied by the payment of coined dollars. They are not 'debts' which may be satisfied by the tender of * * * notes".¹²

1. "Gold-clause contracts" have a constitutional basis. The Constitution provides that "[n]o State shall * * * make any Thing *but* gold and silver Coin a Tender in Payment of Debts".¹³ This amounts to an explicit constitutional reservation of the States' right, power, and *duty* to "make * * * gold and silver Coin a Tender".¹⁴ Most "Debts" for which "gold and silver Coin" would naturally be "a Tender" would arise out of "gold-clause contracts", in which the parties have explicitly chosen such "Coin", and only such "Coin", as their medium of exchange and therefore "Tender". Thus, the Constitution *requires* the States to recognize and enforce their citizens' "gold-clause contracts".

That being so, the Constitution disables Congress from prohibiting or inhibiting the enforcement of "gold-clause contracts" in the States' courts. In addition, "[t]he judicial Power [of the United States] shall extend * * * to Controversies * * * between Citizens of different States".¹⁵ Such "Controversies" which involve the enforcement of "gold-clause contracts" usually must be decided under the particular State laws pursuant to which the contracts were negotiated. Perforce of the Constitution, all of the States are required to enforce such contracts in their courts specifically by the payment of the gold or silver coin the contracts designate as the sole allowable "Tender". So, because the courts of the United States must follow State law on this matter, Congress cannot prohibit or otherwise impair the enforcement of such "gold-clause contracts" in the courts of the United States.

2. "Gold-clause contracts" have a statutory basis, too. Any American may now enter into private contracts that "give the obligee the right to require payment in * * * gold", or "a particular United States coin or currency", or "United States money measured in gold or a particular United States coin or currency".¹⁶ (Perforce of the Constitution, the States may enter into such contracts. As a practical

¹¹ 31 U.S.C. § 5118(a)(1)(B).

¹² *Bronson v. Rodes*, 74 U.S. (7 Wallace) 229, 254 (1869). *Accord*, *Butler v. Horowitz*, 74 U.S. (7 Wallace) 258, 260-261 (1869). See *Dewing v. Sears*, 78 U.S. (11 Wallace) 379, 380 (1870) (court judgment on a "gold clause contract" must be "entered for coined dollars * * * instead of * * * notes equivalent in market value")

¹³ U.S. Const. art. I, § 10, cl. 1 (emphasis supplied).

¹⁴ See U.S. Const. amend. X.

¹⁵ U.S. Const. art. III, § 2, cl. 1.

¹⁶ 31 U.S.C. § 5118(a) and (d).

matter, however, the United States have disabled themselves from entering into such contacts.¹⁷)

II. At the present time, the use of United States gold and silver coin as an “alternative currency” pursuant to “gold-clause contracts” has two practical limitations.

A. The amount of American Liberty and American Eagle silver and gold coinage being minted is not optimal. The present statutes require that those coins shall be minted and issued “in quantities sufficient to meet public demand”.¹⁸ “Public demand” is now gauged by the sale of the coins “at a price equal to the market value of the bullion [measured in Federal Reserve Notes] at the time of sale, plus the cost of minting, marketing, and distributing such coins”.¹⁹ The correct method for determining the true public demand for silver and gold coinage, however, is so-called “free coinage”, whereby the Mint coins all of the silver and gold that the public presents for coinage.²⁰ Adoption of “free coinage” would surely produce more coinage than the present scheme.

B. Perhaps of more immediate consequence is the problem of how a “gold-clause contract” providing for the payment of United States gold or silver coins should be valued, particularly for purposes of taxation. For instance, is the value of a “gold-clause contract” which stipulates payment in (say) ten “\$50” American Eagle gold coins²¹ the aggregate face value of those coins (“\$500”), or the much greater “dollar” value of the Federal Reserve Notes against which those coins would exchange in the free market? The Internal Revenue Service and various State agencies generally take the position that the value of such a contract for purposes of taxation is the latter. But the correct answer, for all purposes, is the former (“\$500”).

1. American Eagle and American Liberty coins are minted pursuant to statutes enacted under Congress’s constitutional authority “[t]o coin Money, [and] regulate the Value there of”.²² They are therefore “lawful money” by definition. They are also specifically constitutional “currency”, because the only use in the Constitution of a word related to “currency” is the reference to “current Coin of the United States”.²³ More generally, they are “currency” because they are “[c]oined money * * * authorized by law” which, when “gold-clause contracts” are involved, “in fact circulate[s] from hand to hand as the

¹⁷ See 31 U.S.C. § 5118(b) and (c).

¹⁸ 31 U.S.C. § 5112(e) and (i)(1).

¹⁹ 31 U.S.C. § 5112(f)(1) and (j)(2)(A).

²⁰ See, e.g., Act of 2 April 1792, ch. 16, § 14, 1 Stat. 246, 249.

²¹ 31 U.S.C. § 5112(a)(7).

²² 31 U.S.C. § 5112(a)(7) through (10), and 5112(e), enacted under aegis of U.S. Const. art. I, § 8, cl. 5.

²³ U.S. Const. art. I, § 8, cl. 6.

medium of exchange”.²⁴ And they are designated “legal tender”, on an equal basis with all other United States coins and currency.²⁵

The statutes providing for American Eagle and American Liberty coins explicitly set their values at their face values²⁶. The coins announce their values on their faces²⁷. And no other statute sets any other values for these coins, or purports to delegate authority to anyone to set other values by regulation or otherwise. Therefore, the coins’ values as “lawful money”, “currency”, and “legal tender” are their face values, and nothing else.

2. Today the United States have a “dual monetary system”, consisting of: (i) gold and silver coinage; and (ii) Federal Reserve Notes and base-metallic coinage which the United States refuse to redeem in gold or silver.²⁸

Different United States coins and other currency have different economic purchasing powers in the marketplace. For example, a “\$10” American Eagle gold coin or ten “\$1” American Liberty silver coins both buy far more than a “\$10” Federal Reserve Note or “\$10” face value in base-metallic coinage. This economic discrepancy, however, is irrelevant to the legal values as money of these various coins and currency. Applying mutatis mutandis the controlling case-law with respect to a “dual monetary system” and “gold-clause contracts” in the United States—

the laws for the coinage of gold and silver [in the present United States Code] have never been repealed or modified. * * * And the emission of gold and silver coins * * * continues * * *.

Nor have those provisions of law which make these coins a legal tender in all payments been repealed or modified.

It follows that there [a]re two descriptions of money in use * * * , both authorized by law, and both made legal tender in payments. The statute denomination of both description [i]s dollars; but they [a]re essentially unlike in nature. The coined dollar [i]s * * * a piece of gold or silver * * * . The [Federal Reserve Note i]s a promise to pay a coined dollar * * * . It [i]s impossible, in the nature

²⁴ See Black’s Law Dictionary (rev. 4th ed. 1968), at 458 (“currency”), 459 (“current money”).

²⁵ 31 U.S.C. §§ 5112(h) and 5103.

²⁶ 31 U.S.C. § 5112(a)(7) (“[a] fifty dollar gold coin”), (a)(8) (“[a] twenty-five dollar gold coin”), (a)(9) (“[a] ten dollar gold coin”), and (a)(10) (“[a] five dollar gold coin”); and § 5112(e)(4) (“One Dollar” in silver).

²⁷ 31 U.S.C. § 5112(e)(4) (“have inscriptions of * * * the words * * * ‘One Dollar’”) (American Liberty); and § 5112(i)(1)(B) (“have inscriptions of the denominations”) (American Eagles).

²⁸ See 31 U.S.C. § 5112(a)(7) through (10), (e), and (i); 12 U.S.C. § 411; 31 U.S.C. §§ 5112(a)(1) through (6), (b), (c), and (d), and § 5118(b) and (c). No legal disability prevents Federal Reserve Banks from redeeming their notes in gold. See 12 U.S.C. § 354. It is the banks’ practice not to do so, however.

of things, that these two dollars should be the equivalent of each other, nor [i]s there anything in the currency acts purporting to make them such * * * .

If then, no express provision to the contrary be found in the acts of Congress, it is a just and necessary inference, from the fact that both descriptions of money were issued by the same government, that contracts to pay in either [a]re equally sanctioned by law. It is, indeed, difficult to see how any question can be made on this point. Doubt concerning it can only spring from that confusion of ideas which always attends the introduction of varying and uncertain measures of value into circulation of money.²⁹

One owing a debt may pay it in gold coin or in legal-tender notes of the [Federal Reserve System], as he chooses, unless there is something to the contrary in the obligation out of which the debt arises. A coin dollar is worth no more for the purposes of tender in payment of an ordinary debt than a note dollar. The law has not made the note a standard of value any more than coin. It is true that in the market, as an article of merchandise, one is of greater value than the other; but as money, that is to say, as a medium of change, the law knows no difference between them.³⁰

Cases such as *Bronson and Thompson* stated the law of America's "dual monetary system" and "gold clauses" until 1933-1934. When Congress then prohibited the private ownership of gold and declared certain "gold clauses" unenforceable, those cases became temporarily obsolete.³¹ They were not overruled, however. The private ownership of gold was statutorily permitted in 1973-1974.³² "Gold clauses" (other than for the United States) were allowed statutorily post-1978.³³ And the minting of American Eagle and American Liberty coins was authorized in 1985.³⁴ At that point, *Bronson*, *Thompson*, and related cases once again provided, and today continue to provide, the controlling legal standards, as the United States Court of Appeals for

²⁹ *Bronson v. Rodes*, 74 U.S. (7 Wallace) 229, 251-252 (1869). It is no longer entirely true that "[t]he [Federal Reserve Note] is a promise to pay a coined dollar". Federal Reserve Notes must be redeemed for "lawful money". 12 U.S.C. § 411. Both the Treasury and the Federal Reserve Banks will redeem Federal Reserve Notes with United States base-metallic coinage. See, e.g., 31 U.S.C. 5112(a)(1) through (6). But the Treasury refuses under color of statute to redeem them for gold or silver coin. See 31 U.S.C. § 5118(b) and (c). And the banks as a matter of practice refuse to perform such redemption, too. This refusal of the Treasury and the banks is the reason that United States gold and silver coinage constitutes an "alternative currency", and not an integral part of the Federal Reserve System's currency, in contrast to the original arrangement specifically as to gold. See Act of 21 December 1913, ch. 6, § 16, 38 Stat. 251, 265-267.

³⁰ *Thompson v. Butler*, 95 U.S. 694, 696 (1878).

³¹ See *Norman v. Baltimore & Ohio R.R.*, 294 U.S. 240 (1935).

³² Act of 21 September 1973, Pub. L. 93-32 110, § 3, 87 Stat. 352, 352; Act of 14 August 1974, Pub. L. 93-373, § 2(b) and (c), 88 Stat. 445, 445.

³³ Act of 28 October 1977, Pub. L. 95-147, § 4(c), 91 Stat. 1227, 1229.

³⁴ Act of 9 July 1985, Pub. L. 99-61, Title II, 99 Stat. 113, 115; Act of 17 December 1985, Pub. L. 99-185, 99 Stat. 1177.

the fifth Circuit recently recognized by explicitly relying on Thompson in *Crummey v. Klein Independent School District*.³⁵

On these points, the differences between the United States Treasury Notes at issue in Bronson and Thompson, on the one hand, and Federal Reserve Notes, on the other, work against the latter. Both were or are obligations of the United States, “legal tender”, and irredeemable in gold or silver coin. But the Treasury Notes issued directly from the Treasury, whereas Federal Reserve Notes are “issued at the discretion of the Board of Governors of the Federal Reserve System”. And the Treasury Notes were explicitly designated as “lawful money”, whereas Federal Reserve Notes are to be “redeemed in lawful money” (and obviously cannot be the very things in which they are to be redeemed).³⁶

No decision of the Supreme Court has overruled, limited, or even questioned Thompson or Bronson. So lower courts must follow these precedents “no matter how misguided the judges of those courts may think [them] to be”.³⁷ A fortiori, all other governmental agencies are bound by the principles stated in these decisions.

Because, as the Court of Appeals opined in *Crummey*, “[b]y statute it is established that federal reserve notes, on an equal basis with other coins and currencies of the United States, shall be legal tender”, it must also be “established” that American Eagle and American Liberty coins are “legal tender” “on an equal basis” with Federal Reserve Notes.³⁸ So, “[a]s legal tender, a dollar is a dollar, regardless of the physical embodiment of the currency”.³⁹ Any attempt by a court or an agency such as the IRS to re-value a “gold clause contract” in terms of some United States coin or currency other than the “particular United States coin” in which the contract is payable, where such re-valuation results in a value in “dollars” more or less than the aggregate face value of the “particular United States coin” the contract specifies, thereby attempts to “[re-]regulate the Value” and change the “legal tender” character of that coin contrary to the express determination of Congress. The power to “regulate the Value” of money and “to declare what is and what is not ‘legal tender’”, and at what value in “dollars” particular coins or other currency shall

³⁵ No. 08-20133 (5th Cir. 2008) (unpublished opinion).

³⁶ Compare and contrast Act of 25 February 1862, ch. 33, § 1, 12 Stat. 345, 345; Act of 18 March 1869, ch. 1, 16 Stat. 1; and *New York ex rel. Bank of New York v. Board of Supervisors*, 74 U.S. (7 Wallace) 26, 30-31 (1869), with 12 U.S.C. § 411 and 31 U.S.C. § 5118(b) and (c).

³⁷ *Hutto v. Davis*, 454 U.S. 370, 375 (1982).

³⁸ Slip Opinion at 3, quoting *United States v. Wangrud*, 533 F.2d 495, 495 (9th Cir. 1976).

³⁹ Slip Opinion at 3.

be taken as such, however, “lies with Congress and not the Courts” or any other governmental body.⁴⁰

3. The contrary contention is frivolous. The Supreme Court has described claims “so attenuated * * * as to be absolutely devoid of merit” in several ways: as “wholly insubstantial”, “obviously frivolous”, or “no longer open to discussion”.⁴¹ “A claim is insubstantial * * * if ‘its unsoundness so clearly results from the previous decisions of this court as to foreclose the subject’”.⁴² As explained above, “the previous decisions of this court”—that is, the Supreme Court—in *Bronson*, *Thompson*, and related cases establish beyond question that, where “gold-clause contracts” are concerned, “[a] coin dollar is worth no more for the purposes of tender in payment of an ordinary debt than a note dollar. The law has not made the note a standard of value any more than coin.”⁴³

Congress itself has approved the use of “gold-clause contracts” according to these principles. When Congress authorized private “gold-clause contracts” by statute in 1977, its Members knew the applicable law as stated in *Thompson*, *Bronson*, and other decisions of the Supreme Court.⁴⁴ Also, because Congress was fully aware of its own constitutional power “[t]o * * * regulate the Value” of “Money”,⁴⁵ it knew that it could effectively modify or overrule the holdings in those cases as to how “gold-clause contracts” should be valued in “dollars”.⁴⁶ Yet Congress has never taken any such action.

With the statutory authorization of “gold-clause contracts” in 1977, Congress recreated essentially the same “dual monetary system” which existed during and after the Civil War. Congress then strengthened this system in 1985, by authorizing the minting of American Eagle gold and American Liberty silver coins as “legal tender” and “in quantities sufficient to meet public demand”.⁴⁷ At both times (and ever since unto today as well), Congress knew that:

(i) This “dual monetary system” consists of paper currency not redeemable in gold or silver coin (United States Treasury Notes then, Federal Reserve Notes now) and United States

⁴⁰ See U.S. Const. art. I, § 8, cl. 5, and *Linne v. Baker*, 1986 WL 9502, at * 40 3, aff’d, 826 F.2d 129 (D.C. Cir.1987).

⁴¹ See *Newburyport Water Co. v. Newburyport*, 193 U.S. 561, 579 (1904); *Bailey v. Patterson*, 369 U.S. 31, 33 (1962); *Hannis Distilling Co. v. Baltimore*, 216 U.S. 285, 288 (1910); *Levering & Garrigues Co. v. Morrin*, 289 U.S. 103, 105 (1933); *McGilvra v. Ross*, 215 U.S. 70, 80 (1909).

⁴² *Goosby v. Osser*, 409 U.S. 512, 518 (1973) (emphasis supplied).

⁴³ *Thompson*, 95 U.S. at 696.

⁴⁴ See *Cannon v. University of Chicago*, 441 U.S. 677, 696-697 (1979).

⁴⁵ U.S. Const. art. I, § 8, cl. 5.

⁴⁶ See *Albernaz v. United States*, 450 U.S. 333, 341-342 (1981).

⁴⁷ 31 U.S.C. § 5112(e), (h), and (i)(1).

gold and silver coins.

(ii) Under this system, individuals can choose, through “gold-clause contracts”, to employ United States gold and silver coins as their media of payment to the exclusion of Federal Reserve Notes.

(iii) As a matter of law, perforce of Congress’s monetary statutes as applied under the rule enunciated in Thompson, the value of a “gold-clause contract” is the aggregate face value in “dollars” of the coins involved.

(iv) As a matter of fact, equal face values of United States gold and silver coins and of Federal Reserve Notes do not have equal purchasing powers in the marketplace. Therefore,

(v) Individuals who employ “gold-clause contracts” might obtain some tax benefits therefrom—unless Congress enacted a statute preventing that result, along the lines of a statute it enacted shortly after the Civil War, when America’s first “dual monetary system” existed.⁴⁸ But,

(vi) No such statute was in force in 1977 or 1985. And Congress has enacted no such statute since then.

One may posit numerous, and compelling, reasons why Congress created and has maintained such a “dual monetary system”, including:

- to enable Americans, by increasingly employing gold and silver coin in preference to Federal Reserve Notes, to pressure the Federal Reserve System into adopting policies that would stop the depreciation of those notes relative to specie;
- to enable Americans to protect themselves financially against the consequences of the Secretary of the Treasury’s failure to perform his duty to “redeem gold certificates owned by the Federal reserve banks at times and in amounts the Secretary decides are necessary to maintain the equal purchasing power of each kind of United States currency”;⁴⁹
- to provide Americans with an alternative currency (and a set

⁴⁸ See Act of 13 July 1866, ch. 184, § 9, 14 Stat. 98, 147, amending Act of 10 March 1866, ch. 15, §§ 3 through 5, 14 Stat. 4, 5, repealed by Act of 14 July 1870, ch. 255, § 1, 16 Stat. 256, 256. See *Pacific Insurance Co. v. Soule*, 74 U.S. (7 Wallace) 433, 440-443 (1869).

⁴⁹ 31 U.S.C. § 5119(a). If the Secretary fulfilled this 49 duty, the exchange-rate between Federal Reserve Notes and United States gold coin would immediately become close to unity, because a one-ounce American Eagle gold coin is statutorily denominated “\$50”, and the statutory standard for the redemption of gold certificates is “\$42-2/9” per ounce. Compare 31 U.S.C. § 5112(a)(7) with § 5117(b).

of market prices denominated in such currency) that could enable the markets to continue to function even if the Federal Reserve System should collapse in hyperinflation or depression; and

- to supply the several States and the United States with an alternative currency then in use by many Americans on the basis of which public business could be conducted even were the Federal Reserve System to collapse.⁵⁰

In any event, the very existence of this “*dual monetary system*”, *unrestricted by statute with respect to the calculation and payment of taxes, establishes that Congress has authorized and empowered Americans to employ that system to the maximum extent they desire and for the maximum benefit that it can afford them, even with respect to taxes.*

III. Notwithstanding the foregoing, certain practical problems in the use of United States gold and silver coin as “alternative currency” remain. Fortunately, the solutions are not particularly difficult:

A. Congress should enact a statute under its powers “[t]o lay and collect Taxes” and “[t]o coin Money, [and] regulate the Value thereof”,⁵¹ or the President should promulgate a directive under his power and duty to “take Care that the Laws be faithfully executed”,⁵² requiring the IRS and all other agencies of the United States to follow the rule of valuation set in *Thompson v. Butler*. And under its power “[t]o coin Money, [and] regulate the Value thereof”, Congress should enact a statute requiring the same compliance from all State agencies.⁵³

It might be objected that, in a system of taxation with “progressive” rates, applying the rule of *Thompson* would encourage individuals to enter into “gold-clause contracts” simply to reduce their tax-liabilities through the lesser number of “dollars” that would be involved in such transactions (as opposed to the same transactions when conducted on the basis of Federal Reserve Notes as the media of payment). The best way to deal with this possibility, however, would be for Congress (and the States’ legislatures) to require that taxes on transactions effected with United States gold and silver coins be paid with the same type of coins involved in those transactions. Thus, taxpayers would file specific returns for “gold-clause contracts”

⁵⁰ A model statute for the adoption of an “alternative-currency system” by the States can be found in E. Vieira, Jr., *Pieces of Eight*, ante note 4, Volume 2, at 1664-1666.

⁵¹ U.S. Const. art. I, § 8, cls. 1 and 5.

⁵² U.S. Const. art. II, § 3.

⁵³ See U.S. Const. art. VI, cl. 2. A model statute can be found 53 in E. Vieira, Jr., *Pieces of Eight*, ante note 4, Volume 2, at 1663-1664.

payable in gold, and pay the taxes on those transactions in gold; they would file specific returns for “gold-clause contracts” payable in silver, and pay the taxes on those transactions in silver; and would file general returns for all other transactions conducted in Federal Reserve Notes, and pay the taxes on those transactions in such notes.

B. As noted above, the first step in maximizing the amount of gold and silver coinage available for use as alternative currency must be to reinstate “free coinage” in the United States Mint.

A second valuable step would be for Congress to declare by statute that specifically designated foreign gold and silver coins will be “legal tender for debts” at their values in terms of American Eagle or American Liberty coins.⁵⁴ For example, a foreign gold coin that contained one ounce of pure gold would be valued at “\$50”;⁵⁵ a foreign silver coin that contained one ounce of pure silver would be valued at “\$1”;⁵⁶ and coins of other weights would be valued proportionately. This would effectively incorporate all of the reliable gold and silver coinage of the entire world into the monetary system of the United States. If the same procedure were applied to bullion, all of the gold and silver of any form useful as money to be found anywhere in the world would in principle be incorporated into that system.

The imprudence in not taking these steps, in the face of the present worldwide monetary and banking crisis, speaks for itself.

⁵⁴ Contrast the present provision on this subject, in 31 U.S.C. § 5103. Congress has taken this route in the

past. See E. Vieira, Jr., *Pieces of Eight*, ante note 4, Volume 1, at 199-205.

⁵⁵ See 31 U.S.C. § 5112(a)(7).

⁵⁶ See 31 U.S.C. § 5112(e).

Appendix D

SUPPLEMENTAL MATERIALS FROM THE
“FEDERAL RESERVE LENDING DISCLOSURE: FOIA, DODD-FRANK, AND
THE DATA DUMP”
HEARING OF THE SUBCOMMITTEE ON DOMESTIC MONETARY POLICY AND
TECHNOLOGY

JULY 16, 2012

Bloomberg

Fed Gave Banks Crisis Gains on \$80 Billion Secretive Loans as Low as 0.01%

By Bob Ivy - May 26, 2011

[Credit Suisse Group AG \(CS\)](#), [Goldman Sachs Group Inc. \(GS\)](#) and [Royal Bank of Scotland Group Plc \(RBS\)](#) each borrowed at least \$30 billion in 2008 from a Federal Reserve emergency lending program whose details weren't revealed to shareholders, members of Congress or the public.

The \$80 billion initiative, called single-tranche open-market operations, or [ST OMO](#), made 28-day loans from March through December 2008, a period in which confidence in global credit markets collapsed after the Sept. 15 bankruptcy of Lehman Brothers Holdings Inc.

Units of 20 banks were required to bid at auctions for the cash. They paid interest rates as low as 0.01 percent that December, when the Fed's main lending facility charged 0.5 percent.

"This was a pure subsidy," said Robert A. Eisenbeis, former head of research at the [Federal Reserve](#) Bank of Atlanta and now chief monetary economist at Sarasota, Florida-based Cumberland Advisors Inc. "The Fed hasn't been forthcoming with disclosures overall. Why should this be any different?"

The [Federal Reserve Bank of New York](#), which oversaw ST OMO, posted aggregate data about the program on its website after each auction, said Jeffrey V. Smith, a [New York](#) Fed spokesman. By increasing the availability of short-term financing when private lenders were under pressure, "this program helped alleviate strains in financial markets and support the flow of credit to U.S. households and businesses," he said.

Not in Dodd-Frank

Congress overlooked ST OMO when lawmakers required the central bank to publish its emergency lending data last year under the [Dodd-Frank](#) law.

"I wasn't aware of this program until now," said U.S. Representative Barney Frank, the Massachusetts Democrat who chaired the House Financial Services Committee in 2008 and co-authored the legislation overhauling financial regulation. The law does require the Fed to release details of any open-market operations undertaken after July 2010, after a two-year lag.

Records of the 2008 lending, released in March under court orders, show how the central bank [adapted](#) an existing tool for adjusting the U.S. money supply into an emergency source of cash. Zurich-based Credit

RECORD

Suisse borrowed as much as \$45 billion, according to bar graphs that appear on 27 of 29,000 pages the central bank provided to media organizations that sued the Fed Board of Governors for public disclosure.

New York-based Goldman Sachs's borrowing peaked at about \$30 billion, the records show, as did the program's loans to RBS, based in Edinburgh. [Deutsche Bank AG \(DBK\)](#), [Barclays Plc \(BARC\)](#) and [UBS AG \(UBSN\)](#) each borrowed at least \$15 billion, according to the graphs, which reflect deals made by 12 of the 20 eligible banks during the last four months of 2008.

No Exact Amounts

The records don't provide exact loan amounts for each bank. Smith, the New York Fed spokesman, would not disclose those details. Amounts cited in this article are estimates based on the graphs.

One effect of the program was to spur trading in mortgage-backed securities, said [Lou Crandall](#), chief U.S. economist at Jersey City, New Jersey-based Wrightson ICAP LLC, a research company specializing in Fed operations. The 20 banks – previously designated as primary dealers to trade government securities directly with the New York Fed – posted mortgage securities guaranteed by government-sponsored enterprises such as Fannie Mae or Freddie Mac in exchange for the Fed's cash.

ST OMO aimed to thaw a frozen short-term funding market and not necessarily to aid individual banks, Crandall said. Still, primary dealers earned spreads by using the program to help customers, such as [hedge funds](#), finance their mortgage securities, he said.

'Spreads Vary'

"Spreads vary from one transaction to another," making any calculation of dealers' profits on the Fed loans impossible, Crandall said.

The Fed opposed disclosing details of its open market operations because doing so would probably cause borrowers "substantial competitive harm," according to a March 2009 declaration by Christopher R. Burke, vice president of the New York Fed's markets group. The declaration is filed in federal court.

Revealing the borrowing "could lead market participants to inaccurately speculate that the primary dealer was having difficulty finding term funding against its collateral in the open market and that the dealer itself must therefore be in financial trouble," Burke said in opposing a media request for records about the borrowing.

Bidding [Interest Rates](#)

The New York Fed conducted 44 ST OMO auctions, from March through December 2008, according to its website. Banks bid the interest rate they were willing to pay for the loans, which had terms of 28 days. That was an expansion of longstanding open-market operations, which offered cash for up to two weeks.

Outstanding ST OMO loans from April 2008 to January 2009 stayed at \$80 billion. The average loan amount during that time was \$19.4 billion, more than three times the average for the 7 1/2 years prior, according to New York Fed data. By comparison, borrowing from the Fed's discount window, its main lending program for banks since 1914, peaked at \$113.7 billion in October 2008, Fed data show.

In March 2008, ST OMO was "desperately needed," because of the shaken state of short-term credit markets, said [Michael Greenberger](#), a professor at the University of Maryland School of Law in Baltimore and former director of the division of markets and trading at the Commodities Futures Trading Commission. After the Fed created other lending mechanisms and the Treasury Department began distributing money from the Troubled Asset Relief Program in October, ST OMO became "just a way for banks to have at it," he said.

'Profit-Making Enterprise'

"At such low interest rates, it's no longer a rescue, it's a profit-making enterprise," Greenberger said. "By December, a lot of money was made off this program."

Goldman Sachs, led by Chief Executive Officer Lloyd C. Blankfein, tapped the program most in December 2008, when data on the New York Fed website show the loans were least expensive. The lowest winning bid at an ST OMO auction declined to 0.01 percent on Dec. 30, 2008, New York Fed data show. At the time, the rate charged at the discount window was 0.5 percent.

Stephen Cohen, a spokesman for Goldman Sachs, declined to comment.

December Peak

As its ST OMO loans peaked in December 2008, Goldman Sachs's borrowing from other Fed facilities topped out at \$43.5 billion, the 15th highest peak of all banks assisted by the Fed, according to data compiled by Bloomberg. That month, the bank's Fixed Income, Currencies and Commodities trading unit lost \$320 million, according to a May 6, 2009, regulatory filing.

Under ST OMO, cash changed hands through repos, or repurchase agreements, which the central bank has used to move money in and out of the banking system for at least 60 years. In a repo, the dealer sells securities to the Fed and agrees to buy them back for a higher price after a set period of time.

Open-market operations traditionally use repos to influence the federal funds rate, which is banks' cost of short-term borrowing, said Sherrill Shaffer, the officer in charge of the discount window at the Federal Reserve Bank of Philadelphia from 1994 to 1997. He's now a banking professor at the University of Wyoming in Laramie.

When the central bank increases the money supply -- by paying cash for securities in repos -- interest rates tend to fall. When it drains cash from the system by selling securities in reverse repos, rates can climb.

Pedal to Metal

Using repos to provide emergency cash, a step the Fed announced on March 7, 2008, was a departure from that process, said John H. Cochrane, a finance professor at the University of Chicago Booth School of Business.

“The Fed was slamming the pedal to the metal in the lender-of-last-resort category,” Cochrane said. “What they did was so far from what we conventionally think of as monetary policy.”

Credit Suisse’s borrowing peaked at about \$45 billion in September 2008, the Fed charts show. Steven Vames, a Credit Suisse spokesman in New York, declined to comment.

RBS’s use of ST OMO hit about \$30 billion in October 2008. The U.K. government has had a stake in the bank since Oct. 13, 2008. “RBS no longer makes any use of these emergency Federal Reserve lending programs and all money borrowed from the Fed has been repaid in full with interest,” said [Michael Geller](#), a spokesman for RBS Global Banking & Markets in Stamford, Connecticut.

Annual Report

Frankfurt-based Deutsche Bank’s use peaked at about \$20 billion in October 2008, its chart shows. The bank had 87 billion euros (\$122 billion) in repurchase agreements with all central banks as of the end of 2008, according to its annual report. John Gallagher, a bank spokesman, declined to comment.

London-based Barclays’s peak reached about \$20 billion in December 2008, the chart said. Mark Lane, a Barclays spokesman, declined to comment.

UBS, based in Zurich, borrowed as much as about \$15 billion in late 2008, the chart shows.

“UBS’s usage of those facilities should be seen in the context of our overall desire to maintain flexibility and diversification in our funding sources, even during the crisis,” said Kelly Smith, a spokeswoman for UBS in New York. “Given UBS’s substantial presence and commitment to U.S. dollar-denominated markets, utilization of such facilities was relatively modest.”

Other Banks

Other banks listed in the Fed charts borrowed less than their peers. New York-based [Morgan Stanley \(MS\)](#) and Paris-based [BNP Paribas \(BNP\)](#), France’s biggest bank by assets, took no more than about \$10 billion. [Citigroup Inc. \(C\)](#), JPMorgan Chase & Co. and Merrill Lynch & Co., which is now part of [Bank of America Corp. \(BAC\)](#), borrowed less than \$5 billion each.

Mary Claire Delaney, a spokeswoman for Morgan Stanley, Jon Diat, a Citigroup spokesman in New York, Howard Opinsky, a spokesman for New York-based JPMorgan Chase, and Megan Stinson, a spokeswoman in New York for BNP Paribas, declined to comment on their banks’ borrowings.

“Look at it in hindsight and these programs did exactly what they were intended to do -- stabilize the financial system, provide liquidity and instill confidence,” said [Jerry Dubrowski](#), a spokesman for Charlotte, North Carolina-based Bank of America.

The bar charts were included in the Fed's court-ordered March 31 disclosure under the Freedom of Information Act. The release was mandated after the U.S. Supreme Court rejected an industry group's attempt to block it. Bloomberg LP, the parent company of Bloomberg News, and [News Corp. \(NWS\)](#)'s Fox News Network LLC had sued the central bank after it refused to release lending records under the FOIA.

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ATTACHMENTS FROM THE FEDERAL RESERVE IN RESPONSE TO QUESTION 11

The TALF was created to assist financial markets in accommodating the credit needs of consumers and businesses of all sizes by facilitating the issuance of asset-backed securities (ABS) collateralized by a variety of consumer and business loans; it was also intended to improve market conditions for ABS more generally. Under the TALF, nonrecourse loans were issued to holders of eligible ABS, which serve as collateral for the loan.

The TALF loan interest rates consisted of a base rate and a spread. The base rates were chosen to line up with the interest rate paid by the ABS to minimize basis risk. The spreads were chosen to compensate the Treasury and Federal Reserve for risk. In some cases, the spreads were also adjusted to reflect differences in the average level of the base rates; in particular, the prime rate exceeds Libor, which exceeds the federal funds rate. The interest rate spreads on TALF loans were set below spreads on highly-rated ABS prevailing during the early stages of financial crisis, but well above spreads during more normal market conditions to provide borrowers with an incentive to voluntarily repay once market conditions normalized. Over the course of the program, markets have improved and; subsequently, spreads on some TALF collateral asset classes have fallen below the TALF lending rate. As of August 2011, of the \$71 billion in total TALF loans originally extended, only \$11.6 billion remains outstanding. This steep reduction is almost entirely related to voluntary borrower prepayments.

The interest rate on TALF loans varies by the type of collateral securing the loan (and in some cases by the term of the loan):

- ABS backed by federally guaranteed student loans: 50 basis points over 1-month Libor.
- SBA Pool Certificates: federal funds target rate plus 75 basis points.
- SBA Development Company Participation Certificates:
 - Three-year TALF loans: 50 basis points over the 3-year Libor swap rate.
 - Five-year TALF loans: 50 basis points over the 5-year Libor swap rate.
- Commercial mortgage-backed securities:

- Three-year TALF loans: 100 basis points over the 3-year Libor swap rate.
- Five-year TALF loans: 100 basis points over the 5-year Libor swap rate.
- Other eligible fixed-rate ABS:
- Three-year TALF loans: 100 basis points over the 1-year Libor swap rate for securities with a weighted average life less than one year, 100 basis points over the 2-year Libor swap rate for securities with a weighted average life greater than or equal to one year and less than two years, 100 basis points over the 3-year Libor swap rate for securities with a weighted average life of two years or greater.
- Private student loan ABS bearing a prime-based coupon: the higher of 1 percent and the rate equal to the Prime rate minus 175 basis points.
- Other eligible floating-rate ABS: 100 basis points over 1-month Libor.

Following is a breakdown of the interest rates on TALF loans at the time of issuance (most TALF loans have been repaid early as financial market conditions improved and borrowers switched to market-based funding):

- (1) 62 percent of TALF loans were fixed-rate, with interest rates ranging from 1.78% to 3.87%
- (2) 29 percent of TALF loans were floating-rate, at 100 basis points over 1-month Libor
- (3) 4 percent of TALF loans were floating-rate, at the federal funds target rate plus 75 basis points
- (4) 5 percent of TALF loans were floating-rate, at the higher of 1 percent and the rate equal to the Prime rate minus 175 basis points. Since the inception of the TALF, the Prime rate minus 175 basis points has been constant at 150 basis points.

At the time TALF loans were issued there was no active market for financing these types of ABS. In addition, TALF loans have unique features--they have restricted and fixed maturities (3-or 5-year), are non-recourse to the borrower, and have customized risk-based haircuts based on the nature of the underlying collateral. As a result, comparable loan products to the TALF do not exist in the market.

We provide credit spreads on the TALF collateral asset classes for which we have been able to find data. The spreads may be used as proxies for prevailing market rates. However, these spreads are very imperfect proxies since they reflect the market pricing of the collateral, as opposed to market rates for loans with TALF terms and conditions. For example, credit spreads are an indication of the market perception of the riskiness of a security and as such do not incorporate the additional credit protection provided by the haircuts applied to TALF loan collateral. This is particularly notable for legacy CMBS, for which the haircuts started at a minimum of 15% of par (see below for TALF haircut rates). Furthermore, the maturity dates of TALF collateral may have been shorter or longer than the related TALF loan.

TALF Haircuts

Sector	Subsector	ABS Average Life (years)						
		0<1	1<2	2<3	3<4	4<5	5<6	6<7
Auto	Prime retail lease	10%	11%	12%	13%	14%		
Auto	Prime retail loan	6%	7%	8%	9%	10%		
Auto	Subprime retail loan	9%	10%	11%	12%	13%		
Auto	Motorcycle/ other recreational vehicles	7%	8%	9%	10%	11%		
Auto	Commercial and government fleets	9%	10%	11%	12%	13%		
Auto	Rental fleets	12%	13%	14%	15%	16%		
CMBS	Legacy	15%	15%	15%	15%	15%	16%	17%
Credit Card	Prime	5%	5%	6%	7%	8%		
Credit Card	Subprime	6%	7%	8%	9%	10%		
Equipment	Loans and Leases	5%	6%	7%	8%	9%		
Floorplan	Auto	12%	13%	14%	15%	16%		
Floorplan	Non-Auto	11%	12%	13%	14%	15%		
Premium Finance	Property and casualty	5%	6%	7%	8%	9%		
Servicing Advances	Residential mortgages	12%	13%	14%	15%	16%		
Small Business	SBA Loans	5%	5%	5%	5%	5%	6%	6%
Student Loan	Private	8%	9%	10%	11%	12%	13%	14%
Student Loan	Government guaranteed	5%	5%	5%	5%	5%	6%	6%

TALF loan rate spreads and comparable market interest rate spreads
 Loans backed by Commercial
 Mortgage-Backed Securities (CMBS)

TALF Loan Type (CMBS):

3-Yr Fixed

5-Yr Fixed

TALF Loan Rate (CMBS):

3-Yr LIBOR Swap rate + **100** basis points

5-Yr LIBOR Swap rate + **100** basis points

Date	Super Senior- 3-Yr AAA CMBS rate - 3-Yr LIBOR Swap rate	Super Senior 5-Yr AAA CMBS rate - 5-Yr LIBOR Swap rate
02/27/09	600	1300
03/27/09	400	1100
04/24/09	375	1025
05/29/09	300	600
06/26/09	300	650
07/31/09	250	400
08/28/09	260	425
09/25/09	260	405
10/30/09	235	350
11/27/09	245	370
12/25/09	240	330
01/29/10	225	300
02/26/10	225	275
03/26/10	200	275
04/30/10	200	270

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads
 Loans backed by Commercial Mortgage-Backed
 Securities (CMBS)

TALF Loan Type (CMBS):

3-Yr Fixed

5-Yr Fixed

TALF Loan Rate (CMBS):

3-Yr LIBOR Swap rate + 100 basis points

5-Yr LIBOR Swap rate + 100 basis points

Date	Super Senior 3-Yr AAA CMBS rate - 3-Yr LIBOR Swap rate	Super Senior 5-Yr AAA CMBS rate - 5-Yr LIBOR Swap rate
05/28/10	210	285
06/25/10	210	280
07/30/10	195	245
08/27/10	165	230
09/24/10	155	210
10/29/10	205	290
11/26/10	195	270
12/31/10	195	275
01/28/11	190	260
02/25/11	175	235
03/25/11	180	230
04/29/11	170	215
05/27/11	180	235
06/24/11	200	255

TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Prime Auto Asset-Backed Securities (ABS)

TALF Loan Type

(Prime Auto):

3-Yr Fixed w/ avg life >=2 years

TALF Loan Rate

3-Yr Floating
1-Mo LIBOR rate + **100** basis
points

(Prime Auto):

3-Yr LIBOR Swap rate + **100** basis points

3-Yr Auto (Prime) AAA fixed-rate ABS rate - 3-Yr LIBOR Swap rate (basis points)		3-Yr Auto (Prime) AAA floating-rate ABS rate - 1-Mo LIBOR rate (basis points)	
Date		Date	
2/27/09	350	2/26/09	510
3/31/09	300	3/26/09	427
4/30/09	225	4/30/09	377
5/29/09	200	5/28/09	367
6/30/09	165	6/25/09	346
7/31/09	120	7/30/09	309
8/31/09	80	8/27/09	257
9/30/09	65	9/24/09	226
10/30/09	50	10/29/09	218
11/30/09	55	11/25/09	192
12/31/09	50	12/31/09	233
1/29/10	35	1/28/10	187
2/26/10	25	2/25/10	168
3/31/10	20	3/25/10	176
4/30/10	20	4/29/10	167

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Prime Auto Asset-Backed Securities (ABS)

TALF Loan Type

(Prime Auto):

3-Yr Fixed w/ avg life >=2 years

3-Yr Floating

TALF Loan Rate

1-Mo LIBOR rate + **100** basis

(Prime Auto):

3-Yr LIBOR Swap rate + **100** basis points

points

3-Yr Auto (Prime) AAA fixed-rate ABS rate - 3-Yr LIBOR Swap rate (basis points)		3-Yr Auto (Prime) AAA floating-rate ABS rate - 1-Mo LIBOR rate (basis points)	
Date		Date	
5/28/10	30	5/27/10	166
6/30/10	20	6/24/10	130
7/30/10	20	7/29/10	94
8/31/10	17	8/26/10	88
9/30/10	22	9/30/10	84
10/29/10	25	10/28/10	77
11/30/10	30	11/25/10	101
12/31/10	28	12/30/10	135
1/31/11	28	1/27/11	129
2/28/11	25	2/24/11	146
3/31/11	35	3/31/11	168
4/29/11	33	4/28/11	141
5/31/11	28	5/26/11	120
6/30/11	27	6/30/11	123

TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Credit Card Asset-Backed Securities (ABS)

TALF Loan Type

(Credit Cards):

3-Yr Fixed w/ avg life \geq 2 years

3-Yr Floating

TALF Loan Rate

(Credit Cards):

3-Yr LIBOR Swap rate + **100** basis points

1-Mo LIBOR rate + **100** basis points

Spread Date	3-Yr AAA Credit Card fixed-rate ABS rate - 3-Yr LIBOR Swap Rate (basis points)	3-Yr AAA Credit Card floating-rate ABS rate - 1-Mo LIBOR rate (basis points)
2/26/09	250	02/27/09 290
3/26/09	290	03/31/09 320
4/30/09	220	04/30/09 260
5/28/09	130	05/29/09 150
6/25/09	120	06/30/09 145
7/30/09	105	07/31/09 130
8/27/09	60	08/31/09 85
9/24/09	45	09/30/09 65
10/29/09	35	10/30/09 55
11/25/09	45	11/30/09 75
12/31/09	35	12/31/09 60
1/28/10	25	01/29/10 40
2/25/10	25	02/26/10 40
3/25/10	25	03/31/10 30
4/29/10	20	4/30/10 25

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Credit Card Asset-Backed Securities (ABS)

TALF Loan Type

(Credit Cards):

3-Yr Fixed w/ avg life >=2 years

3-Yr Floating

TALF Loan Rate

(Credit Cards):

3-Yr LIBOR Swap rate + 100 basis points

1-Mo LIBOR rate + 100 basis points

Spread Date	3-Yr AAA Credit Card fixed-rate ABS rate - 3-Yr LIBOR Swap Rate (basis points)	3-Yr AAA Credit Card floating-rate ABS rate - 1-Mo LIBOR rate (basis points)
5/27/10	30	05/28/10 35
6/24/10	20	06/30/10 30
7/29/10	17	07/30/10 25
8/26/10	14	08/31/10 22
9/30/10	25	09/30/10 24
10/28/10	25	10/29/10 27
11/25/10	27	11/30/10 27
12/30/10	27	12/31/10 27
1/27/11	25	01/31/11 24
2/24/11	24	02/28/11 24
3/31/11	25	03/31/11 22
4/28/11	21	04/29/11 21
5/26/11	20	05/31/11 18
6/30/11	19	06/30/11 16

TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Equipment Loan Asset-Backed Securities (ABS)

TALF Loan Type (Equipment):* 3-Yr Fixed w/ avg life >=2 years
3-Yr LIBOR Swap rate + **100** basis
TALF Loan Rate (Equipment): points

Spread Date	3-Yr AAA Equipment (large) fixed-rate ABS rate - 3-Yr LIBOR swap rate (basis points)
2/27/09	450
3/31/09	425
4/30/09	400
5/29/09	325
6/30/09	300
7/31/09	175
8/31/09	140
9/30/09	120
10/30/09	90
11/30/09	95
12/31/09	95
1/29/10	65
2/26/10	55
3/31/10	40
4/30/10	40
5/28/10	45
6/30/10	45
7/30/10	45
8/31/10	45
9/30/10	40
10/29/10	45
11/30/10	60
12/31/10	60
1/31/11	60
2/28/11	55
3/31/11	60
4/29/11	60
5/31/11	47
6/30/11	45

* All TALF loans against equipment
ABS were fixed-rate, therefore only
the fixed 3 Year rate is provided.

TALF loan rate spreads and comparable market interest rate spreads
 Loans backed by Private Student Loan Asset-Backed Securities (ABS)

TALF Loan Type (Private Student Loans): 3-Yr (w/Prime-based coupon) Floating
TALF Loan Rates (Private Student Loans): Higher of (Prime rate - 175 basis points) and 100 basis points

Date	3-Yr AAA Private Student Loan floating-rate ABS rate - (Prime rate less 175 basis points) (basis points)
2/26/09	976
3/26/09	973
4/30/09	852
5/28/09	617
6/25/09	610
7/30/09	498
8/27/09	386
9/24/09	378
10/29/09	328
11/25/09	325
12/31/09	325
1/28/10	275
2/25/10	175
3/25/10	179
4/29/10	184
5/27/10	204
6/24/10	204
7/29/10	197
8/26/10	180
9/30/10	179
10/28/10	179
11/25/10	179
12/30/10	180
1/27/11	155
2/24/11	156
3/31/11	130
4/28/11	77
5/26/11	45
6/30/11	45

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads

Loans backed by Private Student Loan Asset-Backed Securities (ABS)

TALF Loan Type (Private Student Loans): 5-Yr (w/Prime-based coupon) Floating
 TALF Loan Rates (Private Student Loans): Higher of (Prime rate - 175 basis points) and 100 basis points

Date	7-Yr AAA Private Student Loan floating-rate ABS rate - (Prime rate less 175 basis points) (basis points)
2/26/09	976
3/26/09	973
4/30/09	952
5/28/09	717
6/25/09	710
7/30/09	598
8/27/09	486
9/24/09	478
10/29/09	428
11/25/09	425
12/31/09	425
1/28/10	400
2/25/10	250
3/25/10	254
4/29/10	259
5/27/10	279
6/24/10	279
7/29/10	272
8/26/10	255
9/30/10	254
10/28/10	254
11/25/10	254
12/30/10	255
1/27/11	230
2/24/11	231
3/31/11	205
4/28/11	152
5/26/11	120
6/30/11	120

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads

Loans backed by Private Student Loan Asset-Backed Securities (ABS)

TALF Loan Type (Private Student Loans):
TALF Loan Rates (Private Student Loans):

3-Yr (other coupon) Floating:

1-Mo LIBOR rate + 100 basis points

Date	3-Yr Private Credit Student Loan AAA floating-rate ABS rate - 1-Mo LIBOR
02/27/09	1000
03/27/09	1000
04/24/09	900
05/29/09	700
06/26/09	700
07/31/09	600
08/28/09	500
09/25/09	500
10/30/09	450
11/27/09	450
12/25/09	450
01/29/10	400
02/26/10	300
03/26/10	300
04/30/10	300
05/28/10	300
06/25/10	300
07/30/10	300
08/27/10	300
09/24/10	300
10/29/10	300
11/26/10	300
12/31/10	300
01/28/11	275
02/25/11	275
03/25/11	275
04/29/11	200
05/27/11	170
06/24/11	170

CONTINUED: TALF loan rate spreads and comparable market interest rate spreads
Loans backed by Private Student Loan Asset-Backed Securities (ABS)

TALF Loan Type (Private Student Loans):
TALF Loan Rates (Private Student Loans):

5-Yr (other coupon) Floating:
1-Mo LIBOR rate + 100 basis points

Date	7-yr Private Credit Student Loan AAA floating-rate ABS rate - 1-Mo LIBOR
02/27/09	1000
03/27/09	1000
04/24/09	1000
05/29/09	800
06/26/09	800
07/31/09	700
08/28/09	600
09/25/09	600
10/30/09	550
11/27/09	550
12/25/09	550
01/29/10	525
02/26/10	375
03/26/10	375
04/30/10	375
05/28/10	375
06/25/10	375
07/30/10	375
08/27/10	375
09/24/10	375
10/29/10	375
11/26/10	375
12/31/10	375
01/28/11	350
02/25/11	350
03/25/11	325
04/29/11	275
05/27/11	245
06/24/11	245

TAF loan rates and comparable market interest rate
 TAF auction dates
 Percent

Date	TAF loan term (days)	TAF loan rate	Market rate	
<u>28- and 35-Day TAF Loans</u>				
17-Dec-07	28	4.65	4.97	1-month Libor
20-Dec-07	35	4.67	4.90	1-month Libor
14-Jan-08	28	3.95	4.08	1-month Libor
28-Jan-08	28	3.12	3.28	1-month Libor
11-Feb-08	28	3.01	3.14	1-month Libor
25-Feb-08	28	3.08	3.12	1-month Libor
10-Mar-08	28	2.80	2.94	1-month Libor
24-Mar-08	28	2.62	2.61	1-month Libor
7-Apr-08	28	2.82	2.72	1-month Libor
21-Apr-08	28	2.87	2.90	1-month Libor
5-May-08	28	2.22	2.70	1-month Libor
19-May-08	28	2.10	2.45	1-month Libor
2-Jun-08	28	2.26	2.46	1-month Libor
16-Jun-08	28	2.36	2.48	1-month Libor
30-Jun-08	28	2.34	2.46	1-month Libor
14-Jul-08	28	2.30	2.46	1-month Libor
28-Jul-08	28	2.35	2.46	1-month Libor
12-Aug-08	28	2.45	2.46	1-month Libor
25-Aug-08	28	2.38	2.47	1-month Libor
9-Sep-08	28	2.53	2.49	1-month Libor
22-Sep-08	28	3.75	3.18	1-month Libor
20-Oct-08	28	1.11	3.75	1-month Libor
17-Nov-08	28	0.51	1.47	1-month Libor
15-Dec-08	28	0.28	0.88	1-month Libor
12-Jan-09	28	0.25	0.34	1-month Libor
9-Feb-09	28	0.25	0.45	1-month Libor
9-Mar-09	28	0.25	0.56	1-month Libor
6-Apr-09	28	0.25	0.48	1-month Libor
4-May-09	28	0.25	0.41	1-month Libor
1-Jun-09	28	0.25	0.32	1-month Libor
29-Jun-09	28	0.25	0.31	1-month Libor
27-Jul-09	28	0.25	0.29	1-month Libor
24-Aug-09	28	0.25	0.26	1-month Libor
21-Sep-09	28	0.25	0.25	1-month Libor
19-Oct-09	28	0.25	0.25	1-month Libor
16-Nov-09	28	0.25	0.24	1-month Libor
14-Dec-09	28	0.25	0.23	1-month Libor
11-Jan-10	28	0.25	0.23	1-month Libor
8-Feb-10	28	0.25	0.23	1-month Libor

8-Mar-10	28	0.50	0.23	1-month Libor
84-Day TAF				
Loans				
11-Aug-08	84	2.75	2.80	3-month Libor
8-Sep-08	84	2.67	2.82	3-month Libor
6-Oct-08	85	1.39	4.29	3-month Libor
3-Nov-08	84	0.60	2.86	3-month Libor
1-Dec-08	84	0.42	2.22	3-month Libor
29-Dec-08	83	0.20	1.46	3-month Libor
26-Jan-09	84	0.25	1.18	3-month Libor
23-Feb-09	84	0.25	1.25	3-month Libor
23-Mar-09	84	0.25	1.22	3-month Libor
20-Apr-09	84	0.25	1.10	3-month Libor
18-May-09	84	0.25	0.79	3-month Libor
15-Jun-09	84	0.25	0.61	3-month Libor
13-Jul-09	84	0.25	0.51	3-month Libor
10-Aug-09	84	0.25	0.46	3-month Libor
8-Sep-09	84	0.25	0.30	3-month Libor
Other TAF				
Loans				
10-Nov-08	Forward	0.53	2.10	2-month Libor
24-Nov-08	Forward	0.38	2.03	2-month Libor
5-Oct-09	70	0.25	0.25	2-month Libor
2-Nov-09	70	0.25	0.26	2-month Libor
30-Nov-09	42	0.25	0.24	2-month Libor

Interest [discount] rate on ABCP
 purchased under the CPFF and
 comparable market interest rate
 Daily
 Percent

Date	CPFF ABC rate	90-day AA ABC rate
27-Oct-08	3.88	3.85
28-Oct-08	3.89	3.75
29-Oct-08	3.84	3.53
30-Oct-08	3.74	3.65
31-Oct-08	3.60	3.38
3-Nov-08	3.61	3.06
4-Nov-08	3.60	2.30
5-Nov-08	3.55	3.09
6-Nov-08	3.54	2.03
7-Nov-08	3.54	2.69
10-Nov-08	3.53	2.67
12-Nov-08	3.47	2.02
13-Nov-08	3.52	1.97
14-Nov-08	3.54	2.15
17-Nov-08	3.51	2.10
18-Nov-08	3.47	1.93
19-Nov-08	3.47	2.28
20-Nov-08	3.42	3.13
21-Nov-08	3.49	2.30
24-Nov-08	3.49	3.22
25-Nov-08	3.48	2.42
26-Nov-08	3.42	3.04
28-Nov-08	3.41	2.10
1-Dec-08	3.42	1.89
2-Dec-08	3.39	1.77
3-Dec-08	3.37	1.92
4-Dec-08	3.33	2.05
5-Dec-08	3.32	1.95
8-Dec-08	3.29	2.77
9-Dec-08	3.30	1.53
10-Dec-08	3.25	1.70
11-Dec-08	3.25	1.29
12-Dec-08	3.25	0.77
15-Dec-08	3.31	1.14
16-Dec-08	3.33	0.76
17-Dec-08	3.18	0.59
18-Dec-08	3.20	0.94

19-Dec-08	3.19	0.47
22-Dec-08	3.21	0.52
23-Dec-08	3.21	1.09
24-Dec-08	3.22	1.63
26-Dec-08	3.22	1.50
29-Dec-08	3.21	1.22
30-Dec-08	3.18	0.88
31-Dec-08	3.18	0.55
2-Jan-09	3.18	0.61
5-Jan-09	3.18	0.50
6-Jan-09	3.18	0.65
7-Jan-09	3.19	0.60
8-Jan-09	3.18	0.48
9-Jan-09	3.18	0.61
12-Jan-09	3.18	0.50
13-Jan-09	3.16	0.45
14-Jan-09	3.16	0.51
15-Jan-09	3.17	0.62
16-Jan-09	3.19	0.77
20-Jan-09	3.18	1.76
21-Jan-09	3.19	0.65
22-Jan-09	3.21	0.62
23-Jan-09	3.23	0.68
26-Jan-09	3.24	2.38
27-Jan-09	3.24	0.77
28-Jan-09	3.22	0.89
29-Jan-09	3.22	0.95
30-Jan-09	3.23	0.79
2-Feb-09	3.26	0.88
3-Feb-09	3.25	0.76
4-Feb-09	3.25	0.70
5-Feb-09	3.25	0.90
6-Feb-09	3.27	0.74
9-Feb-09	3.26	0.80
10-Feb-09	3.27	0.67
11-Feb-09	3.27	0.73
12-Feb-09	3.27	0.88
13-Feb-09	3.26	0.81
17-Feb-09	3.27	0.94
18-Feb-09	3.27	0.87
19-Feb-09	3.27	1.00
20-Feb-09	3.24	0.77
23-Feb-09	3.23	0.85
24-Feb-09	3.23	0.83
25-Feb-09	3.24	0.82
26-Feb-09	3.25	0.90
27-Feb-09	3.25	1.05

2-Mar-09	3.25	0.71
3-Mar-09	3.25	0.95
4-Mar-09	3.25	0.88
5-Mar-09	3.25	0.83
6-Mar-09	3.25	0.85
9-Mar-09	3.27	0.88
10-Mar-09	3.26	0.90
11-Mar-09	3.26	0.83
12-Mar-09	3.25	0.75
13-Mar-09	3.25	0.76
16-Mar-09	3.24	0.74
17-Mar-09	3.23	0.85
18-Mar-09	3.23	0.79
19-Mar-09	3.22	0.90
20-Mar-09	3.23	0.78
23-Mar-09	3.23	0.96
24-Mar-09	3.24	0.93
25-Mar-09	3.25	0.80
26-Mar-09	3.24	0.65
27-Mar-09	3.23	0.60
30-Mar-09	3.23	1.08
31-Mar-09	3.23	3.23
1-Apr-09	3.22	0.80
2-Apr-09	3.22	0.78
3-Apr-09	3.22	0.67
6-Apr-09	3.22	0.75
7-Apr-09	3.21	0.75
8-Apr-09	3.20	0.74
9-Apr-09	3.20	0.90
13-Apr-09	3.20	0.66
14-Apr-09	3.20	0.74
15-Apr-09	3.19	0.97
16-Apr-09	3.19	0.79
17-Apr-09	3.19	0.83
20-Apr-09	3.19	0.74
21-Apr-09	3.19	0.63
22-Apr-09	3.20	1.05
23-Apr-09	3.20	0.64
24-Apr-09	3.20	0.64
27-Apr-09	3.20	3.00
28-Apr-09	3.19	0.57
29-Apr-09	3.20	2.90
30-Apr-09	3.20	3.01
1-May-09	3.19	0.65
4-May-09	3.21	0.59
5-May-09	3.20	0.56
6-May-09	3.21	0.59

7-May-09	3.21	0.50
8-May-09	3.21	0.59
11-May-09	3.20	0.59
12-May-09	3.20	0.55
13-May-09	3.20	0.43
14-May-09	3.20	0.54
15-May-09	3.20	0.70
18-May-09	3.20	0.48
19-May-09	3.20	0.42
20-May-09	3.20	0.46
21-May-09	3.20	0.38
22-May-09	3.21	0.51
26-May-09	3.20	0.46
27-May-09	3.21	0.39
28-May-09	3.21	0.35
29-May-09	3.20	0.35
1-Jun-09	3.20	0.45
2-Jun-09	3.21	0.40
3-Jun-09	3.20	0.36
4-Jun-09	3.21	0.38
5-Jun-09	3.22	0.45
8-Jun-09	3.23	0.49
9-Jun-09	3.23	0.40
10-Jun-09	3.22	0.46
11-Jun-09	3.22	0.39
12-Jun-09	3.21	0.37
15-Jun-09	3.21	0.48
16-Jun-09	3.22	0.40
17-Jun-09	3.22	0.52
18-Jun-09	3.23	0.43
19-Jun-09	3.24	0.44
22-Jun-09	3.23	0.40
23-Jun-09	3.24	0.45
24-Jun-09	3.24	0.45
25-Jun-09	3.23	0.53
26-Jun-09	3.22	0.38
29-Jun-09	3.22	0.38
30-Jun-09	3.22	0.53
1-Jul-09	3.22	0.50
2-Jul-09	3.22	0.43
6-Jul-09	3.21	0.36
7-Jul-09	3.20	0.37
8-Jul-09	3.20	0.36
9-Jul-09	3.20	0.37
10-Jul-09	3.20	0.37
13-Jul-09	3.20	0.42
14-Jul-09	3.20	0.35

15-Jul-09	3.20	0.42
16-Jul-09	3.20	0.41
17-Jul-09	3.19	0.38
20-Jul-09	3.19	0.39
21-Jul-09	3.20	0.34
22-Jul-09	3.19	0.33
23-Jul-09	3.20	0.39
24-Jul-09	3.20	0.34
27-Jul-09	3.20	0.36
28-Jul-09	3.20	0.38
29-Jul-09	3.20	0.35
30-Jul-09	3.20	0.37
31-Jul-09	3.20	0.31
3-Aug-09	3.20	0.38
4-Aug-09	3.20	0.31
5-Aug-09	3.20	0.38
6-Aug-09	3.20	0.34
7-Aug-09	3.20	0.30
10-Aug-09	3.20	0.31
11-Aug-09	3.19	0.34
12-Aug-09	3.19	0.37
13-Aug-09	3.19	0.33
14-Aug-09	3.19	0.30
17-Aug-09	3.18	0.30
18-Aug-09	3.19	0.31
19-Aug-09	3.19	0.34
20-Aug-09	3.19	0.32
21-Aug-09	3.19	0.29
24-Aug-09	3.19	0.30
25-Aug-09	3.19	0.30
26-Aug-09	3.19	0.35
27-Aug-09	3.19	0.29
28-Aug-09	3.18	0.42
31-Aug-09	3.18	0.29
1-Sep-09	3.18	0.28
2-Sep-09	3.17	0.29
3-Sep-09	3.17	0.26
4-Sep-09	3.18	0.24
8-Sep-09	3.17	0.32
9-Sep-09	3.17	0.31
10-Sep-09	3.17	0.26
11-Sep-09	3.17	0.26
14-Sep-09	3.17	0.27
15-Sep-09	3.17	0.32
16-Sep-09	3.17	0.27
17-Sep-09	3.18	0.24
18-Sep-09	3.18	0.26

21-Sep-09	3.18	0.27
22-Sep-09	3.18	0.29
23-Sep-09	3.18	0.28
24-Sep-09	3.17	0.27
25-Sep-09	3.17	0.31
28-Sep-09	3.17	0.28
29-Sep-09	3.17	0.31
30-Sep-09	3.16	0.35
1-Oct-09	3.16	0.27
2-Oct-09	3.14	0.29
5-Oct-09	3.16	0.27
6-Oct-09	3.15	0.25
7-Oct-09	3.15	0.27
8-Oct-09	3.16	0.31
9-Oct-09	3.16	0.31
13-Oct-09	3.16	0.31
14-Oct-09	3.15	0.28
15-Oct-09	3.15	0.29
16-Oct-09	3.15	0.26
19-Oct-09	3.17	0.27
20-Oct-09	3.17	0.26
21-Oct-09	3.17	0.28
22-Oct-09	3.16	0.25
23-Oct-09	3.16	0.32
26-Oct-09	3.16	0.27
27-Oct-09	3.16	0.28
28-Oct-09	3.16	0.28
29-Oct-09	3.16	0.25
30-Oct-09	3.16	0.25
2-Nov-09	3.16	0.27
3-Nov-09	3.15	0.25
4-Nov-09	3.16	0.25
5-Nov-09	3.15	0.25
6-Nov-09	3.15	0.23
9-Nov-09	3.15	0.24
10-Nov-09	3.15	0.26
12-Nov-09	3.15	0.23
13-Nov-09	3.14	0.23
16-Nov-09	3.14	0.26
17-Nov-09	3.14	0.24
18-Nov-09	3.14	0.23
19-Nov-09	3.14	0.26
20-Nov-09	3.13	0.30
23-Nov-09	3.13	0.24
24-Nov-09	3.13	0.23
25-Nov-09	3.13	0.20
27-Nov-09	3.13	ND

30-Nov-09	3.14	0.26
1-Dec-09	3.14	0.27
2-Dec-09	3.14	0.22
3-Dec-09	3.15	0.40
4-Dec-09	3.15	0.23
7-Dec-09	3.15	0.24
8-Dec-09	3.15	0.22
9-Dec-09	3.15	0.23
10-Dec-09	3.15	0.23
11-Dec-09	3.15	0.25
14-Dec-09	3.16	0.27
15-Dec-09	3.18	0.22
16-Dec-09	3.17	0.25
17-Dec-09	3.16	0.23
18-Dec-09	3.16	0.24
21-Dec-09	3.16	0.23
22-Dec-09	3.16	0.26
23-Dec-09	3.16	0.22
24-Dec-09	3.16	0.26
28-Dec-09	3.17	0.30
29-Dec-09	3.18	0.25
30-Dec-09	3.17	0.25
31-Dec-09	3.17	0.30
4-Jan-10	3.16	0.24
5-Jan-10	3.16	0.22
6-Jan-10	3.16	0.22
7-Jan-10	3.15	0.20
8-Jan-10	3.15	0.25
11-Jan-10	3.15	0.24
12-Jan-10	3.14	0.25
13-Jan-10	3.14	0.26
14-Jan-10	3.14	0.22
15-Jan-10	3.14	0.20
19-Jan-10	3.14	0.22
20-Jan-10	3.14	0.20
21-Jan-10	3.14	0.20
22-Jan-10	3.15	0.22
25-Jan-10	3.15	0.23

Interest [discount] rate on unsecured CP purchased under the CPFF* and comparable market interest rates

Daily

Percent

Note: On many days there was not sufficient commercial paper issuance to calculate market rates

* Includes 1.00% surcharge on unsecured commercial paper

Date	CPFF CP rate*	90-day AA non- financial CP rate	90-day AA financial CP rate
27-Oct-08	2.88	1.95	2.55
28-Oct-08	2.89	2.18	2.89
29-Oct-08	2.84	1.95	2.84
30-Oct-08	2.74	...	2.74
31-Oct-08	2.60	1.95	2.60
3-Nov-08	2.61	2.03	...
4-Nov-08	2.60	1.75	...
5-Nov-08	2.55	1.81	...
6-Nov-08	2.54	1.61	...
7-Nov-08	2.54	1.40	...
10-Nov-08	2.53	1.44	...
12-Nov-08	2.47	1.40	...
13-Nov-08	2.52	1.40	1.66
14-Nov-08	2.54	1.40	1.19
17-Nov-08	2.51	1.32	...
18-Nov-08	2.47	1.31	1.34
19-Nov-08	2.47	1.27	...
20-Nov-08	2.42	1.22	...
21-Nov-08	2.49	1.28	1.59
24-Nov-08	2.49	...	2.03
25-Nov-08	2.48	1.29	1.70
26-Nov-08	2.42	1.22	...
28-Nov-08	2.41	...	1.30
1-Dec-08	2.42	1.22	1.48
2-Dec-08	2.39	1.42	...
3-Dec-08	2.37	1.34	...
4-Dec-08	2.33	...	1.35
5-Dec-08	2.32	1.10	...
8-Dec-08	2.29	0.50	...
9-Dec-08	2.30	...	...
10-Dec-08	2.25	...	...
11-Dec-08	2.25	...	...
12-Dec-08	2.25	...	...
15-Dec-08	2.31	...	...
16-Dec-08	2.33	...	...

17-Dec-08	2.18	...	...
18-Dec-08	2.20	...	...
19-Dec-08	2.19	0.25	...
22-Dec-08	2.21	...	...
23-Dec-08	2.21	...	0.44
24-Dec-08	2.22	...	...
26-Dec-08	2.22	...	...
29-Dec-08	2.21	...	...
30-Dec-08	2.18	...	...
31-Dec-08	2.18	...	...
2-Jan-09	2.18	...	0.40
5-Jan-09	2.18	0.20	...
6-Jan-09	2.18	0.22	...
7-Jan-09	2.19	0.29	0.54
8-Jan-09	2.18	0.30	0.28
9-Jan-09	2.18	0.25	...
12-Jan-09	2.18	0.29	0.49
13-Jan-09	2.16	0.26	0.49
14-Jan-09	2.16	0.27	0.46
15-Jan-09	2.17	0.29	0.91
16-Jan-09	2.19	0.33	0.50
20-Jan-09	2.18	0.34	0.62
21-Jan-09	2.19	0.35	...
22-Jan-09	2.21	0.29	...
23-Jan-09	2.23	0.27	1.04
26-Jan-09	2.24	...	2.15
27-Jan-09	2.24	0.42	2.04
28-Jan-09	2.22	0.42	2.14
29-Jan-09	2.22	0.35	2.21
30-Jan-09	2.23	0.36	2.24
2-Feb-09	2.26	...	0.61
3-Feb-09	2.25	...	0.55
4-Feb-09	2.25	0.43	0.65
5-Feb-09	2.25	0.43	0.43
6-Feb-09	2.27	0.49	0.70
9-Feb-09	2.26	0.42	0.62
10-Feb-09	2.27	0.65	0.70
11-Feb-09	2.27	...	0.70
12-Feb-09	2.27	0.50	0.80
13-Feb-09	2.26	...	0.68
17-Feb-09	2.27	0.41	0.69
18-Feb-09	2.27	...	0.73
19-Feb-09	2.27	...	0.61
20-Feb-09	2.24	...	0.60
23-Feb-09	2.23	0.51	0.74
24-Feb-09	2.23	...	0.63
25-Feb-09	2.24	...	0.92

26-Feb-09	2.25	...	0.60
27-Feb-09	2.25	0.51	0.77
2-Mar-09	2.25	0.37	0.64
3-Mar-09	2.25	0.34	0.67
4-Mar-09	2.25	...	0.72
5-Mar-09	2.25	0.35	0.68
6-Mar-09	2.25	...	0.60
9-Mar-09	2.27	0.44	0.61
10-Mar-09	2.26	...	0.65
11-Mar-09	2.26	...	0.66
12-Mar-09	2.25	...	0.75
13-Mar-09	2.25	...	0.64
16-Mar-09	2.24	0.37	0.71
17-Mar-09	2.23	0.37	0.66
18-Mar-09	2.23	0.35	0.64
19-Mar-09	2.22	0.23	0.45
20-Mar-09	2.23	...	0.59
23-Mar-09	2.23	0.34	0.60
24-Mar-09	2.24	0.35	...
25-Mar-09	2.25	0.50	0.55
26-Mar-09	2.24	0.35	...
27-Mar-09	2.23	0.30	...
30-Mar-09	2.23	0.50	0.58
31-Mar-09	2.23	0.45	0.40
1-Apr-09	2.22	0.34	0.56
2-Apr-09	2.22	0.35	...
3-Apr-09	2.22	0.50	0.55
6-Apr-09	2.22	0.30	0.31
7-Apr-09	2.21	0.31	0.54
8-Apr-09	2.20	...	0.53
9-Apr-09	2.20	...	0.50
13-Apr-09	2.20	0.30	0.30
14-Apr-09	2.20	0.30	0.54
15-Apr-09	2.19	0.22	0.45
16-Apr-09	2.19	0.20	0.49
17-Apr-09	2.19	0.21	0.53
20-Apr-09	2.19	0.29	0.52
21-Apr-09	2.19	0.28	0.35
22-Apr-09	2.20	...	0.48
23-Apr-09	2.20	0.20	0.40
24-Apr-09	2.20	0.20	0.51
27-Apr-09	2.20	...	0.53
28-Apr-09	2.19	0.22	0.55
29-Apr-09	2.20	...	0.49
30-Apr-09	2.20	...	0.53
1-May-09	2.19	...	0.52
4-May-09	2.21	0.27	0.50

5-May-09	2.20	0.27	0.49
6-May-09	2.21	0.19	0.50
7-May-09	2.21	0.20	0.42
8-May-09	2.21	...	0.36
11-May-09	2.20	...	0.28
12-May-09	2.20	0.20	0.43
13-May-09	2.20	...	0.35
14-May-09	2.20	0.20	0.39
15-May-09	2.20	0.23	0.35
18-May-09	2.20	0.23	0.36
19-May-09	2.20	0.21	0.40
20-May-09	2.20	0.23	0.28
21-May-09	2.20	0.25	0.26
22-May-09	2.21	...	0.23
26-May-09	2.20	...	0.28
27-May-09	2.21	...	0.35
28-May-09	2.21	0.20	0.31
29-May-09	2.20	0.35	0.40
1-Jun-09	2.20	0.26	0.30
2-Jun-09	2.21	0.25	0.36
3-Jun-09	2.20	0.21	0.33
4-Jun-09	2.21	0.21	0.34
5-Jun-09	2.22	...	0.33
8-Jun-09	2.23	0.25	0.33
9-Jun-09	2.23	...	0.32
10-Jun-09	2.22	0.25	0.32
11-Jun-09	2.22	0.30	0.35
12-Jun-09	2.21	0.36	0.24
15-Jun-09	2.21	...	0.33
16-Jun-09	2.22	...	0.31
17-Jun-09	2.22	...	0.50
18-Jun-09	2.23	0.34	0.40
19-Jun-09	2.24	0.25	0.32
22-Jun-09	2.23	0.26	0.63
23-Jun-09	2.24	0.26	0.37
24-Jun-09	2.24	0.26	0.34
25-Jun-09	2.23	0.22	0.38
26-Jun-09	2.22	0.23	0.34
29-Jun-09	2.22	0.34	0.33
30-Jun-09	2.22	0.24	0.35
1-Jul-09	2.22	0.32	0.42
2-Jul-09	2.22	0.35	0.30
6-Jul-09	2.21	...	0.35
7-Jul-09	2.20	...	0.35
8-Jul-09	2.20	0.26	0.34
9-Jul-09	2.20	...	0.33
10-Jul-09	2.20	...	0.44

13-Jul-09	2.20	0.25	0.31
14-Jul-09	2.20	0.22	0.31
15-Jul-09	2.20	...	0.32
16-Jul-09	2.20	...	0.28
17-Jul-09	2.19	...	0.35
20-Jul-09	2.19	0.26	0.31
21-Jul-09	2.20	...	0.29
22-Jul-09	2.19	...	0.33
23-Jul-09	2.20	...	0.31
24-Jul-09	2.20	...	0.31
27-Jul-09	2.20	...	0.31
28-Jul-09	2.20	...	0.30
29-Jul-09	2.20	...	0.30
30-Jul-09	2.20	...	0.30
31-Jul-09	2.20	...	0.30
3-Aug-09	2.20	0.26	0.30
4-Aug-09	2.20	0.22	0.34
5-Aug-09	2.20	0.25	0.30
6-Aug-09	2.20	...	0.30
7-Aug-09	2.20	...	0.30
10-Aug-09	2.20	0.21	0.30
11-Aug-09	2.19	0.24	0.29
12-Aug-09	2.19	0.33	0.28
13-Aug-09	2.19	...	0.26
14-Aug-09	2.19	...	0.28
17-Aug-09	2.18	0.26	0.28
18-Aug-09	2.19	0.25	0.26
19-Aug-09	2.19	0.22	0.28
20-Aug-09	2.19	0.21	0.29
21-Aug-09	2.19	...	0.35
24-Aug-09	2.19	...	0.27
25-Aug-09	2.19	...	0.29
26-Aug-09	2.19	...	0.23
27-Aug-09	2.19	...	0.26
28-Aug-09	2.18	0.19	0.29
31-Aug-09	2.18	...	0.26
1-Sep-09	2.18	0.15	0.24
2-Sep-09	2.17	0.18	0.26
3-Sep-09	2.17	0.17	0.23
4-Sep-09	2.18	...	0.25
8-Sep-09	2.17	0.19	0.25
9-Sep-09	2.17	0.19	0.24
10-Sep-09	2.17	0.16	0.25
11-Sep-09	2.17	...	0.25
14-Sep-09	2.17	0.20	0.24
15-Sep-09	2.17	0.20	0.25
16-Sep-09	2.17	...	0.24

17-Sep-09	2.18	...	0.22
18-Sep-09	2.18	0.18	0.21
21-Sep-09	2.18	0.17	0.22
22-Sep-09	2.18	0.21	0.21
23-Sep-09	2.18	0.22	0.23
24-Sep-09	2.17	...	0.23
25-Sep-09	2.17	...	0.20
28-Sep-09	2.17	0.20	0.21
29-Sep-09	2.17	0.22	0.21
30-Sep-09	2.16	0.23	0.17
1-Oct-09	2.16	0.20	0.23
2-Oct-09	2.14	0.23	0.22
5-Oct-09	2.16	0.19	0.22
6-Oct-09	2.15	0.21	0.23
7-Oct-09	2.15	0.22	0.21
8-Oct-09	2.16	0.18	0.20
9-Oct-09	2.16	...	0.21
13-Oct-09	2.16	...	0.21
14-Oct-09	2.15	...	0.18
15-Oct-09	2.15	...	0.20
16-Oct-09	2.15	0.18	0.22
19-Oct-09	2.17	0.18	0.19
20-Oct-09	2.17	0.18	0.22
21-Oct-09	2.17	...	0.23
22-Oct-09	2.16	0.16	0.21
23-Oct-09	2.16	0.15	0.22
26-Oct-09	2.16	...	0.22
27-Oct-09	2.16	...	0.25
28-Oct-09	2.16	0.24	0.23
29-Oct-09	2.16	0.15	0.22
30-Oct-09	2.16	0.14	0.21
2-Nov-09	2.16	0.14	0.20
3-Nov-09	2.15	0.15	0.18
4-Nov-09	2.16	0.15	0.22
5-Nov-09	2.15	0.15	0.19
6-Nov-09	2.15	...	0.22
9-Nov-09	2.15	0.14	0.19
10-Nov-09	2.15	0.18	0.21
12-Nov-09	2.15	...	0.19
13-Nov-09	2.14	...	0.20
16-Nov-09	2.14	0.15	0.20
17-Nov-09	2.14	...	0.21
18-Nov-09	2.14	...	0.17
19-Nov-09	2.14	...	0.22
20-Nov-09	2.13	...	0.17
23-Nov-09	2.13	0.14	0.17
24-Nov-09	2.13	...	0.19

25-Nov-09	2.13	...	0.19
27-Nov-09	2.13	...	0.19
30-Nov-09	2.14	0.14	0.19
1-Dec-09	2.14	...	0.20
2-Dec-09	2.14	0.14	0.20
3-Dec-09	2.15	0.12	0.20
4-Dec-09	2.15	0.18	0.20
7-Dec-09	2.15	0.16	0.20
8-Dec-09	2.15	0.18	0.20
9-Dec-09	2.15	...	0.21
10-Dec-09	2.15	0.17	0.18
11-Dec-09	2.15	0.17	0.21
14-Dec-09	2.16	0.18	0.21
15-Dec-09	2.18	0.18	0.20
16-Dec-09	2.17	...	0.21
17-Dec-09	2.16	...	0.19
18-Dec-09	2.16	...	0.20
21-Dec-09	2.16	...	0.18
22-Dec-09	2.16	...	0.18
23-Dec-09	2.16	...	0.20
24-Dec-09	2.16	...	0.19
28-Dec-09	2.17	...	0.25
29-Dec-09	2.18	...	0.20
30-Dec-09	2.17	...	0.14
31-Dec-09	2.17	...	...
4-Jan-10	2.16	...	0.15
5-Jan-10	2.16	...	0.16
6-Jan-10	2.16	...	0.18
7-Jan-10	2.15	...	0.20
8-Jan-10	2.15	...	0.20
11-Jan-10	2.15	...	0.16
12-Jan-10	2.14	...	0.15
13-Jan-10	2.14	0.16	0.17
14-Jan-10	2.14	0.14	0.16
15-Jan-10	2.14	0.14	0.16
19-Jan-10	2.14	0.13	0.17
20-Jan-10	2.14	...	0.17
21-Jan-10	2.14	0.07	0.16
22-Jan-10	2.15	...	0.18
25-Jan-10	2.15	...	0.19

Estimated TSLF loan rate* and comparable market interest rate

Dates on which TSLF loans were made

Percent

* Estimated TSLF loan rate = auction-based TSLF lending fee + 1-month term GC repo rate

Date	TSLF Collateral Schedule	TSLF loan term (days)	Auction-based TSLF lending fee	1-month term GC repo rate	Estimated TSLF Lending Rate*	1-month term MBS repo rate
28-Mar-08	2	28	0.33	2.00	2.33	2.35
4-Apr-08	1	28	0.16	2.00	2.16	2.30
11-Apr-08	2	28	0.25	1.90	2.15	2.40
18-Apr-08	1	28	0.10	1.90	2.00	2.15
25-Apr-08	2	28	0.25	1.90	2.15	2.15
2-May-08	1	28	0.10	1.85	1.95	1.90
9-May-08	2	28	0.25	1.85	2.10	1.95
16-May-08	1	28	0.10	1.95	2.05	2.00
23-May-08	2	28	0.25	1.85	2.10	2.00
30-May-08	1	28	0.10	1.90	2.00	2.20
6-Jun-08	2	31	0.25	1.90	2.15	2.00
13-Jun-08	1	28	0.10	1.95	2.05	2.05
20-Jun-08	2	28	0.25	1.95	2.20	2.20

27-Jun-08	1	28	0.11	2.00	2.11	2.35
7-Jul-08	2	25	0.25	2.00	2.25	2.10
11-Jul-08	1	28	0.10	2.00	2.10	2.20
18-Jul-08	2	28	0.25	1.95	2.20	2.25
25-Jul-08	1	28	0.12	2.00	2.12	2.20
1-Aug-08	2	28	0.25	1.90	2.15	2.30
8-Aug-08	1	28	0.13	1.95	2.08	2.20
15-Aug-08	2	28	0.25	2.00	2.25	2.25
22-Aug-08	1	28	0.14	1.95	2.09	2.20
29-Aug-08	2	28	0.25	1.95	2.20	2.20
5-Sep-08	1	28	0.15	1.95	2.10	2.10
12-Sep-08	2	28	0.25	2.00	2.25	2.15
18-Sep-08	2	28	3.00	1.75	4.75	2.15
18-Sep-08	2	14	2.50	1.75	4.25	2.15
19-Sep-08	1	28	1.51	1.75	3.26	2.15
25-Sep-08	2	7	0.25	1.75	2.00	2.30
26-Sep-08	2	27	1.02	2.00	3.02	2.30
2-Oct-08	2	28	1.51	1.50	3.01	2.00
3-Oct-08	1	28	0.42	1.35	1.77	2.00
10-Oct-08	2	27	3.05	0.75	3.80	1.65
16-Oct-08	2	28	3.22	0.75	3.97	2.25
17-Oct-08	1	28	0.46	1.00	1.46	2.00

23-Oct-08	2	28	0.50	1.10	1.60	1.90
30-Oct-08	2	29	0.38	0.50	0.88	0.85
31-Oct-08	1	28	0.12	0.50	0.62	1.25
6-Nov-08	2	28	0.25	0.55	0.80	1.40
13-Nov-08	2	28	0.25	0.25	0.50	1.05
14-Nov-08	1	28	0.10	0.25	0.35	0.75
20-Nov-08	2	28	0.25	0.45	0.70	0.95
25-Nov-08	2	7	0.50	0.25	0.75	0.75
28-Nov-08	2	28	0.25	0.45	0.70	0.65
28-Nov-08	1	28	0.10	0.45	0.55	0.65
4-Dec-08	2	29	0.31	0.25	0.56	0.30
11-Dec-08	2	28	0.25	0.20	0.45	0.75
12-Dec-08	1	28	0.10	0.20	0.30	0.80
18-Dec-08	2	28	0.25	0.20	0.45	0.80
23-Dec-08	2	13	0.50	0.10	0.60	0.35
26-Dec-08	1	28	0.10	0.25	0.35	0.35
26-Dec-08	2	27	0.25	0.25	0.50	0.35
2-Jan-09	2	27	0.25	0.05	0.30	0.25
8-Jan-09	2	28	0.25	0.10	0.35	0.15
9-Jan-09	1	28	0.10	0.15	0.25	0.15
15-Jan-09	2	28	0.25	0.20	0.45	0.30

22-Jan-09	2	28	0.25	0.20	0.45	0.30
23-Jan-09	1	28	0.10	0.20	0.30	0.30
29-Jan-09	2	28	0.25	0.15	0.40	0.30
5-Feb-09	2	28	0.25	0.25	0.50	0.35
6-Feb-09	1	28	0.10	0.25	0.35	0.35
12-Feb-09	2	28	0.25	0.25	0.50	0.35
19-Feb-09	2	28	0.25	0.25	0.50	0.35
20-Feb-09	1	28	0.10	0.30	0.40	0.40
26-Feb-09	2	28	0.25	0.30	0.55	0.40
5-Mar-09	2	28	0.25	0.25	0.50	0.35
6-Mar-09	1	28	0.10	0.25	0.35	0.35
12-Mar-09	2	28	0.25	0.25	0.50	0.35
19-Mar-09	2	28	0.25	0.20	0.45	0.25
20-Mar-09	1	28	0.11	0.25	0.36	0.25
26-Mar-09	2	28	0.25	0.20	0.45	0.20
2-Apr-09	2	21	0.25	0.20	0.45	0.25
9-Apr-09	2	28	0.25	0.15	0.40	0.20
16-Apr-09	2	21	0.25	0.15	0.40	0.15
23-Apr-09	2	29	0.25	0.15	0.40	0.15
7-May-09	2	29	0.25	0.15	0.40	0.15
22-May-09	2	28	0.25	0.15	0.40	0.15
5-Jun-09	2	27	0.25	0.15	0.40	0.15

19-Jun-09	2	28	0.25	0.15	0.40	0.20
2-Jul-09	2	15	0.25	0.15	0.40	0.15
17-Jul-09	2	28	0.25	0.15	0.40	0.15

PDCF loan rates and comparable market interest rate

Dates on which PDCF loans were made

Percent

Date	PDCF interest rate	Overnight GC repo rate	Overnight MBS repo rate
17-Mar-08	3.25	2.00	2.95
18-Mar-08	2.50	0.95	2.85
19-Mar-08	2.50	0.34	2.05
20-Mar-08	2.50	0.51	2.30
24-Mar-08	2.50	0.47	2.10
25-Mar-08	2.50	0.93	2.35
26-Mar-08	2.50	0.46	1.80
27-Mar-08	2.50	0.72	2.00
28-Mar-08	2.50	2.15	2.60
31-Mar-08	2.50	1.43	2.40
1-Apr-08	2.50	2.36	2.60
2-Apr-08	2.50	2.39	2.40
3-Apr-08	2.50	2.39	2.40
4-Apr-08	2.50	2.21	2.20
7-Apr-08	2.50	2.28	2.20
8-Apr-08	2.50	2.15	2.20
9-Apr-08	2.50	2.04	2.05
10-Apr-08	2.50	2.28	2.20
11-Apr-08	2.50	2.25	2.10
14-Apr-08	2.50	2.22	2.30
15-Apr-08	2.50	2.15	2.15
16-Apr-08	2.50	2.15	2.20
17-Apr-08	2.50	2.15	2.20
18-Apr-08	2.50	2.19	2.20
21-Apr-08	2.50	2.13	2.20
22-Apr-08	2.50	2.01	2.10
23-Apr-08	2.50	1.88	1.95
24-Apr-08	2.50	2.03	2.00
25-Apr-08	2.50	1.90	1.95
28-Apr-08	2.50	1.88	1.90
29-Apr-08	2.50	2.02	2.10
30-Apr-08	2.25	1.96	2.00
1-May-08	2.25	1.86	1.90
2-May-08	2.25	1.85	1.90
5-May-08	2.25	1.89	1.90
6-May-08	2.25	1.90	1.90
7-May-08	2.25	1.87	1.90
8-May-08	2.25	1.99	1.95
9-May-08	2.25	2.01	1.95
12-May-08	2.25	2.03	1.95

13-May-08	2.25	2.01	1.95
14-May-08	2.25	1.93	1.95
15-May-08	2.25	2.05	2.00
16-May-08	2.25	1.98	2.10
19-May-08	2.25	1.98	1.90
20-May-08	2.25	2.01	1.90
21-May-08	2.25	1.97	1.90
22-May-08	2.25	2.08	2.00
23-May-08	2.25	2.09	2.10
27-May-08	2.25	2.16	2.20
28-May-08	2.25	2.24	2.25
29-May-08	2.25	2.34	2.35
30-May-08	2.25	2.19	2.20
2-Jun-08	2.25	2.22	2.20
3-Jun-08	2.25	2.12	2.10
4-Jun-08	2.25	2.05	2.00
5-Jun-08	2.25	2.04	1.95
6-Jun-08	2.25	2.02	1.95
9-Jun-08	2.25	2.07	1.95
10-Jun-08	2.25	2.11	2.05
11-Jun-08	2.25	2.12	2.05
12-Jun-08	2.25	2.10	2.00
13-Jun-08	2.25	2.12	2.00
16-Jun-08	2.25	2.19	2.10
17-Jun-08	2.25	2.02	1.95
18-Jun-08	2.25	1.96	2.00
19-Jun-08	2.25	1.94	1.90
20-Jun-08	2.25	1.99	1.95
23-Jun-08	2.25	1.97	1.95
24-Jun-08	2.25	1.94	2.00
25-Jun-08	2.25	1.91	2.00
26-Jun-08	2.25	1.97	2.10
27-Jun-08	2.25	2.11	2.40
30-Jun-08	2.25	1.72	3.15
1-Jul-08	2.25	2.10	2.15
11-Jul-08	2.25	1.93	2.00
24-Jul-08	2.25	1.96	2.05
11-Sep-08	2.25	2.06	2.10
15-Sep-08	2.25	1.66	3.50
16-Sep-08	2.25	1.03	2.25
17-Sep-08	2.25	0.25	2.25
18-Sep-08	2.25	0.76	2.25
19-Sep-08	2.25	1.82	2.50
22-Sep-08	2.25	1.75	2.50
23-Sep-08	2.25	0.68	1.90
24-Sep-08	2.25	0.26	1.90
25-Sep-08	2.25	0.31	1.25

26-Sep-08	2.25	1.08	1.25
29-Sep-08	2.25	0.88	1.55
30-Sep-08	2.25	0.33	1.55
1-Oct-08	2.25	0.76	1.55
2-Oct-08	2.25	0.23	0.45
3-Oct-08	2.25	0.11	0.45
6-Oct-08	2.25	0.15	0.55
7-Oct-08	2.25	0.36	1.65
8-Oct-08	1.75	0.10	1.25
9-Oct-08	1.75	0.21	1.25
10-Oct-08	1.75	0.10	1.25
14-Oct-08	1.75	0.10	1.25
15-Oct-08	1.75	0.12	1.25
16-Oct-08	1.75	0.11	0.75
17-Oct-08	1.75	0.11	0.75
20-Oct-08	1.75	0.31	0.75
21-Oct-08	1.75	0.96	1.05
22-Oct-08	1.75	1.01	1.10
23-Oct-08	1.75	1.03	1.15
24-Oct-08	1.75	0.82	1.05
27-Oct-08	1.75	0.96	1.20
28-Oct-08	1.75	0.86	0.85
29-Oct-08	1.25	0.21	0.30
30-Oct-08	1.25	0.20	0.15
31-Oct-08	1.25	0.15	0.25
3-Nov-08	1.25	0.26	0.20
4-Nov-08	1.25	0.16	0.05
5-Nov-08	1.25	0.14	0.10
6-Nov-08	1.25	0.14	0.10
7-Nov-08	1.25	0.18	0.10
10-Nov-08	1.25	0.15	0.15
12-Nov-08	1.25	0.17	0.15
13-Nov-08	1.25	0.26	0.15
14-Nov-08	1.25	0.17	0.10
17-Nov-08	1.25	0.19	0.15
18-Nov-08	1.25	0.27	0.25
19-Nov-08	1.25	0.30	0.25
20-Nov-08	1.25	0.28	0.40
21-Nov-08	1.25	0.49	0.60
24-Nov-08	1.25	0.58	0.50
25-Nov-08	1.25	0.40	0.25
26-Nov-08	1.25	0.34	0.30
28-Nov-08	1.25	0.25	0.30
1-Dec-08	1.25	0.30	0.30
2-Dec-08	1.25	0.29	0.20
3-Dec-08	1.25	0.20	0.10
4-Dec-08	1.25	0.17	0.10

5-Dec-08	1.25	0.03	0.03
8-Dec-08	1.25	0.02	0.05
9-Dec-08	1.25	0.02	0.05
10-Dec-08	1.25	0.01	0.05
11-Dec-08	1.25	0.03	0.10
12-Dec-08	1.25	0.08	0.10
15-Dec-08	1.25	0.08	0.10
16-Dec-08	0.50	0.10	0.05
17-Dec-08	0.50	0.05	0.05
18-Dec-08	0.50	0.03	0.05
19-Dec-08	0.50	0.04	0.10
22-Dec-08	0.50	0.05	0.10
23-Dec-08	0.50	0.06	0.10
24-Dec-08	0.50	0.07	0.10
26-Dec-08	0.50	0.08	0.10
29-Dec-08	0.50	0.06	0.05
30-Dec-08	0.50	0.05	0.05
31-Dec-08	0.50	0.03	0.05
2-Jan-09	0.50	0.07	0.05
5-Jan-09	0.50	0.07	0.10
6-Jan-09	0.50	0.05	0.05
7-Jan-09	0.50	0.04	0.10
8-Jan-09	0.50	0.06	0.10
9-Jan-09	0.50	0.07	0.05
12-Jan-09	0.50	0.06	0.05
13-Jan-09	0.50	0.07	0.10
14-Jan-09	0.50	0.17	0.25
15-Jan-09	0.50	0.21	0.25
16-Jan-09	0.50	0.28	0.30
20-Jan-09	0.50	0.21	0.30
21-Jan-09	0.50	0.19	0.25
22-Jan-09	0.50	0.26	0.30
23-Jan-09	0.50	0.24	0.30
26-Jan-09	0.50	0.17	0.25
27-Jan-09	0.50	0.12	0.15
28-Jan-09	0.50	0.19	0.20
29-Jan-09	0.50	0.23	0.30
30-Jan-09	0.50	0.26	0.25
2-Feb-09	0.50	0.30	0.30
3-Feb-09	0.50	0.23	0.30
4-Feb-09	0.50	0.24	0.25
5-Feb-09	0.50	0.29	0.30
6-Feb-09	0.50	0.26	0.30
9-Feb-09	0.50	0.26	0.25
10-Feb-09	0.50	0.26	0.20
11-Feb-09	0.50	0.26	0.20
12-Feb-09	0.50	0.28	0.25

13-Feb-09	0.50	0.30	0.30
17-Feb-09	0.50	0.33	0.30
18-Feb-09	0.50	0.25	0.30
19-Feb-09	0.50	0.26	0.20
20-Feb-09	0.50	0.28	0.25
23-Feb-09	0.50	0.25	0.25
24-Feb-09	0.50	0.24	0.25
25-Feb-09	0.50	0.24	0.20
26-Feb-09	0.50	0.29	0.25
27-Feb-09	0.50	0.26	0.25
2-Mar-09	0.50	0.31	0.25
3-Mar-09	0.50	0.27	0.20
4-Mar-09	0.50	0.26	0.25
5-Mar-09	0.50	0.29	0.25
6-Mar-09	0.50	0.26	0.25
9-Mar-09	0.50	0.28	0.25
10-Mar-09	0.50	0.28	0.25
11-Mar-09	0.50	0.26	0.20
12-Mar-09	0.50	0.26	0.20
13-Mar-09	0.50	0.11	0.10
16-Mar-09	0.50	0.25	0.20
17-Mar-09	0.50	0.23	0.20
18-Mar-09	0.50	0.19	0.15
19-Mar-09	0.50	0.22	0.20
20-Mar-09	0.50	0.22	0.15
23-Mar-09	0.50	0.25	0.20
24-Mar-09	0.50	0.22	0.20
25-Mar-09	0.50	0.17	0.10
26-Mar-09	0.50	0.13	0.10
27-Mar-09	0.50	0.15	0.10
30-Mar-09	0.50	0.15	0.15
31-Mar-09	0.50	0.17	0.20
1-Apr-09	0.50	0.24	0.20
2-Apr-09	0.50	0.22	0.15
3-Apr-09	0.50	0.17	0.10
6-Apr-09	0.50	0.16	0.10
7-Apr-09	0.50	0.15	0.10
8-Apr-09	0.50	0.19	0.15
9-Apr-09	0.50	0.17	0.15
13-Apr-09	0.50	0.17	0.15
14-Apr-09	0.50	0.17	0.10
15-Apr-09	0.50	0.12	0.10
16-Apr-09	0.50	0.13	0.05
17-Apr-09	0.50	0.15	0.10
20-Apr-09	0.50	0.15	0.15
21-Apr-09	0.50	0.14	0.10
22-Apr-09	0.50	0.14	0.10

23-Apr-09	0.50	0.15	0.10
24-Apr-09	0.50	0.14	0.05
27-Apr-09	0.50	0.14	0.10
28-Apr-09	0.50	0.14	0.10
29-Apr-09	0.50	0.14	0.10
30-Apr-09	0.50	0.16	0.15
1-May-09	0.50	0.23	0.20
4-May-09	0.50	0.24	0.20
5-May-09	0.50	0.23	0.20
6-May-09	0.50	0.21	0.15
7-May-09	0.50	0.21	0.15
8-May-09	0.50	0.19	0.15
11-May-09	0.50	0.20	0.10
12-May-09	0.50	0.16	0.15

AMLF loan rate and comparable market interest rates
 Dates on which AMLF loans were made
 Percent

Date	AMLF Interest Rate	30-day term federal funds rate	90-day term federal funds rate	30-day AA ABCP rate	90-day AA ABCP rate
22-Sep-08	2.25	1.98	1.92	4.57	3.52
23-Sep-08	2.25	1.93	1.86	3.70	3.27
24-Sep-08	2.25	1.90	1.80	3.68	4.20
25-Sep-08	2.25	1.89	1.79	3.72	3.80
26-Sep-08	2.25	1.81	1.67	5.55	5.25
29-Sep-08	2.25	1.81	1.58	4.23	4.06
30-Sep-08	2.25	1.81	1.70	6.05	4.41
1-Oct-08	2.25	1.74	1.63	4.19	4.22
2-Oct-08	2.25	1.56	1.47	4.08	4.49
3-Oct-08	2.25	1.41	1.42	4.06	4.38
6-Oct-08	2.25	1.38	1.32	4.03	4.20
7-Oct-08	2.25	1.61	1.36	5.45	4.66
8-Oct-08	1.75	1.50	1.24	4.43	4.85
9-Oct-08	1.75	1.46	1.24	4.33	4.66
10-Oct-08	1.75	1.32	1.14	4.77	4.55
14-Oct-08	1.75	1.29	1.18	4.43	4.49
15-Oct-08	1.75	1.23	1.10	4.70	4.48
16-Oct-08	1.75	1.21	1.10	3.95	4.23
21-Oct-08	1.75	1.07	1.07	3.51	3.75
22-Oct-08	1.75	1.10	1.00	3.19	3.31
24-Oct-08	1.75	1.05	0.89	2.97	3.10
4-Nov-08	1.25	0.51	0.63	1.95	2.30
13-Nov-08	1.25	0.42	0.54	1.31	1.97
21-Nov-08	1.25	0.42	0.46	1.25	2.30
26-Nov-08	1.25	0.42	0.41	1.39	3.04
1-Dec-08	1.25	0.40	0.40	1.72	1.89
8-Dec-08	1.25	0.24	0.34	1.68	2.77
6-Jan-09	0.50	0.15	0.21	0.60	0.65
16-Jan-09	0.50	0.14	0.19	0.53	0.77
22-Jan-09	0.50	0.17	0.23	0.60	0.62
26-Jan-09	0.50	0.16	0.25	0.51	2.38
27-Jan-09	0.50	0.16	0.24	0.56	0.77
28-Jan-09	0.50	0.16	0.22	0.52	0.89
29-Jan-09	0.50	0.16	0.22	0.55	0.95
30-Jan-09	0.50	0.16	0.27	0.58	0.79
3-Feb-09	0.50	0.23	0.26	0.54	0.76
4-Feb-09	0.50	0.24	0.28	0.49	0.70
12-Feb-09	0.50	0.23	0.26	0.82	0.88
23-Feb-09	0.50	0.22	0.24	0.72	0.85

26-Feb-09	0.50	0.22	0.25	0.95	0.90
5-Mar-09	0.50	0.23	0.26	0.80	0.83
12-Mar-09	0.50	0.22	0.26	0.71	0.75
24-Apr-09	0.50	0.15	0.19	0.47	0.64
30-Apr-09	0.50	0.15	0.20	0.85	3.01
5-May-09	0.50	0.20	0.21	0.62	0.56
6-May-09	0.50	0.20	0.21	0.55	0.59
7-May-09	0.50	0.20	0.21	0.51	0.50
8-May-09	0.50	0.19	0.21	0.48	0.59

Single-tranche open market operation auction statistics and comparable market interest rates

Dates on which ST OMOs were conducted

Percent

Date	Term (days)	Auction stop-out rate	Weighted avg. auction rate	4-week Treasury bill yield	1-month MBS repo rate
7-Mar-08	28	2.75	2.84	1.64	2.80
11-Mar-08	28	2.60	2.67	1.79	2.80
18-Mar-08	28	2.25	2.32	0.46	2.10
25-Mar-08	28	2.38	2.40	0.82	2.35
4-Apr-08	23	2.35	2.36	1.47	2.30
8-Apr-08	28	2.26	2.27	1.29	2.30
15-Apr-08	28	2.15	2.17	0.84	2.15
22-Apr-08	28	2.10	2.13	0.59	2.20
29-Apr-08	28	2.06	2.10	1.11	2.20
6-May-08	28	2.01	2.04	1.33	1.90
13-May-08	28	2.03	2.05	1.74	2.00
20-May-08	28	2.02	2.03	1.90	2.00
27-May-08	28	2.05	2.06	1.90	2.00
3-Jun-08	28	2.15	2.15	1.90	2.05
10-Jun-08	28	2.20	2.23	1.90	2.00
17-Jun-08	28	2.20	2.23	1.78	2.10
24-Jun-08	28	2.12	2.20	1.46	2.20
1-Jul-08	28	2.12	2.15	1.73	2.20
8-Jul-08	28	2.16	2.18	1.78	2.10
15-Jul-08	28	2.16	2.17	1.26	2.15
22-Jul-08	28	2.18	2.20	1.39	2.25
29-Jul-08	28	2.18	2.19	1.66	2.20
5-Aug-08	28	2.19	2.21	1.56	2.15
12-Aug-08	28	2.24	2.25	1.70	2.20
19-Aug-08	28	2.21	2.23	1.74	2.25
26-Aug-08	28	2.18	2.22	1.66	2.15
2-Sep-08	28	2.18	2.21	1.61	2.20
9-Sep-08	28	2.17	2.25	1.49	2.15
16-Sep-08	28	2.37	2.49	0.26	2.15
23-Sep-08	28	2.67	3.02	0.36	2.30
30-Sep-08	28	2.31	2.45	0.76	2.30
7-Oct-08	28	3.26	3.51	0.31	1.45
14-Oct-08	28	2.00	2.47	0.11	1.40
21-Oct-08	28	1.75	1.88	0.46	1.85
28-Oct-08	28	1.10	1.52	0.18	1.45
4-Nov-08	28	0.75	0.99	0.15	1.65
10-Nov-08	28	0.55	0.85	0.10	1.30
18-Nov-08	28	0.40	0.66	0.09	0.95

25-Nov-08	28	0.55	0.65	0.04	0.75
2-Dec-08	28	0.30	0.45	0.03	0.85
9-Dec-08	28	1.16	1.18	0.03	0.25
16-Dec-08	28	0.26	0.58	0.01	1.00
23-Dec-08	28	0.10	0.25	0.01	0.35
30-Dec-08	28	0.01	0.10	0.02	0.90

Appendix E

SUPPLEMENTAL MATERIALS FROM THE
“FEDERAL RESERVE AID TO THE EUROZONE: ITS IMPACT ON THE U.S.
AND THE DOLLAR.” HEARING OF THE SUBCOMMITTEE ON DOMESTIC
MONETARY POLICY AND TECHNOLOGY

March 27, 2012

**ARTICLE SUBMITTED BY REP. BLAINE
LEUTKEMEYERS FOR THE COMMITTEE RECORD**



March 8, 2012, 2:16 a.m. EST

Ex-ECB Stark: Bank's balance sheet 'alarming'

By Andrea Thomas

BERLIN (MarketWatch) -- The quality of the European Central Bank's balance sheet is "alarming," former European Central Bank Executive Board Member Juergen Stark told Thursday's Frankfurter Allgemeine Zeitung newspaper.

"The Eurosystem's balance sheet is not only gigantic in its dimension but also alarming in its quality," Stark was quoted as saying. He added the structure of the balance sheet is a cause for concern because increasingly

short-term debt claims are being replaced by long-term ones and this will make it more difficult for the bank to reverse its loose monetary policy.

With his comments, the bank's former hawk Stark is backing Germany's central bank president Jens Weidmann. The head of the Bundesbank told Der Spiegel weekly magazine over the weekend that requirements for banks' cheap loans have been "very generous" and the program calms the situation in the short term, but this calm could be deceptive. He was concerned about the collateral requirements that the banks had to provide.

The ECB's balance sheet soared past the EUR3 trillion level last week partly because the bank has flooded markets with over EUR500 billion in cheap loans for banks.

Newspaper Web site: <http://www.marketwatch.com/story/ex-ecb-stark-banks-balance-sheet-alarming-2012-03-08>

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Intraday Data provided by SIX Telekurs and subject to terms of use. Historical and current end-of-day data provided by SIX Telekurs. Intraday data delayed per exchange requirements. Dow Jones Indexes (SM) from Dow Jones & Company, Inc. All quotes are in local exchange time. Real time last sale data provided by NASDAQ. More information on NASDAQ traded symbols and their current financial status. Intraday data delayed 15 minutes for Nasdaq, and 20 minutes for other exchanges. Dow Jones IndexesSM from Dow Jones & Company, Inc. SEHK intraday data is provided by SIX Telekurs and is at least 60-minutes delayed. All quotes are in local exchange time.

Appendix F

SUPPLEMENTAL MATERIALS FROM THE
“INVESTIGATING THE GOLD:
H.R. 1495, THE GOLD RESERVE TRANSPARENCY ACT OF 2011 AND THE
OVERSIGHT OF THE UNITED STATES GOLD HOLDINGS”
HEARING OF THE SUBCOMMITTEE ON DOMESTIC MONETARY POLICY AND
TECHNOLOGY

June 23, 2011

ATTACHMENT 1: GOLD ASSAY REPORTS

Attachment 1: Part 1

FY08 Gold Assay Report



DEPARTMENT OF THE ARMY
WHITE SANDS TEST CENTER
U.S. ARMY WHITE SANDS MISSILE RANGE
100 Headquarters Avenue
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

REPLY TO
ATTENTION OF

TEDT-WS-SV-AT

2 September 2008

MEMORANDUM FOR Department of the Treasury, Office of the Inspector General
(Ms. Donna Joseph), 740 15th Street, NW, Suite 600, Washington, DC 20220

SUBJECT: Gold Assay Report

1. In response to your written request, the White Sands Test Center Chemistry Laboratory analyzed 86 samples of high-fine gold for their purity.
2. Results: The results appear in Table 1, Encl 1.
3. Inclusive in this assay report is the Certificate of Destruction.
4. The samples were delivered to the Chemistry Laboratory on 28 Jul 08 and the analyses and analytical review were completed on 25 Aug 08.
5. Point of contact is Dr. Joseph E. Gomez at 575-678-2992.

FOR THE COMMANDER:

E-Signed by JOHN H. O'KUMA
VERIFY Authenticity with Approval
John H. O'Kuma

Encl
as

JOHN H. O'KUMA
Director, Survivability, Vulnerability &
Assessment Directorate

WHITE SANDS MISSILE RANGE *TEDT-WS-SY-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date	Date Received
0807008-001A	WP-1	7/21/2008	7/28/2008
0807008-002A	WP-2	7/21/2008	7/28/2008
0807008-003A	WP-3	7/21/2008	7/28/2008
0807008-004A	WP-4	7/21/2008	7/28/2008
0807008-005A	WP-5	7/21/2008	7/28/2008
0807008-006A	WP-6	7/21/2008	7/28/2008
0807008-007A	WP-7	7/21/2008	7/28/2008
0807008-008A	WP-8	7/21/2008	7/28/2008
0807008-009A	WP-9	7/21/2008	7/28/2008
0807008-010A	WP-10	7/21/2008	7/28/2008
0807008-011A	WP-11	7/21/2008	7/28/2008
0807008-012A	WP-12	7/21/2008	7/28/2008
0807008-013A	WP-13	7/21/2008	7/28/2008
0807008-014A	WP-14	7/21/2008	7/28/2008
0807008-015A	WP-15	7/21/2008	7/28/2008
0807008-016A	WP-16	7/21/2008	7/28/2008
0807008-017A	WP-17	7/21/2008	7/28/2008
0807008-018A	WP-18	7/21/2008	7/28/2008
0807008-019A	WP-19	7/21/2008	7/28/2008
0807008-020A	WP-20	7/21/2008	7/28/2008
0807008-021A	WP-21	7/21/2008	7/28/2008
0807008-022A	WP-22	7/21/2008	7/28/2008
0807008-023A	WP-23	7/21/2008	7/28/2008
0807008-024A	WP-24	7/21/2008	7/28/2008
0807008-025A	WP-25	7/21/2008	7/28/2008
0807008-026A	WP-26	7/21/2008	7/28/2008
0807008-027A	WP-27	7/21/2008	7/28/2008
0807008-028A	WP-28	7/21/2008	7/28/2008
0807008-029A	WP-29	7/21/2008	7/28/2008
0807008-030A	WP-30	7/21/2008	7/28/2008
0807008-031A	WP-31	7/21/2008	7/28/2008
0807008-032A	WP-32	7/21/2008	7/28/2008
0807008-033A	WP-33	7/21/2008	7/28/2008
0807008-034A	WP-34	7/21/2008	7/28/2008
0807008-035A	WP-35	7/21/2008	7/28/2008
0807008-036A	WP-36	7/21/2008	7/28/2008
0807008-037A	WP-37	7/21/2008	7/28/2008
0807008-038A	WP-38	7/21/2008	7/28/2008
0807008-039A	WP-39	7/21/2008	7/28/2008
0807008-040A	WP-40	7/21/2008	7/28/2008
0807008-041A	WP-41	7/21/2008	7/28/2008

CLIENT: United States Mint Date: 28-Aug-08
 Project:
 Lab Order: 0807008 Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date	Date Received
0807008-042A	WP-42	7/21/2008	7/28/2008
0807008-043A	WP-43	7/21/2008	7/28/2008
0807008-044A	WP-44	7/21/2008	7/28/2008
0807008-045A	WP-45	7/21/2008	7/28/2008
0807008-046A	WP-46	7/21/2008	7/28/2008
0807008-047A	WP-47	7/21/2008	7/28/2008
0807008-048A	WP-48	7/21/2008	7/28/2008
0807008-049A	WP-49	7/21/2008	7/28/2008
0807008-050A	WP-50	7/21/2008	7/28/2008
0807008-051A	WP-51	7/21/2008	7/28/2008
0807008-052A	WP-52	7/21/2008	7/28/2008
0807008-053A	WP-53	7/21/2008	7/28/2008
0807008-054A	WP-54	7/21/2008	7/28/2008
0807008-055A	WP-55	7/21/2008	7/28/2008
0807008-056A	WP-56	7/21/2008	7/28/2008
0807008-057A	WP-57	7/21/2008	7/28/2008
0807008-058A	WP-58	7/21/2008	7/28/2008
0807008-059A	WP-59	7/21/2008	7/28/2008
0807008-060A	WP-60	7/21/2008	7/28/2008
0807008-061A	WP-61	7/21/2008	7/28/2008
0807008-062A	WP-62	7/21/2008	7/28/2008
0807008-063A	WP-63	7/21/2008	7/28/2008
0807008-064A	WP-64	7/21/2008	7/28/2008
0807008-065A	WP-65	7/21/2008	7/28/2008
0807008-065A	WP-66	7/21/2008	7/28/2008
0807008-067A	WP-67	7/21/2008	7/28/2008
0807008-068A	WP-68	7/21/2008	7/28/2008
0807008-069A	WP-69	7/21/2008	7/28/2008
0807008-070A	WP-70	7/21/2008	7/28/2008
0807008-071A	WP-71	7/21/2008	7/28/2008
0807008-072A	WP-72	7/21/2008	7/28/2008
0807008-073A	WP-73	7/21/2008	7/28/2008
0807008-074A	WP-74	7/21/2008	7/28/2008
0807008-075A	WP-75	7/21/2008	7/28/2008
0807008-076A	WP-76	7/21/2008	7/28/2008
0807008-077A	WP-77	7/21/2008	7/28/2008
0807008-078A	WP-78	7/21/2008	7/28/2008
0807008-079A	WP-79	7/21/2008	7/28/2008
0807008-080A	WP-80	7/21/2008	7/28/2008
0807008-081A	WP-81	7/21/2008	7/28/2008
0807008-082A	WP-82	7/21/2008	7/28/2008
0807008-083A	WP-83	7/21/2008	7/28/2008
0807008-084A	WP-84	7/21/2008	7/28/2008

CLIENT: United States Mint Date: 28-Aug-08
 Project:
 Lab Order: 0807008 Work Order Sample Summary

Lab Sample ID	Client Sample ID	Collection Date	Date Received
0807008-085A	WP-85	7/21/2008	7/28/2008
0807008-086A	WP-86	7/21/2008	7/28/2008

WHITE SANDS MISSILE RANGE TEDI-WS-SV-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Lab ID: 0807008-001

Collection Date: 7/21/2008

Client Sample ID: WP-1

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES

Percent Gold

99.996

INHOUSE_AU

(SW3050B)

Analyst: EAG

0

%

1

8/12/2008 2:28:21 PM

Lab ID: 0807008-002

Collection Date: 7/21/2008

Client Sample ID: WP-2

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES

Percent Gold

99.994

INHOUSE_AU

(SW3050B)

Analyst: EAG

0

%

1

8/12/2008 2:35:38 PM

Lab ID: 0807008-003

Collection Date: 7/21/2008

Client Sample ID: WP-3

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES

Percent Gold

99.996

INHOUSE_AU

(SW3050B)

Analyst: EAG

0

%

1

8/12/2008 2:38:29 PM

Lab ID: 0807008-004

Collection Date: 7/21/2008

Client Sample ID: WP-4

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES

Percent Gold

99.972

INHOUSE_AU

(SW3050B)

Analyst: EAG

0

%

1

8/12/2008 2:41:20 PM

Lab ID: 0807008-005

Collection Date: 7/21/2008

Client Sample ID: WP-5

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES

Percent Gold

99.987

INHOUSE_AU

(SW3050B)

Analyst: EAG

0

%

1

8/12/2008 2:44:11 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 DF Dilution Factor
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDE-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-006 **Collection Date:** 7/21/2008
Client Sample ID: WP-6 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.983	0	%		1	8/12/2008 2:47:07 PM
						Analyst: EAG

Lab ID: 0807008-007 **Collection Date:** 7/21/2008
Client Sample ID: WP-7 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.980	0	%		1	8/12/2008 3:00:46 PM
						Analyst: EAG

Lab ID: 0807008-008 **Collection Date:** 7/21/2008
Client Sample ID: WP-8 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.991	0	%		1	8/12/2008 3:03:42 PM
						Analyst: EAG

Lab ID: 0807008-009 **Collection Date:** 7/21/2008
Client Sample ID: WP-9 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.989	0	%		1	8/12/2008 3:06:30 PM
						Analyst: EAG

Lab ID: 0807008-010 **Collection Date:** 7/21/2008
Client Sample ID: WP-10 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.992	0	%		1	8/12/2008 3:09:27 PM
						Analyst: EAG

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE **TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002**
CERTIFIED CHEMISTRY LABORATORY **Phone 505.678.2992 Fax 505.678.1671**

LABORATORY ANALYTICAL REPORT

CLIENT:	United States Mint	Date:	28-Aug-08
Project:		Lab Order:	0807008
Lab ID:	0807008-011	Collection Date:	7/21/2008
Client Sample ID:	WP-11	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.986	0 %	1 8/12/2008 3:12:16 PM
Lab ID:	0807008-012	Collection Date:	7/21/2008
Client Sample ID:	WP-12	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.972	0 %	1 8/12/2008 3:15:34 PM
Lab ID:	0807008-013	Collection Date:	7/21/2008
Client Sample ID:	WP-13	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.963	0 %	1 8/12/2008 3:17:59 PM
Lab ID:	0807008-014	Collection Date:	7/21/2008
Client Sample ID:	WP-14	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.960	0 %	1 8/12/2008 3:20:46 PM
Lab ID:	0807008-015	Collection Date:	7/21/2008
Client Sample ID:	WP-15	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.962	0 %	1 8/12/2008 3:23:39 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-016 **Collection Date:** 7/21/2008
Client Sample ID: WP-16 **Matrix:** SOLID

Analytes	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/12/2008 3:28:31 PM

Lab ID: 0807008-017 **Collection Date:** 7/21/2008
Client Sample ID: WP-17 **Matrix:** SOLID

Analytes	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/12/2008 3:40:08 PM

Lab ID: 0807008-018 **Collection Date:** 7/21/2008
Client Sample ID: WP-18 **Matrix:** SOLID

Analytes	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/12/2008 3:42:59 PM

Lab ID: 0807008-019 **Collection Date:** 7/21/2008
Client Sample ID: WP-19 **Matrix:** SOLID

Analytes	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/12/2008 3:45:51 PM

Lab ID: 0807008-020 **Collection Date:** 7/21/2008
Client Sample ID: WP-20 **Matrix:** SOLID

Analytes	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/12/2008 3:48:43 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-021 **Collection Date:** 7/21/2008
Client Sample ID: WP-21 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:04:20 AM

Lab ID: 0807008-022 **Collection Date:** 7/21/2008
Client Sample ID: WP-22 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:13:07 AM

Lab ID: 0807008-023 **Collection Date:** 7/21/2008
Client Sample ID: WP-23 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:15:58 AM

Lab ID: 0807008-024 **Collection Date:** 7/21/2008
Client Sample ID: WP-24 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:18:49 AM

Lab ID: 0807008-025 **Collection Date:** 7/21/2008
Client Sample ID: WP-25 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:21:40 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE T EDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint Date: 28-Aug-08
 Project: Lab Order: 0807008

Lab ID: 0807008-026 Collection Date: 7/21/2008
 Client Sample ID: WP-26 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.995	0	%		1	8/13/2008 10:24:27 AM

Lab ID: 0807008-027 Collection Date: 7/21/2008
 Client Sample ID: WP-27 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.991	0	%		1	8/13/2008 10:38:06 AM

Lab ID: 0807008-028 Collection Date: 7/21/2008
 Client Sample ID: WP-28 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.993	0	%		1	8/13/2008 10:40:53 AM

Lab ID: 0807008-029 Collection Date: 7/21/2008
 Client Sample ID: WP-29 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 10:43:46 AM

Lab ID: 0807008-030 Collection Date: 7/21/2008
 Client Sample ID: WP-30 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.991	0	%		1	8/13/2008 10:48:38 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT:	United States Mint	Date:	28-Aug-08
Project:		Lab Order:	0807008
Lab ID:	0807008-031	Collection Date:	7/21/2008
Client Sample ID:	WP-31	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.991	0 %	1 8/13/2008 10:48:27 AM
Lab ID:	0807008-032	Collection Date:	7/21/2008
Client Sample ID:	WP-32	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.994	0 %	1 8/13/2008 10:52:18 AM
Lab ID:	0807008-033	Collection Date:	7/21/2008
Client Sample ID:	WP-33	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.994	0 %	1 8/13/2008 10:56:10 AM
Lab ID:	0807008-034	Collection Date:	7/21/2008
Client Sample ID:	WP-34	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.993	0 %	1 8/13/2008 10:58:02 AM
Lab ID:	0807008-035	Collection Date:	7/21/2008
Client Sample ID:	WP-35	Matrix:	SOLID
Analyses	Result	Limit Qual Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU (SW3050B)	Analyst: EAG
Percent Gold	99.994	0 %	1 8/13/2008 11:00:53 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE **TEDT-W3-SV-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002**
CERTIFIED CHEMISTRY LABORATORY **Phone 505.678.2992 Fax 505.678.1671**

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-036 **Collection Date:** 7/21/2008
Client Sample ID: WP-36 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.987	0	%		1	8/13/2008 11:03:45 AM

Lab ID: 0807008-037 **Collection Date:** 7/21/2008
Client Sample ID: WP-37 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/13/2008 11:17:22 AM

Lab ID: 0807008-038 **Collection Date:** 7/21/2008
Client Sample ID: WP-38 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%		1	8/13/2008 11:20:10 AM

Lab ID: 0807008-039 **Collection Date:** 7/21/2008
Client Sample ID: WP-39 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.993	0	%		1	8/13/2008 11:22:58 AM

Lab ID: 0807008-040 **Collection Date:** 7/21/2008
Client Sample ID: WP-40 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 11:25:45 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE TETD-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Lab ID: 0807008-041

Collection Date: 7/21/2008

Client Sample ID: WP-41

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 4:21:32 PM

Lab ID: 0807008-042

Collection Date: 7/21/2008

Client Sample ID: WP-42

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/13/2008 4:30:22 PM

Lab ID: 0807008-043

Collection Date: 7/21/2008

Client Sample ID: WP-43

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.995	0	%		1	8/13/2008 4:33:09 PM

Lab ID: 0807008-044

Collection Date: 7/21/2008

Client Sample ID: WP-44

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/13/2008 4:38:00 PM

Lab ID: 0807008-045

Collection Date: 7/21/2008

Client Sample ID: WP-45

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
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GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/13/2008 4:38:51 PM

Qualifiers: * Value exceeds Maximum Contaminant Level

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-046 **Collection Date:** 7/21/2008
Client Sample ID: WP-46 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.997 0 % 1 8/13/2008 4:41:42 PM

Lab ID: 0807008-047 **Collection Date:** 7/21/2008
Client Sample ID: WP-47 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.998 0 % 1 8/13/2008 4:55:18 PM

Lab ID: 0807008-048 **Collection Date:** 7/21/2008
Client Sample ID: WP-48 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.994 0 % 1 8/13/2008 4:58:10 PM

Lab ID: 0807008-049 **Collection Date:** 7/21/2008
Client Sample ID: WP-49 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.992 0 % 1 8/13/2008 5:01:04 PM

Lab ID: 0807008-050 **Collection Date:** 7/21/2008
Client Sample ID: WP-50 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.995 0 % 1 8/13/2008 5:03:57 PM

Qualifiers: * Value exceeds Maximum Contaminant Level **B** Analyte detected in the associated Method Blank
 DF Dilution Factor **E** Value above quantitation range
 H Holding times for preparation or analysis exceeded **J** Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit **S** Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE TEDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Lab ID: 0807008-051

Collection Date: 7/21/2008

Client Sample ID: WP-51

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.993	0	%		1	8/13/2008 5:06:45 PM

Lab ID: 0807008-052

Collection Date: 7/21/2008

Client Sample ID: WP-52

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/13/2008 5:09:39 PM

Lab ID: 0807008-053

Collection Date: 7/21/2008

Client Sample ID: WP-53

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.985	0	%		1	8/13/2008 5:12:34 PM

Lab ID: 0807008-054

Collection Date: 7/21/2008

Client Sample ID: WP-54

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/13/2008 5:15:25 PM

Lab ID: 0807008-055

Collection Date: 7/21/2008

Client Sample ID: WP-55

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.995	0	%		1	8/13/2008 5:18:17 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 DF Dilution Factor
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE TETD-W3-SY-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002
CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint Date: 28-Aug-08
 Project: Lab Order: 0807008

Lab ID: 0807008-056 Collection Date: 7/21/2008
 Client Sample ID: WP-56 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994			INHOUSE_AU %	(SW3050B) 1	Analyst: EAG 8/13/2008 5:21:08 PM

Lab ID: 0807008-057 Collection Date: 7/21/2008
 Client Sample ID: WP-57 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995			INHOUSE_AU %	(SW3050B) 1	Analyst: EAG 8/13/2008 5:34:53 PM

Lab ID: 0807008-058 Collection Date: 7/21/2008
 Client Sample ID: WP-58 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995			INHOUSE_AU %	(SW3050B) 1	Analyst: EAG 8/13/2008 5:37:44 PM

Lab ID: 0807008-059 Collection Date: 7/21/2008
 Client Sample ID: WP-59 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996			INHOUSE_AU %	(SW3050B) 1	Analyst: EAG 8/13/2008 5:40:36 PM

Lab ID: 0807008-060 Collection Date: 7/21/2008
 Client Sample ID: WP-60 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994			INHOUSE_AU %	(SW3050B) 1	Analyst: EAG 8/13/2008 5:44:04 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE TEDT-WS-SY-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint Date: 28-Aug-08
 Project: Lab Order: 0807008

Lab ID: 0807008-061 Collection Date: 7/21/2008
 Client Sample ID: WP-61 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.995	0	%	(SW3050B)	1	Analyst: EAG 8/14/2008 11:15:18 AM

Lab ID: 0807008-062 Collection Date: 7/21/2008
 Client Sample ID: WP-62 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.997	0	%	(SW3050B)	1	Analyst: EAG 8/14/2008 11:24:19 AM

Lab ID: 0807008-063 Collection Date: 7/21/2008
 Client Sample ID: WP-63 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.995	0	%	(SW3050B)	1	Analyst: EAG 8/14/2008 11:27:09 AM

Lab ID: 0807008-064 Collection Date: 7/21/2008
 Client Sample ID: WP-64 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.995	0	%	(SW3050B)	1	Analyst: EAG 8/14/2008 11:29:59 AM

Lab ID: 0807008-065 Collection Date: 7/21/2008
 Client Sample ID: WP-65 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES						
Percent Gold	99.995	0	%	(SW3050B)	1	Analyst: EAG 8/14/2008 11:32:50 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE T EDT-WS-SV-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint Date: 28-Aug-08
 Project: Lab Order: 0807008

Lab ID: 0807008-066 Collection Date: 7/21/2008
 Client Sample ID: WP-66 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.986	0	%		1	8/14/2008 11:35:40 AM

Lab ID: 0807008-067 Collection Date: 7/21/2008
 Client Sample ID: WP-67 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.986	0	%		1	8/14/2008 11:49:20 AM

Lab ID: 0807008-068 Collection Date: 7/21/2008
 Client Sample ID: WP-68 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 11:52:12 AM

Lab ID: 0807008-069 Collection Date: 7/21/2008
 Client Sample ID: WP-69 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 11:55:04 AM

Lab ID: 0807008-070 Collection Date: 7/21/2008
 Client Sample ID: WP-70 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.994	0	%		1	8/14/2008 11:57:56 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE T EDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Lab ID: 0807008-071

Collection Date: 7/21/2008

Client Sample ID: WP-71

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 12:00:49 PM

Lab ID: 0807008-072

Collection Date: 7/21/2008

Client Sample ID: WP-72

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 12:03:42 PM

Lab ID: 0807008-073

Collection Date: 7/21/2008

Client Sample ID: WP-73

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 12:08:36 PM

Lab ID: 0807008-074

Collection Date: 7/21/2008

Client Sample ID: WP-74

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 12:09:27 PM

Lab ID: 0807008-075

Collection Date: 7/21/2008

Client Sample ID: WP-75

Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%		1	8/14/2008 12:12:19 PM

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	DF	Dilution Factor	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SY-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint **Date:** 28-Aug-08
Project: **Lab Order:** 0807008

Lab ID: 0807008-076 **Collection Date:** 7/21/2008
Client Sample ID: WP-76 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:15:10 PM

Lab ID: 0807008-077 **Collection Date:** 7/21/2008
Client Sample ID: WP-77 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:28:48 PM

Lab ID: 0807008-078 **Collection Date:** 7/21/2008
Client Sample ID: WP-78 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:31:39 PM

Lab ID: 0807008-079 **Collection Date:** 7/21/2008
Client Sample ID: WP-79 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:34:31 PM

Lab ID: 0807008-080 **Collection Date:** 7/21/2008
Client Sample ID: WP-80 **Matrix:** SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:37:24 PM

Qualifiers: * Value exceeds Maximum Contaminant Level **B** Analyte detected in the associated Method Blank
 DF Dilution Factor **E** Value above quantitation range
 H Holding times for preparation or analysis exceeded **J** Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit **S** Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE T EDT-WS-SV-AT BLDG 1415 Dyer St. White Sands Missile Range, NM 88002
 CERTIFIED CHEMISTRY LABORATORY Phone 505.678.2992 Fax 505.678.1671

LABORATORY ANALYTICAL REPORT

CLIENT: United States Mint

Date: 28-Aug-08

Project:

Lab Order: 0807008

Lab ID: 0807008-081 Collection Date: 7/21/2008
 Client Sample ID: WP-81 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%		1	8/14/2008 12:48:00 PM

Lab ID: 0807008-082 Collection Date: 7/21/2008
 Client Sample ID: WP-82 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 12:55:02 PM

Lab ID: 0807008-083 Collection Date: 7/21/2008
 Client Sample ID: WP-83 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%		1	8/14/2008 1:08:42 PM

Lab ID: 0807008-084 Collection Date: 7/21/2008
 Client Sample ID: WP-84 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 1:11:33 PM

Lab ID: 0807008-085 Collection Date: 7/21/2008
 Client Sample ID: WP-85 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/14/2008 1:14:28 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
	DF Dilution Factor	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

WHITE SANDS MISSILE RANGE *TEDT-WS-SV-AT BLDG 1413 Dyer St. White Sands Missile Range, NM 88002*
CERTIFIED CHEMISTRY LABORATORY *Phone 505.678.2992 Fax 505.678.1671*

LABORATORY ANALYTICAL REPORT

CLIENT:	United States Mint	Date:	28-Aug-08
Project:		Lab Order:	0807008
Lab ID:	0807008-086	Collection Date:	7/21/2008
Client Sample ID:	WP-86	Matrix:	SOLID
Analyses	Result	Limit	Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B) Analyst: EAG
Percent Gold	99.987	0	% 1 8/14/2008 1:17:18 PM

Attachment 1: Part 2

2006-09-05 13:23

505-678-2495 >> 912029275379

P 2/21

p60

FY06 Gold Assay Report

F. 5. 29

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint		Lab Order:	0607007		
Project:						
Lab ID:	0607007-001	Collection Date:	7/25/2006			
Client Sample ID:	WP-1	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.968	0	%		1	8/8/2006 1:47:48 PM
Lab ID:	0607007-002	Collection Date:	7/25/2006			
Client Sample ID:	WP-2	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.968	0	%		1	8/8/2006 1:58:08 PM
Lab ID:	0607007-003	Collection Date:	7/25/2006			
Client Sample ID:	WP-3	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.997	0	%		1	8/8/2006 1:58:55 PM
Lab ID:	0607007-004	Collection Date:	7/25/2006			
Client Sample ID:	WP-4	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.998	0	%		1	8/8/2006 2:01:42 PM
Lab ID:	0607007-005	Collection Date:	7/25/2006			
Client Sample ID:	WP-5	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.996	0	%		1	8/8/2006 2:04:29 PM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

Page 1 of 20

Note: See sample results memo at wlp F.5.31 for details of assay

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
Project:

Lab ID: 0607007-006 Collection Date: 7/25/2006
Client Sample ID: WP-6 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU	0	%	1	Analyst: EAG 8/8/2006 2:07:16 PM

Lab ID: 0607007-007 Collection Date: 7/25/2006
Client Sample ID: WP-7 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994	INHOUSE_AU	0	%	1	Analyst: EAG 8/8/2006 2:20:25 PM

Lab ID: 0607007-008 Collection Date: 7/25/2006
Client Sample ID: WP-8 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994	INHOUSE_AU	0	%	1	Analyst: EAG 8/8/2006 2:23:13 PM

Lab ID: 0607007-009 Collection Date: 7/25/2006
Client Sample ID: WP-9 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996	INHOUSE_AU	0	%	1	Analyst: EAG 8/8/2006 2:28:01 PM

Lab ID: 0607007-010 Collection Date: 7/25/2006
Client Sample ID: WP-10 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU	0	%	1	Analyst: EAG 8/8/2006 2:28:50 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
DF Dilution Factor E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint		Lab Order:	0607007	
Project:					
Lab ID:	0607007-011	Collection Date:	7/25/2006		
Client Sample ID:	WP-11	Matrix:	SOLID		
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994	INHOUSE_AU 0 %	(SW3050B) 1	Analyst: EAG 8/8/2006 2:31:39 PM	
Lab ID:	0607007-012	Collection Date:	7/25/2006		
Client Sample ID:	WP-12	Matrix:	SOLID		
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES Percent Gold	99.999	INHOUSE_AU 0 %	(SW3050B) 1	Analyst: EAG 8/8/2006 2:34:29 PM	
Lab ID:	0607007-013	Collection Date:	7/25/2006		
Client Sample ID:	WP-13	Matrix:	SOLID		
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU 0 %	(SW3050B) 1	Analyst: EAG 8/8/2006 2:37:21 PM	
Lab ID:	0607007-014	Collection Date:	7/25/2006		
Client Sample ID:	WP-14	Matrix:	SOLID		
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU 0 %	(SW3050B) 1	Analyst: EAG 8/8/2006 2:40:09 PM	
Lab ID:	0607007-015	Collection Date:	7/25/2006		
Client Sample ID:	WP-15	Matrix:	SOLID		
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES Percent Gold	99.998	INHOUSE_AU 0 %	(SW3050B) 1	Analyst: EAG 8/8/2006 2:42:58 PM	

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint			Lab Order:	0607007
Project:					
Lab ID:	0607007-016	Collection Date:		7/23/2006	
Client Sample ID:	WP-16	Matrix:		SOLID	
Analyses	Result	Limit	Qual	Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/8/2006 2:43:43 PM
Lab ID:	0607007-017	Collection Date:		7/23/2006	
Client Sample ID:	WP-17	Matrix:		SOLID	
Analyses	Result	Limit	Qual	Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/8/2006 2:53:51 PM
Lab ID:	0607007-018	Collection Date:		7/23/2006	
Client Sample ID:	WP-18	Matrix:		SOLID	
Analyses	Result	Limit	Qual	Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/8/2006 3:01:38 PM
Lab ID:	0607007-019	Collection Date:		7/25/2006	
Client Sample ID:	WP-19	Matrix:		SOLID	
Analyses	Result	Limit	Qual	Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/8/2006 3:04:21 PM
Lab ID:	0607007-020	Collection Date:		7/25/2006	
Client Sample ID:	WP-20	Matrix:		SOLID	
Analyses	Result	Limit	Qual	Units	DF Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/8/2006 3:07:11 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint
 Project: Lab Order: 0607007

Lab ID: 0607007-021
 Client Sample ID: WP-21
 Collection Date: 7/25/2006
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.990	0		%	1	Analyst: EAG 8/9/2006 11:07:54 AM

Lab ID: 0607007-022
 Client Sample ID: WP-22
 Collection Date: 7/25/2006
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.988	0		%	1	Analyst: EAG 8/9/2006 11:10:37 AM

Lab ID: 0607007-023
 Client Sample ID: WP-23
 Collection Date: 7/25/2006
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996	0		%	1	Analyst: EAG 8/9/2006 11:13:30 AM

Lab ID: 0607007-024
 Client Sample ID: WP-24
 Collection Date: 7/25/2006
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	0		%	1	Analyst: EAG 8/9/2006 11:16:15 AM

Lab ID: 0607007-025
 Client Sample ID: WP-25
 Collection Date: 7/25/2006
 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996	0		%	1	Analyst: EAG 8/9/2006 11:19:01 AM

Qualifiers: * Value exceeds Maximum Contaminant Level
 DF Dilution Factor
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
 Project:

Lab ID: 0607007-026 Collection Date: 7/25/2006
 Client Sample ID: WP-26 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/9/2006 11:21:48 AM

Lab ID: 0607007-027 Collection Date: 7/25/2006
 Client Sample ID: WP-27 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/9/2006 11:24:34 AM

Lab ID: 0607007-028 Collection Date: 7/25/2006
 Client Sample ID: WP-28 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/9/2006 11:27:20 AM

Lab ID: 0607007-029 Collection Date: 7/25/2006
 Client Sample ID: WP-29 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.973	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/9/2006 11:40:33 AM

Lab ID: 0607007-030 Collection Date: 7/25/2006
 Client Sample ID: WP-30 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/9/2006 11:43:20 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint			Lab Order:	0607007
Project:					
Lab ID:	0607007-031	Collection Date:	7/25/2006		
Client Sample ID:	WP-31	Matrix:	SOLID		
Analyses	Result	Limit	Qual Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/9/2006 11:48:07 AM
Lab ID:	0607007-032	Collection Date:	7/25/2006		
Client Sample ID:	WP-32	Matrix:	SOLID		
Analyses	Result	Limit	Qual Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/9/2006 11:48:56 AM
Lab ID:	0607007-033	Collection Date:	7/25/2006		
Client Sample ID:	WP-33	Matrix:	SOLID		
Analyses	Result	Limit	Qual Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0	%	1	8/9/2006 11:51:44 AM
Lab ID:	0607007-034	Collection Date:	7/25/2006		
Client Sample ID:	WP-34	Matrix:	SOLID		
Analyses	Result	Limit	Qual Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%	1	8/9/2006 11:54:32 AM
Lab ID:	0607007-035	Collection Date:	7/25/2006		
Client Sample ID:	WP-35	Matrix:	SOLID		
Analyses	Result	Limit	Qual Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%	1	8/9/2006 11:57:19 AM

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint				Lab Order:	0607007	
Project:							
Lab ID:	0607007-036			Collection Date:	7/25/2006		
Client Sample ID:	WP-36			Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG	
Percent Gold	99.997	0	%		1	8/9/2006 12:00:05 PM	
Lab ID:	0607007-037			Collection Date:	7/25/2006		
Client Sample ID:	WP-37			Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG	
Percent Gold	99.973	0	%		1	8/9/2006 12:02:52 PM	
Lab ID:	0607007-038			Collection Date:	7/25/2006		
Client Sample ID:	WP-38			Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG	
Percent Gold	99.994	0	%		1	8/9/2006 12:05:39 PM	
Lab ID:	0607007-039			Collection Date:	7/25/2006		
Client Sample ID:	WP-39			Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG	
Percent Gold	99.997	0	%		1	8/9/2006 12:18:48 PM	
Lab ID:	0607007-040			Collection Date:	7/25/2006		
Client Sample ID:	WP-40			Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG	
Percent Gold	99.998	0	%		1	8/9/2006 12:21:34 PM	

Qualifiers	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
DF		Dilution Factor	E	Value above quantitation range
H		Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND		Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint		Lab Order: 0607007			
Project:					
Lab ID: 0607007-041	Collection Date: 7/25/2006				
Client Sample ID: WP-41	Matrix: SOLID				
Analyses	Result	Limit	Qual	Units	DF
Date Analyzed					
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%	1	8/9/2006 2:30:35 PM
Lab ID: 0607007-042	Collection Date: 7/25/2006				
Client Sample ID: WP-42	Matrix: SOLID				
Analyses	Result	Limit	Qual	Units	DF
Date Analyzed					
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.976	0	%	1	8/9/2006 2:38:55 PM
Lab ID: 0607007-043	Collection Date: 7/25/2006				
Client Sample ID: WP-43	Matrix: SOLID				
Analyses	Result	Limit	Qual	Units	DF
Date Analyzed					
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.992	0	%	1	8/9/2006 2:41:45 PM
Lab ID: 0607007-044	Collection Date: 7/25/2006				
Client Sample ID: WP-44	Matrix: SOLID				
Analyses	Result	Limit	Qual	Units	DF
Date Analyzed					
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%	1	8/9/2006 2:44:25 PM
Lab ID: 0607007-045	Collection Date: 7/25/2006				
Client Sample ID: WP-45	Matrix: SOLID				
Analyses	Result	Limit	Qual	Units	DF
Date Analyzed					
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.986	0	%	1	8/9/2006 2:47:14 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 DF Dilution Factor
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
 Project:

Lab ID: 0607007-046 Collection Date: 7/25/2006
 Client Sample ID: WP-46 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995	INHOUSE_AU	0	%	(SW3060B) 1	Analyst: EAG 8/9/2006 2:48:56 PM

Lab ID: 0607007-047 Collection Date: 7/25/2006
 Client Sample ID: WP-47 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.977	INHOUSE_AU	0	%	(SW3060B) 1	Analyst: EAG 8/9/2006 3:02:51 PM

Lab ID: 0607007-048 Collection Date: 7/25/2006
 Client Sample ID: WP-48 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995	INHOUSE_AU	0	%	(SW3060B) 1	Analyst: EAG 8/9/2006 3:05:40 PM

Lab ID: 0607007-049 Collection Date: 7/25/2006
 Client Sample ID: WP-49 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU	0	%	(SW3060B) 1	Analyst: EAG 8/9/2006 3:08:28 PM

Lab ID: 0607007-050 Collection Date: 7/25/2006
 Client Sample ID: WP-50 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.998	INHOUSE_AU	0	%	(SW3060B) 1	Analyst: EAG 8/9/2006 3:11:16 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint		Lab Order:	0607007		
Project:						
Lab ID:	0607007-051	Collection Date:	7/25/2006			
Client Sample ID:	WP-51	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.987	0	%	1		8/9/2006 3:14:05 PM
Lab ID:	0607007-052	Collection Date:	7/25/2006			
Client Sample ID:	WP-52	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.986	0	%	1		8/9/2006 3:18:54 PM
Lab ID:	0607007-053	Collection Date:	7/25/2006			
Client Sample ID:	WP-53	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.988	0	%	1		8/9/2006 3:20:04 PM
Lab ID:	0607007-054	Collection Date:	7/25/2006			
Client Sample ID:	WP-54	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.997	0	%	1		8/8/2006 3:22:52 PM
Lab ID:	0607007-055	Collection Date:	7/25/2006			
Client Sample ID:	WP-55	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)			Analyst: EAG
Percent Gold	99.992	0	%	1		8/9/2006 3:25:39 PM

Qualifiers: * Value exceeds Maximum Contaminant Level

DF Dilution Factor

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
Project:

Lab ID: 0607007-056 Collection Date: 7/25/2006
Client Sample ID: WP-56 Matrix: SOLID
Analyses Result Limit Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
Percent Gold 99.992 0 % 1 8/9/2008 3:28:28 PM

Lab ID: 0607007-057 Collection Date: 7/25/2006
Client Sample ID: WP-57 Matrix: SOLID
Analyses Result Limit Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
Percent Gold 99.997 0 % 1 8/9/2008 3:41:25 PM

Lab ID: 0607007-058 Collection Date: 7/25/2006
Client Sample ID: WP-58 Matrix: SOLID
Analyses Result Limit Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
Percent Gold 99.991 0 % 1 8/9/2008 3:44:11 PM

Lab ID: 0607007-059 Collection Date: 7/25/2006
Client Sample ID: WP-59 Matrix: SOLID
Analyses Result Limit Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
Percent Gold 99.979 0 % 1 8/9/2008 3:46:52 PM

Lab ID: 0607007-060 Collection Date: 7/25/2006
Client Sample ID: WP-60 Matrix: SOLID
Analyses Result Limit Qual Units DF Date Analyzed
GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
Percent Gold 99.985 0 % 1 8/9/2008 3:49:40 PM

- Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
DF Dilution Factor E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint		Lab Order:	0607007	
Project:					
Lab ID:	0607007-061		Collection Date:	7/25/2006	
Client Sample ID:	WP-61		Matrix:	SOLID	
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.994	0 %	1	8/10/2006 10:39:38 AM	
Lab ID:	0607007-062		Collection Date:	7/25/2006	
Client Sample ID:	WP-62		Matrix:	SOLID	
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.995	0 %	1	8/10/2006 10:38:30 AM	
Lab ID:	0607007-063		Collection Date:	7/25/2006	
Client Sample ID:	WP-63		Matrix:	SOLID	
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.992	0 %	1	8/10/2006 10:41:18 AM	
Lab ID:	0607007-064		Collection Date:	7/25/2006	
Client Sample ID:	WP-64		Matrix:	SOLID	
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.996	0 %	1	8/10/2006 10:44:04 AM	
Lab ID:	0607007-065		Collection Date:	7/25/2006	
Client Sample ID:	WP-65		Matrix:	SOLID	
Analyses	Result	Limit Qual Units	DF	Date Analyzed	
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU	(SW3050B)		Analyst: EAG
Percent Gold	99.986	0 %	1	8/10/2006 10:46:51 AM	

Qualifiers:	* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF	Dilution Factor	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
 Project:

Lab ID: 0607007-066 Collection Date: 7/25/2006
 Client Sample ID: WP-66 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.990	INHOUSE_AU	(SW3050B)	0 %	1	Analyst: EAG 8/10/2006 10:49:40 AM

Lab ID: 0607007-067 Collection Date: 7/25/2006
 Client Sample ID: WP-67 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.991	INHOUSE_AU	(SW3050B)	0 %	1	Analyst: EAG 8/10/2006 10:52:26 AM

Lab ID: 0607007-068 Collection Date: 7/25/2006
 Client Sample ID: WP-68 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.985	INHOUSE_AU	(SW3050B)	0 %	1	Analyst: EAG 8/10/2006 10:58:13 AM

Lab ID: 0607007-069 Collection Date: 7/25/2006
 Client Sample ID: WP-69 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.982	INHOUSE_AU	(SW3050B)	0 %	1	Analyst: EAG 8/10/2006 11:08:29 AM

Lab ID: 0607007-070 Collection Date: 7/25/2006
 Client Sample ID: WP-70 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.998	INHOUSE_AU	(SW3050B)	0 %	1	Analyst: EAG 8/10/2006 11:11:16 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint		Lab Order:	0607007		
Project:						
Lab ID:	0607007-071		Collection Date:	7/25/2006		
Client Sample ID:	WP-71		Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.992	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/10/2006 11:14:03 AM
Lab ID:	0607007-072		Collection Date:	7/25/2006		
Client Sample ID:	WP-72		Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.984	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/10/2006 11:18:50 AM
Lab ID:	0607007-073		Collection Date:	7/25/2006		
Client Sample ID:	WP-73		Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.984	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/10/2006 11:19:38 AM
Lab ID:	0607007-074		Collection Date:	7/25/2006		
Client Sample ID:	WP-74		Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.986	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/10/2006 11:22:26 AM
Lab ID:	0607007-075		Collection Date:	7/25/2006		
Client Sample ID:	WP-75		Matrix:	SOLID		
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.998	INHOUSE_AU 0		(SW3050B) %	1	Analyst: EAG 8/10/2006 11:23:18 AM

Qualifiers:
 DF Dilution Factor
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit

B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint **Lab Order:** 0607007
Project:

Lab ID: 0607007-076 **Collection Date:** 7/25/2006
Client Sample ID: WP-76 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.897 0 % 1 8/10/2006 11:28:04 AM

Lab ID: 0607007-077 **Collection Date:** 7/25/2006
Client Sample ID: WP-77 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.898 0 % 1 8/10/2006 11:30:53 AM

Lab ID: 0607007-078 **Collection Date:** 7/25/2006
Client Sample ID: WP-78 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.979 0 % 1 8/10/2006 11:33:40 AM

Lab ID: 0607007-079 **Collection Date:** 7/25/2006
Client Sample ID: WP-79 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.996 0 % 1 8/10/2006 11:46:35 AM

Lab ID: 0607007-080 **Collection Date:** 7/25/2006
Client Sample ID: WP-80 **Matrix:** SOLID
Analyses **Result** **Limit** **Qual** **Units** **DF** **Date Analyzed**
GOLD ANALYSIS BY ICP-OES **INHOUSE_AU** **(SW3050B)** **Analyst: EAG**
 Percent Gold 99.997 0 % 1 8/10/2006 11:48:24 AM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT:	United States Mint				Lab Order:	0607007
Project:						
Lab ID:	0607007-081	Collection Date:	7/25/2006			
Client Sample ID:	WP-81	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%		1	8/11/2006 12:37:09 PM
Lab ID:	0607007-082	Collection Date:	7/25/2006			
Client Sample ID:	WP-82	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.997	0	%		1	8/11/2006 12:45:30 PM
Lab ID:	0607007-083	Collection Date:	7/25/2006			
Client Sample ID:	WP-83	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/11/2006 12:48:12 PM
Lab ID:	0607007-084	Collection Date:	7/25/2006			
Client Sample ID:	WP-84	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.998	0	%		1	8/11/2006 12:50:59 PM
Lab ID:	0607007-085	Collection Date:	7/25/2006			
Client Sample ID:	WP-85	Matrix:	SOLID			
Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES		INHOUSE_AU		(SW3050B)		Analyst: EAG
Percent Gold	99.979	0	%		1	8/11/2006 12:53:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level
- DF Dilution Factor
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
 Project:

Lab ID: 0607007-086 Collection Date: 7/25/2006
 Client Sample ID: WP-86 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.996	INHOUSE_AU	0	%	(SW3050B) 1	Analyst: EAG 8/11/2006 12:58:31 PM

Lab ID: 0607007-087 Collection Date: 7/25/2006
 Client Sample ID: WP-87 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.994	INHOUSE_AU	0	%	(SW3050B) 1	Analyst: EAG 8/11/2006 1:09:31 PM

Lab ID: 0607007-088 Collection Date: 7/25/2006
 Client Sample ID: WP-88 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.997	INHOUSE_AU	0	%	(SW3050B) 1	Analyst: EAG 8/11/2006 1:12:19 PM

Lab ID: 0607007-089 Collection Date: 7/25/2006
 Client Sample ID: WP-89 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.986	INHOUSE_AU	0	%	(SW3050B) 1	Analyst: EAG 8/11/2006 1:15:07 PM

Lab ID: 0607007-090 Collection Date: 7/25/2006
 Client Sample ID: WP-90 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.991	INHOUSE_AU	0	%	(SW3050B) 1	Analyst: EAG 8/11/2006 1:17:50 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 DF Dilution Factor
 H Holding Times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 B Analyte detected in the associated Method Blank
 E Value above quantitation range
 J Analyte detected below quantitation limits
 S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30 Aug 06

CLIENT: United States Mint Lab Order: 0607007
Project:

Lab ID: 0607007-091 Collection Date: 7/25/2006
Client Sample ID: WP-91 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.987	INHOUSE_AU	(SW3050B)	%	1	Analyst: EAG 8/11/2006 1:20:42 PM

Lab ID: 0607007-092 Collection Date: 7/25/2006
Client Sample ID: WP-92 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.987	INHOUSE_AU	(SW3050B)	%	1	Analyst: EAG 8/11/2006 1:23:31 PM

Lab ID: 0607007-093 Collection Date: 7/25/2006
Client Sample ID: WP-93 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.986	INHOUSE_AU	(SW3050B)	%	1	Analyst: EAG 8/11/2006 1:28:18 PM

Lab ID: 0607007-094 Collection Date: 7/25/2006
Client Sample ID: WP-94 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995	INHOUSE_AU	(SW3050B)	%	1	Analyst: EAG 8/11/2006 1:29:07 PM

Lab ID: 0607007-095 Collection Date: 7/25/2006
Client Sample ID: WP-95 Matrix: SOLID

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
GOLD ANALYSIS BY ICP-OES Percent Gold	99.995	INHOUSE_AU	(SW3050B)	%	1	Analyst: EAG 8/11/2006 1:31:54 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level	B Analyte detected in the associated Method Blank
DF Dilution Factor	E Value above quantitation range
H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit	S Spike Recovery outside accepted recovery limits

White Sands Missile Range

Date: 30-Aug-06

CLIENT: United States Mint Lab Order: 0607007
 Project:

Lab ID: 0607007-096 Collection Date: 7/25/2006
 Client Sample ID: WP-96 Matrix: SOLID
 Analytcs Result Limit Qual Units DF Date Analyzed

GOLD ANALYSIS BY ICP-OES INHOUSE_AU (SW3050B) Analyst: EAG
 Percent Gold 99.984 0 % 1 8/11/2008 1:34:41 PM

Qualifiers: - Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 DF Dilution Factor E Value above quantitation range
 H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit S Spike Recovery outside accepted recovery limits

FY05 Gold Assay Report
Gold Assay Report

F.5.28



180

DEPARTMENT OF THE ARMY
WHITE SANDS TEST CENTER
U.S. ARMY WHITE SANDS MISSILE RANGE
100 Headquarters Avenue
WHITE SANDS MISSILE RANGE, NEW MEXICO 88002-5000

REPLY TO
ATTENTION OF

CSTE-DTC-WS-MT-AA

18 AUG 2005

MEMORANDUM FOR Department of the Treasury, Office of the Inspector General
(Ms. Donna Joseph), 740 15th Street, NW, Suite 600, Washington, DC 20220

SUBJECT: Gold Assay Report

1. In response to your written request, the White Sands Missile Range Chemistry Laboratory analyzed 92 samples of high-fine gold for their purity.
2. Results: The results appear in Table 1, Encl 1.
3. The samples were delivered to the Chemistry Laboratory on 25 Jul 05 and the analyses were completed on 16 Aug 05.
4. Point of contact is Dr. Joseph E. Gomez at 505-678-2992.

FOR THE COMMANDER:

Encl
as

Joel Chavez
JOEL L. CHAVEZ
for Director, Materiel Test

Note: This wip documents the assay results of the 92 gold drill samples tested during the FY05 gold inventory audit. See wip F.5.26 & F.5.27 for results and explanation of differences between assayed fineness and fineness recorded by the Mint.

US MINT SAMPLE GOLD CONTENT

16-Aug-05

U.S. MINT Sample #	WSMR Chem Lab Sample #	Method Used	Gold Content %
WP 1	0507002-001A	ICP-OES	99.973
WP 2	0507002-002A	ICP-OES	99.976
WP 3	0507002-003A	ICP-OES	99.970
WP 4	0507002-004A	ICP-OES	99.988
WP 5	0507002-005A	ICP-OES	99.977
WP 6	0507002-006A	ICP-OES	99.995
WP 7	0507002-007A	ICP-OES	99.996
WP 8	0507002-008A	ICP-OES	99.993
WP 9	0507002-009A	ICP-OES	99.993
WP 10	0507002-010A	ICP-OES	99.993
WP 11	0507002-011A	ICP-OES	99.992
WP 12	0507002-012A	ICP-OES	99.993
WP 13	0507002-013A	ICP-OES	99.995
WP 14	0507002-014A	ICP-OES	99.994
WP 15	0507002-015A	ICP-OES	99.995
WP 16	0507002-016A	ICP-OES	99.993
WP 17	0507002-017A	ICP-OES	99.992
WP 18	0507002-018A	ICP-OES	99.994
WP 19	0507002-019A	ICP-OES	99.994
WP 20	0507002-020A	ICP-OES	99.993
WP 21	0507002-021A	ICP-OES	99.995
WP 22	0507002-022A	ICP-OES	99.993
WP 23	0507002-023A	ICP-OES	99.982
WP 24	0507002-024A	ICP-OES	99.993
WP 25	0507002-025A	ICP-OES	99.991
WP 26	0507002-026A	ICP-OES	99.994
WP 27	0507002-027A	ICP-OES	99.994
WP 28	0507002-028A	ICP-OES	99.992
WP 29	0507002-029A	ICP-OES	99.993
WP 30	0507002-030A	ICP-OES	99.991
WP 31	0507002-031A	ICP-OES	99.992
WP 32	0507002-032A	ICP-OES	99.992
WP 33	0507002-033A	ICP-OES	99.994
WP 34	0507002-034A	ICP-OES	99.992
WP 35	0507002-035A	ICP-OES	99.993
WP 36	0507002-036A	ICP-OES	99.991
WP 37	0507002-037A	ICP-OES	99.992
WP 38	0507002-038A	ICP-OES	99.992
WP 39	0507002-039A	ICP-OES	99.998
WP 40	0507002-040A	ICP-OES	99.996
WP 41	0507002-041A	ICP-OES	99.998
WP 42	0507002-042A	ICP-OES	99.997
WP 43	0507002-043A	ICP-OES	99.993
WP 44	0507002-044A	ICP-OES	99.989
WP 45	0507002-045A	ICP-OES	99.997
WP 46	0507002-046A	ICP-OES	99.989

U.S. MINT Sample #	WSMR Chemlab Sample #	Method Used	Gold Content %
WP 47	0507002-047A	ICP-OES	99.995
WP 48	0507002-048A	ICP-OES	99.992
WP 49	0507002-049A	ICP-OES	99.993
WP 50	0507002-050A	ICP-OES	99.994
WP 51	0507002-051A	ICP-OES	99.983
WP 52	0507002-052A	ICP-OES	99.995
WP 53	0507002-053A	ICP-OES	99.996
WP 54	0507002-054A	ICP-OES	99.996
WP 55	0507002-055A	ICP-OES	99.996
WP 56	0507002-056A	ICP-OES	99.992
WP 57	0507002-057A	ICP-OES	99.980
WP 58	0507002-058A	ICP-OES	99.994
WP 59	0507002-059A	ICP-OES	99.993
WP 60	0507002-060A	ICP-OES	99.995
WP 61	0507002-061A	ICP-OES	99.997
WP 62	0507002-062A	ICP-OES	99.997
WP 63	0507002-063A	ICP-OES	99.997
WP 64	0507002-064A	ICP-OES	99.994
WP 65	0507002-065A	ICP-OES	99.996
WP 66	0507002-066A	ICP-OES	99.996
WP 67	0507002-067A	ICP-OES	99.997
WP 68	0507002-068A	ICP-OES	99.998
WP 69	0507002-069A	ICP-OES	99.998
WP 70	0507002-070A	ICP-OES	99.998
WP 71	0507002-071A	ICP-OES	99.991
WP 72	0507002-072A	ICP-OES	99.997
WP 73	0507002-073A	ICP-OES	99.997
WP 74	0507002-074A	ICP-OES	99.962
WP 75	0507002-075A	ICP-OES	99.995
WP 76	0507002-076A	ICP-OES	99.994
WP 77	0507002-077A	ICP-OES	99.987
WP 78	0507002-078A	ICP-OES	99.984
WP 79	0507002-079A	ICP-OES	99.962
WP 80	0507002-080A	ICP-OES	99.996
WP 81	0507002-081A	ICP-OES	99.992
WP 82	0507002-082A	ICP-OES	99.996
WP 83	0507002-083A	ICP-OES	99.993
WP 84	0507002-084A	ICP-OES	99.996
WP 85	0507002-085A	ICP-OES	99.996
WP 86	0507002-086A	ICP-OES	99.997
WP 87	0507002-087A	ICP-OES	99.993
WP 88	0507002-088A	ICP-OES	99.991
WP 89	0507002-089A	ICP-OES	99.991
WP 90	0507002-090A	ICP-OES	99.993
WP 91	0507002-091A	ICP-OES	99.993
WP 92	0507002-092A	ICP-OES	99.997

FY04 Gold Assay Report

Ledoux & Company
EST. 1688



Tel: 201 837-7160 • Fax: 201 837-1235
http://www.ledoux.com

359 Alfred Avenue, Teaneck, New Jersey 07666-5755

INDEPENDENT CONTROL AND RESEARCH CHEMISTRY, INSTRUMENTAL AND CHEMICAL ANALYSIS • SAMPLING, WEIGHING, INTERNATIONAL SHIPPERS' REPRESENTATION

11/09/04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96188Re**
Material Identified by Client as: **Gold (Metal)**
Marked P O #:
Submitted for analysis by: **United States Mint**
Seals: **None**
Marked: **Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222**

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

<u>Lot #</u>	<u>GOLD</u>
WP-01	>99.99 %
WP-02	>99.99 %
WP-03	>99.99 %
WP-04	>99.99 %
WP-05	>99.99 %
WP-06	>99.99 %
WP-07	>99.99 %
WP-08	>99.99 %
WP-09	>99.99 %
WP-10	>99.99 %

INVOICE and 2 TO:
United States Mint
801 Ninth Street, NW
Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting

1 TO:
United States Mint
Office of Management Services

801 Ninth Street, NW
Washington, DC 20220
Attn: Ms. Amy Taub

Page 1 of 1

1 TO:
Department of the Treasury
Office of the Inspector General
740 15th St., NW, Suite 600
Washington, DC 20220
Attn: Ms. Donna Joseph

Ledoux and Company

Ledoux & Company

EST. 1899

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11/09/04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96189R~~e~~**
 Material Identified by Client as: **Gold (Metal)**
 Marked P O #:
 Submitted for analysis by: **United States Mint**
 Seals: **None**
 Marked: **Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222**

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

<u>Lot #</u>	<u>GOLD</u>
WP-11	>99.99 %
WP-12	>99.99 %
WP-13	>99.99 %
WP-14	>99.99 %
WP-15	>99.99 %
WP-16	>99.99 %
WP-17	>99.99 %
WP-18	99.98 %
WP-19	99.98 %
WP-20	99.98 %

INVOICE and 2 TO:

United States Mint
 801 Ninth Street, NW
 Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting

1 TO:

United States Mint
 Office of Management Services

801 Ninth Street, NW
 Washington, DC 20220
 Attn: Ms. Amy Taub

Page1of1

1 TO:

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 Office of the Inspector General
 740 15th St., NW, Suite 600
 Washington, DC 20220
 Attn: Ms. Dorina Joseph

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11/09/04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: 96190Re
Material Identified by Client as: Gold (Metal)
Marked P O #:
Submitted for analysis by: United States Mint
Seals: None
Marked: Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

Lot #	GOLD
WP-21	99.98 %
WP-22	99.98 %
WP-23	99.97 %
WP-24	>99.99 %
WP-25	>99.99 %
WP-26	>99.99 %
WP-27	>99.99 %
WP-28	>99.99 %
WP-29	>99.99 %
WP-30	>99.99 %

INVOICE and 2 TO:
United States Mint
801 Ninth Street, NW
Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting

1 TO:

United States Mint
Office of Management Services

801 Ninth Street, NW
Washington, DC 20220
Attn: Ms. Amy Taub

Page 1 of 1

1 TO:

Department of the Treasury
Office of the Inspector General
740 15th St., NW, Suite 600
Washington, DC 20220
Attn: Ms. Donna Joseph

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11/09/04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96191Re**
 Material Identified by Client as: **Gold (Metal)**
 Marked P O #: **United States Mint**
 Submitted for analysis by: **None**
 Seals: **Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#:**
 Marked: **6222**

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

<u>Lot #</u>	<u>GOLD</u>
WP-31	>99.99 %
WP-32	>99.99 %
WP-33	>99.99 %
WP-34	>99.99 %
WP-35	>99.99 %
WP-36	>99.99 %
WP-37	>99.99 %
WP-38	>99.99 %
WP-39	>99.99 %
WP-40	99.97 %

oz/ton: OUNCES PER SHORT TON

INVOICE and 2 TO:
 United States Mint
 801 Ninth Street, NW
 Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting
 1 TO:

United States Mint
 Office of Management Services

801 Ninth Street, NW
 Washington, DC 20220
 Attn: Ms. Amy Taub

Page 1 of 1

1 TO:
 Department of the Treasury
 Office of the Inspector General
 740 15th St., NW, Suite 600
 Washington, DC 20220
 Attn: Ms. Donna Joseph

Ledoux and Company

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12/09/04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96192Re**
Material Identified by Client as: Gold (Metal)
Marked P O #:
Submitted for analysis by: United States Mint
Seals: None
Marked: Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222

Note: Results for Lot# WP-43 Included.

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

Lot #	GOLD
WP-41	>99.99 %
WP-42	99.98 %
WP-43	>99.99 %
WP-44	>99.99 %
WP-45	>99.99 %
WP-46	>99.99 %
WP-47	>99.99 %
WP-48	>99.99 %
WP-49	>99.99 %
WP-50	>99.99 %

oz/ton: OUNCES PER SHORT TON

INVOICE and 2 TO:
United States Mint
801 Ninth Street, NW
Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting

1 TO:
United States Mint
Office of Management Services

801 Ninth Street, NW
Washington, DC 20220
Attn: Ms. Amy Taub

Page1of1

1 TO:
Department of the Treasury
Office of the Inspector General
740 15th St., NW, Suite 600
Washington, DC 20220
Attn: Ms. Donna Joseph

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ANALYSIS • SAMPLING, WEIGHING, INTERNATIONAL SHIPPERS' REPRESENTATION

11-Nov-04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96193Re**
 Material Identified by Client as: **Gold (Metal)**
 Marked P O #:
 Submitted for analysis by: **United States Mint**
 Seals: **None**
 Marked: **Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222**

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

<u>Lot #</u>	<u>GOLD</u>
WP-51	99.99 %
WP-52	99.99 %
WP-53	>99.99 %
WP-54	>99.99 %
WP-55	99.99 %
WP-56	>99.99 %
WP-57	>99.99 %
WP-58	>99.99 %
WP-59	>99.99 %
WP-60	99.99 %

oz/ton: OUNCES PER SHORT TON

INVOICE and 2 TO:
 United States Mint
 801 Ninth Street, NW
 Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting

1 TO:

United States Mint
 Office of Management Services

801 Ninth Street, NW
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Page 1 of 1

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Department of the Treasury
 Office of the Inspector General
 740 15th St., NW, Suite 600
 Washington, DC 20220

Attn: Ms. Donna Joseph

Ledoux and Company

Ledoux & Company

EST. 1880



359 Alfred Avenue, Teaneck, New Jersey 07666-5755

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http://www.ledoux.com

11-Nov-04

REPORT OF ANALYSIS

Ledoux and Company Analysis #: **96194Re**
 Material identified by Client as: **Gold (Metal)**
 Marked P O #:
 Submitted for analysis by: **United States Mint**
 Seals: **None**
 Marked: **Contract#: TM-K-298 Invoice Ref.#: TM-HQ-6471 Req.#: 6222**

GOLD BY DIFFERENCE IN ACCORDANCE WITH ASTM B562

Lot #	GOLD
WP-61	>99.99 %
WP-62	99.99 %
WP-63	99.99 %
WP-64	99.99 %
WP-65	>99.99 %
WP-66	>99.99 %
WP-67	>99.99 %
WP-68	99.99 %
WP-69	>99.99 %
WP-70	>99.99 %
WP-71	>99.99 %

oz/ton: OUNCES PER SHORT TON

INVOICE and 2 TO:
 United States Mint
 801 Ninth Street, NW
 Washington, DC 20220

Attn: Anne Armstrong, Office of Accounting
 1 TO:

United States Mint
 Office of Management Services
 801 Ninth Street, NW
 Washington, DC 20220
 Attn: Ms. Amy Taub

Page:01

1 TO:
 Department of the Treasury
 Office of the Inspector General
 740 15th St., NW, Suite 600
 Washington, DC 20220
 Attn: Ms. Donna Joseph

Ledoux and Company

Handwritten signature: H.S. Besi

**ATTACHMENT 2:
LIST OF BARS ASSAYED FY 2004, 2005, 2006, AND 2008**

**U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2008**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
1	WP1	JM 14915	0.9999	0.9999	-
2	WP2	JM 14883	0.9999	0.9999	-
3	WP3	JM 13692	0.9999	0.9999	-
4	WP4	JM 13845	0.9997	0.9999	(0.0002)
5	WP5	JM 13619	0.9999	0.9999	-
6	WP6	HANDY 140405	0.9998	0.9999	(0.0001)
7	WP7	HANDY 140409	0.9999	0.9999	-
8	WP8	JM 12353	0.9999	0.9999	-
9	WP9	JM 49626	0.9999	0.9999	-
10	WP10	JM 49655	0.9999	0.9999	-
11	WP11	Metalor 9900637	0.9999	0.9999	-
12	WP12	JM 15273	0.9997	0.9999	(0.0002)
13	WP13	JM 48941	0.9999	0.9999	-
14	WP14	JM 11303	0.9999	0.9999	-
15	WP15	JM 48698	0.9999	0.9999	-
16	WP16	ENNE 2298	0.9999	0.9999	-
17	WP17	ENNE 2290	0.9999	0.9999	-
18	WP18	JM 12313	0.9999	0.9999	-
19	WP19	JM 12287	0.9999	0.9999	-
20	WP20	JM 49072	0.9999	0.9999	-
21	WP21	JM 99908	0.9999	0.9999	-
22	WP22	JM 11252	0.9999	0.9999	-
23	WP23	JM 11226	0.9999	0.9999	-
24	WP24	JM 11248	0.9999	0.9999	-
25	WP25	JM 11233	0.9999	0.9999	-
26	WP26	JM 11229	0.9999	0.9999	-
27	WP27	JM 98793	0.9999	0.9999	-
28	WP28	JM 99294	0.9999	0.9999	-
29	WP29	JM 99317	0.9999	0.9999	-
30	WP30	JM 10054	0.9999	0.9999	-
31	WP31	JM 10040	0.9999	0.9999	-
32	WP32	JM 10925	0.9999	0.9999	-
33	WP33	JM 10998	0.9999	0.9999	-
34	WP34	JM 97003	0.9999	0.9999	-

**CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2008**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
35	WP35	JM 99812	0.9999	0.9999	-
36	WP36	JM 99429	0.9999	0.9999	-
37	WP37	JM 99381	0.9999	0.9999	-
38	WP38	JM 99358	0.9999	0.9999	-
39	WP39	JM 11056	0.9999	0.9999	-
40	WP40	JM 11032	0.9999	0.9999	-
41	WP41	JM 11040	0.9999	0.9999	-
42	WP42	JM 15220	0.9999	0.9999	-
43	WP43	JM 48850	0.9999	0.9999	-
44	WP44	ENNE 2043	0.9999	0.9999	-
45	WP45	ENNE 2090	0.9999	0.9999	-
46	WP46	ENNE 2089	0.9999	0.9999	-
47	WP47	ENNE 2085	0.9999	0.9999	-
48	WP48	JM 13980	0.9999	0.9999	-
49	WP49	JM 49101	0.9999	0.9999	-
50	WP50	CCR 196	0.9999	0.9999	-
51	WP51	JM 97246	0.9999	0.9999	-
52	WP52	JM 13338	0.9999	0.9999	-
53	WP53	Metalor 9900402	0.9999	0.9999	-
54	WP54	JM 12988	0.9999	0.9999	-
55	WP55	JM 13824	0.9999	0.9999	-
56	WP56	JM 16877	0.9999	0.9999	-
57	WP57	JM 16353	0.9999	0.9999	-
58	WP58	JM 16073	0.9999	0.9999	-
59	WP59	JM 16654	0.9999	0.9999	-
60	WP60	JM 16121	0.9999	0.9999	-
61	WP61	JM 16207	0.9999	0.9999	-
62	WP62	JM 16656	0.9999	0.9999	-
63	WP63	JM 17851	0.9999	0.9999	-
64	WP64	JM 49414	0.9999	0.9999	-
65	WP65	JM 17310	0.9999	0.9999	-
66	WP66	JM 17326	0.9999	0.9999	-
67	WP67	JM 17716	0.9999	0.9999	-
68	WP68	CCR 1360	0.9999	0.9999	-
69	WP69	JM 17534	0.9999	0.9999	-

**CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2008**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
70	WP70	JM 50529	0.9999	0.9999	-
71	WP71	JM 17224	0.9999	0.9999	-
72	WP72	JM 17166	0.9999	0.9999	-
73	WP73	CCR 1538	0.9999	0.9999	-
74	WP74	CCR 1537	0.9999	0.9999	-
75	WP75	CCR 1539	0.9999	0.9999	-
76	WP76	CCR 1533	0.9999	0.9999	-
77	WP77	CCR 1531	0.9999	0.9999	-
78	WP78	CCR 1532	0.9999	0.9999	-
79	WP79	CCR 1541	0.9999	0.9999	-
80	WP80	CCR1542	0.9999	0.9999	-
81	WP81	CCR 1543	0.9999	0.9999	-
82	WP82	CCR 1540	0.9999	0.9999	-
83	WP83	CCR 1544	0.9999	0.9999	-
84	WP84	CCR 1534	0.9999	0.9999	-
85	WP85	CCR 1535	0.9999	0.9999	-
86	WP86	CCR 1536	0.9999	0.9999	-
Total Net Difference					(0.0005)

**U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2006**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
1	WP1	W87377	0.9999	0.9999	-
2	WP2	W87378	0.9999	0.9999	-
3	WP3	JM 15533	0.9999	0.9999	-
4	WP4	W87702	0.9999	0.9999	-
5	WP5	A086343	0.9999	0.9998	0.0001
6	WP6	3006	0.9999	0.9999	-
7	WP7	A071361	0.9999	0.9998	0.0001
8	WP8	A071358	0.9999	0.9998	0.0001
9	WP9	A084711	0.9999	0.9999	-
10	WP10	A084388	0.9999	0.9999	-
11	WP11	E7829	0.9999	0.9999	-
12	WP12	10553	0.9999	0.9999	-
13	WP13	11971	0.9999	0.9999	-
14	WP14	11946	0.9999	0.9999	-
15	WP15	12705	0.9999	0.9999	-
16	WP16	17682	0.9999	0.9999	-
17	WP17	KK209	0.9999	0.9999	-
18	WP18	JJ5528	0.9999	0.9999	-
19	WP19	KK112	0.9999	0.9999	-
20	WP20	14133	0.9999	0.9999	-
21	WP21	A074022	0.9999	0.9997	0.0002
22	WP22	1952	0.9996	0.9996	-
23	WP23	13917	0.9999	0.9999	-
24	WP24	13566	0.9999	0.9999	-
25	WP25	13953	0.9999	0.9999	-
26	WP26	KK199	0.9999	0.9999	-
27	WP27	KK178	0.9999	0.9999	-
28	WP28	A074085	0.9999	0.9998	0.0001
29	WP29	1978	0.9997	0.9996	0.0001
30	WP30	A072634	0.9999	0.9997	0.0002
31	WP31	A073140	0.9999	0.9997	0.0002
32	WP32	A072593	0.9999	0.9999	-
33	WP33	A073862	0.9999	0.9999	-
34	WP34	11996	0.9999	0.9999	-

**CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2006**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
35	WP35	11980	0.9999	0.9999	-
36	WP36	E64012	0.9999	0.9998	0.0001
37	WP37	1829	0.9997	0.9996	0.0001
38	WP38	A072424	0.9999	0.9998	0.0001
39	WP39	12660	0.9999	0.9999	-
40	WP40	12719	0.9999	0.9999	-
41	WP41	1571	0.9998	0.9996	0.0002
42	WP42	1340	0.9997	0.9996	0.0001
43	WP43	A071768	0.9999	0.9998	0.0001
44	WP44	KK1883	0.9999	0.9999	-
45	WP45	7665	0.9998	0.9998	-
46	WP46	A078969	0.9999	0.9998	0.0001
47	WP47	2412	0.9997	0.9996	0.0001
48	WP48	7963	0.9999	0.9999	-
49	WP49	A074834	0.9999	0.9998	0.0001
50	WP50	7720	0.9998	0.9997	0.0001
51	WP51	7707	0.9998	0.9998	-
52	WP52	15828	0.9999	0.9999	-
53	WP53	8054	0.9998	0.9998	-
54	WP54	KK3742C	0.9999	0.9999	-
55	WP55	9188	0.9999	0.9998	0.0001
56	WP56	9177	0.9999	0.9998	0.0001
57	WP57	A083429	0.9999	0.9999	-
58	WP58	9189	0.9999	0.9998	0.0001
59	WP59	3348	0.9997	0.9996	0.0001
60	WP60	3358	0.9998	0.9996	0.0002
61	WP61	A085080	0.9999	0.9998	0.0001
62	WP62	A083875	0.9999	0.9999	-
63	WP63	A085375	0.9999	0.9998	0.0001
64	WP64	8800	0.9999	0.9999	-
65	WP65	3317	0.9998	0.9996	0.0002
66	WP66	8841	0.9999	0.9998	0.0001
67	WP67	8828	0.9999	0.9998	0.0001
68	WP68	8722	0.9999	0.9998	0.0001
69	WP69	A084434	0.9999	0.9997	0.0002

**CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2006**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
70	WP70	A084446	0.9999	0.9998	0.0001
71	WP71	A084433	0.9999	0.9997	0.0002
72	WP72	2906	0.9998	0.9996	0.0002
73	WP73	8326	0.9999	0.9999	-
74	WP74	9288	0.9999	0.9998	0.0001
75	WP75	9150	0.9999	0.9999	-
76	WP76	9534	0.9999	0.9999	-
77	WP77	69585	0.9999	0.9998	0.0001
78	WP78	3655	0.9997	0.9996	0.0001
79	WP79	9428	0.9999	0.9999	-
80	WP80	68666	0.9999	0.9999	-
81	WP81	91136	0.9999	0.9998	0.0001
82	WP82	E68721	0.9999	0.9999	-
83	WP83	90459	0.9999	0.9999	-
84	WP84	68744	0.9999	0.9998	0.0001
85	WP85	3685	0.9997	0.9996	0.0001
86	WP86	90855	0.9999	0.9999	-
87	WP87	9508	0.9999	0.9999	-
88	WP88	69029	0.9999	0.9997	0.0002
89	WP89	4136	0.9998	0.9996	0.0002
90	WP90	9206768	0.9999	0.9998	0.0001
91	WP91	9206820	0.9998	0.9998	-
92	WP92	22872	0.9999	0.9999	-
Total Net Difference					0.0053

**U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2005**

Sample No.	Sample ID	Melt Number	Lab Fineness A	Mint Fineness B	Gross Diff. (A-B)
1	47	ASARCO5513	0.9997	0.9996	0.0001
2	49	ASARCO 5516	0.9998	0.9996	0.0002
3	51	ASARCO 5523	0.9997	0.9996	0.0001
4	85	ASARCO 5439	0.9999	0.9996	0.0003
5	103	ASARCO 5418	0.9999	0.9996	0.0003
6	169	ENG 12674	0.9999	0.9999	-
7	214	ENG 12328	0.9999	0.9999	-
8	259	JM 44410	0.9999	0.9999	-
9	274	JM 43397	0.9999	0.9999	-
10	294	JM 43324	0.9999	0.9999	-
11	317	JM 42343	0.9999	0.9999	-
12	318	JM 42369	0.9999	0.9999	-
13	359	METALOR 9308011	0.9999	0.9999	-
14	382	JM 41955	0.9999	0.9999	-
15	391	JM 41632	0.9999	0.9999	-
16	404	JM 41600	0.9999	0.9999	-
17	486	JM 25010	0.9999	0.9999	-
18	493	JM 42116	0.9999	0.9999	-
19	518	JM 41645	0.9999	0.9999	-
20	528	JM 41968	0.9999	0.9999	-
21	592	JM 42087	0.9999	0.9999	-
22	608	JM 42135	0.9999	0.9999	-
23	670	M2844-CB04	0.9998	0.9998	-
24	744	HH A101416	0.9999	0.9999	-
25	773	HH A101378	0.9999	0.9999	-
26	854	JM 37465	0.9999	0.9999	-
27	876	JM 38983	0.9999	0.9999	-
28	911	JM 22870	0.9999	0.9999	-
29	914	JM 22910	0.9999	0.9999	-
30	916	JM 35330	0.9999	0.9999	-
31	939	JM 23419	0.9999	0.9999	-
32	959	JM 23372	0.9999	0.9999	-
33	996	JM 39803	0.9999	0.9999	-
34	1013	JM 22899	0.9999	0.9999	-

CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS ASSAYED IN FY 2005

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
35	1035	JM 38989	0.9999	0.9999	-
36	1077	JM 41088	0.9999	0.9999	-
37	1093	JM 41120	0.9999	0.9999	-
38	1107	JM 41159	0.9999	0.9999	-
39	1207	RCM 00391c	0.9999	0.9999	-
40	1218	RCM 00708c	0.9999	0.9999	-
41	1386	ENG 12257	0.9999	0.9999	-
42	1473	ENG 12016	0.9999	0.9999	-
43	1538	JM 24861	0.9999	0.9999	-
44	1574	M118	0.9999	0.9999	-
45	1577	RCM LL6466c	0.9999	0.9999	-
46	1612	M1336	0.9999	0.9999	-
47	1639	JM 12679	0.9999	0.9999	-
48	1726	NY ASSAY 44	0.9999	0.9999	-
49	1730	HH A090354	0.9999	0.9999	-
50	1733	HH A090346	0.9999	0.9999	-
51	1801	MCD561	0.9998	0.9999	(0.0001)
52	1807	ENG 10262	0.9999	0.9999	-
53	1829	JM 24394	0.9999	0.9999	-
54	1836	JM 24395	0.9999	0.9999	-
55	1838	RCM MM3103	0.9999	0.9999	-
56	1868	NY ASSAY 15	0.9999	0.9999	-
57	1875	ENG 9186	0.9998	0.9997	0.0001
58	1877	ENG 9031	0.9999	0.9998	0.0001
59	1929	JM 24272	0.9999	0.9999	-
60	1970	ENG 9812	0.9999	0.9999	-
61	1973	ENG 9446	0.9999	0.9999	-
62	2005	RCM LL6398c	0.9999	0.9999	-
63	2075	RCM LL6431c	0.9999	0.9999	-
64	2160	HH A090341	0.9999	0.9999	-
65	2271	ENG 11495	0.9999	0.9999	-
66	2278	ENG 11590	0.9999	0.9999	-
67	2336	RCM NN810C	0.9999	0.9999	-
68	2363	RCM NN821C	0.9999	0.9999	-
69	2388	RCM NN868C	0.9999	0.9999	-

CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS ASSAYED IN FY 2005

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
70	2415	RCM NN823C	0.9999	0.9999	-
71	2475	ENG 11032	0.9999	0.9998	0.0001
72	2512	RCM MM7328C	0.9999	0.9999	-
73	2710	ENG 9343	0.9999	0.9999	-
74	2716	ASARCO 3614	0.9996	0.9996	-
75	2735	JM 18638	0.9999	0.9999	-
76	2748	JM 18676	0.9999	0.9999	-
77	2772	ENG 9358	0.9999	0.9997	0.0002
78	2916	HH A081459	0.9998	0.9998	-
79	2929	ASARCO 2336	0.9996	0.9996	-
80	2985	JM 15478	0.9999	0.9999	-
81	3094	JM 15448	0.9999	0.9999	-
82	3114	ENG 7941	0.9999	0.9999	-
83	3123	ENG 7972	0.9999	0.9999	-
84	3276	RCM MM3118C	0.9999	0.9999	-
85	3294	RCM KK3720C	0.9999	0.9999	-
86	3301	RCM KK3681	0.9999	0.9999	-
87	3344	JM 18930	0.9999	0.9999	-
88	3381	HH 083716	0.9999	0.9999	-
89	3433	ENG 9053	0.9999	0.9998	0.0001
90	3438	HH A086394	0.9999	0.9999	-
91	3443	HH 86395	0.9999	0.9999	-
92	3480	ENG 9286	0.9999	0.9999	-
Total Net Difference					0.0015

**U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2004**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
1	9780	541	0.9999	0.9999	-
2	9773	68314	0.9999	0.9999	-
3	9736	68310	0.9999	0.9999	-
4	9726	34997	0.9999	0.9999	-
5	9722	34992	0.9999	0.9999	-
6	9693	67729	0.9999	0.9999	-
7	9668	67739	0.9999	0.9999	-
8	9614	66545	0.9999	0.9999	-
9	9576	67448	0.9999	0.9999	-
10	9551	67472	0.9999	0.9999	-
11	9527	67364	0.9999	0.9999	-
12	9469	34851	0.9999	0.9999	-
13	9464	34879	0.9999	0.9999	-
14	9375	33516	0.9999	0.9999	-
15	9356	1074	0.9999	0.9999	-
16	9219	70387	0.9999	0.9999	-
17	9174	982	0.9999	0.9999	-
18	9139	6876	0.9998	0.9996	0.0002
19	9083	6435	0.9998	0.9996	0.0002
20	9055	6633	0.9998	0.9996	0.0002
21	9047	6608	0.9998	0.9996	0.0002
22	9038	6623	0.9998	0.9996	0.0002
23	9029	6201	0.9997	0.9996	0.0001
24	9014	59686	0.9999	0.9999	-
25	8967	59778	0.9999	0.9999	-
26	8904	60972	0.9999	0.9999	-
27	8747	53621	0.9999	0.9999	-
28	8712	53641	0.9999	0.9999	-
29	8711	53576	0.9999	0.9999	-
30	8708	53659	0.9999	0.9999	-
31	8702	29821	0.9999	0.9999	-
32	8668	689	0.9999	0.9999	-
33	8652	887	0.9999	0.9999	-
34	8598	53561	0.9999	0.9999	-
35	8554	3655	0.9999	0.9999	-

**CONT'D: U.S. MINT'S CUSTODIAL GOLD LIST OF BARS
ASSAYED IN FY 2004**

Sample No.	Sample ID	Melt Number	LAB FINENESS (A)	MINT FINENESS (B)	GROSS DIFF. (A-B)
36	8526	56325	0.9999	0.9999	-
37	8493	56297	0.9999	0.9999	-
38	8482	1771	0.9999	0.9999	-
39	8453	112825	0.9999	0.9999	-
40	8378	6003	0.9997	0.9996	0.0001
41	8182	48227	0.9999	0.9999	-
42	8153	9500075	0.9998	0.9998	-
43	8102	31704	0.9999	0.9999	-
44	8044	115901	0.9999	0.9999	-
45	8017	59042	0.9999	0.9999	-
46	8004	430	0.9999	0.9999	-
47	7995	464	0.9999	0.9999	-
48	7973	678	0.9999	0.9999	-
49	7953	58937	0.9999	0.9999	-
50	7905	58999	0.9999	0.9999	-
51	7901	59001	0.9999	0.9999	-
52	7850	59726	0.9999	0.9999	-
53	7831	656	0.9999	0.9999	-
54	7790	59394	0.9999	0.9999	-
55	7712	27851	0.9999	0.9996	0.0003
56	7691	27860	0.9999	0.9999	-
57	7688	27854	0.9999	0.9999	-
58	7652	293	0.9999	0.9999	-
59	7638	299	0.9999	0.9999	-
60	7587	27893	0.9999	0.9999	-
61	7550	44857	0.9999	0.9999	-
62	7538	48063	0.9999	0.9999	-
63	7536	48062	0.9999	0.9999	-
64	7530	48465	0.9999	0.9999	-
65	7529	48458	0.9999	0.9999	-
66	7525	44420	0.9999	0.9999	-
67	7511	46981	0.9999	0.9999	-
68	7499	108867	0.9999	0.9999	-
69	7476	44438	0.9999	0.9999	-
70	7459	26483	0.9999	0.9999	-
71	7444	44422	0.9999	0.9999	-
Total Net Difference					0.0015

**ATTACHMENT 3:
LIST OF AUDITS OF U.S. GOLD HOLDINGS**

Attachment 3 - List of Audits of U.S. Gold Holdings
REPORT

DATE	AUDITOR	REPORT #	REPORT TITLE	ASSAY PROCEDURES PERFORMED?
8/8/1972	GAO	B-114802	Examination Of Financial Statements Of The Accountability Of The Treasurer Of The United States Fiscal Years 1970 And 1972	NO
2/10/1977	GAO	FOD-75-10	Accountability and Physical Controls of the Treasury Department's Gold Bullion Reserves	YES
3/3/1978	GAO	FOD-77-12	Examination Of The Account Of The United States Treasury For Fiscal Years Ended June 30, 1974 and 1975	NO
5/5/1978	GAO	B-1366374	Inventories of Gold and Other Assets as Fort Knox and the Denver Mint	YES
Nov-1981	Committee for Continuing Audits of United States Government-owned Gold	Annex D	Continuing Audit of the United States Government-Owned Gold	YES

Cont'd: Attachment 3 - List of Audits of U.S. Gold Holdings

REPORT

DATE	AUDITOR	REPORT #	REPORT TITLE	ASSAY PROCEDURES PERFORMED?
4/25/1986	OIG	OIG 86-59	Summary Report of Continuing Audits of United States Government-Owned Gold as of September 30, 1985	YES-Results included in report OIG 87-42
4/24/1987	OIG	OIG 87-42	Summary Report of Continuing Audits of United States Government-Owned Gold as of September 30, 1986	YES
5/12/1995	OIG	OIG-95-076	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1994 and 1993	Workpapers/information not available.
5/8/1996	OIG	OIG-96-061	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1995 and 1994	Workpapers/information not available.
2/27/1997	OIG	OIG-97-043	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1996 and 1995	Workpapers/information not available.
2/23/1998	OIG	OIG-98-041	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1997 and 1996	Workpapers/information not available.

Cont'd: Attachment 3 - List of Audits of U.S. Gold Holdings

REPORT

DATE	AUDITOR	REPORT #	REPORT TITLE	ASSAY PROCEDURES PERFORMED?
3/15/1999	OIG	OIG-99-037	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1998 and 1997	YES
12/23/1999	OIG	OIG-00-024	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 1999 and 1998	YES
3/29/2001	OIG	OIG-01-060	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2000 and 1999	Workpapers/information not available.
2/22/2002	OIG	OIG-02-051	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2001 and 2000	YES
11/13/2002	OIG	OIG-03-015	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2002 and 2001	YES
10/29/2003	OIG	OIG-04-001	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2003 and 2002	NO

Cont'd: Attachment 3 - List of Audits of U.S. Gold Holdings
REPORT

DATE	AUDITOR	REPORT #	REPORT TITLE	ASSAY PROCEDURES PERFORMED?
11/5/2004	OIG	OIG-05-004	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2004 and 2003	YES
10/31/2005	OIG	OIG-06-003	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2005 and 2004	YES
10/23/2006	OIG	OIG-07-003	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2006 and 2005	YES
11/14/2007	OIG	OIG-08-001R	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2007 and 2006	NO
10/21/2008	OIG	OIG-09-002	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2008 and 2007	YES
10/21/2009	OIG	OIG-10-003	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2009 and 2008	NO
10/21/2010	OIG	OIG-11-004	Audited Statements of Custodial Gold and Silver Reserves for the United States Mint as of September 30, 2010 and 2009	NO

ATTACHMENT 4: PART 1
U.S. MINT'S SCHEDULE OF INVENTORY OF DEEP STORAGE GOLD
RESERVES (SUMMARY & FORT KNOX)

Attachment #4 – Mint’s Schedule of Inventory of Deep Storage Gold Reserves

Deep Storage Gold Reserves Summary

	Bars	Gross Troy Ounces	Fine Troy Ounces
Totals Recorded on Official Joint Seals:			
Fort Knox	446,698	160,506,624.210	147,341,858.382
Denver	70,631	48,086,282.730	43,853,707.279
West Point	182,186	63,744,425.605	54,067,331.379
Total Deep Storage Gold:	699,515	272,337,332.545	245,262,897.040
Total from Bar Inventory Schedules:	699,515	272,337,272.810	245,262,858.151
Adjustments to Bar Inventory Schedules			
Samples replaced by granules:			
Fort Knox			
Denver			
West Point		71.775	71.841
Samples removed:			
Fort Knox			
Denver			
West Point		(12.140)	(11.160)
Other Adjustments:			
Fort Knox (rounding difference)		0.400	
West Point (Adjustments for samples)		(0.300)	(21.792)
Subtotal Differences:	-	59.735	38.889
Total Deep Storage Gold:	699,515	272,337,332.545	245,262,897.040

**Official
Joint
Seals**

Fort Knox

Total **446,698** **160,506,624.210** **147,341,858.382**
 Difference: - 0.400 (0.000)

Bar

Inventory

Total : 446,698 160,506,623.810 147,341,858.382

Average Fineness:	0.9167
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Melt	Bars	Gross Wt	Fineness	Gold FTO
13227	25	8,109.75	0.9001	7,299.586
F 986	24	8,510.27	0.8999	7,658.392
F 985	21	7,174.40	0.8999	6,456.243
F 984	24	8,524.32	0.8998	7,670.183
F 983	23	8,050.36	0.8999	7,244.519
F1405	21	7,256.08	0.8998	6,529.021
F1406	23	8,560.55	0.8998	7,702.783
F1407	23	8,588.65	0.8998	7,728.067
F1409	23	8,499.53	0.8997	7,647.027
F1410	23	8,591.00	0.8998	7,730.182
F1411	16	5,512.18	0.8999	4,960.411
F1412	23	8,609.65	0.8998	7,746.963
F1413	23	8,562.96	0.8999	7,705.808
F1414	23	8,451.70	0.8999	7,605.685
F1415	23	8,390.80	0.8998	7,550.042
F1416	23	8,627.35	0.8999	7,763.752
F1417	16	5,666.33	0.8999	5,099.130
F1418	23	8,525.37	0.8998	7,671.128
F1420	22	8,022.32	0.8998	7,218.484
F1421	23	8,481.52	0.8998	7,631.672
F1422	23	8,540.80	0.8998	7,685.012
F1423	17	6,254.10	0.8998	5,627.439
F1424	23	8,486.55	0.8997	7,635.349
F1425	23	8,429.50	0.8998	7,584.864
F1426	23	8,477.95	0.8998	7,628.459
F1427	23	8,530.07	0.8998	7,675.357
F1428	23	8,495.46	0.8999	7,645.064
F1430	23	8,575.29	0.8999	7,716.903
22545	13	4,511.34	0.8996	4,058.401
22546	13	4,501.65	0.8995	4,049.234
F1493	23	8,227.53	0.8999	7,403.954
F1494	22	7,836.28	0.8999	7,051.868
F1496	23	8,106.77	0.8999	7,295.282

F1497	24	8,010.24	0.9000	7,209.216
F1498	23	8,117.85	0.8999	7,305.253
F1499	23	8,203.00	0.8998	7,381.059
F1500	23	8,071.86	0.8998	7,263.060
F1501	23	8,171.95	0.8998	7,353.121
F1502	23	8,203.58	0.8998	7,381.581
F1503	22	7,568.55	0.8999	6,810.938
F1504	23	8,045.05	0.8998	7,238.936
F1505	22	7,599.16	0.8998	6,837.724
F1506	23	8,233.35	0.8998	7,408.368
F1508	23	8,027.04	0.8999	7,223.533
F1509	24	8,253.48	0.8997	7,425.656
F1510	23	8,084.08	0.8998	7,274.055
F1511	22	7,881.36	0.8998	7,091.648
F1512	23	8,358.30	0.8998	7,520.798
F1513	23	8,170.60	0.8999	7,352.723
F1514	23	8,220.33	0.8998	7,396.653
F1515	22	7,616.50	0.8999	6,854.088
F1516	23	8,095.07	0.8999	7,284.753
F1517	23	8,183.31	0.9000	7,364.979
F1518	23	7,885.85	0.8999	7,096.476
F1519	23	8,167.95	0.8997	7,348.705
F1520	23	8,042.00	0.8999	7,236.996
F1521	23	7,954.66	0.8999	7,158.399
F1522	22	7,652.40	0.9000	6,887.160
F1523	23	7,995.27	0.8999	7,194.943
F1524	23	8,074.33	0.8998	7,265.282
F1525	23	7,877.10	0.8999	7,088.602
F1526	23	8,145.16	0.8999	7,329.829
F1527	24	8,573.74	0.8998	7,714.651
F1528	21	7,018.90	0.8998	6,315.606
F1529	23	8,259.18	0.8998	7,431.610
F1470	22	7,893.95	0.8998	7,102.976
F1471	23	8,199.60	0.8998	7,378.000
F1472	23	8,211.70	0.9001	7,391.351
F1473	22	7,732.05	0.8999	6,958.072
F1474	23	8,103.88	0.8998	7,291.871
F1475	23	8,168.65	0.8997	7,349.334
F1479	23	7,888.63	0.9000	7,099.767
F1478	23	8,178.69	0.8998	7,359.185
F1477	23	8,260.60	0.8999	7,433.714
F1482	22	7,691.52	0.9000	6,922.368
F1481	23	8,266.93	0.8999	7,439.410
F1480	23	8,208.63	0.8999	7,386.946

F1485	22	7,558.42	0.9000	6,802.578
F1484	23	8,227.38	0.8999	7,403.819
F1483	23	8,393.98	0.9000	7,554.582
F1488	23	8,082.70	0.8998	7,272.813
F1487	23	8,069.92	0.8999	7,262.121
F1486	23	8,281.70	0.9000	7,453.530
D 257	21	7,440.32	0.8997	6,694.056
F1490	23	8,054.43	0.8999	7,248.182
F1489	23	7,620.40	0.8999	6,857.598
D 260	23	8,144.60	0.8998	7,328.511
D 259	21	7,558.58	0.8998	6,801.210
D 258	21	7,494.70	0.8995	6,741.483
D 384	24	8,678.04	0.8996	7,806.765
D 385	22	7,807.43	0.8996	7,023.564
F1476	22	7,723.19	0.8998	6,949.326
D 261	22	8,020.20	0.8999	7,217.378
D 262	21	7,607.83	0.8999	6,846.286
D 263	22	8,085.51	0.9000	7,276.959
F1491	24	8,219.76	0.8999	7,396.962
F1492	23	8,096.55	0.8999	7,286.085
14725	23	8,010.72	0.9165	7,341.825
14876	17	6,078.86	0.9166	5,571.883
14877	16	5,570.52	0.9166	5,105.939
14902	20	7,396.57	0.9166	6,779.696
14933	12	3,993.79	0.9164	3,659.909
14934	11	3,816.55	0.9166	3,498.250
14903	21	7,391.45	0.9166	6,775.003
15301	19	6,753.69	0.9166	6,190.432
15302	17	6,098.32	0.9166	5,589.720
15303	17	6,086.52	0.9164	5,577.687
15017	9	3,129.80	0.9166	2,868.775
15241	13	4,486.15	0.9163	4,110.659
15549	14	4,749.80	0.9166	4,353.667
16051	18	6,470.19	0.9165	5,929.929
10491	23	7,595.78	0.9000	6,836.202
10490	24	7,635.03	0.9003	6,873.818
09772	24	7,911.23	0.9001	7,120.898
09081	12	4,008.05	0.9000	3,607.245
16049	19	6,949.80	0.9166	6,370.187
16050	20	7,058.97	0.9165	6,469.546
16052	19	6,621.74	0.9165	6,068.825
16197	20	7,205.13	0.9166	6,604.222
16198	20	7,221.68	0.9164	6,617.948
07917	13	3,917.00	0.9002	3,526.083

07914	22	7,179.46	0.9001	6,462.232
07659	9	2,932.25	0.9000	2,639.025
07847	22	6,951.10	0.9000	6,255.990
16694	15	5,391.42	0.9166	4,941.776
16391	17	6,091.74	0.9166	5,583.689
16390	19	6,881.56	0.9166	6,307.638
16831	18	6,440.66	0.9166	5,903.509
16696	15	5,182.45	0.9166	4,750.234
16695	16	5,693.04	0.9166	5,218.240
16987	16	5,643.93	0.9166	5,173.226
16986	18	6,396.48	0.9166	5,863.014
16832	18	6,351.63	0.9166	5,821.904
26645	16	5,809.80	0.9001	5,229.401
26646	16	5,872.78	0.9001	5,286.089
26647	17	6,293.13	0.8999	5,663.188
16988	18	6,400.02	0.9166	5,866.258
16989	16	5,683.31	0.9166	5,209.322
17172	18	6,263.36	0.9166	5,740.996
26687	22	7,853.40	0.8995	7,064.133
26686	22	7,920.07	0.8994	7,123.311
26648	18	6,478.03	0.8996	5,827.636
26688	22	7,877.11	0.8994	7,084.673
26689	22	7,929.70	0.8995	7,132.765
26690	23	8,214.85	0.8994	7,388.436
15698	22	7,151.58	0.9001	6,437.137
00282	18	6,214.80	0.9001	5,593.941
00273	20	6,542.07	0.9001	5,888.517
16185	22	7,129.85	0.9002	6,418.291
26691	24	8,465.80	0.8996	7,615.834
26692	22	7,586.00	0.8995	6,823.607
26693	23	8,120.38	0.8995	7,304.282
16193	17	5,950.67	0.8997	5,353.818
16194	18	6,138.26	0.8996	5,521.979
16195	17	5,835.56	0.8997	5,250.253
16046	19	6,741.37	0.8996	6,064.536
16047	19	6,730.88	0.8996	6,055.100
16048	18	6,280.55	0.8995	5,649.355
F1530	23	8,292.50	0.8999	7,462.421
16044	19	6,705.40	0.8999	6,034.189
16045	19	6,877.73	0.8999	6,189.269
16394	20	7,110.56	0.8995	6,395.949
16395	22	7,663.22	0.8994	6,892.300
16396	20	7,005.00	0.8997	6,302.399
16196	15	5,071.20	0.8997	4,562.559

16392	21	7,543.42	0.8998	6,787.569
16393	21	7,471.76	0.8997	6,722.342
16686	20	6,963.31	0.8996	6,264.194
16687	20	7,094.21	0.8993	6,379.823
16688	20	7,102.93	0.8994	6,388.375
16397	20	7,085.20	0.8999	6,375.971
16684	21	7,381.60	0.8997	6,641.226
13131	21	6,679.95	0.9000	6,011.955
16691	20	7,011.05	0.8996	6,307.141
16690	19	6,639.25	0.8995	5,972.005
16689	19	6,682.45	0.8994	6,010.196
16833	21	7,433.80	0.8997	6,688.190
16693	19	6,610.52	0.8997	5,947.485
16692	18	6,357.03	0.8996	5,718.784
16836	20	7,102.25	0.8997	6,389.894
16835	20	7,041.90	0.8997	6,335.597
16834	20	7,066.11	0.8997	6,357.379
16962	15	5,067.26	0.8996	4,558.507
16961	15	5,301.14	0.8999	4,770.496
16837	21	7,277.10	0.8998	6,547.935
17083	16	5,618.83	0.8998	5,055.823
17034	17	5,998.58	0.8996	5,396.323
17173	19	6,726.25	0.8994	6,049.589
17084	18	6,190.87	0.8998	5,570.545
17033	20	7,079.75	0.9000	6,371.775
27068	22	8,083.56	0.8997	7,272.779
27069	22	8,090.15	0.8999	7,280.326
27070	22	7,992.13	0.8998	7,191.319
27074	21	7,713.40	0.8997	6,939.746
27073	20	7,241.63	0.8998	6,516.019
27072	22	8,124.47	0.8999	7,311.211
27071	20	7,316.83	0.8998	6,583.684
27075	22	8,040.93	0.8996	7,233.621
27077	22	8,078.40	0.8997	7,268.136
F1432	23	8,064.00	0.8998	7,255.987
00985	23	7,759.13	0.9000	6,983.217
27080	20	7,308.97	0.8997	6,575.880
27079	20	7,262.66	0.8998	6,534.941
27078	21	7,698.60	0.8995	6,924.891
27076	22	8,030.41	0.8998	7,225.763
27081	19	6,931.35	0.8996	6,235.442
27082	18	6,362.40	0.8998	5,724.888
27086	22	7,724.17	0.8997	6,949.436
27085	22	7,844.59	0.8997	7,057.778

27087	22	7,839.50	0.8997	7,053.198
27088	22	7,849.83	0.8998	7,063.277
27090	23	7,991.42	0.8996	7,189.081
27091	23	7,771.89	0.9005	6,998.587
27089	24	8,292.65	0.8998	7,461.726
27094	17	6,194.34	0.8997	5,573.048
27093	19	6,781.48	0.8997	6,101.298
27092	10	3,494.00	0.8995	3,142.853
27095	19	6,623.88	0.8997	5,959.505
27105	20	7,043.55	0.8996	6,336.378
27107	20	7,113.20	0.9004	6,404.725
27114	22	7,736.20	0.9001	6,963.354
27115	20	7,024.28	0.8998	6,320.447
27118	19	6,688.40	0.8998	6,018.222
27106	18	6,055.62	0.8994	5,446.425
27108	20	6,575.20	0.8997	5,915.707
F1419	23	8,487.07	0.8998	7,636.666
F1429	17	5,895.54	0.8998	5,304.807
F1348	23	8,655.03	0.8998	7,787.796
F1346	23	8,554.12	0.8998	7,696.997
08091	15	4,811.80	0.9001	4,331.101
F1374	22	8,161.72	0.8998	7,343.916
F1378	23	8,518.55	0.8998	7,664.991
F1376	23	8,539.74	0.8999	7,684.912
27176	17	5,915.07	0.8996	5,321.197
27177	17	5,886.75	0.8997	5,296.309
27178	18	6,098.46	0.8997	5,486.784
27119	19	6,589.70	0.8996	5,928.094
27120	20	7,047.31	0.8997	6,340.465
27121	17	5,812.97	0.8997	5,229.929
27295	20	7,263.50	0.8998	6,535.697
27296	21	7,645.92	0.8997	6,879.034
27297	22	7,729.48	0.8997	6,954.213
27305	20	7,151.10	0.8994	6,431.699
27306	20	7,210.93	0.8995	6,486.232
27307	20	7,268.78	0.8996	6,538.994
26700	20	7,354.32	0.8997	6,616.682
26699	20	7,263.55	0.8997	6,535.016
26698	20	7,288.75	0.8997	6,557.688
26697	20	7,298.15	0.8997	6,566.146
26696	23	7,901.96	0.8994	7,107.023
26695	23	8,225.92	0.8994	7,398.392
27317	17	6,136.47	0.8993	5,518.527
27308	19	6,850.50	0.8994	6,161.340

26694	23	8,297.25	0.8994	7,462.547
27309	17	5,999.89	0.8994	5,396.301
27315	15	5,397.75	0.8997	4,856.356
27316	15	5,347.03	0.8998	4,811.258
27318	17	6,168.67	0.8994	5,548.102
27319	18	6,473.32	0.8994	5,822.104
27355	17	6,126.36	0.8996	5,511.273
26701	19	6,601.98	0.8995	5,938.481
26735	20	7,385.73	0.8997	6,644.941
26736	16	5,772.05	0.8996	5,192.536
27465	20	7,165.79	0.8996	6,446.345
27466	20	7,181.28	0.8996	6,460.279
27467	20	7,229.18	0.8996	6,503.370
27386	19	6,513.73	0.8998	5,861.054
27385	20	7,308.10	0.8996	6,574.367
27384	20	7,273.08	0.8997	6,543.590
27356	17	5,872.88	0.8996	5,283.243
27382	20	7,341.60	0.8997	6,605.238
27383	20	7,307.08	0.8997	6,574.180
27020	22	7,789.88	0.8998	7,009.334
27030	22	7,794.90	0.8996	7,012.292
27031	22	7,748.41	0.8996	6,970.470
27016	19	6,892.00	0.8996	6,200.043
27017	19	7,033.65	0.8996	6,327.472
27018	17	6,171.08	0.8993	5,549.652
26737	14	4,708.43	0.8997	4,236.174
26738	15	5,359.22	0.8997	4,821.690
27015	19	6,900.57	0.8997	6,208.443
27032	22	7,674.48	0.8997	6,904.730
27033	22	7,776.64	0.8995	6,995.088
27034	21	6,992.75	0.8996	6,290.678
27603	17	5,972.40	0.8996	5,372.771
27606	21	7,729.03	0.8997	6,953.808
27604	17	6,158.45	0.8997	5,540.757
27202	21	7,273.42	0.9000	6,546.078
27203	21	7,363.10	0.8999	6,626.054
27204	19	6,504.00	0.8998	5,852.299
27468	20	7,192.10	0.8996	6,470.013
27469	20	7,046.63	0.8996	6,339.148
27201	20	7,033.25	0.8998	6,328.518
27038	22	7,656.25	0.8996	6,887.563
27039	14	4,920.37	0.8998	4,427.349
27040	16	5,313.14	0.8997	4,780.232
27035	22	7,652.13	0.8995	6,883.091

27036	22	7,786.33	0.8995	7,003.804
27037	22	7,837.43	0.8995	7,049.768
27042	22	7,762.30	0.8997	6,983.741
27043	22	7,790.53	0.8998	7,009.919
27044	21	7,424.55	0.8997	6,679.868
27065	21	7,683.73	0.8998	6,913.820
27064	22	8,066.76	0.8997	7,257.664
27063	22	8,013.03	0.8998	7,210.124
27045	22	7,708.34	0.8997	6,935.193
27047	19	6,558.09	0.8997	5,900.314
27048	21	7,402.97	0.8997	6,660.452
27610	21	7,612.85	0.8996	6,848.520
27611	21	7,550.95	0.8997	6,793.590
27615	16	5,787.70	0.8996	5,206.615
27607	21	7,709.05	0.8997	6,935.832
27608	21	7,594.85	0.8995	6,831.568
27609	21	7,623.08	0.8995	6,856.960
27066	20	7,325.24	0.8997	6,590.518
27067	21	7,665.50	0.8996	6,895.884
27605	15	5,333.25	0.8997	4,798.325
27617	16	5,509.80	0.8995	4,956.065
27627	19	6,665.90	0.8995	5,995.977
27628	18	6,257.30	0.8995	5,628.441
27612	21	7,590.55	0.8996	6,828.459
27613	20	7,201.42	0.8997	6,479.118
27616	16	5,692.76	0.8994	5,120.068
27630	17	5,980.43	0.8994	5,378.799
27629	17	6,053.33	0.8996	5,445.576
27645	22	7,937.35	0.8996	7,140.440
14047	20	7,208.73	0.8998	6,486.415
14048	20	7,170.38	0.8998	6,451.908
14049	20	7,110.56	0.8998	6,398.082
14172	19	6,732.96	0.8998	6,058.317
14171	19	6,495.17	0.8997	5,843.704
14046	20	7,114.38	0.8996	6,400.096
14898	20	7,180.63	0.8998	6,461.131
14897	20	7,155.12	0.8998	6,438.177
14895	21	7,512.27	0.8998	6,759.541
14901	21	7,373.78	0.8998	6,634.927
14900	20	7,115.22	0.8999	6,402.986
14899	20	7,209.00	0.8999	6,487.379
15064	13	4,520.32	0.8993	4,065.124
14930	18	6,306.17	0.8998	5,674.292
14896	20	7,191.98	0.8998	6,471.344

15133	20	7,038.90	0.8994	6,330.787
15134	21	7,315.96	0.8993	6,579.243
15065	12	4,127.53	0.8994	3,712.300
15016	18	6,144.23	0.8996	5,527.349
14932	16	5,606.76	0.8998	5,044.963
14931	16	5,702.14	0.8997	5,130.215
15305	22	7,798.25	0.8998	7,016.865
15240	17	5,762.09	0.8995	5,183.000
15304	21	7,389.45	0.8998	6,649.027
15561	12	3,962.60	0.8993	3,563.566
15560	13	4,401.78	0.8993	3,958.521
15389	13	4,518.97	0.8998	4,066.169
15740	20	7,119.50	0.8996	6,404.702
07910	21	6,829.84	0.9000	6,146.856
07911	21	6,717.40	0.9003	6,047.675
07947	25	7,797.72	0.9000	7,017.948
08199	23	7,306.13	0.9000	6,575.517
08200	22	6,987.18	0.9000	6,288.462
08203	21	6,807.37	0.9000	6,126.633
17230	11	3,474.35	0.9001	3,127.262
17226	21	6,962.20	0.9003	6,268.069
00160	20	6,517.13	0.9001	5,866.069
00904	20	6,777.20	0.9002	6,100.835
15279	23	7,740.85	0.9001	6,967.539
15171	20	6,622.46	0.9000	5,960.214
15452	20	6,667.34	0.9000	6,000.606
15488	20	6,507.84	0.9000	5,857.056
07913	20	6,611.30	0.9001	5,950.831
07912	21	6,953.12	0.9002	6,259.199
10501	23	7,636.20	0.9000	6,872.580
08204	20	6,541.24	0.9000	5,887.116
16424	22	7,172.73	0.9001	6,456.174
16425	23	7,447.78	0.9002	6,704.492
16426	20	6,719.08	0.9001	6,047.844
16428	22	7,257.13	0.9002	6,532.868
16685	21	7,420.56	0.8997	6,676.278
16984	21	7,051.30	0.8994	6,341.939
15739	22	7,839.06	0.8996	7,052.018
14483	14	4,928.43	0.8998	4,434.601
15390	13	4,454.55	0.8998	4,008.204
14558	21	6,914.20	0.9000	6,222.780
14553	9	2,738.65	0.9001	2,465.059
14585	19	6,156.35	0.9001	5,541.331
17191	23	7,497.75	0.9001	6,748.725

00354	16	5,275.67	0.9006	4,751.268
00902	24	7,787.55	0.9001	7,009.574
00905	22	7,401.80	0.9001	6,662.360
00914	23	7,521.56	0.9001	6,770.156
00986	22	7,118.17	0.9000	6,406.353
18443	5	1,635.82	0.9000	1,472.238
18440	22	7,068.55	0.9001	6,362.402
14311	23	7,449.59	0.9001	6,705.376
14551	20	6,697.80	0.9000	6,028.020
16422	21	6,754.87	0.9000	6,079.383
16420	24	7,505.53	0.9003	6,757.229
16403	20	6,701.05	0.9000	6,030.945
16190	21	6,929.75	0.9001	6,237.468
08208	17	5,525.40	0.9000	4,972.860
08209	9	2,615.61	0.9001	2,354.311
08711	22	7,132.40	0.9002	6,420.586
08878	22	7,145.60	0.9003	6,433.184
10607	15	4,828.18	0.9000	4,345.362
10606	21	6,904.85	0.9000	6,214.365
08990	22	6,897.80	0.9000	6,208.020
08124	10	2,940.78	0.9000	2,646.702
07886	23	7,477.18	0.9004	6,732.453
07884	22	7,239.48	0.9004	6,518.428
16947	20	7,057.15	0.8994	6,347.200
14469	18	6,244.77	0.9007	5,624.665
14589	23	7,761.22	0.8999	6,984.322
14553	22	7,660.75	0.8999	6,893.909
14831	22	7,590.95	0.8997	6,829.578
14599	17	6,178.39	0.8999	5,559.933
15006	22	7,795.60	0.8995	7,012.142
15556	21	7,222.56	0.8999	6,499.582
15590	21	7,213.79	0.8996	6,489.525
15560	20	7,086.62	0.9001	6,378.667
1138	23	8,030.36	0.8999	7,226.521
15625	19	6,390.53	0.8999	5,750.838
14603	19	6,911.85	0.8999	6,219.974
15604	20	6,772.83	0.8997	6,093.515
18165	15	5,162.81	0.8998	4,645.496
18164	17	6,172.05	0.8999	5,554.228
18163	18	6,485.10	0.9001	5,837.239
18060	15	5,168.18	0.8995	4,648.778
18057	16	5,561.02	0.8998	5,003.806
18058	18	6,488.00	0.8996	5,836.605
18059	18	6,118.18	0.8995	5,503.303

18054	16	5,445.40	0.8997	4,899.226
18055	18	6,447.95	0.8999	5,802.510
18056	16	5,741.00	0.8997	5,165.178
16747	15	5,224.92	0.8998	4,701.383
18052	18	6,464.55	0.9002	5,819.388
18053	17	6,068.30	0.9003	5,463.290
16744	20	7,048.22	0.8998	6,341.988
16745	19	6,483.78	0.8998	5,834.105
16746	17	5,922.48	0.8998	5,329.048
16741	19	6,378.45	0.9005	5,743.794
16742	20	7,052.22	0.8999	6,346.293
16743	20	7,024.16	0.8999	6,321.042
16738	17	5,933.82	0.8998	5,339.251
16739	17	5,889.65	0.8898	5,299.507
16740	15	4,846.44	0.8996	4,359.857
16948	18	6,070.79	0.8994	5,460.069
16734	20	7,128.36	0.9004	6,418.375
16946	19	6,683.98	0.8994	6,011.572
16733	20	7,229.54	0.9004	6,509.478
16732	20	7,160.63	0.9003	6,446.715
16731	19	6,902.12	0.9003	6,213.979
14811	11	3,571.12	0.8998	3,213.294
16730	20	7,254.93	0.9004	6,532.339
16726	16	5,584.37	0.9004	5,028.167
16725	17	6,055.48	0.9002	5,451.143
16724	18	6,163.53	0.9003	5,549.026
16723	19	6,375.42	0.8998	5,736.603
16722	22	7,626.74	0.8996	6,861.015
16721	17	6,208.40	0.8998	5,586.318
16720	22	7,720.75	0.8998	6,947.131
16719	22	7,564.45	0.8998	6,806.492
16717	20	6,689.98	0.9002	6,022.320
16716	22	7,681.05	0.8999	6,912.177
16715	22	7,677.18	0.8998	6,907.927
F1137	23	8,035.78	0.8998	7,230.595
F1136	23	8,177.51	0.8998	7,358.123
F1135	23	8,327.54	0.8998	7,493.120
F1134	22	8,046.35	0.8999	7,240.910
F1133	23	8,141.22	0.9001	7,327.912
F1132	23	8,204.23	0.8999	7,382.987
F1131	23	8,128.34	0.9000	7,315.506
F1130	21	7,354.64	0.8998	6,617.705
F1129	23	8,313.25	0.8999	7,481.094
F1128	23	8,186.00	0.8998	7,365.763

F1127	22	7,891.72	0.8998	7,100.970
F1126	23	8,242.44	0.8998	7,416.548
F1125	23	8,339.88	0.8998	7,504.224
F1124	22	7,237.70	0.8997	6,511.759
F1123	23	8,338.10	0.8998	7,502.622
01122	23	8,278.37	0.8998	7,448.877
01121	23	8,303.57	0.8998	7,471.552
01118	22	7,680.93	0.8998	6,911.301
01119	22	7,837.46	0.8998	7,052.147
01120	23	8,144.60	0.8999	7,329.326
01115	22	8,220.58	0.8997	7,396.056
01116	23	8,102.20	0.8998	7,290.360
01117	23	8,245.90	0.8998	7,419.661
01112	23	8,491.56	0.8997	7,639.857
01113	23	8,578.31	0.8998	7,718.763
01114	23	8,603.72	0.8997	7,740.767
01111	24	8,937.95	0.8998	8,042.367
01110	16	5,476.13	0.8998	4,927.422
01109	23	8,332.97	0.8998	7,498.006
01108	23	8,399.27	0.8999	7,558.503
01107	23	8,326.82	0.8999	7,493.305
01106	24	8,663.53	0.8998	7,795.444
01105	23	8,296.24	0.8998	7,464.957
01104	18	6,297.26	0.8998	5,666.275
01103	23	8,465.78	0.8998	7,617.509
01102	23	8,359.34	0.8998	7,521.734
15619	22	7,510.18	0.8996	6,756.158
15618	21	7,201.15	0.8998	6,479.595
15617	21	7,209.11	0.8999	6,487.478
15616	21	7,182.24	0.9000	6,464.016
15615	21	6,805.29	0.9000	6,124.761
15614	21	7,253.67	0.9001	6,529.028
15613	23	7,832.02	0.9001	7,049.601
15612	23	7,941.63	0.9001	7,148.261
15611	22	7,348.86	0.9001	6,614.709
15610	23	8,020.45	0.9001	7,219.207
15609	23	8,085.01	0.9003	7,278.935
15606	19	6,614.85	0.8996	5,950.719
15608	18	6,052.42	0.8998	5,445.968
15607	19	6,499.25	0.8996	5,846.725
15603	20	6,828.40	0.8998	6,144.194
15605	19	6,488.18	0.8997	5,837.416
15602	21	7,153.28	0.8998	6,436.521
15601	21	7,203.52	0.8998	6,481.727

15600	20	6,380.30	0.8997	5,740.356
15599	20	7,017.54	0.8998	6,314.382
15598	21	7,079.92	0.8997	6,369.804
15597	22	7,534.62	0.8997	6,778.898
15596	22	7,624.52	0.8996	6,859.018
15567	20	6,848.38	0.8999	6,162.857
15566	20	7,178.70	0.8999	6,460.112
15565	20	7,203.00	0.9000	6,482.700
15564	20	7,062.58	0.9000	6,356.322
15563	20	7,128.55	0.9000	6,415.695
15562	20	7,028.70	0.9001	6,326.533
15561	20	7,191.40	0.9001	6,472.979
15559	20	7,090.20	0.9001	6,381.889
15558	20	7,127.18	0.9001	6,415.175
15525	19	6,554.02	0.9002	5,899.929
15524	22	7,563.57	0.9000	6,807.213
15523	20	6,944.24	0.9001	6,250.510
15522	21	7,185.97	0.9000	6,467.373
16714	22	7,575.60	0.8998	6,816.525
16713	22	7,485.77	0.8999	6,736.444
16704	19	6,019.20	0.9003	5,419.086
16703	17	5,829.83	0.9003	5,248.596
16702	17	5,827.42	0.9002	5,245.843
16668	18	6,106.00	0.9000	5,495.400
16662	18	6,074.43	0.8998	5,465.772
16661	20	7,235.62	0.8995	6,508.440
16660	20	6,952.73	0.8997	6,255.371
16659	21	7,300.95	0.8997	6,568.665
16658	22	7,556.80	0.8998	6,799.609
16647	19	6,395.30	0.8996	5,753.212
16646	20	7,034.08	0.8997	6,328.562
16645	21	7,406.35	0.8997	6,663.493
16644	21	7,433.88	0.8996	6,687.518
16643	21	7,516.12	0.8997	6,762.253
15585	20	6,897.94	0.8997	6,206.077
15584	22	7,678.72	0.9001	6,911.616
15595	19	6,729.10	0.8994	6,052.153
15594	21	7,357.82	0.8994	6,617.623
15593	19	6,712.39	0.8994	6,037.124
15592	18	6,493.57	0.8994	5,840.317
15591	20	7,122.40	0.8993	6,405.174
15589	21	7,262.12	0.8996	6,533.003
15588	21	7,312.03	0.8998	6,579.365
15587	20	7,117.20	0.8998	6,404.057

15586	23	8,164.12	0.8998	7,346.075
15557	20	7,180.86	0.9000	6,462.774
15581	21	7,362.00	0.8999	6,625.064
15580	21	7,494.49	0.8999	6,744.292
15579	21	7,559.60	0.9006	6,808.176
15578	21	7,520.58	0.8999	6,767.770
15624	19	6,793.30	0.8998	6,112.611
15623	18	6,334.90	0.9001	5,702.043
15622	21	7,301.85	0.8998	6,570.205
15620	23	8,103.52	0.8999	7,292.358
15621	20	6,965.64	0.8999	6,268.379
15007	22	7,886.62	0.8997	7,095.592
15005	22	7,731.43	0.8996	6,955.194
15008	21	7,368.82	0.8996	6,628.990
15004	21	7,140.73	0.8995	6,423.087
15003	22	7,620.25	0.8994	6,853.653
15002	22	7,785.39	0.8995	7,002.958
14584	21	7,491.55	0.8999	6,741.646
14583	21	7,438.60	0.8999	6,693.996
14582	21	7,468.40	0.8998	6,720.066
14581	21	7,536.00	0.8999	6,781.646
14580	20	7,248.16	0.8995	6,519.720
14579	20	7,360.08	0.8997	6,621.864
14578	19	7,039.52	0.8996	6,332.752
14577	20	7,341.71	0.8997	6,605.336
14768	21	7,442.70	0.8996	6,695.453
14767	21	7,452.53	0.8995	6,703.551
14765	23	7,913.59	0.8997	7,119.857
14764	22	7,754.75	0.8995	6,975.398
14763	22	7,712.19	0.8993	6,935.572
14762	23	8,094.45	0.8996	7,281.767
14761	22	7,770.75	0.8996	6,990.567
14760	23	8,162.68	0.8994	7,341.514
14759	23	8,201.00	0.8995	7,376.800
14758	23	8,163.53	0.8996	7,343.912
14757	23	8,122.53	0.8996	7,307.028
14576	20	7,402.10	0.8997	6,659.669
14575	16	5,732.51	0.8999	5,158.686
14567	20	6,540.20	0.9000	5,886.180
14555	16	5,283.46	0.8998	4,754.057
14802	23	8,104.60	0.8998	7,292.519
14546	23	7,950.80	0.8999	7,154.925
14554	20	7,115.93	0.8998	6,402.914
14552	22	7,668.88	0.8998	6,900.458

14551	23	8,192.25	0.8998	7,371.387
14550	18	6,289.36	0.8999	5,659.795
14549	22	7,669.20	0.9000	6,902.280
14548	22	7,753.15	0.9000	6,977.835
14547	22	7,789.85	0.8999	7,010.086
14545	22	7,663.80	0.9000	6,897.420
14542	13	4,460.14	0.8996	4,012.342
14541	12	4,241.59	0.8997	3,816.159
14425	20	7,048.24	0.8998	6,342.006
14424	21	7,205.47	0.8998	6,483.482
14423	21	7,098.75	0.8995	6,385.326
14422	21	7,056.35	0.8995	6,347.187
14421	21	7,184.63	0.8997	6,464.012
14401	19	6,710.57	0.8999	6,038.842
14400	20	7,133.84	0.9000	6,420.456
15001	21	7,391.64	0.8996	6,649.519
15000	21	7,384.43	0.8996	6,643.033
14999	22	7,915.42	0.8996	7,120.712
14998	21	7,377.40	0.8995	6,635.971
14997	21	7,486.68	0.8996	6,735.017
14996	22	7,898.83	0.8995	7,104.998
14995	21	7,577.16	0.8995	6,815.655
14994	21	7,502.07	0.8996	6,748.862
14993	22	7,818.82	0.8996	7,033.810
14990	21	7,188.95	0.8998	6,468.617
14989	21	7,329.12	0.8994	6,591.811
14988	22	7,834.72	0.8998	7,049.681
14987	23	8,224.50	0.8995	7,397.938
14986	23	8,240.93	0.8996	7,413.541
14985	23	8,278.25	0.8996	7,447.114
14977	21	7,574.57	0.8997	6,814.841
14978	17	5,919.80	0.8997	5,326.044
14984	23	8,174.80	0.8995	7,353.233
14976	21	7,533.16	0.8997	6,777.584
14974	20	7,231.24	0.8999	6,507.393
14975	21	7,462.31	0.8998	6,714.587
14973	13	4,450.05	0.8996	4,003.265
14972	12	4,257.85	0.8997	3,830.788
14791	16	5,464.53	0.8994	4,914.798
14790	22	7,648.38	0.8994	6,878.953
14801	23	8,115.30	0.8998	7,302.147
14800	23	8,095.95	0.8999	7,285.545
14799	21	7,057.95	0.8996	6,349.332
14798	22	7,810.12	0.8997	7,026.765

14797	23	7,678.70	0.8998	6,909.294
14796	21	7,188.45	0.8998	6,468.167
14795	21	7,234.21	0.8995	6,507.172
14794	22	7,654.78	0.8996	6,886.240
14789	22	7,795.03	0.8994	7,010.850
14788	21	7,036.29	0.8999	6,331.957
14779	20	6,746.58	0.8997	6,069.898
14778	21	7,322.71	0.8997	6,588.242
14777	17	5,670.21	0.8997	5,101.488
14776	22	7,856.21	0.8996	7,067.447
14775	22	7,703.96	0.8997	6,931.253
14774	18	6,088.04	0.8998	5,478.018
14851	19	6,256.97	0.8998	5,630.022
14773	23	7,918.40	0.8997	7,124.184
14772	22	7,672.20	0.8996	6,901.911
14771	18	5,978.31	0.8996	5,378.088
14770	21	7,151.40	0.8996	6,433.399
14769	22	7,653.94	0.8995	6,884.719
14604	20	7,350.02	0.8999	6,614.283
14602	20	7,355.20	0.8998	6,618.209
14601	20	7,398.65	0.8999	6,658.045
14600	20	7,334.87	0.8998	6,599.916
14849	22	7,515.04	0.8997	6,761.281
14850	20	6,786.07	0.8997	6,105.427
14598	16	5,509.17	0.9001	4,958.804
14597	22	7,929.64	0.9000	7,136.676
14596	21	7,393.48	0.8999	6,653.393
14595	22	7,354.24	0.8999	6,618.081
14594	23	7,825.57	0.8998	7,041.448
14593	22	7,288.90	0.9000	6,560.010
15521	22	7,568.84	0.8999	6,811.199
15513	18	5,955.35	0.8997	5,358.028
15512	20	6,989.00	0.8996	6,287.304
15511	22	7,650.93	0.8998	6,884.307
15369	18	6,267.45	0.8997	5,638.825
15368	20	7,025.78	0.8997	6,321.094
15367	20	7,031.66	0.8998	6,327.088
15366	20	7,091.78	0.8998	6,381.184
15365	19	6,739.38	0.8998	6,064.094
15364	20	7,114.25	0.8997	6,400.691
15363	20	7,024.52	0.8999	6,321.366
15362	20	7,118.33	0.8998	6,405.073
15305	17	5,717.07	0.8997	5,143.648
15304	18	6,207.35	0.8999	5,585.994

15303	21	7,005.05	0.8998	6,303.144
15361	21	7,384.45	0.8998	6,644.528
15360	21	7,449.00	0.8999	6,703.355
15357	16	5,651.60	0.8998	5,085.310
15358	16	5,589.55	0.8998	5,029.477
15354	20	7,089.55	0.8994	6,376.341
15355	20	7,110.25	0.8993	6,394.248
15356	20	7,039.65	0.8994	6,331.461
15302	19	6,604.10	0.8996	5,941.048
15299	19	6,592.95	0.8995	5,930.359
15300	18	6,202.20	0.8994	5,578.259
15190	20	7,031.65	0.8995	6,324.969
15297	20	6,928.64	0.8995	6,232.312
15298	19	6,599.70	0.8995	5,936.430
15021	14	4,747.10	0.8993	4,269.067
15019	15	5,466.74	0.8998	4,918.973
15020	20	7,354.30	0.8996	6,615.928
15018	20	7,221.90	0.8999	6,498.988
15017	20	7,328.89	0.8998	6,594.535
15016	18	5,935.75	0.8994	5,338.614
15015	18	6,294.15	0.8994	5,660.959
15014	21	7,377.65	0.8996	6,636.934
15013	22	7,697.65	0.8996	6,924.806
15012	22	7,728.15	0.8995	6,951.471
15011	22	7,688.55	0.8997	6,917.388
15009	21	7,391.69	0.8996	6,649.564
15010	20	6,734.98	0.8997	6,059.462
14847	21	7,199.95	0.8997	6,477.795
14848	22	7,714.73	0.8998	6,941.714
14846	23	7,952.95	0.8996	7,154.474
14845	22	7,513.99	0.8998	6,761.088
14844	21	7,203.35	0.8998	6,481.574
14592	22	7,431.16	0.9000	6,688.044
14590	22	7,432.65	0.8999	6,688.642
14591	22	7,519.72	0.8998	6,766.244
14843	22	7,546.46	0.8998	6,790.305
14588	23	7,911.54	0.8999	7,119.595
14842	22	7,789.08	0.8997	7,007.835
14840	21	7,178.89	0.8996	6,458.129
14841	22	7,527.05	0.8997	6,772.087
14839	22	7,499.49	0.8996	6,746.541
14838	22	7,579.04	0.8997	6,818.862
14837	22	7,607.46	0.8998	6,845.193
14836	22	7,592.94	0.8997	6,831.368

14835	22	7,652.37	0.8998	6,885.603
14834	20	6,801.72	0.8997	6,119.507
14833	22	7,481.43	0.8997	6,731.043
14832	22	7,672.98	0.8998	6,904.147
14830	22	7,633.85	0.8998	6,868.938
14829	22	7,640.56	0.8998	6,874.976
14828	22	7,586.27	0.8997	6,825.367
14826	18	6,213.10	0.8998	5,590.547
14823	19	6,603.43	0.8998	5,941.766
14824	20	6,943.79	0.8998	6,248.022
14825	17	5,599.83	0.8996	5,037.607
14822	21	7,382.27	0.8996	6,641.090
14821	19	6,751.19	0.8996	6,073.371
14820	21	7,395.32	0.8996	6,652.830
14819	20	6,971.05	0.8997	6,271.854
14818	22	7,784.62	0.8997	7,003.823
14817	21	7,221.50	0.8997	6,497.184
14814	21	7,304.30	0.8999	6,573.140
14815	22	7,372.25	0.8998	6,633.551
14816	21	7,224.15	0.8998	6,500.290
14806	23	8,082.62	0.8996	7,271.125
14807	23	7,981.95	0.8998	7,182.159
14808	21	7,179.20	0.8998	6,459.844
14805	23	8,123.80	0.8997	7,308.983
14804	23	8,191.71	0.8995	7,368.443
14803	23	8,026.93	0.8996	7,221.026
14587	22	7,778.70	0.8999	7,000.052
14586	21	7,464.70	0.9000	6,718.230
14585	22	7,842.15	0.8998	7,056.367
06211	18	6,055.63	0.8998	5,448.856
F 483	23	7,794.46	0.8998	7,013.455
F 591	23	7,879.68	0.8999	7,090.924
F 277	22	7,868.26	0.8998	7,079.860
01672	12	4,253.41	0.9000	3,828.069
02650	21	7,532.06	0.8993	6,773.582
07492	20	6,564.63	0.8996	5,905.541
02658	22	7,659.35	0.8994	6,888.819
F 701	22	7,398.13	0.8998	6,656.837
12057	21	7,475.64	0.9001	6,728.824
F 529	21	7,431.83	0.8997	6,686.417
F 628	22	7,925.23	0.8999	7,131.914
F 526	23	7,970.99	0.8998	7,172.297
F 525	23	8,007.17	0.8998	7,204.852
F 462	23	7,783.11	0.8998	7,003.242

F 527	23	7,970.38	0.8998	7,171.748
F 528	23	7,882.95	0.9001	7,095.443
F 530	24	8,384.94	0.8998	7,544.769
F 658	23	8,161.77	0.8998	7,343.961
F 532	23	8,228.47	0.8998	7,403.977
F 531	23	8,171.41	0.8998	7,352.635
F 455	24	8,254.93	0.8998	7,427.786
F 456	23	7,644.81	0.8999	6,879.565
F 457	23	8,169.47	0.8998	7,350.889
F 458	23	7,949.94	0.8998	7,153.356
F 454	23	8,110.97	0.8999	7,299.062
F 453	23	8,086.70	0.8999	7,277.221
F 452	23	8,162.10	0.8999	7,345.074
F 451	23	8,062.48	0.9000	7,256.232
F 661	23	7,961.89	0.8998	7,164.109
F 660	22	7,735.02	0.8999	6,960.744
F 659	24	8,404.66	0.8999	7,563.354
F 459	23	8,171.46	0.8999	7,353.497
F 460	23	8,114.90	0.8999	7,302.599
F 461	23	8,136.08	0.8998	7,320.845
F 664	23	8,452.38	0.8999	7,606.297
F 663	23	8,408.95	0.8998	7,566.373
F 662	23	7,972.30	0.8999	7,174.273
F 645	23	8,245.59	0.8999	7,420.206
F 666	23	8,297.08	0.9000	7,467.372
F 665	19	6,517.73	0.8998	5,864.653
F 650	23	8,281.31	0.8998	7,451.523
F 647	23	7,743.67	0.8998	6,967.754
F 646	23	8,170.63	0.9000	7,353.567
F 669	22	7,724.82	0.8998	6,950.793
F 668	23	8,401.89	0.8999	7,560.861
F 667	23	8,248.72	0.8998	7,422.198
F 672	23	8,215.89	0.8999	7,393.479
F 671	24	8,289.55	0.8998	7,458.937
F 670	23	8,215.73	0.8999	7,393.335
F 675	21	7,366.36	0.8999	6,628.987
F 674	22	7,750.34	0.8998	6,973.756
F 673	23	8,139.51	0.9000	7,325.559
F 678	23	8,165.71	0.8999	7,348.322
F 677	23	8,188.88	0.8998	7,368.354
F 676	23	8,240.06	0.8998	7,414.406
F 681	22	7,665.38	0.8999	6,898.075
F 680	23	8,170.04	0.8998	7,351.402
F 679	23	8,175.27	0.8999	7,356.925

F 463	22	7,544.52	0.8997	6,787.805
F 475	24	8,078.00	0.8998	7,268.584
F 320	24	8,573.14	0.8998	7,714.111
F 291	21	7,281.63	0.8998	6,552.011
F 290	24	8,546.58	0.8997	7,689.358
F 289	24	8,492.46	0.8997	7,640.666
F 237	22	7,589.51	0.8998	6,829.041
F 551	23	8,085.80	0.8998	7,275.603
F 288	22	7,789.37	0.8997	7,008.096
F 287	22	7,844.95	0.8997	7,058.102
F 286	23	8,261.80	0.8998	7,433.968
F 326	24	8,319.37	0.8998	7,485.769
F 325	25	8,633.00	0.8999	7,768.837
F 324	24	8,193.40	0.8998	7,372.421
F 329	23	8,236.96	0.8998	7,411.617
F 328	23	8,167.50	0.8997	7,348.300
F 327	21	7,111.06	0.8999	6,399.243
F 332	23	8,041.18	0.8997	7,234.650
F 331	23	8,004.97	0.8998	7,202.872
F 330	22	7,770.59	0.8998	6,991.977
F 279	22	7,604.21	0.8998	6,842.268
F 334	24	8,433.90	0.8998	7,588.823
F 333	23	8,119.04	0.8997	7,304.700
F 282	23	7,846.35	0.8997	7,059.361
F 281	24	8,305.78	0.8999	7,474.371
F 280	23	7,971.13	0.8998	7,172.423
F 285	23	7,998.77	0.8998	7,197.293
F 284	23	8,137.38	0.8998	7,322.015
F 283	24	8,460.16	0.8998	7,612.452
F 292	22	7,775.34	0.8998	6,996.251
F 248	23	8,090.20	0.8999	7,280.371
02652	21	7,661.73	0.8993	6,890.194
F 294	22	7,478.70	0.8997	6,728.586
F 293	22	7,875.06	0.8997	7,085.191
F 249	22	7,728.48	0.8999	6,954.859
F 297	19	6,463.46	0.9000	5,817.114
F 296	25	8,734.37	0.8998	7,859.186
F 295	23	7,980.42	0.8998	7,180.782
F 300	23	8,050.68	0.8997	7,243.197
F 299	23	8,243.02	0.8998	7,417.069
F 298	23	8,240.58	0.8997	7,414.050
F 303	24	8,378.94	0.8999	7,540.208
F 302	23	7,953.73	0.8997	7,155.971
F 301	23	8,042.72	0.8997	7,236.035

F 537	23	8,327.18	0.8998	7,492.797
F 533	23	8,274.06	0.8998	7,444.999
F 244	23	8,094.44	0.8999	7,284.187
F 306	23	7,694.37	0.8998	6,923.394
F 305	23	8,093.34	0.8998	7,282.387
F 304	24	8,375.69	0.8997	7,535.608
F 566	23	8,126.35	0.8998	7,312.090
F 571	20	7,167.75	0.9001	6,451.692
F 570	23	8,329.80	0.8997	7,494.321
F 569	23	8,238.52	0.9000	7,414.668
F 574	23	8,342.94	0.8998	7,506.977
F 573	23	8,293.46	0.8998	7,462.455
F 572	23	7,957.05	0.8999	7,160.549
F 577	23	8,154.50	0.8999	7,338.235
F 576	23	8,263.11	0.8998	7,435.146
F 575	21	7,440.38	0.8998	6,694.854
F 349	24	8,320.71	0.8998	7,486.975
F 350	23	8,260.95	0.8997	7,432.377
F 275	22	7,772.93	0.8998	6,994.082
F 348	23	7,861.77	0.8997	7,073.234
F 347	23	8,143.37	0.8998	7,327.404
F 578	23	8,202.27	0.8998	7,380.403
F 503	23	8,162.78	0.8998	7,344.869
F 502	23	8,059.31	0.8998	7,251.767
06210	21	7,360.28	0.8999	6,623.516
F 506	23	8,088.61	0.8998	7,278.131
F 505	22	7,636.20	0.8999	6,871.816
F 504	23	7,958.58	0.8998	7,161.130
F 581	22	7,582.93	0.8998	6,823.120
F 580	23	8,173.78	0.8998	7,354.767
F 579	23	8,082.74	0.8998	7,272.849
F 582	23	8,140.16	0.8998	7,324.516
F 583	23	8,163.77	0.8998	7,345.760
F 584	23	8,144.52	0.8998	7,328.439
F 585	23	8,129.23	0.8999	7,315.494
F 592	23	7,915.75	0.8999	7,123.383
F 593	23	8,108.54	0.8999	7,296.875
F 550	23	8,197.37	0.8998	7,375.994
F 595	23	7,993.23	0.8998	7,192.308
F 594	23	8,180.54	0.8998	7,360.850
F 596	23	7,913.19	0.8999	7,121.080
F 597	23	8,069.37	0.8999	7,261.626
F 598	23	8,060.62	0.8998	7,252.946
F 599	21	7,286.10	0.8999	6,556.761

F 657	23	8,088.32	0.8998	7,277.870
F 656	23	8,341.59	0.8998	7,505.763
F 603	23	8,153.88	0.8999	7,337.677
F 602	23	8,227.55	0.8998	7,403.149
F 601	23	8,339.39	0.8999	7,504.617
F 606	23	8,216.23	0.8998	7,392.964
F 605	20	7,041.92	0.8997	6,335.615
F 604	23	8,165.90	0.8998	7,347.677
F 609	24	8,771.04	0.8998	7,892.182
F 608	22	7,978.84	0.8998	7,179.360
F 607	23	8,249.27	0.8999	7,423.518
F 612	23	8,144.79	0.8998	7,328.682
F 611	22	7,619.90	0.8998	6,856.386
F 610	23	8,065.00	0.8999	7,257.694
F 613	23	8,048.95	0.8999	7,243.250
F 614	23	8,137.12	0.8998	7,321.781
F 615	23	8,245.45	0.9000	7,420.905
F 616	23	8,098.21	0.9000	7,288.389
F 617	21	7,364.39	0.9000	6,627.951
F 618	23	8,172.49	0.8999	7,354.424
F 621	23	8,251.80	0.8998	7,424.970
F 620	23	8,158.29	0.8998	7,340.829
F 619	23	8,162.15	0.8998	7,344.303
F 622	23	8,208.33	0.9000	7,387.497
F 623	21	7,586.99	0.8999	6,827.532
F 624	23	8,264.36	0.8998	7,436.271
F 627	23	8,130.06	0.8998	7,315.428
F 626	23	8,162.03	0.8998	7,344.195
F 625	23	8,249.95	0.8998	7,423.305
11236	20	6,779.09	0.8995	6,097.791
11235	16	5,592.21	0.8995	5,030.193
F 450	22	7,627.70	0.8999	6,864.167
11237	17	6,029.59	0.9004	5,429.043
11238	17	5,880.74	0.8997	5,290.902
11470	18	6,329.67	0.9000	5,696.703
00234	22	7,086.10	0.8997	6,375.364
08184	22	7,238.50	0.8994	6,510.307
11471	18	6,144.55	0.9000	5,530.095
00231	21	6,825.75	0.8998	6,141.810
00232	20	6,233.30	0.8998	5,608.723
00233	22	7,285.75	0.8997	6,554.989
00077	17	5,692.60	0.8999	5,122.771
07775	8	2,422.05	0.8997	2,179.118
00080	19	6,376.00	0.8995	5,735.212

F 507	24	8,346.07	0.8999	7,510.628
F 508	23	8,038.94	0.9000	7,235.046
F 509	23	8,070.10	0.9000	7,263.090
F 512	23	8,233.41	0.8997	7,407.599
F 511	22	7,560.84	0.8998	6,803.244
F 510	23	8,129.50	0.8998	7,314.924
F 515	23	8,112.18	0.8999	7,300.151
F 514	23	8,129.34	0.8999	7,315.593
F 513	23	8,143.40	0.8998	7,327.431
F 518	23	8,210.48	0.8998	7,387.790
F 517	21	7,175.00	0.8997	6,455.348
F 516	23	8,154.43	0.8998	7,337.356
F 519	23	8,313.21	0.8999	7,481.058
F 520	23	8,210.78	0.8998	7,388.060
F 521	23	8,197.76	0.8999	7,377.164
F 522	23	8,227.71	0.8998	7,403.293
F 523	25	8,505.87	0.8999	7,654.432
F 524	23	7,967.28	0.8999	7,169.755
F 336	22	7,342.33	0.9000	6,608.097
F 335	24	8,393.72	0.8997	7,551.830
F 307	23	8,162.63	0.8997	7,343.918
F 339	22	7,368.30	0.8997	6,629.260
F 338	23	8,146.69	0.8997	7,329.577
F 337	24	8,660.28	0.8998	7,792.520
F 342	22	7,711.10	0.8998	6,938.448
F 341	23	8,069.39	0.8997	7,260.030
F 340	24	8,389.72	0.8997	7,548.231
F 345	23	7,895.40	0.8998	7,104.281
F 344	23	8,210.58	0.8997	7,387.059
F 343	23	8,068.72	0.9000	7,261.848
F 478	23	8,058.71	0.8999	7,252.033
F 477	23	8,041.77	0.8998	7,235.985
F 346	23	8,162.00	0.8998	7,344.168
F 481	23	8,137.43	0.8998	7,322.060
F 480	23	8,217.35	0.8999	7,394.793
F 479	23	8,247.67	0.8999	7,422.078
F 484	23	8,076.08	0.8998	7,266.857
F 485	23	8,040.73	0.8998	7,235.049
F 482	23	8,243.95	0.8998	7,417.906
F 488	23	8,254.75	0.8998	7,427.624
F 487	23	8,182.83	0.8997	7,362.092
F 497	25	8,587.48	0.8998	7,727.015
F 486	23	8,052.86	0.8998	7,245.963
F 494	24	8,526.63	0.8998	7,672.262

F 493	23	8,017.59	0.8999	7,215.029
F 492	22	7,835.42	0.8998	7,050.311
F 491	23	8,290.00	0.8999	7,460.171
F 490	23	7,890.42	0.8998	7,099.800
F 489	22	7,877.58	0.8999	7,089.034
F 496	23	7,935.10	0.8998	7,140.003
F 495	21	7,269.65	0.8998	6,541.231
F 500	23	8,272.03	0.8997	7,442.345
F 499	22	7,793.92	0.8998	7,012.969
F 498	23	7,993.96	0.8999	7,193.765
F 556	23	8,156.44	0.8998	7,339.165
F 555	23	8,141.10	0.8998	7,325.362
F 501	23	8,085.48	0.8998	7,275.315
F 559	22	7,551.62	0.8999	6,795.703
F 558	23	8,027.37	0.9000	7,224.633
F 557	23	8,086.93	0.8998	7,276.620
F 562	23	8,037.09	0.8998	7,231.774
F 561	24	8,392.78	0.8999	7,552.663
F 560	23	8,219.66	0.8998	7,396.050
F 565	22	7,618.07	0.8998	6,854.739
F 564	23	8,060.15	0.8998	7,252.523
F 563	23	8,139.77	0.8998	7,324.165
F 568	23	8,165.37	0.8998	7,347.200
F 567	23	8,233.86	0.8998	7,408.827
F 319	23	7,978.69	0.8998	7,179.225
01857	22	7,802.33	0.8997	7,019.756
F 684	23	8,071.15	0.9000	7,264.035
F 683	23	8,069.27	0.8999	7,261.536
F 682	23	8,084.00	0.8999	7,274.792
F 687	22	7,708.81	0.8999	6,937.158
F 686	24	8,332.30	0.8999	7,498.237
F 685	23	8,066.37	0.8999	7,258.926
F 586	23	8,156.94	0.8998	7,339.615
F 689	23	8,230.51	0.8998	7,405.813
F 688	23	8,196.45	0.8998	7,375.166
F 589	23	8,106.72	0.8999	7,295.237
F 588	23	8,079.98	0.9000	7,271.982
F 587	24	8,207.68	0.8999	7,386.091
11130	13	4,335.42	0.8995	3,899.710
F 464	23	8,147.62	0.8999	7,332.043
F 590	23	8,111.09	0.9000	7,299.981
12056	20	7,103.66	0.9001	6,394.004
12055	21	7,435.33	0.9001	6,692.541
12054	21	7,537.73	0.9002	6,785.465

12060	19	6,740.52	0.9001	6,067.142
12059	21	7,551.50	0.9001	6,797.105
12058	20	6,746.07	0.9000	6,071.463
12066	21	7,530.11	0.9001	6,777.852
12065	22	7,554.54	0.9001	6,799.841
12064	23	8,388.79	0.9001	7,550.750
F 542	23	8,092.81	0.8998	7,281.910
F 541	23	7,593.39	0.8997	6,831.773
12067	22	7,825.17	0.9001	7,043.436
F 545	23	8,257.28	0.8999	7,430.726
F 544	23	8,166.43	0.8998	7,348.154
F 543	23	8,251.07	0.8998	7,424.313
F 548	23	8,230.52	0.8999	7,406.645
F 547	18	6,271.41	0.8998	5,643.015
F 546	23	8,238.55	0.8998	7,413.047
F 630	23	8,086.00	0.8998	7,275.783
F 629	23	7,907.43	0.8999	7,115.896
F 549	26	9,125.63	0.8998	8,211.242
F 631	23	8,128.97	0.8999	7,315.260
F 632	23	8,078.80	0.8999	7,270.112
F 633	23	8,140.43	0.8998	7,324.759
F 634	23	8,220.92	0.8999	7,398.006
F 635	21	7,231.67	0.8998	6,507.057
F 636	23	8,254.11	0.8999	7,427.874
F 639	23	8,330.33	0.8998	7,495.631
F 638	23	8,300.19	0.8998	7,468.511
F 637	23	8,183.38	0.8998	7,363.405
F 642	23	8,325.71	0.8999	7,492.306
F 641	20	6,942.92	0.8997	6,246.545
F 640	23	8,240.12	0.8997	7,413.636
F 648	23	8,131.80	0.8998	7,316.994
F 644	23	8,230.73	0.8998	7,406.011
F 643	23	8,264.36	0.8998	7,436.271
F 649	22	7,746.31	0.8998	6,970.130
F 651	22	7,968.25	0.8998	7,169.831
F 652	23	8,500.55	0.8999	7,649.645
F 655	23	8,290.80	0.8998	7,460.062
F 654	23	8,379.30	0.8998	7,539.694
F 653	20	6,862.13	0.8998	6,174.545
F 690	22	7,810.37	0.8999	7,028.552
F 691	23	8,216.79	0.8999	7,394.289
F 692	23	8,145.73	0.8999	7,330.342
F 696	23	8,392.42	0.8998	7,551.500
F 695	19	6,640.85	0.8999	5,976.101

F 693	23	8,306.61	0.8998	7,474.288
F 697	23	8,236.41	0.8999	7,411.945
F 698	23	8,253.38	0.8999	7,427.217
F 699	23	8,191.75	0.8998	7,370.937
F 700	23	8,190.93	0.8998	7,370.199
F 702	23	8,061.74	0.8998	7,253.954
F 703	23	8,290.13	0.8998	7,459.459
F 704	23	8,192.49	0.8998	7,371.603
F 705	23	8,256.54	0.8998	7,429.235
01802	15	5,513.55	0.8998	4,961.092
01801	15	5,474.14	0.8998	4,925.631
01855	22	7,842.12	0.8999	7,057.124
01670	21	7,388.48	0.8997	6,647.415
01854	22	7,760.81	0.9000	6,984.729
01671	22	7,500.43	0.8999	6,749.637
02504	20	7,099.90	0.9000	6,389.910
01669	21	7,269.20	0.8997	6,540.099
01803	15	5,383.50	0.8998	4,844.073
07346	23	7,502.25	0.8995	6,748.274
07682	22	7,205.14	0.8996	6,481.744
07681	23	7,154.68	0.8996	6,436.350
07347	19	6,291.41	0.8995	5,659.123
04621	4	1,183.58	0.8997	1,064.867
03826	20	6,539.34	0.8995	5,882.136
00265	20	6,614.24	0.9001	5,953.477
08996	23	7,663.92	0.8995	6,893.696
08869	23	7,445.29	0.8995	6,697.038
03874	19	6,400.74	0.8993	5,756.185
03831	20	6,494.30	0.8993	5,840.324
03830	19	6,198.52	0.8995	5,575.569
03832	21	6,709.11	0.8994	6,034.174
08011	23	7,341.64	0.8994	6,603.071
08016	21	6,765.55	0.8994	6,084.936
03340	6	1,878.37	0.8997	1,689.969
02531	19	6,490.47	0.8998	5,840.125
01924	19	6,202.04	0.8997	5,579.975
02176	19	6,302.34	0.8997	5,670.215
12613	20	6,651.14	0.8999	5,985.361
12511	20	6,637.80	0.9000	5,974.020
12512	20	6,607.32	0.8999	5,945.927
11888	20	6,421.70	0.8998	5,778.246
11887	19	6,157.40	0.8999	5,541.044
00323	7	2,061.73	0.8993	1,854.114
05126	7	2,181.00	0.8999	1,962.682

06099	7	2,137.51	0.8999	1,923.545
13999	23	7,383.13	0.8998	6,643.340
03882	17	5,747.43	0.8999	5,172.112
04297	19	6,393.85	0.8994	5,750.629
04288	20	6,549.20	0.8994	5,890.350
04294	20	6,820.40	0.8993	6,133.586
07313	15	4,820.32	0.8996	4,336.360
04291	20	6,801.00	0.8993	6,116.139
04290	21	6,919.85	0.8994	6,223.713
04289	18	5,974.50	0.8993	5,372.868
09026	22	7,523.86	0.8999	6,770.722
04742	20	6,576.50	0.8999	5,918.192
03116	14	4,416.99	0.8999	3,974.849
09976	22	7,443.48	0.8999	6,698.388
01834	21	7,274.15	0.8999	6,546.008
01836	23	7,759.18	0.9000	6,983.262
02582	21	7,106.80	0.9000	6,396.120
01843	25	8,438.11	0.9000	7,594.299
01840	20	6,773.83	0.8999	6,095.770
01816	13	4,241.57	0.8999	3,816.989
02081	23	7,711.52	0.8999	6,939.597
02835	13	3,965.02	0.8999	3,568.121
01844	20	6,798.42	0.8999	6,117.898
11583	23	8,010.77	0.8999	7,208.892
01673	11	3,640.38	0.8995	3,274.522
01668	21	7,167.58	0.8998	6,449.388
01853	21	7,477.50	0.8999	6,729.002
02163	22	7,966.08	0.8997	7,167.082
02168	19	6,886.35	0.8998	6,196.338
02651	21	7,647.51	0.8994	6,878.170
F 247	23	8,107.28	0.9000	7,296.552
02167	20	6,956.23	0.8996	6,257.825
02164	22	7,838.55	0.8997	7,052.343
02653	21	7,568.04	0.8993	6,805.938
01858	22	7,789.82	0.9000	7,010.838
F 245	23	8,113.05	0.8998	7,300.122
01022	21	7,208.35	0.8997	6,485.352
01021	21	7,255.85	0.8997	6,528.088
01020	21	7,266.25	0.8995	6,535.992
01023	19	6,668.96	0.9000	6,002.064
01024	17	5,702.17	0.8995	5,129.102
01025	12	4,089.36	0.8993	3,677.561
01026	13	4,348.68	0.8995	3,911.638
01590	18	6,154.78	0.8997	5,537.456

01626	19	6,927.60	0.8998	6,233.454
01627	19	6,489.95	0.8998	5,839.657
01661	20	6,640.97	0.8999	5,976.209
01662	21	7,293.31	0.8997	6,561.791
01663	22	7,554.45	0.8999	6,798.250
01664	21	7,111.36	0.8998	6,398.802
01665	23	8,088.69	0.8998	7,278.203
01666	21	6,906.77	0.9000	6,216.093
01667	21	7,326.98	0.8999	6,593.549
01859	22	7,768.03	0.8999	6,990.450
01863	21	7,465.10	0.8996	6,715.604
01862	21	7,490.58	0.8997	6,739.275
01860	21	7,440.04	0.8997	6,693.804
01866	23	8,288.93	0.8998	7,458.379
01865	21	7,690.63	0.8999	6,920.798
01864	20	7,192.05	0.8998	6,471.407
02154	22	7,777.40	0.8998	6,998.105
02153	22	7,713.22	0.8998	6,940.355
02030	19	6,443.98	0.9000	5,799.582
02155	22	7,743.07	0.8997	6,966.440
02157	22	7,741.54	0.8997	6,965.064
02158	21	7,009.13	0.8996	6,305.413
02159	22	7,727.45	0.8997	6,952.387
02160	22	7,847.99	0.8996	7,060.052
02161	21	7,266.20	0.8997	6,537.400
02162	21	7,471.05	0.8996	6,720.957
02654	20	7,151.53	0.8993	6,431.371
02655	23	7,990.85	0.8993	7,186.171
02657	22	7,762.65	0.8994	6,981.727
02656	23	8,108.07	0.8993	7,291.587
02811	18	6,126.60	0.9003	5,515.778
02659	22	7,611.15	0.8993	6,844.707
02660	22	7,553.40	0.8994	6,793.528
02661	21	7,230.57	0.8995	6,503.898
02664	17	5,713.53	0.8996	5,139.892
02663	19	6,715.43	0.8993	6,039.186
02662	22	7,734.73	0.8993	6,955.843
02758	22	7,817.52	0.8998	7,034.204
02757	22	7,751.55	0.8998	6,974.845
02756	22	7,618.55	0.9000	6,856.695
02786	17	5,669.82	0.8992	5,098.302
02760	18	6,379.32	0.8995	5,738.198
02783	19	6,802.25	0.8999	6,121.345
02762	15	5,080.48	0.8997	4,570.908

02759	21	7,037.53	0.8995	6,330.258
02761	16	5,477.50	0.8998	4,928.655
02868	16	5,637.25	0.8994	5,070.143
02785	19	6,445.90	0.8994	5,797.442
02784	18	6,476.30	0.8998	5,827.375
02869	16	5,768.43	0.8995	5,188.703
02870	16	5,652.44	0.8994	5,083.805
02871	18	6,451.85	0.8994	5,802.794
02906	14	4,736.33	0.8996	4,260.802
02905	15	5,173.10	0.8996	4,653.721
02904	16	5,463.98	0.8996	4,915.396
03061	23	8,391.60	0.8999	7,551.601
02928	21	7,568.92	0.9000	6,812.028
02925	15	5,368.23	0.8996	4,829.260
04006	19	6,387.99	0.8994	5,745.358
04005	19	6,757.52	0.8995	6,078.389
F 243	23	8,063.70	0.8998	7,255.717
F 242	23	8,121.34	0.8998	7,307.582
F 311	22	7,853.64	0.8997	7,065.920
04004	19	6,691.85	0.8994	6,018.650
03960	16	5,209.03	0.9007	4,691.773
03959	17	5,888.88	0.9005	5,302.936
03062	22	7,719.30	0.8998	6,945.826
04008	20	6,682.60	0.8997	6,012.335
04007	18	6,297.62	0.8997	5,665.969
F 469	23	7,926.56	0.8998	7,132.319
F 316	23	8,107.38	0.8996	7,293.399
F 465	23	8,131.93	0.8998	7,317.111
F 535	18	6,260.34	0.8998	5,633.054
F 474	23	8,181.38	0.8998	7,361.606
02170	18	6,217.71	0.8994	5,592.208
F 241	23	7,949.75	0.8998	7,153.185
F 239	23	8,218.05	0.8998	7,394.601
02165	22	7,786.94	0.8995	7,004.353
02169	18	6,479.75	0.8996	5,829.183
02505	18	6,321.35	0.8997	5,687.319
02333	27	8,956.35	0.8999	8,059.819
11582	23	8,006.28	0.8995	7,201.649
11584	23	7,887.60	0.8997	7,096.474
F 240	22	7,699.30	0.8998	6,927.830
02166	22	7,937.32	0.8996	7,140.413
F 315	23	7,935.39	0.8998	7,140.264
F 312	25	8,531.95	0.8998	7,677.049
F 317	24	8,535.60	0.8997	7,679.479

F 318	22	7,533.62	0.8997	6,777.998
F 250	23	8,028.85	0.8998	7,224.359
F 471	23	8,066.80	0.8999	7,259.313
F 310	22	7,773.07	0.8997	6,993.431
F 473	23	8,162.89	0.8999	7,345.785
01856	22	7,840.27	0.8999	7,055.459
F 470	23	7,856.71	0.8999	7,070.253
F 467	23	8,219.62	0.8999	7,396.836
F 468	23	8,215.75	0.8999	7,393.353
F 252	22	7,646.45	0.8998	6,880.276
F 251	23	8,280.33	0.8998	7,450.641
F 472	23	8,126.37	0.9000	7,313.733
F 314	24	8,199.72	0.8998	7,378.108
F 313	23	8,025.20	0.8998	7,221.075
F 246	22	7,642.73	0.8998	6,876.928
F 253	23	8,247.10	0.9000	7,422.390
F 254	23	8,063.10	0.8998	7,255.177
F 255	23	7,843.20	0.8999	7,058.096
F 258	12	4,112.20	0.8997	3,699.746
F 257	22	7,842.05	0.8999	7,057.061
F 256	23	8,254.40	0.8999	7,428.135
F 263	24	8,477.93	0.8998	7,628.441
F 261	23	7,934.24	0.8998	7,139.229
F 259	23	7,760.83	0.8997	6,982.419
F 267	24	8,445.85	0.8997	7,598.731
F 266	24	8,437.80	0.8998	7,592.332
F 265	23	8,297.18	0.8997	7,464.973
F 268	24	8,613.09	0.8997	7,749.197
F 269	24	8,465.85	0.8998	7,617.572
F 270	22	7,681.48	0.8997	6,911.028
F 271	24	8,482.02	0.8997	7,631.273
F 272	22	7,976.20	0.8998	7,176.985
F 273	20	7,027.69	0.8997	6,322.813
F 274	23	8,213.76	0.8999	7,391.563
F 276	23	7,972.96	0.8998	7,174.069
F 278	24	8,562.34	0.8997	7,703.537
03878	20	6,499.73	0.8994	5,845.857
02831	20	6,659.87	0.9000	5,993.883
01483	19	6,438.20	0.8999	5,793.736
13648	14	4,566.00	0.8999	4,108.943
00909	6	2,059.16	0.8996	1,852.420
03872	19	6,401.28	0.8994	5,757.311
08876	19	6,339.97	0.8994	5,702.169
03880	20	6,565.84	0.8993	5,904.660

03876	18	6,279.35	0.8994	5,647.647
01852	20	7,018.87	0.8998	6,315.579
01861	21	7,444.59	0.8998	6,698.642
02156	22	7,702.15	0.8997	6,929.624
F 262	23	8,211.54	0.8999	7,389.565
F 264	23	8,221.72	0.8998	7,397.904
F 260	24	8,305.92	0.8997	7,472.836
03879	20	6,482.46	0.8993	5,829.676
03875	19	6,445.10	0.8993	5,796.078
04431	8	2,625.16	0.9002	2,363.169
11881	8	2,612.73	0.9000	2,351.457
11886	16	5,146.41	0.8999	4,631.254
07746	21	6,904.18	0.8994	6,209.619
F 231	23	8,312.80	0.8998	7,479.857
F 232	23	8,099.38	0.8999	7,288.632
F 233	23	8,335.50	0.8999	7,501.116
F 234	23	8,048.82	0.8998	7,242.328
F 235	23	8,129.93	0.8996	7,313.685
F 236	22	7,905.70	0.8998	7,113.549
F 309	22	7,759.15	0.8998	6,981.683
F 552	23	8,289.95	0.8998	7,459.297
F 476	22	7,682.67	0.8998	6,912.866
F 539	23	8,156.08	0.8998	7,338.841
F 536	23	8,322.31	0.8998	7,488.415
F 553	20	6,902.83	0.8998	6,211.166
F 466	23	8,063.22	0.8999	7,256.092
F 538	23	8,211.19	0.8998	7,388.429
F 308	23	8,247.43	0.8998	7,421.038
F 534	25	8,925.68	0.8998	8,031.327
F 540	23	8,082.24	0.8998	7,272.400
F 238	23	8,079.90	0.8998	7,270.294
F 554	25	8,749.80	0.8998	7,873.070
F 323	24	8,400.10	0.8998	7,558.410
F 322	22	7,577.48	0.8998	6,818.217
F 321	23	7,620.62	0.8998	6,857.034
F1914	23	8,277.28	0.8998	7,447.896
14081	20	7,215.28	0.9166	6,613.525
27257	18	6,394.96	0.9166	5,861.621
11576	15	4,991.58	0.9166	4,575.283
26224	13	4,505.37	0.9165	4,129.171
30965	22	7,794.31	0.9015	7,026.571
27325	14	5,023.27	0.9166	4,604.330
07736	20	7,173.87	0.9010	6,463.658
08490	14	4,988.32	0.9126	4,552.342

30290	19	6,564.98	0.8995	5,905.199
29119	14	5,035.59	0.8997	4,530.520
F1867	23	8,177.63	0.8999	7,359.049
31108	23	7,974.91	0.8996	7,174.229
11106	23	8,239.87	0.9166	7,552.665
25465	20	7,371.86	0.9165	6,756.310
04563	22	7,341.00	0.9166	6,728.761
11550	18	6,079.20	0.9166	5,572.195
F2299	23	8,271.26	0.8998	7,442.480
02954	22	7,483.58	0.8999	6,734.474
27631	20	7,392.74	0.9165	6,775.446
27234	20	7,172.41	0.9166	6,574.231
28381	23	7,936.45	0.8999	7,142.011
28949	21	7,442.22	0.8998	6,696.510
00233	23	7,890.88	0.9164	7,231.202
31715	22	7,740.14	0.8995	6,962.256
28383	22	7,614.25	0.8998	6,851.302
01346	19	6,479.52	0.8994	5,827.680
03876	23	7,987.98	0.9167	7,322.581
07320	18	6,120.86	0.8999	5,508.162
F2318	23	8,111.54	0.8999	7,299.575
F2273	18	6,497.89	0.8998	5,846.801
F2223	23	8,388.56	0.8999	7,548.865
43358	15	5,102.04	0.9003	4,593.367
11691	19	6,661.29	0.9024	6,011.148
26275	20	7,030.29	0.9166	6,443.964
27764	20	7,128.23	0.9166	6,533.736
11100	14	4,825.08	0.9165	4,422.186
02434	18	6,183.32	0.8998	5,563.751
31836	22	7,712.12	0.8996	6,937.823
12509	19	6,771.90	0.9166	6,207.124
16705	21	7,407.59	0.9167	6,790.538
F2023	23	8,190.68	0.9000	7,371.612
28276	21	7,275.57	0.9165	6,668.060
F1965	22	7,905.48	0.8998	7,113.351
07979	17	5,844.74	0.9032	5,278.969
10855	22	7,974.81	0.9157	7,302.534
07738	19	6,273.07	0.9166	5,749.896
04024	15	5,168.72	0.9034	4,669.422
T 042	23	8,120.35	0.9126	7,410.631
00202	22	7,884.42	0.9165	7,226.071
28379	22	7,708.81	0.8999	6,937.158
04025	16	5,320.25	0.9035	4,806.846
04117	20	6,809.85	0.9047	6,160.871

03961	19	6,231.35	0.9166	5,711.655
03850	19	6,373.55	0.9010	5,742.569
03960	19	6,199.70	0.9165	5,682.025
03941	18	6,130.04	0.9165	5,618.182
03914	12	4,024.18	0.9054	3,643.493
03940	19	6,433.87	0.9165	5,896.642
03332	18	6,022.62	0.9082	5,469.743
03331	18	6,136.16	0.9135	5,605.382
03333	17	5,682.68	0.9116	5,180.331
11551	23	8,151.25	0.9166	7,471.436
11549	19	6,770.30	0.9166	6,205.657
11548	20	7,102.10	0.9166	6,509.785
11547	21	7,492.49	0.9166	6,867.616
11546	22	7,771.62	0.9166	7,123.467
11540	19	6,669.40	0.9166	6,113.172
11539	22	7,774.03	0.9166	7,125.676
11538	22	7,778.27	0.9165	7,128.784
11537	23	8,272.16	0.9166	7,582.262
11536	22	7,785.87	0.9165	7,135.750
11535	21	7,521.92	0.9166	6,894.592
11534	21	7,088.33	0.9166	6,497.163
11533	22	7,936.55	0.9166	7,274.642
11532	20	7,021.95	0.9165	6,435.617
11531	20	6,833.45	0.9166	6,263.540
11530	20	7,166.76	0.9165	6,568.336
11529	22	7,956.56	0.9166	7,292.983
04671	20	6,929.43	0.9165	6,350.823
06367	10	3,224.82	0.9080	2,928.137
04627	16	5,332.90	0.9121	4,864.138
04673	15	5,181.40	0.9166	4,749.271
03234	20	6,664.36	0.9025	6,014.585
03622	12	3,882.68	0.9046	3,512.272
01922	14	4,652.75	0.9070	4,220.044
03231	21	7,198.58	0.9049	6,513.995
03233	20	6,524.82	0.9046	5,902.352
03240	18	5,825.42	0.9166	5,339.580
04292	19	6,425.40	0.9165	5,888.879
03232	20	6,793.42	0.9073	6,163.670
04381	19	6,425.10	0.9165	5,888.604
T 023	20	6,660.90	0.9022	6,009.464
T 025	20	6,747.75	0.9095	6,137.079
T 011	20	6,849.70	0.9021	6,179.114
T 017	20	6,737.62	0.9086	6,121.802
T 012	19	6,479.45	0.9122	5,910.554

03235	15	4,808.55	0.9029	4,341.640
06081	19	6,432.81	0.9165	5,895.670
04451	19	6,395.29	0.9165	5,861.283
00158	12	3,870.50	0.9079	3,514.027
00136	22	7,582.63	0.9163	6,947.964
00123	21	7,716.50	0.9162	7,069.857
00122	22	7,978.60	0.9153	7,302.813
11108	22	7,741.97	0.9166	7,096.290
11107	23	8,205.23	0.9166	7,520.914
11105	23	8,241.07	0.9165	7,552.941
11104	22	7,915.68	0.9166	7,255.512
11103	22	7,806.00	0.9166	7,154.980
11059	22	7,565.73	0.9165	6,933.992
11056	21	7,583.27	0.9165	6,950.067
11057	21	7,457.52	0.9151	6,824.377
11058	21	7,508.13	0.9160	6,877.447
11055	22	7,887.90	0.9165	7,229.260
11040	22	7,759.23	0.9162	7,109.007
10861	24	8,055.00	0.9159	7,377.575
10858	22	7,643.52	0.9160	7,001.464
10860	22	7,681.10	0.9160	7,035.888
10859	22	7,599.12	0.9164	6,963.834
10857	22	7,687.33	0.9153	7,036.213
10856	22	7,891.75	0.9156	7,225.686
10853	22	7,781.18	0.9147	7,117.445
10852	19	6,712.02	0.9159	6,147.539
02426	18	6,105.57	0.8998	5,493.792
02526	18	6,041.40	0.8998	5,436.052
02430	19	6,217.13	0.8996	5,592.930
02533	18	6,062.11	0.8997	5,454.080
00070	19	6,214.12	0.8997	5,590.844
10854	22	7,867.35	0.9153	7,200.985
00067	19	5,959.17	0.8994	5,359.677
00074	20	6,516.00	0.8996	5,861.794
00147	21	6,886.91	0.8997	6,196.153
00149	22	7,414.18	0.8996	6,669.796
00148	20	6,572.27	0.8997	5,913.071
12709	23	7,408.74	0.8999	6,667.125
00071	20	6,611.76	0.8996	5,947.939
02540	18	6,217.97	0.8996	5,593.686
02538	18	6,055.80	0.8996	5,447.798
01337	21	6,994.47	0.8994	6,290.826
02539	18	6,162.77	0.8997	5,544.644
00076	19	6,205.77	0.8994	5,581.470

00079	19	6,414.55	0.8994	5,769.246
03751	18	6,137.82	0.8995	5,520.969
09007	22	7,172.70	0.8997	6,453.278
03756	20	6,573.68	0.8995	5,913.025
03748	20	6,966.93	0.8994	6,266.057
09006	20	6,610.42	0.8997	5,947.395
03752	21	6,769.96	0.8994	6,088.902
09003	18	5,764.72	0.8999	5,187.672
00039	18	6,159.26	0.8996	5,540.870
09260	19	6,450.21	0.8997	5,803.254
02182	18	5,939.88	0.8997	5,344.110
02181	18	5,879.80	0.8997	5,290.056
02185	18	6,031.71	0.8997	5,426.729
02175	19	6,262.78	0.8995	5,633.371
00380	21	6,887.90	0.8996	6,196.355
00334	23	7,412.65	0.9001	6,672.126
14429	19	6,200.45	0.8999	5,579.785
00351	22	7,277.56	0.9003	6,551.987
14427	19	6,039.95	0.8999	5,435.351
14432	21	6,594.66	0.8998	5,933.875
11984	19	6,366.20	0.8994	5,725.760
00337	20	6,553.29	0.9001	5,898.616
00078	22	7,637.10	0.8997	6,871.099
00077	21	7,141.57	0.8999	6,426.699
11982	16	5,299.40	0.8999	4,768.930
06640	8	2,690.33	0.8991	2,418.876
02337	9	2,669.55	0.8999	2,402.328
10665	24	8,376.05	0.8999	7,537.607
10666	23	8,178.92	0.8999	7,360.210
10992	20	7,180.48	0.8998	6,460.996
10383	19	6,625.48	0.8998	5,961.607
10991	18	6,183.43	0.8999	5,564.469
10663	24	8,489.10	0.8998	7,638.492
08045	22	7,460.40	0.8998	6,712.868
00075	23	7,716.35	0.8998	6,943.172
05297	22	7,527.80	0.8998	6,773.514
04842	16	5,105.75	0.8999	4,594.664
04841	16	5,450.85	0.8999	4,905.220
04611	16	5,342.85	0.8998	4,807.496
04610	16	5,214.90	0.8999	4,692.889
04609	23	7,912.55	0.8999	7,120.504
04607	25	8,631.90	0.8999	7,767.847
00135	19	6,267.63	0.8996	5,638.360
00128	20	6,745.00	0.8996	6,067.802

00240	20	6,712.23	0.8999	6,040.336
04340	16	5,336.95	0.8999	4,802.721
04170	20	6,543.06	0.8999	5,888.100
25460	12	4,480.40	0.9165	4,106.287
25459	18	6,302.80	0.9164	5,775.886
25458	19	6,990.55	0.9164	6,406.140
25457	20	7,415.70	0.9165	6,796.489
25456	20	7,465.10	0.9165	6,841.764
25455	21	7,765.60	0.9164	7,116.396
25454	21	7,710.85	0.9164	7,066.223
25436	19	6,682.40	0.9163	6,123.083
25426	19	6,929.85	0.9163	6,349.822
25425	19	6,461.10	0.9155	5,915.137
25424	19	6,968.40	0.9165	6,386.539
25423	20	7,338.00	0.9165	6,725.277
25419	19	6,945.55	0.9160	6,362.124
25418	19	6,981.10	0.9157	6,392.593
00234	23	8,094.72	0.9165	7,418.811
00230	22	7,677.54	0.9103	6,988.865
00231	21	7,511.80	0.9165	6,884.565
00232	23	7,937.70	0.9158	7,269.346
00229	23	8,180.60	0.9161	7,494.248
00228	23	8,066.51	0.9165	7,392.956
00227	20	7,154.19	0.9165	6,556.815
00209	23	8,037.74	0.9166	7,367.392
00210	24	8,230.11	0.9144	7,525.613
00211	21	7,302.09	0.9112	6,653.664
00208	23	7,992.77	0.9165	7,325.374
00207	21	7,562.30	0.9163	6,929.335
00206	22	7,735.05	0.9163	7,087.626
00205	21	7,496.80	0.9160	6,867.069
00204	20	7,195.60	0.9157	6,589.011
00203	22	7,670.83	0.9165	7,030.316
00201	21	7,393.02	0.9165	6,775.703
00200	22	7,793.01	0.9162	7,139.956
00199	22	7,835.47	0.9122	7,147.516
00198	22	8,055.57	0.9164	7,382.124
00197	22	7,915.09	0.9164	7,253.388
05851	16	5,266.32	0.9165	4,826.582
05408	18	6,242.20	0.9131	5,699.753
05407	20	6,979.70	0.9166	6,397.593
05849	20	7,138.82	0.9160	6,539.159
05846	20	7,186.33	0.9165	6,586.271
05847	17	6,009.06	0.9166	5,507.904

07804	10	3,627.00	0.9166	3,324.508
05265	20	6,875.38	0.9162	6,299.223
04955	21	7,150.50	0.9020	6,449.751
05102	13	4,382.56	0.9166	4,017.054
04997	20	7,061.00	0.9021	6,369.728
05266	18	6,031.88	0.9141	5,513.742
04958	19	6,279.50	0.9021	5,664.737
04957	18	5,964.62	0.9018	5,378.894
05101	12	4,123.91	0.9166	3,779.976
05356	11	3,747.65	0.9120	3,417.857
05381	19	6,578.90	0.9160	6,026.272
05382	20	6,971.50	0.9025	6,291.779
08173	23	7,748.28	0.9166	7,102.073
08156	20	6,876.16	0.9164	6,301.313
05373	19	6,532.70	0.9016	5,889.882
08133	14	5,026.20	0.9166	4,607.015
11442	12	4,180.84	0.9165	3,831.740
09011	13	4,450.14	0.9165	4,078.553
05889	10	3,585.86	0.9166	3,286.799
05822	12	4,070.25	0.9163	3,729.570
25202	18	6,166.60	0.9159	5,647.989
25203	19	6,865.30	0.9166	6,292.734
25417	12	4,029.15	0.9161	3,691.104
25416	13	4,555.80	0.9162	4,174.024
25195	22	7,721.70	0.9164	7,076.166
25204	20	7,267.75	0.9161	6,657.986
25183	21	7,490.10	0.9156	6,857.936
25184	19	6,962.60	0.9165	6,381.223
25154	17	5,975.70	0.9024	5,392.472
25185	19	6,671.10	0.9166	6,114.730
25182	18	6,532.20	0.9160	5,983.495
25181	18	6,429.80	0.9166	5,893.555
00236	23	7,923.99	0.9115	7,222.717
08202	19	6,548.88	0.9166	6,002.703
08204	17	5,837.73	0.9166	5,350.863
07985	21	7,551.33	0.9167	6,922.304
07986	21	7,542.60	0.9166	6,913.547
07996	19	6,815.99	0.9166	6,247.536
07995	20	7,183.66	0.9167	6,585.261
07968	14	4,615.24	0.9167	4,230.791
07989	21	7,326.63	0.9166	6,715.589
07984	21	7,012.45	0.9166	6,427.612
07990	21	7,278.48	0.9165	6,670.727
07983	21	7,263.04	0.9163	6,655.124

07785	12	4,058.83	0.9165	3,719.918
07756	16	5,380.90	0.9166	4,932.133
07786	13	4,429.09	0.9165	4,059.261
07973	18	5,736.65	0.9158	5,253.624
08169	20	7,060.10	0.9164	6,469.876
07999	19	6,076.34	0.9166	5,569.573
07998	16	5,489.67	0.9166	5,031.832
07997	18	5,915.00	0.9166	5,421.689
05295	21	6,843.78	0.9014	6,168.983
07969	19	6,120.88	0.9166	5,610.399
07788	18	6,253.44	0.9166	5,731.903
00196	22	8,006.05	0.9164	7,336.744
00195	22	7,999.40	0.9163	7,329.850
17170	16	5,458.45	0.9013	4,919.701
11349	19	6,431.26	0.9166	5,894.893
17171	17	5,624.96	0.9012	5,069.214
11352	16	5,566.21	0.9166	5,101.988
11206	11	3,798.35	0.9165	3,481.188
01709	11	3,768.64	0.9166	3,454.335
12197	17	5,873.50	0.9041	5,310.231
11947	25	8,640.98	0.9166	7,920.322
12198	15	5,211.04	0.9050	4,715.991
11353	16	5,283.05	0.9166	4,842.444
12199	16	5,675.56	0.9015	5,116.517
11948	25	8,679.80	0.9166	7,955.905
11107	18	5,994.44	0.9166	5,494.504
11105	18	6,333.57	0.9166	5,805.350
11106	18	6,517.51	0.9166	5,973.950
09509	18	6,079.85	0.9164	5,571.575
09538	14	4,912.82	0.9166	4,503.091
08415	14	4,966.00	0.9165	4,551.339
09537	15	5,330.09	0.9165	4,885.027
08416	12	4,020.75	0.9166	3,685.419
05164	20	6,985.00	0.9164	6,401.054
01150	20	6,648.33	0.9166	6,093.859
01148	21	7,446.70	0.9166	6,825.645
04405	21	7,253.35	0.9166	6,648.421
04399	20	6,891.10	0.9166	6,316.382
04396	19	6,700.55	0.9166	6,141.724
04395	21	7,387.40	0.9166	6,771.291
04394	21	7,464.25	0.9166	6,841.732
04401	22	7,638.55	0.9165	7,000.731
04264	20	6,503.95	0.9166	5,961.521
04397	20	6,898.90	0.9165	6,322.842

04400	22	7,599.99	0.9166	6,966.151
04263	19	6,480.70	0.9166	5,940.210
04262	20	6,809.63	0.9166	6,241.707
04393	21	7,519.67	0.9166	6,892.530
04392	15	5,095.12	0.9059	4,615.669
04391	16	5,505.00	0.9094	5,006.247
04261	20	6,890.08	0.9166	6,315.447
04260	21	7,198.76	0.9166	6,598.383
04259	20	6,905.46	0.9166	6,329.545
03334	10	3,194.23	0.9022	2,881.834
03912	20	6,643.63	0.9059	6,018.464
03915	22	7,045.35	0.9023	6,357.019
03911	16	5,303.28	0.9032	4,789.922
04979	17	5,956.84	0.9027	5,377.239
04993	20	6,706.03	0.9020	6,048.839
07800	14	4,905.42	0.9166	4,496.308
07796	20	6,858.69	0.9165	6,285.989
04756	8	2,459.16	0.9033	2,221.359
04768	17	5,762.25	0.9166	5,281.678
07801	12	4,260.10	0.9165	3,904.382
07797	19	6,468.15	0.9165	5,928.059
07795	19	6,600.53	0.9166	6,050.046
04669	20	6,959.35	0.9164	6,377.548
04851	13	4,204.97	0.9017	3,791.621
04668	20	6,892.90	0.9164	6,316.654
04828	21	6,918.98	0.9125	6,313.569
04670	21	7,195.93	0.9163	6,593.631
04829	16	5,364.48	0.9030	4,844.125
04830	16	5,222.50	0.9028	4,714.873
04596	13	4,480.95	0.9166	4,107.239
04595	13	4,464.05	0.9166	4,091.748
04715	21	7,066.95	0.9165	6,476.860
04714	21	7,065.60	0.9165	6,475.622
04561	22	7,537.55	0.9165	6,908.165
07994	22	7,264.86	0.9166	6,658.971
04562	22	7,503.95	0.9166	6,878.121
04481	14	4,597.67	0.9166	4,214.224
04672	21	7,107.75	0.9163	6,512.831
00120	21	7,443.28	0.9159	6,817.300
00119	22	7,852.68	0.9163	7,195.411
00088	22	7,684.83	0.9163	7,041.610
10866	23	8,292.32	0.9158	7,594.107
10865	13	4,450.04	0.9158	4,075.347
10864	14	5,001.02	0.9159	4,580.434

07070	8	2,395.83	0.9162	2,195.059
10757	9	3,226.12	0.9166	2,957.062
14128	20	6,935.07	0.9145	6,342.122
14127	22	7,714.77	0.9159	7,065.958
14126	22	7,649.80	0.9160	7,007.217
14125	22	7,658.00	0.9165	7,018.557
14124	22	7,759.32	0.9166	7,112.193
14123	22	7,624.50	0.9132	6,962.693
14122	22	7,807.82	0.9134	7,131.663
14121	22	7,724.12	0.9149	7,066.797
14120	22	7,963.42	0.9150	7,286.529
14119	22	7,819.30	0.9160	7,162.479
12476	15	5,120.97	0.9165	4,693.369
12475	15	5,121.66	0.9165	4,694.001
11709	15	5,056.07	0.9166	4,634.394
04217	15	4,900.75	0.9165	4,491.537
04216	15	5,091.36	0.9165	4,666.231
04168	20	7,084.10	0.9014	6,385.608
04169	20	7,166.45	0.9013	6,459.121
04170	20	6,948.88	0.9020	6,267.890
10081	17	6,005.35	0.9018	5,415.625
10079	23	8,174.98	0.9014	7,368.927
10080	20	7,106.28	0.9011	6,403.469
10078	23	8,143.07	0.9018	7,343.421
10076	22	7,727.80	0.9019	6,969.703
10077	23	7,959.88	0.9020	7,179.812
10075	22	7,731.26	0.9016	6,970.504
10074	22	7,597.12	0.9017	6,850.323
08426	12	4,165.00	0.9065	3,775.573
08102	12	4,353.16	0.9166	3,990.106
08126	12	4,355.93	0.9166	3,992.645
08425	13	4,407.22	0.9123	4,020.707
35651	19	6,846.45	0.9166	6,275.456
35652	19	6,904.24	0.9166	6,328.426
35538	16	5,749.40	0.9166	5,269.900
35162	21	7,586.13	0.9166	6,953.447
35537	16	5,848.70	0.9166	5,360.918
35536	18	6,293.13	0.9167	5,768.912
35093	13	4,596.34	0.9165	4,212.546
35094	12	4,309.93	0.9165	3,950.051
35161	21	7,678.38	0.9166	7,038.003
35106	11	3,703.67	0.9164	3,394.043
35105	12	4,318.06	0.9166	3,957.934
M 268	23	7,780.70	0.9128	7,102.223

M 267	23	8,005.81	0.9165	7,337.325
M 266	21	7,156.62	0.9166	6,559.758
M 265	22	7,561.70	0.9166	6,931.054
M 264	22	7,607.15	0.9166	6,972.714
M 262	22	7,705.60	0.9152	7,052.165
M 261	23	7,822.75	0.9165	7,169.550
28261	20	7,123.82	0.9152	6,519.720
27596	20	6,950.83	0.9166	6,371.131
M 263	21	7,314.51	0.9161	6,700.823
27594	22	7,611.01	0.9166	6,976.252
28251	20	7,159.38	0.9166	6,562.288
28260	23	7,528.55	0.9152	6,890.129
27593	22	7,601.77	0.9166	6,967.782
28250	20	7,079.13	0.9166	6,488.731
28259	18	6,280.70	0.9166	5,756.890
28253	20	7,036.73	0.9166	6,449.867
28252	21	7,433.53	0.9166	6,813.574
27595	20	6,884.58	0.9166	6,310.406
28249	21	7,374.49	0.9166	6,759.458
28258	20	7,188.06	0.9166	6,588.576
28255	20	7,209.47	0.9166	6,608.200
28257	20	7,259.05	0.9166	6,653.645
28256	20	7,235.11	0.9166	6,631.702
28254	20	7,252.77	0.9166	6,647.889
27466	21	7,614.73	0.9160	6,975.093
27465	21	7,747.00	0.9160	7,096.252
27260	16	5,695.61	0.9166	5,220.596
27635	21	7,094.30	0.9163	6,500.507
27633	20	7,381.05	0.9162	6,762.518
27261	11	3,847.35	0.9166	3,526.481
27630	21	7,745.00	0.9165	7,098.293
27632	20	7,504.58	0.9160	6,874.195
27634	20	7,341.66	0.9163	6,727.163
27252	14	4,729.32	0.9165	4,334.422
27251	15	5,118.70	0.9165	4,691.289
27249	17	5,865.73	0.9166	5,376.528
27263	19	6,845.52	0.9164	6,273.235
27259	17	6,092.77	0.9166	5,584.633
27258	18	6,622.10	0.9166	6,069.817
28287	22	7,636.13	0.9166	6,999.277
27636	21	7,898.03	0.9163	7,236.965
27637	19	6,817.35	0.9164	6,247.420
28302	21	8,054.63	0.9166	7,382.874
28248	21	7,460.92	0.9166	6,838.679

27597	20	6,934.30	0.9166	6,355.979
27598	20	6,888.38	0.9166	6,313.889
28466	20	6,969.92	0.9155	6,380.962
28469	19	6,431.58	0.9166	5,895.186
28468	19	6,656.68	0.9166	6,101.513
28467	20	6,913.95	0.9165	6,336.635
28277	21	7,256.78	0.9164	6,650.113
28290	22	7,573.60	0.9166	6,941.962
28274	22	7,566.10	0.9157	6,928.278
28275	22	7,501.40	0.9158	6,869.782
28305	19	7,191.05	0.9165	6,590.597
28307	21	7,473.02	0.9166	6,849.770
28288	22	7,538.37	0.9166	6,909.670
28303	21	7,969.53	0.9166	7,304.871
28304	21	8,011.25	0.9166	7,343.112
28309	20	6,978.30	0.9165	6,395.612
28289	22	7,603.51	0.9166	6,969.377
28306	18	6,579.92	0.9166	6,031.155
28301	21	7,965.23	0.9166	7,300.930
25469	19	6,669.75	0.9165	6,112.826
26953	20	6,714.80	0.9165	6,154.114
26207	20	6,896.05	0.9036	6,231.271
26210	20	7,035.37	0.9166	6,448.620
26211	21	6,930.02	0.9165	6,351.363
26209	18	5,925.89	0.9147	5,420.412
26842	20	7,459.23	0.9163	6,834.892
26840	20	7,399.20	0.9165	6,781.367
26839	20	7,344.20	0.9164	6,730.225
26287	20	6,654.82	0.9165	6,099.143
26286	23	7,655.27	0.9165	7,016.055
26285	23	7,669.71	0.9165	7,029.289
26284	23	7,723.11	0.9164	7,077.458
26283	22	7,354.40	0.9164	6,739.572
26282	23	7,747.77	0.9165	7,100.831
26279	23	7,815.88	0.9163	7,161.691
26280	22	7,494.27	0.9166	6,869.248
26281	22	7,484.36	0.9164	6,858.668
26276	21	7,718.60	0.9163	7,072.553
26277	20	7,402.40	0.9163	6,782.819
26278	21	7,484.60	0.9164	6,858.887
26226	22	7,603.37	0.9057	6,886.372
26225	13	4,520.00	0.9166	4,143.032
26223	22	7,430.01	0.9159	6,805.146
25737	18	6,580.83	0.9165	6,031.331

26221	22	7,899.22	0.9166	7,240.425
26222	22	7,714.90	0.9167	7,072.249
25734	20	7,158.53	0.9161	6,557.929
25735	18	6,193.96	0.9164	5,676.145
25736	20	7,358.50	0.9166	6,744.801
25731	20	7,097.94	0.9163	6,503.842
25732	20	7,090.92	0.9161	6,495.992
25733	20	7,096.93	0.9165	6,504.336
25727	19	7,009.65	0.9161	6,421.540
25728	19	6,925.92	0.9164	6,346.913
25730	20	7,187.92	0.9158	6,582.697
25724	20	7,274.84	0.9112	6,628.834
25725	20	7,365.55	0.9154	6,742.424
25726	19	7,014.17	0.9154	6,420.771
27266	17	5,876.48	0.9156	5,380.505
25679	12	4,247.80	0.9165	3,893.109
25680	12	4,262.46	0.9166	3,906.971
27591	22	7,585.48	0.9165	6,952.092
27265	18	6,381.25	0.9165	5,848.416
27264	18	6,302.80	0.9165	5,776.516
27248	18	6,649.73	0.9165	6,094.478
28247	20	7,190.90	0.9165	6,590.460
27592	20	6,833.00	0.9166	6,263.128
27246	19	7,123.67	0.9165	6,528.844
27245	19	7,096.95	0.9164	6,503.645
27250	17	6,001.30	0.9164	5,499.591
04299	20	6,553.92	0.9166	6,007.323
04294	18	6,022.15	0.9166	5,519.903
04301	20	6,416.55	0.9166	5,881.410
04281	19	6,263.85	0.9166	5,741.445
13824	21	7,043.12	0.9160	6,451.498
00275	18	6,168.15	0.9109	5,618.568
00277	19	6,532.52	0.9109	5,950.472
00190	20	6,941.82	0.9149	6,351.071
00298	20	6,915.09	0.9127	6,311.403
26993	16	5,210.57	0.9166	4,776.008
00299	18	6,177.30	0.9106	5,625.049
00287	18	6,208.65	0.9115	5,659.184
25674	18	6,475.48	0.9164	5,934.130
25649	14	4,599.47	0.9156	4,211.275
26992	17	6,118.04	0.9166	5,607.795
26843	18	6,657.33	0.9165	6,101.443
26952	20	7,119.40	0.9159	6,520.658
26860	20	6,788.55	0.9166	6,222.385

25673	20	7,516.40	0.9165	6,888.781
25672	20	7,426.80	0.9165	6,806.662
25671	20	6,905.63	0.9166	6,329.700
25670	21	7,405.44	0.9165	6,787.086
25669	21	7,309.58	0.9165	6,699.230
25668	21	7,474.92	0.9166	6,851.512
25667	22	7,778.18	0.9166	7,129.480
25666	20	6,910.72	0.9165	6,333.675
25665	22	7,685.52	0.9166	7,044.548
25664	21	7,395.64	0.9165	6,778.104
25663	21	7,397.47	0.9165	6,779.781
25662	20	7,162.83	0.9165	6,564.734
25661	17	5,709.53	0.9157	5,228.217
25660	19	6,449.09	0.9165	5,910.591
25659	22	7,565.39	0.9166	6,934.436
25658	20	6,715.16	0.9165	6,154.444
25657	22	7,589.62	0.9165	6,955.887
25656	19	6,813.65	0.9164	6,244.029
25655	21	7,194.58	0.9165	6,593.833
25654	22	7,607.13	0.9166	6,972.695
25653	21	7,273.55	0.9163	6,664.754
25652	21	7,321.27	0.9165	6,709.944
25651	22	7,569.20	0.9163	6,935.658
25650	14	4,474.17	0.9058	4,052.703
28807	19	6,438.93	0.8998	5,793.749
28802	21	7,218.25	0.8999	6,495.703
28801	20	6,925.95	0.8998	6,231.970
28780	19	6,595.70	0.8994	5,932.173
28779	16	5,623.55	0.8994	5,057.821
28778	16	5,654.80	0.8993	5,085.362
28557	20	6,994.20	0.8995	6,291.283
28552	20	6,660.75	0.8998	5,993.343
28441	20	6,938.79	0.8994	6,240.748
28440	22	7,784.00	0.8994	7,000.930
28439	23	8,096.34	0.8994	7,281.848
28438	21	7,433.19	0.8995	6,686.154
28385	22	7,518.49	0.8997	6,764.385
28384	22	7,505.66	0.8999	6,754.343
28382	23	7,866.43	0.8999	7,079.000
28380	23	8,134.65	0.8998	7,319.558
27285	13	4,399.45	0.8993	3,956.425
27025	13	4,358.42	0.9003	3,923.886
28378	23	7,994.85	0.8999	7,194.566
26478	11	3,956.00	0.8994	3,558.026

26753	12	4,160.23	0.9002	3,745.039
28375	23	7,978.59	0.8998	7,179.135
28377	22	7,657.15	0.8998	6,889.904
28376	22	7,355.68	0.8998	6,618.641
28372	22	7,660.50	0.8998	6,892.918
28374	23	8,108.95	0.8998	7,296.433
28373	23	8,015.10	0.8998	7,211.987
28371	20	6,786.92	0.8998	6,106.871
28369	23	8,211.49	0.8998	7,388.699
28370	23	8,147.83	0.8999	7,332.232
14259	14	5,057.97	0.9166	4,636.135
14369	21	7,715.88	0.9011	6,952.779
14356	18	6,271.85	0.9165	5,748.151
14244	18	6,616.05	0.9166	6,064.271
14245	15	5,379.42	0.9166	4,930.776
14258	17	6,134.71	0.9166	5,623.075
14243	18	6,655.19	0.9166	6,100.147
14242	18	6,597.48	0.9165	6,046.590
29103	22	7,512.70	0.8997	6,759.176
29102	20	7,020.06	0.8997	6,315.948
29101	22	7,750.85	0.8997	6,973.440
29100	22	7,826.65	0.8998	7,042.420
29099	22	7,901.30	0.8999	7,110.380
29098	22	8,038.10	0.8999	7,233.486
29097	22	7,744.50	0.8998	6,968.501
28966	21	7,585.83	0.8998	6,825.730
28965	20	7,332.96	0.8998	6,598.197
28964	20	7,340.52	0.8998	6,605.000
28963	18	6,596.87	0.8998	5,935.864
28962	22	8,086.76	0.8999	7,277.275
28961	20	7,280.09	0.8997	6,549.897
28958	22	7,928.62	0.8997	7,133.379
28959	18	6,545.16	0.8997	5,888.680
28960	20	7,280.16	0.8998	6,550.688
28957	20	7,237.23	0.8998	6,512.060
28956	20	7,261.64	0.8999	6,534.750
28948	21	7,624.20	0.8998	6,860.255
28947	21	7,681.22	0.8998	6,911.562
28946	22	8,023.31	0.8998	7,219.374
28945	22	8,007.86	0.8998	7,205.472
28944	21	7,710.66	0.8997	6,937.281
28943	22	8,015.97	0.8997	7,211.968
28917	19	6,563.45	0.8996	5,904.480
28908	16	5,758.77	0.8996	5,180.589

14041	17	6,137.93	0.9166	5,626.027
14040	20	7,162.15	0.9165	6,564.110
14039	20	7,251.99	0.9165	6,646.449
14038	19	6,891.84	0.9164	6,315.682
14037	21	7,561.96	0.9164	6,929.780
14036	18	6,427.25	0.9164	5,889.932
14035	19	6,815.88	0.9164	6,246.072
14034	21	7,593.17	0.9165	6,959.140
14033	21	7,502.53	0.9164	6,875.318
13891	15	5,330.16	0.9162	4,883.493
13890	18	6,519.50	0.9163	5,973.818
13889	19	6,790.59	0.9164	6,222.897
13888	20	7,178.00	0.9164	6,577.919
13887	14	4,864.68	0.9058	4,406.427
13886	14	5,132.03	0.9057	4,648.080
13576	18	6,259.42	0.9156	5,731.125
13575	18	6,546.69	0.9166	6,000.696
13574	18	6,505.85	0.9163	5,961.310
12996	16	5,718.18	0.9161	5,238.425
12988	18	6,447.22	0.9023	5,817.327
13567	21	7,451.55	0.9166	6,830.091
13566	22	8,028.38	0.9161	7,354.799
13565	22	8,022.37	0.9166	7,353.304
13557	18	6,449.38	0.9154	5,903.762
13556	19	6,966.49	0.9148	6,372.945
13043	18	6,207.56	0.9127	5,665.640
12908	17	6,145.42	0.9166	5,632.892
13041	19	6,813.05	0.9166	6,244.842
13042	19	6,614.89	0.9166	6,063.208
11473	19	6,606.33	0.9164	6,054.041
11474	19	6,296.74	0.9163	5,769.703
12061	20	7,118.95	0.9166	6,525.230
11233	17	5,754.42	0.9155	5,268.172
11234	16	5,481.17	0.9125	5,001.568
11472	19	6,676.88	0.9165	6,119.361
11141	21	7,506.23	0.9165	6,879.460
11142	20	6,994.37	0.9165	6,410.340
11143	20	6,732.09	0.9165	6,169.960
11140	22	7,748.88	0.9166	7,102.623
11139	22	7,812.19	0.9165	7,159.872
11093	23	7,977.64	0.9165	7,311.507
11137	22	7,865.90	0.9165	7,209.097
11138	22	7,847.35	0.9165	7,192.096
14241	21	7,508.13	0.9165	6,881.201

14232	22	7,617.38	0.9033	6,880.779
14221	22	7,639.97	0.9165	7,002.033
14220	20	7,149.47	0.9164	6,551.774
14219	20	7,073.07	0.9166	6,483.176
14218	20	7,039.56	0.9166	6,452.461
14217	20	7,145.09	0.9164	6,547.760
14216	20	6,805.37	0.9147	6,224.872
14215	22	7,857.35	0.9145	7,185.547
14214	21	7,106.35	0.9118	6,479.570
14183	17	5,830.99	0.9163	5,342.936
14182	20	7,286.03	0.9163	6,676.189
14181	22	7,981.30	0.9164	7,314.063
14167	19	7,051.93	0.9163	6,461.683
14166	22	8,152.99	0.9165	7,472.215
14165	21	7,810.65	0.9165	7,158.461
14164	20	7,369.75	0.9156	6,747.743
14163	23	7,706.85	0.9166	7,064.099
14137	16	5,679.63	0.9162	5,203.677
14136	22	8,016.94	0.9163	7,345.922
14135	21	7,681.00	0.9163	7,038.100
14134	20	7,323.93	0.9166	6,713.114
14133	20	7,328.98	0.9163	6,715.544
14099	14	4,513.13	0.9166	4,136.735
14098	13	4,486.40	0.9166	4,112.234
14083	19	6,725.24	0.9171	6,167.718
14082	20	7,205.64	0.9166	6,604.690
25648	19	6,576.19	0.9165	6,027.078
14060	16	5,888.47	0.9166	5,397.372
14061	14	4,937.70	0.9166	4,525.896
35098	19	6,684.08	0.9107	6,087.192
35097	19	6,781.42	0.9075	6,154.139
35096	19	6,769.78	0.9116	6,171.331
35095	19	6,774.62	0.9109	6,171.001
35086	16	5,523.22	0.9056	5,001.828
35085	16	5,609.11	0.9023	5,061.100
00398	18	6,060.99	0.9125	5,530.653
00380	19	6,563.15	0.9165	6,015.127
00379	22	7,861.55	0.9119	7,168.947
00378	22	7,609.41	0.9166	6,974.785
00377	22	7,554.81	0.9120	6,889.987
00376	22	7,595.40	0.9087	6,901.940
29416	13	4,582.93	0.9106	4,173.216
25678	14	4,937.61	0.9164	4,524.826
32512	18	6,521.90	0.9165	5,977.321

32513	18	6,228.00	0.9155	5,701.734
30966	19	6,504.73	0.9010	5,860.762
32511	20	7,332.32	0.9167	6,721.538
32509	23	8,506.62	0.9165	7,796.317
32510	22	8,104.90	0.9166	7,428.951
30819	23	8,107.30	0.9166	7,431.151
30609	20	7,194.15	0.9163	6,592.000
30591	21	7,633.58	0.9159	6,991.596
29884	23	8,177.85	0.9165	7,495.000
29475	20	7,014.60	0.9156	6,422.568
29298	16	5,435.58	0.9010	4,897.458
29472	18	6,071.67	0.9035	5,485.754
29471	20	7,103.18	0.9021	6,407.779
29470	19	6,665.07	0.9165	6,108.537
29469	21	7,651.25	0.9166	7,013.136
29418	16	5,711.33	0.9159	5,231.007
29419	14	4,699.85	0.9160	4,305.063
29413	21	7,308.25	0.9030	6,599.350
29414	19	6,788.15	0.9014	6,118.838
29415	17	5,851.47	0.9013	5,273.930
29412	19	6,755.51	0.9166	6,192.100
28278	16	5,488.38	0.9163	5,029.003
29387	20	6,918.88	0.9010	6,233.911
28439	17	5,678.24	0.9166	5,204.675
28279	14	4,623.95	0.9163	4,236.925
28308	20	7,084.46	0.9166	6,493.616
11134	21	7,176.75	0.9166	6,578.209
28438	21	7,454.05	0.9165	6,831.637
11092	22	7,726.41	0.9166	7,082.027
28273	22	7,605.81	0.9164	6,969.964
28437	21	7,501.20	0.9166	6,875.600
30562	13	4,481.50	0.9166	4,107.743
28291	24	7,967.33	0.9166	7,302.855
11099	17	6,020.03	0.9167	5,518.562
11098	19	6,641.35	0.9166	6,087.461
10125	12	4,035.00	0.9089	3,667.412
10099	16	5,560.45	0.9167	5,097.265
10098	19	6,875.40	0.9165	6,301.304
10097	14	4,987.99	0.9166	4,571.992
10083	15	4,908.25	0.9010	4,422.333
10082	16	5,730.23	0.9015	5,165.802
28499	13	4,527.50	0.8995	4,072.486
27826	12	4,022.42	0.8993	3,617.362
27661	13	4,405.41	0.8994	3,962.226

29323	18	6,373.50	0.8997	5,734.238
29322	19	6,677.29	0.8998	6,008.226
29321	18	6,313.52	0.8997	5,680.274
29320	19	6,760.54	0.8998	6,083.134
29319	20	7,111.10	0.8999	6,399.279
29318	20	7,083.10	0.8998	6,373.373
29312	15	5,396.22	0.8993	4,852.821
29172	16	5,553.10	0.8996	4,995.569
29171	17	6,145.87	0.8994	5,527.595
29162	17	6,142.31	0.8997	5,526.236
29163	17	6,201.07	0.8997	5,579.103
29164	17	6,228.44	0.8997	5,603.727
29116	15	5,432.31	0.8993	4,885.276
29117	15	5,201.03	0.8993	4,677.286
29120	14	4,943.12	0.8998	4,447.819
31747	23	8,158.50	0.8994	7,337.755
31749	22	7,479.10	0.8994	6,726.703
31748	19	6,569.07	0.8993	5,907.565
31744	21	7,455.93	0.8994	6,705.863
31745	22	7,753.05	0.8994	6,973.093
31746	22	7,782.17	0.8994	6,999.284
31741	22	7,860.67	0.8994	7,069.887
31743	21	7,455.42	0.8995	6,706.150
31742	21	7,378.89	0.8994	6,636.574
31738	22	7,946.75	0.8993	7,146.512
31739	22	7,655.00	0.8995	6,885.673
31740	22	7,867.04	0.8994	7,075.616
31737	22	8,110.58	0.8994	7,294.656
31719	19	6,393.90	0.8995	5,751.313
31736	22	8,052.86	0.8992	7,241.132
31718	20	7,095.79	0.8995	6,382.663
31716	22	7,679.64	0.8995	6,907.836
31717	22	7,684.43	0.8996	6,912.913
00121	21	7,368.10	0.9163	6,751.390
00267	21	7,129.21	0.9001	6,417.002
07754	16	5,565.64	0.9166	5,101.466
07992	21	7,109.81	0.9167	6,517.563
07993	21	7,302.83	0.9166	6,693.774
30524	12	4,295.65	0.8995	3,863.937
29865	13	4,398.83	0.8991	3,954.988
29901	14	4,784.97	0.8995	4,304.081
30523	14	4,693.37	0.8996	4,222.156
30521	14	4,679.85	0.8999	4,211.397
30520	15	5,149.31	0.8998	4,633.349

30298	15	5,047.93	0.8994	4,540.108
30297	14	4,786.08	0.8994	4,304.600
30289	18	6,237.00	0.8996	5,610.805
00081	20	7,084.10	0.8997	6,373.565
05355	13	4,564.10	0.9166	4,183.454
14059	16	5,687.60	0.9166	5,213.254
00235	23	8,096.88	0.9165	7,420.791
28906	17	6,082.05	0.8997	5,472.020
25467	19	6,855.45	0.9165	6,283.020
30723	20	6,595.21	0.8997	5,933.710
30759	24	8,484.36	0.8993	7,629.985
30771	22	7,827.39	0.8997	7,042.303
30772	22	7,782.74	0.8998	7,002.909
30773	23	8,110.02	0.8998	7,297.396
30774	23	8,104.67	0.8998	7,292.582
30804	23	7,769.47	0.8998	6,990.969
29539	11	3,962.12	0.8991	3,562.342
30775	17	5,779.83	0.8998	5,200.691
30821	21	7,718.30	0.8995	6,942.611
30820	20	7,398.45	0.8994	6,654.166
30819	20	7,389.40	0.8992	6,644.548
30822	21	7,624.82	0.8994	6,857.763
30823	21	7,732.52	0.8998	6,957.721
30824	20	7,218.34	0.8995	6,492.897
30825	20	7,340.32	0.8995	6,602.618
30826	20	7,347.44	0.8995	6,609.022
30827	20	7,310.60	0.8994	6,575.154
30828	21	7,652.28	0.9002	6,888.582
05163	22	7,805.43	0.9165	7,153.677
31645	22	7,461.73	0.8993	6,710.334
31390	15	5,186.38	0.8996	4,665.667
31389	13	4,639.37	0.8997	4,174.041
31646	22	7,626.24	0.8993	6,858.278
31682	17	6,101.14	0.8997	5,489.196
31714	23	8,131.11	0.8995	7,313.933
11041	22	7,860.62	0.9160	7,200.328
26841	19	6,871.30	0.9165	6,297.546
31242	19	6,432.96	0.8997	5,787.734
25468	19	6,859.91	0.9165	6,287.108
11042	22	7,954.72	0.9164	7,289.705
07950	21	6,931.88	0.8994	6,234.533
26838	20	7,420.70	0.9165	6,801.072
28292	22	7,624.82	0.9166	6,988.910
00237	20	6,712.74	0.8998	6,040.123

01349	17	5,759.69	0.8994	5,180.265
00154	24	7,980.65	0.8999	7,181.787
F1930	23	8,113.78	0.8999	7,301.591
F1929	23	7,906.93	0.8998	7,114.656
F1928	19	6,677.85	0.8998	6,008.729
F1927	22	7,930.55	0.8998	7,135.909
F1926	23	8,328.20	0.8998	7,493.714
F1925	24	8,627.37	0.8998	7,762.908
F1924	23	8,343.91	0.8997	7,507.016
F1923	23	8,411.90	0.8998	7,569.028
F1922	17	5,937.49	0.8998	5,342.554
F1921	23	8,416.53	0.8998	7,573.194
F1920	23	8,338.19	0.8999	7,503.537
F1918	23	8,454.30	0.8997	7,606.334
F1919	24	8,795.80	0.8998	7,914.461
F1917	23	8,376.35	0.8997	7,536.202
F1915	23	8,277.79	0.8998	7,448.355
F1916	19	6,851.33	0.8998	6,164.827
F1913	23	8,359.60	0.8998	7,521.968
F1911	23	8,265.32	0.8998	7,437.135
F1912	23	8,219.93	0.8997	7,395.471
F1910	20	7,161.09	0.8998	6,443.549
F1909	23	8,329.86	0.8998	7,495.208
F1908	23	8,288.62	0.8997	7,457.271
31239	22	7,685.28	0.8997	6,914.446
31240	19	6,642.23	0.8998	5,976.679
31241	17	5,773.35	0.8996	5,193.706
F1907	22	7,944.76	0.8998	7,148.695
F1906	23	8,275.95	0.8998	7,446.700
F1905	23	8,317.23	0.8998	7,483.844
02524	20	6,516.76	0.8996	5,862.477
00085	23	7,926.72	0.8998	7,132.463
31238	23	7,703.72	0.8998	6,931.807
31237	23	8,310.66	0.9000	7,479.594
31236	23	8,162.80	0.9001	7,347.336
31235	22	7,596.69	0.8998	6,835.502
31234	21	7,089.82	0.8998	6,379.420
31233	23	8,014.78	0.9000	7,213.302
31232	23	8,081.02	0.8999	7,272.110
31231	23	8,049.84	0.8998	7,243.246
31109	18	5,917.04	0.8995	5,322.377
31107	23	7,989.14	0.8999	7,189.427
30315	13	4,403.38	0.8992	3,959.519
30291	13	4,312.92	0.8994	3,879.040

30252	15	4,957.38	0.9001	4,462.138
31378	14	4,964.49	0.8995	4,465.559
31377	12	4,311.85	0.8993	3,877.647
31346	13	4,406.14	0.8994	3,962.882
31345	13	4,446.90	0.8993	3,999.097
31255	13	4,424.29	0.8993	3,978.764
31254	13	4,464.84	0.8995	4,016.124
31064	22	7,538.89	0.8995	6,781.232
31026	21	6,960.81	0.8992	6,259.160
31025	19	6,698.20	0.8995	6,025.031
31024	22	7,722.92	0.8993	6,945.222
31023	21	7,370.84	0.8993	6,628.596
31018	13	4,592.02	0.8998	4,131.900
31017	13	4,569.95	0.8998	4,112.041
30899	22	7,467.52	0.8994	6,716.287
31010	20	6,636.58	0.8994	5,968.940
30907	13	4,299.50	0.9000	3,869.550
30906	14	4,804.47	0.9002	4,324.984
30905	19	6,693.74	0.9003	6,026.374
30833	18	6,337.97	0.9009	5,709.877
30832	20	7,333.99	0.8994	6,596.191
30831	20	7,344.45	0.8996	6,607.067
30830	20	7,373.13	0.8995	6,632.130
30829	21	7,665.85	0.8995	6,895.432
F1868	23	7,719.30	0.8999	6,946.598
F1869	23	8,228.06	0.8997	7,402.786
F1865	23	8,144.80	0.8998	7,328.691
F1866	23	8,096.88	0.8998	7,285.573
F1862	23	8,004.10	0.8998	7,202.089
F1864	23	8,162.34	0.8998	7,344.474
F1863	22	8,007.84	0.8997	7,204.654
F1859	23	8,292.28	0.8999	7,462.223
F1860	23	8,182.65	0.8999	7,363.567
F1861	21	7,576.37	0.8998	6,817.218
F1854	23	8,103.08	0.8998	7,291.151
F1857	23	8,119.88	0.8998	7,306.268
F1858	23	8,163.55	0.9000	7,347.195
F1853	23	8,338.17	0.9000	7,504.353
F1851	23	8,282.09	0.8998	7,452.225
F1852	23	8,176.15	0.8999	7,357.717
F1848	23	8,190.53	0.8999	7,370.658
F1847	23	8,293.03	0.8998	7,462.068
F1846	23	8,152.92	0.8998	7,335.997
30275	17	5,946.74	0.8993	5,347.903

30274	16	5,663.29	0.8995	5,094.129
00124	21	7,560.75	0.8998	6,803.163
30249	23	7,600.81	0.8992	6,834.648
27247	19	7,151.83	0.9166	6,555.367
30248	20	6,985.92	0.8992	6,281.739
11708	20	7,106.23	0.9164	6,512.149
29152	12	4,124.87	0.8993	3,709.496
29524	13	4,383.57	0.8994	3,942.583
30147	15	4,970.37	0.8998	4,472.339
30107	15	5,018.70	0.8991	4,512.313
30146	15	5,097.53	0.8996	4,585.738
30100	22	7,550.00	0.8995	6,791.225
00089	22	7,557.50	0.8998	6,800.239
30106	12	4,223.38	0.8991	3,797.241
29856	16	5,312.09	0.8993	4,777.163
29855	16	5,678.10	0.8999	5,109.722
29854	16	5,638.11	0.8994	5,070.916
29623	18	6,390.10	0.8999	5,750.451
29622	16	5,735.00	0.8999	5,160.927
29621	16	5,718.73	0.8999	5,146.285
29568	16	5,804.00	0.8993	5,219.537
29567	17	6,157.62	0.8994	5,538.163
29566	17	6,143.05	0.8994	5,525.059
29553	13	4,661.01	0.8996	4,193.045
29552	13	4,649.60	0.8996	4,182.780
29526	20	6,703.93	0.8998	6,032.196
29525	19	6,707.75	0.8998	6,035.633
29519	18	6,445.02	0.8993	5,796.006
29520	18	6,216.50	0.8993	5,590.498
29515	17	5,874.00	0.8993	5,282.488
28937	13	4,362.93	0.8993	3,923.583
28800	12	3,916.55	0.8997	3,523.720
30193	18	6,194.38	0.8997	5,573.084
30192	19	6,738.72	0.8994	6,060.805
30191	20	7,136.67	0.8994	6,418.721
09259	22	7,264.74	0.8996	6,535.360
00280	21	6,883.40	0.9001	6,195.748
00277	21	7,244.07	0.9001	6,520.387
28907	17	6,006.84	0.8995	5,403.153
F1843	23	8,204.39	0.8998	7,382.310
F1844	21	7,140.26	0.8999	6,425.520
F1845	23	8,204.75	0.8999	7,383.455
37313	20	6,569.25	0.8995	5,909.040
F1850	21	7,226.38	0.8999	6,503.019

F1849	23	8,247.95	0.8998	7,421.505
11526	22	7,833.13	0.9166	7,179.847
11527	22	7,894.35	0.9165	7,235.172
11528	22	8,044.57	0.9166	7,373.653
11552	23	7,938.88	0.9162	7,273.602
11553	23	8,369.19	0.9165	7,670.363
11554	22	8,082.19	0.9166	7,408.135
00226	19	6,302.58	0.8997	5,670.431
08205	17	5,787.10	0.9166	5,304.456
08203	17	5,987.10	0.9166	5,487.776
00066	18	5,954.85	0.8996	5,356.983
07790	18	6,064.73	0.9166	5,558.932
07988	18	6,249.78	0.9166	5,728.548
07987	21	7,364.23	0.9166	6,750.053
11555	22	7,678.26	0.9166	7,037.893
11556	24	8,360.61	0.9166	7,663.335
11557	23	8,025.80	0.9166	7,356.448
11575	16	5,661.09	0.9165	5,188.389
11558	22	7,492.50	0.9166	6,867.626
11559	23	7,914.45	0.9166	7,254.385
11707	20	7,115.72	0.9166	6,522.269
07967	23	7,989.00	0.9166	7,322.717
07789	18	6,077.72	0.9166	5,570.838
07803	14	4,697.91	0.9166	4,306.104
04942	22	7,452.61	0.9147	6,816.902
07755	14	4,683.00	0.9166	4,292.438
08154	19	6,766.64	0.9163	6,200.272
08153	21	7,385.29	0.9165	6,768.618
11591	21	7,538.25	0.9166	6,909.560
11592	20	6,902.14	0.9164	6,325.121
11593	20	6,921.25	0.9165	6,343.326
11594	20	7,243.82	0.9165	6,638.961
11595	21	7,144.25	0.9166	6,548.420
05174	14	4,504.54	0.9166	4,128.861
11700	21	7,397.39	0.9163	6,778.228
11701	21	7,328.27	0.9164	6,715.627
11702	21	7,308.90	0.9164	6,697.876
11703	21	7,306.74	0.9163	6,695.166
11704	20	6,786.22	0.9163	6,218.213
F1899	23	8,453.91	0.8998	7,606.828
F1897	23	8,192.76	0.8999	7,372.665
F1898	20	7,261.49	0.8998	6,533.889
F1896	23	8,409.25	0.9001	7,569.166
F1893	22	8,049.02	0.8997	7,241.703

F1888	21	7,504.12	0.8996	6,750.706
F1889	23	8,359.66	0.8997	7,521.186
F1890	22	7,966.75	0.8997	7,167.685
F1891	23	8,479.89	0.8997	7,629.357
F1892	22	7,914.35	0.8997	7,120.541
F1894	22	8,118.55	0.8997	7,304.259
F1895	23	8,274.37	0.8998	7,445.278
F1887	22	8,077.72	0.8996	7,266.717
F1885	22	7,973.67	0.8999	7,175.506
F1886	22	7,697.00	0.8998	6,925.761
F1884	23	8,071.05	0.8999	7,263.138
F1882	23	8,065.02	0.8997	7,256.098
F1883	23	8,260.22	0.8998	7,432.546
F1881	23	8,236.78	0.8998	7,411.455
F1879	22	8,016.76	0.8998	7,213.481
F1880	20	7,041.75	0.8998	6,336.167
F1878	24	8,610.68	0.8998	7,747.890
F1876	23	8,293.32	0.8997	7,461.500
F1877	23	8,365.07	0.8997	7,526.053
F1875	22	7,977.95	0.8998	7,178.559
F1874	24	8,115.57	0.8998	7,302.390
F1873	24	8,446.22	0.9000	7,601.598
F1871	23	7,947.71	0.8999	7,152.144
F1872	22	7,619.76	0.8999	6,857.022
F1870	23	7,935.70	0.8999	7,141.336
04584	15	5,072.43	0.9015	4,572.796
07780	12	4,120.45	0.9166	3,776.804
07991	21	7,238.92	0.9164	6,633.746
07787	18	6,338.28	0.9165	5,809.034
07781	11	3,788.95	0.9165	3,472.573
08170	23	7,970.38	0.9164	7,304.056
F1993	23	8,171.68	0.8997	7,352.060
F1992	23	8,137.25	0.8998	7,321.898
F1991	21	7,479.04	0.8998	6,729.640
F1990	22	7,868.70	0.8999	7,081.043
F1989	23	8,163.13	0.8999	7,346.001
F1988	23	8,285.35	0.8999	7,455.986
F1987	23	8,288.19	0.8999	7,458.542
F1986	23	8,260.09	0.8998	7,432.429
F1985	18	6,363.99	0.8998	5,726.318
F1984	23	8,268.41	0.8998	7,439.915
F1983	23	8,265.63	0.8998	7,437.414
F1982	23	8,452.37	0.8999	7,606.288
F1981	23	8,473.16	0.8998	7,624.149

F1980	23	8,502.80	0.8998	7,650.819
F1979	20	7,162.20	0.8998	6,444.548
F1978	23	8,338.05	0.8998	7,502.577
F1977	23	8,301.22	0.8997	7,468.608
F1976	22	7,964.15	0.8998	7,166.142
08172	21	7,371.53	0.9165	6,756.007
F1975	23	8,361.95	0.8998	7,524.083
F1974	23	8,199.66	0.8997	7,377.234
F1971	23	8,346.14	0.8998	7,509.857
F1972	23	8,360.68	0.8998	7,522.940
F1973	17	6,026.47	0.8998	5,422.618
F1970	23	8,459.73	0.8998	7,612.065
F1969	24	8,809.13	0.8998	7,926.455
F1968	23	8,327.66	0.8997	7,492.396
F1967	16	5,632.52	0.8997	5,067.578
F1842	23	8,272.40	0.8999	7,444.333
08171	22	7,640.48	0.9165	7,002.500
F1841	23	8,160.22	0.9000	7,344.198
F1840	23	8,326.73	0.8998	7,492.392
F1839	23	8,217.22	0.8998	7,393.855
F1838	22	7,599.18	0.8999	6,838.502
F1837	23	8,163.38	0.8999	7,346.226
F1836	23	8,288.80	0.9000	7,459.920
F1835	23	8,114.00	0.9000	7,302.600
F1834	23	8,012.69	0.9000	7,211.421
02431	17	5,887.91	0.8997	5,297.353
00069	18	6,155.74	0.8996	5,537.704
28286	23	7,849.23	0.9167	7,195.389
05354	13	4,609.80	0.9166	4,225.343
03696	19	6,187.20	0.8996	5,566.005
F1831	22	7,798.88	0.8999	7,018.212
F1832	20	6,755.60	0.8999	6,079.364
F1833	23	8,124.30	0.8999	7,311.058
02525	18	6,150.96	0.8997	5,534.019
00044	18	6,171.39	0.8996	5,551.782
F1829	21	7,042.80	0.9000	6,338.520
F1830	23	8,259.50	0.8999	7,432.724
F1828	23	8,250.38	0.8999	7,424.517
31935	23	8,285.42	0.8994	7,451.907
31933	23	8,234.89	0.8994	7,406.460
31934	21	7,580.09	0.8993	6,816.775
31932	23	8,143.67	0.8995	7,325.231
31875	19	6,602.98	0.8998	5,941.361
31876	19	6,396.32	0.8998	5,755.409

31872	22	7,546.89	0.8994	6,787.673
31873	23	8,093.56	0.8998	7,282.585
31874	22	7,802.79	0.8998	7,020.950
31864	20	6,976.60	0.8994	6,274.754
31862	21	7,362.07	0.8993	6,620.710
31863	17	6,017.06	0.8994	5,411.744
31835	20	7,266.87	0.8995	6,536.550
31834	20	7,247.35	0.8995	6,518.991
31833	20	7,312.73	0.8994	6,577.069
31832	21	7,387.36	0.8993	6,643.453
31831	21	7,580.82	0.8994	6,818.190
F1904	19	6,791.40	0.8997	6,110.223
F1903	23	8,432.94	0.8997	7,587.116
F1902	22	7,992.05	0.8998	7,191.247
F1901	23	8,343.54	0.8998	7,507.517
F1900	23	8,296.10	0.8998	7,464.831
30892	13	4,464.36	0.8996	4,016.138
F2009	23	7,666.61	0.8999	6,899.182
F2026	23	8,070.09	0.9000	7,263.081
F2025	23	8,356.18	0.8999	7,519.726
F2018	23	8,306.79	0.9000	7,476.111
F2019	23	8,255.66	0.9000	7,430.094
F2020	23	8,429.77	0.8999	7,585.950
F2021	19	6,840.67	0.8998	6,155.235
F2022	23	8,225.05	0.9000	7,402.545
F2024	23	8,256.05	0.9000	7,430.445
F2017	23	8,222.80	0.8998	7,398.875
F2016	23	8,270.40	0.8999	7,442.533
F2015	18	6,607.14	0.8999	5,945.765
F2014	23	8,281.10	0.8999	7,452.162
14574	13	4,427.88	0.9166	4,058.595
F1946	21	7,198.25	0.8998	6,476.985
F2011	23	8,358.18	0.9000	7,522.362
F2012	23	8,397.33	0.8999	7,556.757
F2013	23	8,383.32	0.8999	7,544.150
14573	13	4,427.52	0.9166	4,058.265
14169	19	6,803.07	0.9164	6,234.333
14170	18	6,025.41	0.9165	5,522.288
14107	19	6,710.79	0.9165	6,150.439
14061	19	6,806.01	0.9165	6,237.708
14062	16	5,438.90	0.9166	4,985.296
14058	22	8,025.03	0.9166	7,355.742
14059	21	7,580.30	0.9165	6,947.345
14060	19	6,859.54	0.9165	6,286.768

14057	22	7,910.85	0.9166	7,251.085
14055	22	8,070.30	0.9164	7,395.623
14056	21	7,641.34	0.9165	7,003.288
14054	23	8,433.06	0.9166	7,729.743
14053	23	8,374.03	0.9164	7,673.961
14052	23	8,388.70	0.9166	7,689.082
F2008	23	8,237.18	0.8998	7,411.815
F2007	23	8,097.50	0.8999	7,286.940
F2006	23	8,154.17	0.8998	7,337.122
F2005	23	8,084.59	0.8998	7,274.514
F2004	23	8,079.37	0.8998	7,269.817
F2003	21	7,295.72	0.8999	6,565.418
F2002	23	8,146.50	0.8999	7,331.035
F2000	23	8,226.00	0.8999	7,402.577
F1999	23	8,185.64	0.8998	7,365.439
F1998	23	8,150.29	0.8998	7,333.631
F1997	21	7,397.97	0.8998	6,656.693
F1996	23	8,140.47	0.8998	7,324.795
F1995	23	8,291.27	0.8998	7,460.485
F1994	23	8,192.06	0.8998	7,371.216
F1966	20	7,189.09	0.8997	6,468.024
F1964	17	6,155.79	0.8999	5,539.595
F1963	23	8,479.19	0.8997	7,628.727
F1962	23	8,393.11	0.8998	7,552.120
F1961	22	8,068.07	0.8998	7,259.649
F1960	24	8,799.15	0.8999	7,918.355
F1959	23	8,413.51	0.8998	7,570.476
F1958	20	7,025.74	0.8998	6,321.761
F1957	23	8,469.22	0.8998	7,620.604
F1956	23	8,090.90	0.8998	7,280.192
F1955	23	8,260.06	0.8998	7,432.402
F1954	23	8,178.38	0.8998	7,358.906
F1953	23	8,288.51	0.8998	7,458.001
F1952	22	7,425.66	0.8998	6,681.609
F1951	22	7,859.69	0.8998	7,072.149
F1950	23	8,256.59	0.8998	7,429.280
F1949	23	8,427.37	0.8999	7,583.790
F1948	23	8,210.34	0.8999	7,388.485
F1947	23	8,153.09	0.8999	7,336.966
F1945	23	8,206.44	0.9000	7,385.796
F1944	23	8,272.50	0.8998	7,443.596
F1942	23	8,239.13	0.8998	7,413.569
F1941	23	8,163.42	0.8999	7,346.262
F1856	21	7,277.24	0.8998	6,548.061

F1855	23	8,115.00	0.8998	7,301.877
F1938	23	8,089.24	0.9000	7,280.316
F1939	23	8,243.95	0.8999	7,418.731
F1940	22	7,538.40	0.8998	6,783.052
F1937	23	8,188.53	0.9000	7,369.677
F1936	23	8,202.07	0.8998	7,380.223
F1935	23	8,057.32	0.8999	7,250.782
F1934	22	7,774.55	0.9000	6,997.095
F1933	23	8,205.62	0.9000	7,385.058
F1932	23	8,173.27	0.8999	7,355.126
F1931	24	8,140.18	0.8999	7,325.348
10842	18	6,195.74	0.9133	5,658.569
10851	22	7,751.84	0.9161	7,101.461
10847	22	7,695.26	0.9166	7,053.475
10846	22	7,724.65	0.9165	7,079.642
10843	17	5,785.72	0.9137	5,286.412
10848	22	7,756.05	0.9159	7,103.766
10850	22	7,571.12	0.9163	6,937.417
10849	21	7,393.63	0.9165	6,776.262
11043	23	8,323.05	0.9165	7,628.075
11044	25	8,645.79	0.9161	7,920.408
11045	22	7,496.23	0.9165	6,870.295
11048	26	8,979.03	0.9158	8,222.996
11047	22	7,665.00	0.9165	7,024.973
11046	22	7,848.46	0.9165	7,193.114
11050	23	8,304.07	0.9166	7,611.511
11051	20	7,264.25	0.9160	6,654.053
11049	23	8,227.55	0.9166	7,541.372
04403	22	7,756.25	0.9165	7,108.603
11054	21	7,618.60	0.9165	6,982.447
11052	22	7,887.00	0.9165	7,228.436
11110	16	5,393.12	0.9165	4,942.794
11109	24	8,414.17	0.9166	7,712.428
11053	22	7,981.50	0.9165	7,315.045
11422	23	8,346.45	0.9153	7,639.506
11423	22	7,987.95	0.9165	7,320.956
11424	22	8,023.42	0.9152	7,343.034
11426	23	8,179.37	0.9160	7,492.303
11427	23	8,060.77	0.9157	7,381.247
11425	22	8,007.62	0.9155	7,330.976
04404	21	7,257.10	0.9166	6,651.858
04407	20	6,612.12	0.9166	6,060.669
04398	22	7,301.25	0.9165	6,691.596
04415	20	6,915.70	0.9123	6,309.193

04408	16	5,379.95	0.9166	4,931.262
04406	18	6,124.32	0.9166	5,613.552
04451	15	4,816.94	0.9167	4,415.689
04416	19	6,321.40	0.9166	5,794.195
04452	15	5,161.30	0.9165	4,730.331
04453	19	6,327.72	0.9166	5,799.988
04450	20	6,969.92	0.9159	6,383.750
04449	20	6,919.82	0.9166	6,342.707
04468	16	5,284.90	0.9166	4,844.139
04467	16	5,432.32	0.9165	4,978.721
04493	17	5,820.06	0.9165	5,334.085
04480	17	5,677.65	0.9165	5,203.566
04492	18	6,223.18	0.9166	5,704.167
00130	21	6,994.88	0.8996	6,292.594
00229	21	6,848.39	0.8998	6,162.181
04583	17	5,777.45	0.9147	5,284.634
02537	20	6,500.55	0.8997	5,848.545
00224	21	7,017.64	0.8997	6,313.771
00225	21	6,951.92	0.8997	6,254.642
04491	17	5,905.04	0.9166	5,412.560
02528	18	5,850.53	0.8997	5,263.722
04587	22	7,634.10	0.9166	6,997.416
11435	20	7,240.32	0.9165	6,635.753
11434	21	7,399.18	0.9164	6,780.609
02542	20	6,630.09	0.8997	5,965.092
11436	17	5,989.61	0.9161	5,487.082
11431	24	8,138.32	0.9163	7,457.143
11433	20	6,879.72	0.9160	6,301.824
11432	21	7,313.36	0.9145	6,688.068
11430	24	8,515.16	0.9158	7,798.184
11429	22	7,354.26	0.9160	6,736.502
11428	22	7,612.87	0.9158	6,971.866
16699	16	5,592.17	0.9166	5,125.783
16666	16	5,676.72	0.9166	5,203.282
16667	16	5,494.02	0.9167	5,036.368
16665	22	7,844.05	0.9166	7,189.856
16656	18	6,100.69	0.9167	5,592.503
16653	17	6,124.62	0.9166	5,613.827
F2330	23	8,104.82	0.8998	7,292.717
16652	17	5,962.83	0.9166	5,465.530
16654	14	4,943.18	0.9166	4,530.919
16655	22	7,881.08	0.9166	7,223.798
16657	19	6,640.87	0.9166	6,087.021
16664	18	6,371.52	0.9166	5,840.135

F2329	23	7,896.45	0.8998	7,105.226
F2324	17	5,823.38	0.8998	5,239.877
F2325	19	6,530.34	0.8998	5,876.000
F2323	22	7,644.96	0.8998	6,878.935
F2322	22	7,682.25	0.8999	6,913.257
F2321	22	7,615.93	0.8998	6,852.814
F2320	23	8,060.41	0.8999	7,253.563
F2319	23	8,063.36	0.8999	7,256.218
F2317	23	8,175.99	0.8999	7,357.573
F2316	23	8,242.74	0.8999	7,417.642
F2315	23	7,812.74	0.8998	7,029.903
F2314	23	8,051.48	0.9000	7,246.332
F2313	23	8,171.25	0.8999	7,353.308
F2312	23	8,126.12	0.9000	7,313.508
F2311	23	8,077.83	0.8998	7,268.431
F2310	23	8,019.58	0.8999	7,216.820
F2309	20	6,940.16	0.8999	6,245.450
F2308	23	8,307.73	0.8999	7,476.126
F2307	23	8,298.32	0.8999	7,467.658
F2306	23	8,266.28	0.8998	7,437.999
F2305	23	8,280.42	0.8999	7,451.550
F2304	23	8,194.28	0.8999	7,374.033
F2302	23	8,136.90	0.8999	7,322.396
F2303	22	7,463.60	0.8998	6,715.747
F2301	23	8,156.65	0.8998	7,339.354
F2297	21	7,031.47	0.8997	6,326.214
14809	19	6,298.23	0.9166	5,772.958
14810	17	5,993.06	0.9166	5,493.239
F2298	23	8,125.83	0.8999	7,312.434
F2300	23	8,122.70	0.8999	7,309.618
14787	18	6,073.53	0.9166	5,566.998
14786	21	7,549.97	0.9166	6,920.303
D 705	24	8,728.80	0.8994	7,850.683
14785	22	7,908.34	0.9166	7,248.784
14574	22	7,483.99	0.9166	6,859.825
14573	22	7,874.04	0.9165	7,216.558
14572	23	7,901.20	0.9166	7,242.240
14571	23	8,182.19	0.9166	7,499.795
14570	23	8,169.25	0.9166	7,487.935
14569	23	8,264.40	0.9166	7,575.149
14568	23	8,167.03	0.9166	7,485.900
10121	12	3,952.28	0.9025	3,566.933
09320	10	3,506.25	0.9120	3,197.700
14558	17	5,800.90	0.9166	5,317.105

14557	20	7,151.97	0.9166	6,555.496
14556	20	7,109.58	0.9166	6,516.641
14470	14	4,795.31	0.9014	4,322.492
14468	19	6,719.62	0.9016	6,058.409
14407	20	6,788.98	0.9102	6,179.330
14406	19	6,230.87	0.9166	5,711.215
14405	19	6,703.12	0.9166	6,144.080
14404	19	6,862.39	0.9166	6,290.067
14403	19	6,725.73	0.9166	6,164.804
14402	19	6,675.42	0.9166	6,118.690
F2341	23	8,201.00	0.8999	7,380.080
F2340	20	6,881.52	0.8999	6,192.680
F2339	23	8,368.82	0.8998	7,530.264
F2338	23	8,268.25	0.8998	7,439.771
F2337	23	8,253.48	0.8998	7,426.481
F2336	23	8,336.59	0.8998	7,501.264
F2333	23	8,082.84	0.8998	7,272.939
F2334	24	8,327.13	0.8999	7,493.584
F2335	23	8,209.65	0.8999	7,387.864
F2332	23	7,929.12	0.9000	7,136.208
F2269	23	8,514.52	0.8998	7,661.365
F2268	23	8,410.60	0.8999	7,568.699
F2267	19	6,756.60	0.8998	6,079.589
F2266	23	8,384.72	0.8998	7,544.571
F2265	23	8,382.69	0.8999	7,543.583
F2264	22	8,150.00	0.8998	7,333.370
F2263	22	8,131.53	0.8998	7,316.751
F2262	23	8,462.78	0.8998	7,614.809
F2261	20	6,963.53	0.8998	6,265.784
F2260	22	7,909.46	0.8999	7,117.723
F2259	23	8,395.77	0.8999	7,555.353
F2258	23	8,372.27	0.8999	7,534.206
F2257	23	8,339.00	0.8999	7,504.266
F2256	23	8,291.03	0.8999	7,461.098
F2255	19	6,567.40	0.8998	5,909.347
F2254	23	8,301.89	0.8998	7,470.041
F2253	23	8,282.07	0.8998	7,452.207
F2252	23	8,367.85	0.8999	7,530.228
F2251	23	8,331.14	0.8998	7,496.360
F2250	23	8,408.31	0.8999	7,566.638
F2249	23	7,766.80	0.8999	6,989.343
F2248	23	7,900.05	0.8998	7,108.465
F2247	23	8,182.90	0.8999	7,363.792
F2246	23	8,129.93	0.8998	7,315.311

F2245	23	8,143.50	0.8999	7,328.336
F2244	23	8,146.32	0.8999	7,330.873
F2243	22	7,456.12	0.8998	6,709.017
F2242	23	8,191.56	0.8998	7,370.766
F2241	23	8,165.66	0.8999	7,348.277
F2240	23	8,205.00	0.8999	7,383.680
F2239	23	8,207.92	0.8998	7,385.486
D 704	21	7,430.97	0.8997	6,685.644
D 703	22	7,968.50	0.8995	7,167.666
D 702	23	8,305.20	0.8996	7,471.358
D 701	21	7,619.97	0.8995	6,854.163
F2296	23	8,294.92	0.8999	7,464.599
F2295	23	8,176.66	0.8997	7,356.541
F2294	23	8,200.68	0.8998	7,378.972
F2293	23	8,363.63	0.8998	7,525.594
F2291	22	7,509.73	0.8999	6,758.006
F2292	23	8,217.39	0.8999	7,394.829
F2290	23	8,169.48	0.8998	7,350.898
F2289	23	8,129.42	0.8999	7,315.665
F2288	23	8,110.87	0.8998	7,298.161
F2287	23	8,134.13	0.8998	7,319.090
F2286	23	8,222.94	0.8999	7,399.824
F2285	19	6,709.13	0.8999	6,037.546
F2284	23	8,336.05	0.8999	7,501.611
F2282	22	7,913.80	0.8999	7,121.629
F2283	23	8,355.86	0.8998	7,518.603
F2281	23	8,501.18	0.8999	7,650.212
F2280	23	8,344.07	0.8998	7,507.994
F2279	20	6,961.07	0.8998	6,263.571
F2278	23	8,263.90	0.8999	7,436.684
F2277	22	8,022.87	0.8999	7,219.781
F2276	23	8,368.61	0.8999	7,530.912
F2272	23	8,347.24	0.8999	7,511.681
F2274	23	8,289.45	0.8999	7,459.676
F2275	23	8,360.67	0.8999	7,523.767
F2271	22	8,050.90	0.8998	7,244.200
F2207	19	6,771.29	0.8998	6,092.807
F2206	23	8,433.36	0.8998	7,588.337
F2205	23	8,489.25	0.8998	7,638.627
F2204	22	8,130.13	0.8998	7,315.491
F2203	22	7,984.77	0.8999	7,185.495
F2202	23	8,451.85	0.8998	7,604.975
F2201	16	5,700.11	0.8998	5,128.959
F2200	23	8,377.49	0.8998	7,538.066

F2199	23	8,357.35	0.8998	7,519.944
F2198	23	8,323.93	0.8998	7,489.872
F2197	23	8,226.05	0.8998	7,401.800
F2196	23	8,395.65	0.8998	7,554.406
F2195	19	6,670.10	0.8998	6,001.756
F2194	23	8,330.45	0.8998	7,495.739
F2193	23	8,374.11	0.8998	7,535.024
F2192	23	8,327.25	0.8998	7,492.860
F2191	23	8,327.00	0.8998	7,492.635
F2040	23	8,387.32	0.8999	7,547.749
F2039	23	7,791.47	0.9000	7,012.323
F2038	23	8,214.33	0.8999	7,392.076
F2028	23	8,309.11	0.8999	7,477.368
F2027	21	7,246.10	0.9000	6,521.490
F2238	23	8,067.83	0.8998	7,259.433
F2237	21	7,414.56	0.8998	6,671.621
F2236	23	8,087.25	0.8999	7,277.716
F2235	23	8,196.07	0.8998	7,374.824
F2234	23	8,181.56	0.8999	7,362.586
F2233	23	8,106.07	0.8999	7,294.652
F2232	23	8,281.87	0.8998	7,452.027
F2231	21	7,076.30	0.8999	6,367.962
F2230	23	8,242.90	0.8998	7,416.961
F2229	23	8,162.16	0.8998	7,344.312
F2228	23	8,224.82	0.8999	7,401.516
F2227	23	8,156.45	0.9000	7,340.805
F2226	23	8,410.65	0.8999	7,568.744
F2225	20	6,952.47	0.8998	6,255.833
F2224	23	8,404.24	0.8998	7,562.135
F2222	23	8,146.80	0.8997	7,329.676
F2221	22	8,040.37	0.8998	7,234.725
F2220	23	8,345.32	0.8998	7,509.119
F2219	21	7,525.62	0.8999	6,772.305
F2218	23	8,199.03	0.8999	7,378.307
F2217	23	8,207.79	0.8998	7,385.369
F2216	23	8,154.36	0.8998	7,337.293
F2215	23	8,123.00	0.8999	7,309.888
F2214	23	8,062.06	0.8999	7,255.048
F2213	23	7,871.89	0.8999	7,083.914
F2212	23	8,079.52	0.8998	7,269.952
F2211	23	7,968.89	0.8998	7,170.407
F2210	23	8,126.34	0.8999	7,312.893
F2209	23	8,243.13	0.8998	7,417.168
13024	13	4,576.00	0.9163	4,192.989

12402	10	3,545.82	0.9166	3,250.099
13687	20	7,137.03	0.9166	6,541.802
13686	22	8,094.66	0.9165	7,418.756
13640	18	6,328.69	0.9164	5,799.612
13639	20	7,166.39	0.9163	6,566.563
13638	20	7,200.12	0.9162	6,596.750
13358	18	5,930.30	0.9166	5,435.713
13357	17	5,915.49	0.9166	5,422.138
13185	17	5,840.61	0.9164	5,352.335
13356	17	5,978.15	0.9165	5,478.974
13184	17	5,899.17	0.9166	5,407.179
13183	16	5,772.74	0.9165	5,290.716
13166	14	4,585.60	0.9159	4,199.951
13165	15	5,302.72	0.9166	4,860.473
13150	18	6,542.57	0.9155	5,989.723
13151	18	6,328.62	0.9135	5,781.194
12629	17	6,022.41	0.9163	5,518.334
12510	19	6,719.94	0.9166	6,159.497
12511	17	6,087.14	0.9166	5,579.473
12430	18	6,268.13	0.9155	5,738.473
12488	14	4,978.50	0.9166	4,563.293
12489	12	4,298.73	0.9166	3,940.216
F2001	24	8,312.30	0.8998	7,479.408
F2010	23	8,308.64	0.8999	7,476.945
F1943	23	8,218.70	0.8998	7,395.186
F2031	23	8,109.85	0.8999	7,298.054
F2030	23	8,197.66	0.8999	7,377.074
F2029	23	8,199.73	0.8999	7,378.937
F2037	23	8,171.12	0.8999	7,353.191
F2036	21	7,487.20	0.8998	6,736.983
F2035	23	8,455.74	0.8999	7,609.320
F2034	23	8,233.80	0.8999	7,409.597
F2033	21	7,384.46	0.8999	6,645.276
F2032	23	8,128.58	0.9000	7,315.722
26403	22	8,140.82	0.9164	7,460.247
26394	16	5,844.20	0.9166	5,356.794
26393	17	5,994.57	0.9166	5,494.623
26392	16	5,958.25	0.9166	5,461.332
26282	13	4,475.10	0.9166	4,101.877
26281	20	6,663.37	0.9166	6,107.645
25929	21	7,268.78	0.9165	6,661.837
25928	21	7,553.82	0.9166	6,923.831
25913	16	5,454.90	0.9166	4,999.961
25912	18	6,472.50	0.9165	5,932.046

25911	19	6,811.92	0.9166	6,243.806
25907	23	8,314.18	0.9165	7,619.946
25780	21	7,241.38	0.9167	6,638.173
25779	22	8,072.10	0.9167	7,399.694
25778	22	7,988.11	0.9166	7,321.902
25776	14	5,091.43	0.9164	4,665.786
25775	12	4,420.50	0.9167	4,052.272
25131	14	4,931.35	0.9166	4,520.075
25130	15	5,382.00	0.9166	4,933.141
D 383	23	8,506.70	0.9165	7,796.391
D 382	23	8,473.70	0.9121	7,728.862
D 256	21	7,817.40	0.9082	7,099.763
D 255	22	8,013.67	0.9117	7,306.063
D 254	22	8,128.33	0.9148	7,435.796
D 253	21	7,631.20	0.9100	6,944.392
D 252	23	8,501.23	0.9148	7,776.925
D 251	21	7,822.77	0.9167	7,171.133
D 250	22	8,125.07	0.9165	7,446.627
D 249	22	8,123.70	0.9090	7,384.443
D 248	22	8,117.66	0.9071	7,363.529
D 247	22	8,148.27	0.9060	7,382.333
06226	19	6,584.47	0.9166	6,035.325
06060	16	5,482.72	0.9166	5,025.461
06059	17	6,219.62	0.9166	5,700.904
06027	13	4,589.51	0.9166	4,206.745
28045	12	4,157.58	0.9166	3,810.838
27892	20	7,332.45	0.9166	6,720.924
27893	19	6,811.30	0.9166	6,243.238
28044	12	4,362.05	0.9166	3,998.255
27891	21	7,718.00	0.9165	7,073.547
27890	21	7,626.45	0.9166	6,990.404
27841	16	5,685.38	0.9167	5,211.788
27840	15	5,473.73	0.9167	5,017.768
27839	15	5,536.30	0.9167	5,075.126
27838	20	7,390.73	0.9167	6,775.082
27837	21	7,767.00	0.9167	7,120.009
27836	20	7,472.82	0.9167	6,850.334
27835	21	7,738.96	0.9167	7,094.305
27780	15	5,271.30	0.9166	4,831.674
27779	21	7,841.72	0.9166	7,187.721
27778	20	7,445.50	0.9166	6,824.545
27777	20	7,383.95	0.9166	6,768.129
27776	22	8,186.07	0.9166	7,503.352
27775	22	8,157.98	0.9167	7,478.420

27774	22	8,222.38	0.9166	7,536.634
27767	14	4,967.80	0.9166	4,553.485
27766	15	5,470.40	0.9167	5,014.716
27765	19	6,584.35	0.9166	6,035.215
27763	20	7,141.72	0.9167	6,546.815
27762	20	7,123.25	0.9166	6,529.171
27751	18	6,487.70	0.9166	5,946.626
27752	15	5,188.17	0.9164	4,754.439
27761	20	7,085.47	0.9166	6,494.542
27750	18	6,506.05	0.9166	5,963.445
25466	20	7,266.55	0.9166	6,660.520
27749	18	6,517.93	0.9166	5,974.335
27743	14	4,795.30	0.9166	4,395.372
27741	19	6,944.14	0.9166	6,364.999
27742	15	5,543.51	0.9166	5,081.181
F2331	23	7,971.32	0.8998	7,172.594
F2270	23	8,445.20	0.8998	7,598.991
16650	20	7,124.62	0.9166	6,530.427
F2208	23	7,979.27	0.8998	7,179.747
26416	18	6,708.60	0.9165	6,148.432
14051	23	8,319.81	0.9166	7,625.938
02955	13	4,281.17	0.8999	3,852.625
05930	22	7,485.22	0.8998	6,735.201
02865	20	6,690.30	0.8999	6,020.601
01268	19	6,279.63	0.8999	5,651.039
03186	14	4,568.38	0.8999	4,111.085
00133	22	7,259.70	0.8995	6,530.100
12498	20	6,456.40	0.8999	5,810.114
01487	19	6,411.43	0.8999	5,769.646
04402	22	7,664.87	0.9166	7,025.620
02627	16	5,345.60	0.8998	4,809.971
02866	20	6,627.15	0.8999	5,963.772
02867	17	5,580.67	0.8999	5,022.045
03610	22	7,482.84	0.8999	6,733.808
04169	25	8,385.67	0.8998	7,545.426
04168	23	7,900.10	0.8999	7,109.300
03396	15	5,341.27	0.8999	4,806.609
00079	23	8,004.10	0.8998	7,202.089
00080	22	7,730.33	0.8997	6,954.978
03185	18	6,131.88	0.8999	5,518.079
12496	21	6,712.63	0.8999	6,040.696
05690	16	5,263.67	0.8998	4,736.250
01656	22	7,155.70	0.8999	6,439.414
27324	15	5,489.58	0.9166	5,031.749

27304	20	7,159.70	0.9016	6,455.186
27179	16	5,564.38	0.9162	5,098.085
27117	18	6,071.00	0.9158	5,559.822
27183	19	6,519.38	0.9166	5,975.664
27182	22	7,733.40	0.9166	7,088.434
27181	20	7,071.50	0.9166	6,481.737
27098	21	7,425.45	0.9166	6,806.167
27084	24	8,516.10	0.9167	7,806.709
27014	21	7,552.94	0.9166	6,923.025
26747	12	4,239.08	0.9166	3,885.541
26748	14	4,734.62	0.9166	4,339.753
26749	16	5,700.58	0.9036	5,151.044
26740	13	4,750.30	0.9157	4,349.850
26739	15	5,505.20	0.9158	5,041.662
26680	14	4,977.52	0.9166	4,562.395
26679	13	4,795.58	0.9166	4,395.629
26678	22	8,072.90	0.9165	7,398.813
26677	21	7,906.38	0.9166	7,246.988
26676	20	7,577.00	0.9166	6,945.078
26675	20	7,486.78	0.9164	6,860.885
26674	22	7,977.86	0.9156	7,304.529
26673	21	7,934.97	0.9165	7,272.400
26649	18	6,652.67	0.9166	6,097.837
26672	21	7,698.52	0.9166	7,056.463
26658	19	6,564.92	0.9165	6,016.749
26659	14	5,010.07	0.9166	4,592.230
26660	13	4,358.08	0.9166	3,994.616
26641	19	7,041.42	0.9166	6,454.166
26635	18	6,718.33	0.9167	6,158.693
26636	12	4,208.28	0.9167	3,857.730
26492	14	4,927.50	0.9166	4,516.547
26623	16	5,638.89	0.9166	5,168.607
26634	18	6,761.17	0.9166	6,197.288
26489	21	7,583.47	0.9165	6,950.250
26490	22	7,977.88	0.9166	7,312.525
26491	19	7,078.65	0.9164	6,486.875
26417	19	6,964.63	0.9166	6,383.780
16649	20	7,250.25	0.9166	6,645.579
16648	20	7,164.73	0.9166	6,567.192
14178	14	4,720.06	0.9166	4,326.407
15582	15	5,282.17	0.9159	4,837.940
14058	11	3,714.38	0.9053	3,362.628
15577	16	5,466.35	0.9164	5,009.363
15576	19	6,836.81	0.9144	6,251.579

15575	19	6,889.06	0.9150	6,303.490
15574	19	7,013.05	0.9164	6,426.759
15573	19	7,040.24	0.9165	6,452.380
15572	20	7,409.35	0.9157	6,784.742
15570	17	5,958.11	0.9166	5,461.204
15568	20	7,297.12	0.9166	6,688.540
15569	20	7,232.18	0.9166	6,629.016
15515	13	4,615.30	0.9164	4,229.461
04300	17	5,686.36	0.9165	5,211.549
15514	13	4,610.95	0.9166	4,226.397
04291	15	4,938.92	0.9165	4,526.520
03879	23	8,049.50	0.9167	7,378.977
03768	13	4,142.74	0.9165	3,796.821
01818	13	4,093.99	0.9167	3,752.961
15347	20	7,347.45	0.9159	6,729.529
15346	22	8,187.93	0.9166	7,505.057
15345	22	7,774.38	0.9166	7,125.997
15344	22	7,809.05	0.9166	7,157.775
15307	12	4,171.80	0.9166	3,823.872
15352	18	6,475.95	0.9165	5,935.208
15353	17	6,029.10	0.9165	5,525.670
15306	18	6,039.93	0.9166	5,536.200
15351	17	6,179.05	0.9166	5,663.717
15350	19	6,844.20	0.9165	6,272.709
15349	22	8,253.40	0.9166	7,565.066
15348	20	7,475.25	0.9166	6,851.814
15301	19	6,673.48	0.9166	6,116.912
14793	19	6,699.09	0.9166	6,140.386
14792	22	7,782.63	0.9166	7,133.559
14813	16	5,618.77	0.9165	5,149.603
14812	20	7,153.55	0.9159	6,551.936
00045	17	5,767.23	0.8996	5,188.200
00041	17	5,740.11	0.8996	5,163.803
00047	19	6,224.40	0.8995	5,598.848
00042	21	6,683.14	0.8995	6,011.484
00046	19	6,243.75	0.8996	5,616.878
08008	21	6,752.12	0.8995	6,073.532
00285	20	6,866.73	0.9000	6,180.057
00282	22	7,168.64	0.9001	6,452.493
00040	19	6,280.25	0.8996	5,649.713
01348	18	6,128.09	0.8994	5,511.604
02429	20	6,492.91	0.8996	5,841.022
00072	18	5,955.16	0.8996	5,357.262
00078	19	6,087.67	0.8995	5,475.859

03050	19	6,260.02	0.8995	5,630.888
01452	20	6,788.13	0.8995	6,105.923
01450	20	6,838.85	0.8994	6,150.862
01451	21	7,132.92	0.8996	6,416.775
01453	21	6,989.94	0.8995	6,287.451
26844	20	7,034.70	0.9164	6,446.599
01341	20	6,720.45	0.8995	6,045.045
01350	17	5,816.10	0.8994	5,231.000
01454	21	6,993.72	0.8994	6,290.152
10840	19	6,697.58	0.9136	6,118.909
10841	21	7,226.75	0.9144	6,608.140
D 246	22	8,157.50	0.9105	7,427.404
D 245	22	8,199.00	0.9157	7,507.824
D 244	21	7,880.56	0.9166	7,223.321
D 243	22	8,138.27	0.9160	7,454.655
22403	24	8,629.35	0.9159	7,903.622
16718	14	4,738.45	0.9166	4,343.263
16669	10	3,518.23	0.9140	3,215.662
17207	18	6,268.47	0.9167	5,746.306
17206	18	6,513.53	0.9167	5,970.953
16748	14	4,561.75	0.9010	4,110.137
16737	15	5,312.62	0.9097	4,832.890
16736	18	6,392.00	0.9167	5,859.546
16712	16	5,461.52	0.9167	5,006.575
16711	20	7,101.05	0.9167	6,509.533
16710	21	7,263.00	0.9167	6,657.992
16735	19	6,928.75	0.9166	6,350.892
15583	11	3,733.25	0.9125	3,406.591
15189	12	4,153.15	0.9165	3,806.362
16729	15	5,206.28	0.9167	4,772.597
16728	16	5,806.47	0.9167	5,322.791
16727	18	6,479.70	0.9167	5,939.941
16707	19	6,376.70	0.9166	5,844.883
16709	21	7,561.16	0.9167	6,931.315
16708	22	7,614.80	0.9167	6,980.487
16700	16	5,590.80	0.9166	5,124.527
16701	18	6,310.19	0.9167	5,784.551
16706	21	7,308.43	0.9167	6,699.638
11905	19	6,096.43	0.9159	5,583.720
06758	21	7,036.03	0.9166	6,449.225
06696	22	7,024.14	0.9165	6,437.624
10213	22	7,585.84	0.9166	6,953.181
10158	19	6,745.30	0.9166	6,182.742
10157	20	7,136.13	0.9166	6,540.977

10119	19	6,725.52	0.9166	6,164.612
09994	20	6,885.65	0.9166	6,311.387
09993	22	7,904.85	0.9166	7,245.586
09656	20	6,997.19	0.9158	6,408.027
09655	20	7,230.05	0.9155	6,619.111
09654	21	7,504.63	0.9157	6,871.990
09653	21	7,486.28	0.9151	6,850.695
09652	21	7,530.61	0.9158	6,896.533
09651	22	7,876.63	0.9156	7,211.842
09650	22	7,973.15	0.9155	7,299.419
09646	20	6,979.60	0.9012	6,290.016
43357	14	4,657.92	0.9007	4,195.389
F2360	17	5,823.38	0.8999	5,240.460
F2359	20	7,195.33	0.8999	6,475.077
F2358	22	7,585.15	0.8999	6,825.876
F2357	23	8,303.53	0.8999	7,472.347
F2356	23	8,257.73	0.8999	7,431.131
F2355	24	8,135.97	0.8999	7,321.559
F2354	23	8,010.19	0.8999	7,208.370
F2353	23	8,002.86	0.8999	7,201.774
F2352	21	7,540.74	0.8998	6,785.158
F2351	23	8,021.67	0.8998	7,217.899
F2350	23	8,121.32	0.8998	7,307.564
F2349	23	8,151.09	0.8999	7,335.166
F2345	23	7,884.54	0.8999	7,095.298
F2348	23	8,271.58	0.8999	7,443.595
F2347	23	8,174.29	0.8998	7,355.226
F2346	22	7,681.27	0.8998	6,911.607
F2344	23	8,064.47	0.8999	7,257.217
F2343	23	8,147.27	0.9000	7,332.543
F2342	23	8,314.57	0.8998	7,481.450
C 009	14	4,852.11	0.8998	4,365.929
C 008	15	5,342.13	0.8998	4,806.849
C 007	22	7,860.87	0.8996	7,071.639
C 006	22	7,902.80	0.8998	7,110.939
C 005	22	7,784.93	0.8998	7,004.880
C 004	23	8,316.81	0.8997	7,482.634
C 003	23	8,317.43	0.8997	7,483.192
C 002	23	8,344.06	0.8997	7,507.151
C 001	23	8,409.99	0.8998	7,567.309
11737	22	7,375.71	0.8995	6,634.451
11736	21	7,366.07	0.8995	6,625.780
11729	20	6,757.87	0.8999	6,081.407
11728	18	6,386.23	0.8997	5,745.691

11690	19	6,541.96	0.8999	5,887.110
11689	19	6,718.37	0.9000	6,046.533
11688	19	6,721.68	0.8999	6,048.840
11687	18	6,356.03	0.8999	5,719.791
11637	24	8,373.55	0.8997	7,533.683
11636	23	8,159.60	0.8997	7,341.192
11459	19	6,285.79	0.8996	5,654.697
11110	21	7,206.47	0.8994	6,481.499
11002	25	8,630.60	0.8997	7,764.951
10958	18	6,203.30	0.8998	5,581.729
10957	19	6,730.99	0.8999	6,057.218
11735	15	5,230.92	0.9161	4,792.046
11734	16	5,660.23	0.9159	5,184.205
11727	15	4,926.15	0.9166	4,515.309
11726	17	6,055.42	0.9166	5,550.398
11725	17	6,024.06	0.9166	5,521.653
11639	16	5,744.16	0.9165	5,264.523
11638	17	5,958.82	0.9166	5,461.854
11460	16	5,333.52	0.9166	4,888.704
11001	20	6,726.06	0.9165	6,164.434
10956	20	6,961.51	0.9142	6,364.212
07987	18	6,440.05	0.9166	5,902.950
07986	17	5,925.28	0.9166	5,431.112
07954	19	6,630.25	0.9167	6,077.950
07953	20	7,265.77	0.9167	6,660.531
07952	20	7,211.63	0.9166	6,610.180
07951	20	7,273.55	0.9166	6,666.936
07950	19	6,487.83	0.9166	5,946.745
07949	20	7,252.48	0.9166	6,647.623
07948	20	7,205.23	0.9166	6,604.314
07947	20	7,238.62	0.9166	6,634.919
07946	20	7,225.88	0.9166	6,623.242
07945	21	7,606.82	0.9166	6,972.411
07757	21	7,280.20	0.9015	6,563.100
07754	23	8,323.35	0.9166	7,629.183
07753	22	7,898.40	0.9149	7,226.246
07589	15	5,439.73	0.9045	4,920.236
07573	20	6,716.85	0.9166	6,156.665
07572	20	7,044.10	0.9166	6,456.622
07571	21	7,435.00	0.9166	6,814.921
07570	21	7,539.75	0.9166	6,910.935
07554	18	6,279.50	0.9154	5,748.254
07553	19	6,613.26	0.9166	6,061.714
07552	21	7,496.92	0.9166	6,871.677

07551	21	7,517.00	0.9166	6,890.082
07532	21	7,499.89	0.9014	6,760.401
07528	17	5,961.36	0.9162	5,461.798
07527	19	6,862.75	0.9161	6,286.965
07343	20	6,804.00	0.9165	6,235.866
07342	20	6,855.25	0.9164	6,282.151
06894	15	5,279.90	0.9166	4,839.556
09645	19	6,772.49	0.9020	6,108.786
09500	19	6,806.95	0.9165	6,238.570
09299	18	6,217.13	0.9152	5,689.917
08657	19	6,752.96	0.9162	6,187.062
08656	23	8,254.05	0.9164	7,564.011
08655	23	8,314.37	0.9165	7,620.120
08654	23	8,247.85	0.9165	7,559.155
08646	20	6,797.42	0.9165	6,229.835
08645	19	6,658.92	0.9165	6,102.900
08491	12	4,171.17	0.9144	3,814.118
07591	13	4,480.52	0.9166	4,106.845
07101	13	4,482.78	0.9166	4,108.916
06904	10	3,586.76	0.9166	3,287.624
06707	15	5,375.35	0.9164	4,925.971
08451	18	6,265.70	0.9163	5,741.261
08450	19	6,896.62	0.9165	6,320.752
08421	20	6,949.71	0.9017	6,266.554
08390	18	6,278.39	0.9166	5,754.772
08416	23	8,030.92	0.9165	7,360.338
08376	15	5,341.40	0.9161	4,893.257
08375	15	5,345.90	0.9163	4,898.448
08374	17	6,092.52	0.9159	5,580.139
08373	19	6,847.48	0.9160	6,272.292
08372	19	6,766.27	0.9163	6,199.933
08371	20	7,266.76	0.9164	6,659.259
08370	21	7,688.67	0.9165	7,046.666
08369	21	7,537.78	0.9166	6,909.129
08368	21	7,647.00	0.9165	7,008.476
08292	19	6,382.95	0.9166	5,850.612
08291	20	7,099.94	0.9166	6,507.805
08290	21	7,498.14	0.9166	6,872.795
08289	20	6,917.07	0.9165	6,339.495
08288	20	7,065.40	0.9166	6,476.146
08236	21	7,133.48	0.9034	6,444.386
08235	16	5,433.01	0.9166	4,979.897
08234	20	7,038.00	0.9166	6,451.031
08274	16	5,435.85	0.9166	4,982.500

08273	17	5,767.09	0.9166	5,286.115
08012	18	6,353.40	0.9166	5,823.526
08011	19	6,908.78	0.9166	6,332.588
08010	20	7,132.15	0.9166	6,537.329
08009	21	7,625.59	0.9166	6,989.616
08008	20	7,158.14	0.9165	6,560.435
07988	16	5,598.55	0.9166	5,131.631
27740	18	6,544.15	0.9166	5,998.368
27739	18	6,619.87	0.9166	6,067.773
27738	20	7,260.18	0.9166	6,654.681
27709	15	5,193.60	0.9165	4,759.934
27706	18	6,432.80	0.9010	5,795.953
27705	11	3,877.42	0.9166	3,554.043
27704	13	4,646.00	0.9166	4,258.524
27696	23	8,427.68	0.9166	7,724.811
27670	21	7,382.03	0.9166	6,766.369
27669	20	7,093.54	0.9166	6,501.939
27668	20	7,033.18	0.9166	6,446.613
27667	20	7,182.43	0.9166	6,583.415
27644	16	5,498.37	0.9166	5,039.806
27643	18	6,344.95	0.9166	5,815.781
27633	17	5,974.48	0.9166	5,476.208
27632	15	5,370.55	0.9166	4,922.646
27631	16	5,967.67	0.9166	5,469.966
27626	21	7,629.00	0.9166	6,992.741
27496	18	6,269.15	0.9166	5,746.303
27495	20	7,387.73	0.9166	6,771.593
27494	20	7,376.37	0.9167	6,761.918
27200	16	5,761.12	0.9166	5,280.643
27199	18	6,528.08	0.9166	5,983.638
27198	17	6,060.31	0.9166	5,554.880
27389	13	4,347.33	0.9166	3,984.763
27388	18	6,634.20	0.9166	6,080.908
27387	22	8,129.33	0.9166	7,451.344
27381	16	5,823.82	0.9166	5,338.113
27380	16	5,857.60	0.9166	5,369.076
27379	16	5,898.35	0.9166	5,406.428
27337	16	5,802.17	0.9166	5,318.269
27336	16	5,925.43	0.9166	5,431.249
27335	16	5,813.48	0.9166	5,328.636
27333	18	6,396.35	0.9165	5,862.255
06893	17	5,843.43	0.9166	5,356.088
06565	23	8,516.98	0.9165	7,805.812
06649	19	6,700.37	0.9166	6,141.559

06650	20	6,801.04	0.9165	6,233.153
06055	13	4,434.19	0.9166	4,064.379
06421	19	6,724.31	0.9165	6,162.830
06253	19	6,800.75	0.9166	6,233.567
26405	21	7,880.03	0.9164	7,221.259
26415	18	6,610.45	0.9166	6,059.138
27328	21	7,765.25	0.9166	7,117.628
27329	21	7,772.65	0.9166	7,124.411
26404	21	7,856.10	0.9165	7,200.116
26414	20	7,323.55	0.9166	6,712.766
27330	21	7,672.78	0.9166	7,032.870
27331	20	7,252.85	0.9165	6,647.237
27332	20	7,188.00	0.9166	6,588.521
D 816	21	7,566.50	0.8996	6,806.823
D 815	20	7,130.85	0.8996	6,414.913
46941	17	5,736.23	0.8997	5,160.886
46940	16	5,569.84	0.8995	5,010.071
46939	16	5,693.70	0.8994	5,120.914
46935	17	5,684.90	0.8994	5,112.999
46934	20	6,957.35	0.8994	6,257.441
46933	19	6,525.09	0.8993	5,868.013
46932	20	7,090.92	0.8993	6,376.864
46931	21	7,407.85	0.8994	6,662.620
46666	19	6,455.28	0.9003	5,811.689
46665	21	7,416.00	0.9004	6,677.366
46664	21	7,387.04	0.8998	6,646.859
46663	20	7,136.25	0.8995	6,419.057
46662	21	7,451.95	0.8996	6,703.774
46622	21	7,474.50	0.8994	6,722.565
46621	21	7,511.58	0.8995	6,756.666
46620	21	7,317.27	0.8994	6,581.153
46619	20	7,142.23	0.8994	6,423.722
46618	20	7,328.40	0.8994	6,591.163
46617	21	7,720.73	0.8995	6,944.797
46616	21	7,718.82	0.8994	6,942.307
46615	22	8,078.55	0.8994	7,265.848
46614	20	7,289.95	0.8994	6,556.581
46610	18	6,445.90	0.8994	5,797.442
46609	17	6,181.73	0.8994	5,559.848
46608	19	6,936.83	0.8994	6,238.985
46607	19	6,905.80	0.8993	6,210.386
46606	19	6,858.06	0.8993	6,167.453
45886	17	5,868.45	0.8998	5,280.431
45316	19	6,566.43	0.8999	5,909.130

45389	19	6,698.60	0.9001	6,029.410
45390	17	5,758.25	0.9001	5,183.001
45315	19	6,863.30	0.8999	6,176.284
45314	17	6,062.30	0.8999	5,455.464
45313	21	6,948.39	0.8998	6,252.161
45276	19	6,676.66	0.8999	6,008.326
45275	22	7,717.48	0.9002	6,947.275
45274	20	7,103.50	0.9001	6,393.860
45256	18	6,078.92	0.9001	5,471.636
45255	19	6,838.77	0.9000	6,154.893
45253	15	5,301.95	0.8995	4,769.104
45251	15	5,354.70	0.8996	4,817.088
45250	16	5,791.77	0.8996	5,210.276
45252	15	5,284.27	0.8996	4,753.729
45248	17	6,130.72	0.9003	5,519.487
44956	18	6,248.17	0.8998	5,622.103
44955	16	5,524.33	0.8999	4,971.345
44954	19	6,661.33	0.8998	5,993.865
44953	20	6,965.81	0.8999	6,268.532
44880	18	5,966.48	0.8999	5,369.235
44879	15	5,256.45	0.8998	4,729.754
10955	22	7,739.92	0.9164	7,092.863
09467	12	4,029.98	0.9166	3,693.880
09273	12	4,001.57	0.9165	3,667.439
08396	15	5,223.03	0.9162	4,785.340
08354	10	3,571.93	0.9165	3,273.674
10535	10	3,544.28	0.9165	3,248.333
10212	10	3,513.77	0.9164	3,220.019
10821	15	5,344.45	0.9164	4,897.654
10820	17	5,988.77	0.9162	5,486.911
10819	17	5,978.62	0.9166	5,480.003
10701	18	6,473.41	0.9165	5,932.880
10401	17	5,587.20	0.9164	5,120.110
10400	19	6,647.81	0.9156	6,086.735
10399	19	6,622.64	0.9164	6,068.987
10183	21	7,347.07	0.9166	6,734.324
10182	23	8,253.64	0.9166	7,565.286
04412	15	5,125.43	0.9166	4,697.969
12320	20	6,662.24	0.8997	5,994.017
12322	20	6,648.48	0.8997	5,981.637
12376	19	6,373.85	0.8997	5,734.552
05325	21	6,965.95	0.9002	6,270.748
05412	22	7,243.57	0.9002	6,520.661
05855	7	2,374.99	0.9002	2,137.965

11742	22	7,175.16	0.9001	6,458.361
11753	20	6,416.30	0.9001	5,775.311
11754	10	3,295.76	0.9001	2,966.513
02250	16	5,267.99	0.8997	4,739.610
02252	20	6,529.78	0.8998	5,875.496
08550	7	2,216.80	0.9000	1,995.120
14885	19	6,469.06	0.8997	5,820.213
14907	23	7,693.65	0.8997	6,921.976
15043	22	7,388.16	0.8998	6,647.866
15045	22	7,619.75	0.8998	6,856.251
01431	25	8,426.40	0.8998	7,582.074
03808	24	8,254.13	0.8997	7,426.240
00120	23	8,072.09	0.8998	7,263.266
00121	23	7,947.50	0.8998	7,151.160
00122	22	7,596.32	0.8998	6,835.168
00212	22	7,516.40	0.8991	6,757.995
00213	23	8,087.22	0.8999	7,277.689
00214	23	7,780.70	0.9002	7,004.186
00215	23	8,058.37	0.8999	7,251.727
00216	23	7,911.40	0.8997	7,117.886
00217	22	7,580.34	0.8997	6,820.031
00218	24	8,104.08	0.8995	7,289.619
00219	23	7,897.58	0.8997	7,105.452
00237	23	7,844.27	0.9006	7,064.549
00238	23	8,038.50	0.8997	7,232.238
00239	23	8,153.34	0.9005	7,342.082
00240	23	7,867.50	0.9003	7,083.110
00269	21	7,319.90	0.8999	6,587.178
00270	21	7,143.00	0.8997	6,426.557
00271	21	7,229.20	0.8999	6,505.557
03039	22	7,425.32	0.8997	6,680.560
03041	21	6,922.90	0.8997	6,228.533
03042	21	6,889.82	0.8997	6,198.771
03043	21	6,869.32	0.8997	6,180.327
03104	22	7,412.62	0.8996	6,668.392
03105	22	7,339.18	0.8996	6,602.326
03106	20	6,644.25	0.8996	5,977.167
03107	21	7,001.07	0.8996	6,298.162
03108	13	4,414.40	0.8998	3,972.077
03109	12	3,911.42	0.8997	3,519.104
03110	12	4,194.80	0.8996	3,773.642
03111	14	4,727.70	0.8997	4,253.511
03142	12	4,135.32	0.8995	3,719.720
03143	13	4,237.43	0.8995	3,811.568

03144	12	4,223.50	0.8998	3,800.305
03145	14	4,689.08	0.8998	4,219.234
03182	20	6,459.70	0.8997	5,811.792
03183	21	7,092.60	0.8997	6,381.212
03184	21	7,082.18	0.8996	6,371.129
03185	21	6,899.15	0.8997	6,207.165
03186	21	7,093.15	0.8997	6,381.707
03187	22	7,441.00	0.8997	6,694.667
03224	22	7,287.73	0.8998	6,557.499
03225	22	6,980.10	0.8999	6,281.391
03237	15	4,741.10	0.8997	4,265.567
03239	14	4,574.90	0.8997	4,116.037
03290	18	6,171.18	0.8997	5,552.210
03291	20	6,783.98	0.8998	6,104.225
03292	21	6,977.93	0.8998	6,278.741
03293	20	6,824.37	0.8999	6,141.250
03294	22	7,144.75	0.8998	6,428.846
03311	20	6,653.66	0.8997	5,986.297
03312	20	6,593.78	0.8997	5,932.423
03313	19	6,288.49	0.8996	5,657.125
03314	19	6,164.08	0.8998	5,546.439
03315	21	7,135.91	0.8992	6,416.610
03316	22	7,375.06	0.8997	6,635.341
03317	21	6,907.27	0.8997	6,214.470
03318	21	6,997.45	0.8997	6,295.605
03634	15	4,981.12	0.8997	4,481.513
03635	11	3,594.88	0.8996	3,233.954
03636	20	6,365.02	0.8999	5,727.881
03848	15	4,965.45	0.8999	4,468.408
03849	19	6,335.22	0.9006	5,705.499
03852	20	6,429.25	0.9007	5,790.825
03862	21	7,167.59	0.8995	6,447.247
03863	21	6,875.12	0.8994	6,183.482
03913	12	3,986.20	0.9005	3,589.573
03929	20	6,452.66	0.8996	5,804.812
03930	20	6,746.23	0.8996	6,068.908
03931	19	6,396.96	0.8995	5,754.065
03932	19	6,022.72	0.8995	5,417.436
03942	17	5,740.10	0.8996	5,163.793
03943	16	5,318.98	0.8996	4,784.954
03952	20	6,609.58	0.8995	5,945.317
03953	20	6,600.88	0.8996	5,938.151
03954	20	6,558.97	0.8997	5,901.105
03955	22	7,431.24	0.8996	6,685.143

03956	22	7,421.00	0.8997	6,676.673
03957	22	7,311.28	0.8996	6,577.227
03958	14	4,625.07	0.8996	4,160.712
03959	12	3,938.51	0.8996	3,543.083
03962	20	6,571.95	0.8996	5,912.126
03963	19	6,304.35	0.8995	5,670.762
03964	19	6,276.35	0.8996	5,646.204
03965	16	5,042.55	0.8996	4,536.277
03966	17	5,568.90	0.8996	5,009.782
04012	19	6,339.92	0.8997	5,704.026
04014	17	5,664.90	0.8999	5,097.843
04015	15	5,018.48	0.8998	4,515.628
04021	14	4,640.40	0.8997	4,174.967
04022	13	4,283.10	0.8998	3,853.933
04039	17	5,903.12	0.8996	5,310.446
04040	17	5,977.72	0.8996	5,377.556
04041	17	5,913.50	0.8996	5,319.784
04042	24	8,461.95	0.8997	7,613.216
04107	20	6,719.94	0.8997	6,045.930
04109	16	5,357.78	0.8994	4,818.787
04110	15	4,732.62	0.8996	4,257.464
04111	21	6,960.09	0.8997	6,261.992
04112	22	7,229.90	0.8996	6,504.018
04113	21	7,022.95	0.8996	6,317.845
04114	22	7,188.80	0.8994	6,465.606
04115	21	6,780.07	0.8993	6,097.316
04116	22	7,108.90	0.8993	6,393.033
04118	21	7,016.88	0.9000	6,315.192
04119	21	6,976.85	0.8996	6,276.374
04120	21	7,296.35	0.9001	6,567.444
04121	21	7,226.13	0.8996	6,500.626
04122	20	6,890.55	0.8997	6,199.427
04123	21	7,275.23	0.8999	6,546.979
04124	22	7,114.68	0.8997	6,401.077
04125	21	7,032.67	0.8999	6,328.699
04126	22	7,356.40	0.8998	6,619.288
04127	22	7,280.60	0.8997	6,550.355
04128	21	7,100.36	0.8998	6,388.903
04129	22	7,412.75	0.8999	6,670.733
04130	22	7,514.65	0.8998	6,761.682
04131	21	7,067.53	0.8999	6,360.070
04132	19	6,518.31	0.8997	5,864.523
04133	21	6,660.45	0.8996	5,991.740
04137	22	7,329.38	0.8998	6,594.976

04138	21	7,093.10	0.8996	6,380.952
04139	21	7,335.00	0.8999	6,600.766
04140	21	7,333.92	0.8998	6,599.061
04141	19	6,621.90	0.8998	5,958.385
04166	22	7,372.30	0.8999	6,634.332
04167	20	7,102.29	0.9006	6,396.322
04171	14	4,721.68	0.8999	4,249.039
04172	12	3,771.40	0.8994	3,391.997
04198	13	4,491.39	0.8999	4,041.801
04199	13	4,367.22	0.9001	3,930.934
04200	20	6,950.67	0.8997	6,253.517
04201	19	6,668.75	0.8996	5,999.207
04202	18	6,239.14	0.8996	5,612.730
04212	10	3,310.40	0.8995	2,977.704
04213	20	6,773.85	0.8997	6,094.432
04215	15	4,977.10	0.8997	4,477.896
04221	22	7,427.38	0.8998	6,683.156
04223	22	7,472.78	0.8998	6,724.007
04224	19	6,573.98	0.8999	5,915.924
04225	21	6,840.60	0.8994	6,152.435
04226	17	5,977.50	0.8995	5,376.761
04227	17	5,354.20	0.8994	4,815.567
04228	14	4,737.85	0.8995	4,261.696
04253	20	7,132.48	0.8998	6,417.805
04254	21	7,163.20	0.8998	6,445.447
04409	21	7,252.57	0.8997	6,525.137
04410	21	7,304.17	0.8997	6,571.561
04411	18	6,243.70	0.8997	5,617.456
04412	20	6,913.74	0.8998	6,220.983
04414	8	2,611.62	0.8998	2,349.935
04423	20	7,052.70	0.8998	6,346.019
04424	20	7,223.15	0.8999	6,500.112
04425	17	5,571.65	0.8998	5,013.370
04454	16	5,228.22	0.8997	4,703.829
04455	17	5,936.97	0.8997	5,341.491
04456	17	5,872.25	0.8996	5,282.676
04457	18	6,053.50	0.8997	5,446.333
04458	19	6,513.15	0.8997	5,859.881
04460	18	6,395.37	0.9001	5,756.472
04461	18	6,442.62	0.8998	5,797.069
04463	18	6,321.90	0.9002	5,690.974
04464	16	5,002.25	0.8998	4,501.024
04465	17	5,433.27	0.8996	4,887.769
04466	16	5,388.32	0.8996	4,847.332

04469	23	7,777.15	0.8996	6,996.324
04470	22	7,364.36	0.8992	6,622.032
04471	21	7,035.60	0.8996	6,329.225
04472	21	7,100.95	0.8997	6,388.724
04473	20	6,503.28	0.8997	5,851.001
04477	19	6,489.77	0.8997	5,838.846
04478	17	5,824.90	0.8997	5,240.662
04479	16	5,284.08	0.8998	4,754.615
04494	16	5,393.80	0.8998	4,853.341
04496	16	5,150.97	0.8998	4,634.842
04504	20	7,049.18	0.8997	6,342.147
04505	20	7,064.35	0.9000	6,357.915
04506	20	6,985.05	0.8999	6,285.846
04507	19	6,607.38	0.9001	5,947.302
04508	20	7,058.30	0.9000	6,352.470
04509	19	6,474.00	0.8998	5,825.305
04510	19	6,419.60	0.8998	5,776.356
04511	19	6,583.93	0.8997	5,923.561
04513	18	6,205.53	0.8997	5,583.115
04515	20	6,467.50	0.8997	5,818.809
04516	20	7,059.63	0.8999	6,352.961
04517	16	5,278.22	0.8999	4,749.870
04534	14	4,720.17	0.8997	4,246.736
04564	18	6,043.69	0.8993	5,435.090
04566	20	6,801.00	0.8997	6,118.859
04567	20	6,617.24	0.8997	5,953.530
04568	19	6,138.52	0.8997	5,522.826
04569	19	5,994.70	0.9000	5,395.230
04589	21	6,988.48	0.8999	6,288.933
04590	20	6,709.27	0.8998	6,037.001
04591	19	6,378.98	0.8998	5,739.806
04592	19	6,224.23	0.8997	5,599.939
04593	13	4,456.63	0.8997	4,009.630
04594	14	4,466.47	0.8997	4,018.483
04597	19	6,695.12	0.8997	6,023.599
04598	19	6,655.25	0.8997	5,987.728
04599	19	6,855.05	0.8997	6,167.488
04600	21	7,241.72	0.8996	6,514.651
04601	20	6,735.85	0.8996	6,059.570
04602	20	7,200.95	0.8997	6,478.694
04603	20	7,326.65	0.8997	6,591.787
04604	20	7,234.27	0.8998	6,509.396
04605	20	7,204.40	0.8998	6,482.519
04606	20	7,192.65	0.8996	6,470.507

04607	21	7,276.83	0.8996	6,546.236
04608	21	7,066.20	0.8997	6,357.460
04609	20	6,806.17	0.8996	6,122.830
04610	21	7,159.90	0.8997	6,441.762
04611	22	7,449.65	0.8996	6,701.705
04612	20	7,083.63	0.8997	6,373.141
04613	20	6,993.07	0.8997	6,291.665
04614	21	7,130.92	0.8997	6,415.688
04615	21	7,156.74	0.8997	6,438.918
04616	21	6,987.85	0.8997	6,286.968
04617	20	6,843.05	0.8997	6,156.692
04618	21	7,103.65	0.8998	6,391.864
04619	20	6,840.27	0.8997	6,154.190
04620	19	6,474.05	0.8999	5,825.997
04621	20	6,494.65	0.8996	5,842.587
04622	20	6,709.92	0.8996	6,036.244
04623	20	6,687.42	0.8997	6,016.671
04624	15	4,771.18	0.8996	4,292.153
04626	16	5,111.53	0.8999	4,599.865
04654	11	3,586.56	0.8998	3,227.186
04656	20	6,809.38	0.8999	6,127.761
04657	20	6,828.54	0.8999	6,145.003
04658	19	6,185.23	0.9000	5,566.707
04664	18	6,247.50	0.8998	5,621.500
04665	20	6,860.67	0.8999	6,173.916
04666	20	6,994.05	0.8999	6,293.945
04667	20	6,547.65	0.8999	5,892.230
04796	18	5,880.08	0.8997	5,290.307
04798	20	7,002.12	0.9003	6,304.008
04799	19	6,739.85	0.8998	6,064.517
04801	20	7,029.33	0.9005	6,329.911
04802	22	7,288.20	0.8997	6,557.193
04803	21	7,295.98	0.8995	6,562.734
04804	20	6,808.39	0.8996	6,124.827
04805	19	6,528.95	0.8995	5,872.790
04806	20	6,865.53	0.8996	6,176.230
04807	19	6,614.38	0.9002	5,954.264
04808	20	6,798.59	0.8998	6,117.371
04809	20	6,918.93	0.8996	6,224.269
04810	18	5,568.76	0.8997	5,010.213
04813	21	7,024.60	0.8998	6,320.735
04814	15	5,168.33	0.8997	4,649.946
04815	16	5,794.53	0.8997	5,213.338
04816	21	7,122.24	0.8997	6,407.879

04817	18	6,014.48	0.9000	5,413.032
04818	20	6,802.70	0.8999	6,121.749
04820	21	6,981.15	0.8999	6,282.336
04821	14	4,356.40	0.9000	3,920.760
04822	20	7,031.40	0.8996	6,325.447
04823	20	7,041.95	0.8998	6,336.346
04824	20	6,915.75	0.9006	6,228.324
04825	20	6,958.70	0.9000	6,262.830
04826	21	6,945.33	0.8998	6,249.407
04827	10	3,294.93	0.9002	2,966.095
04831	20	6,860.83	0.8997	6,172.688
04832	20	6,809.68	0.8996	6,125.988
04833	20	6,915.20	0.8996	6,220.913
04838	21	7,341.26	0.8998	6,605.665
04839	21	7,509.30	0.8999	6,757.619
04840	21	7,331.55	0.8996	6,595.462
04841	21	7,427.08	0.8997	6,682.143
04842	21	7,255.98	0.8996	6,527.479
04846	20	7,002.95	0.8997	6,300.554
04847	20	6,880.70	0.8996	6,189.877
04848	20	7,011.65	0.8995	6,306.979
04850	17	5,620.17	0.9009	5,063.211
04852	18	6,127.05	0.8999	5,513.732
04855	17	5,547.10	0.8997	4,990.725
04886	14	4,757.18	0.9002	4,282.413
04888	20	6,568.87	0.8999	5,911.326
04889	21	6,970.32	0.8998	6,271.893
04890	20	6,666.26	0.8999	5,998.967
04892	19	6,314.40	0.8998	5,681.697
04893	14	4,337.57	0.8998	3,902.945
04919	21	7,039.16	0.8997	6,333.132
04920	21	7,051.64	0.8997	6,344.360
04921	21	7,236.79	0.8998	6,511.663
04923	21	7,102.55	0.8997	6,390.164
04924	21	7,052.90	0.8997	6,345.494
04926	20	6,961.40	0.8999	6,264.563
04927	20	6,959.47	0.9000	6,263.523
04928	20	6,848.30	0.8999	6,162.785
04930	20	6,734.45	0.8996	6,058.311
04931	18	6,155.96	0.8997	5,538.517
04932	17	5,721.63	0.8998	5,148.322
04933	16	5,332.77	0.8998	4,798.426
04934	15	5,004.82	0.8999	4,503.837
04935	15	5,083.73	0.8999	4,574.848

04936	17	5,772.85	0.8994	5,192.101
04937	15	5,171.35	0.8994	4,651.112
04938	16	5,191.28	0.8995	4,669.556
04939	18	6,284.03	0.8998	5,654.370
04941	10	3,334.14	0.8997	2,999.725
04966	13	4,361.44	0.8995	3,923.115
04980	20	6,843.46	0.9005	6,162.535
04982	20	6,847.60	0.8998	6,161.470
04984	20	6,847.83	0.8998	6,161.677
04985	21	7,170.64	0.8999	6,452.858
04986	21	7,134.17	0.9000	6,420.753
04991	17	6,166.07	0.8997	5,547.613
05004	18	6,315.47	0.8996	5,681.396
05017	19	6,243.98	0.8999	5,618.957
05079	22	7,370.25	0.8998	6,631.750
05080	15	5,068.51	0.8995	4,559.124
05081	25	8,357.58	0.8998	7,520.150
05082	13	4,349.58	0.8998	3,913.752
05138	20	6,785.22	0.8995	6,103.305
05139	19	6,622.93	0.8996	5,957.987
05140	19	6,429.10	0.8997	5,784.261
05141	20	7,026.23	0.8996	6,320.796
05143	18	5,942.84	0.8996	5,346.178
05264	12	4,173.35	0.8993	3,753.093
05340	21	7,399.75	0.9003	6,661.994
05433	12	4,197.59	0.8999	3,777.411
05454	15	5,088.73	0.9003	4,581.383
05455	17	5,622.02	0.8995	5,057.006
05456	22	7,238.26	0.8997	6,512.262
05457	21	7,019.62	0.8998	6,316.254
05458	21	7,124.37	0.8999	6,411.220
05459	21	7,267.20	0.9004	6,543.386
05768	20	6,634.78	0.9000	5,971.302
05810	10	3,239.28	0.8998	2,914.704
05830	19	6,315.42	0.8998	5,682.614
05867	10	3,317.53	0.9002	2,986.440
06030	13	4,238.53	0.8995	3,812.557
06035	18	5,853.90	0.9000	5,268.510
06051	19	6,368.20	0.9000	5,731.380
06190	19	6,259.40	0.8997	5,631.582
06191	18	5,900.67	0.8997	5,308.832
06192	18	5,554.17	0.8997	4,997.086
06228	21	6,736.15	0.8998	6,061.187
06229	19	5,976.10	0.8999	5,377.892

06245	19	6,241.12	0.9004	5,619.504
06251	21	7,157.09	0.8999	6,440.665
06270	14	4,595.02	0.8995	4,133.220
06300	18	5,863.67	0.8997	5,275.543
06321	20	6,559.24	0.8998	5,902.004
06322	20	6,608.38	0.9001	5,948.202
06323	19	6,323.69	0.8998	5,690.056
06324	19	6,304.75	0.8998	5,673.014
06325	18	6,025.82	0.8998	5,422.032
06326	15	4,938.62	0.8997	4,443.276
06328	17	5,790.47	0.8994	5,207.948
06329	20	6,591.04	0.8994	5,927.981
06337	14	4,785.12	0.8995	4,304.215
06346	13	4,450.80	0.8998	4,004.829
06347	13	4,282.97	0.9000	3,854.673
06357	16	5,279.94	0.9000	4,751.946
06394	19	6,438.68	0.8999	5,794.168
06395	19	6,485.60	0.8999	5,836.391
06396	19	6,379.69	0.9000	5,741.721
06400	21	6,882.08	0.8995	6,190.430
06401	18	5,915.56	0.8996	5,321.637
06402	17	5,469.42	0.9009	4,927.400
06414	16	5,298.07	0.8997	4,766.673
06415	16	5,331.43	0.8999	4,797.753
06417	20	6,626.80	0.8998	5,962.794
06418	20	6,683.50	0.8994	6,011.139
06419	21	6,932.23	0.8996	6,236.234
06420	19	6,342.12	0.8998	5,706.639
06422	16	5,296.27	0.8998	4,765.583
06423	11	3,504.59	0.8998	3,153.430
06432	13	4,394.23	0.8994	3,952.170
06433	16	5,473.20	0.8995	4,923.143
06434	15	5,210.34	0.9002	4,690.348
06435	17	5,814.34	0.8999	5,232.324
06436	18	6,138.98	0.8999	5,524.468
06437	19	6,279.72	0.8998	5,650.492
06440	20	6,512.50	0.8998	5,859.947
06447	20	6,585.22	0.9001	5,927.356
06448	19	6,445.93	0.9000	5,801.337
06449	19	6,508.02	0.8999	5,856.567
06451	20	6,884.38	0.8999	6,195.253
06452	18	6,256.19	0.8999	5,629.945
06453	19	6,519.92	0.9000	5,867.928
06455	19	6,342.97	0.8995	5,705.501

06466	13	4,350.52	0.8999	3,915.032
06467	15	4,911.67	0.8998	4,419.520
06520	18	6,144.38	0.8999	5,529.327
06521	21	7,270.50	0.9000	6,543.450
06522	22	7,617.37	0.9000	6,855.633
06523	20	6,889.22	0.9000	6,200.298
06524	23	7,796.12	0.8998	7,014.948
06557	21	7,075.95	0.8995	6,364.817
06563	19	6,437.97	0.8998	5,792.885
06564	20	6,723.53	0.8995	6,047.815
06569	19	6,585.59	0.8996	5,924.396
06570	21	7,006.62	0.8996	6,303.155
06571	17	5,729.21	0.8998	5,155.143
06574	13	4,454.57	0.8998	4,008.222
06575	13	4,279.08	0.8999	3,850.744
06590	13	4,305.80	0.8995	3,873.067
06594	14	4,566.86	0.8997	4,108.803
06595	15	4,890.65	0.8999	4,401.095
06605	21	6,739.75	0.8995	6,062.405
06606	19	5,999.23	0.9001	5,399.906
06709	15	4,930.32	0.8995	4,434.822
06733	20	6,593.49	0.8999	5,933.481
06734	20	6,852.16	0.8998	6,165.573
06735	19	6,604.49	0.8998	5,942.720
06736	19	6,576.43	0.8998	5,917.471
06748	20	6,694.82	0.8995	6,021.990
06749	18	6,069.72	0.8996	5,460.320
06750	18	6,058.48	0.8998	5,451.420
06772	19	6,243.93	0.8997	5,617.663
06773	15	5,130.86	0.8998	4,616.747
06774	17	5,791.84	0.8998	5,211.497
06775	21	6,930.53	0.9002	6,238.863
06818	20	6,836.55	0.9000	6,152.895
06819	22	7,427.70	0.9000	6,684.930
06859	14	4,862.45	0.8993	4,372.801
06860	14	4,741.13	0.8994	4,264.172
06861	20	6,919.95	0.8998	6,226.571
06862	20	6,894.02	0.8998	6,203.239
06863	21	7,033.89	0.8999	6,329.797
06883	19	6,434.56	0.9000	5,791.104
06884	17	5,639.18	0.9000	5,075.262
06885	17	5,849.80	0.9000	5,264.820
06892	15	5,068.78	0.8997	4,560.381
06893	17	5,574.91	0.8997	5,015.746

06899	19	6,519.25	0.8996	5,864.717
06900	19	6,541.84	0.8997	5,885.693
06901	19	6,558.85	0.8997	5,900.997
06902	19	6,204.22	0.8998	5,582.557
06903	19	6,289.87	0.8999	5,660.254
07162	17	5,647.65	0.8997	5,081.190
07163	15	4,732.48	0.8996	4,257.339
07176	22	7,289.90	0.8998	6,559.452
07178	20	6,798.10	0.8998	6,116.930
07180	20	6,566.60	0.8999	5,909.283
07181	19	6,643.15	0.8996	5,976.177
07189	14	4,740.71	0.8999	4,266.164
07190	13	4,385.20	0.8999	3,946.241
07210	21	7,202.80	0.8998	6,481.079
07211	22	7,520.34	0.8997	6,766.049
07212	22	7,691.34	0.8998	6,920.667
07213	21	7,210.20	0.8998	6,487.737
07214	22	7,516.57	0.8999	6,764.161
07215	23	7,789.73	0.9000	7,010.757
07216	22	7,027.78	0.9000	6,325.002
07217	23	7,693.63	0.8998	6,922.728
07218	22	7,346.54	0.8999	6,611.151
07219	21	6,977.30	0.8999	6,278.872
07220	20	6,925.63	0.8998	6,231.681
07221	22	7,519.13	0.8997	6,764.961
07222	17	5,753.93	0.8997	5,176.810
07223	10	3,400.88	0.8998	3,060.111
07244	19	6,649.82	0.8996	5,982.178
07246	18	5,892.83	0.8997	5,301.779
07266	11	3,694.91	0.8998	3,324.680
07270	13	4,457.98	0.8997	4,010.844
07271	13	4,523.19	0.8998	4,069.966
07322	21	7,081.03	0.8996	6,370.094
07323	18	6,108.67	0.9000	5,497.803
07324	17	5,636.60	0.9000	5,072.940
07325	18	5,949.04	0.9001	5,354.730
07326	18	5,727.37	0.8999	5,154.060
07356	20	6,786.53	0.8999	6,107.198
07357	19	6,476.35	0.9001	5,829.362
07358	20	6,548.48	0.8999	5,892.977
07359	19	6,616.45	0.8999	5,954.143
07360	17	5,736.48	0.8998	5,161.684
07390	16	5,305.67	0.8996	4,772.980
07391	11	3,632.80	0.9000	3,269.520

07597	14	4,822.97	0.8997	4,339.226
07598	14	4,692.62	0.8999	4,222.888
07722	20	6,788.94	0.8996	6,107.330
07723	19	6,466.90	0.8994	5,816.329
07724	14	4,598.15	0.8996	4,136.495
07725	18	6,101.83	0.8997	5,489.816
07726	20	6,625.30	0.8997	5,960.782
07784	18	6,148.60	0.8996	5,531.280
07793	17	5,904.30	0.8995	5,310.917
07794	15	4,941.38	0.8998	4,446.253
07798	12	4,014.40	0.9005	3,614.967
07805	13	4,419.75	0.8993	3,974.681
07847	11	3,676.13	0.9003	3,309.619
07848	14	4,528.05	0.9001	4,075.697
07851	13	4,099.61	0.9000	3,689.649
07870	22	7,032.80	0.8997	6,327.410
07950	21	7,050.27	0.8993	6,340.307
07951	21	7,320.80	0.8999	6,587.987
07954	22	6,798.00	0.8999	6,117.520
07958	21	7,181.44	0.8996	6,460.423
07959	20	6,913.59	0.8998	6,220.848
07962	19	6,439.19	0.8997	5,793.339
08136	19	6,406.44	0.8994	5,761.952
08137	19	6,473.08	0.8994	5,821.888
08138	17	5,685.15	0.8994	5,113.223
08157	19	6,397.10	0.8995	5,754.191
08174	10	3,298.33	0.9000	2,968.497
08787	21	7,139.27	0.8997	6,423.201
08870	20	6,660.24	0.9000	5,994.216
08889	18	6,118.39	0.8998	5,505.327
08890	17	5,743.28	0.8999	5,168.377
08895	20	6,523.10	0.9000	5,870.790
08903	19	6,628.63	0.8998	5,964.441
08905	13	4,420.98	0.8997	3,977.555
09442	24	7,924.83	0.8997	7,129.969
10743	12	4,181.88	0.8998	3,762.855
10744	11	3,732.98	0.8997	3,358.562
10780	21	7,088.40	0.9000	6,379.560
10781	21	7,091.97	0.8997	6,380.645
10782	22	7,429.03	0.8999	6,685.384
10821	12	3,856.63	0.8998	3,470.195
10878	18	6,257.33	0.8997	5,629.719
10879	19	6,419.98	0.8996	5,775.414
11083	20	7,000.17	0.8990	6,293.152

11084	17	5,911.23	0.8998	5,318.924
11085	17	5,848.35	0.8997	5,261.760
11580	22	7,340.25	0.8997	6,604.022
11582	21	7,066.28	0.8997	6,357.532
11583	22	7,367.63	0.8996	6,627.919
11584	21	6,961.37	0.8997	6,263.144
11906	21	7,244.07	0.9009	6,526.182
11908	20	7,080.22	0.8998	6,370.781
11910	20	7,107.75	0.9000	6,396.975
11911	21	7,222.32	0.9000	6,500.088
11914	19	6,390.82	0.9000	5,751.738
12051	16	5,511.08	0.8996	4,957.767
12052	16	5,529.69	0.8997	4,975.062
12053	15	5,096.05	0.8997	4,584.916
12128	20	7,077.35	0.8997	6,367.491
12131	18	6,022.93	0.8997	5,418.830
12132	20	6,974.18	0.8996	6,273.972
12133	18	6,302.64	0.8997	5,670.485
12134	18	6,279.13	0.8996	5,648.705
12135	19	6,745.34	0.8997	6,068.782
12314	15	4,834.38	0.9002	4,351.908
12439	21	7,183.45	0.9000	6,465.105
12440	21	7,279.82	0.9001	6,552.565
12441	21	7,325.53	0.9003	6,595.174
12442	22	7,680.25	0.9001	6,912.993
12443	19	6,267.34	0.8998	5,639.352
12693	18	6,263.87	0.9000	5,637.483
12694	18	6,180.35	0.9000	5,562.315
15263	17	5,713.70	0.9003	5,144.044
15296	18	6,262.10	0.8998	5,634.637
15297	7	2,057.37	0.8999	1,851.427
15326	17	5,909.25	0.9001	5,318.915
15327	16	5,425.22	0.8997	4,881.070
16126	15	5,224.57	0.8997	4,700.545
16127	16	5,325.40	0.8998	4,791.794
21946	21	7,328.70	0.8998	6,594.364
21947	18	6,089.18	0.8999	5,479.653
22773	17	5,925.26	0.9000	5,332.734
22774	15	5,174.32	0.9001	4,657.405
22926	24	8,311.50	0.8998	7,478.687
24423	23	7,979.40	0.8999	7,180.662
24424	20	7,007.04	0.9000	6,306.336
24425	22	7,678.94	0.9002	6,912.581
24426	21	7,382.44	0.9002	6,645.672

24427	19	6,679.60	0.8998	6,010.304
24428	21	7,275.85	0.8998	6,546.809
24429	21	7,157.95	0.8998	6,440.723
24430	20	6,957.90	0.8997	6,260.022
24997	22	7,523.90	0.8995	6,767.748
24998	23	8,050.50	0.8997	7,243.034
24999	22	7,730.80	0.8997	6,955.400
25000	22	7,684.50	0.8998	6,914.513
25001	21	7,076.30	0.8997	6,366.547
25002	20	6,950.80	0.8996	6,252.939
25003	16	5,488.90	0.8999	4,939.461
25004	16	5,243.00	0.8998	4,717.651
25005	21	7,062.20	0.8995	6,352.448
25008	22	7,706.80	0.8996	6,933.037
25009	21	7,347.70	0.8997	6,610.725
25010	21	7,348.90	0.8998	6,612.540
25011	22	7,841.40	0.9000	7,057.260
25012	21	7,523.00	0.8999	6,769.947
25013	21	7,179.80	0.8999	6,461.102
25015	22	7,640.70	0.8997	6,874.337
25016	20	6,893.70	0.8999	6,203.640
25017	16	5,604.90	0.8997	5,042.728
25018	16	5,183.60	0.8999	4,664.721
25023	22	7,586.10	0.8997	6,825.214
25024	21	7,251.40	0.8997	6,524.084
25025	21	7,386.10	0.8996	6,644.535
25026	21	7,069.90	0.8995	6,359.375
25027	22	7,750.65	0.8994	6,970.934
25028	22	7,918.80	0.8996	7,123.752
25029	21	7,579.15	0.8996	6,818.203
25030	21	7,575.05	0.8996	6,814.514
25032	17	5,684.60	0.8997	5,114.434
25033	17	5,707.70	0.8995	5,134.076
25144	21	7,336.20	0.8998	6,601.112
25145	20	7,127.60	0.8997	6,412.701
25147	20	6,932.70	0.9000	6,239.430
25151	19	6,713.20	0.8997	6,039.866
25152	19	6,714.45	0.8997	6,040.990
25153	17	6,020.70	0.9001	5,419.232
25186	21	7,399.85	0.8995	6,656.165
25187	20	6,877.20	0.8995	6,186.041
25188	20	7,127.90	0.8993	6,410.120
25189	18	6,388.20	0.8994	5,745.547
25190	19	6,747.20	0.8993	6,067.756

25191	20	6,917.40	0.8994	6,221.509
25192	21	7,466.60	0.8994	6,715.460
25193	19	6,542.90	0.8995	5,885.338
25199	20	7,035.80	0.8999	6,331.516
25200	18	6,063.15	0.8997	5,455.016
25201	17	5,597.40	0.8998	5,036.540
25205	20	7,043.10	0.8993	6,333.859
25412	21	7,435.35	0.8996	6,688.840
25413	20	6,997.30	0.8997	6,295.470
25414	15	5,277.30	0.8997	4,747.986
25427	21	7,408.60	0.8999	6,666.999
25428	20	7,187.80	0.8998	6,467.582
25430	20	7,222.40	0.8998	6,498.715
25431	20	7,049.80	0.8999	6,344.115
25433	20	7,109.20	0.8998	6,396.858
25434	22	7,888.35	0.8994	7,094.781
25435	21	7,417.20	0.8995	6,671.771
25461	22	7,801.80	0.8999	7,020.839
25462	22	7,437.70	0.8999	6,693.186
25645	20	6,910.59	0.8998	6,218.148
25646	20	6,988.10	0.9001	6,289.988
25647	18	5,907.76	0.8999	5,316.393
25675	18	6,087.45	0.9000	5,478.705
25676	17	5,424.30	0.9000	4,881.870
25677	17	5,823.73	0.8998	5,240.192
25715	21	7,390.75	0.8997	6,649.457
25716	20	6,982.63	0.8999	6,283.668
25717	20	7,013.02	0.8999	6,311.016
25718	20	7,001.45	0.8999	6,300.604
25719	20	6,989.88	0.9000	6,290.892
25721	20	6,941.36	0.9000	6,247.224
25722	16	5,426.16	0.9000	4,883.544
25723	16	5,463.02	0.8997	4,915.079
25729	22	7,499.94	0.8998	6,748.446
26165	22	7,924.55	0.8999	7,131.302
26166	20	7,020.10	0.9002	6,319.494
26167	20	6,842.13	0.9000	6,157.917
26168	21	7,216.03	0.9000	6,494.427
26169	20	6,724.43	0.9000	6,051.987
26206	20	6,832.51	0.9000	6,149.259
26208	20	6,731.27	0.8999	6,057.469
26213	22	7,869.90	0.9001	7,083.696
26214	22	7,921.77	0.9001	7,130.385
26215	22	7,959.68	0.9000	7,163.712

26216	21	7,664.52	0.9001	6,898.834
26217	21	7,610.05	0.9000	6,849.045
26218	21	7,562.30	0.8999	6,805.313
26219	20	7,199.53	0.9001	6,480.296
26220	19	6,749.06	0.9001	6,074.828
26265	22	7,559.36	0.9001	6,804.179
26266	22	7,609.52	0.9002	6,850.089
26267	21	7,229.67	0.9001	6,507.425
26268	22	7,423.65	0.9001	6,682.027
26269	22	7,524.40	0.9003	6,774.217
26270	21	7,379.80	0.9002	6,643.295
26271	21	7,348.30	0.9002	6,614.939
26273	19	6,725.05	0.9000	6,052.545
26274	20	6,993.00	0.9000	6,293.700
26275	21	7,279.73	0.9001	6,552.484
26289	22	7,437.68	0.8993	6,688.705
26290	21	7,034.38	0.8994	6,326.721
26291	22	7,311.11	0.8994	6,575.612
26292	21	7,113.96	0.8993	6,397.584
26293	21	6,996.87	0.8994	6,292.984
26294	19	6,951.80	0.8995	6,253.144
26295	19	6,922.86	0.9000	6,230.574
26845	18	6,394.20	0.9000	5,754.780
26846	18	6,385.70	0.8999	5,746.491
26847	18	6,429.50	0.8999	5,785.907
26849	18	6,380.49	0.8999	5,741.802
26850	17	5,818.90	0.8998	5,235.846
26851	20	6,819.75	0.9001	6,138.456
26855	20	7,151.40	0.8999	6,435.544
26856	19	6,710.70	0.8998	6,038.287
26857	19	6,908.45	0.8996	6,214.841
26858	17	5,833.40	0.8996	5,247.726
26859	16	5,146.03	0.8994	4,628.339
26955	19	7,086.53	0.8999	6,377.168
26957	19	6,948.05	0.9000	6,253.245
26958	18	6,519.58	0.9001	5,868.273
26985	21	7,779.18	0.8999	7,000.484
26987	21	7,733.32	0.8998	6,958.441
26988	21	7,717.30	0.9000	6,945.570
26989	21	7,755.23	0.9000	6,979.707
26990	17	6,135.19	0.9000	5,521.671
26991	22	7,621.56	0.8999	6,858.641
27267	18	6,255.67	0.8998	5,628.851
27279	22	7,429.37	0.8999	6,685.690

27280	20	6,665.06	0.8999	5,997.887
27281	18	6,152.10	0.8998	5,535.659
27282	18	6,130.20	0.8998	5,515.953
27283	17	5,573.40	0.8998	5,014.945
27302	18	6,154.83	0.8999	5,538.731
27303	17	5,390.35	0.8999	4,850.775
27304	22	7,654.08	0.8999	6,887.906
27305	21	7,239.57	0.9000	6,515.613
27306	21	7,208.93	0.8999	6,487.316
27307	21	7,191.34	0.8999	6,471.486
27308	21	7,237.27	0.8999	6,512.819
27309	21	7,096.43	0.8999	6,386.077
27310	21	7,234.93	0.8998	6,509.990
27311	21	7,129.63	0.8998	6,415.241
27312	20	6,814.23	0.8999	6,132.125
27313	20	6,581.65	0.8999	5,922.826
27458	20	7,412.95	0.8999	6,670.913
27460	20	7,407.15	0.8999	6,665.694
27461	20	7,459.40	0.9006	6,717.935
27462	19	6,854.55	0.9000	6,169.095
27463	17	6,001.60	0.9000	5,401.440
27471	13	4,339.32	0.8997	3,904.086
27472	13	4,272.73	0.8999	3,845.029
27584	23	7,867.88	0.8998	7,079.518
27585	23	7,927.62	0.8998	7,133.272
27586	24	8,184.73	0.9003	7,368.712
27588	23	7,891.85	0.8997	7,100.297
27589	22	7,511.13	0.8996	6,757.012
27590	23	7,512.45	0.8997	6,758.951
27600	21	7,220.21	0.9002	6,499.633
27601	19	6,551.93	0.9000	5,896.737
27602	19	6,698.20	0.8998	6,027.040
27603	15	5,024.53	0.8999	4,521.574
27604	16	5,174.50	0.9000	4,657.050
27625	22	7,513.62	0.8999	6,761.506
27626	22	7,484.22	0.8998	6,734.301
27627	21	7,207.28	0.9007	6,491.597
27628	20	6,749.42	0.8999	6,073.803
27629	19	6,095.30	0.8999	5,485.160
27645	18	6,640.80	0.8999	5,976.055
27647	18	6,502.38	0.8998	5,850.841
27739	16	5,447.63	0.8997	4,901.232
27740	16	5,478.55	0.8997	4,929.051
27741	15	5,198.68	0.8997	4,677.252

28262	17	6,306.55	0.8998	5,674.633
28263	18	6,642.25	0.8999	5,977.360
28264	18	6,637.43	0.8998	5,972.359
28265	16	5,614.13	0.8998	5,051.594
28266	21	7,723.49	0.8999	6,950.368
28267	19	6,949.65	0.8998	6,253.295
28269	21	7,420.80	0.9002	6,680.204
28270	20	7,047.95	0.9001	6,343.859
28271	16	5,231.00	0.9007	4,711.561
28272	15	5,078.49	0.8999	4,570.133
28431	21	7,300.68	0.8998	6,569.151
28432	21	7,310.00	0.8999	6,578.269
28433	21	7,340.28	0.9002	6,607.720
28434	21	7,342.18	0.9001	6,608.696
28435	20	7,088.31	0.9002	6,380.896
28436	18	6,135.34	0.8998	5,520.578
28458	18	6,100.33	0.9005	5,493.347
28459	18	6,205.73	0.9005	5,588.259
28460	17	5,478.07	0.9003	4,931.906
28461	21	7,389.68	0.9000	6,650.712
28462	21	7,279.83	0.9004	6,554.758
28463	22	7,589.88	0.9004	6,833.927
28464	21	7,179.33	0.9006	6,465.704
28465	20	6,624.80	0.9007	5,966.957
29077	20	7,177.83	0.8999	6,459.329
29078	18	6,158.33	0.8999	5,541.881
29271	16	5,435.01	0.8998	4,890.421
29297	16	5,658.45	0.9007	5,096.565
29388	21	7,337.90	0.9005	6,607.778
29389	20	7,327.26	0.9004	6,597.464
29390	20	7,083.43	0.9000	6,375.087
29391	21	7,087.37	0.9003	6,380.759
29404	22	7,744.18	0.9002	6,971.310
29405	22	7,706.58	0.9001	6,936.692
29406	22	7,702.77	0.9000	6,932.493
29407	22	7,654.50	0.9001	6,889.815
29408	17	5,970.21	0.9000	5,373.189
29409	19	6,389.03	0.8998	5,748.849
29410	18	6,235.14	0.9002	5,612.873
29411	19	6,633.71	0.8999	5,969.675
29420	15	5,249.68	0.8999	4,724.187
29455	16	5,530.69	0.9002	4,978.727
29456	16	5,604.73	0.8999	5,043.696
29457	15	4,987.08	0.8995	4,485.878

29461	22	7,499.18	0.8999	6,748.512
29462	21	7,269.63	0.8998	6,541.213
29463	20	6,956.32	0.8997	6,258.601
29464	20	6,955.53	0.8998	6,258.585
29465	20	6,860.65	0.8998	6,173.212
29466	20	6,968.90	0.8997	6,269.919
29467	20	6,888.75	0.8997	6,197.808
29468	19	6,516.05	0.8996	5,861.838
C 001	22	7,872.27	0.8997	7,082.681
C 002	22	7,766.77	0.9001	6,990.869
F 001	23	8,008.28	0.8998	7,205.850
F 002	23	8,100.98	0.9000	7,290.882
F 003	23	7,897.70	0.8998	7,106.350
F 004	23	8,256.20	0.8997	7,428.103
F 005	23	8,213.50	0.8998	7,390.507
F 006	21	7,067.68	0.8997	6,358.791
F 007	23	7,891.90	0.8999	7,101.920
F 008	23	8,126.90	0.8997	7,311.771
F 009	24	8,131.50	0.8998	7,316.723
F 010	23	7,963.60	0.8998	7,165.647
F 012	23	7,822.04	0.8998	7,038.271
F 014	23	8,164.83	0.8998	7,346.714
F 016	23	8,001.05	0.8998	7,199.344
F 017	24	8,372.59	0.8998	7,533.656
F 018	23	7,780.15	0.8998	7,000.578
F 019	23	8,193.85	0.8999	7,373.645
F 021	23	7,933.15	0.8999	7,139.041
F 022	23	8,277.08	0.8998	7,447.716
F 023	23	8,206.45	0.8998	7,384.163
F 024	22	7,677.56	0.8998	6,908.268
F 025	24	8,376.30	0.8998	7,536.994
F 026	23	7,998.90	0.8998	7,197.410
F 027	23	7,773.29	0.8998	6,994.406
F 028	23	8,040.72	0.8999	7,235.843
F 029	23	8,147.95	0.8998	7,331.525
F 030	23	7,979.30	0.8998	7,179.774
F 031	23	8,132.35	0.8998	7,317.488
F 032	23	8,249.90	0.8997	7,422.435
F 033	22	7,785.95	0.8998	7,005.797
F 034	24	8,308.32	0.8998	7,475.826
F 035	23	7,930.73	0.8998	7,136.070
F 036	23	7,926.85	0.8998	7,132.579
F 037	23	8,161.90	0.8997	7,343.261
F 038	23	8,147.20	0.8998	7,330.850

F 039	23	7,883.88	0.8998	7,093.915
F 040	23	8,232.34	0.8997	7,406.636
F 041	23	8,118.98	0.9000	7,307.082
F 042	22	7,783.03	0.8998	7,003.170
F 043	24	8,391.70	0.8998	7,550.851
F 044	23	7,973.21	0.8998	7,174.294
F 045	23	7,789.67	0.8998	7,009.145
F 046	23	8,058.71	0.8999	7,252.033
F 047	23	8,212.08	0.8999	7,390.050
F 048	23	7,894.63	0.8998	7,103.588
F 050	23	8,210.03	0.8998	7,387.384
F 052	24	8,167.30	0.8998	7,348.936
F 053	23	7,982.90	0.8998	7,183.013
F 054	23	8,002.40	0.8998	7,200.559
F 055	23	8,067.53	0.8998	7,259.163
F 057	24	8,414.45	0.8999	7,572.163
F 058	21	7,328.70	0.8998	6,594.364
F 059	24	8,436.53	0.8998	7,591.189
F 060	24	8,398.83	0.8997	7,556.427
F 061	24	8,226.45	0.8999	7,402.982
F 062	23	7,950.10	0.8998	7,153.499
F 063	23	7,979.85	0.8998	7,180.269
F 064	23	8,187.70	0.8998	7,367.292
F 065	23	8,122.50	0.8999	7,309.437
F 066	23	7,858.00	0.8998	7,070.628
F 068	23	8,277.71	0.8998	7,448.283
F 069	22	7,537.11	0.8997	6,781.137
F 070	24	8,414.12	0.8998	7,571.025
F 071	23	8,036.64	0.8998	7,231.368
F 072	22	7,704.22	0.8997	6,931.486
F 073	23	7,996.40	0.8998	7,195.160
F 074	23	8,123.90	0.8998	7,309.885
F 076	24	8,437.55	0.8997	7,591.263
F 077	23	8,215.40	0.8998	7,392.216
F 078	21	7,507.50	0.8998	6,755.248
F 080	23	8,034.22	0.8998	7,229.191
T 002	19	6,427.94	0.8999	5,784.503
T 003	19	6,489.73	0.8996	5,838.161
T 004	20	6,866.85	0.8996	6,177.418
T 005	20	6,860.00	0.8999	6,173.314
T 006	20	6,761.59	0.8996	6,082.726
T 007	19	6,634.23	0.9000	5,970.807
T 008	19	6,413.77	0.8997	5,770.468
T 009	19	6,425.05	0.8998	5,781.259

T 010	20	6,744.84	0.9003	6,072.379
T 013	18	6,373.02	0.8998	5,734.443
T 014	20	6,926.55	0.8999	6,233.202
T 015	19	6,657.20	0.8998	5,990.148
T 016	19	6,306.68	0.9008	5,681.057
T 018	20	6,763.62	0.9004	6,089.963
T 019	20	6,767.82	0.8997	6,089.007
T 021	20	6,671.71	0.9002	6,005.873
T 022	20	6,626.29	0.8997	5,961.673
T 024	20	6,678.90	0.8999	6,010.342
T 026	23	7,589.57	0.8999	6,829.854
T 027	22	7,394.63	0.8997	6,652.948
T 028	23	7,682.91	0.8997	6,912.314
T 029	23	7,713.74	0.8996	6,939.280
T 030	22	7,412.19	0.8997	6,668.747
T 031	23	7,856.63	0.8998	7,069.395
T 032	22	7,197.67	0.8997	6,475.743
T 033	24	8,175.30	0.8996	7,354.499
T 034	21	7,177.92	0.8996	6,457.256
T 035	22	7,673.25	0.8997	6,903.623
T 036	23	7,885.81	0.8998	7,095.651
T 037	23	7,814.03	0.8996	7,029.501
T 038	23	7,639.10	0.8998	6,873.662
T 039	22	7,446.52	0.8999	6,701.123
T 040	23	7,841.30	0.8999	7,056.385
T 041	22	7,504.20	0.9009	6,760.533
T 043	23	7,776.00	0.8999	6,997.622
T 046	23	7,685.80	0.8997	6,914.914
T 047	23	7,563.74	0.8997	6,805.096
T 055	20	6,727.95	0.8993	6,050.445
T 065	22	7,258.05	0.8999	6,531.519
T 066	22	7,276.38	0.8997	6,546.559
T 067	22	7,235.08	0.8994	6,507.230
T 073	20	6,988.28	0.8999	6,288.753
T 074	20	6,908.82	0.8995	6,214.483
T 075	20	6,859.60	0.8995	6,170.210
T 076	20	6,805.70	0.8995	6,121.727
T 080	20	6,694.57	0.8997	6,023.104
T 081	20	6,843.84	0.8998	6,158.087
T 082	20	6,761.17	0.8996	6,082.348
T 083	19	6,441.03	0.8994	5,793.062
T 084	20	6,706.49	0.8994	6,031.817
T 086	20	6,617.54	0.8997	5,953.800
T 089	22	7,737.97	0.8999	6,963.399

T 090	23	8,180.57	0.9001	7,363.331
T 091	25	8,809.68	0.8999	7,927.831
T 092	24	8,391.98	0.9000	7,552.782
T 095	24	8,381.06	0.9000	7,542.954
T 098	25	8,358.44	0.8999	7,521.760
T 099	14	4,705.95	0.9001	4,235.825
T 101	20	6,629.85	0.9001	5,967.527
T 102	24	7,986.78	0.8999	7,187.303
T 103	26	8,628.85	0.9000	7,765.965
T 106	18	6,422.38	0.8995	5,776.930
T 107	15	5,118.83	0.8995	4,604.387
T 108	18	6,126.24	0.8999	5,513.003
T 109	17	5,958.74	0.8997	5,361.078
T 111	18	6,263.35	0.8998	5,635.762
T 112	17	5,832.95	0.8997	5,247.905
T 113	13	4,345.73	0.8997	3,909.853
T 114	18	6,008.35	0.8994	5,403.909
T 115	17	5,646.33	0.8994	5,078.309
T 117	17	5,738.21	0.8994	5,160.946
T 118	17	5,804.83	0.8997	5,222.605
T 119	17	5,769.29	0.8993	5,188.322
T 120	17	5,794.55	0.8998	5,213.936
T 121	17	5,656.92	0.8996	5,088.965
T 122	14	4,715.92	0.8997	4,242.913
T 123	16	5,173.72	0.8996	4,654.278
T 125	17	5,717.07	0.8998	5,144.219
T 126	10	3,382.87	0.8997	3,043.568
T 127	16	5,260.10	0.8997	4,732.511
T 128	14	4,181.65	0.8997	3,762.230
T 129	15	4,483.84	0.8996	4,033.662
T 131	15	4,635.29	0.9004	4,173.615
T 132	10	3,410.25	0.9000	3,069.225
T 133	16	5,384.27	0.8998	4,844.766
T 134	14	4,715.16	0.8998	4,242.700
T 135	22	7,242.48	0.8995	6,514.610
T 136	16	5,265.75	0.8998	4,738.121
T 137	14	4,616.60	0.8997	4,153.555
T 138	20	6,760.04	0.8999	6,083.359
T 139	16	5,232.50	0.8998	4,708.203
T 141	23	7,768.59	0.8997	6,989.400
T 142	16	5,354.45	0.8994	4,815.792
T 143	14	4,830.04	0.8997	4,345.586
T 144	20	6,403.33	0.8999	5,762.356
T 145	15	5,124.02	0.8998	4,610.593

T 146	12	3,764.13	0.8998	3,386.964
T 147	19	5,921.77	0.9004	5,331.961
T 148	8	2,762.75	0.9006	2,488.132
T 149	19	6,228.83	0.8998	5,604.701
T 150	17	5,658.06	0.8997	5,090.556
T 152	20	6,850.11	0.8995	6,161.673
T 153	20	6,934.22	0.8998	6,239.411
T 154	20	6,949.19	0.8999	6,253.576
T 155	20	6,679.62	0.8999	6,010.990
T 157	18	6,029.97	0.8997	5,425.164
T 158	16	5,547.35	0.8995	4,989.841
T 160	13	4,035.37	0.8999	3,631.429
T 162	20	6,946.22	0.8997	6,249.514
T 163	20	6,946.97	0.8998	6,250.883
T 164	21	7,088.95	0.8997	6,377.928
T 165	20	6,776.37	0.8998	6,097.377
T 167	20	6,902.02	0.8997	6,209.747
T 168	20	6,842.54	0.8996	6,155.548
T 169	20	6,749.80	0.8997	6,072.795
T 170	20	6,861.56	0.8994	6,171.287
T 171	21	6,886.34	0.8997	6,195.640
T 172	20	6,830.39	0.8997	6,145.301
T 173	20	6,878.32	0.8996	6,187.736
T 174	17	5,854.48	0.8994	5,265.519
T 175	17	5,871.20	0.8998	5,282.905
T 176	17	5,880.45	0.8999	5,291.816
T 180	17	5,819.42	0.8997	5,235.732
T 181	17	5,752.55	0.8997	5,175.569
T 182	16	5,265.10	0.8997	4,737.010
T 183	17	5,856.53	0.8996	5,268.534
T 184	17	5,918.40	0.8995	5,323.600
T 185	17	5,871.47	0.8998	5,283.148
T 186	17	5,922.32	0.9001	5,330.680
T 187	19	6,400.30	0.9002	5,761.550
T 189	20	6,825.46	0.9001	6,143.596
T 190	20	6,772.49	0.9002	6,096.595
T 191	20	6,858.24	0.9000	6,172.416
T 192	21	7,223.43	0.8997	6,498.919
T 194	20	6,860.56	0.8999	6,173.817
T 195	21	7,157.33	0.8998	6,440.165
T 196	20	6,533.55	0.9000	5,880.195
T 197	19	6,597.94	0.8994	5,934.187
T 198	20	6,880.99	0.8997	6,190.826
T 199	21	7,290.35	0.8999	6,560.585

T 200	20	6,815.80	0.8999	6,133.538
T 201	22	7,175.20	0.8998	6,456.244
T 202	21	7,082.83	0.8999	6,373.838
T 203	18	6,232.57	0.8997	5,607.443
T 204	20	6,940.77	0.8997	6,244.610
T 205	20	6,989.84	0.8997	6,288.759
T 206	19	6,463.39	0.8994	5,813.172
T 207	20	6,958.04	0.8999	6,261.540
T 208	21	7,121.48	0.8998	6,407.907
T 210	20	6,823.06	0.8995	6,137.342
T 213	20	6,577.64	0.8996	5,917.244
T 214	20	6,630.92	0.8998	5,966.501
T 215	20	6,839.94	0.8995	6,152.526
T 216	20	6,856.34	0.8997	6,168.649
T 218	20	6,572.64	0.8992	5,910.117
T 219	21	6,973.63	0.8993	6,271.385
T 220	21	7,041.59	0.8999	6,336.726
T 221	21	6,997.35	0.8999	6,296.915
T 222	21	7,125.25	0.8995	6,409.162
T 223	21	6,832.19	0.8993	6,144.188
F 081	23	7,811.35	0.9000	7,030.215
F 082	24	8,405.82	0.8998	7,563.556
F 083	23	8,101.50	0.8997	7,288.919
F 084	23	7,646.78	0.8998	6,880.572
F 085	23	8,167.38	0.8998	7,349.008
00014	18	6,680.61	0.9166	6,123.447
00015	17	6,085.17	0.9166	5,577.666
00020	18	6,435.45	0.8997	5,789.974
00021	18	6,616.86	0.8997	5,953.188
00022	19	6,634.65	0.8998	5,969.858
00023	16	5,795.71	0.9166	5,312.347
00032	14	4,800.18	0.8995	4,317.761
00033	14	4,463.98	0.8994	4,014.903
00037	12	4,313.78	0.8996	3,880.676
00038	13	4,392.50	0.8997	3,951.932
00050	19	6,708.71	0.9166	6,149.203
00051	19	6,778.51	0.9166	6,213.182
00052	18	6,185.95	0.9164	5,668.804
00056	22	7,700.57	0.9167	7,059.112
00057	20	6,988.29	0.9164	6,404.068
00058	20	6,986.94	0.9166	6,404.229
00059	18	6,262.91	0.9166	5,740.583
00060	17	5,853.88	0.9165	5,365.081
00061	15	4,913.04	0.9167	4,503.783

00062	18	6,641.19	0.9148	6,075.360
00092	22	7,899.28	0.9000	7,109.352
00098	21	7,866.47	0.9166	7,210.406
00099	20	7,372.55	0.9166	6,757.679
00102	14	5,170.14	0.9166	4,738.950
00103	12	4,354.83	0.9165	3,991.201
00104	14	4,834.19	0.9166	4,431.018
00105	19	6,889.09	0.8996	6,197.425
00163	18	6,549.92	0.9031	5,915.232
00164	18	6,531.23	0.9011	5,885.291
00165	18	6,611.78	0.9042	5,978.371
00166	18	6,444.22	0.9048	5,830.730
00172	15	5,462.98	0.8998	4,915.589
00174	15	5,183.63	0.8998	4,664.230
00175	19	6,693.38	0.8995	6,020.695
00191	14	5,024.76	0.9166	4,605.695
00192	13	4,773.27	0.9166	4,375.179
00193	20	7,332.78	0.9165	6,720.492
00194	20	7,331.72	0.9166	6,720.254
00195	20	7,300.91	0.9165	6,691.284
00196	19	6,772.18	0.9165	6,206.702
00263	20	7,020.67	0.8998	6,317.198
00275	18	6,526.41	0.9164	5,980.802
00276	17	6,125.43	0.8993	5,508.599
00280	23	8,311.25	0.8999	7,479.293
00281	22	7,785.78	0.8998	7,005.644
00282	18	6,590.20	0.9165	6,039.918
00284	16	5,714.39	0.9009	5,148.093
00285	15	5,259.65	0.8999	4,733.159
00286	15	5,329.27	0.9154	4,878.413
00287	16	5,502.39	0.9166	5,043.490
00291	22	8,080.43	0.9166	7,406.522
00297	16	5,534.54	0.8999	4,980.532
00298	17	5,595.83	0.8998	5,035.127
00310	20	7,467.20	0.9165	6,843.688
00311	20	7,484.38	0.9165	6,859.434
00312	20	7,407.94	0.9166	6,790.117
00313	20	7,523.33	0.9164	6,894.379
00314	19	6,897.20	0.9162	6,319.214
00315	13	4,481.86	0.8994	4,030.984
00326	24	8,168.42	0.8997	7,349.127
00327	21	7,506.40	0.9164	6,878.864
00328	21	7,572.10	0.9166	6,940.586
00329	20	6,897.89	0.9165	6,321.916

00381	18	6,353.52	0.8998	5,716.897
00382	18	6,375.78	0.8998	5,736.926
00383	18	6,398.03	0.8997	5,756.307
00384	18	5,946.43	0.8998	5,350.597
00395	18	6,744.58	0.9166	6,182.082
00396	18	6,798.38	0.9165	6,230.715
00397	17	6,204.36	0.9166	5,686.916
00403	18	6,652.38	0.9164	6,096.241
00404	19	6,659.92	0.9154	6,096.490
00405	21	7,261.09	0.8997	6,532.802
00406	21	7,334.19	0.8998	6,599.304
00407	24	8,261.88	0.9007	7,441.475
00412	16	5,754.07	0.8995	5,175.785
00420	16	5,831.91	0.9167	5,346.111
00423	13	4,514.90	0.8998	4,062.507
00431	23	8,059.91	0.9166	7,387.713
00432	23	8,173.01	0.9166	7,491.380
00472	23	8,014.10	0.8998	7,211.087
00600	12	4,193.08	0.9163	3,842.119
00601	13	4,370.67	0.9164	4,005.281
00602	23	8,124.92	0.8997	7,309.990
00603	22	7,654.42	0.8998	6,887.447
00630	15	5,454.01	0.8999	4,908.063
00631	16	5,728.01	0.8998	5,154.063
00661	13	4,645.62	0.8999	4,180.593
00662	12	4,175.39	0.8998	3,757.015
00669	17	5,831.25	0.9166	5,344.923
00727	13	4,491.67	0.9000	4,042.503
00728	13	4,421.33	0.8995	3,976.986
00870	20	6,815.42	0.8993	6,129.107
00875	19	6,918.13	0.8996	6,223.549
00876	17	6,214.31	0.8994	5,589.150
00907	15	5,248.71	0.8999	4,723.314
00908	16	5,462.36	0.8997	4,914.485
00913	24	8,485.66	0.8997	7,634.548
00935	18	6,289.97	0.8999	5,660.344
00936	17	5,942.98	0.8999	5,348.087
00941	22	8,012.24	0.8999	7,210.214
00951	20	7,143.33	0.9009	6,435.425
00973	16	5,565.58	0.8999	5,008.465
00974	16	5,514.21	0.8998	4,961.686
01028	14	4,764.06	0.8998	4,286.701
01029	13	4,154.88	0.9000	3,739.392
01113	17	5,980.01	0.8998	5,380.812

01114	14	5,162.73	0.8997	4,644.908
01115	15	5,293.97	0.8993	4,760.867
01119	15	5,437.06	0.8995	4,890.635
01120	15	5,363.68	0.8998	4,826.239
01139	22	7,791.82	0.8995	7,008.742
01140	21	7,248.64	0.8995	6,520.151
01147	13	4,728.90	0.8995	4,253.645
01148	13	4,507.30	0.8994	4,053.865
01172	20	6,777.13	0.8998	6,098.061
01204	18	6,246.10	0.8999	5,620.865
01248	21	7,421.80	0.8994	6,675.166
01249	20	7,043.55	0.8994	6,334.968
04243	19	6,757.93	0.8996	6,079.433
04244	19	6,761.20	0.8995	6,081.699
04245	18	6,363.10	0.8994	5,722.972
04709	17	5,637.42	0.8996	5,071.423
04714	22	7,524.50	0.8996	6,769.040
05741	11	3,653.30	0.8999	3,287.604
06030	20	6,919.73	0.8999	6,227.065
06031	20	7,070.23	0.8998	6,361.792
06032	20	7,050.95	0.8999	6,345.149
06033	20	6,753.17	0.8999	6,077.177
06034	16	5,126.48	0.8995	4,611.268
06498	22	7,713.45	0.8993	6,936.705
06499	21	7,301.55	0.8993	6,566.283
06500	22	7,683.08	0.8994	6,910.162
06501	20	7,004.48	0.8995	6,300.529
06502	22	7,790.22	0.8996	7,008.081
06503	22	7,840.50	0.8995	7,052.529
06919	22	7,342.47	0.8993	6,603.083
06927	23	7,965.91	0.8999	7,168.522
06928	22	7,625.55	0.9000	6,862.995
06929	24	8,460.90	0.9000	7,614.810
06930	18	6,027.00	0.8998	5,423.094
06931	23	8,343.38	0.8998	7,507.373
18933	10	3,480.80	0.8999	3,132.371
19607	11	3,589.70	0.9165	3,289.960
19617	13	4,481.19	0.9166	4,107.458
19721	11	3,513.39	0.8994	3,159.942
19814	12	4,061.95	0.8999	3,655.348
19855	22	7,396.60	0.8996	6,653.981
19856	21	7,127.96	0.8997	6,413.025
19859	20	6,790.53	0.8997	6,109.439
19860	20	6,719.20	0.8996	6,044.592

19861	20	6,881.70	0.8997	6,191.465
19862	21	7,050.00	0.8996	6,342.180
19863	12	4,267.02	0.9166	3,911.150
19996	23	7,875.35	0.8995	7,083.877
19997	23	7,959.94	0.8994	7,159.170
19998	23	7,895.97	0.8994	7,101.635
19999	24	8,038.40	0.8994	7,229.736
20012	18	5,739.10	0.8997	5,163.468
20018	13	4,488.22	0.8998	4,038.500
20022	11	3,573.75	0.8995	3,214.588
20025	18	6,018.72	0.8997	5,415.042
20026	14	4,484.19	0.8997	4,034.425
20037	13	4,484.35	0.8997	4,034.569
20054	21	7,176.85	0.8995	6,455.576
20055	22	7,313.74	0.8997	6,580.171
20064	23	7,842.87	0.8996	7,055.445
20065	23	7,820.01	0.8995	7,034.098
20066	22	7,121.80	0.8995	6,406.059
20084	14	4,924.56	0.9166	4,513.851
20094	18	6,323.21	0.8994	5,687.095
20095	17	5,902.50	0.8994	5,308.708
20237	14	4,849.47	0.8991	4,360.158
20238	14	4,396.00	0.8992	3,952.883
20389	23	7,704.05	0.8997	6,931.333
20390	25	8,374.95	0.8995	7,533.267
20394	11	3,591.95	0.8993	3,230.240
20448	22	7,471.30	0.8996	6,721.181
20450	19	6,496.11	0.8996	5,843.900
20451	23	7,884.64	0.9008	7,102.483
20452	22	7,602.77	0.8996	6,839.451
20453	21	7,162.50	0.8996	6,443.385
20454	19	6,350.80	0.8996	5,713.179
20637	22	7,573.44	0.8996	6,813.066
20674	20	6,693.33	0.9165	6,134.436
20675	22	7,569.65	0.8995	6,808.900
20689	16	5,523.24	0.8997	4,969.259
20690	15	5,094.17	0.8996	4,582.715
20691	14	4,572.87	0.8997	4,114.211
20692	12	4,046.26	0.9165	3,708.397
20849	17	5,809.57	0.8997	5,226.870
20935	22	7,743.40	0.8996	6,965.962
20936	23	8,228.37	0.8996	7,402.241
20937	23	8,147.40	0.8996	7,329.401
20938	22	7,868.17	0.8995	7,077.418

20939	19	6,509.88	0.8996	5,856.288
20972	19	6,631.52	0.9164	6,077.124
20973	21	7,280.50	0.9165	6,672.578
20974	14	4,908.92	0.8998	4,417.046
20975	13	4,461.16	0.8998	4,014.151
20990	22	7,670.24	0.8997	6,900.914
20991	20	7,064.75	0.8995	6,354.742
20992	20	6,821.88	0.8995	6,136.281
20993	12	4,027.38	0.9166	3,691.496
21018	22	7,808.86	0.8999	7,027.193
21019	23	8,134.96	0.8999	7,320.650
21020	23	8,131.75	0.9000	7,318.575
21021	24	8,171.24	0.9000	7,354.116
21028	17	5,656.92	0.8997	5,089.530
21029	15	4,936.62	0.9166	4,524.905
21045	10	3,513.40	0.8997	3,161.005
21058	15	5,367.16	0.9167	4,920.075
21064	14	4,930.66	0.9166	4,519.442
21065	14	4,778.90	0.9166	4,380.339
21552	18	6,553.10	0.9166	6,006.571
21553	18	6,595.02	0.9167	6,045.654
21554	18	6,657.35	0.9166	6,102.127
21555	19	6,653.99	0.9166	6,099.047
21588	24	8,464.82	0.9164	7,757.161
21593	12	3,992.15	0.8996	3,591.338
21637	11	3,568.00	0.8997	3,210.129
21638	21	7,630.43	0.9167	6,994.815
21643	20	6,814.32	0.8999	6,132.206
21656	17	6,180.27	0.9166	5,664.835
21742	22	7,897.67	0.8997	7,105.533
21743	21	7,489.81	0.8998	6,739.331
21744	21	7,683.35	0.8998	6,913.478
21745	22	7,617.77	0.8996	6,852.945
21746	14	4,928.50	0.9167	4,517.955
21765	22	7,974.34	0.9167	7,310.077
21766	23	8,029.26	0.8998	7,224.728
21953	20	7,224.00	0.8997	6,499.432
22255	25	8,538.14	0.9076	7,749.215
22265	16	5,509.43	0.8999	4,957.936
22266	15	4,807.97	0.8999	4,326.692
22270	18	6,279.33	0.9167	5,756.261
22289	19	6,722.46	0.8997	6,048.197
22350	24	8,316.33	0.9166	7,622.748
22364	23	7,981.02	0.8994	7,178.129

22365	23	8,021.43	0.8995	7,215.276
22366	23	8,159.08	0.8997	7,340.724
22367	25	8,874.30	0.8996	7,983.320
22368	22	7,665.63	0.8998	6,897.533
22369	25	8,401.54	0.8998	7,559.705
22370	13	4,702.20	0.9166	4,310.036
22371	12	4,225.47	0.9166	3,873.065
22506	19	6,608.62	0.8999	5,947.097
22532	21	7,494.03	0.9166	6,869.027
22533	18	6,293.10	0.9166	5,768.255
22534	19	6,607.86	0.8998	5,945.752
22535	19	6,534.15	0.8998	5,879.428
22536	20	7,105.12	0.8998	6,393.186
22540	17	5,906.04	0.8995	5,312.482
22541	19	6,186.28	0.8995	5,564.558
22561	14	4,896.45	0.9166	4,488.086
22562	13	4,375.55	0.9165	4,010.191
22563	22	7,826.88	0.8997	7,041.843
22565	17	5,833.14	0.9166	5,346.656
22597	21	7,589.38	0.9166	6,956.425
22598	22	8,141.26	0.9166	7,462.278
22599	21	7,583.31	0.8997	6,822.704
22600	21	7,582.11	0.8998	6,822.382
22652	17	6,086.73	0.8993	5,473.796
22654	18	6,413.70	0.8995	5,769.123
22655	18	6,101.50	0.8996	5,488.909
22656	20	7,397.38	0.9166	6,780.438
22657	20	7,397.62	0.9166	6,780.658
22658	17	6,088.38	0.8998	5,478.324
22659	17	6,015.57	0.8999	5,413.411
22695	13	4,422.06	0.8993	3,976.758
22696	13	4,445.09	0.8994	3,997.913
22769	19	6,598.40	0.8993	5,933.941
22801	18	6,451.19	0.8995	5,802.845
22802	19	6,836.57	0.8995	6,149.494
22803	19	6,738.22	0.8997	6,062.376
22861	22	7,676.15	0.9166	7,035.959
23004	19	6,766.38	0.8995	6,086.358
23022	13	4,578.58	0.8998	4,119.806
23023	13	4,288.42	0.8993	3,856.576
23054	12	4,350.62	0.8994	3,912.947
23055	15	5,358.93	0.9166	4,911.995
23056	17	5,992.81	0.9166	5,493.009
23057	16	5,670.75	0.9166	5,197.809

23058	20	7,066.51	0.8999	6,359.152
23070	19	6,862.36	0.8998	6,174.751
23071	17	6,187.44	0.8998	5,567.458
23085	17	6,172.61	0.8999	5,554.731
23085	16	5,733.70	0.8999	5,159.756
23086	16	5,733.49	0.8999	5,159.567
23087	19	6,674.48	0.8996	6,004.362
23100	22	7,511.56	0.9003	6,762.657
23129	18	6,394.34	0.8998	5,753.627
23130	17	5,986.54	0.8996	5,385.491
23131	18	6,434.87	0.8995	5,788.165
23132	17	6,281.74	0.9166	5,757.842
23133	19	6,707.25	0.8993	6,031.829
23134	18	6,181.79	0.8994	5,559.901
23139	20	7,402.75	0.9164	6,783.880
23140	16	5,896.57	0.9158	5,400.078
23141	16	5,692.64	0.9164	5,216.735
23142	22	8,046.67	0.8995	7,237.979
23143	22	7,915.89	0.8993	7,118.759
23144	20	7,249.81	0.8995	6,521.204
23145	21	7,424.98	0.8995	6,678.769
23153	21	7,020.47	0.9167	6,435.664
23160	21	7,826.03	0.9167	7,174.121
23161	21	7,691.69	0.9166	7,050.203
23162	19	6,911.85	0.9166	6,335.401
23170	20	6,796.73	0.9000	6,117.057
23171	20	6,503.60	0.8998	5,851.939
23176	22	7,950.90	0.9003	7,158.195
23177	22	8,079.15	0.9005	7,275.274
23178	23	8,286.31	0.9006	7,462.650
23190	20	6,550.74	0.8998	5,894.355
23314	20	7,296.86	0.9000	6,567.174
23315	21	7,602.10	0.8999	6,841.129
23316	21	7,685.30	0.8998	6,915.232
23317	21	7,650.25	0.8999	6,884.459
23318	21	7,539.94	0.8998	6,784.438
23319	22	7,623.24	0.8999	6,860.153
23323	17	5,741.10	0.8994	5,163.545
23324	16	5,686.61	0.8995	5,115.105
23325	15	5,168.73	0.8995	4,649.272
23333	19	6,847.86	0.8998	6,161.704
23334	19	6,769.82	0.8998	6,091.484
23335	18	6,471.18	0.8998	5,822.767
23338	18	6,420.73	0.8998	5,777.372

23339	18	6,227.20	0.8998	5,603.234
23367	25	8,484.33	0.9110	7,729.224
23394	19	6,499.65	0.8993	5,845.135
23395	20	6,979.62	0.8994	6,277.470
23396	17	5,711.68	0.8993	5,136.513
23488	17	6,281.66	0.9167	5,758.397
23489	17	6,274.33	0.9167	5,751.678
23490	18	6,281.85	0.9166	5,757.943
23513	19	6,996.67	0.9166	6,413.147
23514	18	6,575.18	0.9166	6,026.809
23515	19	6,985.45	0.9165	6,402.164
23517	19	6,806.67	0.9166	6,238.993
23681	12	4,246.54	0.9166	3,892.378
23682	12	4,281.24	0.9166	3,924.184
23690	17	6,180.95	0.9167	5,666.076
23692	16	5,933.57	0.9166	5,438.710
23693	15	5,502.89	0.9166	5,043.948
23741	20	6,955.50	0.9166	6,375.411
23742	20	6,951.75	0.9167	6,372.669
23743	20	7,028.63	0.9166	6,442.442
23744	20	6,922.28	0.9166	6,344.961
23745	20	6,923.06	0.9166	6,345.676
23747	20	7,166.53	0.9166	6,568.841
23748	20	7,199.41	0.9166	6,598.979
23749	20	7,176.31	0.9167	6,578.523
23750	20	7,200.71	0.9166	6,600.170
23751	19	6,586.29	0.9166	6,036.993
23752	16	5,302.98	0.9167	4,861.241
23753	19	6,484.37	0.9166	5,943.573
23754	20	6,959.61	0.9166	6,379.178
23755	20	6,745.04	0.9166	6,182.503
23784	22	7,925.01	0.9166	7,264.064
D 001	23	8,298.49	0.8998	7,466.981
D 002	22	7,983.77	0.8996	7,182.199
D 003	23	8,304.32	0.8994	7,468.905
D 004	23	8,123.88	0.8995	7,307.430
D 005	23	8,255.85	0.9165	7,566.486
D 006	23	8,239.86	0.9165	7,551.831
D 007	22	7,829.30	0.9165	7,175.553
D 009	23	8,206.84	0.9166	7,522.389
D 013	23	8,252.92	0.9166	7,564.626
D 014	23	8,098.35	0.9165	7,422.137
D 015	23	8,113.28	0.9166	7,436.632
D 016	23	8,143.30	0.9166	7,464.148

D 017	20	7,124.20	0.8995	6,408.217
D 018	23	8,209.62	0.8995	7,384.553
D 019	24	8,666.31	0.8996	7,796.212
D 020	22	7,822.36	0.8995	7,036.212
D 021	23	8,050.83	0.8995	7,241.721
D 022	22	7,861.71	0.8997	7,073.180
D 030	23	8,135.13	0.8998	7,319.989
D 031	23	8,122.59	0.8996	7,307.081
D 032	22	7,822.50	0.8997	7,037.903
D 033	23	8,178.14	0.8998	7,358.690
D 034	23	8,200.67	0.8999	7,379.782
D 035	23	8,115.52	0.8998	7,302.344
D 036	23	8,253.59	0.8997	7,425.754
D 045	22	7,901.76	0.8997	7,109.213
D 045	23	8,187.38	0.8992	7,362.092
D 046	22	7,937.46	0.8996	7,140.539
D 047	23	8,422.62	0.8996	7,576.988
08671	21	7,504.22	0.8998	6,752.297
08672	22	7,852.86	0.8999	7,066.788
08673	22	7,940.19	0.8998	7,144.582
08674	21	7,596.02	0.8997	6,834.139
08676	22	7,701.23	0.8998	6,929.566
08677	22	7,675.43	0.8998	6,906.351
08678	16	5,501.07	0.8998	4,949.862
09117	20	7,042.24	0.8998	6,336.607
09120	20	6,837.73	0.8999	6,153.273
09126	21	7,312.80	0.8998	6,580.057
09127	21	7,280.48	0.8999	6,551.703
09128	21	7,353.17	0.8998	6,616.382
09129	21	7,291.92	0.8999	6,561.998
09130	21	7,380.68	0.9001	6,643.350
09131	22	7,522.52	0.8999	6,769.515
09133	20	7,046.40	0.8999	6,341.055
00233	11	4,057.30	0.9166	3,718.921
00234	18	6,519.08	0.8996	5,864.564
00306	19	6,911.98	0.9164	6,334.138
00307	21	7,516.75	0.8999	6,764.323
00308	21	7,541.18	0.8995	6,783.291
00315	20	7,176.32	0.8993	6,453.664
00316	20	7,241.50	0.8993	6,512.280
00317	20	7,311.98	0.8993	6,575.663
00318	20	7,242.83	0.8993	6,513.477
00319	17	6,091.79	0.8994	5,478.955
00348	22	7,921.11	0.8996	7,125.830

00349	22	8,037.00	0.8994	7,228.477
00350	22	7,945.37	0.8994	7,146.065
00351	22	7,903.71	0.8993	7,107.806
00352	18	6,407.50	0.8997	5,764.827
00353	15	5,496.92	0.9165	5,037.927
00354	15	5,303.41	0.9166	4,861.105
00475	17	5,910.12	0.8994	5,315.561
00482	19	6,970.33	0.9166	6,389.004
00487	19	6,814.72	0.8993	6,128.477
00489	19	6,882.77	0.8997	6,192.428
00490	17	5,942.20	0.8996	5,345.603
00555	18	6,508.83	0.9166	5,965.993
00556	15	5,335.72	0.8994	4,798.946
00557	14	4,892.44	0.8996	4,401.239
00695	9	2,994.55	0.8998	2,694.496
00737	21	7,555.67	0.9166	6,925.527
00738	16	5,709.19	0.8996	5,135.987
00739	15	5,339.77	0.8997	4,804.191
00781	16	5,681.04	0.8993	5,108.959
00782	17	5,945.62	0.8994	5,347.490
00783	17	5,979.60	0.8994	5,378.052
00784	17	5,987.75	0.8992	5,384.184
00799	17	6,227.17	0.9166	5,707.824
00800	12	4,281.50	0.8996	3,851.637
00801	12	4,145.39	0.8998	3,730.021
00802	20	7,297.80	0.9165	6,688.433
00803	18	6,531.03	0.9166	5,986.342
00910	10	3,406.27	0.8997	3,064.621
00962	20	7,264.35	0.9166	6,658.503
00963	16	5,807.02	0.9166	5,322.714
01035	14	4,956.22	0.9166	4,542.871
01036	11	3,754.87	0.9166	3,441.713
01056	20	7,293.94	0.9166	6,685.625
01057	20	7,525.90	0.9166	6,898.239
01058	20	7,342.00	0.9165	6,728.943
01059	18	6,555.90	0.9166	6,009.137
01060	19	6,924.22	0.9166	6,346.740
01061	18	6,500.85	0.9166	5,958.679
01062	17	6,220.54	0.9167	5,702.369
01063	9	3,080.95	0.8996	2,771.622
01071	18	6,478.70	0.9000	5,830.830
01072	18	6,376.89	0.9000	5,739.201
01073	15	5,331.92	0.9013	4,805.659
01074	21	7,600.93	0.9158	6,960.931

01075	20	7,188.72	0.9165	6,588.461
01076	20	7,206.70	0.9167	6,606.381
01077	18	6,371.10	0.9167	5,840.387
01085	9	3,060.54	0.9001	2,754.792
01110	18	6,487.70	0.9166	5,946.625
01111	18	6,303.13	0.9166	5,777.448
01112	18	6,396.75	0.9166	5,863.261
01113	18	6,562.57	0.9166	6,015.251
01114	15	5,433.63	0.9167	4,981.008
01487	9	3,078.98	0.8993	2,768.926
01488	13	4,744.93	0.9166	4,349.202
01548	22	8,038.20	0.9166	7,367.814
01726	15	5,621.72	0.9166	5,152.868
01727	15	5,542.25	0.9166	5,080.026
01728	17	6,210.16	0.8996	5,586.659
01745	16	5,817.30	0.9166	5,332.137
01746	10	3,121.75	0.8997	2,808.638
02064	16	5,762.92	0.8995	5,183.746
02253	22	8,043.05	0.8994	7,233.919
02254	22	7,951.20	0.8995	7,152.104
02255	22	8,094.86	0.8994	7,280.517
02384	20	7,259.74	0.8994	6,529.410
02385	18	6,604.36	0.9166	6,053.556
02664	17	6,097.87	0.8993	5,483.814
02665	17	6,075.65	0.8993	5,463.832
02666	17	6,058.75	0.8993	5,448.633
02667	16	5,606.60	0.8993	5,042.015
02924	20	7,028.95	0.8996	6,323.243
02925	20	7,035.24	0.8996	6,328.901
02926	20	7,093.28	0.8995	6,380.405
02927	20	6,970.08	0.8996	6,270.283
02928	20	7,082.09	0.8996	6,371.048
02929	20	7,135.46	0.8997	6,419.773
02930	20	7,017.59	0.8997	6,313.725
02931	20	7,118.49	0.8997	6,404.505
02932	19	6,655.58	0.8996	5,987.359
04499	17	6,238.15	0.9166	5,717.888
04834	9	3,117.75	0.9165	2,857.417
04915	9	3,135.65	0.9166	2,874.136
05299	11	3,795.80	0.9166	3,479.230
05401	8	2,914.35	0.9166	2,671.293
05442	9	3,336.07	0.9166	3,057.841
07112	17	6,164.58	0.9166	5,650.454
07276	19	6,671.60	0.9166	6,115.188

07277	18	6,649.00	0.9166	6,094.473
07278	18	6,512.15	0.9166	5,969.036
07279	16	5,725.32	0.9167	5,248.400
07341	15	5,643.87	0.9166	5,173.171
07342	15	5,666.22	0.9166	5,193.657
07343	16	5,989.75	0.9166	5,490.204
07344	16	5,960.50	0.9166	5,463.394
07467	11	3,895.55	0.9165	3,570.271
07694	13	4,516.30	0.9166	4,139.640
07695	11	3,936.32	0.9167	3,608.424
08262	16	5,622.38	0.8995	5,057.330
08340	14	5,159.50	0.9166	4,729.197
08341	12	4,211.60	0.9166	3,860.352
08501	16	5,270.04	0.8995	4,740.400
08521	14	4,796.15	0.8996	4,314.616
08522	15	5,078.77	0.8996	4,568.861
08589	14	5,084.12	0.9165	4,659.595
08590	12	4,269.92	0.9167	3,914.235
08610	20	7,133.73	0.8995	6,416.790
08617	19	6,872.52	0.9165	6,298.664
08618	20	7,340.42	0.9165	6,727.494
09379	12	4,073.68	0.9002	3,667.126
10491	11	3,636.32	0.8991	3,269.415
10677	21	7,542.40	0.8998	6,786.651
10678	18	6,513.15	0.8999	5,861.183
10679	17	5,936.25	0.8998	5,341.437
10923	21	7,333.80	0.8994	6,596.019
10924	20	7,141.95	0.8994	6,423.469
10925	20	7,124.90	0.8994	6,408.135
10926	20	7,113.73	0.8995	6,398.800
10928	20	6,738.85	0.8996	6,062.269
10993	16	5,404.92	0.8997	4,862.806
10994	19	6,494.65	0.8997	5,843.236
10995	19	6,334.36	0.8997	5,699.023
10996	19	6,509.88	0.8997	5,856.939
10997	19	6,575.17	0.8996	5,915.022
11000	19	6,596.38	0.8998	5,935.422
11006	19	6,735.53	0.8997	6,059.956
11007	19	6,690.53	0.8997	6,019.469
11008	19	6,730.20	0.8996	6,054.487
11009	19	6,721.20	0.8997	6,047.063
11010	19	6,719.58	0.8997	6,045.606
11015	19	6,546.15	0.8997	5,889.571
11016	19	6,434.53	0.8996	5,788.503

11017	21	6,759.01	0.8997	6,081.081
11018	19	6,592.25	0.8998	5,931.706
11021	19	6,654.89	0.8997	5,987.404
11022	19	6,736.80	0.8998	6,061.772
11209	21	7,403.15	0.8998	6,661.354
11397	22	7,854.72	0.8996	7,066.106
11401	19	6,772.79	0.8997	6,093.479
11402	21	7,490.15	0.8995	6,737.389
11403	21	7,353.33	0.8996	6,615.055
11404	21	7,410.95	0.8997	6,667.631
11407	22	7,917.68	0.8996	7,122.744
11408	22	7,796.27	0.8996	7,013.524
11415	22	7,927.98	0.8996	7,132.010
11416	22	7,927.27	0.8995	7,130.579
11417	19	6,544.05	0.8996	5,887.027
11418	21	7,420.42	0.8995	6,674.667
11419	14	4,577.05	0.8996	4,117.514
11535	13	4,691.98	0.8993	4,219.497
11536	12	4,108.19	0.8993	3,694.495
11555	17	5,923.91	0.8995	5,328.557
11556	16	5,322.32	0.8995	4,787.426
11900	21	7,432.64	0.8998	6,687.889
11902	21	7,362.21	0.8999	6,625.252
11904	20	6,977.80	0.8998	6,278.624
11906	20	7,095.41	0.8998	6,384.449
12161	22	7,551.75	0.9000	6,796.575
12217	19	6,255.08	0.8995	5,626.444
12279	21	7,315.80	0.9002	6,585.683
12281	22	7,500.42	0.8999	6,749.627
12345	17	6,008.33	0.8995	5,404.492
13673	20	6,889.87	0.8996	6,198.127
13953	17	5,890.65	0.8994	5,298.050
13976	12	3,990.45	0.8993	3,588.611
14045	19	6,631.00	0.8994	5,963.921
14046	20	6,745.99	0.8994	6,067.343
14059	17	5,781.75	0.8995	5,200.684
14070	21	7,349.72	0.8997	6,612.543
14071	21	7,393.14	0.8996	6,650.868
14072	21	7,343.41	0.8996	6,606.131
14073	21	7,347.39	0.8996	6,609.712
14074	19	6,312.34	0.8996	5,678.581
14080	22	7,777.75	0.8995	6,996.086
14133	17	5,711.35	0.8996	5,137.930
14136	21	7,311.93	0.8996	6,577.812

14137	21	7,339.81	0.8996	6,602.893
14138	21	7,049.57	0.8997	6,342.498
14412	18	6,118.09	0.8996	5,503.833
14418	18	6,216.87	0.8996	5,592.696
14419	17	5,795.03	0.8995	5,212.629
14438	18	6,308.63	0.9001	5,678.397
14439	19	6,574.92	0.8998	5,916.113
14448	18	5,956.59	0.8999	5,360.335
14457	21	6,954.75	0.8993	6,254.406
14593	22	7,689.03	0.8993	6,914.744
14594	22	7,679.56	0.8994	6,906.996
14595	22	7,685.40	0.8994	6,912.248
14596	20	7,008.40	0.8994	6,303.354
14597	20	6,965.06	0.8994	6,264.374
14598	19	6,693.85	0.8993	6,019.779
14601	20	7,043.78	0.8993	6,334.471
14603	10	3,588.05	0.9166	3,288.806
14636	20	6,888.11	0.8994	6,195.166
14637	17	5,612.33	0.8993	5,047.168
14642	20	7,041.92	0.8999	6,337.023
14643	20	6,944.16	0.8999	6,249.049
14646	18	6,392.78	0.8999	5,752.862
14647	19	6,398.45	0.8999	5,757.965
14650	17	6,040.63	0.8991	5,431.130
14651	20	6,884.48	0.8992	6,190.524
14654	22	7,441.38	0.9002	6,698.730
14729	10	3,551.27	0.8995	3,194.367
14792	9	3,100.83	0.9165	2,841.910
14807	18	6,009.42	0.9001	5,409.078
14808	21	7,300.46	0.9004	6,573.334
14809	18	6,379.07	0.8999	5,740.525
14810	17	5,953.65	0.8998	5,357.094
14811	13	4,527.85	0.9001	4,075.517
14812	14	4,516.10	0.9000	4,064.490
14813	17	5,848.51	0.9166	5,360.744
14814	12	4,386.25	0.9166	4,020.436
14815	14	4,638.41	0.9166	4,251.566
14816	21	7,204.00	0.9166	6,603.186
14956	16	5,466.38	0.8994	4,916.462
14957	16	5,360.46	0.8994	4,821.197
14958	9	3,134.20	0.9166	2,872.807
14972	12	4,038.68	0.9166	3,701.854
14973	9	2,926.92	0.8998	2,633.642
15016	13	4,487.92	0.9166	4,113.627

15050	13	4,501.90	0.9166	4,126.441
15081	15	4,937.20	0.9165	4,524.943
15082	16	5,548.54	0.8998	4,992.576
15083	16	5,410.00	0.8995	4,866.295
15086	18	6,344.98	0.9166	5,815.808
15087	17	5,766.27	0.9167	5,285.939
15092	12	3,999.43	0.8993	3,596.687
15164	19	6,762.93	0.9166	6,198.901
15165	19	6,714.14	0.9166	6,154.180
15167	18	6,349.44	0.9166	5,819.896
15168	17	5,790.58	0.9166	5,307.645
15176	22	7,674.82	0.9166	7,034.740
15199	19	6,692.39	0.9166	6,134.244
15203	19	6,700.21	0.9165	6,140.742
15208	16	5,323.76	0.8993	4,787.657
15209	14	4,840.57	0.8992	4,352.640
15210	13	4,540.25	0.8992	4,082.592
15211	13	4,524.11	0.8993	4,068.532
15212	13	4,407.69	0.8993	3,963.835
15214	13	4,491.89	0.8997	4,041.353
15215	19	6,549.57	0.8999	5,893.958
15216	20	7,139.90	0.9001	6,426.623
15217	20	6,906.27	0.9001	6,216.333
15218	19	6,172.13	0.9001	5,555.534
15219	15	5,196.57	0.8998	4,675.873
15220	14	4,812.69	0.8997	4,329.977
15242	13	4,345.90	0.8992	3,907.833
15243	12	4,053.91	0.8991	3,644.870
15734	17	5,795.09	0.9005	5,218.478
15735	17	5,598.45	0.9004	5,040.844
15737	23	7,906.10	0.8998	7,113.908
15738	24	7,818.80	0.8999	7,036.138
15739	9	3,042.06	0.9166	2,788.352
15747	19	6,593.75	0.9167	6,044.490
15795	21	7,430.72	0.9166	6,810.997
15808	18	6,284.99	0.9166	5,760.821
15809	18	6,289.56	0.9167	5,765.639
15810	16	5,359.75	0.9166	4,912.746
15815	19	6,515.70	0.9166	5,972.290
15816	20	6,917.60	0.9166	6,340.672
15817	20	7,013.25	0.9166	6,428.344
15818	20	7,043.54	0.9166	6,456.108
15819	19	6,619.65	0.9166	6,067.571
15820	19	6,504.90	0.9166	5,962.391

15821	18	6,037.88	0.9166	5,534.320
15834	15	5,378.06	0.9166	4,929.529
15835	22	7,625.15	0.9166	6,989.212
15836	18	6,243.71	0.9167	5,723.608
15837	18	6,318.23	0.9166	5,791.289
15838	16	5,382.11	0.9166	4,933.242
15839	14	4,931.52	0.9166	4,520.231
15845	22	7,893.47	0.9166	7,235.154
15846	22	7,947.15	0.9167	7,285.152
15849	21	7,171.41	0.9166	6,573.314
15850	18	6,486.98	0.9166	5,945.965
15852	17	6,024.15	0.9166	5,521.735
15853	18	6,074.71	0.9166	5,568.079
15854	21	7,264.88	0.8999	6,537.665
15855	21	7,167.02	0.9003	6,452.468
15856	21	7,221.22	0.9005	6,502.708
15857	20	6,508.78	0.9003	5,859.854
15886	23	8,067.05	0.9166	7,394.258
15912	20	6,723.61	0.9167	6,163.533
16074	22	7,427.11	0.8995	6,680.685
16075	13	4,530.02	0.9166	4,152.216
16076	12	4,007.95	0.9165	3,673.286
16098	13	4,301.53	0.9166	3,942.782
16112	19	6,689.92	0.8997	6,018.921
16113	19	6,662.85	0.8995	5,993.233
16114	17	5,939.13	0.8994	5,341.653
16115	14	4,870.59	0.9167	4,464.869
16116	14	4,549.52	0.9166	4,170.090
16118	16	5,286.54	0.9166	4,845.642
16120	19	6,282.49	0.9166	5,758.530
16121	19	6,276.95	0.9167	5,754.080
16122	13	4,621.40	0.9166	4,235.975
16123	13	4,349.80	0.9166	3,987.026
16179	20	7,126.83	0.8996	6,411.296
16985	22	7,730.61	0.9158	7,079.692
16986	22	7,636.05	0.9166	6,999.203
16987	19	6,632.43	0.9166	6,079.285
17121	22	7,956.31	0.8993	7,155.109
17122	21	7,629.53	0.8993	6,861.236
17123	22	8,116.45	0.8992	7,298.311
17124	21	7,692.47	0.8993	6,917.838
17125	22	7,723.30	0.8992	6,944.791
17126	23	8,215.82	0.8993	7,388.486
17127	22	7,737.04	0.8993	6,957.920

17129	22	7,742.13	0.8994	6,963.271
17130	22	7,877.87	0.8994	7,085.356
17131	22	7,856.67	0.8994	7,066.288
17132	22	7,971.80	0.8993	7,169.039
17133	22	7,988.60	0.8992	7,183.349
17135	22	8,029.11	0.8993	7,220.578
17136	22	7,839.05	0.8994	7,050.441
17137	22	8,024.79	0.8995	7,218.298
17138	22	8,030.72	0.8992	7,221.223
17139	22	7,751.68	0.8993	6,971.085
17140	22	7,937.07	0.8993	7,137.807
17141	22	7,985.59	0.8994	7,182.239
17142	21	7,704.94	0.8994	6,929.823
17143	22	8,038.98	0.8993	7,229.454
17144	22	7,973.19	0.8992	7,169.492
17145	22	7,848.45	0.8993	7,058.111
17146	23	8,192.72	0.8991	7,366.074
17147	22	7,821.13	0.8993	7,033.542
17148	22	7,742.90	0.8992	6,962.415
17149	23	8,034.36	0.8994	7,226.103
17150	23	8,085.49	0.8993	7,271.281
17151	22	7,761.02	0.8994	6,980.261
17152	23	8,112.10	0.8993	7,295.211
17153	22	7,790.11	0.8993	7,005.645
17155	22	7,917.41	0.9000	7,125.669
17156	22	7,898.72	0.8996	7,105.688
17157	23	8,280.52	0.8994	7,447.499
17158	22	7,951.08	0.8992	7,149.611
17159	22	7,845.28	0.8992	7,054.475
17160	22	7,969.42	0.8996	7,169.290
17161	22	8,014.94	0.8996	7,210.240
17162	21	7,628.09	0.8996	6,862.229
17163	22	8,060.15	0.8996	7,250.910
17164	21	7,417.55	0.8995	6,672.086
17165	20	6,831.14	0.8994	6,143.927
18151	10	3,133.30	0.9000	2,819.970
18271	12	4,012.63	0.8997	3,610.163
18448	9	3,138.75	0.9166	2,876.978
18614	14	4,955.08	0.8995	4,457.094
18617	12	4,291.99	0.9166	3,934.038
19254	23	7,970.59	0.9011	7,182.298
19255	23	7,672.67	0.8997	6,903.101
19274	9	3,111.41	0.9167	2,852.229
19306	23	8,249.86	0.8995	7,420.749

19307	22	7,768.90	0.8996	6,988.902
19308	23	8,218.50	0.8997	7,394.184
19309	23	8,080.10	0.8996	7,268.857
19310	22	7,700.82	0.8996	6,927.657
19319	22	7,642.20	0.8999	6,877.215
19321	22	7,774.48	0.8996	6,993.922
19322	22	7,825.33	0.8997	7,040.449
19323	22	7,812.55	0.8998	7,029.732
19324	21	7,528.10	0.9000	6,775.290
19325	19	6,781.25	0.9167	6,216.371
19326	19	6,816.59	0.9166	6,248.086
19336	15	4,801.38	0.8995	4,318.841
19404	21	7,387.26	0.8996	6,645.579
19405	22	7,791.85	0.8997	7,010.327
19406	21	7,450.72	0.8996	6,702.667
19407	22	7,462.82	0.8995	6,712.806
19408	21	7,338.57	0.9166	6,726.533
19409	20	6,999.83	0.9166	6,416.044
19410	21	7,335.82	0.9166	6,724.012
19411	21	7,046.58	0.9166	6,458.895
19412	21	7,390.46	0.9167	6,774.834
19413	19	6,707.32	0.9166	6,147.929
19414	21	7,258.60	0.9166	6,653.232
19415	19	6,555.55	0.9165	6,008.161
19608	12	3,783.34	0.9000	3,405.006
19614	23	8,441.24	0.9165	7,736.396
19615	21	7,625.19	0.9166	6,989.249
19616	20	7,226.84	0.9165	6,623.398
19617	20	7,163.72	0.9163	6,564.116
19618	19	6,428.22	0.9166	5,892.106
19619	16	5,351.52	0.8996	4,814.227
19620	17	5,812.28	0.8997	5,229.308
19763	22	7,723.90	0.9017	6,964.640
19764	21	7,396.40	0.9015	6,667.854
19765	20	7,016.90	0.9015	6,325.735
19800	22	7,444.10	0.9167	6,824.006
19801	18	6,193.13	0.8997	5,571.959
19807	22	7,558.63	0.8997	6,800.499
19808	22	7,669.96	0.8997	6,900.663
19809	22	7,562.98	0.8996	6,803.656
19810	22	7,599.58	0.8998	6,838.102
19811	22	7,586.48	0.8996	6,824.797
19812	22	7,538.35	0.8997	6,782.253
19813	22	7,636.32	0.8996	6,869.633

19814	22	7,537.05	0.8996	6,780.330
19815	22	7,747.26	0.8997	6,970.209
19816	22	7,609.62	0.8996	6,845.614
19817	22	7,727.57	0.8996	6,951.721
19818	21	7,395.95	0.8997	6,654.136
19819	22	7,745.70	0.8998	6,969.580
19820	22	7,722.82	0.8997	6,948.221
19822	21	7,624.11	0.8996	6,858.649
19823	21	7,404.15	0.8996	6,660.773
19824	21	7,477.63	0.8996	6,726.875
19825	20	7,049.07	0.8996	6,341.343
19826	17	5,815.44	0.8996	5,231.569
19827	21	7,122.55	0.8996	6,407.445
19887	20	6,734.15	0.8995	6,057.367
19888	19	6,421.76	0.8998	5,778.299
19889	17	5,615.85	0.8994	5,050.895
19890	22	7,763.77	0.9166	7,116.271
19891	20	6,974.64	0.9166	6,392.955
19948	15	4,921.35	0.9166	4,510.909
19949	11	3,749.24	0.8996	3,372.816
19999	8	2,860.83	0.9166	2,622.236
20056	8	2,942.86	0.9166	2,697.425
20092	22	7,466.51	0.8993	6,714.632
20113	20	6,950.20	0.8995	6,251.704
20114	17	5,717.95	0.8995	5,143.296
20117	17	5,639.58	0.8998	5,074.494
20123	21	7,291.03	0.8997	6,559.739
20125	19	6,547.25	0.8995	5,889.251
20126	18	6,156.82	0.8998	5,539.906
20127	16	5,401.80	0.8995	4,858.919
20129	11	3,785.62	0.9166	3,469.899
20147	20	6,937.08	0.9004	6,246.146
20148	20	6,953.48	0.9002	6,259.522
20149	20	6,948.59	0.9003	6,255.815
20150	20	6,811.27	0.9002	6,131.505
20151	22	7,502.35	0.9000	6,752.115
20152	17	5,852.36	0.9166	5,364.273
20157	22	7,658.17	0.9167	7,020.244
20158	20	7,057.35	0.9166	6,468.767
20159	21	7,255.32	0.9166	6,650.226
20160	18	6,130.04	0.8996	5,514.583
20162	17	5,744.65	0.8996	5,167.887
20189	13	4,435.71	0.9166	4,065.771
20190	10	3,373.07	0.9166	3,091.755

20279	22	7,576.22	0.8994	6,814.052
20280	22	7,695.60	0.8993	6,920.653
20281	22	7,705.95	0.8993	6,929.960
20282	21	7,332.90	0.8994	6,595.210
20283	22	7,773.78	0.8992	6,990.182
20284	20	6,841.59	0.8994	6,153.326
20285	18	6,021.53	0.8994	5,415.764
20290	18	6,011.78	0.8995	5,407.596
20291	15	5,277.68	0.9166	4,837.521
20293	17	5,869.62	0.9003	5,284.418
20294	16	5,327.20	0.9005	4,797.143
20315	18	6,238.55	0.9019	5,626.548
20316	14	4,831.25	0.9014	4,354.888
20541	18	6,230.77	0.8994	5,603.954
20542	17	5,878.93	0.8994	5,287.509
20543	17	5,705.41	0.9010	5,140.574
20544	22	7,794.80	0.9156	7,136.918
20556	18	6,035.18	0.9166	5,531.845
20557	20	6,924.71	0.8994	6,228.084
20558	19	6,511.78	0.8995	5,857.346
20559	19	6,630.76	0.8994	5,963.705
20605	9	3,189.20	0.8996	2,869.004
20629	23	8,141.37	0.9166	7,462.379
20630	21	7,287.76	0.9166	6,679.960
20631	14	4,830.30	0.8998	4,346.303
20773	15	5,148.80	0.9167	4,719.904
20774	14	4,655.13	0.9166	4,266.892
20776	17	5,771.53	0.8995	5,191.491
20777	17	5,783.80	0.8998	5,204.263
20817	14	4,931.40	0.9165	4,519.628
20843	22	7,614.93	0.8994	6,848.868
20844	22	7,570.00	0.8998	6,811.486
20845	21	7,195.03	0.8998	6,474.087
20846	22	7,843.03	0.9166	7,188.921
20847	20	6,919.75	0.9165	6,341.950
20853	22	7,672.33	0.8995	6,901.260
20854	22	7,672.85	0.8994	6,900.961
20855	21	7,254.74	0.8995	6,525.638
20856	13	4,387.00	0.9166	4,021.124
20857	12	4,104.07	0.9166	3,761.790
20859	16	5,384.90	0.9166	4,935.799
21248	20	6,850.25	0.8994	6,161.114
21249	18	6,104.80	0.8992	5,489.436
21250	18	6,285.32	0.9166	5,761.124

21278	12	4,244.91	0.9166	3,890.884
21279	12	4,232.03	0.9166	3,879.078
21302	8	2,846.45	0.9166	2,609.056
21303	13	4,529.11	0.8994	4,073.481
21304	13	4,466.25	0.8995	4,017.391
21313	20	6,867.66	0.8995	6,177.460
21314	20	7,076.25	0.8998	6,367.209
21316	20	7,007.10	0.8999	6,305.689
21317	20	7,090.10	0.8997	6,378.962
21318	20	7,014.68	0.8994	6,309.003
21319	20	7,072.62	0.8995	6,361.821
21320	19	6,674.55	0.8993	6,002.422
21321	20	7,316.17	0.9166	6,706.001
21322	19	6,956.13	0.9166	6,375.988
21345	18	6,424.26	0.8995	5,778.621
21346	17	5,990.12	0.8998	5,389.909
21347	16	5,651.40	0.8998	5,085.129
21348	13	4,672.42	0.9163	4,281.338
21350	18	6,480.00	0.9166	5,939.568
21444	18	6,380.72	0.9166	5,848.567
21445	18	6,399.99	0.9166	5,866.230
21446	19	6,788.84	0.9166	6,222.650
21447	19	6,727.59	0.9166	6,166.508
21448	20	6,997.08	0.8996	6,294.573
21450	17	5,895.82	0.9000	5,306.238
21451	17	5,817.55	0.9000	5,235.795
21469	13	4,431.35	0.9167	4,062.218
21471	16	5,400.68	0.9166	4,950.263
21472	16	5,362.40	0.9166	4,915.175
21473	18	6,226.85	0.9166	5,707.530
21474	17	5,765.08	0.9166	5,284.272
21475	19	6,556.65	0.8992	5,895.739
21476	12	4,168.77	0.8997	3,750.642
21477	12	4,176.53	0.8997	3,757.624
21478	13	4,457.58	0.8992	4,008.255
21479	15	5,247.82	0.8994	4,719.889
21480	20	6,845.57	0.8998	6,159.643
21481	19	6,525.97	0.8999	5,872.720
21482	20	6,786.63	0.8995	6,104.573
21483	23	7,841.43	0.8994	7,052.582
21485	16	5,431.85	0.8994	4,885.405
21533	21	7,567.88	0.8996	6,808.064
21534	21	7,733.95	0.8995	6,956.688
21535	21	7,784.45	0.8996	7,002.891

21536	21	7,746.13	0.8997	6,969.193
21537	21	7,722.38	0.8997	6,947.825
21538	21	7,687.50	0.8996	6,915.675
21539	20	7,267.43	0.8997	6,538.506
21540	22	7,838.14	0.8996	7,051.190
21541	22	7,832.55	0.8997	7,046.945
21542	21	7,386.50	0.8995	6,644.156
21543	21	7,655.45	0.8996	6,886.842
21544	21	7,550.00	0.8996	6,791.980
21545	21	7,571.03	0.8996	6,810.898
21546	22	7,836.45	0.8996	7,049.670
21547	22	7,685.22	0.8995	6,912.855
21548	22	7,752.10	0.8997	6,974.564
21549	22	7,773.97	0.8997	6,994.240
21550	17	5,999.50	0.8997	5,397.750
21887	12	4,179.55	0.8993	3,758.669
21890	18	6,246.99	0.8997	5,620.416
22001	19	6,454.88	0.8995	5,806.164
22002	19	6,554.28	0.8999	5,898.196
22004	18	6,199.32	0.8994	5,575.668
22006	18	6,225.96	0.8998	5,602.118
22030	16	5,395.40	0.8998	4,854.780
22032	13	4,436.05	0.9164	4,065.196
22153	16	5,473.35	0.9006	4,929.299
22154	16	5,439.41	0.8995	4,892.749
22182	21	7,261.48	0.8999	6,534.605
22183	20	6,878.18	0.8994	6,186.235
22184	20	6,825.47	0.8995	6,139.510
22186	21	6,870.01	0.9000	6,183.009
22220	21	7,097.27	0.8995	6,383.994
22221	20	6,710.11	0.8995	6,035.743
22222	20	6,818.45	0.8996	6,133.877
22223	18	6,047.98	0.8996	5,440.762
22270	17	5,895.70	0.8993	5,302.003
22272	19	6,430.15	0.8993	5,782.633
22456	9	2,968.27	0.8999	2,671.146
22467	14	4,884.80	0.9000	4,396.320
22468	15	5,400.88	0.9166	4,950.446
22469	15	5,338.50	0.9166	4,893.269
22470	9	3,044.28	0.8996	2,738.634
22675	23	8,183.92	0.9162	7,498.107
22686	13	4,643.65	0.9165	4,255.905
22687	9	3,095.90	0.8996	2,785.071
22900	10	3,456.26	0.9166	3,168.007

22979	19	6,906.66	0.9166	6,330.644
22983	13	4,604.59	0.9000	4,144.131
22984	12	4,179.82	0.8998	3,761.002
23162	22	7,746.55	0.8992	6,965.697
23163	20	6,950.19	0.8992	6,249.610
23164	20	7,300.08	0.8992	6,564.231
23165	20	7,104.53	0.8993	6,389.103
23166	19	6,519.59	0.8993	5,863.067
23171	17	6,081.40	0.9000	5,473.260
23172	18	6,399.62	0.8999	5,759.018
23173	17	6,077.69	0.8999	5,469.313
23179	18	6,409.47	0.9162	5,872.356
23194	21	7,696.17	0.9165	7,053.539
23196	19	7,015.77	0.9166	6,430.654
23197	12	4,162.85	0.9002	3,747.397
23208	16	5,524.65	0.8995	4,969.422
23210	19	6,869.22	0.8993	6,177.489
23211	19	6,829.90	0.8994	6,142.812
23212	18	6,445.20	0.8993	5,796.168
23215	20	7,057.33	0.8994	6,347.362
23216	20	7,198.15	0.8993	6,473.296
23217	21	7,342.02	0.8993	6,602.678
23229	21	7,385.46	0.8994	6,642.482
23230	21	7,347.15	0.8993	6,607.291
23231	21	7,210.04	0.8994	6,484.709
23232	21	7,345.65	0.8995	6,607.412
23245	11	3,887.62	0.9165	3,563.003
23246	13	4,471.75	0.8994	4,021.891
23250	22	7,953.73	0.8994	7,153.584
23251	22	7,946.38	0.8993	7,146.179
23252	10	3,509.29	0.9164	3,215.913
23253	10	3,529.55	0.9166	3,235.185
23255	20	6,887.18	0.8995	6,195.018
23256	19	6,813.74	0.8996	6,129.640
23257	20	7,296.18	0.8994	6,562.184
23258	20	7,066.02	0.8993	6,354.471
23259	20	7,223.07	0.8994	6,496.429
23260	20	7,138.35	0.8994	6,420.231
23261	21	7,564.05	0.8993	6,802.350
23262	16	5,628.37	0.8994	5,062.155
D 026	22	7,952.76	0.8996	7,154.302
D 027	22	7,890.06	0.8996	7,097.897
D 028	22	7,919.33	0.8996	7,124.229
D 029	22	7,959.18	0.8994	7,158.486

D 065	22	7,923.73	0.8995	7,127.395
D 068	22	7,785.81	0.8994	7,002.557
D 069	22	7,964.65	0.9164	7,298.805
D 070	22	7,973.38	0.9146	7,292.453
D 083	22	7,811.79	0.8998	7,029.048
D 084	22	7,916.30	0.8997	7,122.295
D 085	23	8,194.06	0.8997	7,372.195
D 086	22	8,136.70	0.9166	7,458.099
D 087	22	8,084.56	0.9166	7,410.307
D 096	22	7,906.27	0.8995	7,111.689
D 097	23	8,165.59	0.9001	7,349.847
D 098	22	7,814.79	0.8997	7,030.966
D 099	23	8,071.69	0.8996	7,261.292
D 100	22	7,833.81	0.8996	7,047.295
D 101	22	7,968.19	0.9166	7,303.642
D 101	22	7,932.92	0.8997	7,137.248
D 102	23	8,094.25	0.8996	7,281.587
D 102	22	8,112.79	0.9166	7,436.183
D 103	22	7,790.87	0.8998	7,010.224
D 103	22	8,086.56	0.9166	7,412.140
D 104	22	8,071.71	0.9165	7,397.722
D 104	22	7,649.09	0.8995	6,880.356
D 105	20	6,934.94	0.8996	6,238.672
D 105	22	7,994.62	0.9165	7,327.069
D 106	22	7,970.23	0.9166	7,305.512
D 107	22	7,925.93	0.9166	7,264.907
D 116	21	7,637.51	0.8996	6,870.703
D 117	23	8,392.86	0.8997	7,551.056
D 118	21	7,733.92	0.9166	7,088.911
D 119	22	8,105.05	0.9166	7,429.088
D 120	20	7,374.86	0.9150	6,747.996
D 201	22	8,117.71	0.9166	7,440.692
D 202	21	7,553.54	0.9166	6,923.574
D 203	22	8,195.40	0.9165	7,511.084
D 204	21	7,539.12	0.9166	6,910.357
D 205	21	7,628.01	0.9165	6,991.071
D 024	22	7,853.38	0.8992	7,061.759
D 025	22	8,018.68	0.8995	7,212.802
D 030	22	7,909.60	0.8996	7,115.476
D 039	22	7,931.63	0.8996	7,135.294
D 061	22	7,872.42	0.8996	7,082.029
F 086	23	8,231.20	0.8998	7,406.433
F2370	16	5,671.62	0.8999	5,103.890
F2371	15	5,062.05	0.8998	4,554.832

03576	13	4,660.40	0.8998	4,193.427
03815	17	5,982.81	0.8998	5,383.332
03816	16	5,587.00	0.8996	5,026.065
03817	17	6,014.70	0.8995	5,410.222
03818	18	6,173.20	0.8995	5,552.793
04035	11	3,925.25	0.8998	3,531.939
04242	19	6,724.57	0.8994	6,048.078
04537	10	3,514.35	0.8998	3,162.212
04717	14	4,752.65	0.8994	4,274.533
04949	13	4,414.07	0.8995	3,970.455
05273	13	4,439.77	0.8995	3,993.573
05628	14	4,927.61	0.8999	4,434.356
06046	19	6,750.40	0.8998	6,074.009
06047	19	6,805.00	0.8998	6,123.139
06048	19	6,768.35	0.8999	6,090.838
06049	19	6,717.35	0.8999	6,044.943
06170	15	5,294.21	0.8996	4,762.671
06171	18	5,727.50	0.8996	5,152.459
06330	20	7,073.08	0.8995	6,362.235
06331	20	7,231.37	0.8996	6,505.340
06332	20	7,029.27	0.8996	6,323.531
06333	20	6,949.55	0.8995	6,251.120
06334	20	6,924.30	0.8996	6,229.100
06335	20	6,765.87	0.8996	6,086.576
06336	19	6,566.34	0.8996	5,907.079
06477	19	6,696.20	0.8999	6,025.910
06478	20	6,585.20	0.8998	5,925.362
06504	22	7,825.43	0.8995	7,038.974
06505	22	7,728.01	0.8993	6,949.799
06506	21	7,241.80	0.8995	6,513.999
06507	21	7,339.45	0.8996	6,602.569
06508	21	7,286.50	0.8994	6,553.478
06509	20	6,977.03	0.8994	6,275.140
06510	20	6,819.08	0.8992	6,131.716
06724	21	7,523.34	0.8993	6,765.739
06725	21	7,509.95	0.8994	6,754.449
06726	22	7,630.07	0.8996	6,864.010
06729	20	7,030.80	0.8996	6,324.907
06730	20	7,129.03	0.8995	6,412.562
06731	20	7,060.17	0.8995	6,350.622
06732	20	6,679.30	0.8997	6,009.366
06914	22	7,819.33	0.8993	7,031.923
06915	22	7,800.40	0.8994	7,015.679
06916	22	7,704.38	0.8994	6,929.319

06917	21	7,351.50	0.8994	6,611.939
06918	22	7,581.20	0.8993	6,817.773
08659	21	7,181.99	0.9003	6,465.945
08660	22	7,770.88	0.8995	6,989.906
08661	22	7,768.18	0.8991	6,984.370
08662	22	7,777.38	0.8992	6,993.420
08663	22	7,739.54	0.8992	6,959.394
08664	21	7,470.42	0.8996	6,720.389
08665	21	7,425.18	0.8994	6,678.206
08666	21	7,489.03	0.8995	6,736.382
08667	21	7,505.24	0.8994	6,750.212
08668	21	7,522.96	0.8995	6,766.902
08669	20	6,912.70	0.8994	6,217.282
08670	22	7,826.73	0.8996	7,040.926
08679	16	5,375.63	0.8997	4,836.454
08958	19	6,441.86	0.9000	5,797.674
09066	13	4,534.96	0.9002	4,082.370
09067	11	3,781.34	0.9001	3,403.584
09108	20	7,143.20	0.8992	6,423.165
09109	19	6,717.58	0.8993	6,041.119
09110	19	6,659.13	0.8993	5,988.555
09111	19	6,733.72	0.8992	6,054.961
09112	19	6,747.43	0.8993	6,067.963
09113	19	6,692.80	0.8992	6,018.165
09114	20	7,149.84	0.8998	6,433.426
09115	20	7,078.58	0.8997	6,368.598
09116	20	7,014.76	0.8998	6,311.881
09118	20	7,091.19	0.8998	6,380.652
09119	20	6,886.84	0.8998	6,196.778
09134	19	6,429.29	0.8998	5,785.075
10674	22	7,831.64	0.8998	7,046.909
10675	22	7,803.03	0.8998	7,021.166
10676	22	7,934.10	0.8998	7,139.103
10927	20	7,118.22	0.8994	6,402.127
10929	18	6,114.03	0.8995	5,499.569
10976	19	6,822.81	0.8996	6,137.799
10977	19	6,620.20	0.8996	5,955.531
10978	19	6,827.92	0.8997	6,143.079
10979	19	6,817.62	0.8997	6,133.812
10980	19	6,490.87	0.8998	5,840.484
10981	16	5,455.81	0.8997	4,908.592
10982	19	6,610.15	0.8996	5,946.490
10983	19	6,778.22	0.8997	6,098.364
10984	19	6,653.17	0.8997	5,985.857

10985	19	6,743.10	0.8997	6,066.767
10986	19	6,735.35	0.8997	6,059.794
10987	16	5,644.13	0.8997	5,078.023
10988	19	6,826.65	0.8996	6,141.254
10989	19	6,677.33	0.8998	6,008.261
10991	19	6,839.20	0.8997	6,153.228
10992	19	6,679.40	0.8998	6,010.124
10998	19	6,624.26	0.8997	5,959.846
10999	19	6,544.18	0.8997	5,887.798
11001	19	6,781.93	0.8998	6,102.380
11002	19	6,726.30	0.8997	6,051.652
11003	19	6,858.90	0.8997	6,170.952
11004	22	7,873.38	0.8997	7,083.679
11005	13	4,326.21	0.8997	3,892.291
11011	17	5,549.90	0.8997	4,993.245
11012	19	6,448.27	0.8997	5,801.508
11013	19	6,544.75	0.8997	5,888.311
11014	19	6,539.85	0.8996	5,883.249
11019	19	6,621.70	0.8997	5,957.543
11020	19	6,734.25	0.8996	6,058.131
11023	17	5,888.12	0.8997	5,297.541
11024	10	3,518.90	0.8997	3,165.954
11025	14	4,953.92	0.8998	4,457.537
11026	15	5,394.13	0.8998	4,853.638
11027	14	4,917.23	0.8998	4,424.523
11249	11	3,541.38	0.8993	3,184.763
11384	21	7,269.85	0.8996	6,539.957
11385	21	7,406.83	0.8997	6,663.924
11386	21	7,426.83	0.8996	6,681.176
11387	21	7,569.48	0.8997	6,810.261
11388	21	7,659.39	0.8995	6,889.621
11389	23	8,371.62	0.8997	7,531.946
11390	21	7,485.12	0.8996	6,733.613
11391	21	7,424.92	0.8996	6,679.458
11392	21	7,459.84	0.8996	6,710.872
11393	21	7,522.64	0.8996	6,767.366
11394	21	7,504.01	0.8996	6,750.607
11395	23	8,279.69	0.8996	7,448.409
11398	22	7,887.17	0.8996	7,095.298
11399	22	7,872.70	0.8996	7,082.280
11400	22	7,925.28	0.8997	7,130.374
11405	21	7,531.00	0.8996	6,774.887
11406	22	7,837.48	0.8996	7,050.597
11409	22	7,859.32	0.8996	7,070.244

11410	22	7,931.95	0.8997	7,136.375
11411	19	6,588.42	0.8996	5,926.942
11412	22	7,865.90	0.8996	7,076.163
11414	22	7,825.35	0.8996	7,039.684
11561	12	4,002.04	0.8995	3,599.834
11647	14	4,842.14	0.8996	4,355.989
12280	22	7,765.70	0.8996	6,986.023
12346	19	6,452.63	0.8994	5,803.495
12550	19	6,724.67	0.8993	6,047.495
12551	19	6,757.06	0.8992	6,075.948
12553	19	6,826.96	0.8994	6,140.167
12554	20	6,998.37	0.8993	6,293.634
12980	15	5,144.75	0.8993	4,626.673
12981	17	5,598.73	0.8993	5,034.937
13007	15	5,195.80	0.8998	4,675.180
13008	15	4,879.80	0.8998	4,390.844
13073	19	6,618.28	0.8996	5,953.804
13074	18	6,149.12	0.8993	5,529.903
13596	21	7,235.02	0.8995	6,507.900
13597	19	6,528.97	0.8995	5,872.808
13639	12	4,205.47	0.8996	3,783.240
13640	11	3,787.52	0.8995	3,406.874
13643	17	5,772.99	0.8996	5,193.381
13656	19	6,607.79	0.8996	5,944.367
13657	18	6,110.94	0.8993	5,495.568
13670	20	7,056.83	0.8996	6,348.324
13671	20	7,011.08	0.8997	6,307.868
13672	20	6,957.29	0.8998	6,260.169
14081	22	7,577.94	0.8996	6,817.114
14440	20	6,710.50	0.8997	6,037.436
14445	20	7,022.55	0.8999	6,319.592
14446	20	7,103.75	0.8998	6,391.954
14447	20	7,008.09	0.9000	6,307.281
14455	22	7,689.00	0.8993	6,914.717
14456	19	6,676.70	0.8992	6,003.688
14599	20	7,086.35	0.8993	6,372.754
14600	20	6,918.65	0.8993	6,221.941
14614	21	7,153.63	0.8997	6,436.120
14615	21	7,362.75	0.8998	6,625.002
14616	21	7,173.52	0.8998	6,454.733
14635	20	7,025.25	0.8991	6,316.402
14638	17	5,991.28	0.8993	5,387.958
14640	19	6,545.22	0.8999	5,890.043
14641	20	7,019.72	0.8999	6,317.046

14644	19	6,635.70	0.8999	5,971.466
14645	20	6,761.83	0.8999	6,084.970
14678	18	6,386.13	0.8998	5,746.239
14679	19	6,795.05	0.8996	6,112.826
14680	18	6,367.24	0.9000	5,730.516
14681	18	6,309.03	0.9000	5,678.127
14682	19	6,565.26	0.8996	5,906.107
14683	18	6,284.12	0.8994	5,651.937
14694	21	7,425.15	0.8996	6,679.664
14695	20	7,089.04	0.8993	6,375.173
14696	21	7,441.11	0.8998	6,695.510
14697	20	6,964.47	0.8999	6,267.326
14803	19	6,416.05	0.9000	5,774.445
14804	18	6,258.86	0.9000	5,632.974
14805	19	6,579.19	0.9000	5,921.271
14806	18	6,199.44	0.9000	5,579.496
15088	12	3,959.46	0.8995	3,561.534
15166	19	6,691.90	0.9166	6,133.795
15200	19	6,804.53	0.9166	6,237.032
15201	19	6,745.99	0.9166	6,183.374
15202	19	6,744.88	0.9166	6,182.357
15204	17	5,909.67	0.9166	5,416.803
15240	21	7,375.47	0.9167	6,761.093
15241	19	6,589.71	0.9165	6,039.469
15740	16	5,510.90	0.9167	5,051.842
15741	16	5,535.38	0.9166	5,073.729
15742	15	5,105.53	0.9167	4,680.239
15743	20	6,906.02	0.9166	6,330.057
15744	20	6,938.51	0.9166	6,359.838
15745	20	6,897.14	0.9166	6,321.918
15746	20	6,739.65	0.9166	6,177.563
15812	18	6,172.47	0.8994	5,551.519
15814	16	5,441.61	0.8993	4,893.639
23694	15	5,160.54	0.9166	4,730.150
25194	21	7,081.50	0.8994	6,369.101
27278	22	7,422.52	0.8998	6,678.783
00020	19	7,232.12	0.9992	7,226.334
00142	21	8,137.04	0.9998	8,135.413
00143	21	8,236.85	0.9997	8,234.379
00144	21	8,207.46	0.9998	8,205.819
00145	22	8,506.32	0.9998	8,504.619
00146	21	8,238.37	0.9997	8,235.898
00147	21	8,271.70	0.9997	8,269.218
00148	21	8,253.78	0.9997	8,251.304

00149	21	8,177.75	0.9997	8,175.297
00150	21	8,210.60	0.9997	8,208.137
00151	21	8,197.19	0.9997	8,194.731
00152	21	8,163.78	0.9997	8,161.331
00153	21	8,194.26	0.9997	8,191.802
01757	19	7,187.02	0.9994	7,182.708
02620	17	6,480.12	0.9992	6,474.936
04636	18	6,838.00	0.9990	6,831.162
04644	21	7,591.33	0.9995	7,587.534
04650	20	7,608.86	0.9996	7,605.816
04652	19	7,131.81	0.9995	7,128.244
04716	19	7,240.21	0.9995	7,236.590
04721	15	5,729.75	0.9995	5,726.885
04722	20	7,294.10	0.9995	7,290.453
04764	18	7,039.13	0.9995	7,035.610
04768	20	7,567.06	0.9995	7,563.276
04769	18	6,919.45	0.9992	6,913.914
04806	18	6,929.67	0.9990	6,922.740
06041	20	7,239.67	0.9991	7,233.154
06042	19	7,084.31	0.9994	7,080.059
06096	18	6,719.28	0.9994	6,715.248
06150	15	5,677.27	0.9994	5,673.864
06221	19	7,068.02	0.9995	7,064.486
06222	16	6,014.84	0.9990	6,008.825
00255	22	8,558.53	0.9998	8,556.818
00256	22	8,541.81	0.9998	8,540.102
00257	22	8,594.98	0.9998	8,593.261
00258	22	8,441.25	0.9998	8,439.562
00259	22	8,597.13	0.9998	8,595.411
00268	22	8,415.72	0.9998	8,414.037
00269	22	8,468.30	0.9999	8,467.453
00270	22	8,520.28	0.9999	8,519.428
00271	22	8,360.93	0.9998	8,359.258
00272	23	8,786.82	0.9998	8,785.063
00273	22	8,524.93	0.9998	8,523.225
00274	22	8,487.58	0.9998	8,485.882
00275	22	8,497.87	0.9998	8,496.170
00276	22	8,501.20	0.9998	8,499.500
00277	23	8,758.44	0.9997	8,755.812
00281	21	8,277.05	0.9998	8,275.395
00282	21	8,313.01	0.9998	8,311.347
00283	21	8,245.58	0.9998	8,243.931
00284	21	8,287.00	0.9998	8,285.343
00328	21	8,230.70	0.9994	8,225.762

00329	20	7,838.20	0.9997	7,835.849
00330	20	7,756.33	0.9996	7,753.227
00331	22	8,522.09	0.9996	8,518.681
00798	19	7,375.06	0.9991	7,368.422
00799	18	6,893.15	0.9992	6,887.635
02447	21	7,890.68	0.9995	7,886.735
03314	19	6,980.47	0.9992	6,974.886
03480	19	7,177.65	0.9990	7,170.472
03481	19	7,291.90	0.9990	7,284.608
03485	19	7,188.15	0.9990	7,180.962
03499	20	7,549.51	0.9990	7,541.960
03504	18	6,925.48	0.9990	6,918.555
03505	19	7,304.69	0.9991	7,298.116
03506	19	7,233.73	0.9993	7,228.666
08825	20	7,318.95	0.9997	7,316.754
08826	20	7,378.28	0.9997	7,376.067
08827	20	7,338.95	0.9994	7,334.547
08828	19	7,176.25	0.9995	7,172.662
08829	20	7,337.13	0.9996	7,334.195
08830	19	6,924.58	0.9996	6,921.810
08831	18	6,683.51	0.9995	6,680.168
08832	18	6,902.25	0.9996	6,899.489
08892	19	7,175.89	0.9996	7,173.020
08893	19	7,284.60	0.9996	7,281.686
08894	19	7,129.81	0.9996	7,126.958
08895	20	7,475.55	0.9996	7,472.560
08896	17	6,348.01	0.9996	6,345.471
08897	18	6,644.16	0.9997	6,642.167
08898	21	7,596.93	0.9995	7,593.132
08899	17	6,443.99	0.9996	6,441.412
08900	19	6,960.52	0.9997	6,958.432
08901	6	1,972.80	0.9993	1,971.419
08956	21	7,702.65	0.9996	7,699.569
08957	19	7,161.36	0.9996	7,158.495
08958	10	3,765.20	0.9995	3,763.317
09067	18	6,759.37	0.9996	6,756.666
09068	16	6,048.81	0.9995	6,045.786
09069	16	6,103.15	0.9994	6,099.488
09070	10	3,829.14	0.9995	3,827.225
09227	20	7,434.45	0.9995	7,430.733
09228	18	6,853.75	0.9995	6,850.323
09229	19	7,300.50	0.9995	7,296.850
09230	17	6,506.62	0.9997	6,504.668
09231	19	7,235.74	0.9996	7,232.846

09232	19	7,234.37	0.9996	7,231.476
09233	19	7,234.20	0.9996	7,231.306
09234	20	7,565.33	0.9995	7,561.547
09235	19	7,284.88	0.9994	7,280.509
09236	19	7,229.29	0.9995	7,225.675
09286	17	6,388.32	0.9996	6,385.765
09287	19	7,161.50	0.9996	7,158.635
09288	19	7,144.76	0.9995	7,141.188
09289	18	6,825.26	0.9995	6,821.847
09290	19	7,105.53	0.9995	7,101.977
09291	19	7,269.62	0.9994	7,265.258
09292	19	7,193.65	0.9997	7,191.492
09293	17	6,600.37	0.9997	6,598.390
09294	20	7,584.60	0.9996	7,581.566
09295	20	7,280.27	0.9993	7,275.174
09296	18	6,708.32	0.9996	6,705.637
09297	6	2,252.15	0.9993	2,250.573
09478	19	7,130.92	0.9995	7,127.355
09479	20	7,586.06	0.9996	7,583.026
09480	19	7,108.04	0.9996	7,105.197
09481	19	7,323.28	0.9996	7,320.351
09482	18	6,951.78	0.9997	6,949.694
09483	18	6,928.16	0.9995	6,924.696
09484	16	6,205.52	0.9996	6,203.038
09485	19	7,267.76	0.9996	7,264.853
09486	21	7,651.20	0.9996	7,648.140
09487	13	4,884.35	0.9997	4,882.885
09488	8	3,020.42	0.9993	3,018.306
09548	18	7,063.93	0.9990	7,056.866
09562	20	7,488.35	0.9995	7,484.606
09563	18	6,919.62	0.9996	6,916.852
09564	20	7,424.03	0.9994	7,419.576
09565	19	7,279.10	0.9996	7,276.188
09566	19	7,236.91	0.9996	7,234.015
09567	18	6,946.53	0.9996	6,943.751
09568	18	7,012.28	0.9997	7,010.176
09569	18	6,916.23	0.9996	6,913.464
09570	17	6,477.80	0.9996	6,475.209
09571	19	7,280.49	0.9995	7,276.850
11195	18	6,771.22	0.9997	6,769.189
11196	19	7,188.54	0.9996	7,185.665
11197	19	7,181.63	0.9997	7,179.476
11198	18	6,918.36	0.9995	6,914.901
11199	20	7,505.32	0.9997	7,503.068

11200	19	7,369.04	0.9996	7,366.092
11201	18	6,931.60	0.9997	6,929.521
11202	17	6,566.95	0.9995	6,563.667
11203	20	7,632.62	0.9995	7,628.804
11205	19	7,365.40	0.9993	7,360.244
11206	19	7,470.04	0.9993	7,464.811
11208	18	6,988.34	0.9996	6,985.545
11211	18	6,962.41	0.9994	6,958.233
11212	18	6,972.63	0.9991	6,966.355
11633	14	5,391.38	0.9993	5,387.606
11657	19	7,260.26	0.9994	7,255.904
11825	18	7,009.85	0.9992	7,004.242
11842	13	4,667.83	0.9996	4,665.963
11843	9	3,467.48	0.9995	3,465.746
11844	21	7,743.90	0.9995	7,740.028
11845	18	6,821.86	0.9993	6,817.085
11846	18	6,951.74	0.9996	6,948.959
11848	20	7,481.86	0.9995	7,478.119
11850	19	7,358.47	0.9992	7,352.583
00111	18	6,780.57	0.9953	6,748.701
00170	19	7,177.38	0.9951	7,142.211
00244	19	7,161.83	0.9950	7,126.021
00894	20	7,085.27	0.9993	7,080.310
03990	17	6,543.37	0.9994	6,539.444
04004	17	6,449.37	0.9994	6,445.500
04638	19	6,769.85	0.9991	6,763.757
04862	17	6,477.90	0.9994	6,474.013
04863	17	6,419.99	0.9997	6,418.064
06010	17	6,499.25	0.9991	6,493.401
06011	19	7,133.43	0.9991	7,127.010
06024	19	7,017.25	0.9991	7,010.934
06356	19	7,263.80	0.9995	7,260.168
06358	16	5,996.30	0.9995	5,993.302
00471	22	8,629.65	0.9996	8,626.198
00472	23	9,021.10	0.9995	9,016.589
00473	24	8,982.50	0.9995	8,978.009
00474	23	8,859.20	0.9996	8,855.656
00475	24	9,240.50	0.9995	9,235.880
00476	24	9,434.95	0.9995	9,430.233
00477	22	8,640.00	0.9996	8,636.544
00478	22	8,609.45	0.9995	8,605.145
00479	22	8,686.90	0.9996	8,683.425
00480	23	8,883.05	0.9996	8,879.497
00481	22	8,761.75	0.9996	8,758.245

00482	24	9,324.40	0.9997	9,321.603
00483	24	9,265.60	0.9997	9,262.820
00484	23	8,990.19	0.9997	8,987.493
00485	21	8,138.45	0.9995	8,134.381
00486	23	8,501.80	0.9996	8,498.399
01120	17	6,194.22	0.9991	6,188.645
01121	19	7,128.35	0.9994	7,124.073
01125	18	6,742.77	0.9991	6,736.702
01127	19	6,828.92	0.9990	6,822.091
01128	19	6,984.78	0.9990	6,977.795
01184	19	6,745.84	0.9992	6,740.443
01226	8	2,978.70	0.9993	2,976.615
01552	22	8,118.63	0.9992	8,112.135
01636	7	2,604.43	0.9996	2,603.388
01972	16	5,960.24	0.9996	5,957.856
01991	18	6,480.22	0.9994	6,476.332
01992	24	8,784.70	0.9994	8,779.429
01993	12	4,189.42	0.9995	4,187.325
01996	18	6,679.70	0.9995	6,676.360
01997	18	6,586.08	0.9993	6,581.470
01998	19	6,898.34	0.9993	6,893.511
01999	20	7,006.72	0.9993	7,001.815
02270	13	4,588.20	0.9996	4,586.365
02271	13	4,341.83	0.9996	4,340.093
02706	19	7,108.45	0.9997	7,106.317
02707	17	6,463.65	0.9997	6,461.711
02708	17	6,382.25	0.9997	6,380.335
02709	18	6,624.89	0.9994	6,620.915
02710	21	7,617.17	0.9998	7,615.647
02711	16	5,986.20	0.9998	5,985.003
02712	18	6,939.83	0.9998	6,938.442
02713	18	6,924.77	0.9997	6,922.693
02714	18	6,826.87	0.9997	6,824.822
02715	18	6,860.77	0.9994	6,856.654
02716	19	7,066.87	0.9996	7,064.043
02717	18	6,732.55	0.9997	6,730.530
02718	18	6,703.70	0.9997	6,701.689
02719	17	6,435.30	0.9997	6,433.369
02720	18	6,799.32	0.9997	6,797.280
02721	19	7,133.10	0.9998	7,131.673
02722	20	7,566.85	0.9998	7,565.337
02723	19	7,032.43	0.9998	7,031.024
02724	19	7,081.14	0.9998	7,079.724
02725	18	6,770.90	0.9998	6,769.546

02726	18	6,844.16	0.9998	6,842.791
02727	18	6,736.73	0.9998	6,735.383
02728	17	6,376.56	0.9998	6,375.285
02738	19	7,053.00	0.9998	7,051.589
02739	17	6,611.70	0.9998	6,610.378
02740	19	7,284.96	0.9997	7,282.775
02741	19	7,180.40	0.9997	7,178.246
02742	18	6,810.05	0.9998	6,808.688
02743	17	6,381.84	0.9998	6,380.564
02744	17	6,358.23	0.9998	6,356.958
02745	17	6,485.25	0.9998	6,483.953
02746	19	6,947.90	0.9998	6,946.510
02747	18	6,967.07	0.9994	6,962.890
02748	18	6,773.98	0.9998	6,772.625
02749	17	6,397.71	0.9998	6,396.430
02750	17	6,592.28	0.9998	6,590.962
02751	18	6,869.02	0.9997	6,866.959
02752	18	6,838.50	0.9997	6,836.448
02753	17	6,499.02	0.9994	6,495.121
02754	19	7,062.80	0.9994	7,058.562
02755	20	7,230.00	0.9994	7,225.662
02756	18	6,729.36	0.9997	6,727.341
02757	19	7,279.20	0.9995	7,275.560
02758	18	6,759.75	0.9996	6,757.046
02759	18	6,808.27	0.9995	6,804.866
02760	17	6,339.08	0.9997	6,337.178
02761	10	3,512.00	0.9996	3,510.595
02775	18	6,660.16	0.9993	6,655.498
02819	17	6,499.00	0.9991	6,493.151
02822	18	6,793.93	0.9991	6,787.815
02823	18	6,818.74	0.9990	6,811.921
03194	15	5,728.87	0.9993	5,724.860
03195	14	4,959.64	0.9993	4,956.168
03222	6	2,314.07	0.9997	2,313.376
03237	9	3,368.35	0.9996	3,367.003
03266	19	7,310.24	0.9990	7,302.930
03278	17	6,541.64	0.9994	6,537.715
03280	19	7,146.40	0.9990	7,139.254
03652	18	6,747.20	0.9993	6,742.477
03653	19	6,910.63	0.9991	6,904.410
03657	16	6,204.52	0.9991	6,198.936
03658	19	7,387.53	0.9994	7,383.097
03913	20	7,252.00	0.9995	7,248.374
03972	17	6,309.35	0.9993	6,304.933

03973	18	6,856.90	0.9995	6,853.472
03977	19	7,065.05	0.9992	7,059.398
03978	18	6,727.45	0.9990	6,720.723
03981	19	7,085.50	0.9990	7,078.415
03982	18	6,785.20	0.9992	6,779.772
04050	10	3,863.95	0.9998	3,863.177
04065	10	3,805.32	0.9998	3,804.559
04400	18	6,802.00	0.9992	6,796.558
04401	18	6,781.30	0.9990	6,774.519
04402	18	6,789.13	0.9992	6,783.699
04416	17	6,583.05	0.9990	6,576.467
04417	17	6,674.38	0.9992	6,669.040
04722	16	6,006.95	0.9995	6,003.947
04723	11	4,084.90	0.9995	4,082.858
04786	17	6,539.07	0.9996	6,536.454
04787	18	6,804.33	0.9994	6,800.247
04788	18	6,949.75	0.9995	6,946.275
04789	18	7,002.76	0.9994	6,998.558
05093	19	7,331.89	0.9990	7,324.558
05094	18	6,892.84	0.9994	6,888.704
05095	20	7,444.25	0.9992	7,438.295
05097	18	6,924.46	0.9993	6,919.613
05098	18	6,781.14	0.9991	6,775.037
05099	17	6,452.66	0.9993	6,448.143
05100	18	6,891.78	0.9992	6,886.267
05101	18	6,730.58	0.9996	6,727.888
05102	19	7,060.38	0.9991	7,054.026
05103	18	6,738.80	0.9990	6,732.061
05104	18	6,759.93	0.9991	6,753.846
05105	20	7,308.72	0.9992	7,302.873
05106	20	7,370.28	0.9994	7,365.858
05109	16	5,669.88	0.9993	5,665.911
05135	13	5,030.17	0.9992	5,026.146
05136	14	5,370.20	0.9992	5,365.904
05137	16	6,093.74	0.9991	6,088.256
05166	20	7,554.52	0.9993	7,549.232
05493	17	6,474.85	0.9993	6,470.318
05494	18	6,886.33	0.9991	6,880.132
05495	18	6,982.42	0.9990	6,975.438
05496	18	6,925.66	0.9996	6,922.890
05498	19	7,129.22	0.9991	7,122.804
05501	18	6,675.38	0.9996	6,672.710
05712	8	3,001.28	0.9996	3,000.079
05819	16	5,913.58	0.9996	5,911.215

05838	18	6,988.15	0.9994	6,983.957
05879	13	5,007.60	0.9995	5,005.096
05880	9	3,371.40	0.9990	3,368.029
06186	9	3,295.88	0.9995	3,294.232
06212	19	6,963.75	0.9998	6,962.357
06213	9	3,244.90	0.9998	3,244.251
06639	19	6,964.46	0.9996	6,961.674
06643	16	6,157.00	0.9997	6,155.153
06644	13	4,796.55	0.9998	4,795.591
06798	17	6,080.95	0.9996	6,078.518
06810	15	5,447.00	0.9997	5,445.366
06889	19	7,246.07	0.9996	7,243.172
06890	19	7,259.90	0.9993	7,254.818
06894	19	7,147.57	0.9992	7,141.852
06895	19	7,203.25	0.9991	7,196.767
06896	17	6,351.05	0.9991	6,345.334
06897	19	7,323.05	0.9991	7,316.459
06898	20	7,732.50	0.9992	7,726.314
06899	21	7,827.95	0.9994	7,823.253
07157	19	7,306.55	0.9993	7,301.435
07159	20	7,786.80	0.9994	7,782.128
07160	19	7,222.55	0.9995	7,218.939
07162	19	7,223.43	0.9993	7,218.374
07163	19	7,285.85	0.9991	7,279.293
07164	18	6,984.22	0.9990	6,977.236
07167	19	7,294.25	0.9990	7,286.956
07168	18	6,970.00	0.9992	6,964.424
07169	20	7,655.40	0.9991	7,648.510
07170	18	6,994.77	0.9991	6,988.475
07171	19	7,302.07	0.9995	7,298.419
07172	19	7,301.15	0.9995	7,297.499
07173	19	7,389.25	0.9992	7,383.339
07174	19	7,338.38	0.9992	7,332.509
07175	19	7,291.27	0.9991	7,284.708
07176	19	7,379.90	0.9990	7,372.520
07261	18	6,703.62	0.9991	6,697.587
07497	17	6,204.63	0.9996	6,202.148
07641	20	7,431.10	0.9990	7,423.669
07645	11	3,934.48	0.9990	3,930.546
07868	19	7,226.80	0.9990	7,219.573
07872	19	7,067.72	0.9991	7,061.359
07931	18	6,872.28	0.9996	6,869.531
07932	19	7,122.97	0.9996	7,120.121
07933	19	7,077.40	0.9997	7,075.277

08004	18	6,868.13	0.9996	6,865.383
08005	18	6,627.48	0.9997	6,625.492
08006	19	7,233.40	0.9997	7,231.230
08007	21	7,769.40	0.9993	7,763.961
08008	19	7,120.08	0.9995	7,116.520
08009	18	6,897.15	0.9995	6,893.701
08010	21	7,613.63	0.9996	7,610.585
08011	20	7,647.80	0.9997	7,645.506
08149	21	8,038.40	0.9992	8,031.969
08150	19	7,149.62	0.9992	7,143.900
08151	20	7,409.66	0.9997	7,407.437
08152	18	6,897.43	0.9995	6,893.981
08153	20	7,640.25	0.9996	7,637.194
08154	19	7,272.90	0.9992	7,267.082
08155	18	6,861.04	0.9996	6,858.296
08156	20	7,551.67	0.9994	7,547.139
08158	22	8,089.73	0.9993	8,084.067
08159	20	7,516.10	0.9991	7,509.336
08176	16	6,118.30	0.9990	6,112.182
08177	19	6,924.86	0.9994	6,920.705
08182	16	5,977.10	0.9997	5,975.307
08183	10	3,393.03	0.9997	3,392.012
08270	15	5,462.56	0.9995	5,459.829
08283	17	6,409.52	0.9994	6,405.674
08284	19	6,976.42	0.9994	6,972.234
08719	15	5,635.42	0.9994	5,632.039
08720	16	6,129.70	0.9990	6,123.570
08722	18	6,593.80	0.9993	6,589.184
13359	15	5,660.50	0.9998	5,659.368
13360	13	4,882.03	0.9997	4,880.565
13394	16	6,034.95	0.9994	6,031.329
13764	12	4,228.65	0.9995	4,226.536
13811	20	7,385.70	0.9993	7,380.530
13957	18	6,682.44	0.9990	6,675.758
14007	16	5,231.82	0.9991	5,227.111
14128	13	4,861.48	0.9990	4,856.619
14324	18	6,713.18	0.9994	6,709.152
14329	18	6,781.65	0.9994	6,777.581
14330	18	6,670.40	0.9992	6,665.064
14332	16	6,005.13	0.9993	6,000.926
14358	18	6,701.42	0.9992	6,696.059
14371	15	5,596.28	0.9995	5,593.482
14491	17	6,336.42	0.9990	6,330.084
14492	17	6,197.40	0.9994	6,193.682

14493	18	6,702.17	0.9990	6,695.468
14502	18	6,770.82	0.9993	6,766.080
14503	19	6,930.72	0.9995	6,927.255
14504	5	1,622.75	0.9991	1,621.290
14576	17	6,547.95	0.9994	6,544.021
14577	16	6,041.80	0.9995	6,038.779
14587	17	6,534.75	0.9996	6,532.136
14588	17	6,479.18	0.9996	6,476.588
14691	15	5,494.25	0.9992	5,489.855
14692	10	3,509.78	0.9990	3,506.270
14704	17	6,043.25	0.9998	6,042.041
14705	20	7,280.23	0.9991	7,273.678
14771	19	6,898.60	0.9996	6,895.841
14772	16	5,984.82	0.9996	5,982.426
14773	18	6,481.78	0.9995	6,478.539
14774	19	6,971.03	0.9995	6,967.544
14792	8	2,910.95	0.9993	2,908.912
14986	17	6,327.97	0.9995	6,324.806
14987	18	6,754.97	0.9992	6,749.566
14989	18	6,715.07	0.9993	6,710.369
14990	16	6,068.45	0.9994	6,064.809
14991	17	6,278.46	0.9994	6,274.693
14994	9	2,967.05	0.9994	2,965.270
15020	18	6,505.05	0.9995	6,501.797
15021	16	6,068.60	0.9995	6,065.566
15225	18	6,644.32	0.9990	6,637.676
15343	16	6,117.08	0.9991	6,111.575
15347	15	5,748.50	0.9995	5,745.626
15417	18	6,799.78	0.9996	6,797.060
15418	17	6,306.00	0.9990	6,299.694
15419	16	5,933.74	0.9992	5,928.993
15420	17	6,364.17	0.9995	6,360.988
15421	16	5,961.63	0.9995	5,958.649
15422	17	6,485.50	0.9991	6,479.663
15425	16	5,998.77	0.9992	5,993.971
15426	16	5,979.45	0.9994	5,975.862
15427	17	6,375.25	0.9995	6,372.062
15446	7	2,563.78	0.9992	2,561.729
15573	8	2,917.00	0.9992	2,914.666
15600	19	7,310.62	0.9991	7,304.040
15601	18	6,916.40	0.9990	6,909.484
15602	17	6,644.70	0.9990	6,638.055
15603	16	6,218.45	0.9991	6,212.853
15606	18	6,855.05	0.9990	6,848.195

15607	19	6,816.53	0.9991	6,810.395
15608	19	7,061.60	0.9994	7,057.363
15609	21	7,442.54	0.9994	7,438.074
15610	17	6,440.73	0.9990	6,434.289
15611	17	6,386.40	0.9991	6,380.652
15612	17	6,194.33	0.9994	6,190.613
15613	16	6,285.45	0.9993	6,281.050
15614	17	6,316.61	0.9991	6,310.925
15615	18	6,724.40	0.9996	6,721.710
15693	18	6,659.77	0.9995	6,656.440
15808	7	2,607.33	0.9996	2,606.287
15831	9	3,220.18	0.9996	3,218.892
15969	18	6,800.70	0.9993	6,795.940
15973	17	6,454.15	0.9995	6,450.923
15975	16	5,896.05	0.9994	5,892.512
15981	19	7,069.25	0.9995	7,065.715
16029	17	6,428.72	0.9996	6,426.149
16030	18	6,882.95	0.9997	6,880.885
16031	18	6,866.63	0.9995	6,863.197
16032	18	6,736.28	0.9992	6,730.891
16034	19	7,113.86	0.9991	7,107.458
16035	16	6,006.85	0.9992	6,002.045
16036	19	6,964.75	0.9992	6,959.178
16050	18	6,455.60	0.9990	6,449.144
16171	19	7,143.70	0.9990	7,136.556
16172	18	6,722.80	0.9990	6,716.077
16451	9	3,215.70	0.9996	3,214.414
17081	16	6,011.00	0.9996	6,008.596
17082	20	7,343.65	0.9995	7,339.978
17084	19	6,967.78	0.9997	6,965.690
17197	18	6,520.73	0.9994	6,516.818
17198	15	5,628.20	0.9993	5,624.260
17201	16	6,006.17	0.9998	6,004.969
17202	18	6,624.98	0.9998	6,623.655
17203	16	5,997.78	0.9994	5,994.181
17208	18	6,924.33	0.9990	6,917.406
17262	16	6,063.92	0.9997	6,062.101
17263	17	6,569.27	0.9993	6,564.672
17264	22	8,147.87	0.9996	8,144.611
17265	14	5,246.77	0.9994	5,243.622
17266	17	6,363.90	0.9993	6,359.445
17267	17	6,310.44	0.9990	6,304.130
17269	14	5,104.78	0.9995	5,102.228
17935	17	6,394.26	0.9995	6,391.063

18692	19	7,019.83	0.9993	7,014.916
18693	17	6,396.15	0.9993	6,391.673
18694	18	6,478.80	0.9994	6,474.913
18695	18	6,482.66	0.9994	6,478.770
18696	16	6,033.98	0.9992	6,029.153
18698	16	5,952.40	0.9997	5,950.614
18725	18	6,885.60	0.9991	6,879.403
18726	20	7,257.56	0.9990	7,250.302
00167	20	7,841.24	0.9997	7,838.888
00168	22	8,717.03	0.9998	8,715.287
00169	22	8,496.30	0.9996	8,492.901
00170	23	8,919.29	0.9996	8,915.722
00171	22	8,563.50	0.9996	8,560.075
00173	23	8,743.15	0.9996	8,739.653
00174	23	8,640.25	0.9996	8,636.794
00240	21	8,224.48	0.9997	8,222.013
00241	21	8,225.70	0.9995	8,221.587
00242	22	8,688.60	0.9995	8,684.256
00243	22	8,674.20	0.9996	8,670.730
00244	21	8,288.80	0.9996	8,285.484
00245	22	8,548.55	0.9995	8,544.276
00246	20	7,781.30	0.9993	7,775.853
00247	20	7,829.75	0.9995	7,825.835
00248	23	8,632.00	0.9997	8,629.410
00249	22	8,571.52	0.9995	8,567.234
00250	22	8,275.75	0.9996	8,272.440
00251	23	8,841.40	0.9997	8,838.748
00297	16	5,947.77	0.9998	5,946.580
00302	22	8,707.30	0.9996	8,703.817
00303	21	8,185.68	0.9996	8,182.406
00304	23	8,924.63	0.9996	8,921.060
00305	22	8,702.00	0.9996	8,698.519
00306	22	8,751.80	0.9996	8,748.299
00309	22	8,498.24	0.9996	8,494.841
00310	22	8,547.25	0.9995	8,542.976
00311	22	8,547.55	0.9995	8,543.276
00347	17	6,604.87	0.9997	6,602.889
00348	17	6,636.17	0.9998	6,634.843
00349	8	2,971.97	0.9998	2,971.376
00363	22	8,558.55	0.9996	8,555.127
00367	23	8,851.08	0.9997	8,848.425
00369	23	8,787.82	0.9997	8,785.184
00377	21	7,862.15	0.9996	7,859.005
00624	20	7,677.72	0.9998	7,676.184

00625	22	8,411.78	0.9998	8,410.098
01044	21	7,966.16	0.9997	7,963.770
01045	18	6,975.50	0.9995	6,972.012
01129	19	7,370.38	0.9996	7,367.432
01130	17	6,550.55	0.9996	6,547.930
01131	18	6,972.48	0.9996	6,969.691
01132	18	6,996.68	0.9992	6,991.083
01585	20	7,500.05	0.9995	7,496.300
01586	23	8,725.95	0.9996	8,722.460
02211	22	7,845.60	0.9951	7,807.157
02213	20	7,453.14	0.9998	7,451.649
02214	19	7,094.33	0.9997	7,092.202
02215	18	6,600.95	0.9998	6,599.630
02216	19	7,168.98	0.9998	7,167.546
02267	18	6,802.27	0.9998	6,800.910
02268	17	6,478.22	0.9991	6,472.390
02269	9	3,192.40	0.9996	3,191.123
02887	18	6,822.09	0.9954	6,790.708
03059	18	6,620.45	0.9975	6,603.899
03156	19	7,279.65	0.9955	7,246.892
03548	19	7,320.47	0.9958	7,289.724
08486	14	5,382.28	0.9996	5,380.127
08487	16	6,004.53	0.9993	6,000.327
08505	20	7,493.20	0.9996	7,490.203
08506	21	7,804.05	0.9997	7,801.709
08682	20	7,717.12	0.9991	7,710.175
08683	19	7,340.50	0.9991	7,333.894
08684	18	6,858.33	0.9990	6,851.472
08687	18	6,922.58	0.9990	6,915.657
08688	19	7,264.85	0.9990	7,257.585
08689	19	7,360.68	0.9991	7,354.055
08690	15	5,643.31	0.9993	5,639.360
08913	19	7,440.40	0.9995	7,436.680
08915	18	7,016.23	0.9993	7,011.319
08916	18	6,982.55	0.9992	6,976.964
08917	16	6,372.80	0.9990	6,366.427
08920	18	6,900.13	0.9991	6,893.920
08962	19	6,994.15	0.9997	6,992.052
08963	17	6,580.78	0.9997	6,578.806
08964	18	6,762.12	0.9997	6,760.091
08965	9	3,119.63	0.9997	3,118.694
08982	17	6,536.20	0.9996	6,533.586
09253	20	7,555.58	0.9995	7,551.802
09361	20	7,686.30	0.9994	7,681.688

09363	19	7,297.68	0.9994	7,293.301
09425	17	6,559.57	0.9995	6,556.290
09426	20	7,584.48	0.9996	7,581.446
09427	17	6,581.90	0.9995	6,578.609
09531	19	7,100.65	0.9998	7,099.230
09532	16	6,151.43	0.9998	6,150.200
09533	16	6,166.55	0.9998	6,165.317
09541	16	6,271.66	0.9994	6,267.897
09545	18	6,829.05	0.9995	6,825.635
09546	16	6,162.76	0.9990	6,156.597
09566	17	6,612.88	0.9997	6,610.896
09567	19	7,294.20	0.9995	7,290.553
09568	19	7,439.45	0.9993	7,434.242
09569	19	7,359.86	0.9993	7,354.708
09570	19	7,229.16	0.9994	7,224.823
09571	19	7,380.45	0.9991	7,373.808
09620	17	6,562.38	0.9997	6,560.411
09621	18	7,073.50	0.9998	7,072.085
09622	19	7,392.98	0.9998	7,391.501
09623	20	7,731.25	0.9990	7,723.519
09713	8	3,097.87	0.9991	3,095.082
09900	18	6,908.75	0.9997	6,906.677
09929	18	6,966.56	0.9997	6,964.470
09930	17	6,484.23	0.9997	6,482.285
09931	10	3,822.03	0.9997	3,820.883
09971	19	7,134.50	0.9974	7,115.950
10199	19	7,365.60	0.9991	7,358.971
10202	20	7,624.08	0.9995	7,620.268
10274	15	5,883.75	0.9997	5,881.985
10314	18	6,995.05	0.9992	6,989.454
10315	18	6,990.35	0.9991	6,984.059
10316	20	7,723.55	0.9990	7,715.826
10317	18	7,012.80	0.9991	7,006.488
10318	21	7,769.05	0.9990	7,761.281
10320	19	7,271.27	0.9994	7,266.907
10321	15	5,762.04	0.9992	5,757.430
10322	18	6,781.13	0.9990	6,774.349
10669	19	7,056.43	0.9997	7,054.313
10670	4	1,321.88	0.9996	1,321.351
11025	19	7,430.90	0.9996	7,427.928
11026	18	7,003.45	0.9998	7,002.049
11027	19	7,437.40	0.9997	7,435.169
11028	20	7,266.06	0.9997	7,263.880
11029	18	6,842.06	0.9997	6,840.007

11056	18	6,890.20	0.9998	6,888.822
11057	20	7,555.54	0.9998	7,554.029
11058	8	3,060.56	0.9998	3,059.948
11263	17	6,582.18	0.9998	6,580.864
11264	18	6,858.08	0.9998	6,856.708
11265	5	1,923.35	0.9997	1,922.773
11276	19	7,427.27	0.9997	7,425.042
11277	18	7,181.66	0.9996	7,178.787
11278	18	6,967.22	0.9995	6,963.736
11279	19	7,459.75	0.9995	7,456.020
11280	19	7,432.86	0.9995	7,429.144
11281	19	7,227.60	0.9995	7,223.986
11282	18	6,903.40	0.9997	6,901.329
11283	18	6,956.10	0.9997	6,954.013
11284	19	7,354.73	0.9993	7,349.582
11285	19	7,345.61	0.9996	7,342.672
11286	19	7,249.70	0.9993	7,244.625
11287	21	7,872.93	0.9994	7,868.206
11288	20	7,639.22	0.9995	7,635.400
11289	19	7,298.53	0.9995	7,294.881
11858	19	7,219.52	0.9992	7,213.744
11859	19	7,212.84	0.9992	7,207.070
11860	21	7,669.70	0.9993	7,664.331
11861	20	7,481.76	0.9993	7,476.523
11862	21	7,753.53	0.9995	7,749.653
12590	16	6,108.76	0.9969	6,089.823
12771	19	7,367.85	0.9971	7,346.483
14854	21	7,980.25	0.9998	7,978.654
15706	12	4,534.05	0.9997	4,532.690
17135	9	3,248.83	0.9997	3,247.855
04574	12	4,553.50	0.9998	4,552.589
04575	12	4,404.70	0.9996	4,402.938
06777	20	7,493.02	0.9994	7,488.524
04708	10	3,915.25	0.9998	3,914.467
04849	9	3,357.73	0.9998	3,357.058
04976	9	3,291.73	0.9998	3,291.072
05140	11	4,053.68	0.9998	4,052.869
05427	9	3,499.60	0.9998	3,498.900
05540	10	3,712.49	0.9998	3,711.748
05671	8	3,234.81	0.9998	3,234.163
05805	10	3,995.80	0.9998	3,995.001
09977	10	4,029.25	0.9998	4,028.444
10251	9	3,374.32	0.9998	3,373.645
10558	19	7,413.40	0.9992	7,407.469

10823	8	3,179.16	0.9998	3,178.524
11001	10	3,932.60	0.9998	3,931.813
11327	9	3,275.62	0.9998	3,274.965
11450	10	3,966.03	0.9998	3,965.237
11681	8	3,198.57	0.9998	3,197.930
12177	10	3,946.95	0.9997	3,945.766
00192	24	9,135.62	0.9997	9,132.879
00193	23	8,970.25	0.9997	8,967.559
00194	24	9,257.77	0.9998	9,255.918
00195	24	9,255.27	0.9997	9,252.493
00198	24	9,305.62	0.9998	9,303.759
00199	23	9,012.73	0.9998	9,010.927
00200	24	9,292.57	0.9998	9,290.711
00201	24	9,346.15	0.9998	9,344.281
00202	24	9,408.45	0.9997	9,405.627
00203	23	8,974.35	0.9997	8,971.658
00204	20	7,946.67	0.9998	7,945.081
00205	24	9,336.55	0.9997	9,333.749
00206	24	9,325.70	0.9998	9,323.835
00207	24	9,307.78	0.9998	9,305.918
00208	24	9,346.58	0.9998	9,344.711
00209	24	9,373.80	0.9998	9,371.925
00210	23	8,962.65	0.9998	8,960.857
00211	24	9,449.35	0.9998	9,447.460
00212	24	9,468.58	0.9997	9,465.739
00213	23	8,974.90	0.9997	8,972.208
00375	9	3,354.37	0.9993	3,352.022
00458	10	3,629.36	0.9995	3,627.545
05935	9	3,578.58	0.9998	3,577.864
06067	9	3,312.05	0.9998	3,311.388
06097	9	3,408.66	0.9998	3,407.978
06242	10	3,779.09	0.9998	3,778.334
06629	10	3,798.12	0.9998	3,797.360
06650	9	3,278.24	0.9999	3,277.912
06898	8	3,148.33	0.9995	3,146.756
07152	10	3,697.70	0.9998	3,696.960
07371	11	4,217.82	0.9998	4,216.976
07751	9	3,197.73	0.9997	3,196.771
08076	23	8,806.52	0.9992	8,799.475
08079	11	4,056.67	0.9995	4,054.642
08090	11	4,036.88	0.9998	4,036.073
08197	8	3,111.25	0.9999	3,110.939
08227	13	5,039.88	0.9997	5,038.368
08389	12	4,437.33	0.9997	4,435.999

08512	10	3,718.90	0.9998	3,718.156
08525	8	3,088.40	0.9999	3,088.091
08560	20	7,696.68	0.9992	7,690.523
08561	20	7,699.93	0.9994	7,695.310
08562	21	7,940.33	0.9993	7,934.772
08563	22	8,500.87	0.9990	8,492.369
08564	21	8,105.02	0.9990	8,096.915
08566	23	8,923.70	0.9990	8,914.776
08568	19	7,403.98	0.9998	7,402.499
08571	23	8,883.10	0.9990	8,874.217
08572	22	8,423.57	0.9991	8,415.989
08575	21	8,146.27	0.9992	8,139.753
08635	11	4,363.16	0.9995	4,360.978
08688	22	8,457.73	0.9991	8,450.118
08689	22	8,443.41	0.9996	8,440.033
08690	23	8,842.45	0.9993	8,836.260
08691	23	8,866.55	0.9992	8,859.457
08692	21	8,200.43	0.9993	8,194.690
08693	22	8,698.30	0.9995	8,693.951
08694	20	7,967.33	0.9995	7,963.346
08696	22	8,529.87	0.9992	8,523.046
08697	23	9,165.82	0.9993	9,159.404
08699	23	8,725.75	0.9993	8,719.642
08700	22	8,522.30	0.9993	8,516.334
08701	21	8,028.60	0.9992	8,022.177
08702	25	9,382.93	0.9994	9,377.300
08703	23	9,006.83	0.9994	9,001.426
08728	20	7,548.60	0.9996	7,545.581
08729	20	7,707.60	0.9991	7,700.663
08730	19	7,320.30	0.9997	7,318.104
08745	9	3,621.43	0.9998	3,620.706
08854	12	4,590.53	0.9997	4,589.153
08984	24	9,216.63	0.9992	9,209.257
08985	24	9,096.70	0.9992	9,089.423
08986	23	8,902.04	0.9995	8,897.589
08987	23	8,842.00	0.9992	8,834.926
08988	23	9,137.90	0.9993	9,131.503
08993	22	8,694.85	0.9995	8,690.503
12816	10	4,015.72	0.9995	4,013.712
14108	9	3,622.94	0.9995	3,621.129
00331	5	1,831.63	0.9997	1,831.081
00337	21	8,081.60	0.9997	8,079.176
00338	22	8,460.60	0.9997	8,458.062
00339	24	9,146.65	0.9998	9,144.821

11518	8	3,023.85	0.9998	3,023.245
11605	12	4,532.98	0.9997	4,531.620
11711	8	3,168.53	0.9997	3,167.579
11842	11	4,138.74	0.9998	4,137.912
11986	12	4,418.45	0.9997	4,417.124
12117	11	4,303.21	0.9996	4,301.489
12514	11	4,316.64	0.9997	4,315.345
12627	9	3,455.24	0.9998	3,454.549
12770	12	4,527.84	0.9997	4,526.482
12912	9	3,227.82	0.9998	3,227.174
09019	24	9,311.32	0.9991	9,302.940
09022	21	8,222.00	0.9994	8,217.067
09040	21	8,322.65	0.9991	8,315.160
00020	22	8,700.25	0.9993	8,694.160
00021	20	7,882.13	0.9990	7,874.248
00022	23	9,024.50	0.9995	9,019.988
00037	22	8,474.30	0.9992	8,467.521
00038	22	8,562.50	0.9995	8,558.219
00040	22	8,584.55	0.9994	8,579.399
00127	25	9,767.45	0.9998	9,765.497
00128	25	9,819.85	0.9998	9,817.886
00129	25	9,830.30	0.9998	9,828.334
00130	25	9,841.30	0.9997	9,838.348
00131	25	9,766.24	0.9997	9,763.310
00132	25	9,754.67	0.9998	9,752.719
00133	24	9,360.58	0.9998	9,358.708
00200	22	8,477.20	0.9998	8,475.505
00201	22	8,546.10	0.9998	8,544.391
00202	22	8,504.55	0.9997	8,501.999
00203	22	8,491.65	0.9998	8,489.952
00204	21	8,041.38	0.9997	8,038.968
00205	22	8,425.55	0.9997	8,423.022
00206	22	8,559.74	0.9998	8,558.028
00207	22	8,649.40	0.9998	8,647.670
00208	22	8,487.35	0.9998	8,485.653
00209	22	8,495.75	0.9997	8,493.201
00210	23	9,000.40	0.9997	8,997.700
00211	22	8,381.00	0.9997	8,378.486
00213	22	8,524.98	0.9997	8,522.423
00214	22	8,704.40	0.9996	8,700.918
00215	22	8,633.03	0.9997	8,630.440
00216	21	8,375.80	0.9998	8,374.125
00217	22	8,431.78	0.9998	8,430.094
00218	22	8,415.25	0.9992	8,408.518

00220	22	8,576.02	0.9992	8,569.159
00221	22	8,669.43	0.9997	8,666.829
00240	22	8,632.95	0.9998	8,631.223
00241	22	8,568.88	0.9997	8,566.309
00242	22	8,490.65	0.9997	8,488.103
00243	23	8,630.48	0.9998	8,628.754
00244	21	8,295.85	0.9997	8,293.361
00249	24	9,559.03	0.9997	9,556.162
00250	24	9,474.53	0.9998	9,472.635
00251	24	9,566.70	0.9998	9,564.787
00254	21	8,124.50	0.9991	8,117.188
00330	22	8,526.87	0.9990	8,518.343
00331	23	8,784.97	0.9990	8,776.185
00332	22	8,440.35	0.9993	8,434.442
00334	23	8,553.55	0.9991	8,545.852
00345	22	8,448.73	0.9990	8,440.281
00370	24	9,382.05	0.9995	9,377.359
00374	24	9,197.95	0.9995	9,193.351
00398	21	8,432.00	0.9994	8,426.941
00412	22	8,497.17	0.9992	8,490.372
00415	21	8,341.73	0.9990	8,333.388
00419	23	8,864.42	0.9995	8,859.988
00422	23	9,113.20	0.9991	9,104.998
00423	23	8,879.03	0.9995	8,874.590
00425	23	8,994.70	0.9995	8,990.203
00002	22	8,594.25	0.9994	8,589.093
00003	22	8,491.10	0.9991	8,483.458
00004	21	8,659.20	0.9991	8,651.407
00005	21	8,512.40	0.9993	8,506.441
00006	21	8,331.50	0.9993	8,325.668
00024	24	9,305.00	0.9995	9,300.348
00025	21	8,247.77	0.9993	8,241.997
00026	21	8,432.07	0.9995	8,427.854
00027	22	8,912.92	0.9996	8,909.355
00028	21	8,452.25	0.9990	8,443.798
00029	21	8,470.74	0.9993	8,464.810
00030	21	8,441.45	0.9996	8,438.073
00031	21	8,511.67	0.9995	8,507.414
00032	21	8,481.00	0.9991	8,473.367
00033	21	8,362.88	0.9992	8,356.190
00034	22	8,573.03	0.9990	8,564.457
00049	20	7,991.15	0.9998	7,989.552
00050	20	7,939.93	0.9998	7,938.342
00055	21	8,405.61	0.9991	8,398.045

00056	22	8,721.67	0.9995	8,717.309
00058	22	8,568.65	0.9994	8,563.509
00059	21	8,255.37	0.9993	8,249.591
00061	23	9,014.05	0.9991	9,005.937
00062	20	7,945.25	0.9998	7,943.661
00065	20	7,832.99	0.9998	7,831.423
00066	20	7,842.11	0.9998	7,840.542
00067	21	8,452.75	0.9998	8,451.059
00068	20	8,117.52	0.9998	8,115.896
00069	20	8,045.65	0.9997	8,043.236
00070	20	7,854.92	0.9998	7,853.349
00071	20	7,820.68	0.9998	7,819.116
00074	22	8,620.60	0.9993	8,614.566
00076	22	8,607.03	0.9994	8,601.866
00077	21	8,310.43	0.9992	8,303.782
00078	21	8,324.82	0.9991	8,317.328
00079	23	8,798.47	0.9994	8,793.191
00081	22	8,723.70	0.9995	8,719.338
00082	22	8,616.20	0.9995	8,611.892
00083	22	8,344.96	0.9994	8,339.953
00084	22	8,260.74	0.9992	8,254.131
00085	23	8,380.55	0.9996	8,377.198
00086	22	8,349.10	0.9997	8,346.595
00087	23	8,832.45	0.9996	8,828.917
00088	23	9,016.80	0.9994	9,011.390
00089	22	8,510.70	0.9995	8,506.445
00089	21	8,309.45	0.9993	8,303.633
00090	22	8,649.20	0.9993	8,643.146
00090	22	8,630.58	0.9996	8,627.128
00091	21	8,203.32	0.9996	8,200.039
00092	20	8,036.05	0.9997	8,033.639
00093	22	8,304.00	0.9993	8,298.187
00093	22	8,621.60	0.9995	8,617.289
00096	21	8,448.08	0.9990	8,439.632
00097	21	8,450.55	0.9991	8,442.945
00105	22	8,406.04	0.9994	8,400.996
00106	22	8,277.95	0.9993	8,272.155
00107	22	8,498.23	0.9994	8,493.131
00108	23	8,749.95	0.9994	8,744.700
00109	24	9,097.25	0.9992	9,089.972
00121	21	8,352.78	0.9994	8,347.768
00122	22	8,627.54	0.9992	8,620.638
00125	22	8,542.90	0.9991	8,535.211
00126	22	8,560.00	0.9991	8,552.296

00136	21	8,234.71	0.9995	8,230.593
00137	22	8,671.45	0.9994	8,666.247
00138	21	8,227.02	0.9993	8,221.261
00139	23	8,957.05	0.9993	8,950.780
00140	22	8,646.58	0.9993	8,640.527
00141	21	8,184.78	0.9993	8,179.051
00152	21	8,359.30	0.9991	8,351.777
00153	22	8,594.36	0.9993	8,588.344
00154	21	8,386.57	0.9994	8,381.538
00155	20	7,827.45	0.9993	7,821.971
00156	22	8,443.67	0.9995	8,439.448
00159	21	8,347.10	0.9995	8,342.926
00160	22	8,554.20	0.9995	8,549.923
00161	22	8,474.70	0.9992	8,467.920
00165	21	8,295.57	0.9992	8,288.934
00166	22	8,693.50	0.9995	8,689.153
00167	21	8,096.90	0.9997	8,094.471
02407	5	1,977.63	0.9998	1,977.234
09710	16	6,132.57	0.9996	6,130.117
09711	16	6,465.60	0.9996	6,463.014
00037	19	7,634.25	0.9991	7,627.379
00049	23	8,898.31	0.9990	8,889.412
00052	22	8,363.43	0.9991	8,355.903
00053	22	8,357.30	0.9990	8,348.943
00054	22	8,381.35	0.9993	8,375.483
00055	22	8,605.20	0.9996	8,601.758
00057	22	8,652.80	0.9993	8,646.743
00109	21	8,327.10	0.9991	8,319.606
00121	22	8,794.64	0.9992	8,787.604
00159	21	8,665.10	0.9996	8,661.634
00160	22	9,106.60	0.9997	9,103.868
00161	20	8,279.78	0.9997	8,277.296
00170	22	8,866.30	0.9993	8,860.094
00171	22	8,836.53	0.9992	8,829.461
00172	20	7,969.57	0.9998	7,967.976
00173	22	8,833.65	0.9992	8,826.583
00174	22	8,695.00	0.9993	8,688.914
00175	21	8,165.65	0.9993	8,159.934
00176	23	8,808.07	0.9991	8,800.143
00177	20	8,009.53	0.9994	8,004.724
00178	22	8,425.28	0.9996	8,421.910
00180	21	8,551.50	0.9994	8,546.369
00181	22	8,736.20	0.9995	8,731.832
00183	22	8,519.34	0.9994	8,514.228

00185	21	8,403.92	0.9997	8,401.399
00186	22	8,518.87	0.9994	8,513.759
00187	21	8,454.43	0.9996	8,451.048
00188	21	8,209.40	0.9987	8,198.728
00189	20	7,958.61	0.9993	7,953.039
00190	20	8,033.85	0.9994	8,029.030
00191	20	7,979.40	0.9993	7,973.814
00192	19	7,575.08	0.9994	7,570.535
03037	15	5,981.76	0.9994	5,978.171
04028	14	5,467.95	0.9998	5,466.856
04686	22	8,861.90	0.9990	8,853.038
05231	15	5,633.32	0.9997	5,631.630
08504	24	9,498.03	0.9960	9,460.038
12369	21	8,454.82	0.9971	8,430.301
00059	22	8,555.83	0.9996	8,552.408
00082	22	8,594.78	0.9993	8,588.764
00084	22	8,494.23	0.9995	8,489.983
00086	21	8,552.73	0.9991	8,545.033
00087	21	8,533.70	0.9990	8,525.166
00103	22	8,714.32	0.9994	8,709.091
00105	21	8,659.05	0.9992	8,652.123
00113	22	8,903.40	0.9995	8,898.948
00114	21	8,539.67	0.9991	8,531.984
00116	22	8,896.95	0.9993	8,890.722
00127	21	8,475.05	0.9987	8,464.032
00133	1	403.99	0.9976	403.020
00135	22	8,599.69	0.9994	8,594.530
00156	22	8,568.27	0.9993	8,562.272
00157	24	9,376.55	0.9990	9,367.173
09134	19	7,527.40	0.9990	7,519.873
09603	14	5,053.00	0.9998	5,051.989
10391	21	8,331.95	0.9962	8,300.289
10406	22	8,602.55	0.9961	8,569.000
10408	22	8,497.30	0.9960	8,463.311
10420	20	8,194.35	0.9963	8,164.031
10429	21	8,296.97	0.9961	8,264.612
10736	21	8,456.40	0.9974	8,434.413
11698	12	4,793.75	0.9994	4,790.874
11699	13	4,876.54	0.9995	4,874.102
12366	16	6,045.63	0.9997	6,043.816
12565	21	8,219.48	0.9970	8,194.822
12566	21	8,207.68	0.9969	8,182.236
12567	21	8,206.20	0.9969	8,180.761
12568	21	8,195.44	0.9966	8,167.576

13883	20	7,542.76	0.9998	7,541.251
14855	16	6,304.78	0.9996	6,302.258
35412	14	5,379.38	0.9998	5,378.304
00290	17	6,749.76	0.9997	6,747.735
00356	12	4,752.65	0.9998	4,751.699
00411	22	9,365.88	0.9995	9,361.197
00871	11	4,444.17	0.9998	4,443.281
01028	10	3,793.40	0.9998	3,792.641
01264	23	9,455.88	0.9965	9,422.784
01367	19	8,096.45	0.9971	8,072.970
01368	19	8,038.60	0.9977	8,020.111
01369	19	8,070.47	0.9975	8,050.294
01370	19	7,943.46	0.9970	7,919.630
01372	21	8,623.95	0.9972	8,599.803
01373	21	8,687.84	0.9963	8,655.695
01374	20	7,885.92	0.9967	7,859.896
01375	18	6,956.47	0.9968	6,934.209
01377	20	8,109.50	0.9960	8,077.062
01378	19	8,038.52	0.9962	8,007.974
01379	19	8,087.27	0.9960	8,054.921
01380	19	8,045.18	0.9964	8,016.217
01381	15	6,147.45	0.9967	6,127.163
01383	20	8,344.21	0.9965	8,315.005
01384	20	8,368.75	0.9964	8,338.623
01385	19	7,913.87	0.9964	7,885.380
01386	19	7,492.00	0.9964	7,465.029
01388	21	8,565.82	0.9971	8,540.979
01389	19	7,695.63	0.9974	7,675.621
01390	20	8,175.96	0.9971	8,152.250
01391	20	8,068.95	0.9971	8,045.550
01392	21	8,474.15	0.9974	8,452.117
01393	20	7,763.50	0.9974	7,743.315
01394	21	8,679.57	0.9973	8,656.135
01395	19	7,547.63	0.9966	7,521.968
01461	13	5,242.68	0.9999	5,242.156
01629	14	5,410.00	0.9996	5,407.836
01713	21	8,359.43	0.9995	8,355.250
01714	20	7,826.47	0.9995	7,822.557
01715	20	8,196.20	0.9996	8,192.922
01716	19	7,762.17	0.9996	7,759.065
01752	13	4,996.95	0.9998	4,995.951
01753	13	4,990.40	0.9998	4,989.402
01839	11	4,438.73	0.9964	4,422.751
02114	13	5,255.09	0.9969	5,238.799

02161	17	6,874.87	0.9998	6,873.495
06198	20	8,077.30	0.9997	8,074.877
06199	20	7,976.57	0.9991	7,969.391
06200	20	8,090.08	0.9995	8,086.035
06201	20	8,237.38	0.9993	8,231.614
06202	20	8,206.03	0.9997	8,203.568
06203	19	7,453.80	0.9996	7,450.818
06204	20	8,159.30	0.9997	8,156.852
06205	20	8,026.65	0.9994	8,021.834
06235	17	6,820.07	0.9996	6,817.342
06236	18	7,172.53	0.9996	7,169.661
06237	15	5,942.25	0.9998	5,941.062
06238	17	6,982.94	0.9996	6,980.147
06239	14	5,223.00	0.9997	5,221.433
06271	21	8,057.39	0.9997	8,054.973
06373	21	8,355.70	0.9996	8,352.358
06374	19	7,709.55	0.9995	7,705.695
06375	20	8,172.38	0.9996	8,169.111
06376	17	6,897.98	0.9995	6,894.531
07547	22	9,112.20	0.9967	9,082.130
38422	15	6,089.06	0.9997	6,087.233
38512	13	4,969.61	0.9996	4,967.622
39107	10	3,960.62	0.9998	3,959.828
46550	22	8,871.10	0.9996	8,867.552
46551	21	8,102.48	0.9995	8,098.429
D 810	20	8,225.01	0.9998	8,223.365
00004	13	5,430.57	0.9997	5,428.941
00005	14	5,683.09	0.9997	5,681.385
00068	21	8,562.43	0.9999	8,561.574
00069	20	8,124.50	0.9997	8,122.063
00070	20	8,002.94	0.9998	8,001.339
00071	19	7,459.06	0.9996	7,456.076
00097	14	5,647.52	0.9990	5,641.872
00125	16	6,183.49	0.9998	6,182.253
00152	19	7,850.59	0.9998	7,849.020
00153	20	8,300.85	0.9997	8,298.360
00154	15	5,948.61	0.9997	5,946.825
00155	16	6,433.25	0.9998	6,431.963
00299	23	9,352.85	0.9998	9,350.979
00300	23	9,298.46	0.9998	9,296.600
00301	23	9,529.78	0.9997	9,526.921
00302	21	8,582.85	0.9997	8,580.275
00303	20	8,135.56	0.9997	8,133.119
00304	20	7,819.22	0.9997	7,816.874

00433	18	7,185.58	0.9998	7,184.143
00434	17	6,747.94	0.9998	6,746.590
00546	9	3,600.13	0.9993	3,597.610
00644	21	8,651.11	0.9992	8,644.189
00721	9	3,517.68	0.9995	3,515.921
00882	20	8,152.60	0.9990	8,144.447
00884	15	6,206.29	0.9993	6,201.946
01102	22	8,900.84	0.9998	8,899.060
01103	19	7,724.69	0.9998	7,723.145
01104	20	7,985.36	0.9997	7,982.964
01105	19	7,539.02	0.9998	7,537.512
01137	10	4,025.22	0.9996	4,023.610
01184	21	8,521.44	0.9991	8,513.771
01514	17	6,706.28	0.9998	6,704.939
01515	16	6,390.83	0.9998	6,389.552
01516	16	6,387.95	0.9997	6,386.034
01517	16	6,353.87	0.9998	6,352.599
01518	17	6,308.47	0.9998	6,307.208
01667	15	6,051.38	0.9998	6,050.170
01689	13	5,006.62	0.9997	5,005.118
01969	22	9,024.13	0.9993	9,017.813
01970	20	8,086.47	0.9991	8,079.192
01971	20	8,099.07	0.9992	8,092.591
01972	21	8,301.06	0.9994	8,296.079
01973	20	8,073.78	0.9996	8,070.550
01974	21	8,624.80	0.9991	8,617.038
01975	21	8,249.81	0.9994	8,244.860
01976	21	8,584.33	0.9997	8,581.755
01977	19	7,648.53	0.9998	7,647.000
01978	18	7,299.58	0.9997	7,297.390
01979	18	7,190.17	0.9998	7,188.732
01980	16	6,345.15	0.9998	6,343.881
02290	16	6,297.19	0.9997	6,295.301
02320	11	4,470.17	0.9993	4,467.041
02352	10	3,738.84	0.9998	3,738.092
02390	13	5,073.13	0.9994	5,070.086
02494	16	6,457.55	0.9995	6,454.321
02495	15	6,062.90	0.9996	6,060.475
02496	16	6,499.50	0.9996	6,496.900
02497	16	6,448.56	0.9996	6,445.981
02498	17	6,684.00	0.9995	6,680.658
02514	12	4,778.78	0.9998	4,777.824
02636	14	5,431.01	0.9998	5,429.924
02664	9	3,439.40	0.9998	3,438.712

02804	13	5,094.18	0.9998	5,093.161
02836	22	8,902.71	0.9969	8,875.112
02870	12	4,557.91	0.9998	4,556.998
03113	9	3,502.43	0.9998	3,501.730
03368	15	5,885.48	0.9998	5,884.303
03408	9	3,631.63	0.9996	3,630.177
03515	23	9,174.47	0.9996	9,170.800
03842	15	5,965.95	0.9998	5,964.757
03901	12	4,805.86	0.9995	4,803.457
03989	20	8,181.60	0.9997	8,179.146
03990	20	7,810.10	0.9997	7,807.757
03991	20	7,730.70	0.9997	7,728.381
03992	21	8,420.70	0.9997	8,418.174
04086	20	8,246.69	0.9994	8,241.742
04087	20	8,165.33	0.9994	8,160.431
04088	19	7,656.73	0.9997	7,654.433
04089	21	8,079.62	0.9996	8,076.388
04465	12	4,819.58	0.9990	4,814.760
04483	15	5,777.40	0.9997	5,775.667
04504	20	7,907.10	0.9996	7,903.937
04505	20	8,040.09	0.9996	8,036.874
04506	20	8,094.44	0.9996	8,091.202
04507	20	8,104.05	0.9997	8,101.619
04626	14	5,563.72	0.9998	5,562.607
04881	16	6,259.08	0.9996	6,256.576
05316	20	7,905.30	0.9995	7,901.347
19942	19	7,299.57	0.9997	7,297.380
20007	21	8,231.55	0.9997	8,229.081
20073	21	9,020.25	0.9997	9,017.544
20074	20	8,436.71	0.9997	8,434.179
20075	22	9,306.25	0.9997	9,303.458
20076	22	9,096.80	0.9997	9,094.071
20077	22	9,110.88	0.9998	9,109.058
20078	21	8,737.63	0.9998	8,735.882
20079	22	9,203.29	0.9998	9,201.449
20080	21	8,731.30	0.9997	8,728.681
20081	21	8,842.01	0.9997	8,839.357
20171	11	4,285.50	0.9994	4,282.929
20240	16	6,213.85	0.9996	6,211.364
20284	10	3,984.20	0.9994	3,981.809
20404	10	4,028.73	0.9997	4,027.521
20646	14	5,631.65	0.9990	5,626.018
20665	15	5,764.92	0.9998	5,763.767
20792	19	7,579.19	0.9997	7,576.916

20793	19	7,614.24	0.9997	7,611.956
20794	20	7,908.29	0.9996	7,905.127
20795	19	7,491.81	0.9996	7,488.813
20804	19	7,465.75	0.9996	7,462.764
20805	18	7,110.83	0.9997	7,108.697
20806	21	8,483.35	0.9995	8,479.108
20807	21	8,536.70	0.9994	8,531.578
20874	21	8,289.26	0.9998	8,287.602
20931	20	7,850.15	0.9994	7,845.440
20933	19	7,515.70	0.9992	7,509.687
20977	20	8,067.91	0.9997	8,065.490
20978	23	9,283.61	0.9997	9,280.825
20979	21	8,439.60	0.9998	8,437.912
20980	21	8,610.82	0.9998	8,609.098
20981	21	8,609.73	0.9997	8,607.147
20982	21	8,512.86	0.9997	8,510.306
20983	21	8,713.45	0.9998	8,711.707
20984	23	9,386.88	0.9997	9,384.064
21009	22	9,044.08	0.9997	9,041.367
21010	23	9,413.98	0.9997	9,411.156
21011	23	9,519.51	0.9997	9,516.654
21012	23	9,386.52	0.9997	9,383.704
21013	23	9,512.95	0.9997	9,510.096
21014	23	9,404.98	0.9997	9,402.159
21015	22	8,489.17	0.9998	8,487.472
21445	10	3,915.08	0.9998	3,914.297
21474	21	8,570.95	0.9990	8,562.379
21577	15	5,977.75	0.9998	5,976.554
21739	17	6,935.57	0.9997	6,933.489
21740	18	7,303.22	0.9997	7,301.029
21741	15	5,831.32	0.9996	5,828.987
21767	16	6,675.20	0.9998	6,673.865
21768	16	6,673.23	0.9998	6,671.895
21769	16	6,750.25	0.9998	6,748.900
21808	21	8,381.50	0.9998	8,379.824
21809	21	8,708.20	0.9998	8,706.458
21810	21	8,683.75	0.9997	8,681.145
21811	16	6,369.33	0.9995	6,366.145
21925	19	7,375.80	0.9998	7,374.325
21946	10	3,738.18	0.9998	3,737.432
21979	20	8,096.33	0.9996	8,093.091
21980	18	7,146.14	0.9995	7,142.567
22034	22	8,844.08	0.9997	8,841.427
22035	20	8,139.39	0.9995	8,135.320

22036	20	8,151.03	0.9997	8,148.585
22037	18	7,004.25	0.9997	7,002.149
22061	11	4,092.40	0.9998	4,091.582
22220	21	8,665.08	0.9998	8,663.347
22221	19	7,815.58	0.9999	7,814.798
22222	20	7,907.13	0.9996	7,903.967
22223	20	7,762.41	0.9998	7,760.858
22279	20	7,872.85	0.9996	7,869.701
22280	19	7,576.66	0.9997	7,574.387
22281	22	8,610.28	0.9996	8,606.836
22432	14	5,328.28	0.9995	5,325.616
22449	13	5,187.05	0.9998	5,186.013
22766	22	8,894.55	0.9996	8,890.992
22815	9	3,594.98	0.9995	3,593.183
22818	23	9,017.97	0.9996	9,014.363
22819	21	8,487.17	0.9990	8,478.683
22834	22	9,053.43	0.9996	9,049.809
22835	22	9,012.71	0.9997	9,010.006
22836	21	8,483.25	0.9997	8,480.705
22837	20	8,091.78	0.9997	8,089.352
22838	19	7,611.55	0.9997	7,609.267
22839	18	7,237.67	0.9998	7,236.222
22959	13	4,950.75	0.9997	4,949.265
22974	21	8,678.80	0.9992	8,671.857
22980	23	9,214.30	0.9992	9,206.929
22998	22	8,932.14	0.9997	8,929.460
23013	20	8,429.51	0.9998	8,427.824
23014	19	7,994.20	0.9997	7,991.802
23015	19	8,015.78	0.9997	8,013.375
23016	19	8,106.70	0.9997	8,104.268
23017	19	7,734.48	0.9997	7,732.160
23136	10	4,004.82	0.9992	4,001.616
23192	16	6,305.11	0.9996	6,302.588
23204	21	8,394.14	0.9994	8,389.104
23208	21	8,500.76	0.9993	8,494.809
23469	20	8,244.83	0.9997	8,242.357
23470	20	8,238.47	0.9998	8,236.822
23471	12	4,805.29	0.9997	4,803.848
23472	13	4,910.25	0.9997	4,908.777
23539	11	4,397.75	0.9998	4,396.870
23566	11	4,141.20	0.9996	4,139.544
23977	22	9,076.03	0.9970	9,048.802
23978	19	7,734.60	0.9972	7,712.943
23981	17	6,420.56	0.9994	6,416.708

M 383	23	9,290.75	0.9998	9,288.892
M 384	23	9,531.83	0.9998	9,529.924
M 385	23	9,602.37	0.9998	9,600.450
M 386	23	9,453.38	0.9997	9,450.544
M 387	23	9,634.51	0.9998	9,632.583
M 388	23	9,616.27	0.9998	9,614.347
M 389	23	9,515.55	0.9998	9,513.647
M 390	23	9,574.77	0.9998	9,572.855
M 391	23	9,697.65	0.9998	9,695.710
M 392	23	9,408.85	0.9998	9,406.968
M 393	23	9,424.90	0.9998	9,423.015
M 394	23	9,430.42	0.9998	9,428.534
M 395	23	9,530.98	0.9998	9,529.074
M 396	23	9,302.00	0.9998	9,300.140
M 397	23	9,352.24	0.9998	9,350.370
M 398	23	9,361.58	0.9998	9,359.708
M 399	23	9,360.42	0.9998	9,358.548
M 400	23	9,506.35	0.9998	9,504.449
M 401	23	9,553.17	0.9998	9,551.259
M 402	23	9,673.54	0.9998	9,671.605
M 403	23	9,593.69	0.9998	9,591.771
M 404	23	9,547.00	0.9998	9,545.091
M 405	23	9,458.08	0.9998	9,456.188
M 406	23	9,479.65	0.9998	9,477.754
M 407	23	9,620.47	0.9998	9,618.546
M 408	23	9,649.52	0.9999	9,648.555
M 409	23	9,704.49	0.9999	9,703.520
M 410	23	9,707.90	0.9998	9,705.958
M 411	23	9,636.02	0.9998	9,634.093
M 412	23	9,590.61	0.9998	9,588.692
M 413	23	9,546.46	0.9998	9,544.551
M 414	23	9,543.57	0.9998	9,541.661
M 415	23	9,614.67	0.9998	9,612.747
M 416	23	9,424.58	0.9998	9,422.695
M 417	23	9,295.33	0.9998	9,293.471
M 418	23	9,415.02	0.9998	9,413.137
M 419	23	9,522.13	0.9998	9,520.226
M 420	23	9,524.47	0.9998	9,522.565
M 421	23	9,367.14	0.9998	9,365.267
M 422	23	9,490.59	0.9998	9,488.692
M 423	23	9,498.66	0.9998	9,496.760
M 424	23	9,519.58	0.9998	9,517.676
M 425	23	9,524.75	0.9998	9,522.845
M 426	23	9,538.06	0.9998	9,536.152

M 427	23	9,572.83	0.9998	9,570.915
M 428	23	9,707.55	0.9998	9,705.608
M 429	23	9,309.59	0.9998	9,307.728
M 430	23	9,739.74	0.9998	9,737.792
RM369	20	8,275.30	0.9995	8,271.162
RM370	20	8,384.65	0.9995	8,380.458
RM377	20	8,324.17	0.9995	8,320.008
03016	21	8,143.40	0.9974	8,122.227
05034	20	8,228.16	0.9961	8,196.070
05035	19	7,811.38	0.9963	7,782.478
05526	21	8,382.70	0.9964	8,352.522
05527	20	8,036.90	0.9966	8,009.575
05532	21	8,521.33	0.9968	8,494.062
05533	21	8,645.50	0.9967	8,616.970
05534	20	8,289.40	0.9971	8,265.361
05535	20	7,936.08	0.9971	7,913.065
05536	19	7,450.42	0.9981	7,436.264
05542	21	8,573.53	0.9956	8,535.806
05543	21	8,609.10	0.9961	8,575.525
05544	21	8,503.50	0.9960	8,469.486
05545	21	8,496.59	0.9963	8,465.153
05546	20	8,171.05	0.9964	8,141.634
05547	20	8,177.87	0.9959	8,144.341
05548	20	8,136.39	0.9955	8,099.776
05549	20	8,001.95	0.9963	7,972.343
05550	20	8,171.18	0.9965	8,142.581
05551	17	6,900.48	0.9962	6,874.258
05557	22	8,743.92	0.9951	8,701.075
05558	22	8,758.02	0.9950	8,714.230
05561	22	8,897.43	0.9950	8,852.943
05563	20	8,132.62	0.9952	8,093.583
05564	22	8,962.45	0.9952	8,919.430
05565	22	9,150.93	0.9950	9,105.175
05566	22	8,917.81	0.9950	8,873.221
05573	21	8,486.52	0.9951	8,444.936
05580	21	8,213.86	0.9950	8,172.791
05587	22	8,859.25	0.9951	8,815.840
05588	22	8,722.10	0.9950	8,678.490
05589	22	8,840.07	0.9951	8,796.754
05591	22	8,969.17	0.9950	8,924.324
05594	22	9,061.50	0.9958	9,023.442
05595	21	8,755.43	0.9961	8,721.284
05596	22	9,056.94	0.9960	9,020.712
05597	22	8,917.27	0.9957	8,878.926

05598	22	9,063.96	0.9954	9,022.266
05599	21	8,637.96	0.9952	8,596.498
05600	19	7,478.52	0.9964	7,451.597
05601	21	8,699.31	0.9958	8,662.773
05602	21	8,477.38	0.9963	8,446.014
05603	21	8,394.56	0.9956	8,357.624
05604	20	8,285.40	0.9963	8,254.744
05605	19	7,750.80	0.9962	7,721.347
05635	21	8,802.30	0.9961	8,767.971
05636	21	8,778.20	0.9960	8,743.087
05637	21	8,706.31	0.9959	8,670.614
05638	21	8,712.75	0.9959	8,677.028
05639	21	8,657.15	0.9962	8,624.253
05640	20	8,300.58	0.9964	8,270.698
05641	20	8,260.38	0.9962	8,228.991
05645	19	7,634.53	0.9987	7,624.605
05646	21	8,763.40	0.9971	8,737.986
05647	21	8,514.40	0.9980	8,497.371
05913	12	4,876.80	0.9998	4,875.825
05914	11	4,510.65	0.9998	4,509.748
06380	21	8,679.75	0.9960	8,645.031
06381	21	8,601.50	0.9959	8,566.234
06382	22	8,856.38	0.9962	8,822.726
06383	22	8,740.10	0.9960	8,705.140
06384	22	8,827.87	0.9959	8,791.676
06385	22	8,813.95	0.9959	8,777.813
06386	22	8,851.56	0.9960	8,816.154
06387	22	8,823.50	0.9959	8,787.324
06388	22	8,876.25	0.9960	8,840.745
06389	22	9,027.97	0.9961	8,992.761
06390	22	8,885.15	0.9960	8,849.609
06391	22	8,794.55	0.9958	8,757.613
06392	21	8,620.11	0.9961	8,586.492
06393	21	8,647.83	0.9960	8,613.239
06394	21	8,523.80	0.9960	8,489.705
06395	21	8,589.90	0.9960	8,555.540
06396	21	8,553.65	0.9960	8,519.435
06397	21	8,658.67	0.9960	8,624.035
06398	21	8,589.73	0.9961	8,556.230
06399	21	8,555.59	0.9961	8,522.223
06400	21	8,703.66	0.9961	8,669.716
06401	19	7,493.93	0.9962	7,465.453
06402	21	8,531.99	0.9959	8,497.009
06403	21	8,483.87	0.9958	8,448.238

06404	21	8,437.83	0.9962	8,405.766
06405	21	8,441.41	0.9958	8,405.956
06406	21	8,375.22	0.9960	8,341.719
06407	21	8,406.55	0.9960	8,372.924
06408	21	8,387.13	0.9960	8,353.581
06409	20	7,983.38	0.9960	7,951.446
06410	21	8,539.62	0.9959	8,504.608
06411	23	9,257.29	0.9961	9,221.187
06412	21	8,498.03	0.9960	8,464.038
06413	21	8,643.05	0.9960	8,608.478
06414	21	8,673.97	0.9960	8,639.274
06415	20	8,217.46	0.9960	8,184.590
06416	21	8,335.03	0.9959	8,300.856
06417	21	8,525.14	0.9962	8,492.744
06418	21	8,381.12	0.9960	8,347.596
06419	21	8,454.22	0.9962	8,422.094
06420	21	8,492.55	0.9962	8,460.278
06421	22	8,878.89	0.9961	8,844.262
06422	21	8,639.25	0.9961	8,605.557
06423	20	8,209.14	0.9961	8,177.124
06424	21	8,683.73	0.9962	8,650.732
06425	21	8,406.28	0.9961	8,373.496
06426	20	8,045.73	0.9961	8,014.352
06427	20	8,173.87	0.9961	8,141.992
06428	20	8,359.38	0.9960	8,325.942
06429	21	8,367.95	0.9960	8,334.478
06430	21	8,402.50	0.9957	8,366.369
06431	21	8,598.00	0.9960	8,563.608
06432	21	8,412.82	0.9960	8,379.169
06433	21	8,378.19	0.9960	8,344.677
09275	8	3,285.94	0.9998	3,285.283
09991	9	3,323.87	0.9998	3,323.205
10268	10	3,870.12	0.9998	3,869.346
10333	9	3,294.98	0.9998	3,294.321
10375	8	3,246.27	0.9998	3,245.621
10411	20	7,995.83	0.9997	7,993.431
10594	20	8,248.60	0.9998	8,246.950
10595	18	7,332.65	0.9998	7,331.183
10596	18	7,332.88	0.9998	7,331.413
10597	23	9,238.28	0.9997	9,235.509
10622	11	4,285.44	0.9998	4,284.583
10669	18	7,279.67	0.9996	7,276.758
10670	22	8,781.21	0.9996	8,777.698
10671	20	8,343.11	0.9995	8,338.938

10672	19	7,681.43	0.9995	7,677.589
10763	18	6,896.61	0.9996	6,893.851
10929	18	6,997.14	0.9996	6,994.341
11206	12	4,959.93	0.9998	4,958.938
11278	15	5,997.39	0.9998	5,996.191
11279	10	3,958.26	0.9996	3,956.677
11513	16	6,352.82	0.9993	6,348.373
11635	10	3,783.60	0.9998	3,782.843
11694	20	7,993.52	0.9997	7,991.122
11697	8	3,204.15	0.9996	3,202.868
11802	18	7,205.45	0.9997	7,203.288
11891	9	3,516.59	0.9996	3,515.183
11978	11	4,269.34	0.9996	4,267.632
11981	13	4,953.20	0.9998	4,952.209
12054	15	5,827.80	0.9995	5,824.886
12130	13	5,093.75	0.9997	5,092.222
12400	8	3,232.50	0.9998	3,231.854
12494	14	5,435.53	0.9998	5,434.443
12495	13	5,093.99	0.9998	5,092.971
12514	10	4,068.93	0.9998	4,068.116
12632	11	4,502.84	0.9996	4,501.039
12671	22	8,810.19	0.9998	8,808.428
12772	13	5,093.31	0.9997	5,091.782
12785	8	3,071.85	0.9998	3,071.236
13061	8	3,001.07	0.9996	2,999.870
13231	19	7,696.72	0.9998	7,695.181
13232	18	7,245.95	0.9997	7,243.776
13260	11	4,409.25	0.9993	4,406.164
13276	13	5,160.07	0.9998	5,159.038
13859	21	8,353.55	0.9995	8,349.373
13860	10	3,720.30	0.9998	3,719.556
13874	10	3,874.24	0.9998	3,873.465
13900	11	4,432.62	0.9997	4,431.290
13988	19	7,750.91	0.9997	7,748.585
13989	19	7,525.60	0.9998	7,524.095
13990	17	6,628.19	0.9997	6,626.202
14021	11	4,159.71	0.9998	4,158.878
14095	8	3,222.12	0.9998	3,221.476
14196	12	4,981.29	0.9996	4,979.297
14196	12	4,542.74	0.9997	4,541.377
14204	16	6,365.82	0.9996	6,363.274
14205	15	5,791.05	0.9998	5,789.892
14212	8	3,234.43	0.9996	3,233.136
14332	12	5,024.40	0.9996	5,022.390

14333	13	5,108.17	0.9996	5,106.127
14334	12	4,880.21	0.9998	4,879.234
14618	10	3,736.98	0.9995	3,735.112
14658	16	6,490.02	0.9997	6,488.073
14659	16	6,307.18	0.9997	6,305.288
14663	18	7,348.31	0.9996	7,345.371
14664	18	6,997.02	0.9996	6,994.221
14799	19	7,546.26	0.9996	7,543.241
14800	19	7,447.10	0.9996	7,444.121
14894	20	8,408.46	0.9998	8,406.778
14895	20	8,436.29	0.9998	8,434.603
14896	20	8,473.95	0.9998	8,472.255
14897	17	6,820.55	0.9996	6,817.822
15106	15	5,817.32	0.9998	5,816.157
15156	8	3,166.80	0.9997	3,165.850
15327	8	2,940.84	0.9996	2,939.664
15328	17	6,628.37	0.9997	6,626.381
15385	13	5,256.67	0.9998	5,255.619
15424	13	5,050.69	0.9996	5,048.670
15434	10	4,103.84	0.9998	4,103.019
15441	12	4,999.94	0.9996	4,997.940
15442	11	4,525.69	0.9997	4,524.332
15651	13	5,093.79	0.9997	5,092.262
15669	13	5,223.63	0.9997	5,222.063
15855	21	8,805.37	0.9993	8,799.206
15857	19	7,971.13	0.9992	7,964.753
15858	20	7,869.52	0.9992	7,863.224
16054	15	5,997.63	0.9996	5,995.231
16066	17	7,048.14	0.9995	7,044.616
16146	17	6,502.39	0.9997	6,500.439
16148	12	4,691.27	0.9996	4,689.393
16383	8	3,090.50	0.9998	3,089.882
16384	13	5,216.38	0.9996	5,214.293
16385	12	4,775.52	0.9997	4,774.087
16386	15	6,129.19	0.9997	6,127.351
16464	18	7,259.74	0.9997	7,257.562
16698	20	8,244.83	0.9998	8,243.181
16713	9	3,348.63	0.9998	3,347.960
16714	10	3,968.81	0.9997	3,967.619
16811	15	5,786.14	0.9996	5,783.826
17001	13	5,078.65	0.9998	5,077.634
17002	12	4,912.47	0.9997	4,910.996
17012	9	3,549.80	0.9998	3,549.090
17102	18	7,153.52	0.9995	7,149.943

17348	13	5,095.05	0.9998	5,094.031
17440	16	6,617.66	0.9997	6,615.675
17441	16	6,242.39	0.9996	6,239.893
17709	15	6,055.88	0.9998	6,054.669
17710	15	6,165.39	0.9998	6,164.157
17719	20	8,044.15	0.9997	8,041.737
17720	20	8,350.60	0.9997	8,348.095
17721	19	7,773.83	0.9997	7,771.498
17722	19	7,692.46	0.9998	7,690.922
17755	16	6,287.21	0.9995	6,284.066
17936	13	5,151.90	0.9995	5,149.324
17937	11	4,504.82	0.9996	4,503.018
17940	14	5,806.99	0.9996	5,804.667
17988	17	7,124.26	0.9998	7,122.835
17989	17	7,035.14	0.9998	7,033.733
17990	17	7,052.75	0.9998	7,051.339
17991	16	6,565.75	0.9998	6,564.437
18049	16	6,210.70	0.9998	6,209.458
18088	17	6,955.90	0.9998	6,954.509
18089	18	7,299.67	0.9997	7,297.480
18090	19	7,800.45	0.9997	7,798.110
18091	17	6,896.34	0.9998	6,894.961
18092	18	7,503.98	0.9997	7,501.729
18095	18	7,446.75	0.9998	7,445.261
18096	17	7,044.09	0.9998	7,042.681
18097	17	7,093.13	0.9998	7,091.711
18098	15	6,045.56	0.9998	6,044.351
18100	20	8,270.75	0.9998	8,269.096
18101	19	7,959.92	0.9998	7,958.328
18102	19	7,969.09	0.9998	7,967.496
18103	20	8,253.35	0.9998	8,251.699
18104	19	7,819.01	0.9997	7,816.664
18111	17	7,120.14	0.9999	7,119.428
18112	17	7,083.96	0.9998	7,082.543
18113	15	6,119.04	0.9998	6,117.816
18131	20	8,230.77	0.9998	8,229.124
18132	20	8,121.04	0.9998	8,119.416
18133	20	8,219.57	0.9997	8,217.104
18134	19	7,578.13	0.9996	7,575.099
18198	9	3,309.00	0.9996	3,307.676
18210	19	7,857.13	0.9997	7,854.773
18211	19	7,942.23	0.9998	7,940.642
18212	17	6,750.98	0.9998	6,749.630
18373	11	4,485.36	0.9998	4,484.463

18433	17	6,914.66	0.9993	6,909.820
18434	17	7,054.39	0.9994	7,050.157
18435	16	6,514.56	0.9994	6,510.651
18436	21	8,165.69	0.9998	8,164.057
18470	9	3,343.76	0.9997	3,342.757
D 085	22	9,341.11	0.9997	9,338.308
D 086	22	9,297.97	0.9998	9,296.110
D 087	22	9,019.82	0.9998	9,018.016
D 088	22	8,957.05	0.9998	8,955.259
D 089	22	8,897.41	0.9998	8,895.631
D 090	21	8,292.46	0.9998	8,290.802
D 091	22	8,931.48	0.9997	8,928.801
D 092	22	9,009.32	0.9998	9,007.518
D 093	22	9,034.42	0.9998	9,032.613
D 094	22	9,170.19	0.9997	9,167.439
D 095	22	9,311.89	0.9997	9,309.096
D 096	22	9,063.04	0.9997	9,060.321
D 097	22	9,174.50	0.9997	9,171.748
D 098	22	8,952.76	0.9998	8,950.969
D 099	22	9,042.57	0.9998	9,040.761
D 100	22	8,733.99	0.9991	8,726.129
D 101	22	8,903.80	0.9998	8,902.019
D 102	22	8,882.11	0.9998	8,880.334
D 103	22	8,928.44	0.9991	8,920.404
D 104	22	9,271.73	0.9998	9,269.876
D 105	22	9,277.95	0.9998	9,276.094
D 106	22	9,068.10	0.9998	9,066.286
D 107	22	8,991.75	0.9998	8,989.952
D 108	21	8,501.26	0.9996	8,497.859
D 111	22	8,940.78	0.9996	8,937.204
D 112	22	9,071.20	0.9997	9,068.479
D 113	22	9,151.63	0.9997	9,148.885
D 114	21	8,511.89	0.9997	8,509.336
D 115	18	7,410.50	0.9998	7,409.018
M 152	23	9,316.76	0.9998	9,314.897
M 153	23	9,493.93	0.9998	9,492.031
M 155	23	9,550.28	0.9998	9,548.370
M 156	23	9,373.06	0.9998	9,371.185
M 157	23	9,465.83	0.9998	9,463.937
M 158	23	9,339.64	0.9998	9,337.772
M 159	23	9,429.65	0.9998	9,427.764
M 160	23	9,616.56	0.9998	9,614.637
M 161	23	9,557.57	0.9998	9,555.658
M 162	23	9,527.63	0.9998	9,525.724

M 163	23	9,613.51	0.9998	9,611.587
M 164	23	9,306.24	0.9998	9,304.379
M 165	23	9,325.97	0.9998	9,324.105
M 166	23	9,322.60	0.9998	9,320.735
M 167	23	9,380.05	0.9998	9,378.174
M 168	23	9,189.46	0.9998	9,187.622
M 169	23	9,309.30	0.9998	9,307.438
M 170	23	9,409.93	0.9998	9,408.048
M 171	23	9,395.37	0.9998	9,393.491
M 172	23	9,420.40	0.9998	9,418.516
M 173	23	9,434.46	0.9998	9,432.573
M 174	23	9,416.48	0.9998	9,414.597
M 175	23	9,538.29	0.9998	9,536.382
M 176	23	9,237.71	0.9998	9,235.862
M 177	23	9,477.60	0.9998	9,475.704
M 178	23	9,387.65	0.9998	9,385.772
M 179	23	9,402.16	0.9998	9,400.280
M 180	23	9,418.56	0.9998	9,416.676
M 181	23	9,376.83	0.9998	9,374.955
M 182	23	9,413.18	0.9998	9,411.297
M 183	23	9,461.42	0.9998	9,459.528
M 184	23	9,385.68	0.9998	9,383.803
M 185	23	9,397.94	0.9998	9,396.060
M 186	23	9,427.38	0.9998	9,425.495
M 187	23	9,408.74	0.9998	9,406.858
M 188	23	9,437.84	0.9998	9,435.952
M 189	23	9,414.59	0.9998	9,412.707
M 190	23	9,315.07	0.9999	9,314.138
M 191	23	9,385.77	0.9999	9,384.831
M 192	23	9,456.51	0.9998	9,454.619
M 193	23	9,427.39	0.9998	9,425.505
M 194	23	9,303.01	0.9998	9,301.149
M 195	23	9,245.00	0.9998	9,243.151
M 196	23	9,305.48	0.9998	9,303.619
M 197	23	9,352.21	0.9998	9,350.340
M 198	23	9,400.50	0.9999	9,399.560
M 199	23	9,434.82	0.9998	9,432.933
M 200	23	9,429.34	0.9998	9,427.454
M 201	23	9,463.07	0.9998	9,461.177
M 202	23	9,345.48	0.9998	9,343.611
M 203	23	9,408.37	0.9998	9,406.488
M 204	23	9,328.71	0.9998	9,326.844
M 205	23	9,373.34	0.9998	9,371.465
M 206	23	9,348.11	0.9998	9,346.240

M 207	23	9,505.80	0.9998	9,503.899
M 208	23	9,475.28	0.9998	9,473.385
M 209	23	9,353.74	0.9998	9,351.869
M 210	23	9,357.43	0.9998	9,355.559
M 211	22	9,052.00	0.9998	9,050.190
M 212	23	9,377.38	0.9998	9,375.505
M 213	23	9,288.42	0.9998	9,286.562
M 214	23	9,347.34	0.9998	9,345.471
M 215	23	9,325.05	0.9998	9,323.185
M 216	23	9,313.18	0.9998	9,311.317
M 217	22	9,174.34	0.9998	9,172.505
M 218	23	9,464.09	0.9998	9,462.197
M 219	23	9,561.03	0.9998	9,559.118
M 220	23	9,465.30	0.9998	9,463.407
M 221	23	9,427.62	0.9998	9,425.734
M 222	23	9,429.88	0.9998	9,427.994
M 223	23	9,377.66	0.9999	9,376.722
M 224	23	9,432.01	0.9999	9,431.067
M 225	23	9,395.53	0.9999	9,394.590
M 226	23	9,361.83	0.9999	9,360.894
M 227	23	9,373.77	0.9998	9,371.895
M 228	23	9,442.07	0.9998	9,440.182
M 229	23	9,310.81	0.9998	9,308.948
M 230	23	9,499.51	0.9998	9,497.610
M 231	23	9,401.93	0.9998	9,400.050
M 232	23	9,439.60	0.9998	9,437.712
M 233	23	9,484.54	0.9998	9,482.643
M 234	23	9,539.60	0.9998	9,537.692
M 235	23	9,512.71	0.9998	9,510.807
M 236	23	9,642.90	0.9998	9,640.971
M 237	23	9,389.90	0.9998	9,388.022
M 238	23	9,451.56	0.9998	9,449.670
M 239	23	9,351.21	0.9998	9,349.340
M 240	23	9,315.22	0.9998	9,313.357
M 241	23	9,399.32	0.9998	9,397.440
M 242	23	9,421.18	0.9998	9,419.296
M 243	23	9,435.02	0.9998	9,433.133
M 244	23	9,519.11	0.9998	9,517.206
M 245	23	9,385.38	0.9998	9,383.503
M 246	23	9,466.33	0.9998	9,464.437
M 247	23	9,247.84	0.9998	9,245.990
M 248	23	9,488.70	0.9998	9,486.802
M 249	23	9,321.91	0.9998	9,320.046
M 250	23	9,473.49	0.9998	9,471.595

M 251	23	9,580.68	0.9998	9,578.764
M 252	23	9,595.45	0.9998	9,593.531
M 253	23	9,533.77	0.9998	9,531.863
M 254	23	9,637.00	0.9998	9,635.073
M 255	23	9,583.53	0.9998	9,581.613
M 256	23	9,544.12	0.9998	9,542.211
M 257	23	9,602.34	0.9998	9,600.420
M 258	23	9,621.70	0.9998	9,619.776
M 261	23	9,578.16	0.9998	9,576.244
M 262	23	9,663.81	0.9998	9,661.877
M 263	23	9,599.45	0.9998	9,597.530
M 264	23	9,542.51	0.9998	9,540.601
M 265	23	9,656.95	0.9998	9,655.019
M 266	23	9,553.28	0.9998	9,551.369
M 267	23	9,619.58	0.9998	9,617.656
M 268	23	9,702.69	0.9998	9,700.749
M 269	23	9,512.64	0.9998	9,510.737
M 270	23	9,572.83	0.9998	9,570.915
M 271	23	9,693.22	0.9998	9,691.281
M 272	23	9,484.82	0.9998	9,482.923
M 273	23	9,706.45	0.9998	9,704.509
M 274	23	9,607.29	0.9998	9,605.369
M 275	23	9,525.27	0.9998	9,523.365
M 276	23	9,561.34	0.9998	9,559.428
M 277	23	9,546.20	0.9998	9,544.291
M 278	23	9,655.16	0.9998	9,653.229
M 279	23	9,593.76	0.9998	9,591.841
M 280	23	9,596.05	0.9998	9,594.131
M 281	23	9,612.51	0.9998	9,610.587
M 282	23	9,616.24	0.9998	9,614.317
M 283	23	9,555.00	0.9998	9,553.089
M 284	23	9,511.91	0.9990	9,502.398
M 285	23	9,624.86	0.9998	9,622.935
M 286	23	9,643.04	0.9998	9,641.111
M 287	23	9,403.28	0.9998	9,401.399
M 288	23	9,450.00	0.9998	9,448.110
M 289	23	9,447.23	0.9998	9,445.341
M 290	23	9,472.37	0.9998	9,470.476
M 291	23	9,421.72	0.9998	9,419.836
M 292	23	9,474.70	0.9998	9,472.805
M 293	23	9,382.29	0.9998	9,380.414
M 294	23	9,427.72	0.9998	9,425.834
M 295	23	9,526.29	0.9998	9,524.385
M 296	23	9,507.16	0.9998	9,505.259

M 297	23	9,500.38	0.9998	9,498.480
M 298	23	9,524.24	0.9998	9,522.335
M 299	23	9,487.30	0.9998	9,485.403
M 300	23	9,429.54	0.9998	9,427.654
M 301	23	9,665.09	0.9998	9,663.157
M 302	23	9,448.62	0.9992	9,441.061
08112	20	8,227.46	0.9965	8,198.664
08113	20	8,068.65	0.9955	8,032.341
08114	21	8,426.70	0.9978	8,408.161
08115	20	8,311.52	0.9978	8,293.235
08169	19	8,203.60	0.9996	8,200.319
08254	21	8,673.21	0.9959	8,637.650
08255	21	8,695.58	0.9965	8,665.145
08256	21	8,723.66	0.9972	8,699.234
08257	21	8,363.43	0.9966	8,334.994
08258	21	8,528.36	0.9971	8,503.628
08259	20	8,329.43	0.9957	8,293.613
08260	21	8,853.14	0.9961	8,818.613
08261	20	8,311.57	0.9961	8,279.155
08321	20	8,588.20	0.9998	8,586.482
08322	20	8,485.65	0.9998	8,483.953
08323	20	8,408.24	0.9998	8,406.558
08324	19	7,986.07	0.9998	7,984.473
08325	20	8,252.90	0.9998	8,251.249
08326	20	8,222.18	0.9998	8,220.536
08327	20	8,223.13	0.9998	8,221.485
08342	19	8,042.50	0.9965	8,014.351
08343	19	8,146.20	0.9969	8,120.947
08344	19	7,896.95	0.9980	7,881.156
08345	18	7,602.35	0.9991	7,595.508
08346	18	7,383.08	0.9985	7,372.005
08447	17	7,103.65	0.9964	7,078.077
08448	16	6,519.95	0.9962	6,495.174
08449	16	6,465.50	0.9959	6,438.991
08503	22	8,799.36	0.9965	8,768.562
08504	21	8,345.65	0.9966	8,317.275
08505	21	8,330.88	0.9967	8,303.388
08506	20	8,293.47	0.9967	8,266.102
08507	20	8,478.91	0.9967	8,450.930
08508	20	8,460.00	0.9965	8,430.390
08509	19	8,000.79	0.9968	7,975.187
08510	20	8,462.83	0.9965	8,433.210
08511	20	8,407.96	0.9968	8,381.055
08512	20	8,519.56	0.9964	8,488.890

08513	19	8,115.40	0.9965	8,086.996
08514	20	8,406.39	0.9965	8,376.968
08523	22	8,962.27	0.9965	8,930.902
08524	22	8,761.25	0.9970	8,734.966
08525	22	8,956.41	0.9972	8,931.332
08526	22	8,610.57	0.9971	8,585.599
08527	23	9,009.33	0.9970	8,982.302
08528	21	8,546.59	0.9970	8,520.950
08533	19	8,017.68	0.9966	7,990.420
08534	19	7,973.20	0.9964	7,944.496
08535	19	7,664.33	0.9987	7,654.366
08536	18	7,302.37	0.9995	7,298.719
08575	21	8,890.37	0.9991	8,882.369
08576	20	8,388.10	0.9966	8,359.580
08577	20	8,502.20	0.9963	8,470.742
08578	21	8,736.30	0.9965	8,705.723
08579	21	8,960.53	0.9967	8,930.960
08580	21	8,949.75	0.9982	8,933.640
08581	21	8,842.59	0.9963	8,809.872
08582	20	8,461.32	0.9962	8,429.167
08583	20	8,363.18	0.9968	8,336.418
08584	21	8,749.13	0.9993	8,743.006
08585	20	8,514.83	0.9965	8,485.028
08586	19	7,891.82	0.9973	7,870.512
08591	19	8,011.83	0.9984	7,999.011
08592	19	8,043.15	0.9991	8,035.911
08593	19	8,075.53	0.9984	8,062.609
08594	19	8,127.25	0.9966	8,099.617
08595	19	8,113.25	0.9961	8,081.608
08596	20	8,490.34	0.9969	8,464.020
08597	20	8,284.67	0.9981	8,268.929
08598	19	7,833.22	0.9963	7,804.237
08625	22	8,796.41	0.9976	8,775.299
08626	22	8,818.22	0.9971	8,792.647
08627	21	8,433.52	0.9966	8,404.846
08628	22	8,864.55	0.9979	8,845.934
08629	22	8,904.45	0.9988	8,893.765
08630	22	8,874.06	0.9986	8,861.636
08631	22	8,798.27	0.9987	8,786.832
08632	21	8,400.40	0.9986	8,388.639
08690	22	9,064.90	0.9981	9,047.677
08691	22	9,074.10	0.9975	9,051.415
08692	20	8,394.10	0.9973	8,371.436
08693	22	8,896.07	0.9969	8,868.492

08694	22	8,961.30	0.9962	8,927.247
08695	19	7,830.60	0.9990	7,822.769
08696	22	9,124.15	0.9969	9,095.865
08697	22	8,943.18	0.9953	8,901.147
08698	22	8,596.01	0.9976	8,575.380
08699	22	8,785.50	0.9987	8,774.079
08700	22	8,990.48	0.9967	8,960.811
08701	22	9,028.30	0.9993	9,021.980
08702	22	8,748.25	0.9997	8,745.626
08703	22	8,759.63	0.9997	8,757.002
08704	22	8,807.03	0.9993	8,800.865
08705	23	9,004.38	0.9998	9,002.579
08706	20	8,558.78	0.9953	8,518.554
08707	20	8,592.04	0.9953	8,551.657
08708	20	8,531.85	0.9963	8,500.282
08709	20	8,625.15	0.9956	8,587.199
08710	20	8,508.40	0.9954	8,469.261
08711	19	7,955.30	0.9953	7,917.910
08712	22	9,176.14	0.9954	9,133.930
08713	19	7,980.80	0.9973	7,959.252
08714	20	8,309.58	0.9967	8,282.158
08715	20	8,284.76	0.9967	8,257.420
08716	21	8,625.42	0.9961	8,591.781
08717	20	8,253.78	0.9961	8,221.590
08718	22	8,948.52	0.9961	8,913.621
08719	19	7,949.83	0.9962	7,919.621
08720	20	8,213.80	0.9955	8,176.838
08721	21	8,626.50	0.9961	8,592.857
08722	20	8,223.75	0.9975	8,203.191
08723	20	8,167.05	0.9979	8,149.899
08724	21	8,731.50	0.9965	8,700.940
08725	20	8,440.58	0.9971	8,416.102
08726	20	8,556.83	0.9970	8,531.160
08727	19	7,918.30	0.9969	7,893.753
08728	19	7,899.82	0.9966	7,872.961
08729	21	8,801.97	0.9965	8,771.163
08730	17	7,162.71	0.9971	7,141.938
08731	17	7,020.35	0.9962	6,993.673
08732	17	6,900.67	0.9955	6,869.617
08733	21	8,296.01	0.9961	8,263.656
08734	21	8,244.90	0.9962	8,213.569
08735	21	8,260.95	0.9962	8,229.558
08736	24	9,413.59	0.9963	9,378.760
08737	21	8,662.48	0.9966	8,633.028

08738	20	8,449.60	0.9965	8,420.026
08739	20	8,104.55	0.9965	8,076.184
08843	21	8,587.77	0.9957	8,550.843
08855	19	7,716.91	0.9958	7,684.499
08856	21	8,837.51	0.9956	8,798.625
08862	21	8,512.47	0.9958	8,476.718
08863	21	8,663.57	0.9958	8,627.183
08864	21	8,568.94	0.9960	8,534.664
09001	22	9,069.31	0.9965	9,037.567
09002	19	7,916.61	0.9964	7,888.110
09003	19	7,903.63	0.9967	7,877.548
09081	22	8,865.23	0.9961	8,830.656
09082	23	9,135.23	0.9962	9,100.516
09083	22	8,680.46	0.9960	8,645.738
09084	22	9,146.06	0.9960	9,109.476
09085	20	8,402.88	0.9962	8,370.949
09088	21	8,788.27	0.9961	8,753.996
09089	22	8,765.08	0.9961	8,730.896
09090	21	8,522.48	0.9960	8,488.390
D 014	22	9,193.94	0.9997	9,191.182
D 015	22	9,011.16	0.9998	9,009.358
D 016	22	8,799.72	0.9997	8,797.080
D 017	22	8,990.02	0.9969	8,962.151
D 018	22	8,958.94	0.9998	8,957.148
D 019	22	9,075.30	0.9971	9,048.982
D 020	22	9,091.35	0.9975	9,068.622
D 021	22	9,065.56	0.9997	9,062.840
D 022	22	9,037.40	0.9998	9,035.593
D 023	22	9,094.24	0.9996	9,090.602
M 108	23	9,556.43	0.9998	9,554.519
M 109	23	9,497.45	0.9998	9,495.551
M 110	23	9,531.53	0.9998	9,529.624
M 111	23	9,515.72	0.9998	9,513.817
M 112	23	9,599.97	0.9998	9,598.050
M 113	23	9,449.77	0.9998	9,447.880
M 114	23	9,526.68	0.9998	9,524.775
M 115	23	9,562.20	0.9998	9,560.288
M 116	23	9,411.98	0.9998	9,410.098
M 117	23	9,486.96	0.9998	9,485.063
M 118	23	9,617.47	0.9998	9,615.547
M 119	23	9,379.23	0.9999	9,378.292
M 120	23	9,484.31	0.9998	9,482.413
M 121	23	9,437.03	0.9999	9,436.086
M 122	23	9,411.02	0.9999	9,410.079

M 123	23	9,304.62	0.9998	9,302.759
M 124	23	9,489.15	0.9998	9,487.252
M 125	23	9,520.16	0.9998	9,518.256
M 126	23	9,481.08	0.9998	9,479.184
M 127	23	9,519.74	0.9998	9,517.836
M 128	23	9,609.71	0.9998	9,607.788
M 129	23	9,445.98	0.9999	9,445.035
M 130	23	9,466.11	0.9999	9,465.163
M 131	23	9,564.17	0.9998	9,562.257
M 132	23	9,461.92	0.9998	9,460.028
M 133	23	9,466.68	0.9998	9,464.787
M 134	23	9,459.20	0.9998	9,457.308
M 138	23	9,403.20	0.9999	9,402.260
M 139	23	9,467.85	0.9998	9,465.956
M 140	23	9,349.71	0.9999	9,348.775
M 141	23	9,510.06	0.9998	9,508.158
M 142	23	9,472.11	0.9998	9,470.216
M 143	21	8,643.86	0.9999	8,642.996
M 144	23	9,521.16	0.9999	9,520.208
M 145	23	9,413.55	0.9999	9,412.609
M 146	23	9,442.21	0.9998	9,440.322
M 147	23	9,539.68	0.9999	9,538.726
M 148	23	9,531.05	0.9998	9,529.144
M 149	23	9,499.89	0.9998	9,497.990
M 150	23	9,447.86	0.9998	9,445.970
M 151	23	9,491.85	0.9998	9,489.952
M 152	23	9,510.70	0.9998	9,508.798
M 153	23	9,613.95	0.9998	9,612.027
M 154	23	9,503.67	0.9998	9,501.769
M 162	23	9,361.92	0.9998	9,360.048
M 164	23	9,407.23	0.9999	9,406.289
M 165	23	9,460.05	0.9999	9,459.104
M 166	23	9,458.07	0.9998	9,456.178
M 167	23	9,543.68	0.9998	9,541.771
M 168	23	9,425.62	0.9998	9,423.735
M 169	23	9,202.12	0.9998	9,200.280
M 170	23	9,257.82	0.9997	9,255.043
M 171	23	9,357.62	0.9997	9,354.813
M 172	23	9,517.73	0.9998	9,515.826
M 173	23	9,379.86	0.9998	9,377.984
M 174	23	9,163.62	0.9997	9,160.871
M 175	23	9,498.60	0.9998	9,496.700
M 176	23	9,497.62	0.9998	9,495.720
M 177	23	9,333.86	0.9998	9,331.993

M 178	23	9,469.06	0.9998	9,467.166
M 179	23	9,310.26	0.9998	9,308.398
M 180	23	9,283.64	0.9997	9,280.855
M 181	23	9,475.93	0.9997	9,473.087
M 182	23	9,479.80	0.9998	9,477.904
M 183	23	9,499.95	0.9997	9,497.100
00002	21	8,524.52	0.9970	8,498.946
00106	20	8,359.93	0.9977	8,340.702
00243	20	8,279.43	0.9991	8,271.979
00824	20	8,237.57	0.9980	8,221.095
01030	20	8,293.38	0.9958	8,258.548
01034	21	8,556.77	0.9956	8,519.120
01153	20	8,595.03	0.9959	8,559.790
02593	20	8,272.57	0.9965	8,243.616
02777	20	8,103.74	0.9962	8,072.946
05788	20	8,497.20	0.9957	8,460.662
06735	20	8,241.18	0.9960	8,208.215
10886	11	4,163.95	0.9998	4,163.117
11593	19	8,142.12	0.9998	8,140.492
11594	19	8,146.08	0.9998	8,144.451
11595	18	7,689.90	0.9998	7,688.362
11774	22	9,001.15	0.9998	8,999.350
11775	22	9,085.50	0.9998	9,083.683
11776	22	9,023.66	0.9998	9,021.855
11777	22	8,870.52	0.9998	8,868.746
11778	22	8,807.48	0.9997	8,804.838
11779	20	8,040.73	0.9998	8,039.122
11780	22	8,836.25	0.9998	8,834.483
11781	22	8,920.57	0.9998	8,918.786
11782	22	8,984.75	0.9998	8,982.953
11783	22	8,873.47	0.9998	8,871.695
11784	22	8,861.22	0.9998	8,859.448
11785	21	8,542.42	0.9998	8,540.712
11786	22	9,271.22	0.9998	9,269.366
11787	21	8,764.15	0.9998	8,762.397
11788	21	8,883.27	0.9998	8,881.493
11789	20	8,386.14	0.9998	8,384.463
11790	20	8,614.03	0.9998	8,612.307
11791	21	8,996.64	0.9998	8,994.841
11792	21	9,023.72	0.9998	9,021.915
11793	21	9,019.15	0.9998	9,017.346
11794	21	9,003.59	0.9998	9,001.789
11796	18	7,702.54	0.9998	7,700.999
11797	22	8,845.51	0.9998	8,843.741

11798	22	8,914.14	0.9998	8,912.357
11799	22	8,852.60	0.9998	8,850.829
11800	22	8,848.95	0.9998	8,847.180
11801	22	8,968.34	0.9997	8,965.649
11802	21	8,486.68	0.9998	8,484.983
11803	22	9,119.98	0.9997	9,117.244
11804	22	9,111.42	0.9996	9,107.775
11826	19	8,136.90	0.9993	8,131.204
11848	21	8,608.80	0.9991	8,601.052
11880	19	7,791.75	0.9996	7,788.633
11943	21	8,943.20	0.9997	8,940.517
11944	20	8,549.47	0.9997	8,546.905
12127	20	8,221.83	0.9996	8,218.541
12128	19	7,909.12	0.9998	7,907.538
12152	19	7,943.47	0.9996	7,940.293
12153	20	8,317.72	0.9998	8,316.056
12154	19	7,941.82	0.9995	7,937.849
12155	19	7,958.02	0.9995	7,954.041
12188	13	5,069.75	0.9998	5,068.736
12303	19	8,128.31	0.9991	8,120.995
12304	19	8,257.10	0.9992	8,250.494
17456	1	382.36	0.9963	380.945
00679	1	416.57	0.9996	416.403
03143	3	1,208.80	0.9977	1,206.020
00037	20	6,763.13	0.8995	6,083.435
00068	19	6,253.04	0.8996	5,625.234
00071	21	7,167.25	0.9153	6,560.183
00072	22	7,367.18	0.9136	6,730.655
00108	15	5,175.95	0.9159	4,740.652
00114	17	6,065.02	0.9161	5,556.164
00115	17	6,013.95	0.9149	5,502.162
00116	17	5,655.90	0.9158	5,179.673
00121	20	7,111.65	0.9165	6,517.827
00122	20	7,154.55	0.9166	6,557.860
00123	20	7,102.63	0.9166	6,510.270
00123	21	7,532.92	0.9161	6,900.908
00124	20	6,977.62	0.9166	6,395.686
00125	21	7,180.75	0.9165	6,581.157
00125	21	7,347.93	0.8996	6,610.197
00126	20	6,744.64	0.8994	6,066.129
00126	20	7,082.90	0.9165	6,491.477
00127	20	7,074.11	0.8994	6,362.454
00127	20	7,201.21	0.9166	6,600.629
00128	20	7,008.69	0.8994	6,303.615

00128	20	6,907.00	0.9166	6,330.956
00129	19	6,638.49	0.8995	5,971.321
00129	20	6,629.81	0.9166	6,076.883
00130	21	7,185.60	0.8995	6,463.447
00140	20	7,296.41	0.9166	6,687.889
00141	19	6,918.54	0.9167	6,342.225
00142	19	6,798.60	0.9165	6,230.916
00146	22	7,209.80	0.8996	6,485.936
00150	22	7,222.64	0.8997	6,498.209
00150	23	8,292.70	0.9165	7,600.259
00151	21	6,834.07	0.8997	6,148.612
00152	23	8,436.76	0.9167	7,733.977
00153	23	8,472.80	0.9167	7,767.015
00154	22	7,112.12	0.8996	6,398.063
00154	23	8,268.45	0.9166	7,578.861
00155	19	6,659.58	0.9166	6,104.171
00156	23	8,213.30	0.9165	7,527.489
00157	23	8,311.07	0.9166	7,617.926
00158	22	8,114.55	0.9166	7,437.796
00159	23	8,330.60	0.9166	7,635.827
00160	22	7,999.41	0.9166	7,332.259
00162	23	8,068.20	0.9165	7,394.505
00166	22	7,942.59	0.8996	7,145.153
00167	22	8,098.68	0.8993	7,283.142
00168	13	4,677.08	0.8994	4,206.565
00169	12	4,251.25	0.8995	3,823.999
00170	13	4,621.42	0.9165	4,235.531
00171	13	4,344.57	0.9165	3,981.798
00176	23	8,435.29	0.9166	7,731.786
00177	22	8,020.68	0.8997	7,216.205
00178	23	8,454.20	0.8994	7,603.707
00179	23	8,148.71	0.8995	7,329.764
00180	21	7,670.68	0.8997	6,901.310
00181	23	8,134.72	0.9000	7,321.248
00182	22	7,833.07	0.9008	7,056.029
00183	22	7,792.99	0.9004	7,016.808
00184	20	6,797.57	0.9001	6,118.492
00189	19	6,367.95	0.9145	5,823.490
00192	20	6,970.00	0.9159	6,383.823
00211	20	6,701.83	0.9003	6,033.657
00212	21	7,006.15	0.9000	6,305.535
00213	19	6,469.48	0.8999	5,821.885
00213	21	6,994.86	0.8999	6,294.674
00214	19	6,367.73	0.8998	5,729.683

00215	21	6,984.85	0.8998	6,284.968
00216	21	6,735.31	0.8998	6,060.431
00218	20	6,699.09	0.8999	6,028.511
00219	22	6,956.78	0.8995	6,257.623
00225	18	6,123.30	0.8999	5,510.357
00228	21	6,898.02	0.8998	6,206.838
00236	21	6,970.11	0.8999	6,272.401
00239	22	7,349.65	0.8998	6,613.215
00241	21	7,248.45	0.9054	6,562.746
00243	20	6,911.01	0.9163	6,332.558
00244	19	6,487.55	0.9166	5,946.488
00248	21	6,986.54	0.8997	6,285.790
00249	18	5,841.92	0.8997	5,255.975
00281	21	6,983.23	0.9002	6,286.303
00295	17	5,842.20	0.9000	5,257.980
00352	20	6,679.25	0.8999	6,010.657
00576	20	6,919.28	0.9166	6,342.212
00633	20	7,217.15	0.9166	6,615.239
00634	20	7,258.09	0.9166	6,652.765
00636	16	5,726.85	0.9145	5,237.204
00648	19	6,640.08	0.9049	6,008.608
00649	17	6,030.35	0.9155	5,520.785
00652	16	5,767.65	0.9166	5,286.627
00653	17	6,080.03	0.9167	5,573.563
00654	16	5,638.13	0.9166	5,167.909
00670	19	6,829.90	0.9163	6,258.237
00674	13	4,696.55	0.9161	4,302.509
00675	13	4,544.68	0.9161	4,163.381
00912	16	5,496.30	0.8996	4,944.471
00938	14	4,590.55	0.8996	4,129.658
01000	20	6,627.60	0.8999	5,964.177
01027	12	4,136.45	0.9165	3,791.056
01028	12	4,034.85	0.9163	3,697.133
01091	20	7,247.77	0.9163	6,641.131
01145	22	7,830.73	0.9166	7,177.647
01146	22	7,880.45	0.9166	7,223.220
01147	20	6,727.51	0.9166	6,166.435
01149	21	7,445.47	0.9166	6,824.517
01151	21	7,228.35	0.9166	6,625.505
01228	19	6,777.20	0.8997	6,097.446
01229	18	6,403.26	0.8997	5,761.013
01324	24	8,537.80	0.9166	7,825.747
01325	23	8,072.32	0.9166	7,399.088
01455	20	6,912.75	0.8994	6,217.327

01459	21	7,144.88	0.8994	6,426.105
01481	22	7,238.85	0.8998	6,513.517
01507	22	7,679.11	0.9166	7,038.672
01511	13	4,584.12	0.9166	4,201.804
01512	13	4,392.27	0.9166	4,025.954
01583	20	6,669.46	0.9134	6,091.884
01657	20	6,622.80	0.8999	5,959.857
01658	21	6,903.33	0.8999	6,212.306
01659	23	7,366.50	0.8999	6,629.113
01661	22	7,067.53	0.8999	6,360.070
01662	21	6,875.54	0.8999	6,187.298
01674	20	7,468.96	0.9166	6,846.048
01675	22	7,591.83	0.9166	6,958.671
01676	19	6,894.85	0.9165	6,319.130
01677	19	6,848.69	0.9166	6,277.509
01678	19	6,639.53	0.9166	6,085.793
01679	18	6,260.85	0.9162	5,736.190
01680	17	5,990.55	0.9165	5,490.339
01690	19	6,328.76	0.8994	5,692.086
01737	19	6,822.72	0.9164	6,252.340
01738	19	6,833.18	0.9165	6,262.609
01739	18	6,514.27	0.9166	5,970.979
01740	18	6,475.32	0.9163	5,933.335
01741	19	6,787.40	0.9165	6,220.652
01742	15	5,136.20	0.9165	4,707.327
01800	19	6,692.26	0.9165	6,133.456
01826	21	7,440.03	0.9166	6,819.531
01828	21	7,524.22	0.9166	6,896.700
01829	21	7,538.40	0.9166	6,909.697
01830	21	7,469.72	0.9165	6,845.998
01832	22	7,973.03	0.9166	7,308.079
01833	21	7,636.03	0.9166	6,999.185
01834	21	7,680.10	0.9165	7,038.811
01835	21	7,678.86	0.9166	7,038.443
01836	21	7,621.42	0.9166	6,985.793
01837	20	7,175.80	0.9166	6,577.338
01839	21	7,584.55	0.9166	6,951.998
01840	21	7,491.14	0.9166	6,866.378
01841	21	7,475.28	0.9166	6,851.841
01842	18	6,449.44	0.9166	5,911.556
01843	16	5,252.10	0.9166	4,814.074
01878	22	7,850.05	0.9166	7,195.355
01879	22	7,792.30	0.9166	7,142.422
01880	21	7,441.55	0.9166	6,820.924

01881	21	7,421.43	0.9166	6,802.482
01882	22	7,762.37	0.9165	7,114.212
01883	20	7,251.10	0.9166	6,646.358
01884	21	7,562.95	0.9165	6,931.443
01885	21	7,439.89	0.9163	6,817.171
01886	13	4,563.84	0.9128	4,165.873
01887	11	3,520.57	0.9047	3,185.059
02133	18	5,892.65	0.8997	5,301.617
02171	16	5,679.17	0.9166	5,205.527
02173	10	3,235.95	0.9166	2,966.071
02174	11	3,929.75	0.9140	3,591.791
02175	13	4,357.45	0.9144	3,984.452
02184	19	6,349.78	0.8997	5,712.897
02187	21	6,489.04	0.8996	5,837.540
02188	19	6,227.29	0.8996	5,602.070
02191	19	6,377.26	0.8996	5,736.983
02192	19	6,214.43	0.8996	5,590.501
02193	19	6,209.13	0.8996	5,585.733
02194	18	5,980.60	0.8996	5,380.147
02326	20	7,027.68	0.9166	6,441.571
02327	21	7,436.77	0.9166	6,816.543
02329	20	7,036.33	0.9165	6,448.796
02432	18	6,206.64	0.8997	5,584.114
02437	17	5,848.63	0.8996	5,261.427
02589	17	5,892.53	0.9162	5,398.735
02682	17	6,064.88	0.9166	5,559.069
02683	16	5,601.27	0.9166	5,134.124
02763	22	8,069.88	0.9165	7,396.045
02787	21	7,627.79	0.9166	6,991.632
02788	21	7,664.72	0.9166	7,025.482
02790	21	7,591.91	0.9166	6,958.744
02792	15	5,133.68	0.9166	4,705.531
02793	18	6,049.10	0.9166	5,544.605
02807	19	6,794.65	0.9166	6,227.976
02808	20	7,124.87	0.9166	6,530.655
02809	14	4,975.32	0.9166	4,560.378
02810	12	4,136.87	0.9166	3,791.855
02817	21	7,734.33	0.9165	7,088.513
02818	21	7,802.83	0.9167	7,152.854
02819	21	7,818.79	0.9166	7,166.702
02820	21	7,766.78	0.9166	7,119.030
02821	11	3,871.83	0.9165	3,548.532
02822	18	6,269.70	0.9166	5,746.807
02824	20	7,236.38	0.9164	6,631.418

02866	19	6,753.05	0.9165	6,189.170
02867	19	6,703.32	0.9166	6,144.263
02891	22	7,853.75	0.9166	7,198.747
02893	22	7,827.81	0.9166	7,174.970
02894	21	7,452.21	0.9166	6,830.695
02895	22	7,798.70	0.9165	7,147.508
02896	20	6,931.20	0.9166	6,353.137
02897	22	7,723.67	0.9165	7,078.743
02898	22	7,734.00	0.9165	7,088.211
02899	21	7,465.37	0.9165	6,842.011
02900	21	7,564.45	0.9166	6,933.574
02901	21	7,563.30	0.9166	6,932.520
02902	15	5,400.59	0.9165	4,949.640
03038	20	6,547.40	0.8996	5,890.041
03039	21	6,574.54	0.8996	5,914.456
03040	19	6,201.84	0.8996	5,579.175
03044	18	6,009.76	0.8995	5,405.779
03045	18	5,941.63	0.8995	5,344.496
03709	9	2,939.93	0.8999	2,645.643
03773	16	5,288.62	0.9161	4,844.904
03983	19	6,729.93	0.9166	6,168.653
03984	19	6,669.67	0.9167	6,114.086
03985	18	6,266.20	0.9166	5,743.598
03988	10	3,207.50	0.8999	2,886.429
04249	18	5,864.76	0.8995	5,275.351
04251	20	6,621.77	0.9165	6,068.852
04292	19	6,473.18	0.8993	5,821.330
04299	15	5,284.98	0.8996	4,754.368
04372	18	5,949.53	0.8996	5,352.197
04430	15	4,997.45	0.9166	4,580.662
04445	12	3,629.01	0.9125	3,311.471
04474	14	4,696.45	0.9166	4,304.766
04482	12	4,035.53	0.9166	3,698.966
04551	17	5,773.37	0.8994	5,192.568
04668	11	3,675.05	0.8993	3,304.972
04688	15	5,383.90	0.9166	4,934.882
04689	16	5,820.64	0.9166	5,335.198
04693	19	6,150.65	0.8998	5,534.354
04738	23	7,089.55	0.9165	6,497.572
04884	15	5,367.95	0.9166	4,920.262
04885	13	4,510.73	0.9025	4,070.933
04885	14	4,894.10	0.9166	4,485.932
04925	21	7,182.25	0.9155	6,575.349
04960	15	5,085.00	0.9013	4,583.110

04990	20	6,768.85	0.9016	6,102.795
04992	19	6,497.07	0.9030	5,866.854
04994	21	7,155.22	0.9042	6,469.749
05005	19	6,673.84	0.9010	6,013.129
05119	11	3,590.26	0.9165	3,290.473
05132	20	6,960.55	0.9160	6,375.863
05133	20	7,074.18	0.9166	6,484.193
05134	19	6,469.00	0.9166	5,929.485
05135	19	6,605.16	0.9167	6,054.950
05136	20	7,092.83	0.9167	6,501.997
05137	19	6,510.68	0.9167	5,968.340
05173	13	4,449.57	0.9167	4,078.920
05248	15	4,932.23	0.9166	4,520.882
05254	11	3,589.37	0.9166	3,290.016
05259	19	6,200.68	0.9055	5,614.715
05268	16	5,445.12	0.9165	4,990.452
05301	23	7,626.83	0.9167	6,991.515
05302	15	5,072.20	0.9166	4,649.178
05303	10	3,137.20	0.9167	2,875.871
05304	10	3,334.70	0.9164	3,055.919
05383	18	6,377.30	0.9127	5,820.561
05384	20	6,881.80	0.9141	6,290.653
05390	20	6,769.15	0.9166	6,204.602
05391	18	6,029.95	0.9164	5,525.846
05392	18	6,313.03	0.9166	5,786.523
05394	10	3,231.70	0.9166	2,962.176
05410	17	5,966.10	0.8994	5,365.910
05424	12	3,921.10	0.9118	3,575.258
05434	11	3,908.80	0.9147	3,575.379
05452	14	4,885.10	0.9166	4,477.682
05453	15	4,986.05	0.9166	4,570.213
05460	20	6,867.73	0.9130	6,270.237
05575	12	4,156.69	0.8993	3,738.111
05590	12	4,136.40	0.9166	3,791.424
05614	14	4,543.75	0.9000	4,089.375
05726	15	5,278.32	0.9164	4,837.052
05729	19	6,724.18	0.9166	6,163.383
05730	13	4,486.33	0.9167	4,112.618
05769	11	3,735.63	0.9164	3,423.331
05771	20	7,095.70	0.9166	6,503.918
05772	16	5,633.54	0.9166	5,163.702
05773	17	5,690.94	0.9160	5,212.901
05775	18	6,343.94	0.9167	5,815.489
05776	17	5,673.06	0.8993	5,101.782

05776	20	7,162.50	0.9166	6,565.147
05777	19	6,792.18	0.9160	6,221.636
05778	12	4,088.66	0.9165	3,747.256
05779	15	5,200.57	0.9078	4,721.077
05780	20	6,798.77	0.9067	6,164.444
05814	20	6,891.32	0.9167	6,317.273
05815	21	7,139.30	0.9165	6,543.168
05823	7	2,134.20	0.8999	1,920.566
05832	20	7,034.70	0.9171	6,451.523
05833	18	6,180.88	0.9166	5,665.394
05844	19	6,421.22	0.9086	5,834.320
05848	20	7,039.08	0.9166	6,452.020
05850	17	5,664.45	0.9166	5,192.034
05853	18	6,290.32	0.9154	5,758.158
05854	18	5,922.55	0.9160	5,425.055
05855	16	5,436.10	0.9158	4,978.380
05860	16	5,415.55	0.9141	4,950.354
05861	16	5,368.68	0.9138	4,905.899
05861	18	6,230.85	0.9000	5,607.765
05862	21	7,181.79	0.9167	6,583.546
05864	18	5,882.90	0.9165	5,391.677
05868	22	7,708.12	0.9166	7,065.262
05869	21	7,360.07	0.9165	6,745.504
05870	20	6,820.10	0.9165	6,250.621
05872	19	6,378.63	0.9157	5,840.911
05873	18	5,762.72	0.9163	5,280.380
05877	16	5,670.45	0.9166	5,197.534
05878	18	6,033.55	0.9166	5,530.351
05891	14	5,042.42	0.9166	4,621.882
05892	15	5,203.77	0.9166	4,769.775
05958	19	6,539.34	0.9166	5,993.959
05972	18	6,221.82	0.9134	5,683.010
05973	18	6,359.29	0.9131	5,806.667
05974	19	6,659.04	0.9130	6,079.703
05975	16	5,449.13	0.9162	4,992.492
05995	16	5,322.20	0.9165	4,877.796
05996	18	6,066.85	0.9157	5,555.414
06007	18	6,311.67	0.9165	5,784.645
06022	21	7,280.25	0.9166	6,673.077
06023	21	7,327.02	0.9166	6,715.946
06024	21	7,354.30	0.9167	6,741.686
06025	21	7,095.13	0.9166	6,503.396
06026	15	5,153.41	0.9166	4,723.615
06029	19	6,279.49	0.9166	5,755.780

06045	12	3,991.72	0.9165	3,658.411
06047	20	6,877.03	0.9166	6,303.485
06048	20	7,007.68	0.9166	6,423.239
06049	18	6,137.75	0.9166	5,625.861
06050	16	5,382.62	0.9166	4,933.709
06053	23	8,181.45	0.8994	7,358.396
06054	25	8,689.32	0.8995	7,816.043
06062	20	7,019.67	0.9166	6,434.229
06063	21	7,176.15	0.9166	6,577.659
06064	20	6,894.03	0.9165	6,318.378
06069	16	5,506.14	0.9166	5,046.927
06070	17	5,897.90	0.9166	5,406.015
06071	12	3,690.73	0.9166	3,382.923
06089	21	7,417.04	0.9167	6,799.200
06090	21	7,230.60	0.9167	6,628.291
06121	9	2,859.20	0.9159	2,618.741
06164	11	3,824.28	0.9165	3,504.952
06188	14	4,850.01	0.9120	4,423.209
06222	18	6,353.54	0.9165	5,823.019
06223	19	6,700.02	0.9166	6,141.238
06225	21	7,293.58	0.9166	6,685.295
06227	20	6,716.00	0.9167	6,156.557
06233	21	7,173.62	0.9167	6,576.057
06246	20	6,909.53	0.9165	6,332.584
06247	22	7,474.18	0.9165	6,850.085
06252	16	5,373.84	0.9166	4,925.661
06283	17	5,830.22	0.9166	5,343.979
06284	9	3,139.07	0.9166	2,877.271
06302	11	3,736.92	0.9164	3,424.513
06303	13	4,390.00	0.9164	4,022.996
06316	20	6,784.72	0.9166	6,218.874
06317	21	7,105.73	0.9166	6,513.112
06318	20	6,625.23	0.9167	6,073.348
06319	16	5,069.09	0.9166	4,646.327
06320	18	6,145.44	0.9088	5,584.975
06330	13	4,473.30	0.9166	4,100.226
06331	13	4,476.22	0.9167	4,103.350
06342	14	4,484.90	0.9166	4,110.859
06358	20	6,910.70	0.8996	6,216.865
06359	13	4,510.72	0.9040	4,077.690
06362	21	7,056.38	0.9166	6,467.877
06364	11	3,591.72	0.9166	3,292.170
06424	20	6,719.02	0.9166	6,158.653
06461	21	7,058.58	0.9166	6,469.894

06462	21	7,211.06	0.9166	6,609.657
06463	18	6,048.65	0.9120	5,516.368
06464	18	5,844.84	0.9126	5,334.000
06472	18	6,283.12	0.9166	5,759.107
06474	16	5,728.53	0.9166	5,250.770
06475	14	4,613.52	0.9166	4,228.752
06542	23	7,952.40	0.9164	7,287.579
06543	23	8,157.95	0.9164	7,475.945
06544	21	6,913.13	0.9165	6,335.883
06545	22	7,904.30	0.9164	7,243.500
06546	18	6,154.70	0.9164	5,640.167
06558	14	4,551.45	0.9128	4,154.563
06559	17	5,721.08	0.9167	5,244.514
06579	20	6,563.72	0.9161	6,013.023
06580	23	7,508.44	0.9166	6,882.236
06581	22	7,474.21	0.9166	6,850.860
06582	22	7,551.53	0.9166	6,921.732
06583	21	7,325.13	0.9166	6,714.214
06584	21	7,257.82	0.9167	6,653.243
06585	21	7,262.59	0.9166	6,656.889
06586	20	6,860.70	0.9166	6,288.517
06596	19	6,447.19	0.9072	5,848.890
06597	11	3,584.33	0.9165	3,285.038
06603	20	6,758.54	0.9165	6,194.201
06604	10	3,168.54	0.9166	2,904.283
06702	16	5,539.55	0.9166	5,077.551
06703	15	5,224.97	0.9166	4,789.207
06704	13	4,548.16	0.9166	4,168.843
06705	13	4,452.42	0.9166	4,081.088
06728	25	8,468.02	0.9165	7,760.940
06746	21	7,281.10	0.9166	6,673.856
06747	16	4,949.06	0.9166	4,536.308
06752	12	3,997.20	0.9151	3,657.837
06796	21	7,329.24	0.9166	6,717.981
06797	13	4,082.00	0.8998	3,672.983
06797	21	7,406.09	0.9166	6,788.422
06798	20	7,100.75	0.9166	6,508.547
06799	20	7,008.59	0.9166	6,424.073
06800	21	7,444.38	0.9166	6,823.518
06802	23	8,244.49	0.9167	7,557.723
06804	21	7,167.33	0.9166	6,569.574
06817	18	6,151.65	0.9012	5,543.866
06820	19	6,360.69	0.9166	5,830.208
06821	17	5,823.99	0.9166	5,338.269

06822	9	3,009.40	0.9166	2,758.416
06826	18	6,157.11	0.9166	5,643.607
06827	17	5,962.72	0.9166	5,465.429
06828	18	6,216.20	0.9156	5,691.552
06834	19	6,621.90	0.9166	6,069.633
06836	23	7,822.63	0.9166	7,170.222
06837	20	6,542.35	0.9166	5,996.718
06838	21	7,176.30	0.9166	6,577.796
06856	10	3,145.56	0.9126	2,870.638
06864	16	5,223.16	0.9130	4,768.745
06865	11	3,658.12	0.9165	3,352.666
06891	20	6,661.72	0.9167	6,106.798
06895	19	6,493.72	0.8994	5,840.451
06896	18	6,132.23	0.8995	5,515.940
06917	16	5,404.53	0.8993	4,860.293
06918	16	5,371.32	0.8994	4,830.965
06951	22	7,772.28	0.9166	7,124.071
06953	22	7,694.14	0.9165	7,051.679
07093	23	7,968.84	0.8994	7,167.174
07160	15	5,249.07	0.9167	4,811.822
07161	16	5,413.30	0.9167	4,962.372
07175	20	6,944.58	0.9166	6,365.402
07206	19	6,784.28	0.9166	6,218.471
07207	23	8,288.09	0.9165	7,596.034
07208	12	4,019.95	0.8996	3,616.347
07208	21	7,155.60	0.9121	6,526.622
07209	19	6,574.50	0.9135	6,005.805
07222	23	7,662.90	0.8994	6,892.012
07223	20	6,762.08	0.8999	6,085.195
07237	15	5,205.20	0.9167	4,771.606
07238	15	5,109.29	0.9167	4,683.686
07239	21	7,149.05	0.9166	6,552.819
07240	20	6,873.93	0.9166	6,300.644
07241	18	6,159.67	0.9167	5,646.569
07242	20	7,149.66	0.9167	6,554.093
07269	19	6,725.28	0.9166	6,164.391
07319	22	7,586.72	0.9166	6,953.987
07376	21	7,191.38	0.9166	6,591.618
07389	18	6,276.87	0.9167	5,754.006
07498	21	7,577.89	0.8996	6,817.069
07499	21	7,554.16	0.8997	6,796.477
07500	20	7,221.63	0.8995	6,495.856
07501	20	7,275.62	0.8995	6,544.420
07502	18	6,127.38	0.8995	5,511.578

07503	21	7,337.53	0.9167	6,726.313
07504	20	6,937.05	0.9167	6,359.193
07505	19	6,584.60	0.9166	6,035.444
07529	21	7,557.00	0.9003	6,803.567
07530	20	7,127.43	0.9000	6,414.687
07531	20	7,341.70	0.8999	6,606.795
07550	12	4,008.93	0.8993	3,605.230
07574	20	6,800.35	0.8995	6,116.914
07576	20	6,838.85	0.8995	6,151.545
07577	20	6,935.71	0.8998	6,240.751
07578	21	7,247.86	0.8997	6,520.899
07579	21	7,231.60	0.8998	6,506.993
07580	21	6,905.31	0.8998	6,213.397
07590	16	5,532.43	0.8995	4,976.420
07619	25	8,089.70	0.8995	7,276.685
07697	14	4,972.64	0.9135	4,542.506
07698	13	4,281.56	0.9132	3,909.920
07700	16	5,598.85	0.9166	5,131.905
07701	19	6,545.83	0.9166	5,999.907
07735	20	7,051.99	0.8999	6,346.085
07737	19	6,672.70	0.9000	6,005.430
07742	18	6,444.66	0.9163	5,905.241
07743	17	6,088.94	0.9163	5,579.295
07744	15	5,201.53	0.9163	4,766.161
07746	20	6,789.67	0.9045	6,141.256
07755	21	7,252.80	0.8995	6,523.893
07756	21	7,298.30	0.9004	6,571.389
07757	13	4,484.48	0.9166	4,110.474
07758	21	7,205.13	0.8996	6,481.734
07759	19	6,480.98	0.8996	5,830.289
07760	16	5,496.36	0.8996	4,944.525
07761	21	6,863.70	0.8995	6,173.898
07802	12	4,036.78	0.9166	3,700.112
07877	10	3,369.87	0.9166	3,088.822
07933	23	7,826.53	0.8997	7,041.529
07936	23	7,852.11	0.8996	7,063.758
07937	23	7,898.32	0.8996	7,105.328
07938	21	7,079.03	0.8996	6,368.295
07940	22	7,633.04	0.8995	6,865.919
07941	21	7,538.53	0.8995	6,780.907
07942	18	6,442.23	0.8995	5,794.785
07943	20	7,110.50	0.8994	6,395.183
07944	20	7,083.07	0.8994	6,370.513
07999	20	7,120.87	0.8995	6,405.222

08000	20	7,173.12	0.8996	6,452.938
08001	22	7,900.45	0.8996	7,107.244
08002	21	7,528.83	0.8996	6,772.935
08004	18	6,378.33	0.8997	5,738.583
08005	20	7,028.00	0.8995	6,321.686
08006	20	6,939.37	0.8997	6,243.351
08007	19	6,704.59	0.8997	6,032.119
08038	22	7,787.88	0.9166	7,138.370
08039	22	7,787.38	0.9165	7,137.133
08040	22	7,684.42	0.9165	7,042.770
08041	22	7,556.46	0.9165	6,925.495
08044	21	7,409.93	0.9165	6,791.200
08045	21	7,348.80	0.9166	6,735.910
08046	21	7,326.53	0.9165	6,714.764
08047	20	7,019.85	0.9166	6,434.394
08048	18	6,003.96	0.9165	5,502.629
08055	22	7,978.29	0.9166	7,312.900
08056	22	8,003.24	0.9165	7,334.969
08057	22	7,983.87	0.9166	7,318.015
08058	21	7,621.10	0.9165	6,984.738
08059	21	7,631.07	0.9165	6,993.875
08060	17	5,862.70	0.9166	5,373.750
08061	17	6,004.35	0.9166	5,503.587
08092	23	8,044.05	0.9166	7,373.176
08093	16	5,348.55	0.8991	4,808.881
08093	19	6,779.37	0.9166	6,213.970
08094	16	5,474.60	0.8995	4,924.402
08094	23	8,118.43	0.9166	7,441.352
08095	21	7,408.30	0.9166	6,790.447
08097	22	8,020.84	0.9166	7,351.901
08098	22	7,974.92	0.9166	7,309.811
08099	19	6,842.42	0.9166	6,271.762
08100	20	7,158.64	0.9166	6,561.609
08101	15	5,367.76	0.9166	4,920.088
08103	18	6,536.70	0.9166	5,991.539
08104	14	5,110.33	0.9166	4,684.128
08105	17	6,027.88	0.9166	5,525.154
08109	24	8,606.04	0.9166	7,888.296
08129	18	5,889.55	0.8995	5,297.650
08130	22	6,986.65	0.8995	6,284.491
08139	22	7,784.03	0.9166	7,134.841
08140	21	7,427.96	0.9165	6,807.725
08141	22	7,831.29	0.9166	7,178.160
08142	22	7,696.41	0.9165	7,053.759

08143	21	7,508.54	0.9165	6,881.576
08144	22	7,934.28	0.9166	7,272.561
08145	18	6,508.37	0.9166	5,965.571
08146	20	7,290.66	0.9166	6,682.618
08147	9	3,037.20	0.9166	2,783.897
08147	22	7,613.97	0.9166	6,978.964
08155	20	7,055.75	0.9164	6,465.889
08191	11	3,952.42	0.8998	3,556.387
08202	18	6,144.75	0.8997	5,528.431
08202	24	7,571.68	0.8999	6,813.754
08203	21	7,255.43	0.8994	6,525.533
08204	20	6,898.60	0.8995	6,205.290
08205	21	7,016.55	0.8994	6,310.685
08246	12	3,741.23	0.8999	3,366.732
08271	21	7,589.98	0.9165	6,956.216
08272	20	7,248.27	0.9166	6,643.764
08285	21	7,436.32	0.9166	6,816.130
08286	20	7,180.30	0.9165	6,580.744
08288	23	8,141.30	0.9165	7,461.501
08289	23	8,026.42	0.9165	7,356.213
08290	17	5,792.65	0.9165	5,308.963
08292	19	6,877.63	0.9166	6,304.035
08293	21	7,580.37	0.9166	6,948.167
08294	15	5,266.44	0.9166	4,827.218
08295	19	6,939.38	0.9166	6,360.635
08296	23	8,419.33	0.9165	7,716.315
08297	22	7,956.93	0.9164	7,291.730
08298	23	7,941.58	0.9165	7,278.458
08301	14	4,959.57	0.9166	4,545.941
08312	19	6,220.75	0.8995	5,595.564
08319	22	7,817.45	0.8996	7,032.578
08320	22	7,927.35	0.8996	7,131.444
08321	22	7,934.74	0.8997	7,138.885
08322	22	7,879.74	0.8997	7,089.402
08324	24	8,402.27	0.8994	7,557.001
08325	22	7,714.99	0.8994	6,938.862
08326	22	7,670.81	0.8994	6,899.126
08327	23	7,812.12	0.8992	7,024.658
08347	22	7,745.85	0.8994	6,966.617
08348	18	6,023.82	0.8994	5,417.823
08348	22	7,908.61	0.8994	7,113.003
08349	18	6,125.54	0.8995	5,509.923
08350	21	7,064.70	0.8995	6,354.697
08351	22	7,958.70	0.8994	7,158.054

08352	21	7,619.75	0.8998	6,856.251
08353	23	7,828.75	0.8994	7,041.177
08357	13	4,500.50	0.8994	4,047.749
08358	13	4,329.03	0.8995	3,893.962
08378	23	8,187.48	0.8994	7,363.819
08379	22	7,796.15	0.8994	7,011.857
08380	22	7,514.70	0.8993	6,757.969
08386	21	7,488.20	0.8991	6,732.640
08387	21	7,502.71	0.8991	6,745.686
08387	21	7,592.14	0.9166	6,958.955
08388	21	7,467.45	0.8991	6,713.984
08388	21	7,546.99	0.9166	6,917.571
08389	20	6,728.02	0.8995	6,051.853
08389	21	7,604.10	0.9166	6,969.918
08390	20	7,159.03	0.9166	6,561.966
08391	20	7,343.98	0.9166	6,731.492
08392	21	7,581.38	0.9166	6,949.092
08394	21	7,219.87	0.9166	6,617.732
08395	21	7,597.66	0.9165	6,963.255
08396	21	7,602.10	0.9166	6,968.084
08397	22	7,497.68	0.9166	6,872.373
08408	20	7,135.23	0.9165	6,539.438
08409	17	6,012.32	0.9166	5,510.892
08410	18	6,380.91	0.9166	5,848.742
08411	19	6,536.45	0.9164	5,990.002
08417	22	7,625.93	0.8998	6,861.811
08419	20	7,060.84	0.8994	6,350.519
08420	20	7,017.48	0.8994	6,311.521
08422	21	7,154.68	0.8994	6,434.919
08423	19	6,296.47	0.9090	5,723.491
08423	21	7,265.60	0.9005	6,542.672
08424	18	6,314.81	0.9039	5,707.956
08424	21	7,209.45	0.9006	6,492.830
08425	19	6,546.86	0.8995	5,888.900
08426	19	6,463.80	0.8994	5,813.541
08427	17	5,603.22	0.8995	5,040.096
08428	20	6,555.55	0.8994	5,896.061
08446	22	7,878.40	0.8998	7,088.984
08447	20	7,046.27	0.8997	6,339.529
08449	21	7,081.25	0.8997	6,371.000
08450	23	8,075.62	0.9125	7,369.003
08451	23	8,087.22	0.9127	7,381.205
08455	10	3,534.65	0.8992	3,178.357
08456	24	8,452.93	0.9127	7,714.989

08457	23	8,213.15	0.9127	7,496.142
08470	24	8,296.62	0.9010	7,475.254
08487	21	7,441.19	0.8999	6,696.326
08488	22	7,509.64	0.8993	6,753.419
08582	18	6,012.36	0.8990	5,405.111
08583	19	6,188.53	0.8993	5,565.345
08652	23	7,893.73	0.9165	7,234.603
08653	26	9,142.60	0.9166	8,380.107
08658	22	7,514.80	0.8998	6,761.817
08659	22	7,795.54	0.8993	7,010.529
08660	21	7,281.71	0.8996	6,550.626
08749	10	3,207.83	0.8999	2,886.726
08779	13	4,353.95	0.8996	3,916.813
08788	23	7,639.07	0.9166	7,001.971
08789	20	6,892.72	0.9167	6,318.556
08827	20	6,651.67	0.9020	5,999.806
08829	20	6,787.56	0.9166	6,221.477
08830	17	5,749.98	0.9167	5,271.006
08845	16	5,349.44	0.9134	4,886.178
08860	14	4,759.22	0.9025	4,295.196
08861	13	4,215.13	0.9020	3,802.047
08878	22	7,469.65	0.8996	6,719.697
08907	15	5,179.70	0.9167	4,748.230
08915	12	4,119.02	0.9161	3,773.434
08921	23	7,679.95	0.9166	7,039.442
08922	15	5,122.30	0.9166	4,695.100
08979	6	1,869.90	0.8999	1,682.723
09012	22	7,338.94	0.8997	6,602.844
09036	24	8,213.78	0.9166	7,528.750
09037	23	8,099.00	0.9165	7,422.733
09038	24	8,319.57	0.9165	7,624.885
09039	24	8,256.32	0.9165	7,566.917
09040	24	8,243.32	0.9165	7,555.002
09041	23	7,749.75	0.9165	7,102.645
09042	22	7,868.83	0.9164	7,210.995
09043	22	7,935.52	0.9166	7,273.697
09044	24	8,701.99	0.9165	7,975.373
09045	23	8,203.40	0.9166	7,519.236
09046	23	8,270.68	0.9166	7,580.905
09047	23	8,027.25	0.9166	7,357.777
09048	24	8,326.82	0.9165	7,631.530
09049	24	8,289.39	0.9165	7,597.225
09050	23	8,074.66	0.9166	7,401.233
09050	24	8,284.32	0.9164	7,591.750

09051	22	7,619.26	0.9166	6,983.813
09051	22	7,639.63	0.9164	7,000.956
09052	16	5,317.63	0.9166	4,874.139
09053	17	6,111.72	0.9165	5,601.391
09054	15	5,152.18	0.9165	4,721.972
09059	23	8,082.82	0.9165	7,407.904
09060	21	7,485.38	0.9166	6,861.099
09062	22	7,603.62	0.9166	6,969.478
09062	21	7,621.07	0.9166	6,985.472
09063	21	7,318.03	0.9166	6,707.706
09063	24	8,655.18	0.9166	7,933.337
09064	17	6,120.50	0.9166	5,610.050
09064	22	7,652.45	0.9166	7,014.235
09065	17	5,734.27	0.9166	5,256.031
09065	20	7,075.65	0.9166	6,485.540
09066	17	5,624.45	0.9166	5,155.370
09067	22	7,897.45	0.9166	7,238.802
09068	22	7,953.66	0.9166	7,290.324
09069	22	8,080.22	0.9166	7,406.329
09070	20	6,970.23	0.9166	6,388.912
09071	13	4,185.75	0.9166	3,836.658
09109	25	8,964.30	0.9166	8,216.677
09110	23	8,211.32	0.9114	7,483.797
09111	23	8,290.60	0.9116	7,557.710
09112	23	8,239.23	0.9103	7,500.171
09113	23	8,227.91	0.9121	7,504.676
09115	24	8,063.05	0.9138	7,368.015
09116	24	8,390.00	0.9136	7,665.104
09117	23	8,050.85	0.9120	7,342.375
09118	23	7,969.45	0.9125	7,272.123
09119	23	7,905.37	0.9098	7,192.305
09120	23	8,078.63	0.9126	7,372.557
09121	14	4,660.77	0.9134	4,257.147
09122	17	5,711.47	0.9147	5,224.281
09123	16	5,194.42	0.9135	4,745.102
09140	22	7,442.45	0.9166	6,821.749
09141	16	5,331.02	0.9163	4,884.813
09141	24	8,161.67	0.9166	7,480.986
09142	16	5,278.85	0.9165	4,838.066
09142	23	7,957.70	0.9166	7,294.027
09143	15	4,858.49	0.9143	4,442.117
09143	23	7,817.65	0.9166	7,165.657
09144	22	7,633.17	0.9167	6,997.326
09145	23	7,950.38	0.9166	7,287.318

09146	22	7,535.25	0.9166	6,906.810
09225	22	7,674.70	0.9166	7,034.630
09226	24	8,115.61	0.9140	7,417.667
09237	21	7,675.65	0.9166	7,035.500
09238	21	7,741.54	0.9167	7,096.669
09239	21	7,815.14	0.9167	7,164.138
09240	21	7,087.64	0.9167	6,497.239
09241	14	4,788.32	0.9166	4,388.974
09246	25	7,849.04	0.9002	7,065.705
09274	17	5,713.97	0.8997	5,140.858
09276	21	7,688.51	0.9166	7,047.288
09277	21	7,704.35	0.9166	7,061.807
09278	23	8,181.18	0.9167	7,499.687
09279	24	8,789.97	0.9166	8,056.886
09280	23	8,380.15	0.9166	7,681.245
09281	11	3,772.93	0.9166	3,458.267
09288	18	6,178.79	0.8994	5,557.203
09292	16	5,342.90	0.8997	4,807.007
09293	10	3,532.07	0.8999	3,178.509
09300	19	6,728.11	0.8993	6,050.589
09301	19	6,579.82	0.9005	5,925.127
09304	18	6,422.94	0.8997	5,778.719
09305	19	6,368.25	0.8995	5,728.240
09313	18	6,381.90	0.9166	5,849.649
09314	20	7,166.84	0.9165	6,568.408
09315	20	7,132.74	0.9165	6,537.156
09316	16	5,635.00	0.9165	5,164.477
09317	14	4,507.23	0.9165	4,130.876
09318	18	6,548.49	0.9072	5,940.790
09319	19	6,537.83	0.9111	5,956.616
09321	21	7,753.49	0.9166	7,106.848
09322	22	7,656.31	0.9166	7,017.773
09323	22	7,647.74	0.9166	7,009.918
09324	22	7,705.65	0.9166	7,062.998
09325	22	7,751.90	0.9166	7,105.391
09326	21	7,234.66	0.9166	6,631.289
09327	21	7,649.02	0.9166	7,011.091
09328	20	7,316.15	0.9166	6,705.983
09330	22	7,651.95	0.9166	7,013.777
09331	21	7,836.55	0.9166	7,182.981
09332	20	7,009.38	0.9166	6,424.797
09333	12	4,321.15	0.9166	3,960.766
09334	12	4,391.11	0.9165	4,024.452
09339	13	4,608.41	0.9165	4,223.607

09340	15	5,032.50	0.9165	4,612.286
09366	22	7,835.03	0.9166	7,181.588
09367	12	4,214.40	0.9166	3,862.919
09368	22	7,899.62	0.9166	7,240.791
09370	21	7,427.74	0.9166	6,808.266
09383	18	6,495.78	0.9165	5,953.382
09384	18	6,491.14	0.9166	5,949.778
09385	18	6,492.35	0.9166	5,950.888
09386	18	6,491.77	0.9166	5,950.356
09387	16	5,532.61	0.9166	5,071.190
09394	22	7,767.34	0.9166	7,119.543
09395	13	4,451.25	0.9166	4,080.015
09396	15	5,204.55	0.9165	4,769.970
09397	17	5,958.87	0.9166	5,461.900
09398	17	6,018.10	0.9166	5,516.190
09399	17	5,703.41	0.9166	5,227.745
09411	22	7,807.94	0.9165	7,155.977
09412	16	5,604.85	0.9166	5,137.405
09413	22	7,756.29	0.9166	7,109.415
09414	22	7,792.91	0.9166	7,142.981
09416	22	7,964.74	0.9165	7,299.684
09417	22	7,779.99	0.9165	7,130.360
09418	22	7,789.98	0.9165	7,139.516
09419	22	7,719.05	0.9165	7,074.509
09420	11	3,832.83	0.9166	3,513.171
09421	22	7,866.30	0.9166	7,210.250
09422	22	7,842.18	0.9165	7,187.357
09423	22	7,931.13	0.9166	7,269.673
09424	22	7,869.80	0.9166	7,213.458
09425	23	8,369.25	0.9166	7,671.254
09426	18	6,562.18	0.9166	6,014.894
09427	17	6,119.53	0.9166	5,609.161
09428	10	3,525.53	0.9166	3,231.500
09429	22	7,644.45	0.9166	7,006.902
09430	22	7,738.11	0.9166	7,092.751
09430	23	8,149.25	0.9159	7,463.898
09431	22	7,704.44	0.9166	7,061.889
09431	23	8,024.57	0.9159	7,349.703
09432	22	7,750.09	0.9166	7,103.732
09432	23	8,047.80	0.9165	7,375.808
09433	23	7,933.17	0.9156	7,263.610
09434	23	8,024.85	0.9158	7,349.157
09435	19	6,623.68	0.9166	6,071.265
09435	24	8,612.42	0.9160	7,888.976

09436	23	8,278.58	0.9164	7,586.490
09436	23	8,341.80	0.9166	7,646.093
09437	23	8,296.84	0.9165	7,604.053
09437	23	8,319.18	0.9166	7,625.360
09438	22	8,119.02	0.9166	7,441.893
09438	23	8,167.92	0.9164	7,485.081
09439	21	7,556.15	0.9160	6,921.433
09439	22	8,001.86	0.9166	7,334.504
09440	22	7,907.12	0.9166	7,247.666
09440	23	8,155.84	0.9156	7,467.487
09441	19	6,808.25	0.9158	6,234.995
09442	23	8,313.70	0.9156	7,612.023
09443	20	6,947.65	0.9020	6,266.780
09443	21	7,552.47	0.9164	6,921.083
09444	24	8,274.80	0.9165	7,583.854
09445	20	7,063.37	0.9019	6,370.453
09445	23	8,143.35	0.9156	7,456.051
09446	13	4,255.01	0.9017	3,836.742
09446	23	7,952.55	0.9159	7,283.740
09447	19	6,688.53	0.9166	6,130.706
09447	23	7,990.82	0.9166	7,324.385
09448	20	6,982.76	0.9165	6,399.699
09448	24	8,729.02	0.9160	7,995.782
09449	12	4,016.46	0.9166	3,681.487
09449	20	7,172.20	0.9165	6,573.321
09450	20	7,331.53	0.9165	6,719.347
09451	20	6,886.18	0.9165	6,311.183
09452	18	6,119.07	0.9152	5,600.172
09453	16	5,430.25	0.9163	4,975.738
09464	22	7,815.41	0.9165	7,162.823
09465	22	7,861.69	0.9166	7,206.025
09466	22	7,763.46	0.9166	7,115.987
09467	22	7,784.38	0.9166	7,135.162
09469	22	7,821.84	0.9165	7,168.716
09470	22	7,877.68	0.9166	7,220.681
09472	22	7,847.78	0.9166	7,193.275
09473	11	3,675.99	0.9166	3,369.412
09502	16	5,281.93	0.8994	4,750.567
09612	15	5,358.40	0.8997	4,820.952
09613	16	5,385.82	0.8997	4,845.622
09620	23	8,210.40	0.9165	7,524.831
09621	23	8,187.70	0.9165	7,504.027
09622	23	8,229.50	0.9166	7,543.159
09623	23	8,296.88	0.9166	7,604.920

09624	22	7,922.35	0.9165	7,260.833
09625	23	8,294.55	0.9165	7,601.955
09626	23	8,248.15	0.9165	7,559.429
09627	23	8,277.95	0.9164	7,585.913
09628	23	8,371.17	0.9166	7,673.014
09629	23	8,349.50	0.9166	7,653.151
09630	22	7,898.47	0.9165	7,238.947
09631	21	7,407.83	0.9165	6,789.276
09632	23	8,321.20	0.9166	7,627.211
09634	23	8,068.60	0.9165	7,394.871
09635	23	8,176.37	0.9165	7,493.643
09636	23	8,214.08	0.9165	7,528.204
09637	23	7,979.54	0.9165	7,313.248
09638	23	8,170.55	0.9165	7,488.309
09639	24	8,475.76	0.9166	7,768.881
09640	24	8,568.12	0.9166	7,853.538
09641	22	7,961.98	0.9165	7,297.154
09642	23	8,348.75	0.9166	7,652.464
09643	21	7,443.55	0.9004	6,702.172
09643	23	8,449.03	0.9166	7,744.380
09644	22	7,694.60	0.9166	7,052.870
09646	22	7,958.75	0.9166	7,294.990
09647	21	7,496.15	0.9009	6,753.281
09647	22	7,824.80	0.9166	7,172.211
09648	21	7,496.45	0.8996	6,743.806
09648	25	8,859.37	0.9165	8,119.612
09649	19	6,501.02	0.8999	5,850.267
09649	23	8,227.72	0.9166	7,541.528
09650	21	7,430.47	0.9166	6,810.768
09651	19	6,769.00	0.9166	6,204.465
09710	19	6,666.40	0.9167	6,111.088
09711	21	7,574.80	0.9167	6,943.819
09712	20	7,223.50	0.9166	6,621.060
09713	21	7,253.70	0.9166	6,648.741
09714	21	7,175.03	0.9166	6,576.632
09715	18	6,264.25	0.9166	5,741.811
09769	22	7,793.16	0.8998	7,012.285
09771	22	7,869.53	0.8996	7,079.429
09772	23	8,246.22	0.8998	7,419.948
09773	19	6,587.11	0.8996	5,925.764
09827	17	6,137.15	0.9165	5,624.697
09828	18	6,396.77	0.9166	5,863.279
09829	18	6,524.72	0.9164	5,979.253
09830	17	5,986.00	0.9168	5,487.964

09837	25	8,701.50	0.9165	7,974.924
09838	22	7,690.89	0.9166	7,049.469
09865	17	5,823.26	0.9155	5,331.194
09872	18	5,900.82	0.9165	5,408.101
09889	22	7,890.47	0.9166	7,232.404
09929	17	5,767.75	0.9166	5,286.719
09971	20	7,181.95	0.9167	6,583.693
09991	22	7,754.90	0.8996	6,976.308
09992	22	7,661.52	0.8995	6,891.537
10040	15	5,581.60	0.9165	5,115.536
10127	19	6,675.50	0.8998	6,006.614
10128	19	6,591.40	0.8999	5,931.600
10129	19	6,717.00	0.8998	6,043.956
10130	20	6,822.78	0.8999	6,139.819
10133	10	3,540.53	0.8995	3,184.706
10136	14	4,911.38	0.9166	4,501.770
10137	13	4,503.59	0.9166	4,127.990
10150	20	6,959.17	0.8997	6,261.165
10151	19	6,519.07	0.8999	5,866.511
10152	20	6,947.61	0.8998	6,251.459
10153	20	7,096.45	0.8997	6,384.676
10154	19	6,622.26	0.8994	5,956.060
10155	16	5,412.60	0.8995	4,868.633
10156	20	6,810.15	0.8994	6,125.048
10173	23	8,090.75	0.8998	7,280.056
10174	23	8,130.53	0.8999	7,316.663
10175	24	8,011.95	0.8999	7,209.953
10176	14	4,940.84	0.9146	4,518.892
10176	23	7,994.70	0.9000	7,195.230
10177	19	6,425.26	0.9028	5,800.724
10177	23	7,851.85	0.8999	7,065.879
10179	22	7,657.58	0.8998	6,890.290
10180	22	7,821.68	0.8992	7,033.254
10181	21	7,326.02	0.8998	6,591.952
10208	23	8,081.64	0.8996	7,270.243
10209	23	8,126.18	0.8996	7,310.311
10211	21	7,159.22	0.8996	6,440.434
10220	16	5,545.34	0.9166	5,082.858
10231	18	6,270.32	0.9166	5,747.375
10232	18	6,267.17	0.9166	5,744.488
10233	19	6,478.15	0.9166	5,937.872
10234	15	5,226.49	0.9165	4,790.078
10235	17	5,566.19	0.9166	5,101.969
10363	23	8,185.24	0.9165	7,501.772

10364	23	8,148.15	0.9166	7,468.594
10365	23	8,075.22	0.9166	7,401.746
10367	22	7,975.25	0.9166	7,310.114
10368	22	7,868.65	0.9166	7,212.404
10369	23	8,271.92	0.9166	7,582.041
10370	23	8,195.00	0.9166	7,511.537
10402	18	6,168.35	0.8997	5,549.664
10403	19	6,663.43	0.8995	5,993.755
10404	22	7,398.09	0.9005	6,661.980
10463	21	7,173.04	0.9166	6,574.808
10464	20	6,860.83	0.9159	6,283.834
10466	21	7,090.95	0.9167	6,500.273
10467	18	5,764.30	0.9153	5,276.063
10500	22	7,865.78	0.9166	7,209.773
10501	22	7,844.05	0.9166	7,189.856
10503	22	7,931.43	0.9166	7,269.948
10504	22	7,754.92	0.9166	7,108.159
10505	22	7,736.25	0.9166	7,091.046
10506	22	7,890.60	0.9166	7,232.523
10507	22	7,902.49	0.9166	7,243.422
10508	22	7,991.62	0.9165	7,324.319
10509	22	7,880.39	0.9166	7,223.165
10510	21	7,356.18	0.9166	6,742.674
10511	19	6,666.07	0.9166	6,110.119
10512	17	5,857.42	0.9166	5,368.911
10513	20	6,723.92	0.9166	6,163.145
10533	18	6,352.61	0.8992	5,712.266
10534	18	6,002.12	0.8995	5,398.906
10536	19	6,721.97	0.8998	6,048.428
10537	19	6,701.42	0.8994	6,027.257
10538	18	6,289.68	0.9166	5,765.120
10539	20	7,203.92	0.9166	6,603.113
10540	18	6,478.20	0.9166	5,937.918
10541	17	5,855.22	0.9166	5,366.894
10552	23	8,111.95	0.9165	7,434.602
10553	23	8,125.65	0.9166	7,447.970
10554	23	8,121.00	0.9166	7,443.708
10555	23	8,165.07	0.9165	7,483.286
10556	25	8,713.12	0.9165	7,985.574
10557	23	8,153.85	0.9166	7,473.818
10558	23	8,161.82	0.9166	7,481.124
10559	23	8,166.04	0.9165	7,484.175
10560	23	8,158.87	0.9166	7,478.420
10562	15	5,411.64	0.9166	4,960.309

10563	15	5,444.58	0.9165	4,989.957
10564	16	5,896.85	0.9166	5,405.052
10565	19	6,671.04	0.9166	6,114.675
10565	21	7,408.85	0.9167	6,791.692
10569	23	7,840.82	0.9155	7,178.270
10570	23	8,123.37	0.9166	7,445.880
10571	20	6,809.33	0.9155	6,233.941
10571	23	8,154.70	0.9165	7,473.782
10572	20	6,544.85	0.9150	5,988.537
10572	23	8,050.99	0.9166	7,379.537
10573	23	8,017.45	0.9164	7,347.191
10574	24	8,350.02	0.9154	7,643.608
10575	21	7,475.46	0.9149	6,839.298
10576	22	7,921.22	0.9157	7,253.461
10577	23	8,244.85	0.9160	7,552.282
10578	23	8,252.60	0.9161	7,560.206
10579	24	8,468.07	0.9161	7,757.598
10580	22	7,676.15	0.9163	7,033.656
10582	22	7,830.33	0.9165	7,176.497
10583	22	7,863.24	0.9160	7,202.727
10584	20	7,028.95	0.9151	6,432.192
10631	15	5,110.95	0.9155	4,679.074
10632	16	5,493.53	0.9155	5,029.326
10633	17	5,760.95	0.9160	5,277.030
10752	25	8,816.60	0.9165	8,080.413
10787	20	6,712.69	0.9166	6,152.851
10792	12	4,277.50	0.9166	3,920.756
10793	13	4,696.70	0.9166	4,304.995
10816	20	6,788.93	0.9158	6,217.302
10817	13	4,485.58	0.8999	4,036.573
10817	19	6,632.95	0.9165	6,079.098
10818	13	4,260.08	0.8996	3,832.367
10818	21	7,261.00	0.9163	6,653.254
10819	17	5,691.24	0.9162	5,214.314
10846	16	5,632.78	0.9147	5,152.303
10847	15	5,098.38	0.9147	4,663.488
10857	19	6,393.07	0.8996	5,751.205
10858	21	6,914.80	0.8995	6,219.862
10876	22	7,492.78	0.9168	6,869.380
10877	24	8,210.21	0.9144	7,507.416
11086	13	4,579.02	0.9164	4,196.213
11087	13	4,463.16	0.9166	4,090.932
11125	20	7,023.93	0.9149	6,426.193
11127	23	7,963.29	0.9166	7,299.151

11132	17	5,981.25	0.9167	5,483.011
11133	15	5,216.83	0.9164	4,780.703
11168	20	6,485.50	0.8991	5,831.113
11230	16	5,155.55	0.8992	4,635.870
11279	22	7,573.36	0.9166	6,941.741
11280	20	7,018.17	0.9166	6,432.854
11281	20	7,091.48	0.9167	6,500.759
11282	21	7,472.45	0.9167	6,849.994
11283	21	7,492.23	0.9166	6,867.378
11284	21	7,540.72	0.9165	6,911.069
11285	20	7,225.18	0.9167	6,623.322
11286	23	7,773.33	0.9167	7,125.811
11345	17	6,239.35	0.9166	5,718.988
11346	17	6,189.39	0.9166	5,673.194
11347	17	6,204.42	0.9166	5,686.971
11348	16	5,874.63	0.9166	5,384.685
11748	17	5,937.95	0.9166	5,442.724
11749	15	5,165.03	0.9165	4,733.749
11879	22	7,388.77	0.9000	6,649.893
11882	23	7,552.92	0.9000	6,797.628
11884	22	7,259.50	0.8999	6,532.824
11887	22	7,316.63	0.9001	6,585.698
11889	23	7,405.23	0.9000	6,664.707
11890	23	7,426.53	0.9000	6,683.877
11891	21	6,848.23	0.9000	6,163.407
11908	22	7,410.85	0.9159	6,787.597
11913	16	5,687.97	0.9166	5,213.593
11958	20	6,554.35	0.8998	5,897.604
11964	22	7,208.94	0.8999	6,487.325
11965	20	6,501.36	0.8998	5,849.923
11966	13	4,156.68	0.8999	3,740.596
11967	21	6,909.88	0.8999	6,218.201
11969	23	7,529.53	0.8999	6,775.824
11970	22	7,290.65	0.8999	6,560.855
11972	20	6,636.00	0.9000	5,972.400
12209	22	7,137.42	0.9000	6,423.678
12210	22	7,134.32	0.9000	6,420.888
12212	22	7,098.36	0.8999	6,387.814
12213	22	7,165.93	0.8999	6,448.620
12214	24	7,551.78	0.9000	6,796.602
12215	23	7,477.40	0.8999	6,728.912
12217	22	7,271.33	0.8999	6,543.469
12299	20	6,617.50	0.9000	5,955.750
12314	21	6,649.28	0.9001	5,985.016

12370	24	7,905.48	0.8999	7,114.141
12371	23	7,580.08	0.8999	6,821.313
12383	22	7,098.78	0.8999	6,388.192
12386	21	6,909.78	0.9000	6,218.802
12388	23	7,657.51	0.8999	6,890.993
12391	23	7,354.27	0.9000	6,618.843
12392	22	7,042.50	0.9000	6,338.250
12400	15	5,291.03	0.8997	4,760.339
12401	17	5,894.22	0.8999	5,304.208
12417	22	7,186.80	0.8999	6,467.401
12458	17	5,859.60	0.8994	5,270.124
12459	17	5,923.00	0.8994	5,327.146
12460	17	5,715.45	0.8994	5,140.475
12465	21	7,456.29	0.8993	6,705.441
12466	22	7,700.52	0.8993	6,925.077
12467	20	6,973.54	0.8995	6,272.699
12468	20	6,986.60	0.8995	6,284.446
12469	20	6,965.42	0.8994	6,264.698
12470	20	7,044.06	0.8994	6,335.427
12471	20	7,072.60	0.8994	6,361.096
12472	21	7,175.16	0.8995	6,454.056
12480	22	7,833.33	0.9166	7,180.030
12481	22	7,957.87	0.9166	7,294.183
12483	21	7,191.78	0.9166	6,591.985
12484	15	4,827.06	0.9167	4,424.965
12485	21	7,305.35	0.9167	6,696.814
12486	21	7,345.59	0.9166	6,732.967
12487	22	7,677.04	0.9166	7,036.774
12488	21	7,359.43	0.9167	6,746.389
12489	20	7,015.98	0.9165	6,430.145
12490	22	7,828.00	0.8996	7,042.068
12491	22	7,452.58	0.8995	6,703.595
12512	20	7,119.52	0.9000	6,407.568
12513	19	6,740.55	0.8996	6,063.798
12688	13	4,600.00	0.9161	4,214.060
12689	12	4,196.38	0.9163	3,845.142
12701	22	7,205.25	0.8998	6,483.283
12702	21	6,871.27	0.8999	6,183.455
12753	12	4,128.56	0.8998	3,714.878
13025	13	4,553.41	0.8998	4,097.158
13152	13	4,453.19	0.8994	4,005.199
13161	21	7,330.43	0.8995	6,593.721
13162	20	7,017.45	0.8997	6,313.599
13163	20	7,059.53	0.8997	6,351.459

13164	15	4,991.63	0.8997	4,490.969
13186	20	6,943.60	0.8993	6,244.379
13187	20	7,027.13	0.8995	6,320.903
13188	19	6,562.00	0.8995	5,902.519
13189	18	6,441.77	0.8994	5,793.727
13190	17	6,001.78	0.8994	5,398.000
13191	15	4,916.59	0.8995	4,422.472
13211	22	7,247.25	0.8998	6,521.075
13214	22	7,432.90	0.8999	6,688.866
13215	19	6,388.40	0.8998	5,748.282
13216	20	6,405.90	0.8999	5,764.669
13218	23	7,700.82	0.8999	6,929.967
13228	25	8,108.90	0.9002	7,299.631
13359	11	3,902.70	0.8992	3,509.307
13413	19	6,538.13	0.9166	5,992.849
13485	16	5,361.00	0.8998	4,823.827
13543	19	6,647.75	0.8998	5,981.645
13553	20	6,744.60	0.9001	6,070.814
13581	23	7,668.23	0.8998	6,899.873
13582	22	7,235.65	0.8999	6,511.361
13583	17	5,602.80	0.8998	5,041.399
13585	23	7,639.08	0.8999	6,874.408
13586	21	6,488.78	0.8999	5,839.253
13587	24	7,648.35	0.8999	6,882.750
13688	10	3,399.07	0.8997	3,058.143
15262	21	7,267.78	0.9013	6,550.450
15319	18	5,818.48	0.8999	5,236.050
15701	22	7,105.78	0.8999	6,394.491
16057	14	4,875.62	0.9167	4,469.480
16058	15	5,381.45	0.9165	4,932.098
16059	16	5,452.55	0.9166	4,997.807
16106	19	6,729.42	0.9166	6,168.186
16107	19	6,733.70	0.9166	6,172.109
16123	19	6,731.72	0.9165	6,169.621
16124	19	6,783.80	0.9166	6,218.031
16125	19	6,656.50	0.9166	6,101.347
17185	18	6,129.73	0.9024	5,531.468
20209	4	1,420.02	0.9165	1,301.448
22118	15	5,287.85	0.9166	4,846.843
22119	15	5,032.10	0.9166	4,612.422
24357	17	5,770.44	0.9008	5,198.012
24358	16	5,319.77	0.9001	4,788.324
26410	13	4,284.80	0.9166	3,927.447
26479	10	3,594.45	0.9166	3,294.672

27029	10	3,600.58	0.9165	3,299.931
27116	11	3,935.23	0.9166	3,607.031
27286	12	4,330.10	0.9166	3,968.969
27646	23	8,174.97	0.8995	7,353.385
27647	22	7,719.43	0.8995	6,943.627
27651	20	6,992.03	0.8996	6,290.030
27652	20	6,881.45	0.8997	6,191.240
27653	20	6,948.81	0.8998	6,252.539
27654	19	6,496.46	0.8998	5,845.514
27655	20	6,888.35	0.8998	6,198.137
27671	20	7,104.73	0.8997	6,392.125
27672	21	7,468.38	0.8995	6,717.807
27673	19	6,406.93	0.8994	5,762.392
27674	17	5,766.40	0.8995	5,186.876
27675	17	5,852.03	0.8995	5,263.900
27684	17	6,013.58	0.8995	5,409.215
27685	17	5,963.23	0.8997	5,365.118
27691	20	7,102.90	0.8995	6,389.058
27692	20	7,183.70	0.8996	6,462.456
27693	22	7,778.77	0.8994	6,996.225
27707	18	6,464.78	0.9008	5,823.473
27708	17	5,977.05	0.9000	5,379.345
27712	21	7,714.17	0.8995	6,938.895
27713	22	7,971.25	0.8996	7,170.936
27714	22	7,940.45	0.8994	7,141.640
27715	22	7,971.18	0.8995	7,170.076
27716	22	7,973.78	0.8995	7,172.415
27717	22	7,953.42	0.8995	7,154.101
27718	22	7,913.28	0.8995	7,117.995
27719	20	6,757.57	0.8995	6,078.434
27721	21	7,398.37	0.8995	6,654.833
27722	17	5,731.63	0.8994	5,155.028
27723	19	6,508.52	0.8995	5,854.413
27724	19	6,424.07	0.8994	5,777.808
27725	19	6,427.19	0.8999	5,783.828
27727	13	4,477.60	0.9166	4,104.168
27728	22	7,552.10	0.8994	6,792.358
27729	22	7,489.25	0.8994	6,735.831
27730	22	7,438.30	0.8995	6,690.750
27731	20	6,741.20	0.8994	6,063.035
27732	21	7,000.93	0.8995	6,297.336
27733	20	6,691.00	0.8999	6,021.230
27734	20	6,726.86	0.8996	6,051.483
27736	19	5,913.50	0.8995	5,319.193

27746	15	5,374.70	0.8996	4,835.080
27770	20	7,153.20	0.8996	6,435.018
27772	20	7,106.64	0.8998	6,394.554
27888	22	8,015.47	0.9006	7,218.732
27889	21	7,584.79	0.8997	6,824.035
27904	20	6,892.08	0.8998	6,201.493
27905	20	6,942.55	0.8996	6,245.517
27906	20	6,940.11	0.8996	6,243.322
27907	20	6,913.26	0.8997	6,219.860
27908	16	5,263.40	0.8998	4,736.007
27909	19	6,425.40	0.8997	5,780.932
28034	16	6,007.47	0.9166	5,506.447
28036	16	5,775.87	0.9166	5,294.162
28037	21	7,422.73	0.9167	6,804.416
28039	20	7,395.68	0.9166	6,778.880
28040	17	6,072.90	0.9166	5,566.420
28046	22	7,407.62	0.8997	6,664.635
28047	22	7,776.84	0.8996	6,996.045
28049	23	8,098.55	0.8996	7,285.455
28051	22	7,692.87	0.8996	6,920.505
28052	23	7,970.99	0.8998	7,172.296
28109	20	7,105.70	0.8998	6,393.708
28111	21	7,359.27	0.8997	6,621.135
28112	21	7,418.97	0.8998	6,675.589
28113	20	6,939.86	0.8997	6,243.792
28119	22	7,973.46	0.8999	7,175.316
28121	22	8,059.38	0.8998	7,251.830
28123	22	8,058.02	0.9001	7,253.023
28124	21	7,719.98	0.8999	6,947.210
28125	21	7,668.64	0.8999	6,901.009
28126	21	7,685.53	0.8999	6,916.208
28127	19	6,947.03	0.8998	6,250.937
28128	19	6,969.29	0.8999	6,271.664
28129	21	7,325.34	0.8998	6,591.340
28150	17	6,206.00	0.9166	5,688.419
28152	19	6,827.79	0.8995	6,141.597
28153	19	6,729.93	0.8995	6,053.572
28154	18	6,168.91	0.8995	5,548.934
28158	20	7,408.17	0.9166	6,790.328
28160	16	5,860.79	0.9166	5,372.000
28162	18	6,403.00	0.9167	5,869.630
28163	16	5,721.47	0.8993	5,145.317
28164	15	5,205.35	0.9003	4,686.376
28166	20	7,198.15	0.8998	6,476.895

28167	20	7,240.15	0.8997	6,513.962
28169	19	6,531.80	0.8997	5,876.660
28170	19	6,815.62	0.8998	6,132.694
28171	19	6,828.28	0.8998	6,144.086
28172	19	6,976.87	0.9000	6,279.183
28326	22	7,587.90	0.9167	6,955.827
28327	12	4,337.18	0.9160	3,972.856
28328	12	4,051.04	0.9166	3,713.183
28329	19	6,722.65	0.8996	6,047.695
28330	17	5,914.49	0.8999	5,322.449
28331	15	4,905.92	0.9000	4,415.328
28339	19	6,693.19	0.9166	6,134.977
28340	19	6,699.36	0.9166	6,140.633
28341	19	6,624.68	0.9166	6,072.181
28342	19	6,763.85	0.9167	6,200.421
28343	19	6,692.59	0.9167	6,135.097
28344	17	5,796.16	0.9166	5,312.760
28345	22	7,609.85	0.8998	6,847.343
28346	22	7,467.21	0.8995	6,716.755
28347	22	7,468.85	0.8998	6,720.471
28348	22	7,416.30	0.8996	6,671.703
28349	21	6,982.31	0.8997	6,281.984
28350	20	6,749.93	0.8999	6,074.262
28351	17	5,688.63	0.8997	5,118.060
28352	18	5,927.13	0.8997	5,332.638
28368	23	8,155.85	0.8997	7,337.818
28442	15	4,932.09	0.9166	4,520.753
28457	20	7,201.39	0.9166	6,600.794
28458	20	7,178.50	0.9166	6,579.813
28459	20	7,153.50	0.9166	6,556.898
28461	18	6,146.88	0.9166	5,634.230
28465	22	7,682.72	0.9166	7,041.981
28480	20	7,119.99	0.9166	6,526.182
28481	20	7,154.00	0.9166	6,557.356
28482	20	7,150.55	0.9166	6,554.194
28483	20	7,151.56	0.9166	6,555.119
28484	19	6,505.62	0.9166	5,963.051
28485	16	6,006.15	0.9166	5,505.237
28486	16	5,960.10	0.9166	5,463.027
28504	20	7,370.08	0.9166	6,755.415
28505	20	7,371.48	0.9166	6,756.698
28506	20	7,302.35	0.9166	6,693.334
28507	20	7,341.19	0.9166	6,728.934
28508	16	5,720.02	0.9166	5,242.970

28521	20	7,352.19	0.9166	6,739.017
28522	20	7,380.71	0.9166	6,765.158
28523	18	6,257.74	0.9166	5,735.844
28547	18	6,265.42	0.9166	5,742.883
28548	18	6,254.83	0.9166	5,733.177
28549	18	6,449.59	0.9166	5,911.694
28550	18	6,317.79	0.9166	5,790.886
28551	19	6,600.73	0.9167	6,050.889
28558	17	5,757.62	0.9048	5,209.494
28562	19	6,916.65	0.9166	6,339.801
28563	20	7,381.45	0.9167	6,766.575
28564	20	7,395.28	0.9166	6,778.513
28565	18	6,256.40	0.9167	5,735.241
28566	20	7,061.78	0.9166	6,472.827
28567	20	7,056.00	0.9166	6,467.529
28568	20	7,010.38	0.9166	6,425.714
28569	20	7,050.77	0.9166	6,462.735
28570	20	6,832.56	0.9166	6,262.724
28589	21	7,831.30	0.9166	7,178.169
28590	21	7,714.00	0.9166	7,070.652
28591	18	6,465.95	0.9166	5,926.689
28592	16	5,845.53	0.9166	5,358.012
28593	16	5,833.25	0.9166	5,346.756
28594	16	5,732.41	0.9166	5,254.327
28595	24	8,911.35	0.9167	8,169.034
28596	23	8,529.80	0.9166	7,818.414
28597	23	8,557.20	0.9166	7,843.529
28598	22	8,018.53	0.9167	7,350.586
28599	23	8,521.98	0.9166	7,811.246
28600	23	8,473.48	0.9166	7,766.791
28602	15	4,864.82	0.9166	4,459.094
28775	19	6,603.74	0.9166	6,052.988
28776	19	6,827.39	0.9166	6,257.985
28777	17	5,406.83	0.9166	4,955.900
28796	20	7,037.33	0.9162	6,447.601
28797	20	7,047.81	0.9161	6,456.498
28798	20	6,983.00	0.9161	6,397.126
28799	20	6,666.08	0.9160	6,106.129
28803	21	7,245.73	0.9078	6,577.673
28804	23	7,938.05	0.9166	7,276.016
28912	21	7,751.13	0.9166	7,104.685
28913	20	7,540.60	0.9166	6,911.713
28914	21	7,853.67	0.9166	7,198.673
28915	21	7,761.05	0.9164	7,112.226

28916	21	7,538.04	0.9162	6,906.352
28950	13	4,547.85	0.9166	4,168.559
28951	13	4,543.35	0.9165	4,163.980
29104	16	5,395.35	0.9166	4,945.377
29105	15	4,933.05	0.9165	4,521.140
29121	22	7,898.21	0.9165	7,238.709
29191	14	5,148.72	0.9166	4,719.316
29310	13	4,791.30	0.9166	4,391.705
29311	13	4,624.90	0.9166	4,239.183
29313	15	5,418.20	0.9164	4,965.238
29314	15	5,313.35	0.9165	4,869.685
29315	21	7,195.95	0.9070	6,526.726
29316	20	6,802.43	0.9025	6,139.193
29521	11	3,589.65	0.9166	3,290.273
29527	13	4,533.80	0.9121	4,135.278
29643	11	3,576.80	0.9163	3,277.421
29866	13	4,362.45	0.9159	3,995.567
29867	15	5,027.62	0.9167	4,608.819
29899	12	4,225.16	0.9166	3,872.781
29900	12	4,294.08	0.9166	3,935.953
30104	20	7,132.09	0.9161	6,533.707
30105	21	7,302.22	0.9162	6,690.293
30124	13	4,506.01	0.9164	4,129.307
30195	22	7,744.55	0.9167	7,099.428
30276	21	7,189.00	0.9164	6,587.999
30288	21	7,630.05	0.9166	6,993.703
30292	15	5,140.94	0.9165	4,711.671
30299	13	4,482.00	0.9165	4,107.753
30337	11	3,861.40	0.9164	3,538.586
30353	20	7,094.68	0.9164	6,501.564
30354	21	7,307.37	0.9166	6,697.935
30735	12	4,034.10	0.9166	3,697.656
30744	13	4,560.60	0.9159	4,177.053
30834	23	8,195.59	0.9141	7,491.588
30835	23	7,956.74	0.9163	7,290.760
30836	23	8,170.29	0.9157	7,481.534
30838	18	6,359.32	0.9162	5,826.408
30897	12	4,493.64	0.9166	4,118.870
30898	13	4,539.47	0.9166	4,160.878
30909	20	7,000.75	0.9154	6,408.486
31011	15	5,348.45	0.9166	4,902.389
31016	19	6,594.17	0.9166	6,044.216
31022	11	4,036.70	0.9166	3,700.039
31066	14	4,931.95	0.9166	4,520.625

31103	18	6,544.50	0.9166	5,998.688
31104	17	6,248.76	0.9166	5,727.613
31105	17	6,249.88	0.9166	5,728.640
31106	19	6,872.13	0.9166	6,298.994
31243	16	5,640.65	0.9160	5,166.835
31343	16	5,613.86	0.9165	5,145.102
31356	10	3,583.60	0.9165	3,284.369
31375	18	6,284.48	0.9166	5,760.354
31388	23	8,098.04	0.9165	7,421.853
31671	14	4,895.70	0.8999	4,405.640
31750	16	5,606.67	0.9166	5,139.073
31868	23	8,372.95	0.9166	7,674.645
31869	21	7,388.78	0.9166	6,772.555
31870	22	7,859.90	0.9114	7,163.512
31936	23	8,166.13	0.8994	7,344.617
31937	22	7,756.75	0.8994	6,976.420
31938	21	7,556.15	0.8996	6,797.512
31939	23	8,258.26	0.8996	7,429.130
31940	24	8,322.73	0.8995	7,486.295
32037	14	4,988.82	0.9000	4,489.938
32038	15	5,154.53	0.9001	4,639.592
32041	14	4,903.13	0.8997	4,411.346
32099	13	4,531.14	0.8994	4,075.307
32338	20	7,086.12	0.9166	6,495.137
32339	18	6,407.17	0.9166	5,872.812
32340	19	6,732.37	0.9166	6,170.890
32341	16	5,545.09	0.9166	5,082.629
32342	16	5,571.25	0.8997	5,012.453
32343	18	6,183.34	0.8997	5,563.150
32357	21	7,733.44	0.8996	6,957.002
32358	21	7,685.68	0.8995	6,913.269
32359	21	7,658.46	0.8996	6,889.550
32360	21	7,557.38	0.8995	6,797.863
32361	22	7,876.74	0.8994	7,084.339
32362	21	7,642.28	0.8995	6,874.230
32363	21	7,678.48	0.8995	6,906.792
32364	21	7,619.87	0.8996	6,854.835
32365	20	7,239.27	0.8995	6,511.723
32366	21	7,427.06	0.8995	6,680.640
32367	21	7,517.33	0.8995	6,761.838
32368	21	7,410.72	0.8995	6,665.942
32374	17	6,200.91	0.9165	5,683.134
32383	12	4,253.20	0.9166	3,898.483
32384	12	4,259.46	0.9166	3,904.221

32385	22	7,940.55	0.8995	7,142.524
32386	22	8,091.90	0.8995	7,278.664
32387	22	8,040.43	0.8993	7,230.758
32388	21	7,696.32	0.8994	6,922.070
32389	21	7,670.39	0.8994	6,898.748
32390	21	7,424.60	0.8995	6,678.427
32391	21	7,726.34	0.8995	6,949.842
32392	21	7,367.85	0.8995	6,627.381
32558	22	7,989.21	0.8993	7,184.696
32559	20	7,331.50	0.8992	6,592.484
32560	20	7,296.97	0.8992	6,561.435
32562	21	7,650.07	0.8994	6,880.472
32563	20	7,386.07	0.8993	6,642.292
32564	21	7,505.48	0.8993	6,749.678
32565	21	7,699.10	0.8993	6,923.800
32566	21	7,767.47	0.8993	6,985.285
32569	20	7,004.65	0.8994	6,299.982
32570	23	8,508.51	0.9166	7,798.900
32637	21	7,306.81	0.9002	6,577.590
32638	22	7,760.90	0.9001	6,985.586
32641	22	7,781.07	0.9000	7,002.963
32642	20	6,744.11	0.9000	6,069.699
32643	23	8,094.39	0.9000	7,284.951
32644	21	7,357.94	0.8999	6,621.410
32726	22	7,776.95	0.8996	6,996.144
32727	22	8,090.10	0.8997	7,278.662
32729	22	7,445.75	0.8997	6,698.941
32730	21	7,368.20	0.8996	6,628.432
32731	21	7,394.15	0.8995	6,651.037
32732	22	7,685.83	0.9006	6,921.858
33005	11	3,654.20	0.8995	3,286.952
33709	12	4,034.52	0.9165	3,697.637
33820	12	3,956.44	0.8994	3,558.422
34235	21	7,048.25	0.8993	6,338.491
34622	22	7,796.69	0.8994	7,012.342
34623	22	7,610.98	0.8993	6,844.554
34624	22	7,644.51	0.8994	6,875.472
34625	22	7,728.70	0.8995	6,951.965
34626	22	7,727.53	0.8995	6,950.913
34627	22	7,632.15	0.8995	6,865.118
34628	22	7,703.32	0.8995	6,929.136
34629	23	7,930.54	0.8994	7,132.727
34630	23	8,029.07	0.8994	7,221.345
34631	23	7,953.72	0.8994	7,153.575

34632	22	7,580.29	0.8994	6,817.712
34633	23	7,951.18	0.8995	7,152.086
34634	23	8,059.35	0.8995	7,249.385
34635	25	8,198.69	0.8995	7,374.721
34735	21	7,553.10	0.8997	6,795.524
34736	19	6,664.63	0.8997	5,996.167
34737	19	6,160.27	0.8997	5,542.394
34738	20	6,993.50	0.9160	6,406.046
34739	21	7,302.14	0.9159	6,688.030
34740	20	7,150.95	0.9160	6,550.270
35170	20	6,873.70	0.8997	6,184.267
35276	19	6,820.84	0.8994	6,134.663
35292	19	6,491.22	0.9166	5,949.852
35295	17	5,817.51	0.9166	5,332.329
35309	19	6,443.80	0.8993	5,794.909
35310	17	5,743.52	0.8993	5,165.147
35311	17	5,640.38	0.8994	5,072.957
35314	22	7,433.26	0.8994	6,685.474
35317	24	8,364.78	0.8992	7,521.610
35321	21	7,257.20	0.8995	6,527.851
35322	22	7,565.40	0.8994	6,804.320
35323	22	7,613.23	0.8994	6,847.339
35324	21	7,119.68	0.8995	6,404.152
35325	21	7,432.59	0.8994	6,684.871
35326	21	7,127.45	0.8994	6,410.428
35375	14	4,883.11	0.9166	4,475.858
35726	16	5,561.33	0.8994	5,001.860
35727	17	6,106.74	0.8997	5,494.233
35728	17	5,831.76	0.8997	5,246.834
35750	17	6,117.93	0.9157	5,602.188
35751	16	5,747.38	0.9157	5,262.875
35752	15	5,319.05	0.9159	4,871.717
35764	21	7,540.93	0.9166	6,912.016
35765	21	7,566.40	0.9166	6,935.362
35766	19	6,706.08	0.9166	6,146.792
35775	17	6,156.62	0.9166	5,643.157
35777	21	7,485.02	0.8993	6,731.278
35809	19	6,922.39	0.9166	6,345.062
35810	19	6,872.90	0.9166	6,299.700
35811	19	6,913.85	0.9166	6,337.234
35812	19	6,790.55	0.9165	6,223.539
35813	18	6,354.28	0.9166	5,824.333
36194	20	6,581.25	0.8996	5,920.492
36198	14	4,484.27	0.9166	4,110.281

36301	22	7,868.98	0.9166	7,212.707
36302	22	7,909.04	0.9165	7,248.635
36303	21	7,326.75	0.9166	6,715.699
36316	19	6,827.10	0.9166	6,257.719
36317	19	6,930.47	0.9166	6,352.468
36318	19	6,766.11	0.9166	6,201.816
36319	19	6,400.75	0.9166	5,866.927
36320	17	6,039.97	0.9166	5,536.236
36321	17	5,879.85	0.9166	5,389.470
36327	24	8,382.75	0.8995	7,540.283
36426	25	8,853.78	0.8994	7,963.089
36452	22	7,973.43	0.9163	7,306.053
36465	19	6,869.03	0.9166	6,296.152
36466	20	6,924.82	0.9166	6,347.290
36472	16	5,649.15	0.9037	5,105.136
36473	15	5,146.15	0.9025	4,644.400
36724	20	6,885.69	0.9122	6,281.126
36725	19	6,788.70	0.9166	6,222.522
36726	17	6,046.17	0.9166	5,541.919
36727	16	5,648.13	0.9165	5,176.511
36728	16	5,356.30	0.9165	4,909.048
36746	15	5,133.88	0.9166	4,705.714
36755	19	6,812.42	0.9165	6,243.582
36756	19	7,081.10	0.9165	6,489.828
36757	19	6,806.90	0.9166	6,239.204
37296	11	4,027.32	0.9165	3,691.038
37529	15	5,215.56	0.9166	4,780.582
43355	18	6,450.45	0.9166	5,912.482
43356	18	6,136.96	0.9167	5,625.751
44943	17	6,002.48	0.9165	5,501.272
44944	20	7,179.59	0.9166	6,580.812
44945	19	6,863.92	0.9166	6,291.469
44946	19	6,799.65	0.9166	6,232.559
44947	19	6,842.42	0.9166	6,271.762
44948	19	6,758.87	0.9166	6,195.180
44949	14	4,757.48	0.9165	4,360.230
44950	20	7,112.35	0.9166	6,519.180
44951	20	7,160.58	0.9165	6,562.671
44952	16	5,681.35	0.9164	5,206.389
44957	19	6,942.70	0.9057	6,288.003
45244	18	6,454.20	0.9164	5,914.628
45245	15	5,423.40	0.9163	4,969.461
45246	15	5,201.09	0.9162	4,765.238
45257	13	4,513.23	0.9163	4,135.472

45258	12	4,270.60	0.9164	3,913.577
45277	21	7,676.96	0.9165	7,035.933
45278	21	7,674.42	0.9166	7,034.373
45279	20	7,204.78	0.9166	6,603.901
45280	16	5,751.78	0.9166	5,272.081
45281	15	5,428.43	0.9166	4,975.698
45282	14	5,043.50	0.9166	4,622.872
45283	16	5,411.45	0.9167	4,960.676
45306	21	7,467.89	0.9166	6,845.067
45307	21	7,504.54	0.9166	6,878.661
45308	21	7,607.08	0.9166	6,972.649
45309	21	7,453.32	0.9166	6,831.713
45310	20	7,094.76	0.9165	6,502.347
45311	20	6,733.36	0.9164	6,170.451
45312	19	6,774.97	0.9165	6,209.260
45317	17	5,801.12	0.9058	5,254.654
45387	21	7,329.00	0.9021	6,611.490
45388	20	7,142.07	0.9016	6,439.290
45391	18	6,393.88	0.9150	5,850.400
45392	19	6,810.44	0.9144	6,227.466
45393	19	6,641.02	0.9164	6,085.830
47024	19	6,717.80	0.8997	6,044.004
47025	21	7,433.08	0.8995	6,686.055
47028	21	7,431.29	0.8996	6,685.188
47029	20	7,029.58	0.8997	6,324.513
47420	17	6,076.98	0.9166	5,570.159
47421	14	5,067.03	0.9166	4,644.439
47422	24	8,200.88	0.8995	7,376.691
47734	21	7,627.20	0.9166	6,991.091
47740	20	7,266.60	0.9158	6,654.752
47741	17	5,722.03	0.9166	5,244.812
47742	17	6,205.35	0.9167	5,688.444
47743	18	6,355.93	0.9166	5,825.845
47744	14	4,824.65	0.9009	4,346.527
47745	14	4,853.60	0.9012	4,374.064
47984	20	6,882.97	0.8999	6,193.984
D 068	20	7,273.72	0.9154	6,658.363
D 069	21	7,729.85	0.9165	7,084.407
D 070	21	7,692.03	0.9127	7,020.515
D 071	21	7,732.11	0.9164	7,085.705
D 072	20	7,363.34	0.9137	6,727.883
D 073	22	8,106.84	0.9165	7,429.918
D 074	20	7,268.47	0.9149	6,649.923
D 075	22	8,126.40	0.9164	7,447.032

D 501	22	7,684.42	0.8999	6,915.209
D 502	20	7,278.96	0.8996	6,548.152
D 503	22	8,045.67	0.8995	7,237.080
D 504	21	7,555.14	0.8994	6,795.092
D 505	22	7,918.21	0.8996	7,123.221
D 506	23	8,371.19	0.9002	7,535.745
D 507	21	7,442.27	0.8995	6,694.321
D 508	22	7,801.23	0.8994	7,016.426
D 509	22	7,819.15	0.8994	7,032.543
D 510	21	7,455.70	0.8994	6,705.656
D 511	21	7,781.83	0.9156	7,125.043
D 512	21	7,761.80	0.9165	7,113.689
D 513	22	8,225.00	0.9166	7,539.035
D 514	21	7,819.46	0.9166	7,167.317
D 515	22	8,295.56	0.9165	7,602.880
D 516	22	8,265.45	0.9166	7,576.111
D 517	21	7,903.64	0.9166	7,244.476
D 519	21	7,756.25	0.9166	7,109.378
D 520	21	7,880.32	0.9165	7,222.313
D 521	22	8,151.04	0.9165	7,470.428
D 522	22	8,253.88	0.9166	7,565.506
D 523	22	8,185.32	0.9165	7,501.845
D 524	21	7,828.16	0.9165	7,174.508
D 525	22	8,241.26	0.9166	7,553.938
D 582	23	8,345.77	0.8997	7,508.689
D 585	23	8,080.76	0.8995	7,268.643
D 706	22	7,901.82	0.9071	7,167.740
D 707	22	8,066.70	0.9164	7,392.323
D 708	22	7,858.68	0.9166	7,203.266
D 709	22	7,953.11	0.9166	7,289.820
D 710	22	8,037.70	0.9166	7,367.355
D 711	21	7,866.97	0.9166	7,210.864
D 813	24	8,341.57	0.9165	7,645.048
D 814	23	7,965.77	0.9055	7,213.004
F1757	23	7,887.05	0.8998	7,096.767
F1798	23	8,088.24	0.8999	7,278.607
F1799	24	8,388.33	0.8999	7,548.658
F1803	23	8,038.29	0.8998	7,232.853
F1804	23	7,995.56	0.9000	7,196.004
F1805	23	8,127.41	0.8998	7,313.043
F1806	23	8,386.10	0.8999	7,546.651
F1807	23	8,305.06	0.8998	7,472.892
F1809	23	8,278.26	0.8998	7,448.778
F1810	23	8,260.00	0.8999	7,433.174

F1811	23	8,144.60	0.8999	7,329.325
F1812	23	8,204.76	0.8998	7,382.643
F1813	23	8,213.76	0.8998	7,390.741
F1814	21	7,477.36	0.8998	6,728.128
F1815	23	8,301.19	0.9000	7,471.071
F1817	23	7,822.73	0.8999	7,039.674
F1818	23	8,189.12	0.8998	7,368.570
F1819	23	8,196.70	0.8998	7,375.390
F1820	21	7,434.60	0.8998	6,689.653
F1821	23	8,317.00	0.8999	7,484.468
F1822	23	8,201.45	0.8998	7,379.664
F1823	23	7,972.28	0.8998	7,173.457
F1824	23	8,145.88	0.8998	7,329.662
F1825	23	8,330.15	0.8998	7,495.468
F1826	23	8,268.87	0.8999	7,441.156
F1827	23	8,281.67	0.8999	7,452.674
F2042	23	8,373.93	0.8999	7,535.699
F2043	23	8,359.09	0.8998	7,521.509
F2044	23	8,419.08	0.8999	7,576.330
F2045	18	6,492.81	0.9000	5,843.529
F2047	23	8,297.48	0.8999	7,466.902
F2048	23	8,261.43	0.8999	7,434.460
F2049	23	8,241.06	0.9000	7,416.954
F2050	23	8,350.98	0.8999	7,515.046
F2051	19	6,891.30	0.8999	6,201.480
F2052	23	8,185.16	0.8999	7,365.825
F2053	23	8,305.20	0.8998	7,473.018
F2054	23	8,268.25	0.8999	7,440.598
F2055	23	8,219.00	0.8999	7,396.278
F2056	23	8,453.20	0.8999	7,607.034
F2057	20	6,879.66	0.8999	6,191.006
F2058	23	8,067.18	0.8999	7,259.655
F2059	23	8,111.27	0.8998	7,298.520
F2060	23	8,094.51	0.8998	7,283.440
F2061	23	8,182.70	0.8999	7,363.611
F2062	22	7,792.05	0.8998	7,011.286
F2063	23	8,074.40	0.8998	7,265.345
F2065	23	8,144.02	0.8998	7,327.989
F2067	23	8,137.66	0.8998	7,322.266
F2068	23	8,012.57	0.9000	7,211.313
F2069	22	7,702.63	0.8999	6,931.596
F2070	23	8,246.74	0.8998	7,420.416
F2071	22	7,889.81	0.8999	7,100.040
F2072	23	8,282.55	0.8998	7,452.638

F2073	23	8,215.78	0.8998	7,392.558
F2074	24	8,325.03	0.9000	7,492.527
F2075	21	7,365.92	0.9000	6,629.328
F2076	22	7,869.20	0.8998	7,080.706
F2077	23	8,281.03	0.8999	7,452.098
F2078	23	7,899.54	0.8998	7,108.006
F2079	23	8,416.85	0.8998	7,573.481
F2080	23	8,104.98	0.9000	7,294.482
F2081	22	7,745.50	0.8999	6,970.175
F2082	23	8,280.35	0.8998	7,450.658
F2084	23	8,334.58	0.8998	7,499.455
F2085	24	8,628.13	0.8999	7,764.454
F2086	24	8,460.00	0.8998	7,612.308
F2087	18	6,310.23	0.8998	5,677.944
F2088	23	8,318.45	0.8998	7,484.941
F2089	23	8,312.78	0.8998	7,479.839
F2090	23	8,340.53	0.8999	7,505.642
F2091	23	8,438.44	0.8998	7,592.908
F2092	23	8,129.17	0.8998	7,314.627
F2094	23	8,342.97	0.8998	7,507.004
F2095	23	8,354.65	0.8998	7,517.514
F2096	23	8,447.81	0.8999	7,602.184
F2098	23	8,370.28	0.8998	7,531.577
F2099	19	6,829.45	0.8998	6,145.139
F2100	23	8,244.59	0.8999	7,419.306
F2101	23	8,279.04	0.8999	7,450.308
F2102	23	8,314.50	0.8998	7,481.387
F2103	23	8,355.24	0.8998	7,518.044
F2104	23	8,207.45	0.8999	7,385.884
F2105	20	6,916.30	0.8998	6,223.286
F2106	23	8,121.95	0.8998	7,308.130
F2107	23	8,237.49	0.8998	7,412.093
F2108	24	8,250.65	0.8999	7,424.759
F2109	23	8,238.67	0.8999	7,413.979
F2110	23	8,283.60	0.8999	7,454.411
F2111	21	7,187.78	0.8999	6,468.283
F2112	23	8,387.56	0.8998	7,547.126
F2113	23	8,318.20	0.8997	7,483.884
F2114	23	8,231.03	0.8998	7,406.280
F2116	22	7,938.63	0.8998	7,143.179
F2117	21	7,222.53	0.8999	6,499.554
F2118	23	8,427.10	0.8999	7,583.547
F2119	23	8,406.89	0.8999	7,565.360
F2120	23	8,395.59	0.8999	7,555.191

F2121	23	8,319.78	0.8998	7,486.138
F2122	23	8,453.94	0.8999	7,607.700
F2123	18	6,319.40	0.8998	5,686.196
F2124	23	8,172.50	0.9000	7,355.250
F2125	23	8,261.10	0.8999	7,434.163
F2126	24	8,723.47	0.8999	7,850.250
F2127	23	8,318.15	0.8999	7,485.503
F2128	23	8,263.41	0.8999	7,436.242
F2129	19	6,589.00	0.8999	5,929.441
F2130	23	8,175.27	0.8999	7,356.925
F2131	23	8,250.28	0.8999	7,424.426
F2132	23	8,149.65	0.8998	7,333.055
F2133	23	8,425.72	0.8999	7,582.305
F2134	23	8,432.45	0.8999	7,588.361
F2135	21	6,913.72	0.8998	6,220.965
F2136	23	8,086.07	0.8999	7,276.654
F2137	23	8,094.13	0.8998	7,283.098
F2138	22	7,724.67	0.8998	6,950.658
F2139	23	8,138.51	0.8998	7,323.031
F2140	23	8,260.67	0.8998	7,432.950
F2141	23	8,022.87	0.8998	7,218.978
F2142	23	8,272.21	0.8999	7,444.161
F2143	23	8,270.72	0.8998	7,441.993
F2144	23	8,042.73	0.8997	7,236.044
F2145	23	8,149.90	0.8998	7,333.280
F2146	23	8,135.71	0.8998	7,320.511
F2147	22	7,464.80	0.8999	6,717.573
F2148	23	8,447.11	0.8999	7,601.554
F2149	22	8,094.63	0.8999	7,284.357
F2150	23	8,454.25	0.8998	7,607.134
F2151	23	8,351.10	0.8998	7,514.319
F2153	19	6,720.34	0.8998	6,046.961
F2154	23	8,229.94	0.8999	7,406.123
F2155	23	8,329.57	0.8998	7,494.947
F2156	23	8,270.93	0.8998	7,442.182
F2157	23	8,317.97	0.8998	7,484.509
F2159	20	6,851.41	0.8999	6,165.583
F2160	23	8,243.28	0.8999	7,418.127
F2161	23	8,150.53	0.9000	7,335.477
F2162	23	8,230.90	0.9000	7,407.810
F2163	23	8,149.54	0.9000	7,334.586
F2164	23	8,208.31	0.8999	7,386.658
F2165	21	7,329.31	0.8999	6,595.646
F2166	23	8,108.87	0.8998	7,296.361

F2167	23	8,325.51	0.8998	7,491.293
F2168	22	7,726.12	0.8998	6,951.962
F2169	23	8,255.40	0.8998	7,428.208
F2170	23	8,318.45	0.8999	7,485.773
F2171	22	7,579.15	0.8998	6,819.719
F2172	23	8,160.05	0.8998	7,342.412
F2173	22	7,797.00	0.8998	7,015.740
F2174	23	8,214.68	0.8998	7,391.569
F2176	23	8,198.86	0.8998	7,377.334
F2177	22	7,759.17	0.8998	6,981.701
F2178	23	8,470.99	0.8997	7,621.349
F2179	23	8,370.87	0.8998	7,532.108
F2180	23	8,377.05	0.8998	7,537.669
F2181	23	8,347.84	0.8999	7,512.221
F2182	23	8,356.74	0.8998	7,519.394
F2183	18	6,365.50	0.8998	5,727.676
F2184	22	7,908.17	0.8998	7,115.771
F2185	23	8,245.30	0.8998	7,419.120
F2186	23	8,251.24	0.8998	7,424.465
F2187	23	8,182.82	0.8999	7,363.719
F2188	23	8,181.69	0.8999	7,362.702
F2189	22	7,538.85	0.8998	6,783.457
F2190	23	8,276.49	0.8998	7,447.185
F2327	24	8,933.85	0.9166	8,188.766
F2328	21	7,632.14	0.9166	6,995.619
F2361	18	6,173.56	0.8998	5,554.969
F2362	18	6,282.72	0.8999	5,653.819
T 048	21	6,833.30	0.9029	6,169.786
T 057	20	6,727.12	0.9018	6,066.516
T 059	20	6,348.02	0.9141	5,802.725
T 105	16	5,703.15	0.9143	5,214.390
T 116	16	5,686.30	0.9076	5,160.885
T 159	6	2,119.17	0.9167	1,942.643
T 178	13	4,486.30	0.9089	4,077.598
T 193	21	6,803.05	0.9055	6,160.161
08712	25	8,043.45	0.9003	7,241.518
F1277	23	8,330.58	0.8998	7,495.856
F1187	23	8,203.38	0.8998	7,381.401
F1163	23	8,162.97	0.8998	7,345.040
F1617	16	5,545.16	0.8998	4,989.535
09727	23	7,390.01	0.8999	6,650.270
F1567	23	8,074.12	0.8999	7,265.901
07733	22	7,824.11	0.8995	7,037.787
26666	16	5,330.39	0.9008	4,801.615

26402	22	7,915.98	0.9001	7,125.174
F1727	23	7,767.49	0.8997	6,988.411
F1668	23	7,949.15	0.8998	7,152.645
12548	22	7,724.69	0.9162	7,077.361
F1773	23	8,340.64	0.8998	7,504.908
09354	20	7,209.65	0.8996	6,485.801
08420	20	7,139.81	0.8998	6,424.401
F 378	23	8,190.63	0.8998	7,369.929
08033	19	6,569.79	0.8995	5,909.526
F 736	23	8,177.78	0.8998	7,358.366
17329	20	7,121.79	0.8996	6,406.762
F 437	24	8,466.32	0.8999	7,618.841
10108	20	7,008.71	0.8996	6,305.035
08469	24	8,218.11	0.9003	7,400.408
08198	22	7,112.58	0.9000	6,401.322
F1326	23	8,513.02	0.8999	7,660.867
F1006	22	7,719.47	0.8998	6,945.979
08371	17	5,347.52	0.9000	4,812.768
10608	20	6,670.72	0.9000	6,003.648
14859	7	2,028.65	0.9000	1,825.785
14355	20	6,939.09	0.8998	6,243.793
14029	19	6,548.97	0.8999	5,893.418
F 811	22	7,958.91	0.8999	7,162.223
00161	14	4,198.83	0.9001	3,779.367
15705	13	4,080.59	0.9000	3,672.531
14140	21	7,139.13	0.8995	6,421.647
12987	20	7,288.12	0.8998	6,557.850
F 957	23	8,049.35	0.8998	7,242.805
F 868	23	8,108.22	0.8999	7,296.587
F 909	23	8,352.29	0.8998	7,515.390
F1002	23	8,451.30	0.8999	7,605.325
15741	21	7,175.95	0.8996	6,455.484
27046	22	7,611.19	0.8997	6,847.787
14050	20	6,752.08	0.8993	6,072.145
F1408	23	8,558.12	0.8997	7,699.740
27303	20	7,273.54	0.8993	6,541.094
16398	20	7,051.08	0.8998	6,344.562
16985	19	6,780.12	0.9166	6,214.658
F1495	23	8,053.69	0.8998	7,246.710
F1056	23	8,282.88	0.8998	7,452.935
F1391	23	8,103.82	0.8998	7,291.817
F1454	23	8,345.36	0.8998	7,509.155
08710	16	5,289.30	0.9002	4,761.428
01487	21	6,884.70	0.9004	6,198.984

01485	24	7,909.25	0.9007	7,123.861
F1175	23	8,489.87	0.8999	7,640.034
F1174	23	8,591.47	0.8997	7,729.746
F1173	22	8,145.60	0.8998	7,329.411
F1176	17	5,866.13	0.8998	5,278.344
F1177	23	8,532.17	0.8999	7,678.100
F1178	23	8,435.33	0.8998	7,590.110
F1179	23	8,458.20	0.8998	7,610.688
F1180	23	8,424.10	0.8998	7,580.005
F1191	22	7,629.21	0.8998	6,864.763
F1192	23	8,349.40	0.8998	7,512.790
F1193	23	8,208.00	0.8998	7,385.558
F1194	23	8,302.63	0.8998	7,470.706
F1195	23	8,418.17	0.8999	7,575.511
F1196	20	6,965.87	0.8998	6,267.890
F1197	23	8,180.61	0.8998	7,360.913
F1198	23	8,273.70	0.8998	7,444.675
F1199	23	8,187.42	0.8998	7,367.041
F1200	23	8,176.90	0.9000	7,359.210
F1181	23	8,586.25	0.8999	7,726.766
F1182	23	8,170.82	0.8998	7,352.104
F1183	23	8,253.16	0.8997	7,425.368
F1184	20	7,087.80	0.8999	6,378.311
F1185	23	8,256.85	0.9000	7,431.165
F1186	23	8,339.62	0.8998	7,503.990
F1139	21	7,589.75	0.8999	6,830.016
F1140	18	6,234.17	0.8999	5,610.130
F1141	23	8,424.02	0.8999	7,580.776
F1142	23	8,328.93	0.8997	7,493.538
F1143	23	8,405.48	0.8999	7,564.091
F1144	23	8,464.22	0.8999	7,616.952
F1145	23	8,466.16	0.8999	7,618.697
F1146	16	5,441.19	0.8998	4,895.983
F1147	23	8,319.10	0.8998	7,485.526
F1148	24	8,982.34	0.8999	8,083.208
F1149	23	8,560.83	0.8999	7,703.891
F1150	23	8,506.87	0.8998	7,654.482
F1154	23	7,970.63	0.8999	7,172.770
F1152	23	8,176.63	0.8999	7,358.149
F1153	22	7,714.47	0.8998	6,941.480
F1155	23	8,141.77	0.8998	7,325.965
F1156	23	8,126.27	0.8999	7,312.830
F1157	23	8,199.80	0.8999	7,379.000
F1158	23	8,164.38	0.8998	7,346.309

F1159	23	8,288.58	0.8998	7,458.064
F1160	21	7,362.60	0.8999	6,625.604
F1161	23	8,250.05	0.8999	7,424.220
F1162	23	8,091.66	0.8998	7,280.876
F1164	23	8,053.77	0.8998	7,246.782
F1165	23	8,041.93	0.8997	7,235.324
F1166	23	8,076.93	0.8998	7,267.622
F1167	23	8,198.99	0.8999	7,378.271
F1168	23	8,340.12	0.8998	7,504.440
F1169	22	7,626.30	0.8999	6,862.907
F1170	18	6,138.50	0.8998	5,523.422
F1171	23	8,404.05	0.8998	7,561.964
F1172	23	8,531.19	0.8998	7,676.365
F1244	23	8,112.65	0.8999	7,300.574
F1245	23	8,303.37	0.8998	7,471.372
F1246	22	7,745.63	0.8999	6,970.292
F1247	23	8,120.78	0.8998	7,307.078
F1248	23	8,165.87	0.9000	7,349.283
F1249	22	7,869.78	0.8997	7,080.441
F1250	23	8,430.93	0.8998	7,586.151
F1251	23	8,410.35	0.8999	7,568.474
F1252	23	8,282.29	0.8998	7,452.405
F1253	23	8,459.32	0.8998	7,611.696
F1254	22	8,003.45	0.8998	7,201.504
F1255	19	6,731.60	0.8999	6,057.767
F1256	23	8,512.95	0.8999	7,660.804
F1257	23	8,510.29	0.8998	7,657.559
F1209	24	8,199.58	0.8998	7,377.982
F1258	23	8,493.55	0.8998	7,642.496
F1259	23	8,468.99	0.8998	7,620.397
F1260	23	8,510.69	0.9000	7,659.621
F1261	16	5,814.32	0.8999	5,232.307
F1262	23	8,558.66	0.8999	7,701.938
F1263	23	8,582.77	0.8999	7,723.635
F1264	23	8,567.70	0.9000	7,710.930
F1265	23	8,595.55	0.8998	7,734.276
F1266	22	7,978.98	0.8998	7,179.486
F1267	17	6,028.07	0.8999	5,424.660
F1188	23	8,393.88	0.8999	7,553.653
F1189	23	8,369.34	0.8998	7,530.732
F1190	21	7,371.85	0.8997	6,632.453
F1201	23	8,124.87	0.8999	7,311.571
F1202	23	7,956.75	0.8999	7,160.279
F1203	23	8,188.98	0.8999	7,369.263

F1204	23	8,159.80	0.8999	7,343.004
F1205	22	7,714.32	0.8998	6,941.345
F1206	23	7,950.60	0.8998	7,153.950
F1207	23	7,841.63	0.8998	7,055.899
F1208	25	8,372.75	0.8998	7,533.800
F1210	23	8,170.14	0.8999	7,352.309
F1211	22	7,778.32	0.8999	6,999.710
F1212	23	8,249.85	0.8998	7,423.215
F1213	23	8,235.20	0.8998	7,410.033
F1214	22	7,674.70	0.9000	6,907.230
F1215	23	8,019.98	0.9000	7,217.982
F1216	24	8,495.24	0.9000	7,645.716
F1217	22	7,643.52	0.8997	6,876.875
F1218	23	8,441.43	0.8998	7,595.599
F1219	24	8,693.22	0.8998	7,822.159
F1220	23	8,378.80	0.8998	7,539.244
F1221	23	8,325.07	0.8998	7,490.898
F1222	23	8,365.33	0.8998	7,527.124
F1223	18	6,111.90	0.8997	5,498.876
F1224	23	8,508.17	0.8998	7,655.651
F1225	24	8,631.80	0.8998	7,766.894
F1229	17	5,923.25	0.8999	5,330.333
F1230	23	8,396.50	0.8999	7,556.010
F1231	22	7,705.35	0.8999	6,934.044
F1232	23	8,162.73	0.8998	7,344.824
F1233	23	8,195.48	0.8998	7,374.293
F1226	23	8,384.30	0.8998	7,544.193
F1227	23	8,508.30	0.8999	7,656.619
F1228	23	8,357.53	0.9000	7,521.777
F1235	23	8,121.60	0.8998	7,307.816
F1236	23	8,307.45	0.8999	7,475.874
F1237	22	7,374.28	0.8998	6,635.377
F1238	23	8,044.20	0.8998	7,238.171
F1239	23	8,287.25	0.8998	7,456.868
F1240	23	8,168.97	0.8999	7,351.256
F1241	23	8,163.42	0.9000	7,347.078
F1242	23	7,972.75	0.8998	7,173.880
F1243	22	7,682.95	0.8998	6,913.118
F1268	23	8,432.12	0.8998	7,587.222
F1269	23	8,549.58	0.8999	7,693.767
F1270	23	8,398.40	0.8998	7,556.880
F1271	22	7,928.57	0.8999	7,134.920
F1272	23	8,561.60	0.8999	7,704.584
F1273	18	6,442.30	0.8999	5,797.426

F1274	23	8,041.73	0.8998	7,235.949
F1275	23	8,176.18	0.8998	7,356.927
F1276	23	8,250.35	0.8999	7,424.490
F1313	23	8,151.12	0.8999	7,335.193
F1314	23	8,291.83	0.8999	7,461.818
F1316	23	8,304.09	0.8999	7,472.851
F1317	23	8,186.03	0.8998	7,365.790
F1318	23	8,077.14	0.8998	7,267.811
F1319	23	8,076.68	0.8998	7,267.397
F1320	23	8,143.95	0.8998	7,327.926
14599	22	7,938.22	0.9165	7,275.379
F1278	23	8,116.85	0.8998	7,303.542
F1279	22	7,420.57	0.8999	6,677.771
14603	21	7,543.15	0.9165	6,913.297
14602	20	7,215.45	0.9166	6,613.681
14601	24	8,465.63	0.9166	7,759.596
14600	24	8,586.18	0.9165	7,869.234
08937	23	8,048.38	0.9166	7,377.145
08459	23	8,101.90	0.9129	7,396.225
12553	14	4,861.30	0.9165	4,455.381
12550	22	7,806.48	0.9162	7,152.297
12549	22	7,805.25	0.9162	7,151.170
12547	22	7,672.33	0.9161	7,028.622
12551	7	2,111.00	0.9162	1,934.098
12552	22	7,679.42	0.9164	7,037.420
12546	22	7,649.12	0.9160	7,006.594
00194	21	6,955.66	0.9113	6,338.693
00193	24	8,274.58	0.9010	7,455.397
08108	24	8,374.80	0.9166	7,676.342
08106	24	8,240.13	0.9166	7,552.903
08105	23	8,195.58	0.9166	7,512.069
08104	23	8,190.55	0.9166	7,507.458
08103	23	8,308.55	0.9166	7,615.617
08102	23	8,223.68	0.9166	7,537.825
02127	15	5,107.38	0.9166	4,681.425
02301	22	7,632.37	0.9166	6,995.830
02303	22	7,744.35	0.9165	7,097.697
02304	24	8,338.37	0.9165	7,642.116
02305	21	7,349.39	0.9166	6,736.451
02306	21	7,514.34	0.9166	6,887.644
F1280	23	8,174.52	0.8998	7,355.433
F1281	21	7,485.17	0.8998	6,735.156
F1283	23	7,995.25	0.8999	7,194.925
F1285	25	8,475.21	0.8998	7,625.994

F1286	23	8,011.60	0.8998	7,208.838
F1287	23	8,009.64	0.9000	7,208.676
F1288	23	7,835.00	0.8999	7,050.717
F1289	23	8,022.57	0.9000	7,220.313
F1290	23	8,221.69	0.8999	7,398.699
F1291	23	8,221.44	0.8999	7,398.474
F1292	23	7,998.93	0.8998	7,197.437
F1293	23	8,307.03	0.8999	7,475.496
F1294	21	7,464.52	0.8998	6,716.575
F1295	23	8,051.75	0.8998	7,244.965
F1296	23	8,221.58	0.8998	7,397.778
F1297	23	8,283.40	0.8998	7,453.403
F1298	21	7,430.73	0.9000	6,687.657
F1299	23	8,171.43	0.8998	7,352.653
F1300	23	8,304.75	0.8998	7,472.614
F1301	23	8,074.75	0.8999	7,266.468
F1302	23	8,103.98	0.8999	7,292.772
F1303	24	8,243.43	0.8999	7,418.263
F1304	23	8,521.05	0.8999	7,668.093
F1305	23	8,296.67	0.8998	7,465.344
F1308	23	8,451.64	0.8999	7,605.631
F1309	18	6,260.99	0.8999	5,634.265
F1310	23	8,182.72	0.8998	7,362.811
F1311	22	7,772.60	0.8998	6,993.785
F1312	24	8,511.69	0.8999	7,659.670
F1507	23	8,155.17	0.8998	7,338.022
F1531	23	8,200.00	0.8998	7,378.360
F1532	23	8,300.30	0.8998	7,468.610
F1533	23	8,265.20	0.8998	7,437.027
F1534	23	8,160.74	0.8999	7,343.850
F1535	23	8,152.60	0.8998	7,335.709
F1536	23	8,149.14	0.8998	7,332.596
F1537	23	8,255.75	0.8998	7,428.524
F1538	23	8,209.32	0.8998	7,386.746
F1539	22	7,411.77	0.8998	6,669.111
F1540	23	8,131.07	0.8998	7,316.337
F1541	23	8,154.79	0.9000	7,339.311
F1542	23	8,164.70	0.8999	7,347.414
F1544	23	8,325.03	0.8999	7,491.694
F1545	22	7,486.05	0.8998	6,735.948
F1546	22	7,700.57	0.8998	6,928.973
F1547	22	7,695.14	0.8998	6,924.087
F1549	23	8,037.45	0.8997	7,231.294
F1550	23	8,039.45	0.9000	7,235.505

F1551	25	8,634.59	0.8999	7,770.268
F1552	23	8,196.85	0.8999	7,376.345
F1554	23	8,092.21	0.8998	7,281.371
F1555	23	8,103.53	0.8999	7,292.367
F1556	23	8,136.95	0.8998	7,321.628
F1558	23	8,245.12	0.8999	7,419.783
F1560	23	8,318.91	0.8998	7,485.355
F1562	23	8,323.46	0.8998	7,489.449
F1563	20	6,666.20	0.8998	5,998.247
09732	12	3,980.45	0.8999	3,582.007
09730	24	8,050.48	0.8998	7,243.822
09725	24	8,588.38	0.8999	7,728.683
09723	23	8,165.20	0.8999	7,347.863
09724	23	8,095.00	0.8998	7,283.881
09721	22	7,760.30	0.8999	6,983.494
09722	25	8,794.50	0.8999	7,914.171
09468	22	7,544.25	0.8996	6,786.807
09465	24	8,221.90	0.8997	7,397.243
09466	24	8,042.35	0.8997	7,235.702
09467	24	8,184.10	0.8997	7,363.235
09412	23	7,782.85	0.8997	7,002.230
09413	22	7,316.82	0.8997	6,582.943
09414	10	3,217.39	0.8997	2,894.686
04786	24	8,181.42	0.8993	7,357.551
00134	23	7,494.53	0.8998	6,743.578
09411	24	8,345.94	0.8997	7,508.842
00979	22	7,445.11	0.8996	6,697.621
00980	24	8,073.25	0.8995	7,261.888
04785	18	6,064.92	0.8994	5,454.789
00695	25	8,375.64	0.8996	7,534.726
00977	15	5,049.81	0.8996	4,542.809
00978	17	5,684.65	0.8997	5,114.480
11006	23	7,639.75	0.8996	6,872.719
00548	12	3,864.48	0.8996	3,476.486
00549	16	5,217.43	0.8996	4,693.600
18685	15	4,944.97	0.8996	4,448.495
00386	23	7,675.75	0.8997	6,905.872
00427	13	4,455.13	0.8993	4,006.498
18437	19	6,321.27	0.8999	5,688.511
13115	21	7,216.25	0.8998	6,493.182
13751	19	6,415.80	0.8999	5,773.578
13221	24	8,174.04	0.8999	7,355.819
12565	19	6,287.16	0.8999	5,657.815
F1600	23	8,318.18	0.8998	7,484.698

F1601	23	8,391.40	0.9000	7,552.260
F1602	23	8,395.95	0.9000	7,556.355
F1603	23	8,349.65	0.9000	7,514.685
F1604	23	8,367.78	0.8999	7,530.165
F1605	18	6,498.53	0.9000	5,848.677
F1606	23	8,386.38	0.9000	7,547.742
F1607	23	8,397.71	0.8999	7,557.099
F1608	23	8,343.20	0.8999	7,508.046
F1609	23	8,279.80	0.8998	7,450.164
F1641	23	8,200.00	0.8998	7,378.360
F1642	23	8,312.32	0.8998	7,479.426
F1643	22	7,655.80	0.8998	6,888.689
F1644	23	8,168.10	0.8999	7,350.473
F1645	23	7,950.35	0.8999	7,154.520
F1646	23	8,056.40	0.9000	7,250.760
F1647	23	8,073.12	0.8999	7,265.001
F1648	23	8,233.13	0.9000	7,409.817
F1649	22	7,832.13	0.8998	7,047.351
F1650	23	8,281.90	0.8999	7,452.882
F1611	19	6,626.03	0.8998	5,962.102
F1612	23	8,529.62	0.9000	7,676.658
F1613	23	8,538.55	0.8998	7,682.987
F1614	23	8,578.56	0.8998	7,718.988
F1615	23	8,601.50	0.8998	7,739.630
F1616	23	8,521.48	0.8998	7,667.628
F1618	23	8,358.38	0.8999	7,521.706
F1619	23	8,457.89	0.8999	7,611.255
F1564	21	7,685.14	0.8999	6,915.857
F1566	23	8,237.07	0.9000	7,413.363
F1570	23	8,100.78	0.8998	7,289.082
F1571	23	8,058.92	0.8999	7,252.222
F1575	22	7,972.60	0.8998	7,173.745
F1576	23	8,119.28	0.8999	7,306.540
F1578	23	8,243.08	0.8998	7,417.123
F1581	20	7,146.60	0.8998	6,430.511
F1583	23	8,524.02	0.8998	7,669.913
F1584	23	8,504.61	0.9000	7,654.149
F1589	22	8,057.55	0.9000	7,251.795
F1590	22	8,071.35	0.8999	7,263.408
F1591	23	8,484.43	0.9000	7,635.987
F1592	23	8,462.40	0.8999	7,615.314
F1593	21	7,341.65	0.8998	6,606.017
F1596	23	8,558.78	0.8998	7,701.190
F1594	23	8,444.28	0.8997	7,597.319

F1598	23	8,353.60	0.8998	7,516.569
F1599	17	5,891.25	0.8997	5,300.358
F1679	23	7,901.70	0.8997	7,109.159
F1680	23	8,089.80	0.9000	7,280.820
F1621	23	8,454.27	0.8997	7,606.307
F1623	18	6,121.94	0.8998	5,508.522
F1624	23	8,293.68	0.8999	7,463.483
F1625	23	8,378.55	0.8998	7,539.019
F1626	23	8,364.35	0.8999	7,527.079
F1629	18	6,514.77	0.8998	5,861.990
F1628	23	8,382.11	0.8999	7,543.061
F1627	23	8,388.26	0.9000	7,549.434
F1681	23	8,132.82	0.9000	7,319.538
F1630	23	8,409.20	0.8998	7,566.598
F1682	22	7,752.00	0.8999	6,976.025
F1685	23	7,952.03	0.8999	7,156.032
F1684	23	8,166.28	0.9000	7,349.652
F1683	23	8,230.82	0.9000	7,407.738
F1688	23	8,063.57	0.8998	7,255.600
F1687	23	8,238.82	0.8999	7,414.114
F1686	23	8,162.58	0.8999	7,345.506
F1691	22	7,574.67	0.9000	6,817.203
F1689	23	8,105.58	0.8999	7,294.211
F1690	23	8,195.69	0.8999	7,375.301
F1694	22	7,648.24	0.8999	6,882.651
F1693	23	8,166.62	0.8999	7,349.141
F1692	23	8,189.30	0.8999	7,369.551
F1697	24	8,201.78	0.8998	7,379.962
F1696	23	8,108.58	0.8998	7,296.100
F1695	23	8,006.78	0.8998	7,204.501
F1745	22	7,760.60	0.8998	6,982.988
F1744	24	8,301.38	0.8998	7,469.582
F1743	23	8,132.83	0.8998	7,317.920
F1753	23	8,050.32	0.9000	7,245.288
F1747	23	8,258.80	0.8998	7,431.268
F1746	23	8,259.47	0.8999	7,432.697
F1752	23	8,157.85	0.8998	7,340.433
F1750	23	8,175.28	0.8999	7,356.934
F1754	23	8,070.75	0.8998	7,262.061
F1748	23	8,158.33	0.8998	7,340.865
F1749	23	8,310.78	0.8999	7,478.871
F1755	23	8,062.73	0.8998	7,254.844
F1758	23	8,393.24	0.9000	7,553.916
F1751	20	7,139.67	0.8999	6,424.989

F1756	23	8,080.40	0.8999	7,271.552
F1759	23	8,263.70	0.8997	7,434.851
F1760	23	8,490.92	0.8998	7,640.130
F1761	23	8,360.30	0.8998	7,522.598
F1762	23	8,248.60	0.8999	7,422.915
F1763	19	6,571.83	0.8999	5,913.990
F1764	23	8,480.95	0.8998	7,631.159
F1765	23	8,509.80	0.8998	7,657.118
F1767	23	8,453.75	0.8999	7,607.530
F1768	21	7,745.08	0.8998	6,969.023
F1769	18	6,680.55	0.8999	6,011.827
F1770	23	8,428.03	0.8998	7,583.541
F1771	23	8,351.18	0.8999	7,515.227
F1772	23	8,425.32	0.8998	7,581.103
F1774	23	8,432.98	0.8999	7,588.839
F1775	18	6,345.10	0.8998	5,709.321
F1776	23	8,450.30	0.8998	7,603.580
F1777	23	8,452.60	0.8999	7,606.495
F1778	23	8,422.57	0.8998	7,578.628
F1779	23	8,468.05	0.8999	7,620.398
F1780	23	8,392.57	0.8998	7,551.634
F1781	17	6,138.85	0.8998	5,523.737
F1620	23	8,581.19	0.8998	7,721.355
F1631	22	7,686.72	0.8998	6,916.511
F1635	23	8,262.00	0.8998	7,434.148
F1636	22	7,866.82	0.8999	7,079.351
F1637	22	7,694.47	0.8998	6,923.484
F1634	23	8,233.58	0.8998	7,408.575
F1633	23	8,082.38	0.8998	7,272.526
F1632	23	8,185.68	0.8998	7,365.475
F1638	23	8,162.78	0.8999	7,345.686
F1639	23	8,268.57	0.8999	7,440.886
F1640	22	7,731.78	0.8999	6,957.829
F1651	22	7,992.58	0.8999	7,192.523
F1698	23	8,489.68	0.8999	7,639.863
F1699	23	8,312.83	0.8999	7,480.716
F1700	23	8,437.30	0.8999	7,592.726
F1701	23	8,407.33	0.8999	7,565.756
F1702	23	8,428.30	0.8999	7,584.627
F1703	17	6,241.10	0.8998	5,615.742
F1704	23	8,377.75	0.8999	7,539.137
F1705	22	8,126.15	0.8998	7,311.910
F1652	23	8,088.42	0.8999	7,278.769
F1654	22	8,093.85	0.9000	7,284.465

F1655	22	7,541.61	0.8998	6,785.941
F1656	23	8,294.98	0.8998	7,463.823
F1657	23	8,286.37	0.8998	7,456.076
F1658	22	7,878.24	0.8999	7,089.628
F1659	23	8,234.02	0.8999	7,409.795
F1660	23	8,278.84	0.9000	7,450.956
F1661	22	7,358.68	0.8998	6,621.340
F1662	23	8,192.68	0.8999	7,372.593
F1663	23	8,120.50	0.8999	7,307.638
F1664	23	8,209.72	0.8999	7,387.927
F1665	23	8,268.04	0.8998	7,439.582
F1666	23	8,260.22	0.8998	7,432.546
F1667	21	7,282.33	0.8998	6,552.641
F1670	23	8,152.12	0.8999	7,336.093
F1782	22	8,043.18	0.8999	7,238.058
F1783	23	8,469.74	0.8999	7,621.919
F1784	23	8,441.65	0.8998	7,595.797
F1785	23	8,459.58	0.8999	7,612.776
F1786	23	8,575.75	0.8999	7,717.317
F1787	18	6,326.80	0.8999	5,693.487
F1790	23	8,407.07	0.8999	7,565.522
F1789	23	8,421.15	0.8999	7,578.193
F1788	23	8,372.22	0.8999	7,534.161
F1794	23	8,049.36	0.8998	7,242.814
F1793	18	6,371.56	0.8999	5,733.767
F1791	23	8,441.46	0.8999	7,596.470
F1671	23	8,019.00	0.8998	7,215.496
F1796	23	7,889.43	0.8998	7,098.909
F1795	23	7,846.45	0.8999	7,061.020
F1674	23	8,104.32	0.8998	7,292.267
F1673	23	8,012.70	0.8998	7,209.827
F1672	24	8,476.22	0.8998	7,626.903
F1677	22	7,830.80	0.8999	7,046.937
F1676	23	8,096.92	0.8999	7,286.418
F1675	23	8,149.57	0.8999	7,333.798
F1721	23	8,054.07	0.8998	7,247.052
F1710	22	8,017.86	0.8999	7,215.272
F1709	18	6,401.52	0.8999	5,760.728
F1708	23	8,455.82	0.8997	7,607.701
F1707	23	8,492.25	0.8998	7,641.327
F1706	23	8,454.88	0.8998	7,607.701
F1724	23	7,974.25	0.8998	7,175.230
F1723	23	8,156.61	0.8998	7,339.318
F1722	23	8,039.53	0.8998	7,233.969

F1725	23	8,155.17	0.8999	7,338.837
F1726	23	8,239.43	0.8998	7,413.839
F1728	23	8,354.32	0.8999	7,518.053
F1729	23	8,446.90	0.8997	7,599.676
F1730	23	8,359.34	0.8999	7,522.570
F1731	23	8,501.38	0.8999	7,650.392
F1732	23	8,464.40	0.8998	7,616.267
F1733	18	6,194.65	0.8998	5,573.946
F1734	23	8,337.73	0.8998	7,502.289
F1735	23	8,333.25	0.8999	7,499.092
F1737	23	8,193.52	0.8999	7,373.349
F1739	22	7,426.00	0.8999	6,682.657
F1740	22	7,801.87	0.8998	7,020.123
25653	24	8,190.30	0.9000	7,371.270
25777	23	7,724.88	0.8998	6,950.847
25781	13	4,398.65	0.8999	3,958.345
25782	12	4,034.60	0.8999	3,630.737
25908	19	6,568.00	0.9004	5,913.827
F1741	22	7,741.95	0.8998	6,966.207
F1742	24	8,581.97	0.8999	7,722.915
F1797	23	8,053.13	0.8998	7,246.206
F1801	23	8,147.61	0.8998	7,331.219
F1802	23	7,956.52	0.8998	7,159.277
25909	18	6,264.89	0.9000	5,638.401
25926	21	7,398.29	0.8997	6,656.242
25927	21	7,348.50	0.8997	6,611.445
F1711	24	8,726.70	0.8998	7,852.285
F1712	23	8,404.18	0.8998	7,562.081
F1713	23	8,405.32	0.8999	7,563.947
F1714	23	8,397.02	0.8999	7,556.478
F1715	18	6,368.44	0.8999	5,730.959
F1716	23	8,047.45	0.8998	7,241.096
F1717	22	7,804.65	0.8998	7,022.624
F1718	23	8,104.65	0.8999	7,293.375
F1719	23	8,078.60	0.8997	7,268.316
F1720	23	8,236.33	0.8999	7,411.873
26274	16	5,449.00	0.8999	4,903.555
26278	17	5,876.80	0.8999	5,288.532
26279	17	5,964.32	0.8999	5,367.292
26280	16	5,208.07	0.8999	4,686.742
26395	17	6,010.24	0.8996	5,406.812
26396	17	5,978.50	0.8995	5,377.661
26399	19	6,904.15	0.9000	6,213.735
26400	19	6,941.17	0.9000	6,247.053

26401	18	6,665.92	0.9000	5,999.328
26407	21	7,430.11	0.9001	6,687.842
26408	22	7,752.66	0.8999	6,976.619
26409	17	5,893.00	0.8998	5,302.521
26442	17	6,207.90	0.8997	5,585.248
26413	18	6,417.67	0.8996	5,773.336
26412	19	6,939.15	0.8998	6,243.847
26454	17	6,135.10	0.9000	5,521.590
26444	15	5,388.20	0.8997	4,847.764
26443	17	6,270.64	0.8997	5,641.695
26654	17	6,321.50	0.8997	5,687.454
26495	21	7,380.30	0.8994	6,637.842
26494	20	6,998.53	0.8995	6,295.178
26493	20	7,123.28	0.8996	6,408.103
26458	19	6,942.45	0.8999	6,247.511
26455	17	6,023.97	0.8999	5,420.971
26662	22	7,800.75	0.9001	7,021.455
26656	15	5,305.48	0.8997	4,773.340
26655	17	6,241.31	0.8997	5,615.307
26459	19	6,922.76	0.9001	6,231.176
26664	22	7,742.15	0.9001	6,968.709
26663	22	7,747.83	0.9009	6,980.020
26497	23	8,123.85	0.8994	7,306.591
26496	20	7,042.25	0.8993	6,333.095
26460	18	6,312.82	0.9000	5,681.538
F 362	23	8,171.38	0.8998	7,352.608
F 363	23	8,307.79	0.8998	7,475.349
F 365	23	8,008.10	0.8998	7,205.688
F 366	23	8,284.13	0.8998	7,454.060
07722	20	7,117.65	0.8996	6,403.038
07725	22	7,663.94	0.8996	6,894.480
07724	22	7,691.92	0.8996	6,919.651
07723	23	8,027.89	0.8995	7,221.087
07727	21	7,306.19	0.8997	6,573.379
07728	22	7,520.95	0.8995	6,765.095
07729	22	7,667.65	0.8995	6,897.051
07731	22	7,664.40	0.8996	6,894.894
07730	22	7,550.72	0.8995	6,791.873
07738	20	7,229.70	0.8995	6,503.115
07737	21	7,212.05	0.8997	6,488.681
07736	21	7,452.82	0.8997	6,705.302
07740	16	5,459.48	0.8998	4,912.440
07741	17	5,640.06	0.8997	5,074.362
07764	19	6,548.37	0.8999	5,892.878

07749	20	7,295.25	0.8998	6,564.266
08028	21	7,476.32	0.8996	6,725.697
08029	21	7,445.14	0.8995	6,696.903
08030	20	7,149.25	0.8996	6,431.465
08032	20	7,117.00	0.8995	6,401.742
08031	21	7,452.34	0.8994	6,702.635
08091	18	6,122.13	0.8995	5,506.856
08090	18	6,351.10	0.8995	5,712.814
08089	18	6,251.15	0.8995	5,622.909
08412	21	7,190.15	0.8996	6,468.259
F 400	23	7,954.49	0.8998	7,157.450
08414	21	7,183.45	0.8996	6,462.232
08416	21	7,332.33	0.8997	6,596.897
08418	20	6,931.20	0.8996	6,235.308
08417	20	6,518.98	0.8997	5,865.126
09252	19	6,641.90	0.8997	5,975.717
08422	21	7,269.69	0.8996	6,539.813
08421	20	7,195.74	0.8996	6,473.288
09253	19	6,751.18	0.8998	6,074.712
09254	19	6,830.72	0.8998	6,146.282
09256	16	5,332.45	0.8998	4,798.139
D 064	22	7,861.77	0.9000	7,075.593
F 351	22	7,581.86	0.8997	6,821.399
F 356	23	8,093.23	0.8998	7,282.288
F 355	23	8,050.55	0.8997	7,243.080
F 354	23	7,846.89	0.8997	7,059.847
F 357	23	8,020.92	0.8998	7,217.224
F 358	24	8,059.21	0.8998	7,251.677
F 359	24	8,469.30	0.8998	7,620.676
F 360	23	7,993.06	0.8998	7,192.155
07751	20	7,118.85	0.8999	6,406.253
07752	20	7,146.62	0.8999	6,431.243
07755	21	7,473.01	0.8998	6,724.214
D 066	22	7,828.21	0.9001	7,046.172
07709	20	6,639.53	0.8994	5,971.593
07708	15	5,023.27	0.8993	4,517.427
D 067	22	7,877.85	0.9000	7,090.065
07763	19	6,870.45	0.8999	6,182.718
F 385	23	8,056.67	0.8998	7,249.392
F 387	21	7,525.92	0.8997	6,771.070
F 388	24	8,460.92	0.8998	7,613.136
F 389	23	8,281.10	0.8997	7,450.506
F 392	23	8,091.05	0.8999	7,281.136
F 391	23	8,063.56	0.8999	7,256.398

F 393	23	7,956.85	0.8999	7,160.369
F 397	23	7,833.57	0.8999	7,049.430
F 396	23	8,123.38	0.8998	7,309.417
F 395	23	8,208.73	0.8998	7,386.215
F 399	23	8,077.40	0.9000	7,269.660
F 401	24	8,316.97	0.8999	7,484.441
F 398	23	8,130.98	0.8998	7,316.256
08413	22	7,601.31	0.8997	6,838.899
07757	20	6,895.16	0.8999	6,204.954
07703	20	7,037.45	0.8996	6,330.890
07704	20	7,103.48	0.8995	6,389.580
07707	20	7,118.61	0.8995	6,403.190
07706	20	7,062.01	0.8996	6,352.984
07705	20	7,128.37	0.9003	6,417.672
07756	20	6,774.93	0.8998	6,096.082
08123	18	6,276.83	0.8995	5,646.009
08124	17	5,944.37	0.8996	5,347.555
08125	14	4,816.00	0.8995	4,331.992
F 367	23	7,869.60	0.8997	7,080.279
F 364	22	7,693.80	0.8998	6,922.881
08398	15	5,157.31	0.8997	4,640.032
F 368	22	8,046.26	0.8998	7,240.025
F 369	22	7,956.75	0.9000	7,161.075
F 370	23	8,171.79	0.8998	7,352.977
08035	12	3,933.55	0.8994	3,537.835
08036	19	6,543.47	0.9000	5,889.123
08399	16	5,449.52	0.8998	4,903.478
F 371	23	8,247.65	0.8998	7,421.235
F 372	22	7,834.50	0.8999	7,050.267
F 374	23	8,186.10	0.8998	7,365.853
F 373	23	8,080.87	0.8999	7,271.975
F 375	23	8,174.10	0.8997	7,354.238
F 376	22	7,795.92	0.8999	7,015.548
F 379	22	7,742.89	0.8998	6,967.052
F 380	23	8,109.48	0.8998	7,296.910
F 381	23	8,131.19	0.8998	7,316.445
F 402	22	7,727.00	0.8998	6,952.755
F 403	23	8,119.25	0.9000	7,307.325
F 405	23	8,220.46	0.8997	7,395.948
F 408	23	8,123.34	0.8999	7,310.194
F 407	22	7,658.97	0.8999	6,892.307
F 406	22	7,740.35	0.8998	6,964.767
F 409	24	8,380.18	0.8998	7,540.486
F 410	22	7,978.33	0.8998	7,178.901

F 411	23	8,234.98	0.8998	7,409.835
F 412	22	7,960.66	0.8999	7,163.798
F 413	24	8,458.58	0.8998	7,611.030
F 415	23	7,949.96	0.8999	7,154.169
F 416	23	8,196.64	0.8999	7,376.156
F 417	22	7,724.72	0.8998	6,950.703
F 418	24	8,244.58	0.8997	7,417.649
F 419	23	8,169.91	0.8999	7,352.102
F 420	23	8,310.71	0.8998	7,477.977
F 382	23	7,921.99	0.8999	7,128.999
F 384	24	8,073.98	0.8998	7,264.967
F 383	23	8,026.61	0.9000	7,223.949
D 062	23	8,227.04	0.8997	7,401.868
D 063	21	7,494.78	0.8999	6,744.553
09255	19	6,702.78	0.8997	6,030.491
09261	17	5,813.32	0.8998	5,230.825
09288	21	7,340.75	0.8997	6,604.473
09291	24	8,436.10	0.8995	7,588.272
09289	22	7,797.79	0.8997	7,015.672
09294	21	7,351.00	0.8997	6,613.695
09295	23	8,145.21	0.8998	7,329.060
09296	25	8,685.08	0.8997	7,813.966
09297	24	8,472.67	0.8997	7,622.861
09298	24	8,296.15	0.8997	7,464.046
09299	15	5,075.73	0.8997	4,566.634
09300	20	7,194.62	0.8997	6,473.000
09301	20	7,223.24	0.8997	6,498.749
09302	20	7,328.65	0.8997	6,593.586
09303	20	7,323.04	0.8997	6,588.539
09304	23	8,344.32	0.8996	7,506.550
09305	20	7,094.16	0.8997	6,382.616
09306	20	7,079.39	0.8995	6,367.911
09307	20	6,975.18	0.8996	6,274.872
09308	20	7,060.52	0.8997	6,352.350
09309	20	7,210.90	0.8996	6,486.926
09310	20	7,146.38	0.8997	6,429.598
09311	16	5,293.46	0.8996	4,761.997
09312	19	6,437.44	0.8996	5,791.121
09337	22	8,187.75	0.8996	7,365.700
09338	22	7,657.88	0.8997	6,889.795
09341	21	7,477.62	0.8996	6,726.867
09292	25	8,472.30	0.8996	7,621.681
09293	17	5,536.49	0.8996	4,980.626
F 425	23	8,073.23	0.8998	7,264.292

F 424	22	7,727.47	0.8998	6,953.178
F 423	23	8,199.88	0.8998	7,378.252
F 422	23	8,238.79	0.8998	7,413.263
F 421	22	7,696.14	0.8999	6,925.756
09342	22	7,683.39	0.8998	6,913.514
F 426	23	8,086.13	0.9000	7,277.517
F 427	23	8,003.91	0.8998	7,201.918
F 428	23	8,199.03	0.8998	7,377.487
F 429	23	8,094.70	0.8998	7,283.611
F 430	23	7,869.54	0.8998	7,081.012
F 431	16	5,642.53	0.8997	5,076.584
09390	20	6,840.76	0.8996	6,153.948
09391	20	6,911.65	0.8996	6,217.720
09392	14	4,549.50	0.8997	4,093.185
09393	19	6,645.65	0.8996	5,978.427
09401	22	7,828.33	0.8996	7,042.366
09402	22	7,840.55	0.8996	7,053.359
09403	22	7,691.48	0.8996	6,919.255
09404	22	7,723.38	0.8998	6,949.497
09405	20	7,007.45	0.8998	6,305.304
09406	20	7,018.42	0.8996	6,313.771
09407	20	6,941.99	0.8997	6,245.708
09442	20	6,921.29	0.9007	6,234.006
09409	17	5,545.36	0.8996	4,988.606
09408	18	6,140.81	0.8996	5,524.273
09450	22	7,881.57	0.8996	7,090.260
09451	22	7,831.25	0.8997	7,045.776
09452	22	7,938.06	0.8996	7,141.079
09453	22	7,802.40	0.8995	7,018.259
09454	22	7,845.80	0.8997	7,058.866
09455	22	7,824.21	0.8997	7,039.442
09456	22	7,850.31	0.8997	7,062.924
09457	21	7,436.89	0.8997	6,690.970
09458	21	7,433.37	0.8997	6,687.803
09459	21	7,472.40	0.8998	6,723.666
09460	21	7,482.12	0.8997	6,731.663
09461	21	7,505.15	0.8997	6,752.383
09462	22	7,816.19	0.8997	7,032.226
09463	21	7,085.94	0.8997	6,375.220
09609	19	6,644.47	0.9001	5,980.687
09610	21	7,405.75	0.9002	6,666.656
09611	22	7,686.03	0.9001	6,918.196
09612	20	7,085.89	0.9002	6,378.718
09613	20	7,061.65	0.9002	6,356.897

09848	16	5,607.70	0.8997	5,045.248
09849	16	5,619.10	0.8997	5,055.504
10037	22	7,809.59	0.8997	7,026.288
10036	22	7,800.64	0.8998	7,019.016
09873	19	6,459.65	0.8998	5,812.393
10040	22	7,744.24	0.8996	6,966.718
10039	20	6,953.49	0.8997	6,256.055
10038	22	7,788.27	0.8996	7,006.328
10043	22	7,724.03	0.8996	6,948.537
10042	21	7,234.98	0.8997	6,509.312
10041	22	7,713.21	0.8997	6,939.575
09344	22	7,727.56	0.8996	6,951.713
09343	22	7,560.97	0.8998	6,803.361
F 432	15	5,093.59	0.8998	4,583.212
09347	21	7,381.59	0.8995	6,639.740
09346	23	7,878.61	0.8998	7,089.173
09345	22	7,603.43	0.8998	6,841.566
09348	21	7,403.15	0.8995	6,659.133
09349	21	7,349.25	0.8994	6,609.915
09350	20	6,961.81	0.8993	6,260.756
09351	21	7,193.14	0.8993	6,468.791
09352	21	7,142.50	0.8993	6,423.250
09353	20	7,287.49	0.8996	6,555.826
09355	19	6,767.81	0.8997	6,088.999
09356	20	7,006.64	0.8996	6,303.173
09357	21	7,471.12	0.8996	6,721.020
09358	22	7,844.09	0.8996	7,056.543
09359	22	7,969.46	0.8996	7,169.326
09360	21	7,519.87	0.8997	6,765.627
09362	20	7,035.45	0.8996	6,329.091
09363	20	7,275.63	0.8996	6,545.157
09364	26	9,040.93	0.8997	8,134.125
09371	22	7,609.51	0.8996	6,845.515
09372	22	7,775.35	0.8996	6,994.705
09373	22	7,713.28	0.8996	6,938.867
09374	22	7,685.07	0.8996	6,913.489
09375	22	7,804.83	0.8997	7,022.006
09376	20	7,182.34	0.8997	6,461.951
09377	20	7,032.20	0.8998	6,327.574
09378	20	7,054.45	0.8997	6,346.889
09379	20	7,034.76	0.8998	6,329.877
09380	14	4,568.93	0.8998	4,111.123
09381	23	7,933.45	0.8996	7,136.932
09382	23	7,928.08	0.8996	7,132.101

F 438	23	7,851.65	0.8998	7,064.915
09389	20	6,896.30	0.8996	6,203.911
09388	20	6,946.48	0.8997	6,249.748
F 441	23	8,113.83	0.8998	7,300.824
F 440	23	8,123.63	0.8998	7,309.642
F 439	23	8,171.32	0.8998	7,352.554
F 444	22	7,698.29	0.8999	6,927.691
F 443	23	8,070.87	0.8999	7,262.976
F 442	23	8,144.16	0.8998	7,328.115
F 447	23	8,197.23	0.8998	7,375.868
F 446	23	8,151.06	0.8998	7,334.324
F 445	23	8,062.63	0.8998	7,254.754
F 448	23	8,207.02	0.8999	7,385.497
F 709	23	8,328.73	0.8999	7,495.024
F 708	23	8,319.64	0.8998	7,486.012
F 707	22	7,538.55	0.8998	6,783.187
F 712	23	8,149.72	0.8999	7,333.933
F 711	21	7,312.28	0.8998	6,579.590
F 710	22	7,520.46	0.8998	6,766.910
F 715	23	8,243.77	0.8998	7,417.744
F 714	23	8,224.42	0.8998	7,400.333
F 713	23	8,157.11	0.8999	7,340.583
F 717	23	7,971.44	0.8999	7,173.499
F 716	23	8,228.58	0.8998	7,404.076
F 720	23	8,050.38	0.8998	7,243.732
F 600	23	8,144.01	0.8999	7,328.795
F 723	22	7,640.53	0.8999	6,875.713
F 722	23	7,985.48	0.8998	7,185.335
F 721	23	7,946.54	0.8998	7,150.297
F 726	22	7,821.60	0.8999	7,038.658
F 725	23	8,269.64	0.8998	7,441.022
F 724	23	8,246.18	0.8998	7,419.913
F 728	23	8,164.36	0.8999	7,347.108
10044	18	6,164.83	0.8997	5,546.498
F 731	23	8,072.90	0.8999	7,264.803
10047	20	6,899.14	0.8997	6,207.156
10046	22	7,734.08	0.8997	6,958.352
10045	22	7,705.78	0.8997	6,932.890
10060	20	7,119.64	0.9002	6,409.100
10059	20	7,169.26	0.9001	6,453.051
10058	21	7,590.93	0.9001	6,832.596
10063	19	6,676.39	0.9001	6,009.419
10062	20	7,111.78	0.9001	6,401.313
10061	20	7,147.09	0.9001	6,433.096

10066	17	6,011.05	0.9001	5,410.546
10065	19	6,755.65	0.9001	6,080.761
10064	19	6,719.39	0.9000	6,047.451
10094	13	4,347.55	0.8997	3,911.491
10093	16	5,340.09	0.8997	4,804.479
10067	18	6,206.33	0.9001	5,586.318
10095	22	7,847.64	0.8997	7,060.522
10096	19	6,435.76	0.8996	5,789.610
10101	14	4,752.11	0.8997	4,275.473
10102	22	7,708.53	0.8997	6,935.364
10103	22	7,763.21	0.8995	6,983.007
10106	22	7,548.00	0.8996	6,790.181
10105	22	7,423.51	0.8997	6,678.932
10107	22	7,614.94	0.8997	6,851.162
10113	19	6,755.53	0.8998	6,078.626
10109	12	4,072.21	0.8996	3,663.360
10407	16	5,701.19	0.8997	5,129.361
10408	14	4,709.98	0.8998	4,238.040
F 433	23	7,985.07	0.8999	7,185.764
10114	20	6,790.04	0.8998	6,109.678
10124	17	6,041.99	0.9007	5,442.020
10406	21	7,445.45	0.8997	6,698.671
F 436	23	8,007.05	0.8999	7,205.544
F 435	23	7,974.39	0.8998	7,175.356
F 434	23	8,034.95	0.8998	7,229.848
F 766	23	8,238.08	0.8998	7,412.624
F 767	23	8,250.87	0.9002	7,427.433
F 768	23	8,237.89	0.8998	7,412.453
F 769	23	8,525.10	0.8999	7,671.737
F 770	23	8,205.17	0.8999	7,383.832
F 771	19	6,643.62	0.8998	5,977.929
F 772	23	8,373.61	0.8998	7,534.574
F 773	23	8,386.00	0.8999	7,546.561
F 774	23	8,200.45	0.8999	7,379.585
F 777	23	8,249.55	0.8998	7,422.945
F 775	22	7,713.25	0.8998	6,940.382
F 780	22	7,838.71	0.8999	7,054.055
F 778	23	8,006.27	0.8999	7,204.842
F 781	21	7,294.96	0.8999	6,564.735
F 782	24	8,547.05	0.8999	7,691.490
F 783	22	7,855.85	0.8998	7,068.694
17328	20	7,097.55	0.8999	6,387.085
17311	22	7,563.21	0.8997	6,804.620
17330	20	6,953.69	0.8996	6,255.540

17331	9	3,017.25	0.8996	2,714.318
17336	18	6,435.15	0.8994	5,787.774
F 784	23	8,058.40	0.8998	7,250.948
17338	18	6,289.82	0.8994	5,657.064
17337	18	6,384.96	0.8994	5,742.633
F 787	21	7,352.20	0.8998	6,615.510
F 785	23	8,153.11	0.8999	7,336.984
F 790	23	8,171.53	0.8998	7,352.743
F 789	23	8,171.60	0.8998	7,352.806
F 796	22	7,606.27	0.8998	6,844.122
F 792	23	8,237.44	0.8998	7,412.049
F 791	23	8,113.17	0.8999	7,301.042
F 694	24	8,489.09	0.8998	7,638.483
F 797	23	8,320.18	0.8999	7,487.330
F 734	23	8,495.10	0.8998	7,643.891
F 733	23	8,458.83	0.8999	7,612.101
F 732	23	8,073.27	0.8998	7,264.328
F 738	23	8,393.70	0.8998	7,552.651
F 737	23	8,219.47	0.8998	7,395.879
F 735	20	6,585.26	0.8999	5,926.075
F 741	23	7,728.49	0.8998	6,954.095
F 740	23	8,033.62	0.8998	7,228.651
F 739	23	8,103.75	0.8998	7,291.754
F 744	23	8,215.57	0.8999	7,393.191
F 743	23	8,250.19	0.8999	7,424.346
F 742	23	7,983.17	0.8999	7,184.055
F 750	23	8,237.47	0.8998	7,412.076
F 748	23	8,259.23	0.8998	7,431.655
F 747	23	8,184.22	0.8999	7,364.980
F 746	24	8,467.73	0.8999	7,620.110
F 745	20	6,885.90	0.9001	6,197.999
F 753	23	8,296.77	0.9000	7,467.093
F 751	22	7,947.20	0.8998	7,150.891
F 754	22	7,651.19	0.8997	6,883.776
F 755	23	8,227.00	0.8998	7,402.655
F 756	23	8,272.97	0.8998	7,444.018
F 760	22	7,935.23	0.8999	7,140.913
F 761	23	8,168.02	0.8998	7,349.584
F 762	23	8,055.87	0.8998	7,248.672
F 763	23	8,153.29	0.8998	7,336.330
F 764	23	8,142.07	0.8998	7,326.235
13561	20	6,921.19	0.9000	6,229.071
13560	17	5,832.58	0.9000	5,249.322
13559	18	6,345.06	0.9000	5,710.554

13564	16	5,291.48	0.8999	4,761.803
13563	20	6,958.56	0.8999	6,262.008
13562	20	6,895.79	0.8999	6,205.521
12989	17	6,014.47	0.9009	5,418.436
12985	21	7,353.45	0.9001	6,618.840
12986	21	7,343.38	0.9001	6,609.776
12992	21	7,348.63	0.8995	6,610.093
12991	21	7,398.40	0.8995	6,654.861
12990	21	7,484.64	0.8995	6,732.434
12995	21	7,302.78	0.8996	6,569.581
12994	21	6,902.62	0.8996	6,209.597
12993	21	7,214.58	0.8995	6,489.515
13579	23	8,217.12	0.9001	7,396.230
13578	23	8,168.17	0.9001	7,352.170
13577	23	7,933.96	0.9000	7,140.564
13582	22	7,742.95	0.9001	6,969.429
13581	22	7,763.89	0.9000	6,987.501
13580	22	7,873.03	0.9001	7,086.514
13585	22	7,514.51	0.9002	6,764.562
13584	22	7,618.76	0.9000	6,856.884
13583	22	7,609.81	0.9000	6,848.829
13588	22	7,860.90	0.9000	7,074.810
13587	22	7,763.27	0.9000	6,986.943
13586	22	7,627.30	0.9000	6,864.570
13893	21	7,454.07	0.9002	6,710.154
13892	22	7,566.05	0.9004	6,812.471
13592	19	6,751.92	0.8999	6,076.053
13591	22	7,717.90	0.8999	6,945.338
13590	22	7,781.72	0.8999	7,002.770
13589	21	7,187.87	0.9000	6,469.083
13896	18	5,897.09	0.9001	5,307.971
13895	20	7,060.92	0.9002	6,356.240
13894	20	7,033.13	0.9002	6,331.224
14028	21	7,371.24	0.8999	6,633.379
14027	20	7,193.36	0.8999	6,473.305
14026	21	7,568.02	0.8999	6,810.461
12982	22	7,903.74	0.9002	7,114.947
12981	20	7,077.57	0.9002	6,371.229
12980	13	4,345.80	0.8998	3,910.351
12979	15	5,267.99	0.8999	4,740.664
12978	14	4,760.11	0.8999	4,283.623
12912	20	6,757.63	0.8996	6,079.164
12911	17	5,899.89	0.8997	5,308.131
12910	19	6,328.61	0.8995	5,692.585

12909	20	6,913.88	0.8995	6,219.035
13031	22	7,811.85	0.8997	7,028.321
13030	22	7,708.31	0.8997	6,935.167
13029	21	7,228.93	0.8996	6,503.145
13028	22	7,706.24	0.8997	6,933.304
13027	22	7,688.67	0.8998	6,918.265
13026	22	7,734.17	0.8998	6,959.206
13025	22	7,762.49	0.8998	6,984.689
12984	21	7,441.76	0.9002	6,699.072
12983	21	7,374.16	0.9002	6,638.219
13034	21	7,233.70	0.8996	6,507.437
13033	21	7,252.63	0.8997	6,525.191
13032	22	7,554.29	0.8998	6,797.350
13038	22	7,652.46	0.8997	6,884.918
13039	21	7,088.52	0.8999	6,378.959
13040	20	6,897.60	0.9001	6,208.530
13037	22	7,649.97	0.8995	6,881.148
13036	22	7,674.93	0.8998	6,905.902
13035	22	7,737.56	0.8998	6,962.256
13539	22	7,625.03	0.9000	6,862.527
13538	22	7,676.89	0.8999	6,908.433
13537	22	7,637.35	0.8998	6,872.088
13545	22	7,716.50	0.9000	6,944.850
13544	21	7,143.05	0.8998	6,427.316
13543	21	7,373.79	0.8999	6,635.674
13542	22	7,667.87	0.8999	6,900.316
13541	22	7,763.90	0.8998	6,985.957
13540	21	7,249.90	0.8999	6,524.185
13548	22	7,560.25	0.9001	6,804.981
13547	22	7,636.34	0.9000	6,872.706
13546	22	7,731.56	0.8999	6,957.631
14127	20	6,967.70	0.8997	6,268.840
13558	18	6,295.68	0.8999	5,665.482
13549	17	5,783.20	0.8999	5,204.302
14130	20	7,115.98	0.8995	6,400.824
14129	20	7,151.57	0.8995	6,432.837
14128	20	7,175.50	0.8995	6,454.362
14131	20	7,077.70	0.8995	6,366.391
14132	22	7,554.77	0.8995	6,795.516
14138	21	7,461.40	0.8998	6,713.768
14139	20	7,043.48	0.9000	6,339.132
14159	21	7,568.35	0.9003	6,813.786
14160	20	7,128.00	0.8999	6,414.487
14161	21	7,326.61	0.8999	6,593.216

14162	21	6,964.95	0.8998	6,267.062
14176	18	6,280.92	0.8995	5,649.688
14185	23	8,084.36	0.8997	7,273.499
14184	23	8,043.46	0.8995	7,235.092
14177	15	4,972.76	0.8998	4,474.489
14207	14	4,822.51	0.8998	4,339.294
14206	14	5,007.82	0.8997	4,505.536
14186	21	6,967.00	0.8997	6,268.210
14222	17	6,163.48	0.8998	5,545.899
14213	19	6,431.05	0.9001	5,788.588
14212	18	6,214.90	0.9001	5,594.031
14235	21	7,350.94	0.8998	6,614.376
14234	22	7,648.90	0.8999	6,883.245
14233	23	7,935.19	0.8999	7,140.877
14231	23	8,135.55	0.8999	7,321.181
14224	23	8,054.59	0.8998	7,247.520
14223	22	7,771.65	0.8998	6,992.931
14238	20	7,091.25	0.9006	6,386.380
14237	21	7,274.46	0.9006	6,551.379
14236	21	7,374.10	0.9006	6,641.114
14335	22	7,582.64	0.9004	6,827.409
14334	22	7,677.06	0.9002	6,910.889
14256	13	4,577.83	0.8997	4,118.674
14257	13	4,570.99	0.8999	4,113.434
14333	22	7,707.48	0.9005	6,940.586
14255	14	4,934.79	0.8996	4,439.337
14240	19	6,348.39	0.8999	5,712.916
14239	20	6,921.38	0.9000	6,229.242
14336	22	7,544.30	0.9004	6,792.888
14031	20	6,587.98	0.8999	5,928.523
14030	22	7,760.48	0.8999	6,983.656
14337	21	7,172.49	0.9002	6,456.675
14338	22	7,784.20	0.9001	7,006.558
14032	21	6,938.00	0.8999	6,243.506
14042	21	7,385.66	0.8999	6,646.355
14043	20	7,013.38	0.8999	6,311.341
14044	21	7,369.59	0.9001	6,633.368
14045	19	6,559.63	0.8999	5,903.011
14046	21	7,533.24	0.8999	6,779.163
14047	19	6,666.42	0.8999	5,999.111
14053	22	7,901.08	0.9001	7,111.762
14052	21	7,497.32	0.9000	6,747.588
14051	21	7,364.02	0.9000	6,627.618
14050	22	7,789.42	0.9001	7,011.257

14049	22	7,731.73	0.9000	6,958.557
14048	22	7,585.05	0.9000	6,826.545
14079	18	6,381.60	0.8998	5,742.164
14078	21	7,291.37	0.8998	6,560.775
14057	20	7,050.44	0.9001	6,346.101
14056	21	7,501.72	0.8999	6,750.798
14055	21	7,474.85	0.9000	6,727.365
14054	22	7,874.35	0.9001	7,087.702
14093	21	7,300.61	0.8998	6,569.089
14092	22	7,827.20	0.9000	7,044.480
14080	14	4,891.21	0.8998	4,401.111
14096	22	7,613.43	0.8997	6,849.803
14095	22	7,614.48	0.8998	6,851.509
14094	23	7,961.55	0.8997	7,163.007
14097	17	5,520.38	0.8997	4,966.686
14112	23	8,013.42	0.8997	7,209.674
14113	23	8,203.35	0.8997	7,380.554
14116	23	8,126.88	0.8997	7,311.754
14115	22	7,634.17	0.8997	6,868.463
14114	23	8,071.67	0.8996	7,261.274
14117	24	8,396.50	0.8998	7,555.171
14118	23	7,961.90	0.8996	7,162.525
14119	22	7,777.37	0.8997	6,997.300
14120	22	7,584.62	0.8997	6,823.883
14123	20	7,189.88	0.8997	6,468.735
14124	20	7,153.94	0.8997	6,436.400
14125	20	7,081.06	0.8997	6,370.830
14126	21	7,505.73	0.8997	6,752.905
14388	21	7,284.04	0.8999	6,554.908
14389	20	6,775.64	0.8999	6,097.398
14390	20	6,768.58	0.8999	6,091.045
14391	20	6,738.84	0.8998	6,063.608
14397	19	6,854.76	0.9001	6,169.969
14396	19	6,896.53	0.9000	6,206.877
14395	19	6,706.47	0.8999	6,035.152
14394	20	7,122.33	0.9001	6,410.809
14393	18	6,498.20	0.9000	5,848.380
14392	20	6,535.40	0.8998	5,880.553
F 793	22	7,987.52	0.8999	7,187.969
14399	19	6,821.62	0.9001	6,140.140
14398	19	6,794.95	0.8999	6,114.776
F 799	23	8,430.38	0.8999	7,586.499
F 795	21	7,707.92	0.8999	6,936.357
F 794	23	8,461.73	0.8998	7,613.865

F 802	23	8,473.70	0.8998	7,624.635
F 801	23	8,381.40	0.8999	7,542.422
F 800	23	8,412.49	0.8999	7,570.400
F 805	23	8,193.18	0.8998	7,372.223
F 804	18	6,296.70	0.8998	5,665.771
F 803	23	8,317.82	0.8999	7,485.206
F 806	23	8,254.50	0.8998	7,427.399
F 807	23	8,266.63	0.8998	7,438.314
F 808	23	8,231.03	0.8999	7,407.104
F 809	23	8,208.93	0.8998	7,386.395
F 810	21	7,160.94	0.8997	6,442.698
F 812	23	8,327.38	0.8999	7,493.809
F 813	23	7,876.45	0.8998	7,087.230
F 814	23	8,524.35	0.9000	7,671.915
12403	9	2,669.15	0.9000	2,402.235
05122	16	5,334.78	0.9000	4,801.302
00074	25	8,081.65	0.9006	7,278.334
00076	22	7,240.68	0.9000	6,516.612
14341	22	7,708.65	0.9001	6,938.556
14340	22	7,702.30	0.9001	6,932.840
14339	22	7,721.78	0.9002	6,951.146
14342	19	6,283.14	0.9002	5,656.083
14344	22	7,782.76	0.8998	7,002.927
14350	21	7,174.20	0.8997	6,454.628
14349	22	7,801.43	0.8998	7,019.727
14348	18	6,057.68	0.8998	5,450.700
14347	20	6,951.00	0.8998	6,254.510
14346	22	7,482.89	0.8998	6,733.104
14345	22	7,655.55	0.8999	6,889.229
14353	21	7,331.54	0.8998	6,596.920
14352	21	7,235.53	0.8998	6,510.530
14351	22	7,685.35	0.8998	6,915.278
14358	18	6,539.37	0.8998	5,884.125
14357	18	6,508.37	0.8994	5,853.628
14354	21	7,432.76	0.8997	6,687.254
14361	22	7,991.52	0.8997	7,189.971
14360	17	6,075.04	0.8996	5,465.106
14359	18	6,459.17	0.8998	5,811.961
14364	21	7,596.29	0.8996	6,833.622
14363	21	7,562.97	0.8997	6,804.404
14362	21	7,572.70	0.8998	6,813.915
14368	23	8,525.98	0.8999	7,672.529
14367	23	8,253.87	0.8999	7,427.658
14365	21	7,521.02	0.8997	6,766.662

14372	20	7,245.02	0.8999	6,519.793
14371	21	7,734.82	0.9005	6,965.205
14370	21	7,737.82	0.9000	6,964.038
14382	21	7,231.79	0.9000	6,508.611
14374	17	6,097.03	0.9000	5,487.327
14373	20	7,256.32	0.9000	6,530.688
14385	18	6,208.10	0.8999	5,586.669
14384	21	7,273.43	0.8999	6,545.360
14383	20	6,865.10	0.9000	6,178.590
00271	20	6,746.75	0.9003	6,074.099
14387	20	6,866.34	0.9000	6,179.706
14386	19	6,440.20	0.8999	5,795.536
15170	18	6,025.63	0.9000	5,423.067
15169	16	5,242.75	0.9000	4,718.475
15277	23	7,631.83	0.9001	6,869.410
15276	22	7,351.45	0.9001	6,617.040
15275	21	6,861.40	0.9001	6,175.946
15280	22	7,210.93	0.9001	6,490.558
15278	23	7,536.53	0.9002	6,784.384
15284	19	6,187.90	0.9001	5,569.729
15283	20	6,580.65	0.9001	5,923.243
15281	24	7,889.80	0.9001	7,101.609
15416	9	2,944.20	0.9000	2,649.780
15318	24	7,851.93	0.9000	7,066.737
15455	22	7,281.70	0.9002	6,554.986
15454	21	6,892.78	0.9001	6,204.191
15453	20	6,519.80	0.9001	5,868.472
15458	22	7,099.58	0.9000	6,389.622
15457	21	6,876.62	0.9000	6,188.958
15456	21	6,918.00	0.9001	6,226.892
15461	22	7,099.83	0.9001	6,390.557
15460	23	7,257.10	0.9001	6,532.116
15459	20	6,444.10	0.9001	5,800.334
15464	21	6,805.50	0.9002	6,126.311
15463	21	6,889.60	0.9001	6,201.329
15462	21	6,906.10	0.9001	6,216.181
15466	21	6,757.88	0.9002	6,083.444
15465	22	7,172.42	0.9002	6,456.612
15491	22	7,191.38	0.9002	6,473.680
15490	22	7,095.18	0.9003	6,387.791
15489	22	7,270.63	0.9000	6,543.567
11942	24	7,831.71	0.9001	7,049.322
15492	21	6,857.97	0.9001	6,172.859
04608	24	8,210.55	0.9000	7,389.495

12601	21	6,683.45	0.9001	6,015.773
09726	23	8,150.15	0.9000	7,335.135
18441	20	6,543.61	0.9000	5,889.249
18442	20	6,502.36	0.9000	5,852.124
18439	20	6,606.08	0.9001	5,946.133
18438	23	7,381.40	0.9000	6,643.260
18436	21	6,962.23	0.9001	6,266.703
13889	14	4,420.11	0.9000	3,978.099
14213	9	2,938.60	0.9000	2,644.740
14289	7	2,072.65	0.9000	1,865.385
14310	20	6,442.47	0.9001	5,798.867
14312	20	6,536.11	0.9003	5,884.460
14313	8	2,643.37	0.9002	2,379.562
14552	20	6,712.60	0.9000	6,041.340
14559	22	7,305.00	0.9000	6,574.500
14584	20	6,444.42	0.9001	5,800.622
14586	19	6,223.15	0.9002	5,602.080
14604	18	5,824.30	0.9002	5,243.035
14605	19	6,164.90	0.9001	5,549.026
14608	22	7,044.82	0.9002	6,341.747
14607	22	7,233.05	0.9001	6,510.468
14606	20	6,563.90	0.9002	5,908.823
14766	21	6,932.66	0.9000	6,239.394
14610	11	3,554.37	0.9002	3,199.644
14609	21	6,807.40	0.9001	6,127.341
00267	19	6,349.43	0.9002	5,715.757
00269	20	6,728.15	0.9003	6,057.353
14777	16	5,172.85	0.9000	4,655.565
16432	20	6,563.09	0.9000	5,906.781
00270	20	6,618.74	0.9006	5,960.837
00266	20	6,623.85	0.9002	5,962.790
00371	20	6,495.40	0.9000	5,845.860
16433	22	7,037.65	0.9002	6,335.293
00378	21	6,954.80	0.9001	6,260.015
00373	22	7,272.60	0.9000	6,545.340
00372	19	6,353.15	0.9002	5,719.106
17190	22	7,212.63	0.9002	6,492.810
16922	9	2,883.58	0.9000	2,595.222
17225	20	6,571.10	0.9001	5,914.647
17192	17	5,610.45	0.9001	5,049.966
17229	20	6,509.00	0.9002	5,859.402
17228	22	7,086.60	0.9002	6,379.357
17227	21	6,875.34	0.9001	6,188.494
00072	19	6,355.55	0.9002	5,721.266

00071	21	7,154.63	0.9001	6,439.882
17770	13	4,010.36	0.9000	3,609.324
00075	20	6,546.77	0.9002	5,893.402
00074	18	5,875.50	0.9002	5,289.125
00073	24	8,033.93	0.9002	7,232.144
00158	18	5,946.45	0.9000	5,351.805
00076	16	4,803.18	0.9002	4,323.823
00670	10	3,138.83	0.9000	2,824.947
00910	23	7,616.08	0.9001	6,855.234
00993	21	7,185.05	0.9000	6,466.545
00997	23	7,536.00	0.9000	6,782.400
00998	23	7,573.05	0.9000	6,815.745
00138	16	5,073.93	0.9000	4,566.537
00274	21	7,093.68	0.9006	6,388.568
00272	20	6,771.50	0.9003	6,096.381
00281	19	6,496.74	0.9000	5,847.066
00278	19	6,370.80	0.9000	5,733.720
00286	22	7,140.65	0.9000	6,426.585
00283	20	6,827.40	0.9000	6,144.660
16184	21	6,817.90	0.9002	6,137.474
15704	21	6,815.05	0.9000	6,133.545
F 749	23	8,276.47	0.8998	7,447.168
F 752	22	7,895.15	0.8998	7,104.056
F 757	21	7,107.99	0.8999	6,396.480
F 759	24	8,595.60	0.8998	7,734.321
F 718	24	8,384.35	0.8999	7,545.077
F 730	23	8,027.45	0.8999	7,223.902
10100	22	7,743.98	0.8997	6,967.259
10104	22	7,488.87	0.8996	6,736.987
F 779	23	8,207.00	0.8998	7,384.659
F 765	21	7,299.88	0.8998	6,568.432
F 758	24	8,448.87	0.8999	7,603.138
F 719	23	7,963.04	0.8999	7,165.940
F 727	23	8,167.15	0.8998	7,348.802
F 729	23	8,028.62	0.8999	7,224.955
F 776	23	8,312.96	0.8998	7,480.001
F 786	24	8,390.33	0.8998	7,549.619
F 788	23	8,257.33	0.8999	7,430.771
F 798	23	8,229.42	0.8998	7,404.832
09400	22	7,899.08	0.8996	7,106.012
09361	20	6,924.20	0.8997	6,229.703
F 449	23	8,085.12	0.8998	7,274.991
F 706	23	8,370.11	0.8998	7,531.425
08419	20	6,760.94	0.8998	6,083.494

08415	22	7,675.34	0.8996	6,904.736
F 394	23	8,107.13	0.8999	7,295.606
09290	24	8,449.39	0.8997	7,601.916
F 404	24	8,201.95	0.8997	7,379.294
F 414	22	7,758.76	0.8998	6,981.332
F 377	23	8,225.37	0.8999	7,402.010
08034	22	7,586.51	0.8996	6,824.824
07753	20	7,076.03	0.8999	6,367.719
07754	21	7,356.45	0.8999	6,620.069
F 386	23	8,184.03	0.8998	7,363.990
F 390	22	7,820.83	0.8999	7,037.965
F 352	23	8,162.94	0.8998	7,345.013
F 353	23	8,160.28	0.8999	7,343.436
D 065	22	7,794.46	0.8995	7,011.117
D 061	19	6,873.35	0.8998	6,184.640
F 361	23	7,701.67	0.8998	6,929.963
07726	22	7,672.16	0.8998	6,903.410
07732	22	7,421.30	0.8996	6,676.201
07734	21	7,504.40	0.8996	6,750.958
07748	20	7,231.68	0.8998	6,507.066
07750	20	7,141.96	0.9000	6,427.764
07739	22	7,530.20	0.8997	6,774.921
07735	21	7,542.27	0.8995	6,784.272
F1766	23	8,452.43	0.8998	7,605.497
F1653	23	8,324.15	0.8999	7,490.903
F1669	22	7,705.85	0.8999	6,934.494
F1234	23	8,175.20	0.8998	7,356.045
26665	17	5,936.82	0.8998	5,341.951
F1577	23	8,178.35	0.8998	7,358.879
F1553	23	7,949.53	0.8998	7,152.987
F1557	23	7,838.35	0.8999	7,053.731
F1559	23	8,345.43	0.8998	7,509.218
F1561	23	8,437.53	0.8998	7,592.089
F1284	23	8,096.09	0.8998	7,284.862
F1282	23	8,100.91	0.8998	7,289.199
02302	22	7,660.62	0.9165	7,020.958
F1738	22	7,837.42	0.8998	7,052.111
F1736	23	8,205.65	0.8998	7,383.444
F1800	23	8,068.10	0.8999	7,260.483
F1792	23	8,313.76	0.8998	7,480.721
02307	22	7,560.18	0.9165	6,928.905
09731	23	7,814.95	0.8999	7,032.674
09729	24	7,958.42	0.8998	7,160.986
16188	22	7,253.58	0.9003	6,530.398

16187	23	7,293.54	0.9001	6,564.915
16186	22	7,384.62	0.9002	6,647.635
16191	6	1,972.03	0.9000	1,774.827
16189	22	7,201.35	0.9002	6,482.655
16402	21	6,766.60	0.9001	6,090.617
16401	21	6,756.40	0.9002	6,082.111
16400	20	6,430.40	0.9001	5,788.003
16405	20	6,481.68	0.9002	5,834.808
16404	21	6,817.62	0.9001	6,136.540
16407	24	7,598.55	0.9003	6,840.975
16406	22	7,115.38	0.9003	6,405.977
16423	23	7,213.02	0.9001	6,492.439
16421	23	7,409.00	0.9001	6,668.841
16429	14	4,478.00	0.9002	4,031.096
16427	22	7,169.33	0.9002	6,453.831
16431	23	7,470.83	0.9001	6,724.494
16430	20	6,468.84	0.9001	5,822.603
08652	18	5,623.10	0.9002	5,061.915
08620	22	7,112.10	0.9000	6,400.890
08713	26	8,200.82	0.9002	7,382.378
08714	25	7,897.13	0.9001	7,108.207
08715	24	7,692.38	0.9003	6,925.450
08718	22	7,250.73	0.9000	6,525.657
08717	23	7,409.30	0.9001	6,669.111
08716	24	7,729.70	0.9001	6,957.503
08721	22	6,898.32	0.9003	6,210.557
08720	22	7,187.56	0.9001	6,469.523
08719	23	7,386.55	0.9001	6,648.634
08731	9	2,741.80	0.9000	2,467.620
08723	22	6,965.06	0.9001	6,269.251
08722	24	7,855.58	0.9000	7,070.022
08871	21	7,038.45	0.9002	6,336.013
08733	18	5,827.70	0.9004	5,247.261
08732	24	7,557.80	0.9001	6,802.776
08876	23	7,610.65	0.9002	6,851.107
08874	22	7,118.30	0.9002	6,407.894
08883	22	7,197.32	0.9004	6,480.467
08885	3	1,036.63	0.9002	933.174
08882	23	7,617.20	0.9000	6,855.480
08879	21	6,758.23	0.9000	6,082.407
08899	22	7,212.45	0.9000	6,491.205
08898	23	7,657.20	0.9001	6,892.246
08971	22	7,236.78	0.9001	6,513.826
01484	21	6,977.32	0.9008	6,285.170

01482	22	7,357.63	0.9008	6,627.753
01527	15	5,076.70	0.9000	4,569.030
01283	20	6,679.73	0.9001	6,012.425
01140	8	2,669.05	0.9000	2,402.145
08989	21	6,876.20	0.9000	6,188.580
08975	23	7,509.35	0.9000	6,758.415
08973	23	7,250.42	0.9001	6,526.103
08972	21	6,942.12	0.9000	6,247.908
01491	23	7,400.75	0.9020	6,675.477
01490	23	7,482.45	0.9009	6,740.939
01488	23	7,589.12	0.9009	6,837.038
01612	20	6,413.13	0.9000	5,771.817
01578	7	2,258.00	0.9000	2,032.200
01492	21	6,812.65	0.9009	6,137.516
01681	9	2,938.56	0.9001	2,644.998
02040	23	7,595.13	0.9002	6,837.136
01494	10	3,314.58	0.9000	2,983.122
02042	21	6,905.70	0.9001	6,215.821
02041	21	6,956.78	0.9002	6,262.493
01737	17	5,348.22	0.9000	4,813.398
08468	24	8,175.18	0.9003	7,360.115
08467	23	7,914.60	0.9004	7,126.306
02043	22	7,071.58	0.9001	6,365.129
08471	24	7,993.24	0.9006	7,198.712
07916	24	7,511.55	0.9002	6,761.897
07915	21	6,960.50	0.9001	6,265.146
08201	21	6,788.13	0.9000	6,109.317
08205	16	5,173.05	0.9000	4,655.745
10500	24	8,076.25	0.9001	7,269.433
10502	22	7,421.78	0.9000	6,679.602
09913	23	7,486.90	0.9000	6,738.210
09884	23	7,271.80	0.9000	6,544.620
10503	16	5,461.50	0.9002	4,916.442
10676	23	7,398.00	0.9000	6,658.200
10675	24	7,754.45	0.9000	6,979.005
10674	22	7,130.05	0.9000	6,417.045
11179	19	5,987.37	0.9001	5,389.232
10678	21	6,882.35	0.9000	6,194.115
10677	23	7,565.30	0.9001	6,809.527
10605	16	4,960.86	0.9000	4,464.774
11268	16	5,367.18	0.9000	4,830.462
F 817	22	8,218.59	0.8999	7,395.909
F 816	22	8,219.59	0.8999	7,396.809
F 815	23	8,526.22	0.8998	7,671.893

F 820	23	8,222.37	0.8999	7,399.311
F 819	19	6,609.03	0.8998	5,946.805
F 818	22	8,232.08	0.9000	7,408.872
F 823	22	7,962.38	0.8999	7,165.346
F 822	22	7,856.81	0.8999	7,070.343
F 821	23	8,194.09	0.8997	7,372.223
F 826	23	8,202.43	0.8998	7,380.547
F 825	22	7,817.54	0.9000	7,035.786
F 824	23	8,263.72	0.8998	7,435.695
F 829	20	7,019.37	0.8998	6,316.029
F 828	22	7,762.67	0.8999	6,985.627
F 827	23	8,193.42	0.8998	7,372.439
09039	20	6,759.70	0.9000	6,083.730
09035	22	7,271.30	0.9000	6,544.170
08125	10	2,940.70	0.9000	2,646.630
08115	13	4,005.65	0.9000	3,605.085
09042	18	5,711.23	0.9001	5,140.678
09041	23	7,806.50	0.9000	7,025.850
09040	22	7,272.00	0.9000	6,544.800
08564	10	2,939.43	0.9000	2,645.487
08137	11	3,613.65	0.9000	3,252.285
F 831	22	8,151.61	0.8999	7,335.634
F 830	23	8,493.16	0.8999	7,642.995
08619	18	5,612.05	0.9000	5,050.845
F 835	23	7,881.99	0.8998	7,092.215
F 833	23	7,895.52	0.8999	7,105.178
F 832	23	8,551.86	0.8998	7,694.964
F 838	23	8,030.91	0.8998	7,226.213
F 837	23	7,916.76	0.8999	7,124.292
F 836	23	7,852.40	0.8998	7,065.590
08838	16	5,171.00	0.9000	4,653.900
F 840	24	8,606.39	0.8998	7,744.030
F 839	23	8,172.58	0.8999	7,354.505
09367	21	6,656.90	0.9000	5,991.210
08886	12	3,742.95	0.9001	3,369.029
09653	12	3,741.90	0.9001	3,368.084
09588	19	6,263.90	0.9000	5,637.510
09778	21	6,970.05	0.9002	6,274.439
09777	19	6,283.03	0.9000	5,654.727
09776	24	7,694.10	0.9000	6,924.690
09775	23	7,418.25	0.9002	6,677.909
09774	26	8,571.73	0.9001	7,715.414
09773	26	8,116.90	0.9001	7,306.022
09781	17	5,717.68	0.9001	5,146.484

09780	19	6,265.00	0.9001	5,639.127
09779	19	6,329.70	0.9001	5,697.363
09405	21	7,132.68	0.9000	6,419.412
08942	12	3,909.75	0.9000	3,518.775
08941	16	5,089.10	0.9000	4,580.190
10231	19	6,141.05	0.9000	5,526.945
10230	23	7,606.80	0.9000	6,846.120
00106	20	6,783.25	0.9002	6,106.282
10489	22	7,318.14	0.9000	6,586.326
10306	12	3,903.95	0.9000	3,513.555
10496	22	7,127.00	0.9000	6,414.300
10495	23	7,538.75	0.9002	6,786.383
10494	21	6,703.95	0.9001	6,034.225
10493	21	6,869.00	0.9001	6,182.787
10492	23	7,190.75	0.9002	6,473.113
10499	21	6,811.51	0.9001	6,131.040
10498	24	7,937.33	0.9000	7,143.597
10497	22	7,208.60	0.9000	6,487.740
F 882	23	8,491.54	0.9000	7,642.386
F 881	19	6,924.44	0.8998	6,230.611
F 880	23	8,323.57	0.8998	7,489.548
F 885	23	8,352.51	0.8998	7,515.588
F 884	23	8,478.40	0.8999	7,629.712
F 883	22	8,311.25	0.8998	7,478.463
F 888	23	8,102.29	0.8998	7,290.441
F 887	24	8,633.13	0.8998	7,768.090
F 886	21	7,746.88	0.8999	6,971.417
F 890	23	8,172.32	0.8999	7,354.271
F 889	20	6,637.71	0.8998	5,972.611
16579	11	3,666.77	0.8995	3,298.260
F 853	23	8,318.58	0.8997	7,484.226
F 852	23	8,299.15	0.8998	7,467.575
F 851	19	6,603.94	0.8998	5,942.225
F 856	23	8,383.98	0.8998	7,543.905
F 855	23	8,380.10	0.8998	7,540.414
F 854	23	8,335.25	0.8998	7,500.058
F 891	23	8,097.75	0.8999	7,287.165
F 858	23	8,222.25	0.8998	7,398.381
F 857	24	8,671.70	0.8998	7,802.796
F1151	23	8,504.86	0.8998	7,652.673
F1568	23	8,277.63	0.8998	7,448.211
F1610	23	8,291.30	0.9000	7,462.170
F1565	23	8,291.04	0.8999	7,461.107
09728	22	7,276.15	0.8999	6,547.807

F 894	24	8,523.43	0.8998	7,669.382
F 893	24	8,563.99	0.8998	7,705.878
F 892	24	8,671.07	0.9000	7,803.963
F 897	24	8,333.60	0.8999	7,499.407
F 896	23	8,150.50	0.8999	7,334.635
F 895	20	6,674.04	0.8998	6,005.301
F 900	23	8,091.09	0.8999	7,281.172
F 899	23	8,259.50	0.8999	7,432.724
F 898	23	8,066.06	0.8998	7,257.841
F1585	23	8,530.16	0.8999	7,676.291
F1588	22	7,901.20	0.8999	7,110.290
F1315	21	7,413.13	0.8999	6,671.076
F1586	23	8,419.10	0.8998	7,575.506
F1574	23	8,274.90	0.9001	7,448.237
F1572	22	7,568.53	0.9000	6,811.677
F1573	23	8,342.12	0.9000	7,507.908
F1569	23	7,754.90	0.8999	6,978.635
F1306	23	8,370.24	0.8998	7,531.542
F1307	23	8,410.37	0.8999	7,568.492
F1543	23	8,091.34	0.8999	7,281.397
F1548	23	8,217.38	0.8999	7,394.820
F1580	23	8,308.62	0.8997	7,475.265
F1579	23	8,343.88	0.8998	7,507.823
F1582	23	8,416.85	0.8999	7,574.323
F1587	17	5,920.50	0.8999	5,327.858
F 903	23	8,256.58	0.8998	7,429.271
F 902	24	8,706.17	0.8999	7,834.682
F 901	20	6,772.16	0.8998	6,093.590
F 906	21	7,558.14	0.8999	6,801.570
F 905	21	7,374.27	0.8999	6,636.106
F 904	23	8,234.00	0.8999	7,409.777
F 907	23	8,298.18	0.8998	7,466.702
F 908	23	8,347.02	0.8999	7,511.483
F 910	23	8,380.68	0.8998	7,540.936
F 841	22	7,329.72	0.8998	6,595.282
F 842	23	8,059.07	0.8999	7,252.357
F 843	23	8,054.90	0.8998	7,247.799
F 844	23	8,094.11	0.8997	7,282.271
F 845	19	6,966.43	0.8999	6,269.090
F 846	23	8,244.12	0.8998	7,418.059
F 847	23	8,244.63	0.8998	7,418.518
F 848	23	8,358.51	0.8998	7,520.987
F 849	23	8,382.62	0.8999	7,543.520
F 850	22	8,106.18	0.8999	7,294.751

F 861	23	8,177.65	0.8999	7,359.067
F 862	23	7,874.42	0.9000	7,086.978
F 869	19	6,649.49	0.8999	5,983.876
F 866	23	8,130.00	0.8998	7,315.374
F 865	22	7,519.28	0.9000	6,767.352
F 864	24	8,462.04	0.8998	7,614.144
F 863	23	8,037.68	0.8998	7,232.304
F 872	22	8,233.74	0.9000	7,410.366
F 871	22	8,163.80	0.9000	7,347.420
F 870	23	8,482.25	0.8999	7,633.177
F 834	24	8,721.35	0.8998	7,847.471
F 940	23	8,434.24	0.8999	7,589.973
F 879	23	8,371.48	0.8999	7,533.495
F 878	23	8,355.58	0.8998	7,518.351
F 877	23	8,126.00	0.8998	7,311.775
F 876	23	8,401.90	0.8998	7,560.030
F 875	19	6,732.52	0.8998	6,057.921
F 874	23	8,579.20	0.9000	7,721.280
F 873	22	8,210.72	0.8999	7,388.827
F 859	21	7,287.33	0.8999	6,557.868
F 860	23	8,062.53	0.8999	7,255.471
F 941	15	5,392.33	0.8998	4,852.019
F 947	23	8,129.29	0.8998	7,314.735
F 946	23	8,538.93	0.8998	7,683.329
F 945	24	8,879.39	0.8999	7,990.563
F 944	23	8,423.15	0.8999	7,579.993
F 943	23	8,447.33	0.8999	7,601.752
F 942	23	8,627.85	0.8998	7,763.339
F 954	24	8,443.17	0.8999	7,598.009
F 953	23	7,989.53	0.8998	7,188.979
F 951	23	8,202.10	0.8999	7,381.070
F 950	23	8,217.75	0.8999	7,395.153
F 949	22	7,200.16	0.8999	6,479.424
F 948	23	8,423.89	0.8999	7,580.659
F 955	22	7,360.12	0.8999	6,623.372
F 956	23	8,149.48	0.8998	7,332.902
F 958	23	8,326.25	0.8999	7,492.792
F 961	21	6,996.68	0.8998	6,295.613
F 960	24	8,372.09	0.8998	7,533.207
F 959	23	8,186.47	0.8999	7,367.004
F 964	23	8,185.83	0.8998	7,365.610
F 963	24	8,495.04	0.8999	7,644.686
F 962	23	8,085.25	0.8999	7,275.916
00967	23	8,361.09	0.9000	7,524.981

00966	23	8,454.25	0.8999	7,607.980
00965	18	6,547.86	0.8998	5,891.764
00968	23	8,356.73	0.8999	7,520.221
00969	23	8,294.52	0.8999	7,464.239
00970	23	8,298.45	0.8999	7,467.775
00971	23	8,109.55	0.8998	7,296.973
00972	18	6,160.65	0.8998	5,543.353
00973	23	8,334.92	0.8998	7,499.761
00974	23	8,446.89	0.8999	7,601.356
00975	23	8,398.50	0.8999	7,557.810
00976	24	8,845.52	0.8999	7,960.083
00977	18	6,559.20	0.9000	5,903.280
00978	22	8,087.58	0.8997	7,276.396
00979	23	8,265.90	0.8998	7,437.657
00980	23	8,516.47	0.8999	7,663.971
00981	23	8,543.00	0.8998	7,686.991
00982	23	8,347.84	0.8999	7,512.221
F 916	23	8,435.99	0.8999	7,591.547
F 915	23	8,528.83	0.9000	7,675.947
F 914	23	8,514.26	0.8999	7,661.983
F 913	22	8,195.50	0.9000	7,375.950
F 912	20	7,492.20	0.8999	6,742.231
F 911	20	7,137.89	0.8999	6,423.387
F 925	22	7,719.45	0.8999	6,946.733
F 924	24	8,547.12	0.8998	7,690.699
F 923	23	8,156.85	0.8998	7,339.534
F 922	23	8,343.82	0.8998	7,507.769
F 921	23	8,246.92	0.8998	7,420.579
F 920	22	7,927.24	0.8999	7,133.723
F 919	23	8,204.85	0.8999	7,383.545
F 918	23	8,301.50	0.8998	7,469.690
F 917	21	7,285.18	0.8999	6,555.933
F 931	19	6,572.97	0.8998	5,914.358
F 930	24	8,521.50	0.8998	7,667.646
F 929	23	8,095.15	0.8997	7,283.206
F 928	22	7,785.71	0.8998	7,005.582
F 927	23	7,933.61	0.8998	7,138.662
F 926	23	8,171.22	0.9000	7,354.098
F 934	23	8,295.82	0.8998	7,464.579
F 933	24	8,521.76	0.8999	7,668.732
F 932	23	8,314.83	0.8998	7,481.684
F1044	24	8,555.65	0.8999	7,699.229
F1043	23	8,253.85	0.8998	7,426.814
F1042	23	8,129.56	0.8999	7,315.791

F 939	23	8,527.63	0.8998	7,673.161
F 938	23	8,610.43	0.8999	7,748.526
F 937	23	8,624.18	0.8998	7,760.037
F 935	16	5,711.88	0.8998	5,139.550
F 936	23	8,401.58	0.8998	7,559.742
F1047	23	8,042.90	0.8998	7,237.001
F1046	22	7,635.43	0.8997	6,869.596
F1045	23	8,034.36	0.8998	7,229.317
F1050	23	8,157.15	0.8999	7,340.619
F1049	23	8,041.90	0.8998	7,236.102
F1048	23	8,009.13	0.8999	7,207.416
F1012	23	8,497.70	0.8998	7,646.230
F1011	23	8,424.32	0.8998	7,580.203
F 952	23	8,152.20	0.8999	7,336.165
F1015	23	8,488.32	0.8998	7,637.790
F1014	23	8,377.12	0.8998	7,537.733
F1013	19	6,499.98	0.8998	5,848.682
F1021	23	8,487.38	0.8998	7,636.945
F1020	23	8,348.80	0.8999	7,513.085
F1019	17	6,068.54	0.8998	5,460.472
F1018	23	8,167.70	0.8998	7,349.296
F1017	23	8,372.15	0.8999	7,534.098
F1016	23	8,399.61	0.8998	7,557.969
F1024	23	8,340.20	0.8998	7,504.512
F1023	23	8,492.23	0.8998	7,641.309
F1022	23	8,568.70	0.8998	7,710.116
F1025	17	5,992.18	0.9000	5,392.962
F1026	23	8,542.37	0.8999	7,687.279
F1027	23	8,459.82	0.8999	7,612.992
F1030	23	8,453.47	0.8998	7,606.432
F1029	23	8,382.18	0.8998	7,542.286
F1028	23	8,481.94	0.8999	7,632.898
F1033	22	7,841.16	0.8999	7,056.260
F1032	23	8,174.76	0.8999	7,356.467
F1031	19	6,612.69	0.8998	5,950.098
F1036	23	8,362.41	0.8998	7,524.497
F1035	23	8,209.61	0.8999	7,387.828
F1034	21	7,390.04	0.8999	6,650.297
F1039	23	8,299.30	0.8998	7,467.710
F1038	23	8,218.59	0.8999	7,395.909
F1037	23	8,344.93	0.8999	7,509.603
F 987	23	8,090.13	0.9000	7,281.117
F1051	23	7,988.77	0.8998	7,188.295
F1040	21	7,125.60	0.8997	6,410.902

F 996	23	8,095.16	0.9000	7,285.644
F 995	24	8,378.69	0.8999	7,539.983
F 994	22	7,923.15	0.8999	7,130.043
F 993	23	8,349.72	0.8999	7,513.913
F 992	23	8,334.69	0.8998	7,499.554
F 991	22	7,312.13	0.8999	6,580.186
F 990	23	8,023.85	0.8999	7,220.663
F 989	23	8,383.20	0.8998	7,543.203
F 988	23	7,975.94	0.8999	7,177.548
F1000	23	8,142.68	0.9000	7,328.412
F1001	23	8,453.37	0.8999	7,607.188
F 999	23	8,059.37	0.8999	7,252.627
F 998	24	8,364.54	0.9000	7,528.086
F 997	21	7,283.44	0.8999	6,554.368
F1003	20	7,254.90	0.8999	6,528.685
F1004	23	8,231.08	0.8998	7,406.326
F1005	23	8,217.35	0.8999	7,394.793
F1009	23	8,343.76	0.8999	7,508.550
F1008	23	8,393.25	0.8999	7,553.086
F1007	17	6,264.83	0.8999	5,637.721
F1083	23	8,243.87	0.8999	7,418.659
F1041	23	8,307.98	0.8998	7,475.520
F1010	23	8,389.02	0.8999	7,549.279
F1086	23	8,293.18	0.8998	7,462.203
F1085	23	8,141.55	0.8999	7,326.581
F1084	23	8,257.00	0.8998	7,429.649
F1089	23	8,172.62	0.8999	7,354.541
F1088	21	7,082.52	0.9000	6,374.268
F1087	23	8,291.35	0.8999	7,461.386
F1092	17	5,802.42	0.8998	5,221.018
F1091	23	8,020.56	0.8999	7,217.702
F1090	24	8,461.08	0.8999	7,614.126
F1095	23	8,545.31	0.8997	7,688.215
F1094	23	8,523.03	0.8998	7,669.022
F1093	23	8,488.22	0.8998	7,637.700
F1098	18	6,214.12	0.8999	5,592.087
F1097	23	8,434.39	0.8998	7,589.264
F1096	23	8,512.76	0.8998	7,659.781
F1101	23	8,153.82	0.8998	7,336.807
F1100	23	8,380.72	0.8999	7,541.810
F1099	24	8,741.80	0.8998	7,865.872
F1324	23	8,445.80	0.8999	7,600.375
F1323	23	8,429.69	0.8998	7,585.035
F1322	23	8,316.79	0.8999	7,484.279

F1328	23	8,549.03	0.8999	7,693.272
F1327	18	6,227.45	0.8999	5,604.082
F1325	23	8,377.37	0.8998	7,537.958
F1334	23	8,187.14	0.9000	7,368.426
F1333	16	5,740.54	0.8998	5,165.338
F1332	23	8,560.20	0.8999	7,703.324
F1329	23	8,440.12	0.8998	7,594.420
F1330	23	8,482.74	0.8999	7,633.618
F1331	23	8,545.83	0.8999	7,690.392
F1338	23	8,170.06	0.8998	7,351.420
F1339	21	7,410.72	0.8999	6,668.907
F1340	23	7,945.35	0.8999	7,150.020
F1337	23	8,222.55	0.8998	7,398.650
F1336	23	8,164.68	0.8999	7,347.396
F1335	23	8,166.00	0.8999	7,348.583
F1055	23	8,088.26	0.8998	7,277.816
F1054	23	8,253.97	0.8998	7,426.922
F1053	23	8,258.22	0.8998	7,430.746
F1351	15	5,467.56	0.8999	4,920.257
F1352	23	8,284.08	0.8998	7,454.015
F1052	23	7,566.45	0.8998	6,808.292
F1057	23	8,205.30	0.8998	7,383.129
F1058	22	7,709.02	0.8998	6,936.576
F1059	23	8,128.07	0.9000	7,315.263
F1062	23	7,985.12	0.8998	7,185.011
F1061	22	7,738.53	0.8998	6,963.129
F1060	23	8,252.33	0.8997	7,424.621
F1065	23	8,182.95	0.8999	7,363.837
F1064	23	8,020.97	0.8997	7,216.467
F1063	23	8,166.36	0.8998	7,348.091
F1068	23	8,079.85	0.8999	7,271.057
F1067	22	7,693.64	0.8998	6,922.737
F1066	23	8,291.04	0.8999	7,461.107
F1071	23	8,111.63	0.9000	7,300.467
F1070	23	7,984.43	0.8999	7,185.189
F1069	24	8,325.55	0.8998	7,491.330
F1072	23	8,127.85	0.8998	7,313.439
F1073	22	7,695.48	0.9000	6,925.932
F1074	23	8,222.34	0.8998	7,398.462
F1077	23	8,208.50	0.8998	7,386.008
F1076	21	7,067.36	0.8998	6,359.211
F1075	23	8,325.97	0.8998	7,491.708
F1080	23	8,240.03	0.8998	7,414.379
F1079	23	8,161.08	0.8998	7,343.340

F1078	23	8,337.60	0.8998	7,502.172
F1392	23	8,161.30	0.8998	7,343.538
F1082	21	7,279.66	0.8999	6,550.966
F1081	23	8,171.54	0.8999	7,353.569
F1395	23	8,225.50	0.8999	7,402.127
F1394	23	8,033.37	0.8998	7,228.426
F1393	22	7,513.56	0.8998	6,760.701
F1402	23	8,144.93	0.8999	7,329.623
F1401	23	8,228.12	0.8998	7,403.662
F1400	23	8,127.43	0.8998	7,313.062
22406	21	7,587.85	0.8994	6,824.512
22405	19	6,751.50	0.8995	6,072.974
22404	21	7,532.87	0.8992	6,773.557
20356	15	4,824.48	0.8998	4,341.067
18157	11	3,961.86	0.8994	3,563.297
F1403	23	8,035.77	0.8999	7,231.389
22400	17	5,733.92	0.8993	5,156.514
22399	17	6,090.67	0.8992	5,476.730
22398	17	6,131.59	0.8995	5,515.365
22475	23	8,013.26	0.8996	7,208.729
22516	20	7,190.47	0.8998	6,469.985
22517	21	7,486.85	0.8995	6,734.422
22407	20	7,233.00	0.8995	6,506.084
22408	20	6,821.69	0.8994	6,135.428
22474	22	7,817.17	0.8994	7,030.763
F1370	23	8,632.07	0.8998	7,767.137
F1371	22	8,235.57	0.8998	7,410.366
F1372	23	8,618.52	0.8998	7,754.944
22518	19	6,706.82	0.8997	6,034.126
22519	21	7,270.20	0.8994	6,538.818
22520	21	7,105.02	0.8994	6,390.255
F1357	22	7,560.36	0.8998	6,802.812
F1358	23	8,485.05	0.8999	7,635.696
F1359	23	8,678.60	0.8999	7,809.872
F1354	23	8,156.29	0.8998	7,339.030
F1355	22	7,991.74	0.8998	7,190.968
F1356	23	8,081.78	0.8998	7,271.986
F1321	22	7,536.98	0.8998	6,781.775
F1343	23	8,491.17	0.8999	7,641.204
F1353	23	8,254.50	0.8998	7,427.399
F1379	23	8,545.70	0.8998	7,689.421
F1380	22	8,152.12	0.8998	7,335.278
F1381	18	6,332.07	0.8998	5,697.597
F1373	23	8,567.38	0.8998	7,708.929

F1377	22	8,223.33	0.8998	7,399.352
F1375	17	6,105.63	0.8998	5,493.846
F1360	23	8,554.55	0.8998	7,697.384
F1341	23	8,032.62	0.8999	7,228.555
F1342	23	7,944.28	0.8999	7,149.058
F1344	23	8,412.75	0.8998	7,569.792
F1345	21	7,488.36	0.8998	6,738.026
F1396	24	8,976.60	0.9001	8,079.838
F1367	23	8,572.74	0.8999	7,714.609
F1368	23	8,476.23	0.8998	7,626.912
F1369	16	5,778.13	0.8999	5,199.739
F1364	23	8,364.79	0.8998	7,526.638
F1365	23	8,589.75	0.8998	7,729.057
F1366	23	8,530.45	0.8998	7,675.699
F1361	23	8,719.90	0.8998	7,846.166
F1362	23	8,567.31	0.8998	7,708.866
F1363	15	5,319.44	0.8998	4,786.432
F1347	23	8,500.12	0.8999	7,649.258
F1349	23	8,553.20	0.8998	7,696.169
F1350	23	8,590.45	0.8999	7,730.546
F1382	23	8,012.20	0.8998	7,209.378
F1383	23	8,233.28	0.8999	7,409.129
F1384	23	8,209.93	0.8998	7,387.295
F1387	21	7,454.98	0.8998	6,707.991
F1386	23	8,141.09	0.8997	7,324.539
F1385	23	8,276.24	0.8998	7,446.961
F1390	23	8,094.32	0.8998	7,283.269
F1389	23	8,221.07	0.8999	7,398.141
F1388	23	7,999.77	0.8999	7,198.993
F1431	21	7,529.87	0.8998	6,775.377
22954	15	5,105.30	0.9002	4,595.791
22953	17	5,982.74	0.9006	5,388.056
F1434	23	7,980.54	0.8999	7,181.688
F1433	23	8,078.89	0.8998	7,269.385
F1437	23	8,076.75	0.8997	7,266.652
F1436	23	8,129.94	0.8998	7,315.320
F1435	23	7,991.15	0.8998	7,190.437
F1440	23	8,248.43	0.8998	7,421.937
F1439	23	8,103.01	0.8998	7,291.088
F1438	23	8,081.57	0.8998	7,271.797
F1443	22	7,537.17	0.8999	6,782.699
F1442	23	8,186.29	0.8998	7,366.024
F1441	23	8,170.30	0.8998	7,351.636
F1446	23	7,980.43	0.8998	7,180.791

F1445	23	8,062.78	0.8998	7,254.889
F1444	23	8,282.10	0.8998	7,452.234
F1449	22	7,595.21	0.8999	6,834.929
F1448	23	8,296.38	0.8998	7,465.083
F1447	23	8,115.33	0.8998	7,302.174
F1452	23	7,836.62	0.8999	7,052.174
F1451	23	7,984.24	0.8998	7,184.219
F1450	23	8,066.80	0.8998	7,258.507
F1456	23	8,022.07	0.8999	7,219.061
F1455	24	8,506.01	0.8998	7,653.708
F1453	22	7,590.60	0.8998	6,830.022
F1458	23	7,995.05	0.9000	7,195.545
F1457	23	7,973.96	0.8999	7,175.767
F1461	23	8,092.90	0.8999	7,282.801
F1460	23	8,165.68	0.8998	7,347.479
F1459	23	8,081.98	0.8998	7,272.166
F1464	23	8,194.95	0.9000	7,375.455
F1463	23	8,174.63	0.9000	7,357.167
F1462	23	8,058.66	0.8999	7,251.988
F1467	22	7,829.10	0.8999	7,045.407
F1466	22	7,809.52	0.9000	7,028.568
F1465	23	8,274.57	0.9000	7,447.113
F1397	23	8,567.54	0.9000	7,710.786
F1469	23	8,138.12	0.8998	7,322.680
F1468	23	8,149.87	0.8999	7,334.068
F1404	23	8,528.50	0.8998	7,673.944
F1399	17	5,973.33	0.8998	5,374.802
F1398	23	8,538.56	0.8999	7,683.850
F 867	23	8,061.17	0.8998	7,253.441
F1595	23	8,532.60	0.8998	7,677.633
F1597	23	8,538.25	0.8998	7,682.717
F1678	23	8,239.33	0.8999	7,414.573
F1622	23	8,333.30	0.8998	7,498.303
M 349	23	9,542.19	0.9998	9,540.282
03382	22	9,027.06	0.9997	9,024.352
41366	15	5,860.64	0.9996	5,858.296
00414	21	8,834.52	0.9997	8,831.870
17719	22	8,884.35	0.9996	8,880.796
09275	21	8,228.25	0.9996	8,224.959
07353	21	8,227.78	0.9994	8,222.843
08243	18	6,945.88	0.9997	6,943.796
01208	22	9,100.98	0.9996	9,097.340
RM068	22	9,262.46	0.9990	9,253.198
RM139	22	9,238.98	0.9995	9,234.361

RM220	23	9,467.81	0.9994	9,462.129
M 308	23	9,366.10	0.9998	9,364.227
17649	20	8,492.89	0.9998	8,491.191
15800	19	7,879.83	0.9998	7,878.254
19066	13	5,271.74	0.9998	5,270.686
16081	19	7,819.21	0.9993	7,813.737
13769	21	8,719.56	0.9996	8,716.072
11277	14	5,284.09	0.9992	5,279.863
13816	21	8,724.88	0.9995	8,720.518
16798	21	8,913.88	0.9998	8,912.097
09126	22	9,131.85	0.9995	9,127.284
03295	16	6,251.47	0.9998	6,250.220
M 030	23	9,748.69	0.9998	9,746.740
00009	21	8,258.90	0.9986	8,247.338
16369	16	6,233.90	0.9968	6,213.952
16375	12	4,641.70	0.9965	4,625.454
16374	10	3,884.20	0.9969	3,872.159
00043	20	7,643.50	0.9986	7,632.799
00042	15	5,880.05	0.9988	5,872.994
00041	18	7,075.10	0.9990	7,068.025
00040	16	6,227.30	0.9994	6,223.564
11997	15	5,873.35	0.9993	5,869.239
10380	18	6,868.59	0.9996	6,865.843
10265	20	7,881.62	0.9993	7,876.103
10264	20	8,192.40	0.9995	8,188.304
10263	20	8,113.89	0.9997	8,111.456
10262	20	7,966.70	0.9998	7,965.107
09509	21	8,134.77	0.9996	8,131.516
09508	20	8,061.57	0.9997	8,059.152
09507	20	7,960.70	0.9998	7,959.108
09506	20	7,992.08	0.9998	7,990.482
09253	19	7,495.20	0.9993	7,489.953
09252	21	8,469.80	0.9998	8,468.106
09251	20	8,096.30	0.9997	8,093.871
09250	20	8,091.80	0.9997	8,089.372
09116	13	5,260.59	0.9998	5,259.538
09115	16	6,598.51	0.9998	6,597.190
M 045	23	9,276.24	0.9998	9,274.385
M 044	23	9,386.78	0.9998	9,384.903
M 043	23	9,442.78	0.9998	9,440.891
M 042	23	9,430.04	0.9998	9,428.154
M 041	23	9,424.29	0.9998	9,422.405
M 040	23	9,397.57	0.9999	9,396.630
M 039	23	9,247.79	0.9998	9,245.940

M 038	22	9,089.16	0.9998	9,087.342
M 037	23	9,339.47	0.9998	9,337.602
M 036	23	9,501.51	0.9998	9,499.610
M 035	23	9,310.48	0.9999	9,309.549
M 034	23	9,651.26	0.9998	9,649.330
M 033	23	9,480.32	0.9998	9,478.424
M 032	23	9,722.78	0.9999	9,721.808
M 031	23	9,417.35	0.9999	9,416.408
M 029	23	9,390.20	0.9998	9,388.322
M 028	23	9,654.52	0.9998	9,652.589
M 027	23	9,327.06	0.9999	9,326.127
M 026	23	9,245.56	0.9998	9,243.711
M 025	23	9,364.49	0.9999	9,363.554
M 024	23	9,393.23	0.9999	9,392.291
M 023	23	9,515.02	0.9999	9,514.068
M 022	23	9,557.76	0.9998	9,555.848
M 021	23	9,555.40	0.9998	9,553.489
M 020	23	9,507.96	0.9998	9,506.058
M 019	23	9,499.59	0.9998	9,497.690
M 018	23	9,454.03	0.9998	9,452.139
M 017	23	9,313.69	0.9998	9,311.827
M 016	23	9,583.94	0.9998	9,582.023
M 015	23	9,561.32	0.9999	9,560.364
M 014	23	9,335.71	0.9998	9,333.843
M 013	23	9,294.76	0.9998	9,292.901
M 351	23	9,413.03	0.9998	9,411.147
M 352	23	9,540.28	0.9999	9,539.326
16769	12	4,560.68	0.9996	4,558.856
17535	11	4,192.30	0.9997	4,191.042
17992	23	9,318.26	0.9997	9,315.465
17993	22	8,966.75	0.9998	8,964.957
17994	22	9,004.67	0.9998	9,002.869
17995	22	9,139.77	0.9998	9,137.942
17996	22	9,127.18	0.9998	9,125.355
18003	20	8,123.02	0.9998	8,121.395
18004	22	9,070.76	0.9998	9,068.946
18005	22	9,012.44	0.9998	9,010.638
18006	21	8,542.02	0.9998	8,540.312
18007	21	8,706.82	0.9998	8,705.079
18008	21	8,666.02	0.9997	8,663.420
18009	21	8,314.81	0.9998	8,313.147
18185	23	9,587.64	0.9998	9,585.722
18186	21	8,467.20	0.9998	8,465.507
18205	14	5,554.55	0.9997	5,552.884

18272	15	6,052.96	0.9995	6,049.934
M 353	23	9,582.05	0.9998	9,580.134
M 354	23	9,551.81	0.9998	9,549.900
M 355	23	9,586.63	0.9998	9,584.713
M 356	23	9,472.46	0.9998	9,470.566
03297	15	5,782.16	0.9998	5,781.004
03296	16	6,138.25	0.9998	6,137.022
02845	20	7,641.90	0.9993	7,636.551
02847	13	4,739.38	0.9992	4,735.588
02846	17	6,572.60	0.9994	6,568.656
02843	20	7,888.30	0.9993	7,882.778
02844	20	7,904.80	0.9995	7,900.848
03069	21	8,482.60	0.9996	8,479.207
03068	22	8,919.28	0.9996	8,915.712
03072	20	8,012.30	0.9993	8,006.691
03071	21	8,416.85	0.9996	8,413.483
03074	22	8,760.55	0.9996	8,757.046
03076	17	6,417.05	0.9997	6,415.125
03075	20	8,073.80	0.9998	8,072.185
03070	19	7,467.17	0.9994	7,462.690
03073	21	8,463.08	0.9994	8,458.002
03598	14	5,169.14	0.9995	5,166.555
03306	16	5,965.86	0.9991	5,960.491
08134	21	8,542.36	0.9994	8,537.235
04662	16	6,448.37	0.9995	6,445.146
04640	15	6,056.90	0.9995	6,053.872
04870	15	5,596.05	0.9998	5,594.931
04633	15	5,770.27	0.9993	5,766.231
06760	13	5,148.05	0.9997	5,146.506
04872	21	8,399.81	0.9998	8,398.130
07769	21	8,316.53	0.9995	8,312.372
04661	16	6,120.33	0.9995	6,117.270
04963	15	6,046.62	0.9996	6,044.201
04882	17	7,056.42	0.9995	7,052.892
03547	22	8,655.80	0.9996	8,652.338
03546	23	9,018.90	0.9996	9,015.292
03549	18	7,040.68	0.9994	7,036.456
03548	21	8,013.72	0.9998	8,012.117
04211	17	6,435.50	0.9999	6,434.856
04188	21	7,947.80	0.9990	7,939.852
05023	20	7,977.35	0.9995	7,973.361
05024	20	8,064.44	0.9996	8,061.214
05025	20	7,872.80	0.9995	7,868.864
05197	18	6,904.74	0.9990	6,897.835

05198	22	8,514.12	0.9992	8,507.309
04964	15	6,059.09	0.9992	6,054.243
04965	13	5,225.85	0.9994	5,222.714
05195	16	6,510.73	0.9990	6,504.219
05196	14	5,616.55	0.9990	5,610.933
05365	20	8,061.44	0.9996	8,058.215
06038	21	8,059.21	0.9995	8,055.180
07152	16	6,290.23	0.9996	6,287.714
08849	20	7,854.83	0.9990	7,846.975
08850	20	7,979.60	0.9996	7,976.408
08443	10	3,636.42	0.9996	3,634.965
07531	21	7,909.72	0.9993	7,904.183
07643	22	8,856.33	0.9996	8,852.787
07644	21	8,281.11	0.9998	8,279.454
07528	15	5,985.17	0.9992	5,980.382
07642	22	8,878.85	0.9997	8,876.186
07646	16	5,957.90	0.9993	5,953.729
07645	21	8,349.50	0.9996	8,346.160
17997	22	8,926.87	0.9998	8,925.085
17998	23	9,307.62	0.9998	9,305.758
17999	23	9,257.07	0.9998	9,255.219
18000	23	9,411.02	0.9998	9,409.138
18002	22	8,975.64	0.9998	8,973.845
18001	22	8,896.14	0.9998	8,894.361
10172	19	7,453.80	0.9990	7,446.346
10174	18	7,016.50	0.9994	7,012.290
09794	16	6,409.28	0.9997	6,407.357
09793	17	6,837.93	0.9997	6,835.879
09792	20	7,982.53	0.9998	7,980.933
10171	20	8,075.90	0.9992	8,069.439
09776	21	8,225.11	0.9997	8,222.642
09775	21	8,421.33	0.9996	8,417.961
09795	19	7,353.90	0.9997	7,351.694
09797	20	8,003.93	0.9996	8,000.728
09490	20	8,002.25	0.9996	7,999.049
09492	19	7,909.55	0.9997	7,907.177
09796	20	7,888.95	0.9996	7,885.794
09430	14	5,764.84	0.9995	5,761.958
09970	19	7,123.78	0.9998	7,122.355
10791	17	6,692.92	0.9998	6,691.581
10845	13	4,947.30	0.9994	4,944.332
10873	17	6,788.83	0.9997	6,786.793
10844	13	5,090.57	0.9992	5,086.498
10872	18	7,206.18	0.9996	7,203.298

10874	16	6,029.85	0.9997	6,028.041
09927	20	7,923.10	0.9996	7,919.931
10173	20	8,079.67	0.9994	8,074.822
10138	17	6,845.95	0.9998	6,844.581
08851	20	7,867.23	0.9995	7,863.296
11971	13	5,051.02	0.9996	5,049.000
09487	21	8,680.35	0.9998	8,678.614
09431	16	6,256.05	0.9997	6,254.173
09491	19	7,749.24	0.9996	7,746.140
09120	13	5,311.60	0.9995	5,308.944
09488	21	8,526.45	0.9997	8,523.892
09493	16	6,434.83	0.9996	6,432.256
09125	22	9,016.19	0.9996	9,012.584
09128	22	9,141.58	0.9996	9,137.923
08853	21	8,041.45	0.9994	8,036.625
09127	22	9,018.33	0.9996	9,014.723
08814	15	6,006.55	0.9996	6,004.147
09129	21	8,659.78	0.9994	8,654.584
11996	20	8,031.76	0.9998	8,030.154
11905	19	7,606.75	0.9995	7,602.947
04088	21	7,967.42	0.9996	7,964.233
04087	21	8,444.70	0.9998	8,443.011
09969	19	7,419.99	0.9997	7,417.764
10179	19	7,647.62	0.9995	7,643.796
10630	21	8,426.04	0.9997	8,423.512
09903	21	8,152.60	0.9998	8,150.969
09902	20	7,691.06	0.9998	7,689.522
09904	20	8,102.55	0.9994	8,097.688
10180	20	8,080.12	0.9997	8,077.696
10181	17	6,615.68	0.9997	6,613.695
09968	21	8,049.24	0.9998	8,047.630
09967	19	7,332.36	0.9998	7,330.894
09937	18	7,005.02	0.9995	7,001.517
08852	21	8,278.75	0.9995	8,274.611
08815	14	5,528.47	0.9994	5,525.153
09774	21	8,395.49	0.9997	8,392.971
09777	22	8,770.70	0.9994	8,765.438
09798	18	7,256.22	0.9997	7,254.043
09799	22	8,865.72	0.9997	8,863.060
09779	12	4,666.59	0.9995	4,664.257
09778	20	7,949.65	0.9994	7,944.880
10182	19	7,534.68	0.9998	7,533.173
13627	20	8,323.63	0.9998	8,321.965
13628	21	8,614.35	0.9998	8,612.627

13629	21	8,533.48	0.9998	8,531.773
13630	20	8,050.43	0.9998	8,048.820
13631	20	8,152.78	0.9995	8,148.704
13768	21	8,646.35	0.9995	8,642.027
15007	18	7,438.66	0.9997	7,436.428
15006	19	7,882.55	0.9997	7,880.185
15009	16	6,587.36	0.9996	6,584.725
M 284	23	9,164.01	0.9998	9,162.177
14992	19	7,740.29	0.9998	7,738.742
15008	18	7,431.97	0.9997	7,429.740
16799	20	8,243.01	0.9998	8,241.361
16800	20	8,373.88	0.9998	8,372.205
16801	20	8,378.55	0.9998	8,376.874
16802	17	6,856.32	0.9998	6,854.949
16803	20	8,490.05	0.9998	8,488.352
16804	20	8,445.65	0.9998	8,443.961
16805	17	7,115.93	0.9998	7,114.507
M 361	23	9,175.08	0.9998	9,173.245
M 362	23	9,337.05	0.9998	9,335.183
M 363	23	9,434.92	0.9998	9,433.033
M 364	23	9,260.51	0.9998	9,258.658
M 365	23	9,278.47	0.9998	9,276.614
D 048	22	9,099.63	0.9998	9,097.810
D 049	22	9,134.24	0.9998	9,132.413
D 050	22	9,006.46	0.9995	9,001.957
D 051	22	9,058.83	0.9996	9,055.206
11278	15	6,064.13	0.9993	6,059.885
11776	16	6,429.69	0.9996	6,427.118
11222	12	4,371.60	0.9995	4,369.414
11130	15	6,021.84	0.9993	6,017.625
01134	19	7,746.65	0.9997	7,744.326
01133	21	8,690.53	0.9996	8,687.054
06833	19	7,706.43	0.9998	7,704.889
06834	19	7,707.92	0.9996	7,704.837
06835	19	7,576.73	0.9997	7,574.457
06836	18	6,761.91	0.9995	6,758.529
06837	18	7,246.10	0.9995	7,242.477
06838	18	7,303.68	0.9993	7,298.567
06839	19	7,937.20	0.9996	7,934.025
06840	16	6,733.67	0.9995	6,730.303
07158	16	6,135.53	0.9997	6,133.689
07167	20	7,969.88	0.9995	7,965.895
07380	15	6,103.93	0.9998	6,102.709
07381	15	5,860.66	0.9997	5,858.902

08692	21	8,088.32	0.9995	8,084.276
08691	21	8,424.37	0.9995	8,420.158
08799	20	7,791.30	0.9993	7,785.846
08690	21	8,486.96	0.9996	8,483.565
08687	21	8,488.07	0.9997	8,485.524
08688	21	8,445.77	0.9998	8,444.081
08689	21	8,307.20	0.9998	8,305.539
03219	16	6,439.47	0.9991	6,433.674
04054	16	6,168.75	0.9997	6,166.899
04053	16	6,467.94	0.9997	6,466.000
04052	16	6,482.32	0.9996	6,479.727
M 285	23	9,273.71	0.9998	9,271.855
M 286	23	9,332.20	0.9998	9,330.334
M 287	23	9,274.11	0.9998	9,272.255
M 288	23	9,317.14	0.9998	9,315.277
M 289	23	9,244.28	0.9998	9,242.431
M 290	23	9,316.99	0.9998	9,315.127
M 291	23	9,255.02	0.9998	9,253.169
M 292	23	9,171.10	0.9998	9,169.266
M 293	23	9,233.50	0.9998	9,231.653
13838	8	3,299.46	0.9997	3,298.470
M 295	23	9,249.10	0.9998	9,247.250
M 294	23	9,210.88	0.9998	9,209.038
15287	21	8,625.76	0.9997	8,623.172
15286	20	8,292.09	0.9997	8,289.602
14819	17	6,840.55	0.9998	6,839.182
15290	16	6,384.10	0.9997	6,382.185
15289	17	6,917.22	0.9996	6,914.453
15288	21	8,398.85	0.9996	8,395.490
16642	21	8,849.03	0.9990	8,840.181
16643	21	8,875.45	0.9995	8,871.012
16644	20	8,460.87	0.9998	8,459.178
16645	20	8,296.55	0.9998	8,294.891
16646	19	7,899.71	0.9992	7,893.390
16647	18	7,522.17	0.9992	7,516.152
16654	21	8,760.47	0.9995	8,756.090
16656	19	7,904.61	0.9995	7,900.658
16657	21	8,628.47	0.9995	8,624.156
16664	20	8,329.60	0.9994	8,324.602
16665	20	8,376.28	0.9994	8,371.254
16667	21	8,677.30	0.9992	8,670.358
47908	19	7,922.10	0.9991	7,914.970
47626	9	3,538.68	0.9998	3,537.972
47909	21	8,618.93	0.9991	8,611.173

D 811	21	8,702.04	0.9998	8,700.300
16671	20	8,279.15	0.9994	8,274.183
16791	21	8,779.79	0.9998	8,778.034
16792	20	8,368.77	0.9999	8,367.933
16793	20	8,410.73	0.9998	8,409.048
16794	21	8,850.21	0.9998	8,848.440
16795	20	8,310.07	0.9998	8,308.408
16796	19	7,901.85	0.9998	7,900.270
16797	21	8,898.23	0.9998	8,896.450
M 283	23	9,825.58	0.9998	9,823.615
13808	22	8,932.65	0.9996	8,929.077
13809	22	8,993.37	0.9995	8,988.873
13810	22	9,042.00	0.9997	9,039.287
13814	21	8,568.60	0.9996	8,565.173
13811	21	8,831.75	0.9998	8,829.984
13813	21	8,770.20	0.9996	8,766.692
13872	16	6,717.50	0.9998	6,716.157
13958	21	8,706.85	0.9998	8,705.109
13777	22	9,013.83	0.9998	9,012.027
13778	22	8,908.95	0.9997	8,906.277
13909	16	6,571.55	0.9998	6,570.236
13910	17	6,816.30	0.9998	6,814.937
13934	20	8,253.22	0.9998	8,251.569
13935	20	8,406.23	0.9996	8,402.868
13936	19	7,879.37	0.9996	7,876.218
13937	19	7,614.99	0.9996	7,611.944
15310	16	6,500.29	0.9997	6,498.340
15311	18	7,220.26	0.9998	7,218.816
15754	18	6,911.05	0.9998	6,909.668
16258	18	7,433.87	0.9998	7,432.383
16257	19	7,741.41	0.9998	7,739.862
16256	19	7,855.87	0.9998	7,854.299
16255	19	7,843.23	0.9997	7,840.877
16254	19	7,929.67	0.9997	7,927.291
16263	19	7,265.87	0.9998	7,264.417
16262	19	7,457.73	0.9998	7,456.238
16261	19	7,337.60	0.9997	7,335.399
16260	19	7,481.20	0.9998	7,479.704
16259	19	7,667.15	0.9997	7,664.850
16196	20	8,197.07	0.9995	8,192.971
16195	20	8,243.19	0.9997	8,240.717
15882	19	8,094.45	0.9998	8,092.831
16017	19	7,783.70	0.9993	7,778.251
16082	20	8,257.80	0.9994	8,252.845

16084	18	7,549.98	0.9995	7,546.205
16085	19	7,867.23	0.9995	7,863.296
16155	14	5,687.51	0.9994	5,684.097
M 337	23	9,177.83	0.9998	9,175.994
M 338	23	9,280.64	0.9998	9,278.784
M 339	23	9,330.14	0.9998	9,328.274
M 340	23	9,335.04	0.9998	9,333.173
M 341	23	9,309.24	0.9998	9,307.378
M 342	23	9,368.22	0.9998	9,366.346
M 343	23	9,166.31	0.9998	9,164.477
M 344	23	9,257.95	0.9998	9,256.098
M 345	23	9,276.85	0.9998	9,274.995
M 346	23	9,186.43	0.9998	9,184.593
M 347	23	9,370.73	0.9998	9,368.856
M 348	23	9,374.18	0.9998	9,372.305
16150	13	5,415.54	0.9998	5,414.457
16591	15	6,401.17	0.9990	6,394.769
16592	14	5,691.20	0.9996	5,688.924
05772	18	7,443.20	0.9993	7,437.990
16726	15	6,419.95	0.9998	6,418.666
16727	14	5,771.72	0.9997	5,769.988
16633	19	7,832.22	0.9996	7,829.087
16637	20	8,719.92	0.9998	8,718.176
16638	20	8,573.63	0.9998	8,571.915
16639	19	8,119.64	0.9998	8,118.016
16640	20	8,478.93	0.9998	8,477.234
16641	20	8,495.85	0.9995	8,491.602
13400	15	6,227.27	0.9997	6,225.402
13467	17	7,341.27	0.9998	7,339.802
13468	17	7,271.55	0.9998	7,270.096
13469	17	7,283.12	0.9998	7,281.663
13470	18	7,686.63	0.9998	7,685.093
13776	15	5,994.83	0.9996	5,992.432
M 267	23	9,489.59	0.9998	9,487.692
M 268	23	9,518.90	0.9998	9,516.996
M 269	23	9,559.85	0.9998	9,557.938
M 270	23	9,350.51	0.9998	9,348.640
M 271	23	9,578.40	0.9998	9,576.484
M 272	23	9,491.74	0.9998	9,489.842
M 273	23	9,619.22	0.9998	9,617.296
M 274	23	9,719.99	0.9998	9,718.046
M 275	23	9,593.81	0.9998	9,591.891
M 276	23	9,792.59	0.9998	9,790.631
M 277	23	9,741.40	0.9998	9,739.452

M 278	23	9,704.56	0.9998	9,702.619
M 279	23	9,801.87	0.9998	9,799.910
M 280	23	9,822.20	0.9998	9,820.236
M 282	23	9,770.40	0.9998	9,768.446
M 281	23	9,766.39	0.9998	9,764.437
M 354	23	9,258.42	0.9998	9,256.568
M 355	23	9,360.58	0.9998	9,358.708
M 356	23	9,341.17	0.9998	9,339.302
M 357	23	9,395.00	0.9998	9,393.121
M 358	23	9,275.58	0.9998	9,273.725
M 359	23	9,394.23	0.9998	9,392.351
M 360	23	9,341.33	0.9998	9,339.462
M 366	23	9,286.73	0.9998	9,284.873
M 367	23	9,283.79	0.9998	9,281.933
M 368	23	9,250.10	0.9998	9,248.250
M 369	23	9,180.70	0.9998	9,178.864
M 370	23	9,285.50	0.9998	9,283.643
M 371	23	9,134.86	0.9998	9,133.033
17459	14	5,565.82	0.9998	5,564.707
17399	21	8,963.45	0.9994	8,958.072
D 052	22	8,868.19	0.9998	8,866.416
21509	11	4,671.00	0.9994	4,668.197
18381	21	8,956.02	0.9993	8,949.751
17611	12	4,670.07	0.9998	4,669.136
18737	20	8,236.84	0.9998	8,235.193
18684	19	7,991.35	0.9998	7,989.752
18685	17	7,088.85	0.9997	7,086.723
18689	18	7,235.49	0.9995	7,231.872
18787	21	8,663.85	0.9990	8,655.186
18788	21	8,683.54	0.9994	8,678.330
18797	21	8,732.12	0.9995	8,727.754
18798	18	7,391.55	0.9993	7,386.376
18804	21	8,480.84	0.9991	8,473.207
18715	12	5,004.70	0.9998	5,003.699
M 372	23	9,177.84	0.9998	9,176.004
M 373	23	9,296.80	0.9998	9,294.941
M 374	23	9,125.13	0.9998	9,123.305
M 379	23	9,443.73	0.9998	9,441.841
M 380	23	9,288.68	0.9998	9,286.822
M 381	23	9,457.05	0.9998	9,455.159
M 382	23	9,442.34	0.9998	9,440.452
M 375	23	9,338.18	0.9999	9,337.246
M 376	23	9,240.73	0.9998	9,238.882
M 377	23	9,344.46	0.9998	9,342.591

M 378	23	9,315.03	0.9998	9,313.167
M 383	23	9,155.54	0.9998	9,153.709
M 384	23	9,357.55	0.9998	9,355.678
M 385	23	9,441.32	0.9998	9,439.432
M 386	23	9,250.44	0.9998	9,248.590
M 387	23	9,238.03	0.9998	9,236.182
M 388	23	9,324.90	0.9998	9,323.035
M 389	23	9,389.24	0.9998	9,387.362
18922	21	8,522.81	0.9998	8,521.105
18923	21	8,677.00	0.9997	8,674.397
18924	21	8,621.76	0.9998	8,620.036
18925	20	8,113.58	0.9998	8,111.957
18926	21	8,622.58	0.9991	8,614.820
13399	17	7,351.75	0.9997	7,349.544
34215	16	6,410.04	0.9998	6,408.758
18928	21	8,775.75	0.9996	8,772.240
18927	21	8,716.01	0.9994	8,710.780
13397	17	7,287.70	0.9998	7,286.242
13398	17	7,258.85	0.9998	7,257.398
M 305	23	9,112.89	0.9998	9,111.067
M 306	23	9,301.24	0.9998	9,299.380
M 307	23	9,272.56	0.9998	9,270.705
15782	21	8,892.56	0.9997	8,889.892
15783	21	8,888.81	0.9998	8,887.032
15784	21	8,850.63	0.9998	8,848.860
15785	20	8,343.50	0.9998	8,341.831
15786	19	7,790.05	0.9998	7,788.492
15787	20	8,289.06	0.9998	8,287.402
15798	19	7,708.83	0.9997	7,706.517
15799	19	7,836.98	0.9996	7,833.845
15801	19	7,816.66	0.9995	7,812.752
15788	21	8,626.55	0.9991	8,618.786
15789	21	8,819.99	0.9998	8,818.226
15790	21	8,820.32	0.9998	8,818.556
15791	19	7,870.18	0.9996	7,867.032
15804	19	7,790.78	0.9995	7,786.885
M 349	23	9,200.24	0.9998	9,198.400
M 350	23	9,297.93	0.9998	9,296.070
M 351	23	9,262.74	0.9999	9,261.814
M 353	23	9,214.51	0.9998	9,212.667
M 352	23	9,132.54	0.9998	9,130.713
17409	20	8,346.44	0.9996	8,343.101
D 055	22	9,061.42	0.9998	9,059.608
D 056	22	9,090.19	0.9998	9,088.372

D 057	22	9,105.19	0.9998	9,103.369
D 058	22	9,052.30	0.9998	9,050.490
17617	20	8,269.83	0.9992	8,263.214
17619	20	8,349.41	0.9991	8,341.896
17624	20	8,254.21	0.9996	8,250.908
17627	20	8,465.96	0.9995	8,461.727
17629	21	8,780.49	0.9996	8,776.978
17630	18	7,515.68	0.9994	7,511.171
17646	18	7,347.91	0.9998	7,346.440
17647	20	8,316.79	0.9998	8,315.127
17648	21	8,763.45	0.9998	8,761.697
17650	20	8,201.66	0.9998	8,200.020
17651	20	8,298.06	0.9998	8,296.400
13938	19	7,520.37	0.9995	7,516.610
13939	18	7,266.42	0.9994	7,262.060
13940	19	8,028.10	0.9997	8,025.692
13941	19	7,946.70	0.9995	7,942.727
13942	20	8,492.35	0.9998	8,490.652
13943	20	8,341.15	0.9997	8,338.648
13944	19	7,897.50	0.9998	7,895.921
13945	18	7,484.98	0.9998	7,483.483
14006	17	6,998.71	0.9999	6,998.010
14007	16	6,539.93	0.9998	6,538.622
14008	16	6,485.87	0.9999	6,485.221
17652	20	8,348.78	0.9998	8,347.110
14009	16	6,380.22	0.9997	6,378.306
14010	20	8,234.32	0.9997	8,231.850
14011	19	7,850.92	0.9997	7,848.565
14012	19	8,066.33	0.9996	8,063.103
14013	19	7,858.18	0.9996	7,855.037
14264	19	7,821.68	0.9998	7,820.116
14349	17	7,036.45	0.9993	7,031.524
14571	19	7,921.02	0.9998	7,919.436
14572	18	7,485.06	0.9998	7,483.563
14573	18	7,432.99	0.9998	7,431.503
14574	17	6,928.14	0.9998	6,926.754
M 284	23	9,721.20	0.9998	9,719.256
M 285	23	9,650.33	0.9998	9,648.400
M 286	23	9,573.68	0.9998	9,571.765
M 287	23	9,506.33	0.9999	9,505.379
M 288	23	9,520.03	0.9998	9,518.126
M 289	23	9,511.05	0.9999	9,510.099
M 290	23	9,489.42	0.9998	9,487.522
M 291	23	9,479.03	0.9998	9,477.134

M 292	23	9,390.11	0.9998	9,388.232
M 293	23	9,358.98	0.9998	9,357.108
M 294	23	9,254.45	0.9998	9,252.599
M 295	23	9,261.47	0.9998	9,259.618
M 296	23	9,255.34	0.9998	9,253.489
M 297	23	9,184.54	0.9998	9,182.703
M 298	23	9,244.09	0.9998	9,242.241
M 299	23	9,294.16	0.9998	9,292.301
M 300	23	9,145.51	0.9998	9,143.681
M 301	23	9,201.33	0.9998	9,199.490
M 302	23	9,158.11	0.9998	9,156.278
M 304	23	9,273.54	0.9998	9,271.685
M 303	23	9,396.08	0.9998	9,394.201
RM170	22	9,174.05	0.9994	9,168.546
RM172	22	9,286.33	0.9998	9,284.473
RM173	21	8,832.26	0.9997	8,829.610
RM175	21	8,846.76	0.9997	8,844.106
RM176	21	8,833.21	0.9998	8,831.443
RM177	22	9,346.05	0.9998	9,344.181
RM178	22	9,281.53	0.9998	9,279.674
RM179	22	9,270.57	0.9996	9,266.862
RM180	22	9,167.25	0.9996	9,163.583
RM181	22	9,108.27	0.9996	9,104.627
RM185	22	9,096.45	0.9997	9,093.721
RM186	22	9,179.20	0.9998	9,177.364
RM187	22	9,090.48	0.9998	9,088.662
RM188	22	9,164.54	0.9998	9,162.707
RM189	22	9,087.83	0.9998	9,086.012
RM190	22	9,231.77	0.9998	9,229.924
RM191	22	9,371.52	0.9998	9,369.646
RM192	22	9,257.40	0.9997	9,254.623
RM193	22	9,238.01	0.9998	9,236.162
RM194	22	9,332.75	0.9996	9,329.017
RM195	22	9,205.48	0.9998	9,203.639
RM196	22	9,158.15	0.9998	9,156.318
RM197	21	8,732.58	0.9998	8,730.833
RM198	22	9,115.61	0.9997	9,112.875
RM199	22	9,206.50	0.9996	9,202.817
RM200	22	9,208.53	0.9997	9,205.767
RM201	22	9,143.93	0.9997	9,141.187
RM202	23	9,574.28	0.9997	9,571.408
RM203	23	9,351.49	0.9998	9,349.620
M 302	23	9,505.90	0.9998	9,503.999
M 303	23	9,513.83	0.9998	9,511.927

M 304	23	9,446.34	0.9998	9,444.451
M 305	23	9,470.30	0.9998	9,468.406
M 306	23	9,494.94	0.9998	9,493.041
M 307	23	9,370.92	0.9998	9,369.046
17653	20	8,422.16	0.9998	8,420.476
17654	20	8,438.87	0.9998	8,437.182
17655	20	8,501.55	0.9998	8,499.850
29279	20	8,137.24	0.9995	8,133.171
29280	20	8,093.90	0.9995	8,089.853
29281	20	8,018.70	0.9991	8,011.483
29282	20	7,959.66	0.9992	7,953.292
29339	21	8,577.65	0.9994	8,572.503
31380	18	7,225.52	0.9998	7,224.075
31381	14	5,534.47	0.9997	5,532.810
31407	14	5,424.90	0.9995	5,422.188
31773	15	5,707.53	0.9997	5,705.818
32025	13	5,095.70	0.9998	5,094.681
32044	16	6,349.23	0.9992	6,344.151
32059	14	5,325.35	0.9996	5,323.220
32245	19	7,647.38	0.9996	7,644.321
32393	21	8,897.67	0.9991	8,889.662
32396	20	8,539.29	0.9990	8,530.751
32514	22	9,283.28	0.9998	9,281.423
32533	14	5,371.56	0.9997	5,369.949
32684	23	9,560.54	0.9996	9,556.716
12296	11	4,483.00	0.9998	4,482.103
12650	11	4,436.21	0.9996	4,434.436
13273	10	4,044.40	0.9995	4,042.378
13467	9	3,376.34	0.9997	3,375.327
13658	11	4,217.55	0.9997	4,216.285
13838	13	5,180.85	0.9997	5,179.296
37623	12	4,851.34	0.9995	4,848.914
RM136	22	9,171.18	0.9988	9,160.175
M 295	23	9,478.23	0.9998	9,476.334
M 296	23	9,515.87	0.9998	9,513.967
M 297	23	9,522.07	0.9998	9,520.166
M 298	23	9,443.36	0.9998	9,441.471
M 299	23	9,455.29	0.9998	9,453.399
M 300	23	9,445.10	0.9998	9,443.211
RM154	22	9,194.32	0.9997	9,191.562
RM155	22	9,291.62	0.9995	9,286.974
RM156	21	8,888.08	0.9993	8,881.858
RM157	22	9,227.84	0.9994	9,222.303
RM158	21	8,796.31	0.9995	8,791.912

RM159	22	9,183.82	0.9996	9,180.146
RM163	22	9,097.53	0.9994	9,092.071
RM164	22	9,029.79	0.9998	9,027.984
RM165	22	9,244.71	0.9997	9,241.937
RM166	22	9,177.03	0.9998	9,175.195
RM167	22	9,265.70	0.9992	9,258.287
RM168	22	9,151.26	0.9990	9,142.109
RM236	22	9,250.25	0.9995	9,245.625
RM237	22	9,161.88	0.9995	9,157.299
RM238	22	9,178.33	0.9995	9,173.741
RM240	22	9,303.27	0.9995	9,298.618
RM241	22	9,255.94	0.9995	9,251.312
RM242	22	9,111.49	0.9996	9,107.845
RM243	22	9,108.64	0.9995	9,104.086
RM239	21	8,794.07	0.9995	8,789.673
07041	21	8,822.55	0.9990	8,813.727
07043	21	8,815.52	0.9991	8,807.586
07044	21	8,760.85	0.9992	8,753.841
08746	22	9,152.98	0.9991	9,144.742
08815	21	8,631.92	0.9993	8,625.878
08905	17	7,280.68	0.9996	7,277.768
09332	14	5,747.41	0.9995	5,744.536
09831	22	9,028.11	0.9994	9,022.693
09834	22	9,012.27	0.9992	9,005.060
09839	22	8,775.82	0.9993	8,769.677
09273	24	9,460.95	0.9993	9,454.327
09274	22	8,732.38	0.9995	8,728.014
D 058	21	8,899.80	0.9992	8,892.680
07717	16	6,109.64	0.9995	6,106.585
36745	19	7,548.65	0.9993	7,543.366
02864	14	5,707.22	0.9992	5,702.654
02679	22	8,638.78	0.9994	8,633.597
01697	18	7,214.00	0.9994	7,209.672
01698	17	6,853.04	0.9994	6,848.928
01869	22	8,984.76	0.9996	8,981.166
01870	22	8,841.85	0.9990	8,833.008
02182	23	9,006.55	0.9990	8,997.543
16255	22	9,114.52	0.9994	9,109.051
26751	22	9,050.45	0.9993	9,044.115
D 081	21	8,799.96	0.9995	8,795.560
D 087	21	8,593.94	0.9995	8,589.643
22557	19	7,743.09	0.9992	7,736.896
22559	18	7,425.83	0.9996	7,422.860
30453	24	9,578.44	0.9996	9,574.609

30456	21	8,657.47	0.9995	8,653.141
29887	20	8,146.60	0.9996	8,143.341
M 309	23	9,381.44	0.9998	9,379.564
15468	12	4,861.67	0.9996	4,859.725
15469	12	4,807.26	0.9996	4,805.337
15491	16	6,432.58	0.9998	6,431.293
RM205	22	9,071.42	0.9990	9,062.349
RM206	22	9,094.98	0.9996	9,091.342
RM207	22	9,144.90	0.9995	9,140.328
RM208	22	9,216.91	0.9997	9,214.145
RM209	22	9,259.22	0.9996	9,255.516
RM210	22	9,182.16	0.9996	9,178.487
RM211	22	9,175.42	0.9995	9,170.832
RM212	22	9,176.50	0.9995	9,171.912
RM213	22	9,099.63	0.9997	9,096.900
RM214	21	8,642.81	0.9996	8,639.353
RM215	22	9,236.98	0.9997	9,234.209
RM216	22	9,290.28	0.9997	9,287.493
RM217	22	9,265.80	0.9997	9,263.020
RM218	22	9,187.35	0.9996	9,183.675
RM219	22	9,099.69	0.9996	9,096.050
RM221	22	9,118.85	0.9995	9,114.291
RM222	22	9,202.69	0.9994	9,197.168
RM223	23	9,617.64	0.9995	9,612.831
RM117	22	9,311.23	0.9995	9,306.574
RM129	23	9,479.74	0.9994	9,474.052
RM133	22	9,227.87	0.9991	9,219.565
RM134	22	9,192.83	0.9990	9,183.637
RM137	22	9,201.24	0.9995	9,196.639
RM138	22	9,208.38	0.9995	9,203.776
RM140	22	9,306.85	0.9996	9,303.127
RM141	22	9,263.92	0.9996	9,260.214
RM142	22	9,233.69	0.9994	9,228.150
RM153	21	8,805.12	0.9993	8,798.956
RM152	22	9,144.20	0.9992	9,136.885
RM151	22	9,172.42	0.9992	9,165.082
RM143	22	9,171.52	0.9996	9,167.851
RM111	22	9,069.63	0.9995	9,065.095
RM110	22	8,968.16	0.9995	8,963.676
RM109	23	9,530.75	0.9994	9,525.032
RM106	23	9,447.59	0.9995	9,442.866
RM112	22	9,202.62	0.9995	9,198.019
RM113	22	9,237.94	0.9996	9,234.245
RM114	22	9,311.70	0.9995	9,307.044

RM118	22	9,168.91	0.9990	9,159.741
RM227	22	9,037.40	0.9995	9,032.881
RM226	22	9,100.15	0.9995	9,095.600
RM225	22	9,133.84	0.9994	9,128.360
29575	22	9,290.88	0.9992	9,283.447
RM228	22	9,112.96	0.9995	9,108.404
RM229	22	9,139.00	0.9997	9,136.258
RM231	22	9,244.95	0.9995	9,240.328
RM232	22	9,142.73	0.9994	9,137.244
RM244	22	9,080.66	0.9995	9,076.120
RM245	22	9,130.46	0.9994	9,124.982
RM246	22	9,095.46	0.9993	9,089.093
RM233	22	9,273.98	0.9995	9,269.343
RM247	22	9,051.51	0.9994	9,046.079
15961	17	6,779.87	0.9996	6,777.158
RM234	22	9,245.22	0.9993	9,238.748
14638	11	4,414.65	0.9996	4,412.884
15492	11	4,245.46	0.9998	4,244.611
RM230	23	9,474.30	0.9994	9,468.615
RM235	22	9,214.93	0.9996	9,211.244
RM067	22	9,309.18	0.9992	9,301.733
RM070	22	9,044.52	0.9994	9,039.093
RM071	22	9,318.51	0.9996	9,314.783
RM072	22	9,389.49	0.9993	9,382.917
RM075	22	9,141.68	0.9993	9,135.281
RM076	22	9,053.26	0.9995	9,048.733
RM077	23	9,463.87	0.9996	9,460.084
RM080	22	9,218.36	0.9996	9,214.673
RM081	23	9,512.95	0.9995	9,508.194
RM079	22	9,191.03	0.9996	9,187.354
RM082	22	9,090.49	0.9995	9,085.945
RM083	22	9,179.34	0.9995	9,174.750
RM084	22	9,104.33	0.9995	9,099.778
RM086	22	9,052.50	0.9995	9,047.974
RM088	22	9,210.34	0.9995	9,205.735
RM089	22	9,209.78	0.9996	9,206.096
RM090	22	9,230.76	0.9996	9,227.068
RM091	22	9,285.62	0.9996	9,281.906
RM092	22	9,244.57	0.9994	9,239.023
RM093	22	9,031.99	0.9995	9,027.474
RM094	22	9,104.75	0.9995	9,100.198
RM095	22	9,237.21	0.9995	9,232.591
RM096	22	9,225.18	0.9994	9,219.645
RM097	22	9,148.51	0.9995	9,143.936

RM100	22	9,071.80	0.9994	9,066.357
RM101	23	9,389.97	0.9994	9,384.336
RM102	23	9,436.03	0.9995	9,431.312
RM098	22	9,246.10	0.9995	9,241.477
RM099	22	9,110.40	0.9995	9,105.845
M 062	23	9,543.61	0.9999	9,542.656
RM103	23	9,526.49	0.9996	9,522.679
RM104	22	8,886.50	0.9996	8,882.945
RM105	23	9,387.50	0.9996	9,383.745
M 139	23	9,242.30	0.9994	9,236.755
27340	23	9,291.14	0.9995	9,286.494
M 063	23	9,403.71	0.9999	9,402.770
M 064	23	9,571.04	0.9998	9,569.126
M 065	23	9,417.92	0.9999	9,416.978
M 066	23	9,466.40	0.9998	9,464.507
M 067	23	9,226.07	0.9998	9,224.225
M 068	23	9,324.77	0.9998	9,322.905
M 069	23	9,470.36	0.9998	9,468.466
M 071	23	9,387.68	0.9999	9,386.741
M 070	23	9,370.95	0.9998	9,369.076
05937	20	8,027.02	0.9994	8,022.204
05936	20	8,154.17	0.9992	8,147.647
07349	20	8,316.60	0.9992	8,309.947
07381	21	8,694.17	0.9991	8,686.345
07383	17	6,498.45	0.9990	6,491.952
07648	13	5,293.80	0.9998	5,292.741
17399	21	8,628.05	0.9996	8,624.599
17400	21	8,667.83	0.9998	8,666.096
17401	21	8,591.48	0.9997	8,588.903
17402	19	7,478.00	0.9997	7,475.757
M 341	23	9,602.11	0.9998	9,600.190
M 342	23	9,595.00	0.9998	9,593.081
M 343	23	9,708.15	0.9998	9,706.208
29574	22	9,170.48	0.9991	9,162.227
29655	18	7,491.40	0.9991	7,484.658
07635	19	7,614.12	0.9995	7,610.313
09835	22	8,965.04	0.9996	8,961.454
09833	22	9,013.90	0.9996	9,010.294
03158	21	8,538.17	0.9992	8,531.339
03162	22	8,943.08	0.9997	8,940.397
03163	22	8,490.87	0.9997	8,488.323
03182	20	7,927.62	0.9990	7,919.692
03456	13	5,359.13	0.9996	5,356.986
03457	13	5,492.23	0.9996	5,490.033

03458	13	5,620.92	0.9997	5,619.234
03459	14	5,935.57	0.9997	5,933.789
03460	14	6,009.22	0.9997	6,007.417
03475	17	7,071.92	0.9999	7,071.213
03476	18	7,565.40	0.9998	7,563.887
03511	18	7,452.82	0.9997	7,450.584
16914	16	6,580.19	0.9998	6,578.874
07326	20	8,116.95	0.9993	8,111.268
07351	21	8,506.80	0.9993	8,500.845
07354	21	8,430.51	0.9997	8,427.981
07357	21	8,620.73	0.9995	8,616.420
07339	21	8,509.77	0.9994	8,504.664
07376	21	8,635.07	0.9991	8,627.298
07377	21	8,566.20	0.9992	8,559.347
34771	14	5,764.53	0.9995	5,761.648
04749	21	8,300.06	0.9997	8,297.570
04748	22	8,792.60	0.9998	8,790.841
04747	22	8,664.19	0.9997	8,661.591
04746	22	8,794.57	0.9998	8,792.811
03917	20	8,029.80	0.9998	8,028.194
03918	21	8,565.00	0.9998	8,563.287
03919	21	8,563.95	0.9999	8,563.094
03920	21	8,446.30	0.9996	8,442.921
03921	14	5,397.13	0.9997	5,395.511
04161	15	5,992.30	0.9998	5,991.102
04162	14	5,573.44	0.9997	5,571.768
04163	14	5,579.17	0.9998	5,578.054
04783	18	7,223.16	0.9996	7,220.271
04784	18	7,160.70	0.9997	7,158.552
04785	15	5,674.82	0.9996	5,672.550
04860	18	7,544.75	0.9997	7,542.487
04861	17	7,015.72	0.9997	7,013.615
04862	14	5,567.88	0.9997	5,566.210
04870	16	6,334.75	0.9998	6,333.483
04871	14	5,602.47	0.9997	5,600.789
05363	15	6,320.35	0.9998	6,319.086
05364	14	5,774.75	0.9998	5,773.595
05048	20	8,236.78	0.9997	8,234.309
05154	19	7,563.75	0.9997	7,561.481
05153	20	8,055.05	0.9996	8,051.828
05152	16	6,578.83	0.9997	6,576.856
05151	17	6,790.55	0.9997	6,788.513
N 072	23	9,524.13	0.9998	9,522.225
05038	12	4,884.75	0.9998	4,883.773

05039	14	5,237.45	0.9997	5,235.879
05071	18	7,429.42	0.9997	7,427.191
RM224	22	9,117.71	0.9995	9,113.151
N 073	23	9,557.85	0.9998	9,555.938
N 074	23	9,225.60	0.9998	9,223.755
N 075	23	9,250.09	0.9998	9,248.240
N 078	23	9,508.67	0.9998	9,506.768
N 077	23	9,568.24	0.9998	9,566.326
N 076	23	9,485.05	0.9998	9,483.153
29576	22	9,249.51	0.9996	9,245.810
N 079	23	9,602.65	0.9998	9,600.729
N 080	23	9,601.37	0.9998	9,599.450
N 081	23	9,579.37	0.9998	9,577.454
08240	22	8,919.98	0.9995	8,915.520
08241	20	8,213.18	0.9996	8,209.895
08242	20	8,077.13	0.9995	8,073.091
08566	18	6,996.97	0.9997	6,994.871
08402	16	6,481.39	0.9990	6,474.909
08401	17	6,924.07	0.9995	6,920.608
06294	22	9,395.35	0.9990	9,385.955
06296	21	8,881.62	0.9992	8,874.515
06303	21	8,973.20	0.9992	8,966.021
06304	20	8,520.88	0.9993	8,514.915
06311	21	8,856.72	0.9993	8,850.520
06317	20	8,364.92	0.9990	8,356.555
06320	19	8,113.27	0.9991	8,105.968
06324	20	8,253.74	0.9991	8,246.312
M 061	23	9,614.02	0.9998	9,612.097
17394	22	9,143.08	0.9997	9,140.337
17395	22	9,014.20	0.9997	9,011.496
07040	18	7,075.67	0.9998	7,074.255
17398	20	7,837.48	0.9996	7,834.345
17397	20	8,061.02	0.9997	8,058.602
17396	21	8,574.68	0.9996	8,571.250
03585	15	6,092.40	0.9998	6,091.182
03819	12	5,033.72	0.9998	5,032.713
03818	14	5,978.65	0.9998	5,977.454
03812	15	6,357.25	0.9998	6,355.979
06958	21	8,594.82	0.9992	8,587.944
06952	21	8,446.06	0.9990	8,437.614
06959	22	9,002.58	0.9991	8,994.478
06963	20	8,119.65	0.9990	8,111.530
03504	13	5,331.05	0.9998	5,329.984
03486	16	6,500.75	0.9998	6,499.450

03485	15	6,099.03	0.9998	6,097.810
01400	16	6,500.98	0.9997	6,499.030
01365	15	6,183.48	0.9996	6,181.007
00968	15	6,121.19	0.9993	6,116.905
00816	22	9,076.57	0.9995	9,072.032
00265	20	8,349.14	0.9992	8,342.461
00263	20	8,392.39	0.9996	8,389.033
00262	21	8,735.92	0.9997	8,733.299
00261	20	8,142.01	0.9995	8,137.939
00260	20	8,132.20	0.9993	8,126.507
00248	20	8,192.15	0.9998	8,190.512
00247	21	8,901.37	0.9995	8,896.919
00246	20	8,341.82	0.9997	8,339.317
00245	20	8,139.72	0.9995	8,135.650
RM064	22	9,134.49	0.9995	9,129.923
RM065	21	8,582.00	0.9992	8,575.134
RM066	22	9,267.16	0.9994	9,261.600
16192	18	7,119.64	0.9990	7,112.520
12207	11	4,094.78	0.9996	4,093.142
01212	21	8,324.91	0.9995	8,320.748
01236	21	8,418.58	0.9998	8,416.896
01237	21	8,726.25	0.9997	8,723.632
01238	20	8,018.53	0.9998	8,016.926
01239	17	6,787.10	0.9997	6,785.064
01207	22	8,893.45	0.9996	8,889.893
M 127	23	9,524.94	0.9998	9,523.035
M 095	23	9,592.43	0.9998	9,590.512
M 096	23	9,616.15	0.9998	9,614.227
M 103	23	9,609.55	0.9998	9,607.628
M 114	23	9,514.21	0.9998	9,512.307
M 112	23	9,430.35	0.9998	9,428.464
M 116	23	9,378.07	0.9998	9,376.194
M 105	23	9,685.23	0.9998	9,683.293
06020	22	8,934.28	0.9992	8,927.133
M 099	23	9,479.85	0.9999	9,478.902
M 115	23	9,386.86	0.9998	9,384.983
M 100	23	9,429.48	0.9998	9,427.594
06790	16	6,718.55	0.9998	6,717.206
M 117	23	9,451.08	0.9998	9,449.190
05938	20	8,134.20	0.9990	8,126.066
05987	13	5,095.37	0.9998	5,094.351
M 344	23	9,470.10	0.9997	9,467.259
M 345	23	9,570.88	0.9998	9,568.966
M 346	23	9,587.37	0.9998	9,585.453

M 347	23	9,556.96	0.9998	9,555.049
M 348	23	9,576.73	0.9998	9,574.815
M 350	23	9,420.82	0.9998	9,418.936
17632	19	7,766.10	0.9997	7,763.770
17686	20	8,214.40	0.9998	8,212.757
17687	17	6,821.02	0.9998	6,819.656
17703	21	8,635.96	0.9997	8,633.369
17704	21	8,636.83	0.9996	8,633.375
17705	21	8,610.97	0.9997	8,608.387
17706	20	8,243.14	0.9997	8,240.667
17718	21	8,401.41	0.9997	8,398.890
17717	21	8,385.01	0.9997	8,382.494
17716	21	8,299.96	0.9996	8,296.640
17715	21	8,503.45	0.9996	8,500.049
17707	20	8,175.60	0.9997	8,173.147
17708	21	8,444.54	0.9996	8,441.162
17709	21	8,544.29	0.9996	8,540.872
17710	21	8,445.54	0.9996	8,442.162
17711	21	8,453.81	0.9997	8,451.274
17712	21	8,488.54	0.9997	8,485.993
17713	21	8,437.72	0.9997	8,435.189
17714	21	8,503.66	0.9997	8,501.109
01211	22	9,013.10	0.9995	9,008.593
01209	22	8,985.05	0.9995	8,980.557
17721	21	8,452.43	0.9997	8,449.894
17720	20	8,154.07	0.9997	8,151.624
01210	22	8,857.65	0.9996	8,854.107
06576	11	4,469.06	0.9996	4,467.272
06545	19	8,078.45	0.9993	8,072.795
06543	19	8,103.75	0.9998	8,102.129
06574	18	7,499.52	0.9997	7,497.270
06573	19	7,758.75	0.9998	7,757.198
06572	19	7,805.46	0.9998	7,803.899
06654	12	5,051.62	0.9998	5,050.610
05092	21	8,537.16	0.9996	8,533.745
05091	21	8,561.25	0.9997	8,558.682
16000	17	6,883.66	0.9995	6,880.218
06575	11	4,644.20	0.9998	4,643.271
00416	22	9,150.87	0.9997	9,148.125
00412	21	8,838.03	0.9999	8,837.146
00415	22	9,051.32	0.9997	9,048.605
00413	22	9,353.35	0.9997	9,350.544
00718	19	7,555.28	0.9990	7,547.725
00419	21	8,656.42	0.9996	8,652.957

00418	21	8,364.64	0.9997	8,362.131
00417	22	8,991.05	0.9998	8,989.252
00449	23	9,364.70	0.9994	9,359.081
00453	23	9,512.25	0.9996	9,508.445
00716	22	8,985.07	0.9990	8,976.085
00717	20	8,146.63	0.9991	8,139.298
06245	12	4,979.11	0.9998	4,978.114
00454	23	9,572.94	0.9998	9,571.025
00455	21	8,555.55	0.9998	8,553.839
00456	23	8,914.23	0.9996	8,910.664
05825	19	7,857.68	0.9994	7,852.965
05826	18	7,375.05	0.9995	7,371.362
05894	18	7,345.67	0.9998	7,344.201
06220	22	8,977.35	0.9998	8,975.555
06648	19	7,631.08	0.9997	7,628.791
06063	16	6,290.57	0.9997	6,288.683
06024	21	8,441.61	0.9997	8,439.078
06023	21	8,262.78	0.9994	8,257.822
00452	21	8,435.46	0.9998	8,433.773
00451	22	9,135.18	0.9995	9,130.612
05823	20	8,274.71	0.9991	8,267.263
05824	19	7,477.34	0.9995	7,473.601
47669	22	8,954.95	0.9990	8,945.995
03362	18	7,489.52	0.9998	7,488.022
47698	21	8,669.74	0.9991	8,661.937
47712	20	7,851.40	0.9991	7,844.334
47670	22	8,989.75	0.9990	8,980.760
46977	13	5,094.24	0.9998	5,093.221
06830	15	5,816.05	0.9998	5,814.887
06829	16	6,398.28	0.9998	6,397.000
06785	20	7,934.75	0.9997	7,932.370
06784	19	7,590.60	0.9997	7,588.323
06783	21	8,543.97	0.9997	8,541.407
02920	20	8,451.60	0.9998	8,449.910
02922	19	7,957.30	0.9998	7,955.709
02921	19	7,970.85	0.9998	7,969.256
02762	20	8,331.62	0.9998	8,329.954
03216	20	8,294.45	0.9994	8,289.473
03215	20	8,345.70	0.9997	8,343.196
00232	21	8,510.79	0.9995	8,506.535
00231	20	8,188.65	0.9994	8,183.737
00229	21	8,816.83	0.9998	8,815.067
00228	20	8,281.82	0.9998	8,280.164
00227	21	8,819.70	0.9998	8,817.936

00101	21	8,626.95	0.9991	8,619.186
00019	12	4,980.45	0.9991	4,975.968
D 066	22	9,161.52	0.9998	9,159.688
D 067	23	9,400.56	0.9997	9,397.740
D 068	23	9,543.93	0.9996	9,540.112
D 069	22	9,125.81	0.9991	9,117.597
D 063	21	8,683.82	0.9997	8,681.215
D 062	23	9,579.65	0.9998	9,577.734
D 061	20	8,292.24	0.9998	8,290.582
D 060	22	9,094.85	0.9998	9,093.031
06647	22	9,127.16	0.9997	9,124.422
06646	21	8,711.15	0.9997	8,708.537
06448	13	5,090.86	0.9996	5,088.824
43226	17	6,338.75	0.9998	6,337.482
43206	13	5,094.86	0.9998	5,093.841
43019	15	6,004.43	0.9995	6,001.428
42804	14	5,497.00	0.9998	5,495.901
42578	15	5,994.49	0.9998	5,993.291
M 027	23	9,385.89	0.9998	9,384.013
06163	13	5,184.03	0.9997	5,182.475
06120	21	8,446.75	0.9995	8,442.527
06068	18	7,168.65	0.9991	7,162.198
06452	21	8,437.45	0.9997	8,434.919
06451	21	8,487.42	0.9996	8,484.025
02971	15	6,330.09	0.9997	6,328.191
M 026	23	9,286.85	0.9998	9,284.993
06453	21	8,180.56	0.9997	8,178.106
06319	17	6,923.02	0.9998	6,921.635
06474	21	8,594.96	0.9990	8,586.365
06488	22	8,658.95	0.9996	8,655.486
06318	17	7,004.64	0.9998	7,003.239
M 037	23	9,432.24	0.9998	9,430.354
M 036	23	9,326.61	0.9998	9,324.745
M 035	23	9,452.72	0.9998	9,450.829
03412	19	7,565.20	0.9996	7,562.174
M 032	23	9,363.38	0.9998	9,361.507
M 033	23	9,408.34	0.9998	9,406.458
M 034	23	9,453.85	0.9998	9,451.959
03408	21	8,660.37	0.9997	8,657.772
03409	21	8,638.45	0.9995	8,634.131
03410	21	8,646.13	0.9996	8,642.672
03411	21	8,584.68	0.9997	8,582.105
03404	22	8,943.04	0.9997	8,940.357
03405	21	8,527.76	0.9996	8,524.349

03406	21	8,665.11	0.9997	8,662.510
03407	19	7,822.02	0.9997	7,819.673
03400	22	8,844.15	0.9996	8,840.612
03401	22	9,034.43	0.9997	9,031.720
03402	21	8,206.15	0.9997	8,203.688
03403	22	8,897.67	0.9997	8,895.001
03396	20	8,048.23	0.9997	8,045.816
03397	22	8,724.25	0.9997	8,721.633
03398	22	9,145.47	0.9998	9,143.641
03399	22	8,880.47	0.9997	8,877.806
03395	22	8,783.53	0.9997	8,780.895
03394	22	8,906.41	0.9997	8,903.738
03393	21	8,480.83	0.9997	8,478.286
03392	22	8,809.06	0.9997	8,806.417
03391	22	9,050.68	0.9998	9,048.870
03390	21	8,621.20	0.9997	8,618.614
03389	21	8,664.70	0.9997	8,662.101
03388	21	8,774.00	0.9997	8,771.368
03384	20	8,033.63	0.9996	8,030.417
03387	21	8,560.38	0.9998	8,558.668
03386	21	8,642.77	0.9997	8,640.177
03385	22	8,938.72	0.9997	8,936.038
03383	21	8,610.33	0.9996	8,606.886
03381	22	8,943.81	0.9997	8,941.127
03380	22	9,118.70	0.9997	9,115.964
03217	18	7,346.99	0.9998	7,345.521
03216	20	8,178.50	0.9996	8,175.229
03215	20	8,248.30	0.9997	8,245.826
03214	20	8,307.60	0.9998	8,305.938
03213	18	6,940.23	0.9995	6,936.760
03212	16	6,511.10	0.9993	6,506.542
03211	18	7,352.38	0.9995	7,348.704
04924	10	4,091.80	0.9996	4,090.163
05013	10	4,045.02	0.9998	4,044.211
05090	9	3,796.75	0.9998	3,795.991
02923	22	9,025.97	0.9997	9,023.262
05527	16	6,296.86	0.9998	6,295.601
02924	21	8,586.63	0.9998	8,584.913
M 031	23	9,349.72	0.9998	9,347.850
M 030	23	9,359.62	0.9998	9,357.748
M 029	23	9,441.58	0.9998	9,439.692
M 028	23	9,408.75	0.9998	9,406.868
05470	21	8,715.83	0.9997	8,713.215
05469	21	8,794.75	0.9997	8,792.112

02925	22	8,948.74	0.9997	8,946.055
02926	21	8,317.92	0.9997	8,315.425
02922	22	9,008.09	0.9998	9,006.288
02917	14	5,617.48	0.9997	5,615.795
02916	16	6,468.19	0.9997	6,466.250
02915	16	6,642.16	0.9998	6,640.832
08245	20	6,594.98	0.9166	6,044.959
00409	20	6,896.95	0.9003	6,209.324
00410	18	6,246.40	0.9001	5,622.385
00411	16	5,509.30	0.9090	5,007.954
01713	23	7,525.05	0.8997	6,770.287
01714	18	5,746.05	0.8997	5,169.721
01715	23	7,601.83	0.8997	6,839.366
01716	23	7,460.22	0.8998	6,712.706
01717	22	7,225.00	0.8997	6,500.333
01718	23	7,659.60	0.8997	6,891.342
01719	22	7,168.22	0.8997	6,449.248
01726	21	6,840.13	0.8998	6,154.749
01727	21	6,990.93	0.8998	6,290.439
01728	20	6,592.63	0.8998	5,932.048
01729	21	6,804.24	0.8998	6,122.455
01730	19	6,288.88	0.8998	5,658.734
01731	19	6,307.83	0.8998	5,675.785
01777	17	5,806.73	0.8995	5,223.154
01859	7	2,137.92	0.9000	1,924.128
02134	12	3,655.44	0.8995	3,288.068
02179	7	2,138.00	0.8999	1,923.986
14966	7	2,137.00	0.8999	1,923.086
15102	13	4,343.90	0.9001	3,909.944
15216	17	5,674.43	0.8998	5,105.852
15217	21	7,143.23	0.8998	6,427.478
15218	21	7,057.12	0.8998	6,349.997
15219	21	7,130.85	0.8998	6,416.339
15220	20	6,879.83	0.8998	6,190.471
15221	22	7,492.30	0.8998	6,741.572
15222	21	6,904.00	0.8997	6,211.529
15223	23	7,624.50	0.8998	6,860.525
15224	23	7,775.03	0.8997	6,995.194
15225	21	7,194.75	0.8998	6,473.836
15226	22	7,464.52	0.8997	6,715.829
15227	20	7,004.23	0.8998	6,302.406
15228	22	7,212.38	0.8998	6,489.700
15229	21	7,290.83	0.8999	6,561.018
15230	20	6,977.08	0.8998	6,277.977

15231	20	6,629.88	0.8997	5,964.903
15232	21	7,067.63	0.8997	6,358.747
15233	20	6,856.20	0.8999	6,169.894
15234	21	7,330.75	0.8999	6,596.942
15235	21	7,192.82	0.8998	6,472.099
15236	20	6,966.90	0.8998	6,268.817
15237	21	7,244.00	0.8998	6,518.151
15238	20	6,859.90	0.8998	6,172.538
15239	21	7,235.55	0.8997	6,509.824
15240	21	6,788.23	0.8998	6,108.049
15241	22	7,359.95	0.8998	6,622.483
15242	21	6,998.08	0.8998	6,296.872
15243	20	6,792.38	0.8999	6,112.463
15244	20	6,390.78	0.8997	5,749.785
15245	21	6,993.18	0.8998	6,292.463
15246	20	6,982.13	0.8998	6,282.521
15247	22	7,440.55	0.8998	6,695.007
15248	20	6,978.70	0.8998	6,279.434
15249	21	7,391.94	0.8997	6,650.528
15250	20	6,809.03	0.8996	6,125.403
15251	21	7,249.58	0.8997	6,522.447
15252	22	7,210.10	0.8997	6,486.927
15253	20	6,686.43	0.8996	6,015.112
15254	22	7,335.58	0.8998	6,600.555
15255	22	7,202.68	0.8998	6,480.971
15256	25	7,979.87	0.8997	7,179.489
15257	20	6,680.32	0.8998	6,010.952
15258	21	7,019.20	0.8998	6,315.876
15259	21	7,024.50	0.8997	6,319.943
15260	20	6,658.44	0.8997	5,990.598
15261	21	7,095.99	0.8998	6,384.972
15262	21	7,098.10	0.8998	6,386.870
15263	21	7,062.08	0.8997	6,353.753
15264	20	6,989.03	0.8997	6,288.030
15265	21	6,984.22	0.8999	6,285.100
15266	20	6,883.10	0.8998	6,193.413
15267	20	6,984.90	0.8997	6,284.315
15268	21	7,296.23	0.8997	6,564.418
15269	13	4,562.55	0.8999	4,105.839
15304	15	4,902.75	0.9000	4,412.475
15305	13	4,260.55	0.9000	3,834.495
15375	20	6,823.50	0.8998	6,139.785
15376	21	7,062.95	0.8997	6,354.536
15377	22	7,361.08	0.8997	6,622.764

15378	19	6,511.13	0.8997	5,858.064
15379	22	7,384.90	0.8997	6,644.195
15380	22	7,466.98	0.8997	6,718.042
15381	22	7,420.64	0.8998	6,677.092
15382	20	6,666.96	0.8997	5,998.264
15383	22	7,280.25	0.8998	6,550.769
15384	20	6,857.40	0.8998	6,170.289
15385	19	6,385.98	0.8997	5,745.466
15386	21	7,140.60	0.8997	6,424.398
15387	22	7,488.80	0.8997	6,737.673
15388	21	7,054.80	0.8998	6,347.909
15389	22	7,391.86	0.8998	6,651.196
15390	22	7,229.75	0.8998	6,505.329
15391	21	6,954.20	0.8998	6,257.389
15392	21	6,691.65	0.8998	6,021.147
15393	22	7,309.95	0.8998	6,577.493
15394	22	7,284.00	0.8997	6,553.415
15395	21	6,892.85	0.8998	6,202.186
15396	22	7,225.33	0.8996	6,499.907
15397	22	7,330.82	0.8998	6,596.272
15398	21	6,607.55	0.8997	5,944.813
15399	19	6,142.40	0.8997	5,526.317
15400	23	7,851.45	0.8998	7,064.735
15401	23	7,722.30	0.8998	6,948.526
15402	23	7,784.15	0.8997	7,003.400
15403	22	7,485.65	0.8998	6,735.588
15404	20	6,640.90	0.8998	5,975.482
15430	18	5,911.38	0.8997	5,318.469
15431	22	7,356.66	0.8997	6,618.787
15432	21	7,071.45	0.8998	6,362.891
15433	23	7,474.08	0.8998	6,725.177
15434	22	7,330.73	0.8997	6,595.458
15435	23	7,594.65	0.8998	6,833.666
08497	22	7,526.33	0.9167	6,899.387
08498	23	7,785.40	0.9167	7,136.876
08511	11	3,774.05	0.9167	3,459.672
12382	13	4,274.50	0.9163	3,916.724
12606	10	3,263.00	0.9159	2,988.582
16429	23	7,854.68	0.8996	7,066.070
16430	23	7,808.70	0.8997	7,025.487
16431	21	7,185.97	0.8997	6,465.217
16432	21	6,898.80	0.8997	6,206.850
16433	19	6,202.44	0.8998	5,580.956
16434	23	7,511.34	0.8997	6,757.953

16435	23	7,674.64	0.8998	6,905.641
16436	23	7,909.82	0.8997	7,116.465
16437	13	4,220.06	0.8998	3,797.210
16438	21	7,005.76	0.8997	6,303.082
08503	22	7,577.30	0.9166	6,945.353
08504	22	7,647.95	0.9167	7,010.876
08525	21	6,835.55	0.9166	6,265.465
08529	24	8,059.32	0.9166	7,387.173
10116	23	7,999.83	0.9165	7,331.844
10117	28	9,629.02	0.9166	8,825.960
10118	25	8,533.14	0.9166	7,821.476
10119	25	8,164.77	0.9166	7,483.828
00001	11	4,188.40	0.9000	3,769.560
00002	13	4,436.60	0.9000	3,992.940
00003	11	3,781.90	0.8998	3,402.954
00004	10	3,587.20	0.8998	3,227.763
00005	13	4,476.90	0.8998	4,028.315
00006	14	4,822.90	0.9000	4,340.610
00007	11	3,987.10	0.8999	3,587.991
00008	10	3,632.40	0.9000	3,269.160
00009	13	4,719.30	0.9001	4,247.842
00010	9	3,279.50	0.9001	2,951.878
00011	11	4,107.40	0.9000	3,696.660
00012	13	4,339.80	0.8996	3,904.084
00013	12	4,127.80	0.8998	3,714.194
00014	13	4,585.50	0.8998	4,126.033
00015	11	4,165.90	0.8999	3,748.893
00016	12	4,268.00	0.9001	3,841.627
00017	11	3,754.60	0.9001	3,379.515
00018	12	4,441.10	0.8999	3,996.546
00019	13	4,439.90	0.9000	3,995.910
00020	13	4,534.60	0.9000	4,081.140
00021	12	4,260.80	0.8999	3,834.294
00022	13	4,559.00	0.9002	4,104.012
00023	15	5,349.90	0.8999	4,814.375
00024	14	5,048.80	0.8999	4,543.415
00025	14	4,963.10	0.8999	4,466.294
00026	13	4,762.40	0.8998	4,285.208
00027	13	4,660.70	0.8998	4,193.698
00028	12	3,987.30	0.9000	3,588.570
00029	15	5,362.20	0.8998	4,824.908
00030	12	4,198.90	0.9000	3,779.010
00031	13	4,390.20	0.9000	3,951.180
00032	13	4,417.63	0.8999	3,975.425

00033	7	2,570.00	0.8997	2,312.229
00034	10	3,362.50	0.9001	3,026.586
00035	11	3,838.30	0.9001	3,454.854
00036	11	3,797.40	0.8999	3,417.280
00037	11	3,839.80	0.8998	3,455.052
00038	15	5,362.20	0.8999	4,825.444
00059	19	7,157.70	0.8998	6,440.498
00060	19	6,963.85	0.8999	6,266.769
00061	20	7,498.60	0.9000	6,748.740
00062	20	7,345.45	0.8999	6,610.170
00063	19	7,030.50	0.9001	6,328.153
00064	20	7,635.10	0.9001	6,872.354
00065	19	7,054.50	0.9002	6,350.461
00066	19	6,296.80	0.9004	5,669.639
00067	18	6,956.60	0.8999	6,260.244
00068	18	6,878.50	0.9002	6,192.026
00069	18	6,659.00	0.9000	5,993.100
00070	18	7,002.70	0.9000	6,302.430
00071	18	6,822.50	0.9000	6,140.250
00072	18	6,730.80	0.9002	6,059.066
00073	19	7,391.10	0.9000	6,651.990
00074	19	7,204.80	0.9000	6,484.320
00075	19	7,167.20	0.8999	6,449.763
00076	20	7,736.00	0.9000	6,962.400
00077	18	6,704.00	0.9001	6,034.270
00078	18	6,612.30	0.9001	5,951.731
00079	18	6,740.80	0.9000	6,066.720
00080	18	6,720.60	0.9000	6,048.540
00081	18	7,039.40	0.9000	6,335.460
00082	18	6,637.10	0.9000	5,973.390
00083	18	6,747.00	0.9000	6,072.300
00084	18	7,081.70	0.9002	6,374.946
00085	19	7,102.00	0.8999	6,391.090
00086	19	7,053.40	0.9000	6,348.060
00087	19	7,285.60	0.9000	6,557.040
00088	19	7,033.70	0.9000	6,330.330
00089	21	7,744.50	0.9000	6,970.050
00090	18	6,744.10	0.9000	6,069.690
00091	24	8,792.15	0.8998	7,911.177
00092	20	7,584.80	0.9000	6,826.320
00093	18	6,616.30	0.8999	5,954.008
00094	18	6,857.20	0.8998	6,170.109
00095	19	7,004.30	0.9000	6,303.870
00096	19	7,094.60	0.9000	6,385.140

00097	19	7,081.00	0.8997	6,370.776
00098	21	7,581.20	0.8998	6,821.564
00099	20	7,428.00	0.9000	6,685.200
00100	19	7,136.00	0.8999	6,421.686
00101	20	7,442.10	0.8999	6,697.146
00102	18	6,678.88	0.9000	6,010.992
00103	19	7,499.40	0.8999	6,748.710
00104	18	6,650.70	0.8998	5,984.300
00105	19	7,280.80	0.8997	6,550.536
00106	19	7,297.10	0.8999	6,566.660
00107	19	7,161.50	0.8998	6,443.918
00108	19	7,252.10	0.8998	6,525.440
00109	19	7,277.40	0.8999	6,548.932
00110	19	7,050.60	0.8999	6,344.835
00111	19	7,216.90	0.9000	6,495.210
00112	20	7,657.50	0.8998	6,890.219
00113	18	6,654.50	0.8999	5,988.385
00114	18	6,981.80	0.9000	6,283.620
00115	20	7,270.50	0.9000	6,543.450
00116	18	6,616.50	0.9000	5,954.850
00117	21	7,879.00	0.9000	7,091.100
00118	19	6,948.00	0.9000	6,253.200
00119	19	7,177.90	0.9000	6,460.110
00120	19	7,376.30	0.9001	6,639.408
00121	18	6,566.70	0.9000	5,910.030
00122	18	6,810.90	0.9000	6,129.810
00123	18	6,958.90	0.9000	6,263.010
00124	19	6,874.60	0.9000	6,187.140
00125	19	7,255.50	0.8999	6,529.224
00126	19	7,256.80	0.8998	6,529.669
00127	21	7,753.60	0.9000	6,978.240
00128	18	6,892.20	0.9000	6,202.980
00129	19	7,145.20	0.8998	6,429.251
00130	19	7,020.40	0.9000	6,318.360
00131	19	7,212.00	0.9000	6,490.800
00132	18	6,738.00	0.9000	6,064.200
00133	19	7,003.60	0.9000	6,303.240
00134	19	7,315.00	0.9001	6,584.232
00135	19	7,197.90	0.9001	6,478.830
00136	19	7,160.40	0.9000	6,444.360
00137	19	7,212.10	0.9000	6,490.890
00138	19	7,320.30	0.9000	6,588.270
00139	20	7,493.20	0.9000	6,743.880
00140	20	7,508.60	0.8998	6,756.238

00141	18	6,893.80	0.8999	6,203.731
00142	19	7,263.20	0.9000	6,536.880
00143	19	7,077.70	0.9000	6,369.930
00144	19	7,283.20	0.8999	6,554.152
00145	19	7,234.10	0.9000	6,510.690
00146	19	6,979.90	0.9000	6,281.910
00147	19	7,196.50	0.9000	6,476.850
00148	19	7,288.10	0.8999	6,558.561
00149	19	7,248.50	0.9000	6,523.650
00150	19	7,132.90	0.9000	6,419.610
00151	20	7,255.90	0.8998	6,528.859
00152	19	7,008.32	0.8999	6,306.787
00153	19	6,944.90	0.8999	6,249.716
00154	19	7,069.60	0.8999	6,361.933
00155	19	7,110.60	0.8997	6,397.407
00156	18	6,793.80	0.9000	6,114.420
00157	19	6,922.10	0.8999	6,229.198
00158	19	7,254.00	0.9000	6,528.600
00159	20	7,512.90	0.8999	6,760.859
00160	19	7,109.80	0.8999	6,398.109
00161	19	7,176.20	0.9000	6,458.580
00162	19	7,224.00	0.9000	6,501.600
00163	19	7,044.00	0.9000	6,339.600
00164	19	7,147.10	0.9000	6,432.390
00165	19	7,070.30	0.9000	6,363.270
00166	19	7,201.00	0.9002	6,482.340
00167	19	7,131.10	0.9002	6,419.416
00168	19	7,193.90	0.9002	6,475.949
00169	19	7,275.70	0.9000	6,548.130
00170	19	6,996.50	0.8999	6,296.150
00171	19	7,107.70	0.8999	6,396.219
00172	19	7,123.70	0.8999	6,410.618
00173	19	7,072.80	0.8998	6,364.105
00174	19	7,179.80	0.9000	6,461.820
00175	19	7,110.30	0.9000	6,399.270
00176	19	7,017.50	0.9001	6,316.452
00177	18	6,700.10	0.9000	6,030.090
00178	21	7,938.00	0.8998	7,142.612
00179	19	7,236.00	0.8998	6,510.953
00180	19	7,116.50	0.8998	6,403.427
00181	19	7,416.20	0.9000	6,674.580
00182	19	7,383.30	0.9000	6,644.970
00183	19	7,305.50	0.8998	6,573.489
00184	18	7,060.40	0.8998	6,352.948

00185	19	7,354.00	0.9000	6,618.600
00186	20	7,739.00	0.9000	6,965.100
00187	20	7,760.10	0.9000	6,984.090
00188	20	7,645.30	0.9000	6,880.770
00189	20	7,708.60	0.8998	6,936.198
00190	18	6,548.50	0.8998	5,892.340
00191	16	5,742.40	0.9000	5,168.160
00192	17	6,266.30	0.8998	5,638.417
00193	19	7,092.40	0.9000	6,383.160
00194	19	7,262.80	0.8999	6,535.794
00195	19	7,324.70	0.9001	6,592.962
00196	19	7,179.00	0.9000	6,461.100
00197	19	7,238.60	0.8999	6,514.016
00198	19	7,415.80	0.8999	6,673.478
00199	19	7,217.90	0.8998	6,494.666
00200	19	7,334.60	0.9000	6,601.140
00201	19	7,255.60	0.9001	6,530.766
00202	20	7,361.36	0.8998	6,623.752
00203	18	6,650.80	0.9000	5,985.720
00204	21	7,879.10	0.8999	7,090.402
00205	19	7,167.70	0.9000	6,450.930
00206	19	7,243.30	0.9000	6,518.970
00207	19	7,400.10	0.8998	6,658.610
00208	19	7,225.60	0.9000	6,503.040
00209	19	7,337.10	0.9000	6,603.390
00210	19	7,326.60	0.9001	6,594.673
00211	19	7,208.30	0.9002	6,488.912
00212	19	7,454.50	0.8998	6,707.559
00213	19	7,520.30	0.8999	6,767.518
00214	18	6,822.80	0.8998	6,139.155
00215	19	6,826.30	0.8999	6,142.987
00216	16	5,725.40	0.8998	5,151.715
00217	19	7,183.10	0.9000	6,464.790
00218	19	7,306.50	0.8998	6,574.389
00219	19	7,247.90	0.8999	6,522.385
00220	19	7,255.40	0.8999	6,529.134
00221	19	7,359.50	0.8998	6,622.078
00222	19	7,161.70	0.8999	6,444.814
00223	18	6,804.30	0.8999	6,123.190
00224	18	6,699.80	0.8998	6,028.480
00225	18	6,805.30	0.9000	6,124.770
00226	20	7,532.40	0.8998	6,777.654
00227	19	7,193.80	0.9000	6,474.420
00228	18	6,768.70	0.8998	6,090.476

00229	18	6,707.50	0.8999	6,036.079
00230	21	7,836.80	0.9000	7,053.120
00231	20	7,559.80	0.9002	6,805.332
00232	19	7,213.60	0.9000	6,492.240
00233	19	7,347.00	0.9000	6,612.300
00234	19	7,132.50	0.9000	6,419.250
00235	19	7,177.80	0.9000	6,460.020
00236	19	7,280.60	0.9001	6,553.268
00237	19	7,034.70	0.8999	6,330.527
00238	19	7,153.70	0.9000	6,438.330
00239	19	7,288.20	0.8999	6,558.651
00240	19	7,127.50	0.9000	6,414.750
00241	18	6,342.70	0.8999	5,707.796
00242	18	6,716.30	0.8998	6,043.327
00243	21	7,948.20	0.8998	7,151.790
00244	19	7,221.40	0.9000	6,499.260
00245	19	7,225.50	0.8999	6,502.227
00246	19	7,098.10	0.9000	6,388.290
00247	19	7,313.60	0.8998	6,580.777
00248	19	7,278.70	0.8998	6,549.374
00249	19	7,273.50	0.8998	6,544.695
00250	19	7,215.20	0.8998	6,492.237
00251	19	7,132.00	0.9000	6,418.800
00252	19	7,191.69	0.9000	6,472.521
00253	21	7,765.90	0.9001	6,990.087
00254	18	6,379.10	0.9002	5,742.466
00255	17	6,293.70	0.9000	5,664.330
00256	19	7,081.60	0.9001	6,374.148
00257	20	7,577.80	0.9001	6,820.778
00258	20	7,647.30	0.9001	6,883.335
00259	20	7,514.00	0.9001	6,763.351
00260	20	7,535.80	0.9000	6,782.220
00261	20	7,565.60	0.9000	6,809.040
00262	19	7,306.10	0.9000	6,575.490
00263	20	7,602.00	0.9000	6,841.800
00264	20	7,590.20	0.9001	6,831.939
00265	21	7,816.40	0.9000	7,034.760
00266	18	6,303.40	0.9000	5,673.060
00267	17	6,212.40	0.9000	5,591.160
00268	19	7,090.60	0.9000	6,381.540
00269	19	7,390.20	0.8999	6,650.441
00270	19	7,028.50	0.8999	6,324.947
00271	19	7,020.90	0.8998	6,317.406
00272	19	7,420.80	0.9000	6,678.720

00273	19	7,176.90	0.9000	6,459.210
00274	19	7,164.80	0.9000	6,448.320
00275	19	7,205.50	0.9000	6,484.950
00276	19	7,081.40	0.9000	6,373.260
00277	20	7,336.80	0.9001	6,603.854
00278	18	6,695.00	0.8998	6,024.161
00279	19	7,002.82	0.9000	6,302.538
00280	19	6,957.50	0.8998	6,260.359
00281	19	6,960.90	0.9000	6,264.810
00282	19	7,134.60	0.9002	6,422.567
00283	19	7,060.30	0.9000	6,354.270
00284	19	6,943.70	0.9000	6,249.330
00285	19	7,218.50	0.9000	6,496.650
00286	19	6,836.30	0.9000	6,152.670
00287	19	7,160.60	0.9001	6,445.256
00288	21	7,355.40	0.8995	6,616.182
00289	21	7,557.10	0.9000	6,801.390
00290	20	7,446.30	0.9000	6,701.670
00291	18	6,654.10	0.9001	5,989.355
00292	19	7,223.00	0.8998	6,499.255
00293	19	7,037.00	0.8999	6,332.596
00294	19	6,838.60	0.9000	6,154.740
00295	19	7,145.50	0.9000	6,430.950
00296	19	6,982.10	0.8997	6,281.795
00297	19	7,182.50	0.8999	6,463.532
00298	19	6,982.60	0.9000	6,284.340
00299	19	7,137.30	0.9001	6,424.284
00300	19	7,187.30	0.8999	6,467.851
00301	20	7,459.10	0.9001	6,713.936
00302	20	7,687.21	0.9000	6,918.489
00303	19	7,037.80	0.9000	6,334.020
00304	20	7,355.20	0.8999	6,618.944
00305	20	7,576.60	0.8999	6,818.182
00306	19	7,058.30	0.9000	6,352.470
00307	19	7,262.50	0.9000	6,536.250
00308	19	7,242.10	0.9000	6,517.890
00309	19	7,209.90	0.9000	6,488.910
00310	19	7,175.60	0.9000	6,458.040
00311	19	7,066.60	0.9000	6,359.940
00312	19	7,196.40	0.8998	6,475.321
00313	19	7,288.70	0.9000	6,559.830
00314	19	7,265.30	0.9000	6,538.770
00315	19	7,084.50	0.8999	6,375.342
00316	18	6,784.10	0.9000	6,105.690

00317	20	7,517.60	0.9000	6,765.840
00318	16	5,764.60	0.8998	5,186.987
00319	19	7,211.00	0.8999	6,489.179
00320	19	7,299.40	0.9000	6,569.460
00321	19	7,232.20	0.9000	6,508.980
00322	19	7,156.00	0.8997	6,438.253
00323	19	7,230.50	0.9000	6,507.450
00324	19	7,244.00	0.8999	6,518.876
00325	19	7,173.50	0.8999	6,455.433
00326	19	7,189.20	0.9000	6,470.280
00327	19	7,290.80	0.9000	6,561.720
00328	20	7,532.20	0.9000	6,778.980
00329	17	6,200.40	0.9000	5,580.360
00330	19	7,227.10	0.8999	6,503.667
00331	20	7,518.00	0.8999	6,765.448
00332	19	7,060.20	0.9000	6,354.180
A 001	11	4,287.80	0.8997	3,857.734
A 002	11	4,011.00	0.9001	3,610.301
A 009	13	4,755.90	0.9000	4,280.310
A 010	10	3,415.50	0.9001	3,074.292
A 017	13	4,650.50	0.9000	4,185.450
B 001	12	4,420.50	0.8998	3,977.566
B 002	12	4,317.90	0.8998	3,885.246
B 009	12	4,453.20	0.9001	4,008.325
B 017	11	4,090.70	0.9002	3,682.448
C 001	13	4,564.00	0.8998	4,106.687
C 002	12	4,316.70	0.8997	3,883.735
C 009	12	4,426.80	0.9001	3,984.563
C 017	12	4,398.80	0.9002	3,959.800
D 001	10	3,873.70	0.8999	3,485.943
D 009	12	4,438.90	0.8998	3,994.122
00576	19	7,073.00	0.9000	6,365.700
00577	16	6,139.80	0.9001	5,526.434
00578	19	7,107.40	0.8998	6,395.239
00579	19	7,316.40	0.9000	6,584.760
00580	19	7,281.30	0.8998	6,551.714
00581	20	7,349.10	0.8998	6,612.720
00582	18	6,835.30	0.8999	6,151.086
00583	19	7,309.10	0.9002	6,579.652
00584	19	7,036.40	0.9001	6,333.464
00585	19	7,346.00	0.9000	6,611.400
00586	19	7,301.00	0.8999	6,570.170
00587	19	7,207.70	0.9000	6,486.930
00588	19	7,206.10	0.9001	6,486.211

00589	18	6,677.40	0.9000	6,009.660
00590	21	8,033.30	0.9002	7,231.577
00591	19	6,989.10	0.9001	6,290.889
00592	18	6,470.70	0.9000	5,823.630
00593	19	7,205.90	0.9000	6,485.310
00594	19	7,191.40	0.9001	6,472.979
00595	19	7,123.26	0.8999	6,410.222
00596	19	7,205.50	0.9000	6,484.950
00597	19	7,285.40	0.9001	6,557.589
00598	19	6,989.20	0.9002	6,291.678
00599	20	7,571.50	0.9001	6,815.107
00600	18	6,894.80	0.9002	6,206.699
00601	20	7,209.80	0.9003	6,490.983
00602	20	7,606.70	0.9000	6,846.030
00603	19	6,997.00	0.9000	6,297.300
00604	18	6,681.70	0.8999	6,012.862
00605	19	7,394.50	0.9002	6,656.529
00606	19	7,144.00	0.8999	6,428.886
00607	19	7,518.00	0.8999	6,765.448
00608	19	7,185.80	0.9001	6,467.939
00609	18	6,366.60	0.9001	5,730.577
00610	21	7,559.30	0.9000	6,803.370
00611	19	7,385.40	0.9002	6,648.337
00612	19	7,025.40	0.9001	6,323.563
00613	19	7,196.00	0.9000	6,476.400
00614	19	7,044.00	0.9000	6,339.600
00615	18	6,546.50	0.9000	5,891.850
00616	20	7,530.50	0.9001	6,778.203
00617	20	7,357.30	0.8999	6,620.834
00618	19	7,072.50	0.9003	6,367.372
00619	20	7,296.50	0.9003	6,569.039
00620	19	6,947.80	0.9003	6,255.104
00621	19	7,160.90	0.9003	6,446.958
00622	19	7,350.70	0.8999	6,614.895
00623	19	6,874.10	0.9002	6,188.065
00624	19	7,299.00	0.8999	6,568.370
00625	19	7,365.60	0.8998	6,627.567
00626	17	6,202.80	0.8997	5,580.659
00627	19	7,338.00	0.8999	6,603.466
00628	21	7,899.50	0.9001	7,110.340
00629	19	7,165.50	0.9001	6,449.667
00630	19	7,269.54	0.9000	6,542.586
00631	19	7,034.30	0.8999	6,330.167
00632	19	7,223.70	0.9003	6,503.497

00633	19	7,205.70	0.9004	6,488.012
00634	19	6,974.40	0.9004	6,279.750
00635	19	6,920.20	0.9003	6,230.256
00636	19	7,049.40	0.9001	6,345.165
00637	21	7,623.60	0.9001	6,862.002
00638	19	7,269.20	0.9002	6,543.734
00639	20	7,526.70	0.9002	6,775.535
00640	20	7,348.90	0.9001	6,614.745
00641	19	7,090.80	0.9000	6,381.720
00642	19	7,204.90	0.9000	6,484.410
00643	19	7,502.00	0.9000	6,751.800
00644	18	6,602.10	0.9000	5,941.890
00645	18	6,478.04	0.9002	5,831.532
00646	20	7,449.80	0.9000	6,704.820
00647	19	7,104.40	0.9002	6,395.381
00648	19	7,053.00	0.9000	6,347.700
00649	19	7,493.10	0.9001	6,744.539
00650	19	6,997.00	0.9001	6,298.000
00651	19	6,957.30	0.9000	6,261.570
00652	19	7,120.10	0.8999	6,407.378
00653	19	7,093.80	0.9000	6,384.420
00654	19	7,295.20	0.8999	6,564.950
00655	21	7,351.30	0.8998	6,614.700
00656	16	5,738.70	0.9247	5,306.576
00657	14	5,184.20	0.9000	4,665.780
00658	18	6,825.40	0.8998	6,141.495
00659	19	7,106.80	0.8998	6,394.699
00660	19	7,374.90	0.9000	6,637.410
00661	19	7,126.80	0.9000	6,414.120
00662	19	7,345.50	0.8999	6,610.215
00663	19	7,073.10	0.9001	6,366.497
00664	19	7,007.60	0.9000	6,306.840
00665	19	7,252.20	0.9000	6,526.980
00666	19	7,276.40	0.8999	6,548.032
00667	20	7,288.50	0.9000	6,559.650
00668	19	6,650.80	0.9002	5,987.050
00669	20	7,166.30	0.9000	6,449.670
00670	20	7,152.80	0.8998	6,436.089
00671	20	7,279.70	0.9000	6,551.730
00672	19	7,171.50	0.9000	6,454.350
00673	20	7,503.60	0.9001	6,753.990
00699	19	7,116.70	0.9000	6,405.030
00700	18	6,747.60	0.8999	6,072.165
00701	20	7,718.10	0.9000	6,946.290

00702	20	7,128.90	0.8997	6,413.871
00703	19	7,362.70	0.9000	6,626.430
00704	19	7,162.50	0.9000	6,446.250
00705	20	7,640.40	0.9000	6,876.360
00706	19	7,115.90	0.8998	6,402.887
00707	20	7,453.80	0.9000	6,708.420
00708	20	7,485.00	0.9001	6,737.249
00709	19	7,100.90	0.8999	6,390.100
00710	19	7,190.70	0.8999	6,470.911
00711	19	7,133.20	0.9000	6,419.880
00712	19	7,086.20	0.8999	6,376.871
00713	20	7,050.64	0.8999	6,344.871
00714	19	7,096.90	0.9000	6,387.210
00715	19	6,997.50	0.9001	6,298.450
00716	19	7,142.20	0.8999	6,427.266
00717	19	7,420.20	0.8998	6,676.696
00718	20	7,555.50	0.8999	6,799.194
00719	20	7,469.10	0.9000	6,722.190
00720	19	7,140.90	0.8999	6,426.096
00721	19	7,259.40	0.9000	6,533.460
00722	20	7,304.00	0.8999	6,572.870
A 658	18	6,794.90	0.9000	6,115.410
A 659	19	7,132.40	0.9000	6,419.160
A 660	19	7,157.80	0.9000	6,442.020
A 661	20	7,337.70	0.9000	6,603.930
A 662	19	7,194.00	0.9000	6,474.600
A 663	19	7,014.40	0.9000	6,312.960
A 664	19	7,096.90	0.9000	6,387.210
A 665	19	6,967.30	0.8998	6,269.177
A 666	19	7,004.00	0.8998	6,302.199
A 667	20	7,416.20	0.9000	6,674.580
A 668	19	6,867.90	0.9000	6,181.110
A 669	20	7,507.54	0.8999	6,756.035
A 670	20	7,061.60	0.8998	6,354.028
A 671	20	7,557.80	0.9002	6,803.532
A 672	20	7,566.10	0.9000	6,809.490
A 673	20	7,519.77	0.9001	6,768.545
A 699	20	7,506.80	0.8998	6,754.619
A 700	20	7,565.60	0.8998	6,807.527
A 701	19	7,148.20	0.8999	6,432.665
A 702	19	7,129.40	0.9000	6,416.460
A 703	19	7,150.70	0.9000	6,435.630
A 704	20	7,699.80	0.9001	6,930.590
A 705	19	7,098.30	0.9000	6,388.470

A 706	20	7,786.70	0.8999	7,007.251
A 707	20	7,560.50	0.8999	6,803.694
A 708	19	7,071.40	0.9000	6,364.260
A 709	19	7,270.50	0.9000	6,543.450
A 710	19	7,310.00	0.8999	6,578.269
A 711	19	7,142.10	0.8999	6,427.176
A 712	20	7,243.40	0.9000	6,519.060
A 713	18	6,785.00	0.9000	6,106.500
A 714	19	7,171.50	0.9000	6,454.350
A 715	19	6,999.40	0.8998	6,298.060
A 716	19	7,220.10	0.9000	6,498.090
A 717	19	7,198.00	0.8998	6,476.760
A 718	20	7,510.30	0.8999	6,758.519
A 719	20	7,493.10	0.9000	6,743.790
A 720	19	7,263.90	0.8999	6,536.784
A 721	19	7,416.30	0.9000	6,674.670
B 658	18	6,791.20	0.9000	6,112.080
B 659	18	6,758.60	0.9000	6,082.740
B 660	20	7,653.70	0.9000	6,888.330
B 661	20	7,651.30	0.9000	6,886.170
B 662	19	7,329.00	0.8999	6,595.367
B 663	19	6,956.60	0.8998	6,259.549
B 664	19	7,099.60	0.9000	6,389.640
B 665	19	7,364.40	0.8999	6,627.224
B 666	19	7,193.10	0.9000	6,473.790
B 667	20	7,450.80	0.9000	6,705.720
B 668	19	6,594.70	0.9000	5,935.230
B 669	20	7,375.40	0.9001	6,638.598
B 670	20	7,194.20	0.9000	6,474.780
B 671	20	7,411.80	0.9001	6,671.361
B 672	20	7,487.10	0.8999	6,737.641
B 673	20	7,637.60	0.9001	6,874.604
B 699	20	7,701.70	0.8999	6,930.760
B 700	18	6,920.00	0.9000	6,228.000
B 701	19	6,913.80	0.9000	6,222.420
B 702	19	7,149.10	0.9000	6,434.190
B 703	19	7,120.50	0.9002	6,409.874
B 704	20	7,545.40	0.9000	6,790.860
B 705	18	6,812.90	0.9000	6,131.610
B 706	19	7,028.80	0.9000	6,325.920
B 707	19	7,267.60	0.9000	6,540.840
B 708	19	7,197.30	0.9000	6,477.570
B 709	19	7,047.30	0.8999	6,341.865
B 710	17	6,387.60	0.9000	5,748.840

B 711	20	7,358.50	0.8999	6,621.914
B 712	19	6,973.00	0.8999	6,275.003
B 713	21	7,808.50	0.8999	7,026.869
B 714	19	7,393.90	0.9000	6,654.510
B 715	19	7,322.70	0.9000	6,590.430
B 716	19	7,154.10	0.8998	6,437.259
B 717	19	7,329.00	0.8997	6,593.901
B 718	19	7,201.10	0.9000	6,480.990
B 719	20	7,597.90	0.8999	6,837.350
B 720	19	7,200.40	0.8999	6,479.640
B 721	18	6,926.10	0.9000	6,233.490
C 658	18	6,846.10	0.9000	6,161.490
C 659	18	6,726.70	0.8997	6,052.012
C 660	18	6,836.40	0.9000	6,152.760
C 661	19	6,974.30	0.9000	6,276.870
C 662	19	7,103.60	0.8999	6,392.530
C 663	19	6,953.00	0.8999	6,257.005
C 664	18	6,937.10	0.8998	6,242.003
C 665	18	6,568.20	0.9000	5,911.380
C 666	20	7,213.30	0.9000	6,491.970
C 667	19	6,904.20	0.9001	6,214.470
C 668	19	6,893.70	0.9000	6,204.330
C 669	20	7,530.30	0.9000	6,777.270
C 670	20	7,284.70	0.9002	6,557.687
C 671	20	7,330.80	0.9000	6,597.720
C 672	20	7,129.00	0.8998	6,414.674
C 673	20	7,496.70	0.9000	6,747.030
C 699	19	7,228.40	0.9000	6,505.560
C 700	20	7,539.80	0.9000	6,785.820
C 701	20	7,782.43	0.8998	7,002.631
C 702	20	7,627.00	0.9001	6,865.063
C 703	20	7,187.70	0.8999	6,468.211
C 704	19	7,253.10	0.9000	6,527.790
C 705	20	7,552.80	0.9001	6,798.275
C 706	19	7,182.20	0.9000	6,463.980
C 707	18	6,547.70	0.9000	5,892.930
C 708	20	7,358.90	0.8998	6,621.538
C 709	20	7,595.80	0.9000	6,836.220
C 710	21	7,848.60	0.9000	7,063.740
C 711	19	7,300.20	0.8999	6,569.450
C 712	19	6,930.70	0.9000	6,237.630
C 713	19	7,159.00	0.8999	6,442.384
C 714	18	6,566.40	0.8999	5,909.103
C 715	19	7,041.00	0.8998	6,335.492

C 716	19	7,352.40	0.8999	6,616.425
C 717	19	7,254.90	0.8998	6,527.959
C 718	19	7,184.60	0.8999	6,465.422
C 719	17	6,325.10	0.9000	5,692.590
C 720	19	7,269.70	0.8999	6,542.003
C 721	18	6,782.80	0.9000	6,104.520
D 658	19	7,013.00	0.8999	6,310.999
D 659	18	6,271.20	0.9002	5,645.334
D 660	20	7,687.70	0.9000	6,918.930
D 661	19	7,137.40	0.9000	6,423.660
D 662	20	7,553.70	0.8999	6,797.575
D 663	19	7,253.90	0.9001	6,529.235
D 664	20	7,352.90	0.9000	6,617.610
D 665	19	7,046.80	0.9001	6,342.825
D 666	19	6,594.60	0.9000	5,935.140
D 667	19	6,935.80	0.9001	6,242.914
D 668	20	6,977.20	0.9002	6,280.875
D 669	20	7,295.50	0.9000	6,565.950
D 670	20	7,339.70	0.9001	6,606.464
D 671	20	7,433.10	0.9000	6,689.790
D 672	20	7,354.70	0.8999	6,618.495
D 673	18	6,567.10	0.9001	5,911.047
D 699	19	7,059.90	0.8997	6,351.792
D 700	20	7,519.40	0.9001	6,768.212
D 701	19	7,372.30	0.8999	6,634.333
D 702	19	7,279.30	0.9001	6,552.098
D 703	20	7,705.10	0.8999	6,933.819
D 704	17	6,486.10	0.8999	5,836.841
D 705	19	7,258.90	0.9001	6,533.736
D 706	19	7,215.90	0.9000	6,494.310
D 707	19	7,231.30	0.9002	6,509.616
D 708	19	6,922.20	0.9000	6,229.980
D 709	19	7,255.20	0.8998	6,528.229
D 710	19	7,070.40	0.9001	6,364.067
D 711	19	7,397.60	0.9000	6,657.840
D 712	19	6,999.70	0.9000	6,299.730
D 713	19	7,190.40	0.8998	6,469.922
D 714	19	7,397.00	0.9000	6,657.300
D 715	20	7,739.40	0.8998	6,963.912
D 716	19	7,080.30	0.8999	6,371.562
D 717	19	7,344.70	0.8998	6,608.761
D 718	19	7,262.00	0.9000	6,535.800
D 719	19	7,143.40	0.8999	6,428.346
D 720	19	7,405.90	0.9001	6,666.051

D 721	20	7,581.97	0.9000	6,823.773
E 658	19	7,212.60	0.9000	6,491.340
E 659	14	4,623.50	0.8998	4,160.225
E 660	20	7,239.30	0.9000	6,515.370
E 661	20	7,351.20	0.8999	6,615.345
E 662	20	7,380.72	0.9000	6,642.648
E 663	22	8,204.00	0.9001	7,384.420
E 664	17	6,171.30	0.9000	5,554.170
E 665	20	7,798.40	0.9001	7,019.340
E 666	18	6,410.30	0.9000	5,769.270
E 667	19	7,023.40	0.8998	6,319.655
E 668	20	6,995.90	0.8999	6,295.610
E 669	20	7,404.10	0.9001	6,664.430
E 670	22	7,829.70	0.9001	7,047.513
E 671	20	7,302.30	0.9000	6,572.070
E 672	20	7,089.10	0.9001	6,380.899
E 673	19	7,077.40	0.9001	6,370.368
E 699	19	7,287.70	0.8999	6,558.201
E 700	18	6,834.80	0.8999	6,150.637
E 701	20	7,330.00	0.9000	6,597.000
E 702	19	7,099.70	0.8997	6,387.600
E 703	20	7,386.00	0.9001	6,648.139
E 704	18	6,882.20	0.8999	6,193.292
E 705	19	7,135.00	0.9001	6,422.214
E 706	19	7,097.00	0.9000	6,387.300
E 707	20	7,585.40	0.8998	6,825.343
E 708	19	7,293.70	0.8999	6,563.601
E 709	19	7,083.50	0.8999	6,374.442
E 710	18	6,664.40	0.8998	5,996.627
E 711	19	7,224.60	0.8999	6,501.418
E 712	20	7,448.20	0.9000	6,703.380
E 713	19	7,304.80	0.9000	6,574.320
E 714	20	7,272.00	0.8998	6,543.346
E 715	19	7,153.80	0.9000	6,438.420
E 716	19	7,237.40	0.8998	6,512.213
E 717	19	6,999.60	0.8998	6,298.240
E 718	18	6,662.70	0.9000	5,996.430
E 719	19	7,222.40	0.8998	6,498.716
E 720	19	7,502.60	0.9000	6,752.340
E 721	19	7,335.60	0.9000	6,602.040
F 658	22	8,142.80	0.9001	7,329.334
F 660	18	6,665.50	0.9000	5,998.950
F 661	18	6,551.80	0.9000	5,896.620
F 662	17	6,278.80	0.9000	5,650.920

F 663	21	7,863.30	0.9001	7,077.756
F 664	20	7,526.30	0.9001	6,774.423
F 665	20	7,470.40	0.9000	6,723.360
F 666	19	6,814.80	0.9000	6,133.320
F 667	19	6,919.40	0.8998	6,226.076
F 668	21	7,691.30	0.9000	6,922.170
F 669	19	6,993.60	0.8998	6,292.841
F 670	20	7,191.10	0.8998	6,470.552
F 671	19	7,098.00	0.9000	6,388.200
F 672	20	7,333.10	0.9002	6,601.257
F 699	20	7,561.70	0.8999	6,804.774
F 700	19	7,176.40	0.8998	6,457.325
F 701	19	7,167.10	0.9000	6,450.390
F 702	20	7,430.80	0.9001	6,688.463
F 703	19	7,207.10	0.9000	6,486.390
F 704	20	7,429.70	0.9001	6,687.473
F 705	19	7,260.20	0.9000	6,534.180
F 706	20	7,547.70	0.9000	6,792.930
F 707	18	6,919.60	0.8999	6,226.948
F 708	20	7,405.50	0.9002	6,666.431
F 709	20	7,520.90	0.8999	6,768.058
F 710	19	7,255.70	0.8999	6,529.404
F 711	19	7,214.00	0.9000	6,492.600
F 712	19	6,918.30	0.9000	6,226.470
F 713	19	7,222.30	0.8998	6,498.626
F 714	19	7,311.10	0.8999	6,579.259
F 715	19	7,363.50	0.9000	6,627.150
F 716	17	6,335.70	0.8998	5,700.863
F 717	20	7,759.70	0.8999	6,982.954
F 718	19	7,100.30	0.9000	6,390.270
F 719	19	7,386.40	0.8999	6,647.021
F 720	19	7,368.70	0.9000	6,631.830
F 721	19	7,574.40	0.9001	6,817.717
G 658	24	8,682.10	0.8999	7,813.022
G 660	19	7,110.40	0.9000	6,399.360
G 661	17	6,147.00	0.8998	5,531.071
G 662	21	7,590.00	0.9001	6,831.759
G 663	17	6,138.00	0.8999	5,523.586
G 664	20	7,197.90	0.9001	6,478.830
G 665	19	7,197.30	0.9000	6,477.570
G 666	20	7,378.80	0.8999	6,640.182
G 667	18	6,488.30	0.9000	5,839.470
G 668	25	8,967.70	0.9000	8,070.930
G 669	17	6,118.70	0.8997	5,504.994

G 670	21	7,569.50	0.9002	6,814.064
G 671	19	7,083.20	0.9000	6,374.880
G 672	17	6,122.90	0.9000	5,510.610
G 699	18	6,821.50	0.8997	6,137.304
G 700	19	7,060.60	0.8999	6,353.834
G 701	17	6,541.30	0.9000	5,887.170
G 702	18	6,832.60	0.9000	6,149.340
G 703	18	6,830.80	0.8999	6,147.037
G 704	19	7,187.30	0.9001	6,469.289
G 705	19	7,132.60	0.9001	6,420.053
G 706	18	6,829.90	0.9000	6,146.910
G 707	17	6,339.50	0.9000	5,705.550
G 708	19	7,101.20	0.9000	6,391.080
G 709	18	6,845.10	0.8999	6,159.905
G 710	19	7,170.43	0.9000	6,453.387
G 711	17	6,344.30	0.9000	5,709.870
G 712	19	6,999.20	0.9000	6,299.280
G 713	19	7,256.30	0.8998	6,529.219
G 714	20	7,306.20	0.9000	6,575.580
G 715	18	6,496.00	0.8998	5,845.101
G 716	20	7,461.80	0.9000	6,715.620
G 717	19	7,123.10	0.9000	6,410.790
G 718	19	7,222.90	0.8999	6,499.888
G 719	18	6,899.10	0.9000	6,209.190
G 720	18	6,959.60	0.9000	6,263.640
G 721	20	7,745.50	0.9002	6,972.499
H 660	18	6,672.50	0.8999	6,004.583
H 661	23	8,136.60	0.8999	7,322.126
H 662	19	6,633.60	0.9001	5,970.903
H 663	19	6,953.70	0.9000	6,258.330
H 664	22	8,022.60	0.9000	7,220.340
H 665	18	6,757.20	0.8999	6,080.804
H 666	24	8,534.80	0.9000	7,681.320
H 667	22	7,984.50	0.8999	7,185.252
H 668	19	6,764.90	0.9000	6,088.410
H 669	20	7,069.00	0.8999	6,361.393
H 670	17	5,839.40	0.9000	5,255.460
H 671	17	5,957.00	0.9000	5,361.300
H 672	20	7,189.60	0.9001	6,471.359
H 699	16	6,119.50	0.8999	5,506.938
H 700	19	7,047.00	0.8999	6,341.595
H 701	18	6,469.60	0.8998	5,821.346
H 702	18	6,741.00	0.9000	6,066.900
H 703	17	6,517.60	0.9000	5,865.840

H 704	19	6,810.10	0.9001	6,129.771
H 705	18	6,563.80	0.9000	5,907.420
H 706	18	6,642.00	0.8999	5,977.136
H 707	20	7,542.90	0.9001	6,789.364
H 708	18	6,616.80	0.9000	5,955.120
H 709	18	6,735.60	0.8999	6,061.366
H 710	20	7,558.00	0.8999	6,801.444
H 711	20	7,327.70	0.9000	6,594.930
H 712	22	7,869.70	0.9000	7,082.730
H 713	18	6,682.70	0.8998	6,013.093
H 714	19	6,940.50	0.9000	6,246.450
H 715	20	7,344.00	0.8999	6,608.866
H 716	20	7,460.30	0.8998	6,712.778
H 717	17	6,033.40	0.8999	5,429.457
H 718	18	6,761.10	0.8999	6,084.314
H 719	19	6,922.20	0.9002	6,231.364
H 720	17	6,337.30	0.9000	5,703.570
H 721	15	5,777.80	0.9000	5,200.020
00723	20	7,198.88	0.8999	6,478.272
00774	20	7,453.50	0.8999	6,707.405
00775	19	7,089.70	0.8998	6,379.312
00776	20	7,332.40	0.8999	6,598.427
00777	19	6,834.60	0.8999	6,150.457
00778	19	7,235.00	0.8999	6,510.777
00779	19	7,231.30	0.8999	6,507.447
00780	19	7,181.40	0.8998	6,461.824
00781	19	7,096.10	0.9000	6,386.490
00782	19	7,104.40	0.9000	6,393.960
00783	21	7,670.40	0.9000	6,903.360
00784	19	6,973.90	0.8999	6,275.813
00785	18	6,681.10	0.9000	6,012.990
00786	19	7,008.10	0.8999	6,306.589
00787	17	6,101.80	0.9001	5,492.230
00788	18	6,683.00	0.8999	6,014.032
00789	20	7,354.30	0.9000	6,618.870
00790	21	7,753.10	0.8998	6,976.239
00791	20	7,404.90	0.9000	6,664.410
00792	18	6,674.10	0.9000	6,006.690
00793	20	7,456.10	0.8999	6,709.744
00794	20	7,401.60	0.8999	6,660.700
00795	20	7,308.10	0.8999	6,576.559
00796	20	7,202.30	0.9000	6,482.070
00797	13	4,798.90	0.9000	4,319.010
00798	19	6,957.10	0.8999	6,260.694

00799	18	6,554.90	0.9000	5,899.410
00800	19	6,916.20	0.9000	6,224.580
00801	21	7,431.40	0.8999	6,687.517
00802	20	7,410.60	0.9000	6,669.540
00803	19	7,047.20	0.8998	6,341.071
00804	18	6,650.70	0.8998	5,984.300
00805	20	7,411.90	0.9000	6,670.710
00806	22	7,982.50	0.8999	7,183.452
00807	20	7,423.10	0.9000	6,680.790
00808	20	7,349.70	0.9000	6,614.730
00809	19	7,017.70	0.8999	6,315.228
00810	20	7,335.80	0.9000	6,602.220
00811	20	7,370.20	0.9000	6,633.180
00812	21	7,721.60	0.8998	6,947.896
00813	20	7,355.10	0.9000	6,619.590
00814	21	7,714.70	0.9000	6,943.230
00815	20	7,261.60	0.9000	6,535.440
00816	21	7,742.30	0.8998	6,966.522
00817	20	7,301.50	0.8997	6,569.160
00818	20	7,278.00	0.9000	6,550.200
00819	20	7,502.90	0.9000	6,752.610
00820	20	7,395.70	0.9000	6,656.130
00821	20	7,484.10	0.9000	6,735.690
00822	19	7,042.20	0.9001	6,338.684
00823	20	7,389.90	0.9001	6,651.649
00824	19	7,018.70	0.8998	6,315.426
00825	19	6,948.70	0.8999	6,253.135
00826	19	7,030.90	0.9000	6,327.810
00827	20	7,468.40	0.9000	6,721.560
00828	20	7,413.80	0.9000	6,672.420
00829	19	7,076.20	0.9000	6,368.580
00830	20	7,509.00	0.8999	6,757.349
00831	19	7,027.90	0.9001	6,325.813
00832	20	7,479.90	0.8999	6,731.162
00833	19	6,940.30	0.8999	6,245.576
00834	19	6,938.20	0.9000	6,244.380
00835	16	6,008.60	0.8999	5,407.139
00836	18	6,656.30	0.8998	5,989.339
00837	16	5,931.72	0.8998	5,337.362
00838	18	6,693.10	0.9000	6,023.790
00839	19	7,128.30	0.8999	6,414.757
00840	18	6,572.80	0.9000	5,915.520
00841	20	7,423.10	0.9000	6,680.790
00842	20	7,302.60	0.9000	6,572.340

00843	19	7,132.00	0.9000	6,418.800
00844	17	6,329.00	0.8998	5,694.834
00845	19	6,947.60	0.9000	6,252.840
00846	19	7,180.10	0.9001	6,462.808
00847	19	7,035.30	0.9000	6,331.770
00848	12	4,364.90	0.9000	3,928.410
00849	15	5,497.70	0.9000	4,947.930
00850	18	6,679.80	0.9001	6,012.488
00851	2	598.40	0.9000	538.560
00852	2	598.50	0.8999	538.590
00853	6	1,812.00	0.9000	1,630.800
00854	6	1,971.10	0.9000	1,773.990
00855	2	605.80	0.9000	545.220
00856	2	723.40	0.9000	651.060
00857	2	694.50	0.8999	624.981
00858	5	1,414.50	0.8999	1,272.909
00859	4	1,463.00	0.8999	1,316.554
00860	6	2,033.20	0.9001	1,830.083
00861	5	1,639.40	0.8999	1,475.296
00862	4	1,162.10	0.8998	1,045.658
00863	11	3,892.40	0.9000	3,503.160
00864	11	3,767.13	0.8999	3,390.040
00865	15	5,611.20	0.8999	5,049.519
00866	19	7,033.20	0.8999	6,329.177
00867	18	6,741.90	0.8998	6,066.362
00868	19	7,097.30	0.8999	6,386.860
00869	19	6,949.30	0.9000	6,254.370
00870	18	6,661.00	0.8999	5,994.234
00871	19	7,010.60	0.9000	6,309.540
00872	19	6,877.90	0.8999	6,189.422
00873	17	5,871.40	0.8998	5,283.086
00874	11	3,966.40	0.8997	3,568.570
00875	2	483.80	0.8998	435.323
A 722	20	7,142.39	0.9000	6,428.151
A 723	20	7,347.66	0.8999	6,612.159
A 774	19	7,185.40	0.8999	6,466.141
A 775	18	6,634.30	0.8999	5,970.207
A 776	17	6,397.80	0.8999	5,757.380
A 777	19	7,134.10	0.8999	6,419.977
A 778	19	7,326.00	0.8998	6,591.935
A 779	18	6,865.30	0.9000	6,178.770
A 780	19	7,200.00	0.8998	6,478.560
A 781	19	7,010.60	0.9000	6,309.540
A 782	19	6,944.80	0.9000	6,250.320

A 783	17	6,095.21	0.9000	5,485.689
A 784	19	6,814.40	0.9000	6,132.960
A 785	16	5,799.80	0.8998	5,218.660
A 786	19	6,936.40	0.8997	6,240.679
A 787	21	7,534.30	0.9000	6,780.870
A 788	19	6,959.10	0.8999	6,262.494
A 789	20	7,404.90	0.9001	6,665.150
A 790	21	7,910.90	0.8999	7,119.019
A 791	20	7,455.40	0.9000	6,709.860
A 792	19	7,011.10	0.8999	6,309.289
A 793	20	7,264.50	0.8999	6,537.324
A 794	19	6,985.40	0.9000	6,286.860
A 795	19	6,917.50	0.8999	6,225.058
A 796	21	7,678.20	0.9001	6,911.148
A 797	15	5,538.00	0.8999	4,983.646
A 798	19	6,898.60	0.9000	6,208.740
A 799	18	6,620.40	0.9000	5,958.360
A 800	14	5,046.20	0.9000	4,541.580
A 801	22	8,025.10	0.8998	7,220.985
A 802	20	7,396.90	0.8999	6,656.470
A 803	20	7,382.20	0.8998	6,642.504
A 804	19	7,016.70	0.8998	6,313.627
A 805	23	8,468.90	0.9000	7,622.010
A 806	23	8,311.10	0.8999	7,479.159
A 807	20	7,364.10	0.9001	6,628.426
A 808	20	7,281.90	0.9001	6,554.438
A 809	19	6,909.00	0.8999	6,217.409
A 810	20	7,394.00	0.9001	6,655.339
A 811	20	7,508.00	0.9001	6,757.951
A 812	20	7,238.50	0.9000	6,514.650
A 813	20	7,370.30	0.9000	6,633.270
A 814	19	6,980.00	0.9000	6,282.000
A 815	21	7,571.20	0.8999	6,813.323
A 816	21	7,686.50	0.8999	6,917.081
A 817	20	7,361.50	0.8998	6,623.878
A 818	18	6,566.50	0.9000	5,909.850
A 819	21	7,545.80	0.9000	6,791.220
A 820	21	7,716.80	0.8998	6,943.577
A 821	18	6,479.00	0.9000	5,831.100
A 822	19	6,972.70	0.9000	6,275.430
A 823	20	7,441.60	0.9001	6,698.184
A 824	20	7,368.10	0.8999	6,630.553
A 825	20	7,321.30	0.9000	6,589.170
A 826	20	7,171.30	0.9000	6,454.170

A 827	20	7,380.20	0.9000	6,642.180
A 828	20	7,273.00	0.8999	6,544.973
A 829	19	6,735.30	0.9000	6,061.770
A 830	20	7,325.20	0.9000	6,592.680
A 831	20	7,334.40	0.9000	6,600.960
A 832	19	6,849.56	0.8999	6,163.919
A 833	20	7,212.90	0.9000	6,491.610
A 834	19	6,912.00	0.9000	6,220.800
A 835	12	4,439.80	0.9000	3,995.820
A 836	18	6,734.70	0.8999	6,060.557
A 837	18	6,648.70	0.9000	5,983.830
A 838	18	6,752.80	0.8998	6,076.169
A 839	19	7,078.90	0.8999	6,370.302
A 840	21	7,790.20	0.8999	7,010.401
A 841	20	7,450.40	0.9000	6,705.360
A 842	20	7,464.40	0.9000	6,717.960
A 843	19	7,161.60	0.9000	6,445.440
A 844	20	7,400.60	0.8999	6,659.800
A 845	19	7,148.60	0.9000	6,433.740
A 846	19	7,051.20	0.9001	6,346.785
A 847	19	6,939.00	0.9001	6,245.794
A 849	16	5,859.30	0.9000	5,273.370
A 850	17	6,305.10	0.9000	5,674.590
A 865	16	5,952.50	0.8999	5,356.655
A 866	19	7,166.60	0.8999	6,449.223
A 867	18	6,691.30	0.9000	6,022.170
A 868	19	7,101.40	0.9000	6,391.260
A 869	19	7,055.70	0.9000	6,350.130
A 870	19	7,020.80	0.9001	6,319.422
A 871	19	7,066.30	0.8999	6,358.963
A 872	19	7,031.20	0.9000	6,328.080
B 722	20	7,195.32	0.9000	6,475.788
B 723	20	7,327.22	0.8998	6,593.033
B 774	19	7,120.40	0.8999	6,407.648
B 775	19	7,139.20	0.9000	6,425.280
B 776	20	7,555.20	0.8999	6,798.924
B 777	19	7,370.00	0.8998	6,631.526
B 778	19	7,294.90	0.8997	6,563.222
B 779	20	7,381.00	0.8999	6,642.162
B 780	19	7,192.40	0.8997	6,471.002
B 781	19	7,135.50	0.9000	6,421.950
B 782	19	6,800.00	0.8999	6,119.320
B 783	22	7,655.40	0.8999	6,889.094
B 784	21	7,640.00	0.8998	6,874.472

B 785	17	6,283.50	0.8998	5,653.893
B 786	19	6,895.40	0.8998	6,204.481
B 787	22	7,943.80	0.9000	7,149.420
B 788	19	6,747.30	0.8998	6,071.221
B 789	20	7,268.30	0.9001	6,542.197
B 790	26	9,317.50	0.8999	8,384.818
B 791	20	7,274.60	0.9000	6,547.140
B 792	21	7,633.50	0.8999	6,869.387
B 793	20	7,422.90	0.8999	6,679.868
B 794	20	7,283.90	0.9000	6,555.510
B 795	20	7,149.20	0.9000	6,434.280
B 796	21	7,603.90	0.9000	6,843.510
B 797	17	6,217.70	0.8999	5,595.308
B 798	19	6,929.40	0.8998	6,235.074
B 799	18	6,635.00	0.9000	5,971.500
B 800	18	6,472.00	0.9000	5,824.800
B 801	23	8,354.90	0.9001	7,520.245
B 802	20	7,309.40	0.8998	6,576.998
B 803	20	7,354.00	0.8999	6,617.865
B 804	22	7,868.20	0.8999	7,080.593
B 805	21	7,761.90	0.8999	6,984.934
B 806	23	8,418.60	0.9000	7,576.740
B 807	17	6,256.40	0.9000	5,630.760
B 808	20	7,287.70	0.9000	6,558.930
B 809	19	7,068.90	0.9000	6,362.010
B 810	19	6,744.80	0.9001	6,070.994
B 811	20	7,460.50	0.9001	6,715.196
B 812	23	8,088.00	0.8999	7,278.391
B 813	20	7,270.80	0.8999	6,542.993
B 814	20	7,395.30	0.9000	6,655.770
B 815	22	8,287.20	0.9000	7,458.480
B 816	21	7,657.20	0.9000	6,891.480
B 817	20	7,119.50	0.8998	6,406.126
B 818	22	8,060.30	0.9001	7,255.076
B 819	21	7,536.40	0.9000	6,782.760
B 820	21	7,788.40	0.8999	7,008.781
B 821	21	7,530.70	0.8999	6,776.877
B 822	20	7,331.10	0.8999	6,597.257
B 823	20	7,315.90	0.9001	6,585.042
B 824	20	7,476.60	0.8998	6,727.445
B 825	20	7,217.80	0.8999	6,495.298
B 826	20	7,362.40	0.9000	6,626.160
B 827	19	7,180.30	0.9000	6,462.270
B 828	19	6,906.50	0.8999	6,215.159

B 829	20	7,330.60	0.8998	6,596.074
B 830	16	5,801.70	0.9000	5,221.530
B 831	20	7,241.10	0.8999	6,516.266
B 832	20	7,221.20	0.8999	6,498.358
B 833	19	6,917.50	0.8999	6,225.058
B 834	21	7,472.00	0.9000	6,724.800
B 836	18	6,722.70	0.8999	6,049.758
B 837	17	6,397.00	0.8999	5,756.660
B 838	16	5,869.00	0.9000	5,282.100
B 839	18	6,642.50	0.8998	5,976.922
B 840	20	7,294.00	0.9000	6,564.600
B 841	20	7,444.60	0.9000	6,700.140
B 842	20	7,654.40	0.9001	6,889.725
B 843	18	6,648.40	0.8998	5,982.230
B 844	22	8,032.60	0.9001	7,230.143
B 845	19	7,282.20	0.9001	6,554.708
B 846	19	6,848.80	0.9000	6,163.920
B 847	19	7,145.60	0.9001	6,431.755
B 866	19	7,047.70	0.8999	6,342.225
B 867	22	8,322.70	0.8999	7,489.598
B 868	19	7,053.40	0.9000	6,348.060
B 869	19	7,031.80	0.9000	6,328.620
B 870	19	7,029.40	0.9000	6,326.460
B 871	19	6,858.30	0.9001	6,173.156
B 872	19	7,112.50	0.9000	6,401.250
C 722	20	7,436.27	0.9000	6,692.643
C 774	19	6,888.70	0.8998	6,198.452
C 775	18	6,666.40	0.9000	5,999.760
C 776	18	6,661.40	0.9000	5,995.260
C 777	19	7,031.40	0.8998	6,326.854
C 778	19	7,315.10	0.8999	6,582.858
C 779	19	7,040.30	0.9001	6,336.974
C 780	19	6,944.30	0.8998	6,248.481
C 781	19	7,138.10	0.9000	6,424.290
C 782	18	6,702.80	0.8999	6,031.850
C 783	21	7,655.70	0.8999	6,889.364
C 784	16	5,734.50	0.8998	5,159.903
C 785	20	7,097.10	0.8998	6,385.971
C 786	19	7,126.00	0.8999	6,412.687
C 787	20	7,344.90	0.8999	6,609.676
C 788	18	6,683.00	0.8999	6,014.032
C 789	20	7,291.60	0.8999	6,561.711
C 791	18	6,606.60	0.9000	5,945.940
C 792	20	7,564.10	0.8999	6,806.934

C 793	20	7,429.50	0.8999	6,685.807
C 794	20	7,379.20	0.8999	6,640.542
C 795	19	6,802.20	0.9000	6,121.980
C 796	21	7,650.50	0.9002	6,886.980
C 798	18	6,605.60	0.9000	5,945.040
C 799	18	6,581.60	0.9000	5,923.440
C 801	19	6,986.20	0.8999	6,286.881
C 802	19	6,911.20	0.8999	6,219.389
C 803	19	7,057.20	0.8999	6,350.774
C 804	15	5,227.70	0.8999	4,704.407
C 805	23	8,251.10	0.8999	7,425.165
C 806	19	7,089.20	0.8999	6,379.571
C 808	20	7,384.60	0.8999	6,645.402
C 809	20	7,347.30	0.8999	6,611.835
C 810	20	7,442.60	0.9000	6,698.340
C 811	22	8,060.80	0.9000	7,254.720
C 812	20	7,274.30	0.9000	6,546.870
C 813	20	7,274.30	0.8998	6,545.415
C 814	20	7,622.20	0.8999	6,859.218
C 815	21	7,707.20	0.8999	6,935.709
C 816	21	7,724.10	0.8998	6,950.145
C 817	24	8,609.00	0.8999	7,747.239
C 819	16	5,830.80	0.9000	5,247.720
C 820	21	7,760.00	0.9000	6,984.000
C 821	20	7,361.90	0.9000	6,625.710
C 822	19	6,926.20	0.8999	6,232.887
C 823	20	7,441.60	0.8998	6,695.952
C 824	20	7,349.50	0.9000	6,614.550
C 825	19	7,095.00	0.9000	6,385.500
C 826	19	7,071.39	0.8999	6,363.544
C 827	19	6,935.10	0.8999	6,240.896
C 828	19	7,054.30	0.8997	6,346.754
C 829	20	7,400.80	0.8998	6,659.240
C 830	16	5,832.60	0.9000	5,249.340
C 831	20	7,107.80	0.9000	6,397.020
C 832	19	7,072.40	0.9000	6,365.160
C 833	19	7,052.50	0.9000	6,347.250
C 834	20	7,297.80	0.8999	6,567.290
C 836	18	6,675.90	0.9001	6,008.978
C 837	18	6,268.20	0.9000	5,641.380
C 838	20	7,220.80	0.8998	6,497.276
C 839	22	8,018.70	0.9000	7,216.830
C 840	22	7,965.80	0.9000	7,169.220
C 841	20	7,413.00	0.9000	6,671.700

C 842	20	7,290.40	0.9000	6,561.360
C 843	20	7,380.00	0.9000	6,642.000
C 845	20	7,272.40	0.8999	6,544.433
C 846	20	7,441.60	0.8999	6,696.696
C 847	20	7,323.30	0.9000	6,590.970
C 866	20	7,339.60	0.8998	6,604.172
C 868	20	7,422.90	0.8998	6,679.125
C 869	20	7,342.80	0.8998	6,607.051
C 870	20	7,461.80	0.9000	6,715.620
C 871	20	7,268.50	0.8998	6,540.196
C 872	19	6,852.10	0.9000	6,166.890
D 722	20	7,211.81	0.9000	6,490.629
D 774	19	7,215.40	0.8999	6,493.138
D 775	19	7,209.30	0.8998	6,486.928
D 776	20	7,427.30	0.8999	6,683.827
D 777	19	7,080.20	0.8999	6,371.472
D 778	19	7,446.60	0.9000	6,701.940
D 779	19	7,219.10	0.9000	6,497.190
D 780	19	6,934.60	0.8999	6,240.447
D 781	19	7,037.40	0.8999	6,332.956
D 782	19	6,884.60	0.8998	6,194.763
D 783	18	6,550.00	0.8999	5,894.345
D 784	16	5,674.70	0.9000	5,107.230
D 786	20	7,322.50	0.8998	6,588.786
D 787	20	7,214.90	0.8999	6,492.689
D 788	20	7,335.20	0.8999	6,600.946
D 789	20	7,342.60	0.9001	6,609.074
D 791	23	8,500.30	0.9000	7,650.270
D 792	20	7,364.10	0.9000	6,627.690
D 793	20	7,268.20	0.9000	6,541.380
D 794	20	7,292.90	0.9000	6,563.610
D 795	19	6,887.00	0.8998	6,196.923
D 796	22	8,044.50	0.9000	7,240.050
D 798	21	7,609.70	0.9000	6,848.730
D 799	20	7,268.70	0.8999	6,541.103
D 801	20	7,300.50	0.8999	6,569.720
D 802	20	7,419.80	0.8998	6,676.336
D 803	20	7,366.50	0.8998	6,628.377
D 804	15	5,420.90	0.8999	4,878.268
D 806	20	7,286.30	0.9000	6,557.670
D 808	20	7,289.30	0.8999	6,559.641
D 809	20	7,368.80	0.9000	6,631.920
D 810	18	6,705.10	0.8997	6,032.578
D 811	18	6,678.40	0.9000	6,010.560

D 812	20	7,323.80	0.9000	6,591.420
D 813	21	7,788.30	0.8999	7,008.691
D 814	20	7,362.10	0.8999	6,625.154
D 815	21	7,660.20	0.8999	6,893.414
D 816	22	7,993.70	0.8999	7,193.531
D 817	20	7,478.00	0.9000	6,730.200
D 819	18	6,431.70	0.9000	5,788.530
D 820	20	7,298.12	0.9000	6,568.308
D 821	20	7,357.20	0.9000	6,621.480
D 822	20	7,334.30	0.9001	6,601.603
D 823	20	7,301.40	0.9001	6,571.990
D 824	20	7,371.40	0.8999	6,633.523
D 825	20	7,122.30	0.9000	6,410.070
D 826	19	6,795.00	0.8999	6,114.821
D 827	20	7,319.70	0.9000	6,587.730
D 828	19	6,779.70	0.8999	6,101.052
D 829	20	7,126.40	0.8998	6,412.335
D 830	20	6,680.50	0.9000	6,012.450
D 831	19	6,913.70	0.8998	6,220.947
D 832	20	7,264.50	0.9000	6,538.050
D 833	20	7,348.80	0.8999	6,613.185
D 834	19	6,983.50	0.9000	6,285.150
D 836	18	6,665.40	0.8999	5,998.193
D 839	15	5,527.00	0.9000	4,974.300
D 841	18	6,500.20	0.9001	5,850.830
D 842	20	7,345.10	0.9001	6,611.325
D 843	20	7,391.60	0.9000	6,652.440
D 845	20	7,474.50	0.8999	6,726.303
D 846	20	7,237.80	0.9000	6,514.020
D 847	20	7,408.50	0.9000	6,667.650
D 866	20	7,485.60	0.9000	6,737.040
D 868	20	7,409.80	0.8999	6,668.079
D 869	20	7,428.20	0.9000	6,685.380
D 870	20	7,430.70	0.8998	6,686.144
D 871	20	7,452.90	0.8999	6,706.865
D 872	20	7,357.30	0.8999	6,620.834
E 722	19	6,690.96	0.9000	6,021.864
E 774	19	7,155.10	0.9000	6,439.590
E 775	20	7,725.30	0.9000	6,952.770
E 776	20	7,775.70	0.8999	6,997.352
E 777	20	7,716.60	0.8998	6,943.397
E 778	19	7,260.20	0.9000	6,534.180
E 779	19	7,279.70	0.9000	6,551.730
E 780	21	7,736.50	0.8998	6,961.303

E 781	19	7,160.10	0.8999	6,443.374
E 782	20	7,290.90	0.8999	6,561.081
E 783	21	7,622.10	0.8998	6,858.366
E 786	20	7,126.30	0.8998	6,412.245
E 787	20	7,321.70	0.9000	6,589.530
E 788	25	8,826.10	0.8999	7,942.607
E 789	20	7,269.00	0.9000	6,542.100
E 791	27	9,716.20	0.8999	8,743.608
E 792	19	6,954.10	0.8999	6,257.995
E 793	20	7,397.70	0.9001	6,658.670
E 794	19	6,959.90	0.9000	6,263.910
E 795	21	7,744.40	0.8999	6,969.186
E 796	23	8,198.30	0.9001	7,379.290
E 798	18	6,529.40	0.8999	5,875.807
E 799	17	6,090.20	0.8999	5,480.571
E 801	24	8,423.00	0.8999	7,579.858
E 802	20	7,213.50	0.8999	6,491.429
E 803	20	7,339.00	0.8999	6,604.366
E 806	21	7,535.20	0.9000	6,781.680
E 808	20	7,447.60	0.9000	6,702.840
E 809	20	7,330.90	0.8998	6,596.344
E 810	21	7,648.50	0.9000	6,883.650
E 811	21	7,696.50	0.9000	6,926.850
E 812	22	8,164.10	0.8998	7,346.057
E 813	21	7,613.30	0.9000	6,851.970
E 814	21	7,602.70	0.9000	6,842.430
E 815	22	7,989.00	0.8999	7,189.301
E 816	18	6,639.90	0.8999	5,975.246
E 817	20	7,310.80	0.9000	6,579.720
E 819	23	8,225.40	0.9000	7,402.860
E 820	20	7,478.30	0.9000	6,730.470
E 821	20	7,484.20	0.9000	6,735.780
E 822	21	7,599.10	0.9002	6,840.710
E 823	20	7,085.30	0.9000	6,376.770
E 824	20	7,374.10	0.8999	6,635.953
E 825	19	7,054.30	0.8999	6,348.165
E 826	22	7,850.00	0.9000	7,065.000
E 827	20	7,543.30	0.8998	6,787.461
E 828	20	7,497.20	0.8997	6,745.231
E 829	20	7,362.60	0.8998	6,624.867
E 831	22	7,568.20	0.8999	6,810.623
E 832	20	7,159.90	0.8998	6,442.478
E 833	20	7,373.80	0.8999	6,635.683
E 834	20	7,387.60	0.9000	6,648.840

E 836	18	6,539.10	0.8999	5,884.536
E 839	19	6,998.50	0.9000	6,298.650
E 841	20	7,288.30	0.8999	6,558.741
E 842	20	7,253.60	0.9001	6,528.965
E 843	20	7,330.40	0.8998	6,595.894
E 845	20	7,416.40	0.9001	6,675.502
E 846	20	7,231.30	0.9000	6,508.170
E 847	20	7,422.30	0.9000	6,680.070
E 866	20	7,424.80	0.8998	6,680.835
E 868	20	7,566.20	0.9000	6,809.580
E 869	20	7,528.20	0.8999	6,774.627
E 870	20	7,336.50	0.8999	6,602.116
E 871	20	7,268.80	0.9000	6,541.920
E 872	20	7,352.30	0.9000	6,617.070
F 722	20	7,141.06	0.9000	6,426.954
F 774	18	6,560.70	0.8997	5,902.662
F 775	18	6,628.50	0.8999	5,964.987
F 776	18	6,644.60	0.9000	5,980.140
F 777	20	7,455.90	0.8998	6,708.819
F 778	18	6,824.40	0.9000	6,141.960
F 779	18	6,713.10	0.8999	6,041.119
F 780	17	6,307.40	0.8998	5,675.399
F 781	19	6,963.80	0.9000	6,267.420
F 782	20	7,354.20	0.8999	6,618.045
F 783	18	6,583.90	0.8999	5,924.852
F 786	18	6,521.50	0.8998	5,868.046
F 787	17	6,052.50	0.8999	5,446.645
F 788	19	7,048.90	0.9000	6,344.010
F 789	20	7,284.80	0.8999	6,555.592
F 792	19	6,910.50	0.8998	6,218.068
F 793	16	5,919.00	0.9000	5,327.100
F 794	18	6,565.50	0.9001	5,909.607
F 795	21	7,585.60	0.9001	6,827.799
F 796	20	7,296.50	0.8999	6,566.120
F 798	14	5,131.30	0.8998	4,617.144
F 799	20	7,180.10	0.9000	6,462.090
F 802	19	7,006.57	0.9000	6,305.913
F 803	18	6,571.50	0.8999	5,913.693
F 806	19	6,679.10	0.8999	6,010.522
F 808	18	6,601.80	0.9001	5,942.280
F 809	19	6,931.00	0.8998	6,236.514
F 810	13	4,825.50	0.8998	4,341.985
F 811	25	8,842.80	0.9001	7,959.404
F 812	22	7,817.00	0.8999	7,034.518

F 813	25	8,970.00	0.8999	8,072.103
F 814	24	8,971.20	0.9001	8,074.977
F 815	21	7,176.30	0.8997	6,456.517
F 816	23	8,207.10	0.8998	7,384.749
F 817	23	8,455.30	0.9000	7,609.770
F 819	19	6,932.00	0.8999	6,238.107
F 820	17	6,292.60	0.9000	5,663.340
F 821	16	5,930.90	0.9000	5,337.810
F 822	19	6,882.10	0.9000	6,193.890
F 823	17	6,237.90	0.9000	5,614.110
F 824	18	6,549.40	0.8999	5,893.805
F 825	19	7,112.00	0.8999	6,400.089
F 826	17	6,296.40	0.9000	5,666.760
F 827	16	5,865.60	0.9001	5,279.627
F 828	20	7,439.10	0.9000	6,695.190
F 829	20	7,059.50	0.8999	6,352.844
F 831	18	6,776.30	0.8999	6,097.992
F 832	18	6,659.40	0.9000	5,993.460
F 833	15	5,436.80	0.8999	4,892.576
F 834	16	5,906.10	0.8999	5,314.899
F 836	15	5,557.10	0.8999	5,000.834
F 842	21	7,630.80	0.9000	6,867.720
F 843	20	7,305.00	0.9000	6,574.500
F 845	20	7,278.90	0.9001	6,551.738
F 846	20	7,472.50	0.9000	6,725.250
F 847	20	7,316.50	0.8999	6,584.118
F 866	19	6,941.70	0.9000	6,247.530
F 868	19	6,967.20	0.8998	6,269.087
F 869	19	6,948.60	0.9000	6,253.740
F 870	20	7,474.00	0.8999	6,725.853
F 871	19	6,921.90	0.8998	6,228.326
F 872	18	6,378.90	0.8999	5,740.372
G 722	20	6,807.38	0.9000	6,126.642
G 774	18	6,724.10	0.8998	6,050.345
G 775	19	7,184.50	0.9000	6,466.050
G 776	18	6,664.00	0.9000	5,997.600
G 777	16	5,997.90	0.8999	5,397.510
G 778	16	6,131.50	0.8999	5,517.737
G 779	19	7,207.20	0.8998	6,485.039
G 780	18	6,693.10	0.8998	6,022.451
G 781	19	6,696.50	0.9000	6,026.850
G 782	19	6,755.00	0.8999	6,078.825
G 783	19	6,940.90	0.9001	6,247.504
G 786	20	7,213.10	0.9000	6,491.790

G 787	19	6,813.80	0.8999	6,131.739
G 788	18	6,487.60	0.8999	5,838.191
G 789	17	6,166.70	0.8998	5,548.797
G 792	18	6,664.40	0.8999	5,997.294
G 793	18	6,635.20	0.8998	5,970.353
G 794	18	6,544.20	0.9000	5,889.780
G 795	23	8,310.30	0.8998	7,477.608
G 798	19	7,014.40	0.8999	6,312.259
G 799	19	6,702.60	0.9000	6,032.340
G 802	18	6,593.30	0.9000	5,933.970
G 803	18	6,627.60	0.8998	5,963.514
G 808	21	7,584.60	0.9000	6,826.140
G 809	19	6,897.70	0.9000	6,207.930
G 810	15	5,528.40	0.8999	4,975.007
G 819	18	6,695.00	0.8999	6,024.831
G 820	17	6,057.40	0.9000	5,451.660
G 821	18	6,712.70	0.9000	6,041.430
G 822	19	6,882.00	0.9000	6,193.800
G 823	18	6,419.50	0.8999	5,776.908
G 824	18	6,533.60	0.9000	5,880.240
G 825	20	7,138.80	0.9000	6,424.920
G 826	19	7,053.50	0.8999	6,347.445
G 827	18	6,613.00	0.9000	5,951.700
G 828	19	6,836.90	0.9000	6,153.210
G 831	18	6,541.80	0.8999	5,886.966
G 832	18	6,509.70	0.8999	5,858.079
G 833	19	7,017.40	0.9000	6,315.660
G 834	20	7,255.70	0.9000	6,530.130
G 836	19	7,074.30	0.8999	6,366.163
G 842	20	7,396.00	0.9000	6,656.400
G 843	20	7,329.70	0.9000	6,596.730
G 845	20	7,291.90	0.9000	6,562.710
G 846	20	7,300.90	0.9000	6,570.810
G 847	20	7,282.80	0.8999	6,553.792
G 866	19	7,198.00	0.9000	6,478.200
G 868	19	6,838.40	0.8999	6,153.876
G 869	19	7,048.90	0.8999	6,343.305
G 870	19	6,988.00	0.8997	6,287.104
G 871	19	7,074.10	0.8999	6,365.983
G 872	22	8,104.50	0.8999	7,293.240
H 722	20	7,432.13	0.8999	6,688.174
H 774	22	8,155.10	0.8999	7,338.774
H 775	21	8,181.60	0.8999	7,362.622
H 776	21	8,001.30	0.9000	7,201.170

H 777	21	7,839.70	0.9000	7,055.730
H 778	21	7,625.70	0.8999	6,862.367
H 779	20	7,527.50	0.9000	6,774.750
H 780	22	8,261.80	0.8999	7,434.794
H 781	23	8,216.40	0.9000	7,394.760
H 782	24	8,589.80	0.9000	7,730.820
H 783	21	7,634.20	0.9000	6,870.780
H 786	24	8,213.60	0.8999	7,391.419
H 787	23	8,118.30	0.8997	7,304.035
H 788	21	7,591.70	0.9000	6,832.530
H 789	19	6,975.62	0.8998	6,276.663
H 792	21	7,609.30	0.8999	6,847.609
H 793	21	7,582.40	0.8999	6,823.402
H 794	22	7,937.10	0.9000	7,143.390
H 802	20	7,196.20	0.8999	6,475.860
H 803	22	7,672.40	0.9000	6,905.160
H 809	21	7,532.10	0.8999	6,778.137
H 819	21	7,663.60	0.9000	6,897.240
H 820	18	6,562.40	0.9000	5,906.160
H 821	22	8,015.20	0.8999	7,212.878
H 822	21	7,393.40	0.8999	6,653.321
H 823	22	7,711.20	0.8998	6,938.538
H 824	21	7,425.50	0.9000	6,682.950
H 825	20	7,450.60	0.8999	6,704.795
H 826	22	7,717.00	0.8998	6,943.757
H 827	22	8,026.00	0.8999	7,222.597
H 828	19	7,169.20	0.9000	6,452.280
H 831	22	7,816.60	0.9000	7,034.940
H 832	23	8,143.30	0.9000	7,328.970
H 833	25	9,071.20	0.9000	8,164.080
H 842	20	7,434.50	0.8999	6,690.307
H 843	20	7,389.60	0.9000	6,650.640
H 845	20	7,470.50	0.8999	6,722.703
H 846	19	6,903.50	0.9001	6,213.840
H 847	19	6,961.80	0.8999	6,264.924
H 866	20	7,402.70	0.8999	6,661.690
H 868	20	7,481.30	0.8999	6,732.422
H 869	19	7,062.80	0.9001	6,357.226
H 870	20	7,294.30	0.8999	6,564.141
H 871	19	6,929.80	0.9000	6,236.820
H 872	22	8,141.60	0.9000	7,327.440
I 842	17	6,129.20	0.8999	5,515.667
I 843	19	6,984.10	0.8998	6,284.293
I 845	19	7,028.40	0.9000	6,325.560

I 846	19	7,115.30	0.8999	6,403.058
I 847	20	7,297.70	0.9000	6,567.930
I 866	19	6,904.10	0.9001	6,214.380
I 868	20	7,366.30	0.8999	6,628.933
I 869	19	6,905.60	0.9000	6,215.040
I 870	19	7,009.90	0.8999	6,308.209
I 871	18	6,582.90	0.9001	5,925.268
I 872	19	6,775.30	0.9000	6,097.770
J 842	18	6,585.70	0.9001	5,927.789
J 843	18	6,613.27	0.9001	5,952.604
J 845	17	6,341.20	0.9000	5,707.080
J 846	20	7,207.30	0.8999	6,485.849
J 847	19	6,992.50	0.8999	6,292.551
J 866	18	6,754.50	0.9000	6,079.050
J 868	17	6,355.90	0.9000	5,720.310
J 869	20	7,440.10	0.9000	6,696.090
J 870	19	6,897.40	0.8998	6,206.281
J 871	22	8,060.60	0.9000	7,254.540
J 872	20	7,364.20	0.9000	6,627.780
K 842	21	7,551.80	0.9000	6,796.620
K 843	23	8,373.80	0.9001	7,537.257
K 845	23	8,077.20	0.9001	7,270.288
K 846	23	8,035.50	0.8999	7,231.146
K 847	22	7,905.40	0.9000	7,114.860
K 866	23	8,347.70	0.9000	7,512.930
K 868	23	8,358.40	0.8999	7,521.724
K 869	23	8,288.00	0.9001	7,460.029
K 870	23	8,431.06	0.8999	7,587.111
K 871	24	8,539.30	0.8999	7,684.516
K 872	21	7,689.80	0.9000	6,920.820
00876	19	6,976.30	0.8999	6,277.972
00877	20	7,323.00	0.8999	6,589.968
00878	20	7,116.70	0.8999	6,404.318
00879	20	7,315.90	0.9001	6,585.042
00880	20	7,139.20	0.8998	6,423.852
00881	20	7,048.00	0.8998	6,341.790
00882	16	6,063.90	0.9000	5,457.510
00883	20	6,923.00	0.9000	6,230.700
00884	20	7,134.00	0.9000	6,420.600
00885	20	7,197.00	0.8998	6,475.861
00886	21	7,694.70	0.8998	6,923.691
00887	20	7,136.00	0.8999	6,421.686
00888	21	7,684.80	0.9000	6,916.320
00889	20	7,354.90	0.8998	6,617.939

00890	20	7,363.30	0.8997	6,624.761
00891	21	7,689.20	0.9000	6,920.280
00892	20	7,186.80	0.8999	6,467.401
00893	20	7,418.00	0.8998	6,674.716
00894	20	7,259.70	0.8998	6,532.278
00915	20	7,195.60	0.8998	6,474.601
A 876	19	7,111.80	0.8999	6,399.909
A 877	20	7,213.80	0.8997	6,490.256
A 878	20	7,306.70	0.9000	6,576.030
A 879	20	7,184.50	0.9000	6,466.050
A 880	20	7,327.60	0.8997	6,592.642
A 881	20	7,358.20	0.8999	6,621.644
A 882	19	6,769.55	0.8998	6,091.241
A 883	20	7,213.15	0.9001	6,492.556
A 884	20	7,115.75	0.8999	6,403.463
A 885	20	7,366.00	0.9000	6,629.400
A 886	21	7,580.30	0.8997	6,819.996
A 887	21	7,653.70	0.9001	6,889.095
A 888	20	7,289.90	0.8998	6,559.452
A 889	21	7,662.30	0.8999	6,895.304
A 890	21	7,519.40	0.8998	6,765.956
A 891	20	7,297.50	0.9002	6,569.210
A 892	20	7,421.80	0.9001	6,680.362
A 893	20	7,194.50	0.8999	6,474.331
A 894	19	6,989.30	0.9000	6,290.370
A 915	20	7,272.10	0.8998	6,543.436
B 876	20	7,491.00	0.8999	6,741.151
B 877	20	7,365.60	0.8999	6,628.303
B 878	20	7,128.50	0.8999	6,414.937
B 879	20	7,323.80	0.9001	6,592.152
B 880	20	7,191.30	0.8999	6,471.451
B 881	20	7,221.30	0.8999	6,498.448
B 882	21	7,701.20	0.8999	6,930.310
B 883	18	6,301.75	0.9000	5,671.575
B 884	20	7,313.90	0.8999	6,581.779
B 885	20	7,201.05	0.9000	6,480.945
B 886	21	7,692.70	0.8998	6,921.891
B 887	21	7,705.10	0.9000	6,934.590
B 888	21	7,582.90	0.8998	6,823.093
B 889	21	7,660.90	0.8998	6,893.278
B 890	21	7,482.70	0.8998	6,732.933
B 891	21	7,629.60	0.9001	6,867.403
B 892	20	7,440.20	0.9000	6,696.180
B 893	20	7,190.40	0.9000	6,471.360

B 894	21	7,626.20	0.9000	6,863.580
B 915	20	7,247.20	0.8997	6,520.306
C 876	20	7,528.90	0.9000	6,776.010
C 877	19	6,995.30	0.8997	6,293.671
C 878	20	7,231.60	0.9000	6,508.440
C 879	20	7,144.10	0.9000	6,429.690
C 880	20	7,121.20	0.8999	6,408.368
C 881	20	7,032.30	0.8999	6,328.367
C 882	22	7,818.05	0.9001	7,037.027
C 883	22	7,534.40	0.9001	6,781.713
C 884	21	7,541.45	0.8999	6,786.551
C 885	21	7,355.25	0.9000	6,619.725
C 886	21	7,839.35	0.8998	7,053.847
C 887	20	7,197.50	0.9000	6,477.750
C 888	20	7,258.70	0.8999	6,532.104
C 889	20	7,302.00	0.8998	6,570.340
C 890	21	7,598.70	0.9000	6,838.830
C 891	21	7,813.10	0.9000	7,031.790
C 892	21	7,692.00	0.8999	6,922.031
C 893	21	7,810.70	0.9000	7,029.630
C 894	21	7,626.50	0.9000	6,863.850
C 915	20	7,237.80	0.8999	6,513.296
D 876	19	6,932.90	0.8998	6,238.223
D 877	21	7,773.90	0.8999	6,995.733
D 878	20	7,283.50	0.9000	6,555.150
D 879	20	7,098.90	0.9000	6,389.010
D 880	20	7,117.90	0.8997	6,403.975
D 881	20	6,982.20	0.9000	6,283.980
D 882	21	7,623.10	0.9000	6,860.790
D 883	21	7,207.15	0.8999	6,485.714
D 884	20	7,056.75	0.9000	6,351.075
D 885	21	7,511.45	0.9000	6,760.305
D 886	20	7,224.30	0.9000	6,501.870
D 887	21	7,662.50	0.9001	6,897.016
D 888	20	7,339.50	0.9001	6,606.284
D 889	21	7,623.00	0.8997	6,858.413
D 890	20	7,107.50	0.9000	6,396.750
D 891	21	7,646.50	0.8999	6,881.085
D 892	21	7,712.10	0.9000	6,940.890
D 893	21	7,725.70	0.9000	6,953.130
D 894	21	7,765.70	0.9000	6,989.130
E 876	20	7,567.10	0.8999	6,809.633
E 877	20	7,305.70	0.8999	6,574.399
E 878	20	7,192.50	0.8998	6,471.812

E 879	20	7,294.10	0.9002	6,566.149
E 880	20	7,344.10	0.8997	6,607.487
E 881	20	7,386.25	0.8999	6,646.886
E 882	19	6,746.45	0.8999	6,071.130
E 883	19	6,985.35	0.8999	6,286.116
E 884	20	7,127.32	0.9000	6,414.588
E 885	21	7,769.70	0.9000	6,992.730
E 886	21	7,669.80	0.9000	6,902.820
E 887	21	7,607.50	0.9000	6,846.750
E 888	21	7,447.10	0.8998	6,700.901
E 889	21	7,589.40	0.8998	6,828.942
E 890	21	7,421.50	0.9000	6,679.350
E 891	21	7,586.70	0.9000	6,828.030
E 892	21	7,635.10	0.8998	6,870.063
E 893	21	7,502.60	0.9000	6,752.340
E 894	21	7,713.80	0.9000	6,942.420
F 876	20	7,378.00	0.8997	6,637.987
F 877	20	7,220.00	0.8997	6,495.834
F 878	20	7,119.20	0.8997	6,405.144
F 879	20	7,287.10	0.9000	6,558.390
F 880	20	7,304.10	0.8998	6,572.229
F 881	20	7,255.45	0.8998	6,528.454
F 882	20	7,402.55	0.9001	6,663.035
F 883	20	7,119.20	0.8999	6,406.568
F 884	21	7,697.20	0.9000	6,927.480
F 885	21	7,615.80	0.9001	6,854.982
F 886	21	7,768.30	0.8998	6,989.916
F 887	21	7,602.40	0.9000	6,842.160
F 888	19	7,094.50	0.9000	6,385.050
F 889	20	7,265.40	0.8998	6,537.407
F 890	20	7,294.70	0.9000	6,565.230
F 891	20	7,476.00	0.8998	6,726.905
F 892	20	7,183.20	0.8997	6,462.725
F 893	20	7,508.70	0.9000	6,757.830
F 894	20	7,180.50	0.9000	6,462.450
G 876	20	7,211.30	0.8998	6,488.728
G 877	20	7,298.26	0.8998	6,566.974
G 878	20	7,336.60	0.8998	6,601.473
G 879	20	7,252.70	0.9000	6,527.430
G 880	20	7,059.60	0.9001	6,354.346
G 881	20	7,056.15	0.9000	6,350.535
G 882	21	7,424.45	0.9000	6,682.005
G 883	21	7,243.90	0.8999	6,518.786
G 884	21	7,448.85	0.9000	6,703.965

G 885	21	7,351.70	0.8999	6,615.795
G 886	21	7,597.25	0.8998	6,836.006
G 887	20	7,327.70	0.9000	6,594.930
G 888	20	7,213.20	0.9001	6,492.601
G 889	20	7,268.60	0.8998	6,540.286
G 890	20	7,168.10	0.9000	6,451.290
G 891	20	7,165.30	0.9000	6,448.770
G 892	20	7,275.30	0.8997	6,545.587
G 893	20	7,359.80	0.9000	6,623.820
G 894	20	7,503.90	0.9000	6,753.510
H 876	21	7,510.30	0.8999	6,758.519
H 877	20	7,328.50	0.9000	6,595.650
H 878	20	7,352.30	0.8997	6,614.864
H 879	20	7,217.50	0.8999	6,495.028
H 880	20	7,076.50	0.9000	6,368.850
H 881	20	7,037.70	0.9001	6,334.634
H 882	20	7,215.55	0.9000	6,493.995
H 883	20	7,267.20	0.8999	6,539.753
H 884	21	7,398.15	0.9001	6,659.075
H 885	21	7,310.75	0.9000	6,579.675
H 886	21	7,601.00	0.9000	6,840.900
H 887	21	7,710.40	0.9000	6,939.360
H 888	22	7,792.40	0.9001	7,013.939
H 889	20	7,296.60	0.8998	6,565.481
H 890	20	6,995.60	0.8998	6,294.641
H 891	20	7,067.20	0.9000	6,360.480
H 892	20	7,245.20	0.8997	6,518.506
H 893	20	7,153.80	0.9000	6,438.420
H 894	20	7,273.10	0.9000	6,545.790
I 876	18	6,648.70	0.8999	5,983.165
I 877	18	6,504.00	0.9001	5,854.250
I 878	20	7,137.80	0.8999	6,423.306
I 879	20	7,189.00	0.9002	6,471.538
I 880	20	7,274.80	0.8999	6,546.593
I 881	20	7,435.75	0.8999	6,691.431
I 882	20	7,102.60	0.8999	6,391.630
I 883	20	7,247.95	0.8999	6,522.430
I 884	20	7,079.20	0.8999	6,370.572
I 885	21	7,734.30	0.9000	6,960.870
I 886	16	6,003.30	0.8999	5,402.370
I 887	16	5,778.70	0.9001	5,201.408
I 888	19	6,987.50	0.9001	6,289.449
I 889	17	6,200.00	0.8997	5,578.140
I 890	19	6,807.80	0.9000	6,127.020

I 891	17	6,310.70	0.8999	5,678.999
I 892	18	6,525.90	0.8999	5,872.657
I 893	18	6,725.80	0.9000	6,053.220
I 894	18	6,540.70	0.8999	5,885.976
J 876	17	6,129.70	0.8999	5,516.117
J 877	18	6,620.80	0.8998	5,957.396
J 878	19	6,888.80	0.8998	6,198.542
J 879	20	7,400.70	0.9000	6,660.630
J 880	20	7,282.10	0.8998	6,552.434
J 881	20	7,146.00	0.8999	6,430.685
J 882	20	7,294.25	0.9001	6,565.554
J 883	20	7,093.00	0.8998	6,382.281
J 884	20	7,294.45	0.8999	6,564.276
J 885	21	7,613.85	0.8998	6,850.942
J 886	16	5,756.20	0.9001	5,181.156
J 887	18	6,593.40	0.9000	5,934.060
J 888	16	5,717.50	0.9001	5,146.322
J 889	18	6,550.80	0.8999	5,895.065
J 890	17	6,056.60	0.8999	5,450.334
J 891	16	5,810.50	0.9000	5,229.450
J 892	18	6,658.10	0.8999	5,991.624
J 893	18	6,549.80	0.9001	5,895.475
J 894	18	6,733.20	0.9000	6,059.880
K 876	24	8,530.40	0.8999	7,676.507
K 877	23	8,078.10	0.8998	7,268.674
K 878	22	7,937.40	0.8999	7,142.866
K 879	20	7,013.50	0.9002	6,313.553
K 880	20	7,019.90	0.9000	6,317.910
K 881	20	6,996.90	0.9001	6,297.910
K 882	22	7,781.65	0.9000	7,003.485
K 883	21	7,516.90	0.8999	6,764.458
K 884	21	7,379.60	0.8999	6,640.902
K 885	22	7,748.70	0.8998	6,972.280
K 886	18	6,595.40	0.9000	5,935.860
K 887	20	7,053.20	0.9000	6,347.880
K 888	22	7,625.20	0.9000	6,862.680
K 889	21	7,261.40	0.8999	6,534.534
K 890	22	7,857.11	0.9000	7,071.399
K 891	21	7,531.40	0.8999	6,777.507
K 892	20	7,057.80	0.8999	6,351.314
K 893	20	6,889.19	0.9001	6,200.960
K 894	19	6,819.00	0.8999	6,136.418
L 879	19	6,793.80	0.9000	6,114.420
L 880	20	7,076.96	0.9000	6,369.264

L 881	21	7,272.20	0.8998	6,543.526
L 882	21	7,234.85	0.9000	6,511.365
L 883	20	7,144.60	0.9000	6,430.140
L 884	19	6,668.40	0.8997	5,999.559
L 885	18	6,313.30	0.8998	5,680.707
L 890	20	7,160.40	0.9000	6,444.360
M 879	19	6,753.90	0.9001	6,079.185
M 880	20	7,274.70	0.9000	6,547.230
M 881	20	7,424.00	0.8999	6,680.858
M 882	20	7,058.75	0.8999	6,352.169
M 883	21	7,645.30	0.9000	6,880.770
M 884	20	6,977.90	0.8998	6,278.714
M 885	16	5,900.85	0.8998	5,309.585
M 890	20	7,256.70	0.9000	6,531.030
N 879	20	7,366.80	0.9001	6,630.857
N 880	18	6,459.10	0.8998	5,811.898
N 881	20	6,998.65	0.8999	6,298.085
N 882	18	6,602.35	0.9000	5,942.115
N 883	20	7,144.25	0.8998	6,428.396
N 884	18	6,636.50	0.8998	5,971.523
N 885	17	6,154.70	0.8999	5,538.615
N 890	22	7,702.90	0.9000	6,932.610
O 879	24	8,403.80	0.9000	7,563.420
O 880	26	8,975.80	0.8999	8,077.322
O 881	24	8,375.25	0.8999	7,536.887
O 882	23	8,202.10	0.8998	7,380.250
O 883	23	8,452.80	0.8999	7,606.675
O 884	24	8,175.10	0.8998	7,355.955
O 885	22	7,893.90	0.8999	7,103.721
P 880	20	6,903.50	0.8999	6,212.460
P 885	21	7,387.70	0.8999	6,648.191
Q 880	19	6,812.20	0.9000	6,130.980
Q 885	16	5,862.62	0.8999	5,275.772
R 880	20	7,450.40	0.9000	6,705.360
R 885	20	7,396.40	0.8998	6,655.281
S 880	22	7,846.70	0.8999	7,061.245
S 885	23	8,368.10	0.8998	7,529.616
06392	20	6,571.85	0.8995	5,911.379
08246	20	6,543.25	0.9166	5,997.543
08247	20	6,595.22	0.9166	6,045.179
08249	20	6,636.18	0.9167	6,083.386
08250	20	6,629.77	0.9167	6,077.510
08251	21	6,998.20	0.9166	6,414.550
08252	21	7,056.90	0.9166	6,468.355

08253	19	6,518.13	0.9166	5,974.518
08254	20	6,775.45	0.9167	6,211.055
08255	20	6,753.67	0.9165	6,189.739
08256	19	6,297.13	0.9165	5,771.320
08257	19	6,465.24	0.9166	5,926.039
08258	20	6,797.72	0.9166	6,230.790
08259	19	6,345.80	0.9166	5,816.560
08312	20	6,688.96	0.9166	6,131.101
08313	21	7,039.65	0.9166	6,452.543
08314	20	6,710.53	0.9166	6,150.872
03385	17	5,755.36	0.8997	5,178.097
03386	18	5,993.80	0.8997	5,392.622
03387	14	4,746.08	0.8997	4,270.048
03496	20	6,685.24	0.8996	6,014.042
03497	20	6,621.03	0.8999	5,958.265
03498	22	7,292.03	0.8999	6,562.098
03499	21	7,058.73	0.8999	6,352.151
03500	20	6,573.90	0.9000	5,916.510
03501	21	7,104.30	0.8999	6,393.160
03502	20	6,311.73	0.8999	5,679.926
03503	22	7,648.46	0.9000	6,883.614
03504	21	7,168.64	0.8999	6,451.059
03505	20	6,888.50	0.8999	6,198.961
03506	20	6,817.42	0.8999	6,134.996
03507	19	6,505.40	0.8999	5,854.209
03508	7	2,191.06	0.8999	1,971.735
04226	18	5,817.40	0.9000	5,235.660
04227	19	6,314.73	0.9000	5,683.257
04228	21	6,763.92	0.9000	6,087.528
04229	20	6,630.42	0.9002	5,968.704
04230	18	5,822.38	0.9000	5,240.142
04231	19	6,308.75	0.9001	5,678.506
04232	21	7,029.52	0.9001	6,327.271
04233	19	6,404.74	0.9001	5,764.906
04234	19	6,244.14	0.9000	5,619.726
04235	19	6,222.11	0.9000	5,599.899
04236	20	6,718.50	0.9001	6,047.322
04237	19	6,270.56	0.9001	5,644.131
04238	20	6,414.93	0.9000	5,773.437
04239	19	6,218.60	0.9001	5,597.362
04240	21	6,556.67	0.9001	5,901.659
04241	19	5,806.64	0.9000	5,225.976
04242	20	6,441.20	0.9000	5,797.080
04243	18	5,844.53	0.9000	5,260.077

04244	20	6,378.00	0.8998	5,738.924
04245	20	6,575.54	0.9000	5,917.986
04246	19	6,174.00	0.9001	5,557.217
04247	20	6,387.21	0.9001	5,749.128
04248	20	6,482.23	0.8999	5,833.359
04249	21	6,937.22	0.9000	6,243.498
04250	19	6,129.55	0.9000	5,516.595
04251	19	5,999.85	0.8999	5,399.265
04252	22	6,990.32	0.8999	6,290.589
04253	21	6,657.97	0.9000	5,992.173
04254	21	6,704.90	0.9002	6,035.751
04255	21	6,696.20	0.9000	6,026.580
04256	20	6,643.60	0.9001	5,979.904
04257	19	6,268.75	0.9001	5,642.502
04258	15	4,714.60	0.9001	4,243.611
04463	18	5,842.98	0.8998	5,257.513
04464	19	6,137.05	0.8998	5,522.118
04465	18	5,872.68	0.8999	5,284.825
04466	21	6,631.32	0.8999	5,967.525
04467	18	5,940.38	0.8999	5,345.748
04468	19	6,229.20	0.8998	5,605.034
04469	18	5,870.00	0.8998	5,281.826
04470	18	5,815.40	0.8999	5,233.278
04471	18	6,006.25	0.8999	5,405.024
04472	18	6,106.26	0.8999	5,495.023
04473	18	5,962.26	0.8999	5,365.438
04474	20	6,735.12	0.8999	6,060.934
04475	10	3,380.03	0.8998	3,041.351
04505	17	5,725.03	0.8999	5,151.954
04506	18	6,040.23	0.8999	5,435.603
04507	21	6,661.85	0.8998	5,994.333
04508	20	6,508.56	0.8997	5,855.751
04509	20	6,597.26	0.8998	5,936.215
04510	17	5,733.76	0.8998	5,159.237
04511	18	6,008.36	0.8998	5,406.322
04512	18	5,897.35	0.8998	5,306.436
04513	18	5,919.02	0.8998	5,325.934
04514	19	6,168.46	0.8997	5,549.763
04515	18	5,860.53	0.8998	5,273.305
04516	18	5,981.38	0.8998	5,382.046
04517	19	6,060.47	0.8999	5,453.817
04518	19	6,142.92	0.8999	5,528.014
04519	19	6,197.08	0.8998	5,576.133
04520	19	6,165.85	0.8999	5,548.648

04521	18	5,778.20	0.8997	5,198.647
04522	18	5,882.15	0.9000	5,293.935
04523	20	6,328.33	0.8999	5,694.864
04524	20	6,390.22	0.8998	5,749.920
04525	21	6,578.03	0.8999	5,919.569
04526	19	6,261.68	0.8999	5,634.886
04527	19	6,090.72	0.8999	5,481.039
04528	19	6,129.98	0.8999	5,516.369
04529	18	5,832.40	0.8998	5,247.994
04530	18	5,886.36	0.8998	5,296.547
04531	19	6,077.02	0.9000	5,469.318
04532	20	6,477.88	0.8998	5,828.796
04533	19	6,177.40	0.8999	5,559.042
04534	18	6,039.00	0.8999	5,434.496
04535	19	6,367.50	0.8999	5,730.113
04536	18	5,892.62	0.8999	5,302.769
04537	18	5,980.00	0.9000	5,382.000
04538	18	5,926.53	0.8999	5,333.284
04539	20	6,379.05	0.8998	5,739.869
04540	19	6,230.22	0.8999	5,606.575
04563	21	6,738.68	0.9000	6,064.812
04564	18	5,669.84	0.9000	5,102.856
04565	18	5,890.72	0.9000	5,301.648
04566	18	5,865.83	0.8999	5,278.660
04567	18	5,931.48	0.8998	5,337.146
04568	19	6,148.60	0.8999	5,533.125
04569	18	5,846.33	0.8999	5,261.112
04570	19	6,168.26	0.8999	5,550.817
04571	19	6,176.62	0.8999	5,558.340
04572	21	6,556.12	0.9001	5,901.164
04573	18	5,983.12	0.9000	5,384.808
04574	19	6,326.28	0.8998	5,692.387
04575	18	5,896.22	0.8998	5,305.419
04576	19	6,264.07	0.8999	5,637.037
04577	18	5,998.07	0.8999	5,397.663
04578	18	5,766.90	0.8999	5,189.633
04579	18	5,831.82	0.8998	5,247.472
04580	21	6,476.93	0.8998	5,827.942
04581	19	6,230.27	0.8998	5,605.997
04582	18	5,837.60	0.8998	5,252.672
04583	20	6,546.42	0.8998	5,890.469
04584	19	6,185.30	0.8998	5,565.533
04585	19	6,299.40	0.8999	5,668.830
04586	18	5,872.60	0.8999	5,284.753

04587	18	5,881.45	0.8999	5,292.717
04588	20	6,475.27	0.8999	5,827.095
04589	17	5,356.44	0.8999	4,820.260
04590	18	5,879.20	0.8999	5,290.692
04591	19	6,020.67	0.9000	5,418.603
04592	20	6,568.20	0.8999	5,910.723
04593	21	6,759.85	0.8999	6,083.189
04594	19	6,110.65	0.8999	5,498.974
04595	18	5,896.85	0.8999	5,306.575
04596	20	6,468.76	0.8999	5,821.237
04597	16	5,271.54	0.8999	4,743.859
04655	20	6,511.00	0.8999	5,859.249
04656	19	6,251.15	0.8999	5,625.410
04657	19	6,149.30	0.9000	5,534.370
04658	18	5,989.05	0.9000	5,390.145
04659	19	6,139.11	0.8999	5,524.585
04660	18	5,858.08	0.8999	5,271.686
04661	19	6,336.02	0.8999	5,701.784
04662	19	6,214.60	0.8999	5,592.519
04663	18	5,874.96	0.8999	5,286.877
04664	19	6,159.73	0.8999	5,543.141
04665	18	5,979.03	0.9000	5,381.127
04666	19	6,261.56	0.8999	5,634.778
04667	19	6,145.58	0.8999	5,530.407
04668	18	5,866.05	0.8999	5,278.858
04669	19	6,159.34	0.8999	5,542.790
04670	18	5,722.85	0.8999	5,149.993
04671	19	6,266.88	0.8999	5,639.565
04672	17	5,690.45	0.8999	5,120.836
04673	20	6,550.42	0.8999	5,894.723
04674	18	5,542.66	0.8999	4,987.840
04675	18	5,829.03	0.8999	5,245.544
04676	20	6,488.01	0.8999	5,838.560
04677	19	6,104.27	0.9000	5,493.843
04678	19	6,192.90	0.9000	5,573.610
04679	18	5,857.48	0.8999	5,271.146
04680	18	5,943.83	0.8999	5,348.853
04681	19	6,199.00	0.8999	5,578.480
04682	19	6,274.65	0.8999	5,646.558
04683	19	6,105.36	0.8999	5,494.213
04684	19	6,220.15	0.8999	5,597.513
04685	20	6,410.55	0.8999	5,768.854
04686	19	5,976.05	0.8998	5,377.250
04687	19	6,066.65	0.8999	5,459.378

04688	19	6,120.31	0.8999	5,507.667
04689	20	6,383.00	0.8999	5,744.062
04690	20	6,412.85	0.8999	5,770.924
04805	18	5,826.23	0.8998	5,242.442
04806	19	6,023.60	0.8999	5,420.638
04807	21	6,699.50	0.9000	6,029.550
04808	19	6,139.05	0.8999	5,524.531
04809	19	6,148.25	0.8999	5,532.810
04810	20	6,600.12	0.8999	5,939.448
04811	19	5,929.10	0.8999	5,335.597
04812	20	6,398.43	0.8999	5,757.947
04813	16	5,300.23	0.8999	4,769.677
04814	19	6,232.51	0.9000	5,609.259
04815	20	6,561.82	0.8999	5,904.982
04816	21	6,647.52	0.8999	5,982.103
04817	19	6,224.47	0.8999	5,601.401
04818	19	6,058.14	0.9000	5,452.326
04819	19	6,158.90	0.9000	5,543.010
04820	19	6,094.55	0.9000	5,485.095
04821	19	6,119.95	0.9000	5,507.955
04822	19	6,242.65	0.9000	5,618.385
04823	19	6,151.36	0.9000	5,536.224
04824	19	6,223.27	0.8999	5,600.321
04825	19	6,173.02	0.8999	5,555.101
04826	19	6,077.75	0.8999	5,469.367
04827	21	6,748.07	0.9000	6,073.263
04828	20	6,539.85	0.9000	5,885.865
04829	18	5,807.37	0.8999	5,226.052
04830	18	5,878.94	0.8999	5,290.458
04831	19	6,120.12	0.8999	5,507.496
04832	19	6,088.24	0.8999	5,478.807
04833	20	6,417.65	0.8999	5,775.243
04834	18	5,822.83	0.8999	5,239.965
04835	19	6,101.64	0.8999	5,490.866
04836	20	6,406.77	0.9000	5,766.093
04838	18	5,503.05	0.9000	4,952.745
04839	18	5,614.00	0.9000	5,052.600
04840	20	6,254.01	0.8999	5,627.984
04841	19	6,104.06	0.8999	5,493.044
04842	18	5,711.78	0.8999	5,140.031
04843	20	6,371.67	0.8999	5,733.866
04844	18	5,824.40	0.8999	5,241.378
04845	15	4,837.82	0.8999	4,353.554
04846	19	6,191.95	0.9000	5,572.755

04847	18	5,636.30	0.8999	5,072.106
04848	19	6,148.25	0.9000	5,533.425
04849	19	6,115.93	0.8999	5,503.725
04850	18	6,046.60	0.8999	5,441.335
04851	17	5,649.26	0.9000	5,084.334
04852	13	3,856.20	0.9000	3,470.580
04915	20	6,644.55	0.9000	5,980.095
04916	18	5,965.38	0.9000	5,368.842
04917	18	5,861.47	0.8999	5,274.737
04918	18	5,826.26	0.9000	5,243.634
04919	18	5,990.28	0.9000	5,391.252
04920	19	6,290.77	0.9000	5,661.693
14230	21	6,660.58	0.8999	5,993.856
14231	21	6,609.48	0.8998	5,947.210
14232	20	6,392.32	0.8998	5,751.810
14233	20	6,523.39	0.8998	5,869.746
14234	20	6,366.10	0.8998	5,728.217
14235	21	6,656.20	0.8998	5,989.249
14236	19	6,273.21	0.8998	5,644.634
14237	21	6,839.60	0.8998	6,154.272
14238	20	6,244.34	0.8998	5,618.657
14239	19	6,193.17	0.8998	5,572.614
14240	21	6,595.82	0.8999	5,935.578
14241	22	6,947.20	0.8998	6,251.091
14242	21	6,723.64	0.8999	6,050.604
14243	21	6,502.65	0.8999	5,851.735
14244	23	7,098.13	0.9000	6,388.317
14245	20	6,544.30	0.8999	5,889.216
14246	21	6,807.07	0.8998	6,125.002
14247	20	6,557.25	0.8999	5,900.869
14248	19	6,298.60	0.8999	5,668.110
14249	14	4,286.95	0.8999	3,857.826
14327	20	6,507.20	0.8998	5,855.179
14328	20	6,570.20	0.8999	5,912.523
14329	20	6,661.44	0.8998	5,993.964
14330	20	6,548.10	0.9000	5,893.290
14331	20	6,596.20	0.8998	5,935.261
14332	20	6,425.78	0.8999	5,782.559
14333	20	6,486.40	0.8999	5,837.111
14334	19	6,075.78	0.8998	5,466.987
14335	19	6,315.72	0.8998	5,682.885
14336	20	6,347.00	0.8998	5,711.031
14337	19	6,310.94	0.8998	5,678.584
14338	22	6,814.44	0.8998	6,131.633

14339	20	6,604.85	0.8999	5,943.705
14340	21	6,683.60	0.8999	6,014.572
14341	20	6,532.75	0.8998	5,878.168
14342	20	6,603.10	0.8998	5,941.469
14343	20	6,461.02	0.8999	5,814.272
14344	19	6,282.08	0.8999	5,653.244
14345	19	6,281.76	0.8999	5,652.956
14346	21	6,710.67	0.8999	6,038.932
14347	20	6,589.02	0.8999	5,929.459
14348	20	6,494.98	0.8999	5,844.833
14349	22	6,784.80	0.8999	6,105.642
00351	22	7,376.85	0.9164	6,760.145
00352	20	6,734.80	0.9159	6,168.403
00353	22	7,471.93	0.9163	6,846.529
00354	20	6,631.85	0.8998	5,967.339
00355	24	7,817.22	0.8996	7,032.371
00419	18	6,090.95	0.9149	5,572.610
00420	21	7,230.20	0.9162	6,624.309
00421	22	7,361.70	0.9161	6,744.053
00422	20	6,678.18	0.8999	6,009.694
00423	21	6,738.45	0.8995	6,061.236
00424	20	6,527.45	0.9001	5,875.358
00425	22	7,316.25	0.9000	6,584.625
00426	21	6,823.05	0.9020	6,154.391
08915	21	6,913.63	0.9000	6,222.267
08916	19	6,436.35	0.9000	5,792.715
08917	21	7,000.60	0.9000	6,300.540
08918	20	6,702.77	0.8999	6,031.823
08919	20	6,640.12	0.8999	5,975.444
08920	20	6,629.86	0.9000	5,966.874
08921	19	6,393.38	0.8999	5,753.403
08922	18	5,816.97	0.9000	5,235.273
08923	20	6,684.35	0.9000	6,015.915
08924	19	6,370.50	0.9002	5,734.724
08925	21	6,820.18	0.9002	6,139.526
08926	19	6,373.07	0.8999	5,735.126
08927	20	6,607.30	0.9000	5,946.570
08928	20	6,694.72	0.9000	6,025.248
08929	18	6,070.62	0.9004	5,465.986
08930	19	6,396.65	0.9000	5,756.985
08931	19	6,266.05	0.9000	5,639.445
08932	19	6,432.98	0.9000	5,789.682
08933	20	6,792.38	0.9000	6,113.142
08934	21	6,978.25	0.9000	6,280.425

08935	18	6,197.04	0.8998	5,576.097
08936	18	5,981.87	0.8999	5,383.085
08937	19	6,479.96	0.9000	5,831.964
08938	8	2,503.27	0.8999	2,252.693
08939	19	6,468.52	0.9166	5,929.045
08940	17	5,772.65	0.9165	5,290.634
08941	12	3,939.78	0.9167	3,611.596
08955	13	4,411.18	0.9106	4,016.821
08956	17	5,616.23	0.9071	5,094.482
08957	16	5,284.75	0.9074	4,795.382
08958	19	6,499.40	0.9250	6,011.945
08984	16	5,156.05	0.8992	4,636.320
08997	17	5,687.50	0.8999	5,118.181
08998	20	6,457.93	0.8998	5,810.845
08999	19	6,367.93	0.8999	5,730.500
09000	18	6,060.92	0.8999	5,454.222
09001	18	6,005.42	0.8998	5,403.677
09002	18	6,074.92	0.8999	5,466.821
09003	17	5,581.24	0.9000	5,023.116
09004	19	6,335.72	0.8999	5,701.514
09005	19	6,360.02	0.8999	5,723.382
09006	20	6,590.06	0.8999	5,930.395
09007	21	6,663.80	0.8998	5,996.087
09008	17	5,695.50	0.9000	5,125.950
09009	19	6,235.10	0.9000	5,611.590
09010	18	6,022.65	0.9000	5,420.385
09011	19	6,323.78	0.9000	5,691.402
09012	18	6,116.40	0.9000	5,504.760
09013	17	5,746.87	0.9001	5,172.758
09014	21	6,953.03	0.9000	6,257.727
09015	18	5,795.39	0.8999	5,215.271
09016	19	6,187.60	0.8999	5,568.221
09017	19	6,357.70	0.9000	5,721.930
09018	19	6,399.27	0.9000	5,759.343
09019	18	5,942.80	0.9000	5,348.520
09020	19	6,370.82	0.8999	5,733.101
09021	17	5,691.94	0.8999	5,122.177
09022	20	6,385.38	0.8999	5,746.203
09023	15	4,956.07	0.8999	4,459.967
09024	19	6,284.42	0.8999	5,655.350
09025	20	6,549.92	0.8999	5,894.273
09026	19	6,301.72	0.8999	5,670.918
09027	19	6,424.50	0.8999	5,781.408
09028	19	6,331.43	0.9000	5,698.287

09029	19	6,324.50	0.9000	5,692.050
09030	18	6,000.44	0.8999	5,399.796
09031	20	6,714.70	0.8999	6,042.559
09032	17	5,644.42	0.9000	5,079.978
09033	17	5,717.53	0.8999	5,145.205
09034	21	6,813.20	0.9000	6,131.880
09035	22	7,118.86	0.9000	6,406.974
09036	18	5,982.32	0.8999	5,383.490
09054	11	3,531.10	0.8994	3,175.871
09142	22	7,065.48	0.8997	6,356.812
09493	18	5,953.40	0.9163	5,455.100
09569	18	5,965.53	0.9000	5,368.977
09570	21	6,777.00	0.8999	6,098.622
09571	5	1,684.26	0.9001	1,516.002
09572	10	3,205.75	0.9163	2,937.429
09689	13	4,228.00	0.8995	3,803.086
09693	16	5,152.20	0.8995	4,634.404
09715	17	5,443.60	0.8995	4,896.518
09716	15	4,869.82	0.8995	4,380.403
09724	19	6,212.50	0.8995	5,588.144
09725	10	3,069.23	0.8995	2,760.772
09727	18	5,572.75	0.8995	5,012.689
09851	18	5,785.30	0.9115	5,273.301
09852	17	5,497.80	0.9059	4,980.457
09853	15	4,693.92	0.9051	4,248.467
09857	18	5,650.95	0.9166	5,179.661
09858	17	5,613.75	0.9166	5,145.563
09860	9	3,060.08	0.9680	2,962.157
10109	14	4,707.64	0.9123	4,294.780
10110	16	5,034.95	0.9052	4,557.637
10139	12	3,886.90	0.9162	3,561.178
10217	18	6,043.78	0.9000	5,439.402
10218	17	5,757.33	0.9000	5,181.597
10219	18	6,054.23	0.9001	5,449.412
10220	18	6,056.48	0.9000	5,450.832
10221	20	6,577.52	0.9000	5,919.768
10222	20	6,576.85	0.9000	5,919.165
10223	17	5,695.80	0.9000	5,126.220
10224	19	6,125.44	0.8999	5,512.283
10225	17	5,521.40	0.9000	4,969.260
10226	19	6,351.61	0.8998	5,715.179
10227	18	5,873.05	0.8999	5,285.158
10228	19	6,357.40	0.9000	5,721.660
10229	20	6,471.25	0.9000	5,824.125

10230	19	6,301.82	0.8999	5,671.008
10231	18	6,036.74	0.8999	5,432.462
10232	17	5,586.95	0.8999	5,027.696
10233	19	6,268.35	0.9000	5,641.515
10234	18	5,947.56	0.8999	5,352.209
10235	18	5,872.35	0.8999	5,284.528
10236	20	6,673.12	0.9000	6,005.808
10237	21	6,772.08	0.9000	6,094.872
10238	19	6,211.92	0.9000	5,590.728
10239	18	5,902.38	0.9000	5,312.142
10240	19	6,166.25	0.9000	5,549.625
10241	19	6,135.10	0.8999	5,520.976
10242	18	5,915.75	0.9000	5,324.175
10243	18	5,755.68	0.8999	5,179.536
10244	18	5,971.32	0.8999	5,373.591
10245	18	6,004.77	0.9000	5,404.293
10246	20	6,742.60	0.9000	6,068.340
10247	16	5,397.54	0.9000	4,857.786
10248	20	6,547.53	0.8999	5,892.122
10249	19	6,276.90	0.8999	5,648.582
10250	17	5,720.60	0.9000	5,148.540
10251	18	5,944.56	0.9000	5,350.104
10252	19	6,420.21	0.9000	5,778.189
10253	19	6,271.73	0.8999	5,643.930
10254	17	5,683.70	0.9000	5,115.330
10255	20	6,634.92	0.9000	5,971.428
10256	19	6,254.10	0.9000	5,628.690
10257	18	6,076.17	0.9000	5,468.553
10258	19	6,384.90	0.9000	5,746.410
10259	16	5,340.58	0.8999	4,805.988
10260	19	6,246.03	0.8999	5,620.802
10286	16	5,086.71	0.9090	4,623.819
10293	19	6,322.93	0.8998	5,689.372
10294	18	5,984.73	0.8999	5,385.659
10295	20	6,704.40	0.8999	6,033.290
10296	20	6,537.45	0.9000	5,883.705
10297	18	5,915.98	0.8999	5,323.790
10298	17	5,664.05	0.8999	5,097.079
10299	18	5,855.92	0.9000	5,270.328
10300	19	6,329.13	0.8999	5,695.584
10301	19	6,287.58	0.8998	5,657.564
10302	18	5,983.34	0.9000	5,385.006
10303	19	6,309.06	0.8999	5,677.523
10304	19	6,491.60	0.8999	5,841.791

10305	18	6,040.05	0.8999	5,435.441
10306	18	5,831.56	0.9000	5,248.404
10307	18	6,162.00	0.8999	5,545.184
10308	18	5,790.73	0.8999	5,211.078
10309	19	6,198.08	0.9000	5,578.272
10310	17	5,796.75	0.8999	5,216.495
10311	18	5,931.25	0.8999	5,337.532
10312	19	6,215.54	0.9000	5,593.986
10313	21	6,977.93	0.8999	6,279.439
10314	19	6,322.32	0.9000	5,690.088
10315	18	5,968.38	0.8999	5,370.945
10316	18	5,927.30	0.9000	5,334.570
10317	18	5,799.36	0.8999	5,218.844
10318	18	5,951.08	0.8998	5,354.782
10319	17	5,558.93	0.8999	5,002.481
10320	16	5,438.63	0.8998	4,893.679
10321	18	6,042.57	0.8999	5,437.709
10322	20	6,573.20	0.8998	5,914.565
10323	19	6,348.32	0.8999	5,712.853
10324	19	6,412.25	0.8999	5,770.384
10325	17	5,515.03	0.8999	4,962.975
10326	17	5,563.07	0.8999	5,006.207
10327	22	7,343.63	0.8998	6,607.798
10328	20	6,682.20	0.9000	6,013.980
10329	17	5,608.52	0.9000	5,047.668
10330	19	6,220.92	0.9000	5,598.828
10331	17	5,466.33	0.8999	4,919.150
10332	7	2,200.82	0.8999	1,980.518
10514	19	6,218.12	0.8999	5,595.686
10515	21	6,836.15	0.9001	6,153.219
10516	20	6,673.30	0.8999	6,005.303
10517	20	6,462.33	0.8999	5,815.451
10518	20	6,484.33	0.8999	5,835.249
10519	20	6,574.48	0.9002	5,918.347
10520	20	6,428.30	0.9000	5,785.470
10521	19	5,955.38	0.9001	5,360.438
10522	21	6,750.95	0.9002	6,077.205
10523	21	6,829.67	0.9000	6,146.703
10524	20	6,459.03	0.9001	5,813.773
10525	21	6,783.77	0.9001	6,106.071
10526	20	6,511.94	0.9000	5,860.746
10527	11	3,565.80	0.9001	3,209.577
10532	16	5,337.58	0.9402	5,018.393
10576	23	7,296.78	0.9001	6,567.832

10577	19	6,123.50	0.9002	5,512.375
10578	17	5,536.62	0.9015	4,991.263
10579	16	5,132.82	0.9035	4,637.503
10604	18	6,231.07	0.9002	5,609.209
10605	19	6,419.45	0.9010	5,783.924
10606	19	6,401.33	0.9000	5,761.197
10607	17	5,758.04	0.9003	5,183.963
10608	18	6,054.44	0.9004	5,451.418
10609	16	5,445.50	0.9006	4,904.217
10617	18	5,951.27	0.9166	5,454.934
10618	20	6,612.30	0.9166	6,060.834
10619	10	3,301.50	0.9166	3,026.155
10651	21	6,758.25	0.9020	6,095.942
10652	20	6,502.73	0.9032	5,873.266
10653	19	6,295.06	0.9059	5,702.695
10654	19	6,282.38	0.9027	5,671.104
10765	11	3,354.28	0.8995	3,017.175
10787	11	3,434.58	0.8995	3,089.405
10947	20	6,415.27	0.9000	5,773.743
10948	19	6,203.20	0.8999	5,582.260
10949	20	6,625.64	0.8999	5,962.413
10950	20	6,395.45	0.8999	5,755.265
10951	18	5,902.82	0.8999	5,311.948
10952	19	6,198.78	0.8999	5,578.282
10953	20	6,581.44	0.8999	5,922.638
10954	16	5,304.28	0.9000	4,773.852
10955	17	5,465.78	0.9000	4,919.202
10956	21	6,955.92	0.9000	6,260.328
10957	16	5,254.92	0.9000	4,729.428
10958	24	7,664.67	0.8999	6,897.437
10959	15	5,046.04	0.9000	4,541.436
10960	19	6,258.83	0.9000	5,632.947
10961	18	5,965.22	0.9000	5,368.698
10962	19	6,181.40	0.9000	5,563.260
10963	18	5,896.07	0.8999	5,305.873
10964	18	5,840.60	0.8999	5,255.956
10974	13	4,149.45	0.9344	3,877.246
11000	15	5,075.78	0.9081	4,609.316
11001	16	5,306.37	0.9051	4,802.795
11002	17	5,621.50	0.9061	5,093.641
11032	19	6,270.20	0.8999	5,642.553
11033	20	6,578.42	0.8999	5,919.920
11034	21	6,451.10	0.8999	5,805.345
11035	21	6,834.20	0.9000	6,150.780

11037	18	5,854.35	0.8998	5,267.744
11039	19	6,269.00	0.9000	5,642.100
11059	18	5,896.70	0.8999	5,306.440
11060	19	6,187.57	0.9000	5,568.813
11061	21	6,703.87	0.8999	6,032.813
11062	19	6,070.33	0.8999	5,462.690
11063	20	6,540.52	0.8999	5,885.814
11064	19	6,267.75	0.8999	5,640.348
11065	17	5,552.04	0.9000	4,996.836
11066	19	6,305.72	0.8998	5,673.887
11067	17	5,559.53	0.8999	5,003.021
11068	20	6,619.38	0.8999	5,956.780
11069	18	5,960.07	0.8999	5,363.467
11070	19	6,118.50	0.8999	5,506.038
11071	20	6,548.90	0.8999	5,893.355
11072	19	6,352.50	0.8999	5,716.615
11073	17	5,654.34	0.8999	5,088.341
11074	17	5,596.87	0.8999	5,036.623
11075	18	5,955.95	0.8999	5,359.759
11076	16	5,271.56	0.8999	4,743.877
11083	20	6,306.94	0.9005	5,679.399
11092	19	6,143.60	0.9167	5,631.838
11117	18	5,817.05	0.8999	5,234.763
11118	18	5,922.22	0.8999	5,329.406
11119	19	6,176.10	0.8999	5,557.872
11120	20	6,532.18	0.8999	5,878.309
11121	19	6,257.94	0.9000	5,632.146
11122	18	5,914.86	0.8999	5,322.783
11123	19	6,194.43	0.8999	5,574.368
11124	19	6,244.23	0.9000	5,619.807
11125	19	6,190.00	0.8999	5,570.381
11126	17	5,525.77	0.8999	4,972.640
11127	19	6,219.25	0.8999	5,596.703
11128	17	5,546.25	0.8999	4,991.070
11129	19	6,130.45	0.8999	5,516.792
11130	18	5,934.93	0.8999	5,340.844
11131	19	6,199.96	0.8999	5,579.344
11132	20	6,480.75	0.8999	5,832.027
11133	19	6,251.30	0.8999	5,625.545
11134	19	6,213.80	0.8999	5,591.799
11135	21	6,710.40	0.8999	6,038.689
11136	17	5,476.25	0.8999	4,928.077
11137	11	3,559.20	0.8999	3,202.924
11172	13	4,129.40	0.8996	3,714.808

11173	13	4,104.97	0.8995	3,692.421
11281	14	4,520.73	0.8994	4,065.945
11388	19	6,236.40	0.9160	5,712.542
11389	16	5,294.81	0.9160	4,850.046
11423	20	6,394.00	0.9166	5,860.740
11449	22	6,987.22	0.9000	6,288.498
11450	18	5,844.44	0.9000	5,259.996
11490	18	5,723.56	0.8987	5,143.763
11514	20	6,633.02	0.9160	6,075.846
11519	16	5,223.80	0.9160	4,785.001
11551	17	5,622.70	0.9167	5,154.329
11552	20	6,806.04	0.9166	6,238.416
11553	20	6,762.47	0.9167	6,199.156
11583	12	3,917.28	0.9167	3,590.971
11584	13	4,067.22	0.9167	3,728.421
11716	18	5,944.34	0.8999	5,349.312
11717	18	5,936.14	0.8999	5,341.932
11718	19	6,233.10	0.8999	5,609.167
11719	19	6,130.00	0.8999	5,516.387
11720	19	6,146.57	0.8999	5,531.298
11721	19	6,200.15	0.8999	5,579.515
11722	18	5,933.76	0.8999	5,339.791
11723	17	5,516.25	0.8999	4,964.073
11724	19	6,310.60	0.9000	5,679.540
11725	21	6,733.95	0.9000	6,060.555
11726	19	6,222.10	0.9000	5,599.890
11727	20	6,566.60	0.8999	5,909.283
11728	19	6,208.55	0.8999	5,587.074
11729	19	6,186.48	0.8999	5,567.213
11730	18	5,879.58	0.9000	5,291.622
11731	17	5,494.28	0.8999	4,944.303
11732	19	6,056.81	0.8999	5,450.523
11733	20	6,439.66	0.9000	5,795.694
11734	18	6,008.30	0.8999	5,406.869
11735	18	5,984.40	0.8998	5,384.763
11736	18	6,093.88	0.9000	5,484.492
11737	20	6,544.46	0.9000	5,890.014
11738	18	6,002.58	0.9000	5,402.322
11739	20	6,568.62	0.8999	5,911.101
11740	17	5,644.58	0.9000	5,080.122
11774	16	5,171.52	0.9009	4,659.022
11787	17	5,571.85	0.8998	5,013.551
11788	20	6,487.06	0.8999	5,837.705
11789	19	6,128.55	0.8999	5,515.082

11790	20	6,312.50	0.9000	5,681.250
11791	20	6,453.33	0.9000	5,807.997
11792	20	6,547.10	0.8999	5,891.735
11793	18	5,878.43	0.8999	5,289.999
11794	21	6,693.43	0.8999	6,023.418
11795	16	5,032.08	0.8999	4,528.369
11796	18	6,130.80	0.8999	5,517.107
11797	19	6,331.13	0.8999	5,697.384
11798	19	6,120.95	0.8999	5,508.243
11799	20	6,343.12	0.8999	5,708.174
11800	18	5,875.62	0.9000	5,288.058
11801	19	6,066.15	0.9000	5,459.535
11802	17	5,634.35	0.8999	5,070.352
11803	17	5,599.25	0.8999	5,038.765
11804	18	5,920.78	0.8998	5,327.518
11805	22	6,660.45	0.8999	5,993.739
11806	19	6,188.67	0.8999	5,569.184
11807	19	6,170.55	0.8997	5,551.644
11808	20	6,569.67	0.8999	5,912.046
11809	19	6,263.93	0.8999	5,636.911
11810	18	5,960.23	0.8999	5,363.611
11811	20	6,638.70	0.9002	5,976.158
11812	17	5,620.45	0.9000	5,058.405
11813	17	5,617.85	0.9001	5,056.627
11814	19	6,201.00	0.9000	5,580.900
11815	20	6,507.48	0.9000	5,856.732
11816	20	6,457.42	0.9000	5,811.678
11817	19	6,302.25	0.8997	5,670.134
11818	18	5,881.93	0.8996	5,291.384
11819	19	6,201.46	0.9000	5,581.314
11820	19	6,385.95	0.8997	5,745.439
11821	18	6,109.94	0.8999	5,498.335
11822	15	5,010.95	0.8999	4,509.354
11871	19	6,296.25	0.8997	5,664.736
11872	18	5,919.58	0.8998	5,326.438
11873	19	6,258.53	0.8998	5,631.425
11874	19	6,224.50	0.8997	5,600.183
11875	18	5,907.42	0.8998	5,315.497
11876	20	6,662.20	0.8999	5,995.314
11877	17	5,531.70	0.8998	4,977.424
11878	14	4,603.90	0.8997	4,142.129
11879	21	6,859.72	0.8999	6,173.062
11880	17	5,668.31	0.8999	5,100.912
11881	19	6,201.63	0.8999	5,580.847

11882	19	6,276.50	0.9000	5,648.850
11883	18	6,002.58	0.8999	5,401.722
11884	19	6,250.00	0.9000	5,625.000
11885	17	5,612.27	0.9000	5,051.043
11886	18	6,039.38	0.8999	5,434.838
11887	18	6,078.08	0.8999	5,469.664
11888	20	6,487.73	0.8999	5,838.308
11889	19	6,200.60	0.8999	5,579.920
11890	19	6,347.17	0.9000	5,712.453
11891	18	5,997.60	0.8999	5,397.240
11892	17	5,690.07	0.8998	5,119.925
11893	13	4,039.37	0.8999	3,635.029
11978	19	5,803.55	0.8994	5,219.713
11979	14	4,493.10	0.8995	4,041.543
12011	16	5,303.67	0.8999	4,772.773
12012	18	6,064.38	0.8998	5,456.729
12013	21	6,664.17	0.8999	5,997.087
12014	19	6,490.04	0.8998	5,839.738
12015	20	6,555.75	0.8998	5,898.864
12016	16	5,302.86	0.8998	4,771.513
12017	17	5,624.67	0.8998	5,061.078
12018	18	6,156.60	0.8997	5,539.093
12019	18	6,098.76	0.8999	5,488.274
12020	20	6,714.52	0.8999	6,042.397
12021	16	5,337.92	0.8998	4,803.060
12022	19	6,344.75	0.8998	5,709.006
12023	20	6,584.00	0.8999	5,924.942
12024	20	6,673.52	0.8999	6,005.501
12025	20	6,388.33	0.9000	5,749.497
12026	17	5,667.48	0.9000	5,100.732
12027	19	6,304.24	0.8999	5,673.186
12028	18	5,902.00	0.9000	5,311.800
12097	19	6,281.32	0.8998	5,651.932
12098	18	5,992.30	0.8998	5,391.872
12099	20	6,541.40	0.8998	5,885.952
12100	19	6,230.68	0.8998	5,606.366
12101	20	6,527.70	0.8999	5,874.277
12102	21	6,605.28	0.8997	5,942.770
12103	17	5,573.23	0.8998	5,014.792
12104	19	6,273.63	0.8997	5,644.385
12105	18	5,956.08	0.8998	5,359.281
12106	19	6,297.80	0.8999	5,667.390
12107	18	5,893.88	0.8998	5,303.313
12108	19	6,212.24	0.8999	5,590.395

12109	20	6,523.52	0.8999	5,870.516
12110	19	5,960.98	0.8999	5,364.286
12111	19	6,157.78	0.8999	5,541.386
12112	17	5,670.00	0.9000	5,103.000
12113	19	6,137.47	0.8998	5,522.496
12114	18	5,843.04	0.8998	5,257.567
12115	19	6,225.24	0.8998	5,601.471
12116	19	6,213.93	0.8999	5,591.916
12117	19	6,255.10	0.8998	5,628.339
12118	20	6,435.60	0.9000	5,792.040
12119	19	6,095.72	0.8998	5,484.929
12120	19	6,204.05	0.8999	5,583.025
12121	17	5,568.78	0.8999	5,011.345
12122	20	6,705.27	0.8999	6,034.072
12123	19	6,087.30	0.8999	5,477.961
12124	17	5,541.90	0.8998	4,986.602
12125	19	6,152.65	0.8999	5,536.770
12126	19	6,191.16	0.8999	5,571.425
12127	18	5,870.92	0.8997	5,282.067
12128	19	6,186.00	0.8999	5,566.781
12129	18	5,920.30	0.8999	5,327.678
12130	18	5,969.97	0.8999	5,372.376
12131	19	6,324.54	0.8999	5,691.454
12132	15	4,800.56	0.8998	4,319.544
12194	19	6,322.42	0.8999	5,689.546
12195	19	6,301.60	0.9000	5,671.440
12196	19	6,152.27	0.9000	5,537.043
12197	19	6,215.77	0.8999	5,593.571
12198	18	5,710.00	0.8999	5,138.429
12199	19	6,062.40	0.9000	5,456.160
12200	17	5,674.52	0.8999	5,106.501
12201	20	6,623.52	0.8999	5,960.506
12202	17	5,611.13	0.9000	5,050.017
12203	18	6,059.90	0.9000	5,453.910
12204	18	5,946.43	0.8999	5,351.192
12205	21	6,519.26	0.8998	5,866.030
12206	19	6,174.56	0.8999	5,556.487
12207	19	6,132.02	0.8998	5,517.592
12208	18	5,821.95	0.8998	5,238.591
14004	18	5,603.62	0.9002	5,044.379
14571	6	2,045.85	0.9166	1,875.226
15005	12	3,815.78	0.8995	3,432.294
15162	12	3,612.37	0.8996	3,249.688
15303	19	6,256.24	0.9060	5,668.153

15304	20	6,512.37	0.9009	5,866.994
15305	18	5,907.00	0.9084	5,365.919
15306	19	6,216.62	0.9107	5,661.476
15307	20	6,326.72	0.9061	5,732.641
15308	18	5,946.00	0.9082	5,400.157
15309	19	6,095.55	0.9057	5,520.740
15310	20	6,528.03	0.9036	5,898.728
15311	18	5,922.37	0.9085	5,380.473
15312	14	4,569.92	0.9068	4,144.003
15494	20	6,642.25	0.9000	5,978.025
15495	20	6,638.08	0.9000	5,974.272
15496	20	6,641.90	0.8999	5,977.046
15497	20	6,460.13	0.8998	5,812.825
15498	20	6,502.67	0.8999	5,851.753
15499	19	6,188.45	0.8998	5,568.367
15500	21	6,861.97	0.8998	6,174.401
15501	20	6,516.77	0.8999	5,864.441
15502	20	6,715.30	0.8999	6,043.098
15503	18	5,961.60	0.8999	5,364.844
15504	21	7,036.15	0.8999	6,331.831
15505	20	6,535.58	0.8999	5,881.368
15506	21	6,658.05	0.9000	5,992.245
15507	17	5,351.27	0.8999	4,815.608
15508	22	7,010.20	0.8999	6,308.479
15509	20	6,336.90	0.9000	5,703.210
15510	15	4,782.50	0.8999	4,303.772
15522	18	5,810.00	0.9032	5,247.592
15523	19	6,239.34	0.9031	5,634.748
15524	20	6,580.97	0.9001	5,923.531
15525	20	6,591.55	0.9000	5,932.395
15526	20	6,358.89	0.8999	5,722.365
15661	19	6,294.67	0.9003	5,667.091
15662	20	6,487.78	0.9003	5,840.948
15663	19	6,298.75	0.9001	5,669.505
15664	19	6,277.32	0.9003	5,651.471
15665	20	6,590.35	0.9001	5,931.974
15666	18	5,933.82	0.9000	5,340.438
15667	18	5,818.40	0.9001	5,237.142
15668	18	5,946.77	0.9000	5,352.093
15669	8	2,623.20	0.9002	2,361.405
15688	12	3,740.38	0.9169	3,429.554
15700	21	6,828.07	0.9053	6,181.452
15701	18	5,909.27	0.9025	5,333.116
15702	19	6,290.95	0.9006	5,665.630

15719	13	4,022.72	0.9003	3,621.655
15720	20	6,621.27	0.9207	6,096.203
15721	21	6,815.01	0.9168	6,248.001
15722	18	5,931.10	0.9179	5,444.157
15776	18	5,850.50	0.9020	5,277.151
15777	18	5,934.82	0.9043	5,366.858
15793	12	3,855.57	0.9003	3,471.170
15794	14	4,393.02	0.9003	3,955.036
15804	22	6,850.70	0.9000	6,165.630
15805	19	6,126.54	0.9000	5,513.886
15806	21	6,547.85	0.9001	5,893.720
15807	15	4,594.42	0.8995	4,132.681
15874	9	2,829.17	0.9005	2,547.668
15883	13	4,124.37	0.8995	3,709.871
15886	20	6,665.70	0.8999	5,998.463
15887	22	7,016.18	0.8999	6,313.860
15888	20	6,798.85	0.8999	6,118.285
15889	20	6,607.37	0.9000	5,946.633
15890	20	6,875.25	0.9000	6,187.725
15891	20	6,818.05	0.8999	6,135.563
15892	21	7,158.85	0.8999	6,442.249
15893	20	6,654.20	0.8999	5,988.115
15894	19	6,499.80	0.8999	5,849.170
15895	19	6,541.00	0.9000	5,886.900
15896	21	7,088.85	0.9000	6,379.965
15897	19	6,505.20	0.9000	5,854.680
15898	22	7,473.15	0.9000	6,725.835
15899	23	7,476.80	0.9000	6,729.120
15900	20	6,650.90	0.8999	5,985.145
15901	21	6,899.80	0.8999	6,209.130
15902	22	7,112.38	0.8999	6,400.431
15903	21	6,920.28	0.9000	6,228.252
15904	22	7,228.73	0.9000	6,505.857
15905	21	6,997.15	0.8999	6,296.735
15906	20	6,780.15	0.8999	6,101.457
15907	20	6,746.50	0.8998	6,070.501
15908	21	6,949.20	0.8999	6,253.585
15909	21	7,008.65	0.9000	6,307.785
15910	22	7,125.55	0.8999	6,412.282
15911	22	7,292.75	0.8999	6,562.746
15912	21	6,992.18	0.9000	6,292.962
15913	21	6,958.45	0.8999	6,261.909
15914	20	6,655.74	0.8999	5,989.500
15915	20	6,669.60	0.8999	6,001.973

15916	22	7,234.85	0.9000	6,511.365
15917	20	6,785.15	0.8998	6,105.278
15918	21	7,131.42	0.8999	6,417.565
15919	21	7,031.48	0.8998	6,326.926
15920	21	7,005.02	0.8999	6,303.817
15921	19	6,193.83	0.8998	5,573.208
15922	21	6,828.82	0.8999	6,145.255
15931	12	3,645.08	0.8996	3,279.114
15984	16	5,166.65	0.9162	4,733.685
16173	18	5,874.30	0.8989	5,280.408
16174	17	5,518.68	0.8990	4,961.293
16175	17	5,468.78	0.8995	4,919.168
16176	21	6,829.28	0.9002	6,147.718
16193	18	5,826.85	0.8999	5,243.582
16194	20	6,510.47	0.8999	5,858.772
16195	20	6,608.28	0.8998	5,946.130
16196	20	6,714.00	0.8999	6,041.929
16197	20	6,709.30	0.8999	6,037.699
16198	22	7,235.90	0.8999	6,511.586
16199	21	6,835.02	0.8999	6,150.834
16200	19	6,163.40	0.8998	5,545.827
16201	20	6,594.67	0.8999	5,934.544
16202	20	6,686.50	0.8999	6,017.181
16203	19	6,242.07	0.9000	5,617.863
16204	21	6,946.92	0.8999	6,251.533
16205	22	7,021.90	0.8999	6,319.008
16206	20	6,605.50	0.8999	5,944.289
16207	21	6,958.37	0.8999	6,261.837
16208	19	6,173.12	0.8999	5,555.191
16209	20	6,605.80	0.8999	5,944.559
16210	20	6,738.10	0.9000	6,064.290
16211	22	7,124.52	0.8999	6,411.356
16212	20	6,384.40	0.8999	5,745.322
16213	21	6,626.50	0.8999	5,963.187
16214	21	6,724.92	0.8999	6,051.756
16215	22	7,041.58	0.8999	6,336.718
16216	20	6,608.42	0.8999	5,946.917
16217	21	6,860.52	0.8999	6,173.782
16218	20	6,365.90	0.9000	5,729.310
16219	19	6,138.38	0.9000	5,524.542
16240	20	6,438.77	0.9161	5,898.557
16241	21	7,019.07	0.9161	6,430.170
16244	21	6,787.50	0.9163	6,219.386
16245	20	6,735.65	0.9162	6,171.203

16246	20	6,622.30	0.9162	6,067.351
16247	21	6,925.15	0.9161	6,344.130
16270	18	5,986.63	0.9000	5,387.967
16271	19	6,370.00	0.9002	5,734.274
16272	17	5,618.95	0.9001	5,057.617
16273	18	6,032.73	0.9000	5,429.457
16274	21	6,995.10	0.9000	6,295.590
16275	17	5,635.83	0.9000	5,072.247
16276	20	6,501.10	0.9001	5,851.640
16277	21	7,046.03	0.9001	6,342.132
16278	20	6,693.23	0.9000	6,023.907
16279	19	6,354.25	0.9002	5,720.096
16280	21	6,825.85	0.9000	6,143.265
16281	20	6,573.03	0.9001	5,916.384
16282	21	6,862.98	0.9001	6,177.368
16283	23	7,714.56	0.9001	6,943.875
16284	20	6,623.25	0.9001	5,961.587
16285	20	6,665.15	0.9000	5,998.635
16286	13	4,297.25	0.9000	3,867.525
16287	12	3,910.15	0.8995	3,517.180
16320	13	4,016.15	0.9186	3,689.235
16327	17	5,529.10	0.9161	5,065.209
16351	22	6,949.35	0.9165	6,369.079
16352	19	6,284.25	0.9165	5,759.515
16353	16	5,331.83	0.9166	4,887.155
16354	17	5,571.60	0.9155	5,100.800
16370	15	4,807.90	0.9158	4,403.075
16388	14	4,601.98	0.9167	4,218.635
16402	13	4,152.55	0.9158	3,802.905
16407	14	4,410.85	0.9166	4,042.985
16408	20	6,719.55	0.9000	6,047.595
16409	20	6,640.40	0.9000	5,976.360
16410	20	6,682.47	0.9000	6,014.223
16411	20	6,594.24	0.9000	5,934.816
16412	20	6,659.82	0.9000	5,993.838
16413	19	6,197.57	0.9000	5,577.813
16414	19	6,209.58	0.8999	5,588.001
16415	21	6,880.13	0.8999	6,191.429
16416	22	7,151.37	0.9000	6,436.233
16417	20	6,586.67	0.9000	5,928.003
16418	19	6,172.87	0.9001	5,556.200
16419	18	5,843.18	0.9000	5,258.862
16420	23	7,196.18	0.9001	6,477.282
16421	20	6,365.97	0.9000	5,729.373

16422	20	6,404.58	0.9000	5,764.122
16423	18	5,932.37	0.9000	5,339.133
16424	14	4,561.47	0.9000	4,105.323
16452	19	6,199.43	0.9167	5,683.017
16453	6	1,915.84	0.9168	1,756.442
16454	19	6,212.15	0.9002	5,592.177
16455	21	6,593.90	0.9002	5,935.829
16456	18	5,824.30	0.9003	5,243.617
16457	15	4,873.00	0.9003	4,387.162
16462	12	3,875.35	0.9153	3,547.108
16583	21	6,894.67	0.8999	6,204.514
16584	20	6,516.23	0.8999	5,863.955
16585	20	6,609.93	0.8999	5,948.276
16586	20	6,666.68	0.8999	5,999.345
16587	22	7,033.97	0.8999	6,329.870
16588	19	6,360.72	0.8999	5,724.012
16589	21	7,010.02	0.8999	6,308.317
16590	21	6,966.25	0.8999	6,268.928
16591	19	6,324.10	0.9000	5,691.690
16592	20	6,637.27	0.8999	5,972.879
16593	20	6,623.88	0.9000	5,961.492
16594	20	6,643.17	0.9001	5,979.517
16595	19	6,491.53	0.8999	5,841.728
16596	20	6,738.50	0.8999	6,063.976
16597	20	6,736.94	0.8999	6,062.572
16598	18	6,200.30	0.8999	5,579.650
16599	20	6,839.28	0.8999	6,154.668
16600	19	6,518.34	0.8999	5,865.854
16601	20	6,696.00	0.8998	6,025.061
16602	20	6,606.77	0.8999	5,945.432
16603	20	6,610.58	0.8998	5,948.200
16604	20	6,671.00	0.8999	6,003.233
16605	20	6,719.98	0.8999	6,047.310
16606	20	6,517.45	0.8999	5,865.053
16607	21	7,023.28	0.8999	6,320.250
16608	20	6,617.13	0.8998	5,954.094
16609	20	6,784.32	0.8999	6,105.210
16610	19	6,208.68	0.8999	5,587.191
16611	20	6,726.78	0.9000	6,054.102
16612	18	6,117.14	0.8999	5,504.814
16613	20	6,711.68	0.9000	6,040.512
16614	20	6,642.90	0.9000	5,978.610
16615	20	6,635.80	0.9000	5,972.220
16616	20	6,559.15	0.8999	5,902.579

16617	20	6,634.90	0.8999	5,970.747
16618	20	6,677.60	0.8999	6,009.172
16619	19	6,289.45	0.8999	5,659.876
16620	20	6,684.87	0.8999	6,015.715
16621	10	3,323.53	0.9000	2,991.177
16638	9	3,069.97	0.9165	2,813.628
16663	20	6,689.45	0.8999	6,019.836
16664	22	7,082.02	0.8998	6,372.402
16665	20	6,701.32	0.8998	6,029.848
16666	20	6,643.02	0.8998	5,977.389
16667	20	6,677.48	0.8999	6,009.064
16668	20	6,704.53	0.8999	6,033.407
16669	18	6,023.67	0.8999	5,420.701
16670	20	6,303.08	0.8998	5,671.511
16671	19	6,180.85	0.9000	5,562.765
16672	20	6,639.45	0.8998	5,974.177
16673	21	6,970.80	0.8999	6,273.023
16674	22	7,143.08	0.8999	6,428.058
16675	21	6,771.15	0.9000	6,094.035
16676	22	7,251.30	0.9000	6,526.170
16677	21	7,053.30	0.8999	6,347.265
16678	20	6,671.28	0.8999	6,003.485
16679	20	6,518.28	0.8998	5,865.148
16680	19	6,422.08	0.8998	5,778.588
16681	19	6,470.50	0.8999	5,822.803
16682	19	6,312.43	0.8999	5,680.556
16683	20	6,622.15	0.8999	5,959.273
16684	20	6,733.90	0.9000	6,060.510
16685	20	6,666.23	0.8999	5,998.940
16686	20	6,608.80	0.8999	5,947.259
16687	19	6,501.72	0.8999	5,850.898
16688	19	6,297.45	0.8999	5,667.075
16689	19	6,281.90	0.8999	5,653.082
16690	21	6,901.12	0.8999	6,210.318
16691	22	7,068.35	0.8999	6,360.808
16692	20	6,630.92	0.8999	5,967.165
16693	20	6,680.40	0.9001	6,013.028
16694	20	6,640.32	0.9001	5,976.952
16695	20	6,722.47	0.9002	6,051.567
16696	20	6,639.82	0.8994	5,971.854
16697	18	6,035.15	0.9000	5,431.635
16698	20	6,388.27	0.8999	5,748.804
16705	22	7,283.37	0.8999	6,554.305
16706	22	6,992.60	0.8999	6,292.641

16707	20	6,662.72	0.8998	5,995.115
16708	20	6,650.06	0.8998	5,983.724
16709	20	6,647.97	0.8998	5,981.843
16710	20	6,606.00	0.8998	5,944.079
16711	19	6,228.37	0.8998	5,604.287
16712	18	6,069.17	0.8999	5,461.646
16713	20	6,632.13	0.8999	5,968.254
16714	20	6,598.50	0.8999	5,937.990
16715	22	6,937.75	0.8999	6,243.281
16716	20	6,508.50	0.8999	5,856.999
16717	20	6,598.32	0.8999	5,937.828
16718	18	5,880.87	0.8997	5,291.019
16795	12	4,125.35	0.8995	3,710.752
16811	21	6,872.02	0.8999	6,184.131
16812	20	6,530.05	0.8998	5,875.739
16813	22	7,243.70	0.8998	6,517.881
16814	15	4,912.43	0.8999	4,420.696
16815	20	6,280.00	0.8998	5,650.744
16816	21	6,971.44	0.8998	6,272.902
16817	19	6,206.22	0.8998	5,584.357
16818	20	6,511.57	0.9000	5,860.413
16819	20	6,667.24	0.8999	5,999.849
16820	22	7,225.70	0.9000	6,503.130
16821	20	6,455.70	0.8998	5,808.839
16822	20	6,558.67	0.8999	5,902.147
16823	21	6,820.77	0.9000	6,138.693
16824	19	6,138.18	0.8999	5,523.748
16825	21	6,816.27	0.8999	6,133.961
16826	21	6,849.15	0.8998	6,162.865
16827	20	6,573.28	0.8998	5,914.637
16828	18	5,912.56	0.8998	5,320.121
16829	20	6,535.65	0.8998	5,880.778
16830	19	6,226.98	0.8998	5,603.037
16831	20	6,515.68	0.8998	5,862.809
16832	20	6,574.17	0.8998	5,915.438
16833	20	6,722.00	0.8998	6,048.456
16834	22	7,013.30	0.8998	6,310.567
16835	20	6,507.28	0.8999	5,855.901
16836	21	6,880.50	0.8998	6,191.074
16837	20	6,579.55	0.8998	5,920.279
16844	9	2,749.98	0.8998	2,474.432
16876	13	4,251.20	0.9135	3,883.471
16892	21	6,616.90	0.9165	6,064.389
16893	19	6,129.20	0.9165	5,617.412

16894	19	6,094.07	0.9165	5,585.215
16895	20	6,407.22	0.9164	5,871.576
16896	10	3,319.10	0.9165	3,041.955
16908	16	5,206.27	0.9168	4,773.108
17011	20	6,349.55	0.9000	5,714.595
17012	20	6,303.37	0.9000	5,673.033
17013	22	7,053.84	0.8999	6,347.751
17014	21	6,804.45	0.8999	6,123.325
17015	20	6,648.35	0.9000	5,983.515
17016	21	6,856.65	0.9000	6,170.985
17017	19	6,389.43	0.9000	5,750.487
17019	19	6,365.92	0.9000	5,729.328
17020	20	6,690.55	0.9001	6,022.164
17021	20	6,684.73	0.9000	6,016.257
17022	20	6,560.76	0.9000	5,904.684
17023	21	6,863.55	0.9000	6,177.195
17024	20	6,599.64	0.9000	5,939.676
17025	20	6,641.75	0.8998	5,976.247
17026	19	6,401.15	0.8999	5,760.395
17027	21	7,021.04	0.8999	6,318.234
17028	21	6,858.30	0.8999	6,171.784
17029	20	6,621.32	0.9000	5,959.188
17030	20	6,676.00	0.8998	6,007.065
17031	20	6,619.03	0.8999	5,956.465
17032	20	6,619.12	0.8998	5,955.884
17033	19	6,247.67	0.8998	5,621.653
17034	19	6,265.15	0.8997	5,636.755
17035	19	6,179.17	0.8998	5,560.017
17036	19	6,213.20	0.8997	5,590.016
17037	20	6,553.12	0.8998	5,896.497
17038	19	6,282.70	0.8999	5,653.802
17039	19	6,205.92	0.8999	5,584.707
17040	19	6,213.75	0.8998	5,591.132
17041	15	4,722.00	0.8998	4,248.856
17121	20	6,536.60	0.8999	5,882.286
17122	21	6,808.40	0.8999	6,126.879
17123	21	6,894.48	0.9010	6,211.926
17124	21	6,652.62	0.9000	5,987.358
17125	20	6,668.10	0.9000	6,001.290
17126	20	6,531.18	0.8999	5,877.409
17127	20	6,542.88	0.8999	5,887.938
17128	19	6,155.95	0.9000	5,540.355
17129	19	6,325.07	0.9000	5,692.563
17130	20	6,547.90	0.9000	5,893.110

17131	20	6,584.28	0.9001	5,926.510
17132	20	6,539.13	0.9001	5,885.871
17133	20	6,686.92	0.9001	6,018.897
17134	20	6,654.53	0.9002	5,990.408
17135	20	6,541.92	0.9001	5,888.382
17136	22	7,042.82	0.9002	6,339.947
17137	19	6,272.58	0.9002	5,646.577
17138	20	6,594.75	0.9001	5,935.934
17139	19	6,460.93	0.9002	5,816.129
17140	20	6,685.20	0.9000	6,016.680
17141	19	6,243.93	0.9000	5,619.537
17142	20	6,606.92	0.9000	5,946.228
17143	20	6,561.88	0.8999	5,905.036
17144	20	6,661.94	0.8999	5,995.080
17145	20	6,343.05	0.9000	5,708.745
17146	20	6,505.18	0.8999	5,854.011
17147	20	6,441.63	0.9000	5,797.467
17148	20	6,552.22	0.9001	5,897.653
17149	20	6,574.75	0.9002	5,918.590
17150	23	7,177.75	0.9002	6,461.411
17151	19	6,257.48	0.9002	5,632.983
17152	20	6,585.00	0.9001	5,927.159
17153	21	6,798.40	0.9001	6,119.240
17154	22	7,003.40	0.9001	6,303.760
17155	21	6,865.70	0.9001	6,179.817
17156	20	6,557.47	0.9001	5,902.379
17157	21	6,855.40	0.9001	6,170.546
17158	20	6,468.50	0.9001	5,822.297
17159	19	6,268.53	0.9001	5,642.304
17160	14	4,458.06	0.9000	4,012.254
17257	18	5,857.89	0.9157	5,364.070
17273	20	6,307.58	0.9025	5,692.591
17417	22	7,386.75	0.8998	6,646.598
17418	21	6,960.72	0.8998	6,263.256
17419	20	6,761.50	0.8999	6,084.674
17420	20	6,432.00	0.8999	5,788.157
17421	20	6,715.15	0.8999	6,042.963
17422	19	6,433.70	0.8999	5,789.687
17423	21	6,833.52	0.8999	6,149.485
17424	21	7,030.90	0.8999	6,327.107
17425	22	7,283.43	0.8999	6,554.359
17426	20	6,755.68	0.8999	6,079.436
17427	21	6,910.07	0.9000	6,219.063
17428	20	6,531.13	0.8999	5,877.364

17429	20	6,594.75	0.9000	5,935.275
17430	22	7,260.37	0.8999	6,533.607
17431	20	6,720.00	0.8999	6,047.328
17432	21	7,038.60	0.8999	6,334.036
17433	21	7,024.70	0.9000	6,322.230
17434	19	6,428.07	0.8999	5,784.620
17435	21	6,833.57	0.8999	6,149.530
17436	21	7,115.60	0.8999	6,403.328
17437	21	7,054.98	0.8999	6,348.777
17438	20	6,705.22	0.9000	6,034.698
17439	21	6,951.90	0.8998	6,255.320
17440	21	6,907.84	0.8999	6,216.365
17441	21	7,003.80	0.9001	6,304.120
17442	21	7,055.48	0.9000	6,349.932
17443	19	6,327.70	0.8999	5,694.297
17444	22	7,233.05	0.8999	6,509.022
17445	21	6,813.20	0.8999	6,131.199
17446	22	7,240.70	0.8999	6,515.906
17447	22	7,237.32	0.8999	6,512.864
17448	21	6,817.25	0.8999	6,134.843
17449	20	6,562.53	0.8999	5,905.621
17450	21	7,072.80	0.8999	6,364.813
17451	21	7,031.40	0.8999	6,327.557
17452	21	7,021.60	0.8999	6,318.738
17453	21	7,100.80	0.8999	6,390.010
15911	7	2,172.60	0.9001	1,955.557
05795	21	6,809.03	0.8998	6,126.765
05796	21	7,006.42	0.8999	6,305.077
05797	19	6,346.70	0.8999	5,711.395
05798	20	6,674.05	0.8998	6,005.310
05799	22	7,432.10	0.8998	6,687.404
05800	20	6,848.80	0.8998	6,162.550
05801	21	7,082.30	0.8998	6,372.654
05802	21	6,994.67	0.8998	6,293.804
06115	21	6,975.40	0.8998	6,276.465
06116	20	6,630.00	0.8998	5,965.674
06117	20	6,736.70	0.8998	6,061.683
06118	22	7,416.90	0.8997	6,672.985
06119	21	7,008.20	0.8999	6,306.679
06120	21	7,060.60	0.8998	6,353.128
06121	18	5,963.10	0.8999	5,366.194
06122	18	5,871.80	0.8997	5,282.858
06123	23	7,428.40	0.8999	6,684.817
06124	15	4,918.70	0.8998	4,425.846

06125	22	7,330.60	0.8999	6,596.807
06126	22	7,145.30	0.8998	6,429.341
06127	22	7,318.70	0.8999	6,586.098
06128	22	7,378.40	0.8998	6,639.084
06129	11	3,626.30	0.8999	3,263.307
06285	20	6,810.40	0.8997	6,127.317
06286	21	6,887.40	0.8998	6,197.283
06287	22	7,536.67	0.8999	6,782.249
06288	21	6,890.75	0.8997	6,199.608
06289	20	6,677.50	0.8997	6,007.747
06290	18	6,076.05	0.8998	5,467.230
06291	21	6,851.10	0.8998	6,164.620
06292	22	7,371.30	0.8999	6,633.433
06293	17	5,706.70	0.8999	5,135.459
06294	22	7,409.50	0.8999	6,667.809
06295	21	7,095.40	0.8998	6,384.441
06296	21	6,976.25	0.8999	6,277.927
06297	22	7,167.10	0.8997	6,448.240
06298	22	7,229.30	0.8997	6,504.201
06299	20	6,785.10	0.8998	6,105.233
06300	20	6,698.35	0.8997	6,026.505
06301	21	6,969.45	0.8998	6,271.111
06302	19	6,324.65	0.8997	5,690.288
06303	22	7,449.60	0.8998	6,703.150
06304	21	7,147.55	0.8999	6,432.080
06305	20	6,863.15	0.8999	6,176.149
06306	20	6,763.35	0.8999	6,086.339
06307	6	1,987.40	0.8998	1,788.263
06308	21	7,216.20	0.8999	6,493.858
06309	14	4,810.90	0.8998	4,328.848
06310	20	6,578.70	0.8998	5,919.514
06311	21	6,993.10	0.8999	6,293.091
06312	18	6,001.05	0.8999	5,400.345
06313	20	6,607.05	0.8999	5,945.684
06477	21	7,143.70	0.8998	6,427.901
06478	21	7,089.65	0.8998	6,379.267
06479	23	7,780.95	0.8999	7,002.077
06480	21	6,889.75	0.8998	6,199.397
06481	20	6,693.45	0.8998	6,022.766
06482	23	7,621.15	0.8999	6,858.273
06483	23	7,798.77	0.8999	7,018.113
06484	23	7,793.95	0.8999	7,013.776
06485	23	7,693.15	0.8999	6,923.066
06486	24	8,106.75	0.8998	7,294.454

06487	26	8,745.30	0.8997	7,868.146
06488	24	8,097.35	0.8998	7,285.996
06489	23	7,726.40	0.8998	6,952.215
06490	23	7,776.95	0.8998	6,997.700
06491	24	8,104.75	0.8999	7,293.465
06492	24	8,210.85	0.8998	7,388.123
06493	24	8,090.10	0.8999	7,280.281
06494	24	8,268.35	0.8998	7,439.861
06495	23	7,925.90	0.8998	7,131.725
06496	16	5,291.10	0.8998	4,760.932
06497	23	7,658.10	0.8998	6,890.758
06498	23	7,725.40	0.8998	6,951.315
06499	24	7,998.63	0.8998	7,197.167
06500	24	8,042.30	0.8998	7,236.462
06501	22	7,549.06	0.8998	6,792.644
06830	25	8,458.22	0.8999	7,611.552
06831	24	7,836.65	0.8998	7,051.418
06832	24	7,971.35	0.8998	7,172.621
06833	25	8,412.20	0.8997	7,568.456
06834	25	8,215.90	0.8998	7,392.667
06835	24	8,244.05	0.8997	7,417.172
06836	25	8,357.50	0.8998	7,520.079
06837	23	7,760.40	0.8997	6,982.032
06838	24	8,090.40	0.8998	7,279.742
06839	25	8,336.20	0.8998	7,500.913
06840	25	8,503.70	0.8998	7,651.629
06841	23	7,736.85	0.8998	6,961.618
06842	25	8,262.20	0.8998	7,434.328
06843	24	7,845.45	0.8998	7,059.336
06844	25	8,390.00	0.8997	7,548.483
06845	25	8,247.70	0.8997	7,420.456
06846	25	8,427.00	0.8999	7,583.457
06847	23	7,649.25	0.8998	6,882.795
06848	25	8,212.60	0.8998	7,389.697
06849	25	7,859.00	0.8997	7,070.742
06850	25	8,389.90	0.8999	7,550.071
06851	25	8,235.60	0.8999	7,411.216
06852	24	8,099.25	0.8999	7,288.515
06853	13	4,364.25	0.8998	3,926.952
16463	14	4,428.28	0.8997	3,984.124
16766	21	6,683.17	0.8998	6,013.516
00153	20	6,696.10	0.8998	6,025.151
00247	20	6,765.71	0.9139	6,183.182
00248	21	7,062.45	0.8999	6,355.499

07264	24	8,381.47	0.8999	7,542.485
07265	24	8,203.37	0.8998	7,381.392
07266	24	8,346.44	0.8999	7,510.961
07267	23	7,945.60	0.8998	7,149.451
07268	24	7,828.73	0.8997	7,043.508
07269	24	8,309.77	0.8999	7,477.962
07270	24	8,320.33	0.8998	7,486.633
07271	23	8,013.00	0.8999	7,210.899
07272	25	8,137.87	0.8998	7,322.455
07273	24	8,152.32	0.8997	7,334.642
07274	25	8,510.67	0.8997	7,657.050
07275	24	8,209.42	0.8999	7,387.657
07276	25	8,160.20	0.8999	7,343.364
07277	25	8,441.65	0.8997	7,594.953
07278	23	7,595.69	0.8998	6,834.602
07279	23	8,090.63	0.8997	7,279.140
07280	25	8,008.75	0.8998	7,206.273
07281	24	8,240.80	0.8999	7,415.896
07282	25	8,542.67	0.8998	7,686.694
07283	23	7,705.00	0.8999	6,933.730
11161	24	8,116.05	0.8998	7,302.822
11162	22	7,499.93	0.8998	6,748.437
11163	22	7,395.72	0.8999	6,655.408
11164	23	7,790.60	0.8998	7,009.982
11165	24	8,041.67	0.8998	7,235.895
11166	24	8,043.70	0.8998	7,237.721
11167	24	8,090.85	0.8998	7,280.147
11168	24	8,037.40	0.8998	7,232.053
11169	23	7,769.80	0.8998	6,991.266
11170	23	7,620.47	0.8999	6,857.661
11171	24	8,047.39	0.8998	7,241.042
11172	25	8,321.97	0.8998	7,488.109
11173	23	7,708.43	0.8998	6,936.045
11174	23	7,812.37	0.8998	7,029.571
11175	23	7,622.54	0.8998	6,858.761
11176	21	7,008.72	0.8998	6,306.446
11177	24	7,973.80	0.8998	7,174.825
11178	22	7,416.83	0.8998	6,673.664
11179	20	6,623.74	0.8999	5,960.704
11180	19	6,295.36	0.8999	5,665.194
11181	13	4,197.50	0.8998	3,776.911
00250	20	6,831.90	0.9073	6,198.583
00251	21	7,157.54	0.8998	6,440.354
00252	24	8,001.50	0.8997	7,198.950

00335	22	7,455.35	0.8998	6,708.324
00336	24	7,942.95	0.8996	7,145.478
01256	24	8,231.48	0.8997	7,405.863
01257	23	7,779.58	0.8996	6,998.510
01258	24	8,424.72	0.8997	7,579.721
01259	24	8,157.55	0.8996	7,338.532
01260	26	8,704.17	0.8999	7,832.883
01261	25	8,392.45	0.9000	7,553.205
01262	24	8,248.60	0.8999	7,422.915
01263	25	8,154.08	0.8998	7,337.041
01264	25	8,455.56	0.8998	7,608.313
01265	24	8,264.38	0.8996	7,434.636
01266	25	8,423.90	0.8999	7,580.668
01267	25	8,539.92	0.8999	7,685.074
01268	25	8,390.82	0.8999	7,550.899
01269	24	8,232.95	0.8997	7,407.185
01270	24	8,156.87	0.8999	7,340.367
01271	25	7,926.87	0.8999	7,133.390
01286	24	8,246.48	0.8999	7,421.007
01287	25	8,475.80	0.8999	7,627.372
01288	25	8,437.22	0.8999	7,592.654
01289	25	8,384.60	0.8996	7,542.786
01290	25	8,330.37	0.8998	7,495.667
01291	23	7,902.17	0.8999	7,111.163
01292	25	8,368.84	0.8999	7,531.119
01293	24	7,926.17	0.8998	7,131.968
01294	24	8,254.14	0.8998	7,427.075
01295	25	8,499.53	0.8998	7,647.877
01296	25	8,296.48	0.8998	7,465.173
01297	25	8,409.87	0.8998	7,567.201
01298	24	7,850.61	0.8998	7,063.979
01299	24	8,147.85	0.8998	7,331.435
01300	26	8,477.05	0.9001	7,630.193
01301	25	8,486.43	0.8998	7,636.090
01304	24	8,096.07	0.8997	7,284.034
01305	25	8,527.14	0.8997	7,671.868
01308	25	8,534.25	0.8999	7,679.972
01309	25	8,516.78	0.8998	7,663.399
01310	25	8,561.33	0.8999	7,704.341
01311	25	8,275.45	0.8999	7,447.077
01312	24	8,075.13	0.8999	7,266.809
01313	21	6,996.43	0.8996	6,293.988
01314	25	8,372.30	0.8996	7,531.721
01315	25	8,510.25	0.8997	7,656.672

01316	25	8,445.70	0.8997	7,598.596
01317	25	8,312.33	0.8997	7,478.603
01318	22	7,531.88	0.8999	6,777.939
01319	20	6,382.07	0.8999	5,743.225
11889	24	8,463.47	0.9161	7,753.385
11890	24	8,410.05	0.9161	7,704.447
11893	24	8,265.52	0.9160	7,571.216
11894	24	8,215.00	0.9160	7,524.940
11895	24	8,280.42	0.9160	7,584.865
11896	25	8,687.35	0.9161	7,958.481
11897	25	8,516.07	0.9160	7,800.720
11899	26	8,879.12	0.9161	8,134.162
11900	26	8,716.20	0.9160	7,984.039
11901	25	8,524.30	0.9160	7,808.259
11908	24	8,272.87	0.9155	7,573.812
11909	24	8,191.12	0.9160	7,503.066
11910	24	8,184.17	0.9159	7,495.881
11911	25	8,594.80	0.9160	7,872.837
11912	24	8,286.92	0.9160	7,590.819
11913	24	8,250.83	0.9161	7,558.585
11914	23	7,779.05	0.9160	7,125.610
11915	23	7,751.10	0.9160	7,100.008
00072	23	7,751.00	0.8998	6,974.350
00073	21	7,098.40	0.8998	6,387.140
00074	21	7,216.15	0.8997	6,492.370
00207	21	7,111.70	0.9095	6,468.091
00208	21	7,102.40	0.9000	6,392.160
00209	22	7,709.12	0.8995	6,934.353
00210	22	7,332.95	0.8997	6,597.455
00211	22	7,701.05	0.8996	6,927.865
00212	23	7,677.35	0.8996	6,906.544
00213	21	6,922.37	0.8996	6,227.364
00214	24	7,993.40	0.8995	7,190.063
00215	23	7,739.83	0.8998	6,964.299
01306	24	8,132.72	0.8998	7,317.821
01307	25	8,528.55	0.8997	7,673.136
06381	20	6,754.55	0.8994	6,075.042
06382	21	6,800.80	0.8994	6,116.640
06383	19	6,378.90	0.8994	5,737.183
06386	20	6,562.55	0.8995	5,903.014
06387	20	6,594.63	0.8995	5,931.870
06388	21	6,837.28	0.8995	6,150.133
06389	20	6,487.48	0.8995	5,835.488
06390	20	6,545.06	0.8995	5,887.281

06391	19	6,194.23	0.8995	5,571.710
06393	13	4,337.03	0.8994	3,900.725
06394	20	6,418.38	0.8998	5,775.258
06395	21	6,772.19	0.9000	6,094.971
06396	20	6,670.36	0.9000	6,003.324
06397	18	6,044.72	0.9000	5,440.248
06398	11	3,498.76	0.8999	3,148.534
06399	15	4,995.59	0.8997	4,494.532
06527	19	6,394.78	0.8995	5,752.105
06528	19	6,288.08	0.8996	5,656.757
06529	20	6,685.37	0.8995	6,013.490
06530	18	6,052.02	0.8996	5,444.397
06531	19	6,360.24	0.8994	5,720.400
06532	19	6,243.33	0.8994	5,615.251
06533	21	6,974.17	0.8994	6,272.568
06534	21	6,955.70	0.8995	6,256.652
06535	21	6,805.08	0.8994	6,120.489
06536	20	6,608.64	0.8994	5,943.811
06537	19	6,288.95	0.8997	5,658.168
06538	19	6,274.27	0.8995	5,643.706
06539	21	6,707.72	0.8994	6,032.923
06540	16	5,278.84	0.8995	4,748.317
06541	20	6,695.87	0.8999	6,025.613
06542	18	5,996.26	0.9001	5,397.234
06543	13	4,212.98	0.9000	3,791.682
06544	12	4,075.90	0.9000	3,668.310
06605	20	6,684.40	0.8995	6,012.618
06606	19	6,382.78	0.8994	5,740.672
06607	19	6,473.00	0.8995	5,822.464
06608	19	6,276.43	0.8996	5,646.276
06609	20	6,609.64	0.8996	5,946.032
06610	19	6,322.57	0.8996	5,687.784
06611	20	6,618.44	0.8995	5,953.287
06612	19	6,263.31	0.8996	5,634.474
06613	19	6,337.56	0.8995	5,700.635
06614	19	6,325.68	0.8995	5,689.949
06615	19	6,354.68	0.8995	5,716.035
06616	19	6,289.12	0.8997	5,658.321
06617	20	6,663.62	0.8995	5,993.926
06618	21	6,958.62	0.8995	6,259.279
06619	21	6,964.97	0.8996	6,265.687
06620	19	6,376.63	0.8995	5,735.779
06621	19	6,395.80	0.8995	5,753.022
06622	11	3,567.45	0.8995	3,208.921

08143	20	6,692.90	0.9165	6,134.043
08144	19	6,517.07	0.9166	5,973.546
08145	21	6,876.44	0.9165	6,302.257
08146	20	6,674.67	0.9164	6,116.668
08147	20	6,508.54	0.9165	5,965.077
08148	21	6,986.61	0.9165	6,403.228
08149	21	6,886.02	0.9165	6,311.037
08150	18	6,071.33	0.9165	5,564.374
08151	21	6,912.38	0.9166	6,335.888
08152	20	6,686.48	0.9166	6,128.828
08153	20	6,686.90	0.9166	6,129.213
17942	12	3,731.75	0.9150	3,414.551
15436	22	7,087.55	0.8999	6,378.086
15437	22	7,308.15	0.8997	6,575.143
15438	22	7,184.95	0.8998	6,465.018
15439	23	7,482.40	0.8997	6,731.915
15440	21	6,955.05	0.8997	6,257.458
15441	20	6,519.65	0.8997	5,865.729
15442	22	7,128.25	0.8999	6,414.712
15443	22	7,292.30	0.8998	6,561.612
15444	22	7,198.83	0.8998	6,477.507
15445	21	7,012.33	0.8998	6,309.695
15446	22	7,249.23	0.8998	6,522.857
15447	21	6,769.98	0.8999	6,092.305
15448	22	7,213.30	0.8998	6,490.527
15449	18	6,027.50	0.8997	5,422.942
15450	20	6,595.20	0.8998	5,934.361
15451	21	6,855.08	0.8997	6,167.515
15452	20	6,454.20	0.8997	5,806.844
15453	19	6,411.48	0.8998	5,769.050
15455	15	4,810.95	0.9160	4,406.830
15515	14	4,433.48	0.8998	3,989.245
15528	15	4,899.00	0.9000	4,409.100
15582	11	3,475.70	0.9000	3,128.130
15712	10	3,305.87	0.9001	2,975.614
15999	9	2,939.05	0.8999	2,644.851
16217	9	2,869.95	0.9000	2,582.955
00001	19	6,523.90	0.9002	5,872.815
00002	20	6,732.97	0.9001	6,060.346
00003	20	6,764.30	0.9002	6,089.223
00004	20	6,868.40	0.9003	6,183.621
00005	19	6,388.55	0.9000	5,749.695
00006	19	6,550.03	0.9001	5,895.682
00007	20	6,725.40	0.9002	6,054.205

00008	20	6,596.48	0.9000	5,936.832
00009	20	6,743.93	0.9000	6,069.537
00010	19	6,500.75	0.8999	5,850.025
00011	20	6,672.55	0.8999	6,004.628
00012	20	6,620.52	0.9002	5,959.792
00013	21	6,977.18	0.9000	6,279.462
00014	20	6,661.90	0.8999	5,995.044
00015	21	6,832.35	0.9001	6,149.798
00016	21	6,921.17	0.9000	6,229.053
00017	18	6,168.95	0.9000	5,552.055
00018	19	6,356.25	0.9131	5,803.892
00042	20	6,872.10	0.8997	6,182.828
00043	19	6,453.65	0.8998	5,806.994
00044	21	7,268.30	0.8997	6,539.290
00045	13	4,532.00	0.8997	4,077.440
00046	21	7,220.85	0.8998	6,497.321
00047	25	8,600.47	0.8997	7,737.843
00048	22	7,256.70	0.8999	6,530.304
00049	20	6,788.00	0.8997	6,107.164
00050	20	6,814.85	0.8998	6,132.002
00051	21	7,228.80	0.8998	6,504.474
00052	20	6,840.60	0.8999	6,155.856
00053	23	7,769.25	0.8998	6,990.771
00054	21	7,141.25	0.8997	6,424.983
00055	23	7,711.05	0.8998	6,938.403
00056	22	7,398.40	0.8997	6,656.340
00057	20	6,742.95	0.8998	6,067.306
00058	17	5,647.65	0.8997	5,081.191
00059	18	6,159.45	0.8997	5,541.657
00060	9	3,072.25	0.8998	2,764.411
00066	21	7,182.65	0.9117	6,548.422
00067	21	7,150.45	0.8999	6,434.690
00103	21	7,074.82	0.9000	6,367.338
00104	22	7,385.63	0.9000	6,647.067
00105	22	7,332.80	0.9000	6,599.520
00142	9	3,018.58	0.9000	2,716.722
00152	17	5,841.30	0.9123	5,329.018
00154	23	7,601.60	0.9001	6,842.200
00309	6	2,001.05	0.9000	1,800.945
00341	15	5,070.25	0.9003	4,564.746
00382	10	3,267.35	0.9144	2,987.665
00462	20	6,748.15	0.8998	6,071.985
00464	19	6,341.83	0.8999	5,707.013
00465	20	6,720.60	0.8999	6,047.868

00485	20	6,578.55	0.8998	5,919.379
00486	20	6,765.37	0.9001	6,089.510
00487	19	6,367.58	0.8999	5,730.185
00488	18	5,929.60	0.9000	5,336.640
00498	19	6,391.67	0.8999	5,751.864
00499	20	6,564.40	0.9000	5,907.960
00500	20	6,813.25	0.9000	6,131.925
00860	7	2,126.00	0.9001	1,913.613
00917	6	2,084.15	0.9000	1,875.735
00964	7	2,124.00	0.9000	1,911.600
00966	6	2,032.35	0.8999	1,828.912
02430	9	2,739.10	0.8999	2,464.916
04324	26	9,014.60	0.9000	8,113.140
04325	26	8,781.30	0.9000	7,903.170
05787	20	6,660.43	0.8998	5,993.055
05788	17	5,616.00	0.8998	5,053.277
05789	22	7,499.17	0.8999	6,748.503
05790	20	6,731.90	0.8997	6,056.690
05791	22	7,409.60	0.8997	6,666.417
05792	22	7,583.45	0.8998	6,823.588
05793	22	7,282.80	0.8998	6,553.063
05794	22	7,380.90	0.8998	6,641.334
05803	18	6,182.60	0.8999	5,563.722
05804	19	6,304.47	0.8999	5,673.393
05805	19	6,449.00	0.8998	5,802.810
05806	21	7,020.40	0.8999	6,317.658
05807	22	7,254.80	0.9000	6,529.320
05808	21	7,008.25	0.8999	6,306.724
05809	20	6,647.15	0.8998	5,981.106
05810	21	6,897.80	0.8998	6,206.640
05811	20	6,684.55	0.9000	6,016.095
05812	13	4,129.90	0.8999	3,716.497
06105	19	6,468.95	0.8998	5,820.761
06106	22	7,425.10	0.8999	6,681.847
06107	20	6,762.60	0.8998	6,084.987
06108	22	7,407.50	0.8999	6,666.009
06109	21	7,033.10	0.8998	6,328.383
06110	18	6,022.00	0.8998	5,418.596
06111	22	7,270.20	0.8998	6,541.726
06112	21	7,048.25	0.8998	6,342.015
06113	22	7,420.90	0.8998	6,677.326
06114	20	6,829.90	0.8998	6,145.544
08505	22	7,574.02	0.9166	6,942.347
08506	24	8,154.60	0.9166	7,474.506

08507	21	7,152.67	0.9167	6,556.853
08510	22	7,404.12	0.9167	6,787.357
08512	18	5,955.14	0.9167	5,459.077
08514	9	3,059.05	0.9167	2,804.231
08526	18	5,974.50	0.9166	5,476.227
08527	16	5,193.21	0.9166	4,760.096
08528	22	7,444.87	0.9165	6,823.223
08530	23	7,757.85	0.9166	7,110.845
08531	20	6,589.52	0.9166	6,039.954
08532	15	4,846.30	0.9166	4,442.119
08533	23	7,662.20	0.9166	7,023.173
08534	23	7,815.32	0.9165	7,162.741
08535	23	7,874.32	0.9166	7,217.602
08536	16	5,359.08	0.9166	4,912.133
08537	21	6,756.50	0.9166	6,193.008
13199	24	7,660.93	0.8999	6,894.071
13200	23	7,632.95	0.8999	6,868.892
13201	24	7,885.70	0.8999	7,096.341
13202	23	7,628.38	0.8998	6,864.016
13203	23	7,569.23	0.8999	6,811.550
13204	23	7,683.40	0.8998	6,913.523
13205	23	7,718.63	0.8998	6,945.223
13206	22	7,429.72	0.8998	6,685.262
13207	24	7,953.03	0.8998	7,156.136
13208	23	7,632.97	0.8998	6,868.146
13209	24	8,300.62	0.9000	7,470.558
13210	21	7,281.33	0.8999	6,552.469
13211	23	7,948.96	0.8999	7,153.269
13212	22	7,590.10	0.8998	6,829.572
13213	22	7,565.05	0.8999	6,807.788
13214	23	7,941.27	0.8999	7,146.349
13215	20	6,976.83	0.8999	6,278.449
13216	5	1,557.50	0.9006	1,402.685
13508	23	7,607.63	0.8998	6,845.345
13509	23	7,735.84	0.8999	6,961.482
13510	23	7,726.10	0.8999	6,952.717
13511	24	7,671.57	0.8998	6,902.879
13512	24	7,901.85	0.8998	7,110.085
13513	23	7,530.82	0.8998	6,776.232
13514	23	7,513.84	0.8998	6,760.953
13515	23	7,749.07	0.8998	6,972.613
13516	23	7,747.43	0.8998	6,971.138
13517	23	7,636.10	0.8999	6,871.726
13518	23	7,734.03	0.8999	6,959.854

13519	21	7,320.10	0.8998	6,586.626
13520	23	7,535.50	0.8998	6,780.443
13521	23	7,928.45	0.8998	7,134.019
13522	23	7,753.05	0.8998	6,976.194
13523	23	7,666.10	0.8998	6,897.957
13524	23	7,626.70	0.8998	6,862.505
13782	22	7,598.90	0.8997	6,836.730
13783	22	7,549.00	0.8997	6,791.835
13784	20	6,910.25	0.8997	6,217.152
13785	21	7,243.60	0.8997	6,517.067
13786	21	7,120.15	0.8997	6,405.999
13787	16	5,347.76	0.8997	4,811.380
13808	24	7,919.09	0.8997	7,124.805
13809	24	7,885.49	0.8998	7,095.364
13810	24	7,859.83	0.8998	7,072.275
13811	24	7,961.14	0.8998	7,163.434
13812	23	7,778.30	0.8999	6,999.692
13813	23	7,643.27	0.8998	6,877.414
13814	24	7,865.15	0.8998	7,077.062
13815	22	7,486.90	0.8998	6,736.713
13816	23	7,823.60	0.8998	7,039.675
13817	23	7,872.86	0.8998	7,083.999
13818	22	7,599.80	0.8998	6,838.300
13819	25	8,519.30	0.8998	7,665.666
13820	22	7,538.55	0.8998	6,783.187
13821	24	8,245.03	0.8998	7,418.878
13846	25	8,223.40	0.8997	7,398.593
13847	22	7,474.50	0.8997	6,724.808
13848	24	8,061.37	0.8997	7,252.815
13849	24	8,107.23	0.8997	7,294.075
13850	23	7,732.05	0.8997	6,956.525
13851	23	7,816.20	0.8997	7,032.235
13852	23	7,725.74	0.8997	6,950.848
15054	24	8,178.50	0.8998	7,359.014
15055	21	6,932.60	0.8998	6,237.953
15184	14	4,277.40	0.9000	3,849.660
15295	20	6,818.28	0.8998	6,135.088
15296	22	7,448.57	0.8999	6,702.968
15297	23	7,719.40	0.8999	6,946.688
15298	22	7,490.84	0.8999	6,741.007
15299	22	7,285.60	0.8998	6,555.583
15300	22	7,396.17	0.8998	6,655.074
15301	24	8,153.22	0.8997	7,335.452
15302	22	7,376.50	0.8998	6,637.375

15303	21	6,975.73	0.8999	6,277.459
15304	21	6,944.63	0.8999	6,249.473
15305	21	7,050.84	0.8998	6,344.346
15306	18	6,118.83	0.8997	5,505.111
15307	24	7,937.72	0.8998	7,142.360
15308	22	7,256.50	0.8997	6,528.673
15309	22	7,277.18	0.8998	6,548.007
15310	21	7,018.63	0.8997	6,314.661
15311	21	6,929.07	0.8997	6,234.084
15312	20	6,604.57	0.8998	5,942.792
15313	22	7,323.70	0.8998	6,589.865
15314	21	6,984.73	0.8997	6,284.162
15520	7	2,083.40	0.9000	1,875.060
15600	9	2,781.45	0.8993	2,501.358
15610	6	2,032.97	0.9000	1,829.673
15657	7	2,138.82	0.9001	1,925.152
15684	7	2,299.18	0.9000	2,069.262
15874	17	5,440.67	0.8998	4,895.515
15897	21	6,888.16	0.8997	6,197.278
15898	20	6,698.96	0.8997	6,027.054
15899	22	7,412.32	0.8997	6,668.864
15900	20	6,747.85	0.8998	6,071.715
15901	21	7,114.00	0.8997	6,400.466
15902	20	6,706.30	0.8997	6,033.658
15903	22	7,179.20	0.8997	6,459.126
15904	21	7,093.76	0.8998	6,382.965
15905	20	6,689.66	0.8997	6,018.687
15906	19	6,243.36	0.8997	5,617.151
15907	18	5,981.05	0.8998	5,381.749
15946	21	7,151.07	0.8999	6,435.248
15947	22	7,557.00	0.8998	6,799.789
15948	21	7,170.50	0.8998	6,452.016
15949	22	7,628.76	0.8999	6,865.121
15950	22	7,474.50	0.8999	6,726.303
15951	19	6,474.54	0.8999	5,826.439
15952	23	7,628.42	0.8999	6,864.815
15953	20	6,658.25	0.8999	5,991.759
15954	22	7,490.30	0.8999	6,740.521
15955	20	6,710.90	0.8999	6,039.139
15956	22	7,398.32	0.8998	6,657.008
15957	22	7,540.26	0.8998	6,784.726
15958	23	7,852.74	0.8998	7,065.895
15959	22	7,477.30	0.8998	6,728.075
15960	23	7,852.62	0.8997	7,065.002

15961	17	5,829.00	0.8998	5,244.934
15962	23	7,751.70	0.8998	6,974.980
15963	20	6,813.12	0.8998	6,130.445
15964	22	7,478.30	0.8999	6,729.722
15965	22	7,473.86	0.8998	6,724.979
15966	20	6,690.90	0.8999	6,021.141
15967	23	7,813.50	0.8999	7,031.369
15968	21	7,125.64	0.8998	6,411.651
15969	17	5,645.24	0.8999	5,080.151
15970	22	7,451.20	0.8998	6,704.590
15971	23	7,785.26	0.8998	7,005.177
15972	21	7,194.60	0.8998	6,473.701
15973	22	7,498.52	0.8999	6,747.918
15974	23	7,841.44	0.8999	7,056.512
15975	17	5,735.34	0.8999	5,161.232
15976	21	7,128.02	0.8999	6,414.505
15977	22	7,599.10	0.8998	6,837.670
15978	20	6,769.00	0.8999	6,091.423
15979	21	7,209.17	0.8999	6,487.532
15980	19	6,513.78	0.8999	5,861.751
15981	23	7,800.46	0.8999	7,019.634
15982	21	7,156.82	0.8999	6,440.422
15983	17	5,719.30	0.8998	5,146.226
15992	7	2,354.03	0.9000	2,118.627
16004	13	4,279.45	0.8999	3,851.077
16035	24	8,014.46	0.8997	7,210.610
16036	22	7,381.66	0.8997	6,641.280
16037	21	6,942.32	0.8998	6,246.700
16038	20	6,742.14	0.8997	6,065.903
16039	19	6,333.05	0.8998	5,698.478
16040	20	6,743.36	0.8998	6,067.675
16041	23	7,521.14	0.8998	6,767.522
16042	21	7,039.50	0.8998	6,334.142
16043	18	5,861.30	0.8998	5,273.998
16044	22	7,339.77	0.8997	6,603.591
16045	22	7,326.50	0.8998	6,592.385
16046	19	6,230.55	0.8998	5,606.249
16047	23	7,569.34	0.8998	6,810.892
16048	17	5,574.24	0.8997	5,015.144
16049	20	6,656.74	0.8997	5,989.069
16050	21	6,866.44	0.8998	6,178.423
16051	21	6,935.40	0.8997	6,239.779
16052	21	6,911.00	0.8997	6,217.827
16053	24	7,980.74	0.8997	7,180.272

16054	21	7,025.03	0.8997	6,320.419
16055	21	6,906.20	0.8998	6,214.199
16056	20	6,566.62	0.8998	5,908.645
16057	21	6,891.80	0.8998	6,201.242
16058	19	6,036.12	0.8997	5,430.697
16059	23	7,734.90	0.8998	6,959.863
16060	16	5,382.74	0.8998	4,843.389
16061	22	7,336.50	0.8997	6,600.649
16062	20	6,690.95	0.8998	6,020.517
16063	23	7,772.60	0.8998	6,993.785
16064	20	6,825.90	0.8998	6,141.945
16065	20	6,487.93	0.8998	5,837.839
16066	20	6,554.68	0.8998	5,897.901
16067	21	6,978.56	0.8998	6,279.308
16068	20	6,687.62	0.8998	6,017.520
16069	15	5,011.82	0.8998	4,509.636
16387	10	3,209.55	0.8999	2,888.274
16428	23	7,866.97	0.8997	7,077.913
16439	23	7,764.06	0.8998	6,986.101
16440	22	6,939.80	0.8997	6,243.738
16441	19	6,011.96	0.8997	5,408.960
16442	10	3,255.10	0.8997	2,928.613
16454	23	7,334.92	0.8997	6,599.228
16455	22	7,166.16	0.8997	6,447.394
16456	21	7,041.56	0.8997	6,335.292
16457	23	7,365.80	0.8997	6,627.010
16458	23	7,529.28	0.8997	6,774.093
16459	22	7,066.62	0.8997	6,357.838
16460	21	6,666.97	0.8997	5,998.273
16461	23	7,481.62	0.8996	6,730.465
16462	23	7,460.66	0.8998	6,713.102
16464	22	7,305.77	0.8998	6,573.732
16465	23	7,540.60	0.8998	6,785.032
16466	19	6,074.80	0.8997	5,465.498
16467	21	6,694.76	0.8997	6,023.276
16468	22	7,177.16	0.8998	6,458.009
16469	19	6,167.20	0.8997	5,548.630
16470	20	6,441.40	0.8997	5,795.328
16471	15	4,829.70	0.8997	4,345.281
16472	16	5,013.14	0.8997	4,510.322
16498	17	5,441.95	0.8998	4,896.667
16506	21	7,059.62	0.9001	6,354.364
16507	22	7,355.38	0.9001	6,620.578
16508	23	7,616.50	0.9001	6,855.612

16509	23	7,645.97	0.9002	6,882.902
16510	22	7,188.43	0.9002	6,471.025
16511	23	7,658.66	0.9002	6,894.326
16512	23	7,471.10	0.9001	6,724.737
16513	22	7,269.27	0.9001	6,543.070
16514	22	7,514.20	0.9002	6,764.283
16515	15	4,858.70	0.9002	4,373.802
16754	23	7,677.62	0.8997	6,907.555
16755	23	7,536.22	0.8998	6,781.091
16756	22	7,327.67	0.8998	6,593.437
16757	23	7,614.22	0.8998	6,851.275
16758	23	7,578.56	0.8998	6,819.188
16759	22	7,191.06	0.8998	6,470.516
16760	24	7,637.80	0.8999	6,873.256
16761	23	7,303.67	0.8998	6,571.842
16762	20	6,572.12	0.8998	5,913.594
16763	18	5,954.86	0.8998	5,358.183
16764	22	6,981.12	0.8998	6,281.612
16765	22	7,184.00	0.8998	6,464.163
16767	22	7,148.30	0.8998	6,432.040
16768	23	7,457.91	0.8999	6,711.373
16769	22	7,012.26	0.8998	6,309.632
16770	20	6,434.68	0.8998	5,789.925
16771	24	7,852.20	0.8998	7,065.410
16772	22	7,071.30	0.8998	6,362.756
16773	22	7,136.50	0.8999	6,422.136
16774	20	6,410.40	0.8998	5,768.078
16775	23	7,457.72	0.8998	6,710.456
16776	17	5,304.40	0.8999	4,773.430
16777	24	7,811.12	0.9000	7,030.008
16778	24	7,623.88	0.8998	6,859.967
16779	24	7,717.04	0.8998	6,943.793
16780	21	6,852.92	0.8998	6,166.257
16781	21	6,556.55	0.8998	5,899.584
16782	23	7,748.30	0.8999	6,972.695
16783	17	5,395.50	0.8998	4,854.871
16784	21	6,798.76	0.8998	6,117.524
16785	23	7,348.27	0.8998	6,611.973
16786	23	7,642.84	0.8998	6,877.027
16787	23	7,860.20	0.8999	7,073.394
16788	22	7,292.10	0.8998	6,561.432
16789	22	7,376.40	0.8998	6,637.285
16790	24	7,642.60	0.8998	6,876.811
16791	24	7,780.80	0.8998	7,001.164

17150	23	7,761.50	0.9002	6,986.902
17151	21	7,109.17	0.9001	6,398.964
17152	21	7,087.50	0.9002	6,380.168
17153	10	3,281.64	0.9001	2,953.804
17167	24	7,531.40	0.9002	6,779.766
17168	24	7,762.13	0.9001	6,986.693
17169	23	7,306.57	0.9002	6,577.374
17170	24	7,636.12	0.9002	6,874.035
17171	23	7,500.68	0.9001	6,751.362
17172	22	7,163.78	0.9001	6,448.118
17173	23	7,426.40	0.9001	6,684.503
17174	24	7,639.46	0.9001	6,876.278
17175	24	7,738.90	0.9002	6,966.558
17176	23	7,386.10	0.9001	6,648.229
17177	22	7,144.64	0.9003	6,432.319
17178	20	6,290.94	0.9003	5,663.733
17179	21	6,713.63	0.9002	6,043.610
17180	22	7,064.52	0.9002	6,359.481
17181	21	6,895.15	0.9001	6,206.325
17182	23	7,304.10	0.9001	6,574.420
17183	20	6,405.20	0.9001	5,765.321
17184	22	7,178.34	0.9001	6,461.224
17185	24	7,635.70	0.9002	6,873.657
17186	24	7,752.90	0.9001	6,978.385
17187	19	6,075.90	0.9002	5,469.525
17745	24	8,196.95	0.8999	7,376.435
17746	23	7,678.35	0.8999	6,909.747
17747	22	7,304.45	0.8999	6,573.275
17748	23	7,743.44	0.8998	6,967.547
17749	23	7,736.64	0.8998	6,961.429
17750	25	8,277.00	0.8999	7,448.472
17751	23	7,800.98	0.8999	7,020.102
17752	22	7,260.22	0.8999	6,533.472
17753	18	5,974.69	0.8999	5,376.624
18146	7	2,136.11	0.9000	1,922.499
18227	10	3,180.95	0.9001	2,863.173
18275	7	2,111.04	0.9000	1,899.936
00001	22	7,516.35	0.8999	6,763.963
00002	22	7,572.20	0.8999	6,814.223
00003	22	7,610.30	0.8998	6,847.748
00072	22	7,495.60	0.9000	6,746.040
00073	23	7,776.35	0.8999	6,997.937
00478	25	8,394.57	0.8995	7,550.916
00479	23	7,829.50	0.8995	7,042.635

00480	24	7,959.57	0.8994	7,158.837
00481	24	8,218.12	0.8995	7,392.199
00482	25	8,453.60	0.8993	7,602.322
00483	23	7,877.85	0.8994	7,085.338
00484	24	8,040.02	0.8995	7,231.998
00485	25	8,487.85	0.8995	7,634.821
00486	26	8,707.73	0.8994	7,831.732
00487	26	8,695.92	0.8993	7,820.241
00488	24	8,036.02	0.8994	7,227.596
00489	24	7,831.56	0.8994	7,043.705
00490	25	8,520.33	0.8996	7,664.889
01561	25	8,385.85	0.8997	7,544.749
01562	24	8,273.80	0.8997	7,443.938
01563	23	7,938.85	0.8998	7,143.377
01564	23	7,864.60	0.8997	7,075.781
01565	25	8,474.25	0.8998	7,625.130
01566	24	8,131.35	0.8998	7,316.589
01567	25	8,330.58	0.8998	7,495.856
01568	23	7,590.15	0.8998	6,829.617
01573	23	7,934.73	0.8997	7,138.877
01574	24	8,002.33	0.8996	7,198.896
01575	23	7,910.48	0.8996	7,116.268
01576	23	7,807.32	0.8996	7,023.465
01577	21	7,356.52	0.8997	6,618.661
01578	26	8,765.60	0.8996	7,885.534
01579	26	8,876.05	0.8996	7,984.895
01580	24	8,022.27	0.8997	7,217.636
01581	20	6,670.85	0.8997	6,001.764
01864	25	8,374.88	0.8997	7,534.880
01865	23	7,862.75	0.8997	7,074.116
01866	24	8,111.80	0.8996	7,297.375
01867	23	7,771.65	0.8997	6,992.154
01868	27	9,088.35	0.8997	8,176.788
01869	21	7,212.05	0.8997	6,488.681
01870	23	7,831.90	0.8997	7,046.360
01871	24	8,013.07	0.8996	7,208.558
01872	25	8,501.10	0.8998	7,649.290
01873	26	8,629.30	0.8998	7,764.644
01874	25	8,376.43	0.8997	7,536.274
01875	27	8,965.60	0.8997	8,066.350
01876	25	8,386.50	0.8997	7,545.334
01921	18	6,272.83	0.8993	5,641.156
01922	21	7,210.65	0.8994	6,485.259
01923	24	8,091.58	0.8994	7,277.567

13825	25	8,508.75	0.8994	7,652.770
13826	24	7,990.07	0.8994	7,186.269
13827	24	8,020.23	0.8996	7,214.999
13828	23	8,006.65	0.8994	7,201.181
13829	27	9,077.30	0.8995	8,165.031
13830	24	8,104.22	0.8996	7,290.556
13831	12	4,021.47	0.8995	3,617.312
13841	23	7,815.93	0.8995	7,030.429
13842	24	8,091.14	0.8994	7,277.171
13843	23	7,875.12	0.8995	7,083.670
13844	24	8,130.00	0.8994	7,312.122
13845	25	8,305.54	0.8994	7,470.003
13846	25	8,574.49	0.8994	7,711.896
13847	24	8,151.90	0.8995	7,332.634
13848	24	8,237.15	0.8993	7,407.669
13849	27	9,109.38	0.8994	8,192.976
13850	25	8,701.50	0.8993	7,825.259
13851	24	8,093.30	0.8994	7,279.114
13852	23	8,081.17	0.8995	7,269.012
13853	25	8,265.65	0.8995	7,434.952
11891	22	7,628.61	0.9161	6,988.570
11892	23	7,733.00	0.9161	7,084.201
11898	22	7,496.90	0.9160	6,867.160
11916	16	5,435.85	0.9161	4,979.782
16279	7	2,167.32	0.8999	1,950.371
00018	30	9,609.80	0.8993	8,642.093
00019	24	8,148.80	0.8993	7,328.216
00020	27	9,157.48	0.8993	8,235.322
00041	22	7,436.58	0.8993	6,687.716
00042	24	8,042.83	0.8993	7,232.917
00043	24	8,090.70	0.8992	7,275.157
00044	22	7,437.93	0.8992	6,688.187
00045	24	8,147.45	0.8993	7,327.002
00046	29	9,487.08	0.8993	8,531.731
00047	10	3,310.70	0.8993	2,977.313
00283	22	7,259.95	0.8997	6,531.777
00284	22	7,738.70	0.8999	6,964.056
00285	21	7,215.60	0.8997	6,491.875
00380	14	4,631.35	0.9090	4,209.897
00381	18	6,115.85	0.8998	5,503.042
00423	26	8,971.24	0.9167	8,223.936
00424	24	8,287.53	0.9167	7,597.179
00425	22	7,602.62	0.9166	6,968.561
00426	22	7,540.88	0.9167	6,912.725

00427	24	8,461.40	0.9167	7,756.565
00428	25	8,384.40	0.9167	7,685.979
00429	25	8,680.25	0.9167	7,957.185
00430	23	7,848.26	0.9166	7,193.715
00431	30	10,332.86	0.9166	9,471.099
00432	14	4,548.88	0.9167	4,169.958
00459	25	8,571.04	0.9166	7,856.215
00460	24	8,038.40	0.9166	7,367.997
00461	23	7,798.70	0.9166	7,148.288
00462	24	8,102.52	0.9166	7,426.770
00463	25	8,508.17	0.9166	7,798.589
00464	16	5,084.48	0.9166	4,660.434
00465	24	8,024.00	0.9166	7,354.798
00466	23	7,832.13	0.9166	7,178.930
00467	23	7,714.18	0.9166	7,070.817
00468	25	8,181.53	0.9166	7,499.190
00783	25	8,118.46	0.9117	7,401.600
00784	22	7,257.77	0.9108	6,610.377
00785	16	5,059.55	0.9100	4,604.191
00786	19	6,218.30	0.9166	5,699.694
00787	26	8,538.23	0.9166	7,826.142
00788	27	8,788.73	0.9166	8,055.750
00789	29	9,434.85	0.8997	8,488.535
00825	21	7,323.54	0.9166	6,712.757
00826	23	8,100.42	0.9166	7,424.845
00827	12	3,779.80	0.9165	3,464.187
01340	26	8,548.17	0.8965	7,663.434
01341	25	8,122.08	0.8965	7,281.445
01342	18	5,826.15	0.8965	5,223.143
01343	25	8,272.24	0.8964	7,415.236
02922	27	8,987.00	0.8995	8,083.807
02923	25	8,573.90	0.8996	7,713.080
02924	28	9,119.50	0.8996	8,203.902
02925	27	9,104.92	0.8996	8,190.786
02926	24	7,917.30	0.8996	7,122.403
02927	22	7,313.02	0.8996	6,578.793
06846	25	8,370.64	0.8996	7,530.228
13786	26	8,909.47	0.9166	8,166.420
13787	24	8,185.00	0.9166	7,502.371
13788	19	6,611.91	0.9166	6,060.477
13789	22	7,483.90	0.9166	6,859.743
13790	22	7,232.35	0.9166	6,629.172
00245	23	7,579.08	0.8997	6,818.898
00246	23	7,575.65	0.8997	6,815.812

00247	23	7,555.60	0.8996	6,797.018
00248	23	7,516.80	0.8996	6,762.113
06839	23	7,776.30	0.8997	6,996.337
06840	25	8,290.70	0.8997	7,459.143
06845	25	8,390.67	0.8997	7,549.086
06847	25	8,239.38	0.8996	7,412.146
10108	25	8,398.92	0.9166	7,698.450
10109	25	8,388.73	0.9166	7,689.110
10110	25	8,502.60	0.9166	7,793.483
10111	28	9,877.08	0.9165	9,052.344
10112	23	8,121.55	0.9165	7,443.401
10113	23	8,125.70	0.9166	7,448.017
10114	25	8,834.02	0.9166	8,097.263
10115	24	8,366.47	0.9166	7,668.706
00220	23	7,750.07	0.8997	6,972.738
03040	23	7,582.40	0.8997	6,821.885
03319	22	7,270.64	0.8996	6,540.668
04214	18	6,097.10	0.8996	5,484.951
04413	16	5,303.49	0.8997	4,771.550
04767	20	6,704.87	0.8996	6,031.701
04843	19	6,336.07	0.8997	5,700.562
06454	16	5,285.01	0.8998	4,755.452
06708	17	5,812.95	0.8995	5,228.749
06737	19	6,171.32	0.8998	5,552.954
06882	18	6,223.35	0.8998	5,599.770
07177	20	6,435.66	0.8998	5,790.807
12129	20	7,130.04	0.8998	6,415.610
24431	18	5,983.25	0.8997	5,383.130
25415	11	3,679.82	0.8998	3,311.102
26956	19	7,008.33	0.9001	6,308.198
27644	18	6,655.16	0.8997	5,987.647
28268	21	7,474.15	0.9000	6,726.735
29403	22	7,760.32	0.9001	6,985.064
T 001	19	6,732.28	0.8999	6,058.379
T 100	19	6,645.69	0.9002	5,982.450
T 124	21	6,814.49	0.8998	6,131.678
T 140	13	4,454.68	0.8998	4,008.321
T 156	20	6,487.23	0.9001	5,839.156
T 188	17	5,634.52	0.8999	5,070.505
00274	19	6,945.62	0.9166	6,366.355
00316	15	5,002.02	0.8994	4,498.817
04703	10	3,450.43	0.8993	3,102.972
06728	23	7,869.90	0.8998	7,081.336
19803	13	4,485.17	0.9029	4,049.660

20449	21	7,331.72	0.8996	6,595.615
20638	24	8,201.82	0.8994	7,376.717
22537	19	6,508.11	0.8998	5,855.997
22653	17	6,055.13	0.8994	5,445.984
23393	20	6,885.01	0.8993	6,191.689
08991	21	7,337.95	0.9004	6,607.090
00483	18	6,425.99	0.9166	5,890.062
02256	19	6,742.59	0.8994	6,064.285
07111	17	6,364.14	0.9166	5,833.371
11413	22	7,836.62	0.8995	7,049.040
13075	20	6,762.68	0.8995	6,083.031
13954	18	6,084.69	0.8994	5,472.570
14684	20	6,794.17	0.8993	6,109.997
15213	13	4,435.53	0.8998	3,991.090
15811	18	6,132.95	0.8995	5,516.589
16117	16	5,480.06	0.9166	5,023.023
17154	23	8,139.66	0.8995	7,321.624
19335	17	5,690.62	0.8995	5,118.713
19613	22	8,140.80	0.9156	7,453.716
20128	14	4,721.50	0.8998	4,248.406
20188	14	4,598.48	0.8998	4,137.712
22185	20	6,877.60	0.8996	6,187.089
23167	18	6,228.21	0.8994	5,601.652
00005	1	593.10	0.8998	533.671
00006	2	918.90	0.8996	826.642
00007	5	2,023.90	0.8998	1,821.105
00008	9	3,893.40	0.9000	3,504.060
00009	14	5,845.00	0.9000	5,260.500
00010	4	1,547.70	0.9000	1,392.930
00011	2	506.80	0.8992	455.714
00012	9	3,937.80	0.8997	3,542.838
00015	9	3,422.25	0.8999	3,079.682
00016	6	2,293.90	0.8999	2,064.280
00017	8	3,476.00	0.9000	3,128.400
00037	2	543.55	0.8992	488.760
00044	18	6,705.50	0.9000	6,034.950
00045	18	7,004.75	0.9000	6,304.275
00046	18	6,819.90	0.9001	6,138.591
00047	15	5,706.00	0.8998	5,134.258
00049	23	7,102.90	0.9000	6,392.610
00050	19	5,812.53	0.9000	5,231.277
00051	16	4,839.50	0.8999	4,355.066
12A	10	4,153.80	0.8998	3,737.589
12B	9	3,968.80	0.8998	3,571.126

12C	7	2,971.80	0.8996	2,673.431
17A	9	3,632.20	0.9000	3,268.980
17B	7	2,905.80	0.9000	2,615.220
00002	1	260.13	0.8998	234.064
00003	1	354.66	0.8999	319.158
00004	1	527.52	0.8999	474.715
00007	11	3,753.27	0.9018	3,384.698
00008	21	7,250.57	0.8988	6,516.812
00017	2	889.04	0.8962	796.757
00019	8	2,955.15	0.8997	2,658.748
00020	10	4,393.10	0.9000	3,953.790
00021	5	1,907.35	0.8998	1,716.233
00022	1	239.95	0.8996	215.859
00024	2	564.50	0.9000	508.050
00025	11	3,857.90	0.9000	3,472.110
00026	10	3,661.20	0.9002	3,295.812
00030	1	221.40	0.8998	199.215
00038	5	1,413.00	0.9001	1,271.841
00039	18	6,817.55	0.8998	6,134.431
00039	2	575.25	0.8998	517.609
00040	1	272.30	0.9000	245.070
00040	18	6,441.60	0.8998	5,796.151
00041	2	667.40	0.9000	600.660
00041	18	6,747.80	0.8999	6,072.345
00042	18	6,596.25	0.8997	5,934.646
00043	18	6,641.10	0.8998	5,975.661
00044	1	183.87	0.8996	165.409
00044	18	6,791.35	0.8997	6,110.177
00045	2	531.20	0.8997	477.920
00046	18	6,661.10	0.9001	5,995.656
00047	18	6,723.60	0.8998	6,049.895
00047	2	415.40	0.8998	373.776
00048	21	7,897.30	0.8998	7,105.990
00049	21	7,607.05	0.8998	6,844.823
00050	19	6,763.00	0.9000	6,086.700
00050	22	8,047.75	0.8998	7,241.365
00051	18	6,534.20	0.8998	5,879.473
00051	18	6,562.00	0.9000	5,905.800
00052	19	6,756.50	0.9000	6,080.850
00052	18	6,834.00	0.9002	6,151.966
00053	18	6,748.20	0.9000	6,073.380
00054	18	6,740.90	0.9001	6,067.484
00054	2	467.45	0.9000	420.705
00055	19	7,112.30	0.9002	6,402.492

00056	19	7,094.20	0.9001	6,385.489
00057	19	6,979.70	0.9001	6,282.427
00058	19	7,150.70	0.8998	6,434.199
00333	19	7,345.90	0.8999	6,610.575
00334	19	7,076.20	0.9000	6,368.580
00335	19	7,111.40	0.8998	6,398.837
00336	19	7,146.10	0.8998	6,430.060
00337	19	7,215.20	0.8999	6,492.958
00339	20	7,505.70	0.8998	6,753.628
00340	19	7,149.30	0.8998	6,432.940
00341	18	6,592.50	0.8999	5,932.590
00342	20	7,649.70	0.8998	6,883.200
00343	19	7,244.00	0.8999	6,518.875
00344	19	7,259.00	0.9001	6,533.825
00345	19	7,393.70	0.9000	6,654.330
00346	19	7,326.70	0.9000	6,594.030
00347	19	7,239.00	0.8999	6,514.376
00348	19	7,378.50	0.9000	6,640.650
00349	19	7,335.60	0.8999	6,601.306
00350	19	7,432.70	0.9000	6,689.430
00351	19	7,067.60	0.9001	6,361.546
00352	19	7,339.10	0.8998	6,603.722
00353	17	6,562.60	0.8998	5,905.027
00354	18	6,670.90	0.8998	6,002.475
00355	19	7,271.20	0.9000	6,544.080
00356	19	7,336.40	0.8998	6,601.292
00357	19	7,624.30	0.8999	6,861.107
00358	19	7,408.50	0.9000	6,667.650
00359	19	7,474.10	0.8999	6,725.942
00360	19	7,449.30	0.8999	6,703.625
00361	18	7,025.60	0.9000	6,323.040
00362	18	7,056.80	0.9000	6,351.120
00363	18	7,003.30	0.8999	6,302.269
00364	16	5,970.80	0.9000	5,373.720
00365	19	7,248.20	0.8999	6,522.655
00366	17	6,328.50	0.9000	5,695.650
00367	19	7,182.90	0.9000	6,464.610
00368	19	7,241.30	0.8999	6,516.445
00369	19	7,352.10	0.8998	6,615.419
00370	19	7,243.20	0.9000	6,518.880
00371	19	7,321.80	0.8999	6,588.887
00372	19	7,201.60	0.9000	6,481.440
00373	19	7,367.50	0.9002	6,632.223
00374	19	7,368.00	0.8999	6,630.463

00375	19	7,330.70	0.8999	6,596.896
00377	18	6,889.00	0.8999	6,199.411
00378	16	5,893.40	0.8998	5,302.881
00379	19	7,037.90	0.9000	6,334.110
00380	19	7,192.10	0.9000	6,472.890
00381	19	7,223.70	0.9000	6,501.330
00382	19	7,189.80	0.8998	6,469.382
00383	19	7,154.60	0.9001	6,439.855
00384	19	7,262.20	0.8999	6,535.253
00385	19	7,323.00	0.8998	6,589.235
00386	19	7,180.80	0.8998	6,461.283
00387	19	7,289.80	0.8999	6,560.091
00388	21	7,890.30	0.8998	7,099.691
00389	16	5,867.50	0.8999	5,280.163
00390	18	6,914.10	0.8997	6,220.615
00392	19	6,958.10	0.9000	6,262.290
00393	19	7,232.90	0.9000	6,509.610
00394	19	7,413.20	0.8998	6,670.397
00395	19	7,130.10	0.9000	6,417.090
00396	19	7,293.30	0.8999	6,563.240
00397	19	7,355.70	0.9000	6,620.130
00398	19	7,084.00	0.9000	6,375.600
00399	19	7,320.10	0.9000	6,588.090
00400	20	7,638.20	0.9000	6,874.380
00401	21	7,940.10	0.9000	7,146.090
00402	18	6,749.80	0.9000	6,074.820
00403	19	7,066.50	0.9000	6,359.850
00404	19	7,153.90	0.8998	6,437.079
00405	19	7,363.20	0.9000	6,626.880
00406	19	7,067.20	0.9002	6,361.893
00407	19	7,080.40	0.8998	6,370.943
00408	18	6,761.00	0.8998	6,083.547
00409	18	6,847.10	0.8998	6,161.020
00411	19	7,092.90	0.9000	6,383.610
00413	21	7,824.80	0.9000	7,042.320
00414	19	7,117.80	0.9000	6,406.020
00415	21	8,039.50	0.8998	7,233.942
00416	19	6,822.80	0.9000	6,140.520
00417	19	7,247.00	0.9000	6,522.300
00418	19	7,118.40	0.8997	6,404.424
00419	19	7,251.70	0.8999	6,525.804
00420	19	7,261.80	0.8998	6,534.167
00421	19	7,027.00	0.8997	6,322.191
00422	19	7,276.70	0.8998	6,547.574

00423	19	7,314.40	0.8996	6,580.034
00424	19	7,116.80	0.8998	6,403.696
00425	19	7,323.70	0.8998	6,589.865
00426	19	7,379.20	0.8998	6,639.804
00427	19	6,976.00	0.8997	6,276.307
00428	18	6,647.00	0.8998	5,980.970
00429	19	6,948.50	0.8997	6,251.565
00431	19	7,603.00	0.9000	6,842.700
00433	18	6,969.20	0.9000	6,272.280
00434	18	7,135.10	0.8998	6,420.162
00435	18	7,114.70	0.8998	6,401.807
00436	17	6,615.50	0.9000	5,953.950
00437	18	6,994.80	0.8998	6,293.921
00438	17	6,235.80	0.8999	5,611.596
00439	18	7,131.40	0.9000	6,418.260
00440	18	6,929.64	0.8999	6,235.983
00441	18	7,141.30	0.9000	6,427.170
00442	18	7,185.00	0.9000	6,466.500
00443	18	7,064.70	0.9000	6,358.230
00444	18	7,168.30	0.9000	6,451.470
00445	18	7,123.10	0.8999	6,410.077
00447	18	7,036.80	0.8999	6,332.416
00448	18	7,082.10	0.9000	6,373.890
00449	19	7,351.90	0.9000	6,616.710
00450	19	7,125.90	0.9000	6,413.310
00451	19	7,353.90	0.9000	6,618.510
00452	19	7,382.90	0.9000	6,644.610
00453	19	7,557.90	0.9000	6,802.110
00454	19	7,391.00	0.8999	6,651.160
00455	19	7,298.80	0.8998	6,567.460
00456	19	7,520.60	0.8998	6,767.035
00457	18	6,995.40	0.9000	6,295.860
00458	18	6,926.10	0.8998	6,232.104
00460	19	7,148.10	0.8997	6,431.145
00462	18	6,831.40	0.8998	6,146.893
00463	19	7,498.00	0.9000	6,748.200
00464	19	7,387.80	0.8998	6,647.542
00465	19	7,446.30	0.9000	6,701.670
00466	19	7,491.10	0.9000	6,741.990
00467	19	7,225.20	0.8998	6,501.234
00468	19	7,380.40	0.9000	6,642.360
00469	19	7,603.40	0.9000	6,843.060
00470	19	7,319.30	0.8998	6,585.906
00471	19	7,394.80	0.8998	6,653.841

00472	17	6,408.50	0.8998	5,766.368
00473	19	7,128.20	0.9000	6,415.380
00474	19	7,143.20	0.8996	6,426.022
00475	18	6,863.60	0.8999	6,176.553
00476	18	7,102.20	0.8998	6,390.559
00477	19	7,392.50	0.8999	6,652.510
00570	20	6,975.30	0.9000	6,277.770
01093	20	6,680.23	0.9000	6,012.207
01152	16	5,456.02	0.8995	4,907.689
01163	14	4,882.96	0.8993	4,391.245
01164	13	4,122.88	0.8993	3,707.705
01193	18	6,306.24	0.9000	5,675.616
01194	18	6,439.72	0.9000	5,795.748
01195	15	5,253.22	0.9000	4,727.898
01326	15	5,096.60	0.8999	4,586.430
01508	19	6,438.99	0.9000	5,795.091
01708	20	6,958.11	0.9001	6,262.994
02330	17	5,858.00	0.8995	5,269.271
02590	15	5,148.63	0.8997	4,632.222
04084	22	7,575.70	0.9003	6,820.402
04085	22	7,754.16	0.9004	6,981.845
04086	24	8,233.67	0.9005	7,414.419
05104	23	8,052.27	0.9004	7,250.263
05105	23	8,002.20	0.9004	7,205.180
05106	23	7,957.60	0.9003	7,164.227
05264	16	5,559.74	0.9004	5,005.989
05265	18	5,932.47	0.9003	5,341.002
05328	24	8,400.45	0.9003	7,562.925
05329	23	8,120.55	0.9004	7,311.743
05572	18	6,253.82	0.8998	5,627.187
05583	18	6,156.17	0.8999	5,539.937
05838	19	6,552.12	0.9003	5,898.873
05839	17	5,780.43	0.9004	5,204.699
05840	15	5,262.82	0.9003	4,738.116
05857	15	5,247.66	0.9003	4,724.468
06225	24	7,981.78	0.9003	7,185.996
06233	19	6,437.53	0.8998	5,792.489
06253	24	8,247.78	0.9004	7,426.301
07759	23	7,816.95	0.9005	7,039.163
07760	23	7,563.18	0.9005	6,810.643
07761	23	8,123.53	0.9004	7,314.426
07762	22	7,677.84	0.9003	6,912.359
08157	19	6,615.23	0.9003	5,955.691
08417	14	4,799.62	0.8998	4,318.698

08418	13	4,142.60	0.9001	3,728.754
08955	12	3,773.03	0.9003	3,396.858
09421	17	6,004.52	0.8998	5,402.867
09422	15	5,128.05	0.8996	4,613.193
09510	17	5,771.20	0.8997	5,192.348
11037	20	6,947.92	0.8997	6,251.043
11112	16	5,458.03	0.9001	4,912.772
11113	15	5,162.44	0.9001	4,646.712
11114	17	5,766.50	0.8999	5,189.273
11141	24	8,318.49	0.8998	7,484.977
11211	20	6,885.72	0.9002	6,198.525
11212	20	6,836.90	0.9001	6,153.893
20A	10	4,155.40	0.9003	3,741.106
20B	9	3,933.00	0.9001	3,540.093
26B	10	3,651.80	0.8999	3,286.254
26C	11	3,805.60	0.9000	3,425.040
26D	11	3,373.20	0.9002	3,036.554
50A	20	6,974.00	0.8997	6,274.507
51A	16	5,835.80	0.9001	5,252.803
51B	16	6,002.60	0.9000	5,402.340
51C	17	6,194.10	0.9000	5,574.690
51D	19	7,059.90	0.9002	6,355.321
52A	20	7,293.60	0.8999	6,563.510
52B	19	6,950.80	0.9000	6,255.720
C 003	24	8,233.09	0.8999	7,408.957
C 004	24	8,343.23	0.9000	7,508.907
C 005	23	8,149.74	0.8998	7,333.136
C 006	23	8,073.59	0.8999	7,265.423
C 007	23	7,907.73	0.8998	7,115.375
C 008	23	8,089.93	0.8999	7,280.128
C 009	23	8,113.32	0.8998	7,300.365
C 010	23	8,012.37	0.8998	7,209.530
C 011	23	8,022.25	0.8998	7,218.420
C 012	23	7,937.03	0.9000	7,143.327
C 013	23	8,043.02	0.8998	7,237.109
C 014	24	8,167.05	0.8999	7,349.528
C 015	23	8,187.59	0.8998	7,367.193
C 016	22	7,893.37	0.8998	7,102.454
C 017	23	8,121.49	0.8998	7,307.716
C 018	23	8,116.93	0.8998	7,303.613
C 019	23	8,126.62	0.8998	7,312.332
C 020	22	7,853.08	0.8998	7,066.201
C 021	23	7,830.00	0.8999	7,046.217
C 022	24	8,362.62	0.8999	7,525.521

C 023	23	7,863.48	0.9000	7,077.132
C 024	23	8,024.24	0.9000	7,221.816
C 025	23	8,110.51	0.8999	7,298.647
C 026	23	8,117.45	0.8999	7,304.893
C 027	23	8,008.80	0.8999	7,207.119
C 029	24	8,244.53	0.8999	7,419.252
C 030	24	8,028.49	0.8998	7,224.035
C 031	23	8,138.76	0.8998	7,323.256
C 032	23	8,111.50	0.8999	7,299.538
C 033	23	7,997.58	0.8998	7,196.222
C 034	23	8,154.62	0.8998	7,337.527
C 035	23	8,068.12	0.8999	7,260.501
C 036	23	7,977.90	0.8998	7,178.514
C 037	23	7,983.65	0.8999	7,184.486
C 038	24	7,986.74	0.8999	7,187.267
C 039	23	8,046.89	0.8999	7,241.396
C 040	23	8,072.58	0.8998	7,263.707
C 041	23	7,831.56	0.8998	7,046.837
C 042	23	7,850.97	0.8999	7,065.087
C 043	23	8,150.46	0.8999	7,334.598
C 044	23	8,066.45	0.8999	7,258.998
C 046	23	7,904.77	0.8998	7,112.712
C 047	23	7,971.52	0.9001	7,175.165
C 048	25	8,393.95	0.9000	7,554.555
C 050	24	8,255.42	0.8998	7,428.226
C 052	23	8,030.90	0.8998	7,226.203
C 053	23	8,140.00	0.8998	7,324.372
C 054	23	7,973.66	0.8998	7,174.699
C 055	23	8,114.74	0.8999	7,302.454
C 056	23	8,018.25	0.8998	7,214.821
C 057	23	8,028.60	0.8998	7,224.134
C 058	24	8,065.85	0.8998	7,257.651
C 059	23	7,914.05	0.9000	7,122.645
C 060	23	7,798.25	0.8999	7,017.645
C 061	23	7,790.04	0.8998	7,009.477
C 062	26	8,715.60	0.8998	7,842.296
C 063	23	7,947.83	0.8999	7,152.252
C 064	24	8,164.72	0.8999	7,347.431
C 065	23	8,011.16	0.8998	7,208.441
C 066	24	8,107.44	0.8998	7,295.074
C 067	23	7,933.55	0.8999	7,139.401
C 068	24	8,181.94	0.8999	7,362.927
C 069	23	8,080.63	0.8998	7,270.950
C 070	23	8,096.60	0.8999	7,286.130

C 071	23	8,195.42	0.8998	7,374.238
C 072	23	7,857.52	0.8998	7,070.196
C 073	23	8,036.17	0.8998	7,230.945
C 074	23	8,152.34	0.8999	7,336.290
C 075	23	8,203.47	0.8998	7,381.482
C 076	22	7,546.80	0.8999	6,791.365
C 077	22	7,666.65	0.8999	6,899.218
C 079	23	8,195.92	0.8999	7,375.508
C 080	25	8,380.87	0.8998	7,541.106
C 081	23	8,165.58	0.8999	7,348.205
C 083	22	7,860.23	0.8998	7,072.634
C 085	22	7,617.98	0.8999	6,855.420
C 086	24	8,524.42	0.8999	7,671.125
C 087	23	8,124.67	0.8998	7,310.578
C 088	23	7,961.63	0.8999	7,164.670
C 089	23	7,780.30	0.8999	7,001.491
C 090	23	7,814.17	0.8998	7,031.190
C 091	23	8,088.58	0.8999	7,278.913
C 092	25	8,540.42	0.8998	7,684.669
C 093	23	8,106.00	0.9000	7,295.400
C 094	23	8,194.30	0.8998	7,373.231
C 095	23	8,090.11	0.9000	7,281.099
C 096	23	7,840.90	0.8999	7,056.025
C 097	23	8,159.25	0.8999	7,342.509
C 098	23	8,087.19	0.8999	7,277.662
C 099	23	8,126.63	0.8998	7,312.341
C 100	24	8,150.59	0.8998	7,333.900
C 101	23	8,065.44	0.8998	7,257.282
C 102	23	8,152.65	0.8998	7,335.754
C 103	22	7,673.01	0.8999	6,904.941
C 104	24	8,135.70	0.8997	7,319.689
C 105	23	7,956.88	0.8999	7,160.396
C 106	23	7,977.61	0.8999	7,179.051
C 107	23	8,126.55	0.8998	7,312.269
C 108	24	8,173.34	0.9000	7,356.006
C 109	23	8,174.26	0.8999	7,356.016
C 110	23	8,101.84	0.8999	7,290.845
C 111	23	8,113.08	0.8999	7,300.960
C 112	23	7,842.08	0.8998	7,056.303
C 113	23	8,066.29	0.8999	7,258.854
C 115	23	7,846.22	0.8998	7,060.028
C 117	23	8,060.15	0.9000	7,254.135
C 118	23	8,167.93	0.8999	7,350.320
C 119	23	8,088.45	0.9000	7,279.605

C 120	23	7,912.02	0.8998	7,119.235
C 121	23	8,122.34	0.8998	7,308.481
C 122	23	8,161.89	0.8998	7,344.068
C 124	23	7,774.97	0.8998	6,995.918
C 125	23	8,152.29	0.8998	7,335.430
C 126	23	8,219.13	0.8998	7,395.573
C 127	23	8,238.91	0.8998	7,413.371
C 129	23	8,129.55	0.8999	7,315.782
C 130	23	7,989.21	0.8999	7,189.490
C 131	23	7,953.91	0.8999	7,157.723
C 132	24	8,163.13	0.8998	7,345.184
C 133	23	8,241.38	0.8998	7,415.593
C 134	22	7,626.42	0.8998	6,862.252
C 135	23	8,175.11	0.8999	7,356.781
C 136	23	8,239.82	0.8998	7,414.190
C 137	23	8,133.12	0.8998	7,318.181
C 138	22	7,687.43	0.8998	6,917.149
C 139	23	8,219.27	0.8999	7,396.521
C 140	23	8,147.54	0.8999	7,331.971
C 141	23	8,215.17	0.8998	7,392.009
C 142	22	7,651.83	0.8999	6,885.881
C 143	23	8,361.44	0.8998	7,523.623
C 144	23	7,834.20	0.8999	7,049.996
C 145	23	8,073.81	0.8999	7,265.621
C 146	23	7,888.90	0.8998	7,098.432
C 148	23	8,074.98	0.8999	7,266.674
C 149	23	8,049.72	0.9000	7,244.748
C 150	23	7,971.60	0.8998	7,172.845
C 151	23	8,088.42	0.9000	7,279.578
C 152	23	8,063.46	0.9000	7,257.114
C 153	23	8,172.86	0.8998	7,353.939
C 154	23	7,907.57	0.8998	7,115.231
C 156	23	7,890.30	0.8999	7,100.480
C 157	23	8,143.93	0.8998	7,327.908
C 158	25	8,537.92	0.8998	7,682.420
C 159	23	8,131.16	0.8998	7,316.417
C 161	23	8,101.06	0.8999	7,290.143
C 162	23	7,882.25	0.8999	7,093.236
C 163	23	8,273.83	0.8998	7,444.792
C 164	22	7,828.83	0.8999	7,045.164
C 165	23	8,185.22	0.8998	7,365.060
C 166	23	7,934.82	0.9000	7,141.338
C 167	23	7,898.38	0.8998	7,106.962
C 169	23	8,047.79	0.8998	7,241.401

C 170	26	8,666.78	0.8998	7,798.368
C 172	23	8,190.20	0.8998	7,369.541
C 173	23	8,049.50	0.9000	7,244.550
C 174	23	8,031.80	0.8998	7,227.013
C 175	23	8,165.60	0.8998	7,347.406
C 176	23	8,034.66	0.8998	7,229.587
C 178	23	7,949.00	0.9000	7,154.100
C 179	24	8,052.42	0.8998	7,245.567
C 180	23	7,992.08	0.8998	7,191.273
00107	17	5,802.40	0.8999	5,221.579
00109	19	6,957.18	0.8996	6,258.679
00111	18	6,430.52	0.8997	5,785.538
00112	18	6,381.25	0.8997	5,741.210
00113	16	5,450.60	0.8995	4,902.814
00130	16	5,365.08	0.8998	4,827.498
00240	19	6,474.80	0.8999	5,826.672
00265	20	6,787.38	0.8999	6,107.963
00267	20	6,976.07	0.8996	6,275.672
00268	20	7,081.03	0.8999	6,372.218
00269	20	7,080.15	0.8998	6,370.718
00270	20	6,644.87	0.8998	5,979.054
00271	22	7,429.90	0.8997	6,684.681
00381	23	8,010.15	0.8999	7,208.333
00382	23	7,817.07	0.8997	7,033.017
00383	22	7,748.70	0.9000	6,973.830
00399	11	3,721.98	0.8999	3,349.409
00479	17	6,658.20	0.8999	5,991.714
00480	16	6,376.50	0.9000	5,738.850
00481	17	6,517.50	0.9002	5,867.053
00482	18	6,970.10	0.9000	6,273.090
00483	17	6,685.40	0.9002	6,018.197
00484	18	6,774.20	0.9001	6,097.457
00485	17	6,580.40	0.8999	5,921.701
00486	18	7,075.80	0.8999	6,367.512
00487	19	7,176.00	0.9000	6,458.400
00488	18	6,949.30	0.9000	6,254.370
00490	19	7,223.25	0.8999	6,500.202
00491	18	7,220.40	0.9000	6,498.360
00492	19	7,351.70	0.8998	6,615.059
00493	18	6,971.80	0.8999	6,273.922
00494	21	7,769.30	0.9000	6,992.370
00495	22	8,664.60	0.9000	7,798.140
00496	22	8,879.80	0.8999	7,990.932
00497	19	7,078.00	0.9001	6,370.907

00498	19	7,576.60	0.9000	6,818.940
00499	19	7,202.00	0.9000	6,481.800
00500	19	7,598.20	0.8999	6,837.620
00501	23	8,746.10	0.8998	7,869.740
00502	23	8,715.70	0.9000	7,844.130
00503	18	6,965.10	0.9000	6,268.590
00504	19	7,526.50	0.8999	6,773.097
00506	19	7,179.80	0.8998	6,460.384
00507	19	7,271.30	0.8999	6,543.442
00508	19	7,453.50	0.8998	6,706.659
00509	19	7,140.20	0.9000	6,426.180
00510	17	6,424.20	0.9000	5,781.780
00511	18	7,040.60	0.9000	6,336.540
00512	20	7,568.40	0.8998	6,810.046
00513	20	7,647.10	0.9000	6,882.390
00514	16	6,069.40	0.9000	5,462.460
00515	19	7,379.40	0.8998	6,639.984
00516	19	7,427.10	0.9003	6,686.618
00517	19	7,150.00	0.9000	6,435.000
00519	17	6,477.10	0.9003	5,831.333
00520	20	7,270.10	0.9002	6,544.544
00521	19	7,424.20	0.9000	6,681.780
00522	19	7,515.30	0.9001	6,764.521
00523	19	7,091.10	0.9000	6,381.990
00524	21	8,201.20	0.9000	7,381.080
00526	17	6,094.80	0.9003	5,487.148
00527	19	7,343.80	0.8998	6,607.951
00528	19	7,020.30	0.8997	6,316.163
00529	20	7,385.60	0.8999	6,646.301
00530	19	7,503.60	0.8999	6,752.489
00531	19	7,135.30	0.8999	6,421.056
00532	19	7,340.60	0.9000	6,606.540
00533	19	7,550.10	0.9000	6,795.090
00534	19	7,117.80	0.9000	6,406.020
00535	19	7,276.10	0.8998	6,547.034
00537	19	6,983.00	0.9000	6,284.700
00538	18	7,018.30	0.9000	6,316.470
00539	19	7,022.20	0.9000	6,319.980
00540	18	7,126.10	0.9000	6,413.490
00541	18	6,966.50	0.8998	6,268.456
00542	19	7,136.00	0.9000	6,422.400
00543	19	7,318.30	0.9000	6,586.470
00546	18	6,933.70	0.9001	6,241.023
00547	19	7,612.10	0.9000	6,850.890

00548	19	7,244.40	0.8998	6,518.511
00549	19	7,396.30	0.9002	6,658.149
00550	19	7,480.20	0.9002	6,733.676
00552	19	7,296.20	0.9000	6,566.580
00553	17	6,409.80	0.9002	5,770.101
00554	19	7,482.40	0.9002	6,735.656
00555	20	7,845.50	0.9000	7,060.950
00556	17	6,400.20	0.8999	5,759.539
00557	19	7,685.60	0.9002	6,918.577
00558	19	7,282.30	0.9001	6,554.798
00560	19	7,537.60	0.9000	6,783.840
00561	19	7,390.80	0.9001	6,652.459
00562	19	7,449.50	0.9000	6,704.550
00563	18	7,064.80	0.9000	6,358.320
00564	17	6,318.40	0.8999	5,685.928
00567	19	7,232.20	0.9002	6,510.426
00568	19	7,420.80	0.8998	6,677.235
00569	19	7,320.10	0.8999	6,587.357
00570	19	7,358.10	0.8999	6,621.554
00571	19	7,409.60	0.9000	6,668.640
00572	19	7,042.00	0.9000	6,337.800
00573	16	6,043.70	0.8999	5,438.725
00573	18	6,218.64	0.8997	5,594.910
00575	15	5,082.50	0.8996	4,572.217
00575	21	8,065.30	0.9001	7,259.576
00582	10	3,479.52	0.9000	3,131.568
00583	15	4,968.05	0.8999	4,470.748
00631	20	7,050.39	0.9003	6,347.466
00632	19	6,601.12	0.9001	5,941.668
00664	19	6,367.77	0.8997	5,729.082
00666	19	6,901.55	0.8996	6,208.634
00668	21	7,593.32	0.8997	6,831.710
00672	13	4,377.50	0.8995	3,937.561
00673	12	4,033.39	0.8996	3,628.437
00674	19	6,999.00	0.9001	6,299.799
00675	23	8,361.20	0.9000	7,525.080
00676	18	6,596.10	0.9003	5,938.468
00677	19	7,051.20	0.9001	6,346.785
00678	19	7,313.20	0.9002	6,583.342
00680	20	7,622.80	0.9000	6,860.520
00681	20	7,407.70	0.9001	6,667.670
00682	20	7,296.10	0.9000	6,566.490
00683	19	7,270.10	0.9002	6,544.544
00684	19	7,228.50	0.9002	6,507.095

00685	19	6,996.00	0.9000	6,296.400
00686	20	7,389.00	0.8999	6,649.361
00687	20	7,738.50	0.9000	6,964.650
00688	19	7,034.10	0.9001	6,331.393
00690	18	6,610.60	0.9001	5,950.201
00691	19	6,975.70	0.8999	6,277.432
00693	20	7,398.90	0.9001	6,659.749
00694	20	7,382.70	0.9001	6,645.168
00695	19	6,972.80	0.9002	6,276.914
00696	20	7,775.40	0.9002	6,999.415
00697	18	6,686.90	0.9000	6,018.210
00698	20	7,551.70	0.8996	6,793.509
00804	19	6,539.37	0.9000	5,885.433
00893	15	5,177.48	0.8996	4,657.661
00894	17	5,578.96	0.8993	5,017.158
01017	21	7,475.35	0.8997	6,725.572
01018	21	7,472.57	0.9000	6,725.313
01019	21	7,431.35	0.8997	6,685.985
29876	21	7,439.23	0.9003	6,697.538
29877	21	7,443.84	0.8999	6,698.711
29878	21	7,360.05	0.8999	6,623.308
29879	21	7,347.23	0.8999	6,611.772
29880	21	7,556.10	0.8998	6,798.978
29881	20	6,909.41	0.8999	6,217.778
30560	20	7,155.90	0.9000	6,440.310
30561	21	7,244.50	0.8998	6,518.601
30579	21	7,449.20	0.8999	6,703.535
30580	22	7,834.11	0.9000	7,050.699
30582	21	7,484.37	0.8998	6,734.436
30583	21	7,379.40	0.9000	6,641.460
30584	20	6,888.97	0.8999	6,199.384
30585	20	7,269.23	0.8998	6,540.853
30586	20	7,271.30	0.9000	6,544.170
30587	21	7,660.49	0.9000	6,894.441
30588	20	7,259.80	0.8999	6,533.094
30589	20	7,268.19	0.8999	6,540.644
30590	18	6,394.53	0.8998	5,753.798
30597	21	7,607.75	0.8998	6,845.453
30598	21	7,573.28	0.8998	6,814.437
30599	21	7,670.83	0.8997	6,901.445
30600	21	7,550.95	0.8997	6,793.589
30601	21	7,545.33	0.8998	6,789.287
30602	22	7,646.84	0.8998	6,880.626
30603	21	7,264.98	0.8997	6,536.302

30605	21	7,416.39	0.8998	6,673.267
30606	21	7,399.48	0.8998	6,658.052
30607	20	7,010.75	0.8998	6,308.272
30608	18	5,930.85	0.8999	5,337.171
30687	22	7,691.37	0.8995	6,918.387
30705	22	7,685.00	0.8998	6,914.963
30706	21	7,267.77	0.8998	6,539.539
30708	21	7,306.93	0.8998	6,574.775
30709	21	7,317.04	0.8999	6,584.604
30710	19	6,638.08	0.9000	5,974.272
30711	20	7,124.65	0.8997	6,410.047
30712	21	7,359.50	0.8999	6,622.814
30713	17	5,470.78	0.9000	4,923.702
30964	22	7,865.62	0.9007	7,084.563
32348	16	5,410.18	0.8998	4,868.079
32454	15	5,220.95	0.8996	4,696.766
32455	15	5,018.22	0.8996	4,514.390
32507	17	5,951.65	0.8996	5,354.104
32508	17	5,787.86	0.8996	5,206.758
33345	18	6,277.43	0.9000	5,649.687
33346	15	5,153.33	0.9002	4,639.027
35107	12	4,305.37	0.8995	3,872.680
35108	12	4,061.54	0.8996	3,653.761
35654	21	7,566.65	0.9000	6,809.985
35655	20	7,190.08	0.8999	6,470.352
35673	12	4,127.00	0.9001	3,714.712
35704	22	7,834.42	0.8999	7,050.194
35709	15	5,404.96	0.9000	4,864.464
35714	15	5,265.48	0.9000	4,738.932
36288	21	7,301.03	0.9002	6,572.387
36289	22	7,754.53	0.9001	6,979.852
36291	22	7,651.98	0.9002	6,888.312
36292	22	7,663.50	0.9002	6,898.682
36293	21	7,105.80	0.8999	6,394.509
36295	22	7,889.66	0.8998	7,099.116
36296	21	7,655.88	0.8998	6,888.760
36297	21	7,454.13	0.8997	6,706.480
36298	16	5,714.62	0.8999	5,142.586
36299	15	5,374.04	0.8999	4,836.098
36300	12	3,853.28	0.8999	3,467.566
36308	21	7,245.45	0.8998	6,519.455
36323	13	4,513.85	0.8996	4,060.659
36324	12	4,125.22	0.8996	3,711.047
36358	19	6,819.45	0.8998	6,136.141

36359	19	6,853.46	0.8998	6,166.743
36360	19	6,842.10	0.8998	6,156.521
36361	18	6,326.50	0.8999	5,693.217
36362	23	8,293.31	0.8998	7,462.320
36363	22	7,838.60	0.8998	7,053.172
36365	21	7,603.03	0.8997	6,840.446
36366	21	7,513.38	0.8997	6,759.787
36367	21	7,607.80	0.8996	6,843.976
36368	19	6,637.43	0.8997	5,971.695
36459	19	6,666.95	0.9001	6,000.921
36460	19	6,732.34	0.9001	6,059.779
36461	19	6,729.95	0.9001	6,057.627
36462	19	6,722.47	0.9000	6,050.223
36463	13	4,447.85	0.9000	4,003.065
36464	17	5,831.13	0.9000	5,248.017
36475	22	7,798.82	0.8998	7,017.378
36476	20	6,970.45	0.8999	6,272.707
36483	20	6,865.46	0.8998	6,177.540
36485	21	7,453.83	0.8999	6,707.701
36486	21	7,191.24	0.8999	6,471.396
36753	21	7,529.25	0.8999	6,775.572
36754	15	5,064.80	0.8998	4,557.307
36758	18	6,115.83	0.8999	5,503.635
A 674	19	6,999.60	0.9000	6,299.640
A 676	17	6,171.80	0.9000	5,554.620
A 677	19	7,172.70	0.9002	6,456.864
A 678	20	7,422.70	0.9001	6,681.172
A 679	20	7,310.00	0.9000	6,579.000
A 680	20	7,336.50	0.9000	6,602.850
A 682	19	6,960.60	0.9001	6,265.236
A 683	19	7,203.30	0.9000	6,482.970
A 685	19	7,068.70	0.9002	6,363.243
A 686	17	6,349.10	0.9000	5,714.190
A 687	19	7,050.50	0.9000	6,345.450
A 688	20	7,543.50	0.9001	6,789.904
A 689	20	7,590.00	0.9001	6,831.759
A 690	19	7,013.30	0.9000	6,311.970
A 691	19	7,067.08	0.9001	6,361.078
A 692	20	7,562.50	0.9000	6,806.250
A 693	19	7,099.40	0.9001	6,390.169
A 694	20	7,650.50	0.9001	6,886.215
A 695	20	7,188.00	0.9002	6,470.637
A 696	19	6,957.90	0.9002	6,263.501
A 697	20	7,365.50	0.9000	6,628.950

A 698	20	7,449.80	0.8998	6,703.330
B 674	20	7,373.80	0.9000	6,636.420
B 675	18	6,609.10	0.9000	5,948.190
B 677	20	7,326.20	0.9000	6,593.580
B 678	20	7,415.40	0.9000	6,673.860
B 679	20	7,313.60	0.9001	6,582.971
B 680	20	7,365.30	0.9000	6,628.770
B 681	19	6,879.50	0.9002	6,192.925
B 682	20	7,301.90	0.9001	6,572.440
B 683	20	7,506.20	0.9000	6,755.580
B 684	20	7,550.60	0.9000	6,795.540
B 686	18	6,695.80	0.8999	6,025.550
B 687	19	7,051.10	0.9000	6,345.990
B 688	20	7,536.70	0.9001	6,783.783
B 689	19	6,912.10	0.9000	6,220.890
B 690	20	7,260.40	0.9000	6,534.360
B 691	20	7,362.70	0.9000	6,626.430
B 693	19	7,092.40	0.9001	6,383.869
B 694	19	6,987.90	0.9000	6,289.110
B 695	20	7,651.80	0.9002	6,888.150
B 697	19	7,091.20	0.9000	6,382.080
B 698	19	6,904.00	0.8997	6,211.528
C 674	20	7,194.70	0.9000	6,475.230
C 675	19	6,964.30	0.9000	6,267.870
C 676	20	7,447.10	0.8999	6,701.645
C 677	20	7,740.40	0.9000	6,966.360
C 678	20	7,405.50	0.9001	6,665.690
C 679	20	7,353.40	0.8998	6,616.589
C 680	19	7,088.50	0.9002	6,381.067
C 681	19	6,977.30	0.9000	6,279.570
C 682	19	6,995.20	0.9001	6,296.379
C 683	18	6,806.80	0.9001	6,126.800
C 684	20	7,499.50	0.9000	6,749.550
C 685	20	7,606.40	0.9000	6,845.760
C 686	23	8,349.40	0.9000	7,514.460
C 687	20	7,766.00	0.9000	6,989.400
C 688	20	7,328.00	0.9000	6,595.200
C 690	20	7,265.00	0.9002	6,539.953
C 691	20	7,545.60	0.9001	6,791.794
C 692	20	7,334.80	0.9000	6,601.320
C 693	19	7,115.60	0.9001	6,404.751
C 694	20	7,460.90	0.8999	6,714.063
C 695	20	7,892.60	0.9003	7,105.707
C 696	20	7,466.00	0.9000	6,719.400

C 697	19	7,026.30	0.9000	6,323.670
C 698	20	7,609.70	0.8998	6,847.208
D 674	21	7,573.60	0.8998	6,814.725
D 676	20	7,415.90	0.8999	6,673.568
D 677	20	7,389.90	0.9001	6,651.648
D 678	20	7,417.90	0.9001	6,676.851
D 679	19	6,958.20	0.8999	6,261.684
D 680	18	6,668.10	0.9002	6,002.623
D 682	20	7,404.80	0.8997	6,662.098
D 683	18	6,769.70	0.9001	6,093.406
D 684	19	7,073.50	0.8998	6,364.735
D 685	19	7,049.70	0.9000	6,344.730
D 686	19	7,011.20	0.8998	6,308.677
D 687	20	7,478.90	0.9000	6,731.010
D 688	19	7,256.90	0.9000	6,531.210
D 689	19	7,266.80	0.9001	6,540.846
D 690	20	7,639.60	0.8999	6,874.876
D 691	20	7,537.30	0.9000	6,783.570
D 692	19	7,043.30	0.9000	6,338.970
D 693	18	6,502.30	0.9001	5,852.720
D 694	19	7,346.80	0.9000	6,612.120
D 695	19	7,018.40	0.9000	6,316.560
D 696	19	7,247.90	0.9000	6,523.110
E 674	20	7,356.80	0.9000	6,621.120
E 676	20	7,545.50	0.9000	6,790.950
E 677	20	7,722.80	0.9000	6,950.520
E 678	18	6,567.60	0.9002	5,912.153
E 679	21	7,501.00	0.9001	6,751.650
E 680	21	7,665.70	0.9001	6,899.896
E 681	20	7,315.80	0.9000	6,584.220
E 682	20	7,680.00	0.8999	6,911.232
E 683	19	7,248.40	0.9000	6,523.560
E 686	19	7,053.00	0.9001	6,348.405
E 687	20	7,284.00	0.9002	6,557.056
E 688	20	7,613.70	0.9000	6,852.330
E 689	20	7,206.90	0.9001	6,486.930
E 690	20	7,523.10	0.8999	6,770.037
E 691	19	6,920.80	0.9000	6,228.720
E 692	19	6,997.20	0.9001	6,298.179
E 693	19	6,951.20	0.9001	6,256.775
E 694	19	6,942.90	0.9001	6,249.304
E 695	19	7,234.90	0.9000	6,511.410
E 696	19	6,905.40	0.8999	6,214.169
E 697	21	7,750.10	0.8999	6,974.314

E 698	20	7,243.00	0.8998	6,517.251
F 087	22	7,759.10	0.8997	6,980.862
F 088	24	8,454.13	0.8998	7,607.026
F 089	23	8,057.50	0.8997	7,249.332
F 090	22	7,650.40	0.8998	6,883.829
F 092	23	8,174.75	0.8998	7,355.640
F 093	22	7,848.90	0.8997	7,061.655
F 094	23	8,341.00	0.9000	7,506.900
F 095	22	7,986.82	0.8998	7,186.540
F 096	23	7,835.56	0.8998	7,050.436
F 097	24	8,470.20	0.8999	7,622.332
F 098	23	8,117.61	0.8998	7,304.225
F 099	22	7,568.55	0.8998	6,810.181
F 101	23	7,993.52	0.8998	7,192.569
F 102	24	8,089.20	0.8998	7,278.662
F 103	23	8,081.57	0.8999	7,272.604
F 105	23	7,945.38	0.8998	7,149.252
F 106	23	8,114.96	0.8998	7,301.841
F 107	22	7,754.98	0.8998	6,977.931
F 108	24	8,293.80	0.8997	7,461.931
F 109	24	8,412.26	0.8998	7,569.351
F 110	23	8,044.09	0.8999	7,238.876
F 111	23	7,697.83	0.8998	6,926.507
F 112	24	8,372.89	0.8998	7,533.926
F 113	23	8,073.90	0.8999	7,265.702
F 114	23	7,709.20	0.8998	6,936.738
F 116	23	8,385.23	0.8999	7,545.868
F 117	21	7,464.72	0.8998	6,716.755
F 118	23	8,220.00	0.8998	7,396.356
F 119	24	8,477.26	0.8998	7,627.838
F 120	21	7,456.70	0.8999	6,710.284
F 121	23	8,002.00	0.8999	7,200.999
F 122	24	8,341.54	0.8998	7,505.717
F 123	23	7,817.68	0.8998	7,034.348
F 124	24	8,368.62	0.8999	7,530.921
F 125	23	8,020.28	0.8999	7,217.449
F 126	23	7,774.23	0.8999	6,996.029
F 127	23	8,218.15	0.9000	7,396.335
F 128	23	8,081.96	0.8998	7,272.147
F 130	24	8,514.78	0.8997	7,660.747
F 131	22	7,875.30	0.8998	7,086.194
F 132	22	7,774.53	0.8997	6,994.744
F 133	24	8,515.97	0.8998	7,662.669
F 136	23	7,993.00	0.8999	7,192.900

F 137	23	8,126.78	0.8999	7,313.289
F 138	23	8,046.80	0.8997	7,239.705
F 139	23	8,167.60	0.8999	7,350.023
F 140	23	8,206.72	0.8998	7,384.406
F 141	22	7,791.65	0.8997	7,010.147
F 142	24	8,404.00	0.8999	7,562.759
F 143	23	8,033.60	0.8998	7,228.633
F 144	23	7,733.60	0.8998	6,958.693
F 145	23	8,121.40	0.8998	7,307.635
F 146	23	8,104.36	0.8997	7,291.492
F 147	23	7,941.40	0.8998	7,145.671
F 149	23	8,392.97	0.8999	7,552.833
F 150	21	7,513.60	0.8998	6,760.737
F 151	24	8,519.53	0.8999	7,666.725
F 153	21	7,406.24	0.8998	6,664.134
F 154	23	8,047.39	0.8998	7,241.041
F 155	24	8,430.11	0.8998	7,585.412
F 156	22	7,684.20	0.8998	6,914.243
F 157	23	8,298.18	0.8998	7,466.702
F 158	24	8,580.45	0.8998	7,720.688
F 159	23	7,937.18	0.8997	7,141.080
F 160	23	8,199.05	0.8998	7,377.505
F 161	23	8,041.29	0.8998	7,235.552
F 162	21	7,283.55	0.8997	6,553.009
F 163	23	8,101.46	0.8999	7,290.503
F 164	23	8,095.76	0.8998	7,284.564
F 165	23	7,963.32	0.8998	7,165.395
F 166	24	8,536.10	0.8999	7,681.636
F 167	23	8,100.63	0.8998	7,288.946
F 168	22	7,528.07	0.8998	6,773.757
F 169	23	8,149.95	0.8998	7,333.325
F 170	23	8,117.07	0.9000	7,305.363
F 171	23	7,897.22	0.8998	7,105.918
F 172	23	8,219.00	0.8998	7,395.456
F 173	23	8,206.14	0.8999	7,384.705
F 174	22	7,729.85	0.8998	6,955.319
F 175	22	7,796.24	0.8998	7,015.056
F 177	23	7,883.25	0.8998	7,093.348
F 178	23	8,102.05	0.8998	7,290.224
F 179	23	8,132.37	0.8999	7,318.319
F 180	23	7,932.33	0.8998	7,137.510
F 181	23	8,309.65	0.8998	7,477.023
F 182	24	8,701.42	0.8998	7,829.537
F 183	21	7,156.03	0.8999	6,439.711

F 184	23	8,124.17	0.8998	7,310.128
F 185	24	8,383.77	0.8999	7,544.554
F 187	23	8,076.28	0.8997	7,266.229
F 188	23	8,191.64	0.8998	7,370.837
F 189	23	7,898.45	0.8999	7,107.815
F 190	23	8,296.48	0.8998	7,465.172
F 191	23	8,332.79	0.8997	7,497.011
F 192	22	7,529.21	0.8998	6,774.783
F 193	23	8,161.57	0.8997	7,342.964
F 194	23	8,126.70	0.8998	7,312.404
F 195	23	7,870.50	0.8998	7,081.875
F 197	23	8,128.28	0.8998	7,313.826
F 198	24	8,309.72	0.8998	7,477.086
F 200	22	7,857.16	0.8996	7,068.301
F 201	22	7,677.34	0.8998	6,908.070
F 202	24	8,402.25	0.8998	7,560.344
F 203	23	7,990.15	0.8998	7,189.536
F 204	23	7,776.14	0.8998	6,996.970
F 206	23	8,166.88	0.8998	7,348.558
F 207	23	7,925.70	0.8997	7,130.752
F 208	23	8,256.13	0.8997	7,428.040
F 209	23	8,275.25	0.8997	7,445.242
F 210	22	7,633.23	0.8998	6,868.380
F 211	23	8,013.85	0.8998	7,210.862
F 212	23	8,108.10	0.8998	7,295.668
F 213	24	8,039.24	0.8998	7,233.708
F 214	23	8,125.07	0.8999	7,311.750
F 215	23	8,189.25	0.8998	7,368.687
F 216	23	7,855.49	0.8998	7,068.369
F 217	23	8,159.60	0.8999	7,342.824
F 218	23	8,268.62	0.8998	7,440.104
F 220	23	8,019.84	0.8999	7,217.054
F 221	23	8,009.44	0.8999	7,207.695
F 222	24	8,132.23	0.8998	7,317.380
F 223	23	8,086.05	0.8999	7,276.636
F 224	24	8,381.80	0.8998	7,541.943
F 225	22	7,701.82	0.9000	6,931.638
F 226	23	8,221.42	0.8998	7,397.633
F 227	24	8,669.10	0.8998	7,800.456
F 228	21	7,275.88	0.8998	6,546.836
F 229	15	5,191.75	0.9000	4,672.575
F 673	19	6,969.80	0.9002	6,274.213
F 674	20	7,522.80	0.8999	6,769.767
F 676	20	7,301.40	0.9000	6,571.260

F 677	18	6,593.10	0.9001	5,934.449
F 678	19	6,937.40	0.9001	6,244.353
F 679	20	7,264.40	0.9000	6,537.960
F 680	22	8,190.10	0.9001	7,371.909
F 681	19	7,102.50	0.9001	6,392.960
F 682	20	7,521.70	0.9001	6,770.282
F 683	20	7,617.10	0.9000	6,855.390
F 685	20	7,461.30	0.8999	6,714.423
F 686	21	7,647.80	0.8998	6,881.490
F 687	18	6,797.60	0.9000	6,117.840
F 688	19	7,007.60	0.9001	6,307.540
F 689	20	7,325.30	0.8998	6,591.304
F 690	20	7,170.80	0.8998	6,452.285
F 691	19	7,130.10	0.9000	6,417.090
F 692	19	7,130.60	0.9001	6,418.253
F 693	22	8,274.90	0.9001	7,448.237
F 694	20	7,510.70	0.9000	6,759.630
F 695	19	7,492.60	0.9002	6,744.838
F 696	20	7,565.50	0.8998	6,807.436
F 697	19	6,987.90	0.9001	6,289.808
F 698	19	7,486.00	0.9000	6,737.400
G 673	21	7,796.00	0.9000	7,016.400
G 674	18	6,685.60	0.8999	6,016.371
G 676	21	7,649.00	0.9000	6,884.100
G 677	19	7,357.10	0.9001	6,622.125
G 678	18	6,656.60	0.9002	5,992.271
G 679	19	7,044.10	0.9000	6,339.690
G 680	16	5,939.70	0.9001	5,346.323
G 681	20	7,485.10	0.9001	6,737.338
G 682	17	6,561.60	0.9001	5,906.096
G 685	19	7,070.50	0.9000	6,363.450
G 686	19	6,985.10	0.9000	6,286.590
G 687	17	6,430.10	0.9000	5,787.090
G 690	19	6,886.70	0.9002	6,199.407
G 691	18	6,842.50	0.9000	6,158.250
G 692	18	6,743.10	0.9001	6,069.464
G 693	17	6,524.00	0.9000	5,871.600
G 694	17	6,271.20	0.8999	5,643.452
G 695	18	6,755.90	0.9000	6,080.310
G 696	18	6,751.40	0.9000	6,076.260
G 697	18	6,615.40	0.8999	5,953.198
G 698	18	6,646.40	0.8998	5,980.430
H 674	18	6,640.80	0.9000	5,976.720
H 676	18	6,649.50	0.9000	5,984.550

H 678	20	7,311.60	0.9003	6,582.633
H 679	19	6,731.80	0.9000	6,058.620
H 680	18	6,594.30	0.9000	5,934.870
H 681	18	6,619.10	0.9000	5,957.190
H 682	18	6,713.70	0.9001	6,043.001
H 685	16	6,000.30	0.9001	5,400.870
H 686	19	6,990.30	0.8999	6,290.570
H 687	19	6,773.40	0.9001	6,096.737
H 688	17	6,293.70	0.9001	5,664.959
H 689	19	6,813.70	0.8999	6,131.648
H 690	19	6,997.90	0.9001	6,298.809
H 691	19	7,081.90	0.9000	6,373.710
H 693	21	7,410.20	0.9001	6,669.921
H 694	19	6,898.50	0.9000	6,208.650
H 695	17	6,166.40	0.8999	5,549.143
H 696	19	7,036.50	0.9000	6,332.850
H 697	20	7,312.50	0.8999	6,580.518
H 698	18	6,534.00	0.8998	5,879.293
00724	20	6,964.30	0.9001	6,268.566
00725	20	7,286.10	0.9000	6,557.490
00726	19	6,764.90	0.8999	6,087.733
00727	20	7,476.80	0.8996	6,726.129
00728	20	7,435.70	0.9000	6,692.130
00729	20	7,180.20	0.9001	6,462.898
00730	20	7,255.50	0.8998	6,528.498
00731	20	7,225.05	0.9000	6,502.545
00733	19	6,830.40	0.8998	6,145.993
00735	20	7,312.90	0.8999	6,580.878
00736	18	6,740.50	0.8999	6,065.775
00737	19	7,247.30	0.8997	6,520.395
00738	20	7,463.00	0.8998	6,715.207
00739	20	7,480.40	0.8998	6,730.863
00740	18	6,672.10	0.8998	6,003.555
00742	19	7,168.20	0.8997	6,449.229
00745	19	7,162.00	0.9000	6,445.800
00746	20	7,466.20	0.9000	6,719.580
00747	19	7,312.60	0.8998	6,579.877
00748	20	7,306.60	0.9002	6,577.401
00749	18	6,964.50	0.8999	6,267.353
00750	19	7,398.00	0.8999	6,657.460
00751	20	7,407.30	0.8999	6,665.829
00752	19	7,155.40	0.9000	6,439.860
00753	20	7,534.60	0.9000	6,781.140
00754	20	7,434.00	0.9000	6,690.600

00755	18	6,895.00	0.8998	6,204.121
00756	18	6,881.90	0.9000	6,193.710
00757	19	7,137.60	0.9000	6,423.840
00758	21	7,787.10	0.8998	7,006.832
00760	19	7,200.70	0.8998	6,479.189
00761	19	7,077.10	0.9000	6,369.390
00762	19	7,034.10	0.9000	6,330.690
00763	20	7,590.30	0.9000	6,831.270
00764	19	7,024.20	0.9000	6,321.780
00765	19	6,983.20	0.8998	6,283.483
00766	19	6,965.10	0.8998	6,267.196
00767	19	6,940.50	0.8999	6,245.755
00768	19	7,209.90	0.8999	6,488.189
00769	20	7,707.80	0.8999	6,936.249
00770	19	7,290.00	0.9000	6,561.000
00771	19	7,220.80	0.9000	6,498.720
00772	19	6,927.90	0.8999	6,234.417
00773	19	7,288.60	0.8998	6,558.282
A 724	20	7,140.40	0.9001	6,427.074
A 725	20	7,313.00	0.8998	6,580.237
A 726	20	7,456.80	0.8999	6,710.374
A 727	20	7,359.20	0.8998	6,621.808
A 728	20	7,408.70	0.9001	6,668.570
A 729	20	7,392.50	0.9000	6,653.250
A 730	20	7,045.60	0.9000	6,341.040
A 731	20	7,188.80	0.8999	6,469.201
A 732	20	7,333.70	0.8999	6,599.596
A 733	20	7,227.50	0.8998	6,503.304
A 734	20	7,529.20	0.8999	6,775.527
A 735	20	6,657.30	0.8997	5,989.572
A 737	19	7,044.70	0.8999	6,339.525
A 738	20	7,277.00	0.8999	6,548.572
A 739	20	7,453.00	0.9000	6,707.700
A 740	19	7,168.00	0.8998	6,449.766
A 741	20	7,379.30	0.8998	6,639.894
A 742	19	7,275.60	0.8998	6,546.584
A 743	17	6,375.10	0.9000	5,737.590
A 744	19	7,037.00	0.8998	6,331.892
A 745	18	6,921.70	0.8997	6,227.453
A 746	18	6,933.00	0.8999	6,239.006
A 747	20	7,157.10	0.8998	6,439.958
A 748	19	7,011.90	0.8999	6,310.008
A 749	19	7,021.50	0.9000	6,319.350
A 750	19	7,027.60	0.8998	6,323.434

A 751	19	7,280.70	0.9000	6,552.630
A 752	19	7,130.60	0.8999	6,416.826
A 753	18	6,789.30	0.8998	6,109.012
A 754	19	7,144.70	0.9000	6,430.230
A 755	19	6,838.50	0.8999	6,153.966
A 756	19	6,955.40	0.9000	6,259.860
A 757	19	7,024.90	0.8999	6,321.707
A 758	21	7,787.90	0.8999	7,008.331
A 759	21	7,756.00	0.9000	6,980.400
A 761	19	7,009.50	0.9000	6,308.550
A 762	17	6,548.60	0.9000	5,893.740
A 764	19	7,330.10	0.9000	6,597.090
A 765	19	7,213.80	0.8998	6,490.977
A 766	18	6,871.10	0.8999	6,183.302
A 767	19	7,178.20	0.8999	6,459.662
A 768	19	6,860.40	0.9000	6,174.360
A 769	18	6,457.90	0.8998	5,810.818
A 770	19	7,011.00	0.8998	6,308.497
A 771	19	7,005.10	0.9000	6,304.590
A 773	19	7,167.40	0.9000	6,450.660
B 724	20	7,001.40	0.9001	6,301.960
B 725	20	7,265.20	0.9000	6,538.680
B 726	18	6,424.30	0.9000	5,781.870
B 727	20	7,426.50	0.8999	6,683.107
B 728	20	7,289.30	0.9001	6,561.098
B 729	20	6,900.70	0.9000	6,210.630
B 730	20	7,276.00	0.9000	6,548.400
B 731	20	7,476.50	0.8998	6,727.354
B 732	20	7,626.50	0.9000	6,863.850
B 733	21	7,432.30	0.8999	6,688.326
B 734	20	7,722.20	0.9000	6,949.980
B 735	20	6,910.00	0.8996	6,216.236
B 736	19	7,087.20	0.8999	6,377.771
B 737	20	7,111.00	0.8997	6,397.766
B 738	20	7,434.50	0.9000	6,691.050
B 739	20	7,252.40	0.8999	6,526.434
B 740	21	7,472.10	0.8997	6,722.648
B 741	20	7,415.30	0.8998	6,672.286
B 742	19	7,316.40	0.8998	6,583.296
B 743	20	7,571.50	0.8998	6,812.835
B 744	20	7,404.80	0.8999	6,663.579
B 745	20	7,476.20	0.8998	6,727.084
B 746	19	6,919.70	0.9000	6,227.730
B 747	20	7,519.10	0.8999	6,766.438

B 748	20	7,418.10	0.8999	6,675.548
B 749	20	7,182.70	0.9000	6,464.430
B 751	20	7,521.10	0.8998	6,767.485
B 752	19	6,913.00	0.8999	6,221.008
B 753	19	6,992.10	0.9000	6,292.890
B 754	19	7,010.40	0.8998	6,307.957
B 756	19	7,098.60	0.8998	6,387.320
B 758	23	8,341.00	0.8999	7,506.065
B 759	20	7,283.50	0.8999	6,554.421
B 760	19	7,209.90	0.8999	6,488.189
B 761	19	7,205.70	0.8999	6,484.409
B 762	21	7,728.60	0.8999	6,954.967
B 763	20	7,424.70	0.9000	6,682.230
B 764	19	7,306.30	0.9000	6,575.670
B 765	19	7,065.60	0.8998	6,357.626
B 766	19	6,939.70	0.8999	6,245.036
B 767	19	6,631.20	0.8998	5,966.753
B 768	19	6,938.90	0.9000	6,245.010
B 769	20	7,256.90	0.8998	6,529.758
B 770	19	6,977.00	0.8997	6,277.206
B 771	19	7,352.20	0.9000	6,616.980
B 772	20	7,440.50	0.8999	6,695.705
B 773	19	7,105.50	0.9000	6,394.950
C 723	20	7,422.30	0.8999	6,679.327
C 724	20	7,147.90	0.9001	6,433.824
C 726	21	7,653.90	0.9001	6,889.275
C 727	20	7,552.00	0.8998	6,795.289
C 728	20	7,406.50	0.9001	6,666.590
C 729	19	7,065.60	0.9001	6,359.746
C 730	19	6,997.40	0.9000	6,297.660
C 731	20	7,328.80	0.9000	6,595.920
C 732	20	7,446.10	0.8999	6,700.745
C 733	18	6,738.20	0.8998	6,063.032
C 734	20	7,498.80	0.8997	6,746.670
C 735	20	7,393.30	0.9000	6,653.970
C 736	20	7,545.00	0.9000	6,790.500
C 737	18	6,779.00	0.8999	6,100.422
C 738	20	7,537.70	0.8998	6,782.422
C 739	19	7,152.10	0.8999	6,436.174
C 741	20	7,765.30	0.9000	6,988.770
C 742	20	7,529.80	0.8997	6,774.561
C 744	19	7,202.30	0.9000	6,482.070
C 745	16	6,033.50	0.8999	5,429.546
C 746	18	6,905.30	0.8997	6,212.698

C 747	17	6,429.60	0.8999	5,785.997
C 748	19	7,061.00	0.8999	6,354.193
C 749	17	6,512.60	0.9000	5,861.340
C 750	18	6,985.50	0.8998	6,285.552
C 751	19	7,131.40	0.9000	6,418.260
C 752	19	7,126.20	0.9000	6,413.580
C 755	18	6,927.80	0.9001	6,235.712
C 756	19	7,315.50	0.9000	6,583.950
C 757	19	7,090.60	0.8998	6,380.121
C 758	19	6,841.30	0.9000	6,157.170
C 759	23	8,495.20	0.9000	7,645.680
C 760	19	7,101.90	0.9000	6,391.710
C 761	19	6,956.55	0.9000	6,260.895
C 762	19	7,338.70	0.8999	6,604.096
C 763	19	7,123.80	0.8999	6,410.707
C 765	19	7,095.30	0.8999	6,385.060
C 766	20	7,319.70	0.8998	6,586.266
C 767	19	6,889.50	0.8999	6,199.861
C 768	19	7,281.20	0.8999	6,552.351
C 769	21	7,884.80	0.9000	7,096.320
C 771	19	7,254.20	0.9000	6,528.780
C 772	18	6,931.90	0.9000	6,238.710
D 723	20	7,331.70	0.8999	6,597.796
D 724	19	6,632.40	0.9001	5,969.823
D 725	19	6,949.70	0.9001	6,255.424
D 726	20	7,231.40	0.8999	6,507.536
D 727	20	7,393.90	0.8998	6,653.031
D 728	20	7,465.60	0.9001	6,719.786
D 729	20	7,240.30	0.8999	6,515.545
D 730	20	7,090.90	0.9000	6,381.810
D 731	20	7,034.60	0.9000	6,331.140
D 732	20	7,262.60	0.9000	6,536.340
D 733	20	7,233.80	0.8999	6,509.696
D 734	20	7,157.80	0.8997	6,439.872
D 735	20	7,264.60	0.8999	6,537.413
D 736	20	7,470.90	0.9002	6,725.304
D 737	19	7,192.40	0.9000	6,473.160
D 738	20	7,435.80	0.8998	6,690.732
D 739	20	7,583.90	0.8998	6,823.993
D 740	20	7,465.40	0.8998	6,717.366
D 741	19	7,019.50	0.8998	6,316.146
D 742	20	7,503.10	0.8997	6,750.539
D 743	20	7,586.20	0.9000	6,827.580
D 744	18	6,591.30	0.8998	5,930.851

D 745	19	7,133.10	0.9000	6,419.790
D 746	20	7,486.30	0.8998	6,736.172
D 747	18	6,524.90	0.9000	5,872.410
D 748	19	7,252.60	0.8998	6,525.889
D 749	19	6,972.90	0.9000	6,275.610
D 752	19	7,051.90	0.8999	6,346.004
D 753	18	6,917.90	0.8999	6,225.418
D 754	19	7,253.80	0.8998	6,526.969
D 755	18	6,579.30	0.8998	5,920.054
D 757	19	7,228.80	0.9000	6,505.920
D 758	19	6,885.50	0.8998	6,195.572
D 759	22	8,204.70	0.9000	7,384.230
D 762	18	6,680.50	0.9000	6,012.450
D 763	20	7,857.70	0.8999	7,071.144
D 764	19	7,112.60	0.9000	6,401.340
D 765	18	6,932.30	0.8999	6,238.376
D 766	18	6,843.70	0.9000	6,159.330
D 767	19	7,268.70	0.8999	6,541.103
D 768	19	6,938.70	0.8999	6,244.136
D 769	18	6,712.60	0.9000	6,041.340
D 770	18	6,681.90	0.9001	6,014.378
D 772	19	7,222.10	0.9000	6,499.890
D 773	20	7,391.40	0.9000	6,652.260
E 723	20	7,200.80	0.8998	6,479.279
E 724	22	7,959.80	0.9002	7,165.411
E 725	20	7,388.30	0.9000	6,649.470
E 726	21	7,495.20	0.8999	6,744.930
E 727	21	7,806.50	0.9002	7,027.411
E 728	20	7,151.50	0.9001	6,437.065
E 729	20	7,453.20	0.9001	6,708.625
E 730	21	7,544.20	0.8999	6,789.025
E 731	20	7,107.20	0.9000	6,396.480
E 732	20	7,400.70	0.9000	6,660.630
E 733	22	7,793.20	0.8998	7,012.321
E 734	20	7,206.80	0.9000	6,486.120
E 735	20	7,531.90	0.8998	6,777.203
E 736	20	7,069.90	0.8998	6,361.496
E 737	21	7,573.50	0.8998	6,814.635
E 738	19	6,945.70	0.8998	6,249.740
E 740	19	7,048.10	0.8996	6,340.470
E 741	19	7,362.80	0.8997	6,624.311
E 742	20	7,785.00	0.8996	7,003.386
E 743	20	7,693.40	0.8999	6,923.290
E 744	21	7,631.30	0.8998	6,866.643

E 747	21	8,001.40	0.8998	7,199.659
E 749	23	8,281.30	0.9000	7,453.170
E 750	22	8,009.40	0.8999	7,207.659
E 751	19	7,054.80	0.8999	6,348.614
E 752	20	7,440.90	0.8999	6,696.065
E 753	22	7,892.90	0.9000	7,103.610
E 754	20	7,227.80	0.9000	6,505.020
E 755	22	8,420.75	0.9000	7,578.675
E 756	20	7,310.20	0.8999	6,578.448
E 757	19	7,032.50	0.8999	6,328.546
E 758	18	6,374.60	0.8998	5,735.865
E 759	22	8,282.40	0.9000	7,454.160
E 760	19	7,341.00	0.9000	6,606.900
E 761	19	7,240.20	0.9000	6,516.180
E 762	21	7,825.10	0.8999	7,041.807
E 763	20	7,518.70	0.8999	6,766.078
E 764	19	7,104.50	0.9000	6,394.050
E 765	19	6,887.10	0.8999	6,197.701
E 766	22	7,998.70	0.9000	7,198.830
E 767	19	6,781.70	0.8998	6,102.173
E 768	20	7,211.20	0.8999	6,489.358
E 769	19	7,093.90	0.9000	6,384.510
E 770	20	7,568.60	0.9001	6,812.496
E 771	19	7,186.70	0.8997	6,465.873
E 772	19	7,168.00	0.9000	6,451.200
E 773	20	7,250.80	0.9000	6,525.720
F 723	19	6,702.40	0.8999	6,031.489
F 724	20	7,380.10	0.8999	6,641.351
F 725	20	7,367.90	0.9000	6,631.110
F 726	18	6,680.30	0.8998	6,010.933
F 727	16	5,932.40	0.9000	5,339.160
F 728	18	6,622.00	0.8999	5,959.137
F 729	18	6,715.10	0.9001	6,044.261
F 730	19	6,864.70	0.8998	6,176.857
F 731	19	6,915.20	0.9000	6,223.680
F 732	17	6,164.70	0.9000	5,548.230
F 733	18	6,751.30	0.8997	6,074.144
F 734	17	6,340.20	0.9000	5,706.180
F 735	19	7,054.65	0.8998	6,347.774
F 736	19	7,015.20	0.9000	6,313.680
F 738	18	6,655.40	0.8998	5,988.528
F 739	17	6,484.00	0.8999	5,834.951
F 740	17	6,492.80	0.8999	5,842.870
F 741	17	6,363.50	0.8999	5,726.513

F 742	17	6,223.10	0.9000	5,600.790
F 743	18	6,791.80	0.9000	6,112.620
F 744	19	6,972.30	0.9000	6,275.070
F 746	18	6,832.70	0.8997	6,147.380
F 747	18	6,807.90	0.9000	6,127.110
F 748	18	6,594.80	0.9000	5,935.320
F 750	18	6,569.00	0.8999	5,911.443
F 751	18	6,795.00	0.9000	6,115.500
F 752	16	6,000.70	0.8999	5,400.029
F 754	17	6,355.60	0.8998	5,718.768
F 756	16	6,166.00	0.9000	5,549.400
F 757	19	6,973.10	0.8997	6,273.698
F 758	23	8,621.10	0.9000	7,758.990
F 759	20	7,534.30	0.8998	6,779.363
F 761	19	6,942.80	0.8998	6,247.131
F 762	17	6,367.60	0.9000	5,730.840
F 763	16	5,932.70	0.8999	5,338.836
F 764	18	6,542.30	0.8999	5,887.415
F 765	19	7,059.10	0.8998	6,351.778
F 766	18	6,587.00	0.8998	5,926.982
F 767	19	6,876.80	0.9000	6,189.120
F 768	18	6,873.50	0.8998	6,184.775
F 769	17	6,552.20	0.8998	5,895.669
F 771	17	6,310.40	0.9000	5,679.360
F 772	18	7,028.00	0.8999	6,324.497
F 773	18	6,599.50	0.8998	5,938.230
G 723	19	6,626.10	0.8999	5,962.827
G 725	16	5,871.80	0.8997	5,282.858
G 728	18	6,725.70	0.8998	6,051.784
G 729	18	6,396.00	0.9000	5,756.400
G 730	19	6,734.40	0.8999	6,060.286
G 731	19	6,732.50	0.8998	6,057.903
G 732	18	6,602.30	0.9000	5,942.070
G 733	18	6,680.00	0.9000	6,012.000
G 734	18	6,405.00	0.9000	5,764.500
G 735	19	6,916.60	0.8998	6,223.556
G 737	20	7,301.30	0.8998	6,569.709
G 738	16	6,044.80	0.8999	5,439.715
G 739	17	6,323.70	0.8999	5,690.697
G 740	19	6,984.20	0.9000	6,285.780
G 741	17	6,230.20	0.8997	5,605.310
G 742	16	5,994.00	0.8997	5,392.801
G 743	17	6,276.50	0.9000	5,648.850
G 744	18	6,798.50	0.9000	6,118.650

G 746	17	6,343.80	0.8999	5,708.785
G 747	19	7,044.50	0.9001	6,340.754
G 748	17	6,523.90	0.9000	5,871.510
G 750	17	6,411.60	0.9000	5,770.440
G 751	17	6,468.20	0.8999	5,820.733
G 752	20	7,375.60	0.9000	6,638.040
G 754	18	6,689.70	0.8999	6,020.061
G 756	20	7,242.10	0.9000	6,517.890
G 758	25	9,222.40	0.8998	8,298.315
G 759	22	8,130.10	0.8999	7,316.276
G 760	19	7,183.60	0.8998	6,463.803
G 761	18	6,855.60	0.8998	6,168.668
G 762	20	7,517.20	0.9001	6,766.231
G 763	16	6,141.30	0.9000	5,527.170
G 764	18	6,854.60	0.8998	6,167.769
G 765	17	6,532.30	0.8999	5,878.416
G 767	19	7,144.00	0.9000	6,429.600
G 768	19	6,839.60	0.8999	6,154.956
G 769	18	6,758.10	0.9000	6,082.290
G 770	18	6,726.40	0.9000	6,053.760
G 771	19	7,051.30	0.9000	6,346.170
G 772	19	7,055.00	0.8999	6,348.794
G 773	18	6,781.80	0.8998	6,102.263
H 723	21	7,258.50	0.8998	6,531.198
H 724	19	6,881.50	0.8998	6,191.973
H 725	21	7,819.10	0.8997	7,034.844
H 726	21	7,575.50	0.8999	6,817.192
H 727	21	7,308.30	0.8999	6,576.739
H 728	21	6,950.50	0.8999	6,254.754
H 729	23	8,118.40	0.9000	7,306.560
H 730	21	7,651.40	0.9000	6,886.260
H 731	21	7,439.00	0.9000	6,695.100
H 732	21	7,316.20	0.9000	6,584.580
H 733	21	7,752.40	0.8999	6,976.384
H 734	20	7,059.70	0.8999	6,353.024
H 736	20	7,477.60	0.8999	6,729.092
H 737	20	7,144.70	0.8997	6,428.086
H 738	21	7,598.00	0.8997	6,835.920
H 739	21	7,372.10	0.9000	6,634.890
H 740	21	7,737.30	0.9000	6,963.570
H 741	20	7,514.30	0.8998	6,761.367
H 742	21	7,646.30	0.8998	6,880.140
H 743	21	7,703.70	0.9000	6,933.330
H 744	21	7,797.50	0.9000	7,017.750

H 746	21	7,581.30	0.8998	6,821.653
H 747	20	7,580.20	0.9000	6,822.180
H 748	22	7,846.00	0.8999	7,060.615
H 750	23	8,263.10	0.8999	7,435.963
H 751	21	7,503.60	0.8998	6,751.739
H 752	22	8,205.20	0.8999	7,383.859
H 754	23	8,183.30	0.8999	7,364.151
H 756	24	8,432.70	0.8999	7,588.586
H 757	23	8,182.90	0.9000	7,364.610
H 758	27	9,775.60	0.8999	8,797.062
H 759	23	8,631.30	0.9000	7,768.170
H 760	20	7,467.80	0.8998	6,719.526
H 761	21	7,707.50	0.9000	6,936.750
H 762	19	7,303.60	0.8998	6,571.779
H 763	21	7,762.40	0.8999	6,985.383
H 765	24	8,699.20	0.9000	7,829.280
H 766	20	7,340.80	0.8999	6,605.985
H 767	24	8,644.30	0.9000	7,779.870
H 768	23	8,217.10	0.8998	7,393.746
H 769	21	7,910.90	0.9000	7,119.810
H 770	24	8,479.10	0.9000	7,631.190
H 771	21	7,783.10	0.9000	7,004.790
H 772	21	7,629.00	0.9000	6,866.100
H 773	21	7,909.40	0.8997	7,116.087
00895	19	7,165.00	0.9000	6,448.500
00897	20	7,489.80	0.8999	6,740.071
00898	20	7,456.40	0.8999	6,710.014
00899	20	7,438.95	0.8998	6,693.567
00900	20	7,391.70	0.8999	6,651.790
00901	20	7,569.10	0.8999	6,811.433
00902	20	7,432.70	0.8999	6,688.686
00903	20	7,608.10	0.8999	6,846.529
00904	20	7,383.60	0.9000	6,645.240
00905	20	7,415.80	0.8998	6,672.736
00906	20	7,392.30	0.9000	6,653.070
00907	20	7,346.50	0.8998	6,610.380
00908	20	7,432.60	0.8998	6,687.853
00909	20	7,469.30	0.8999	6,721.623
00910	19	7,089.90	0.8999	6,380.201
00911	20	7,451.80	0.8999	6,705.874
00912	19	6,888.70	0.9000	6,199.830
00913	20	7,350.00	0.9000	6,615.000
00914	20	7,307.50	0.8999	6,576.019
16820	14	4,830.40	0.9166	4,427.544

16821	12	3,967.55	0.8997	3,569.604
17049	15	5,304.17	0.9128	4,841.646
17204	13	4,435.05	0.8993	3,988.440
17332	20	7,245.08	0.9166	6,640.840
17333	19	6,899.39	0.9166	6,323.980
17334	20	6,789.85	0.9165	6,222.897
17335	17	5,796.80	0.9166	5,313.346
17818	17	6,186.08	0.9164	5,668.923
17819	17	5,914.46	0.9165	5,420.602
17820	19	6,650.21	0.8993	5,980.533
17905	16	5,306.19	0.8993	4,771.856
17906	11	4,053.49	0.9166	3,715.428
17989	20	7,429.85	0.9165	6,809.457
17990	20	7,392.90	0.9166	6,776.332
17991	21	7,616.90	0.9166	6,981.650
18175	17	6,050.94	0.9165	5,545.686
18176	15	5,489.07	0.9166	5,031.281
18177	17	5,951.74	0.9165	5,454.769
18180	18	6,355.62	0.8996	5,717.515
18181	18	6,208.81	0.8995	5,584.824
18182	15	5,193.55	0.9166	4,760.407
18187	16	5,426.73	0.8993	4,880.258
18225	18	6,397.45	0.9165	5,863.262
18226	17	6,012.18	0.9165	5,510.162
18227	18	6,344.40	0.9166	5,815.277
18229	19	6,785.02	0.8996	6,103.803
18230	19	6,785.77	0.8995	6,103.800
18255	18	6,569.66	0.9166	6,021.750
18256	16	5,762.10	0.9165	5,280.964
18257	16	5,556.71	0.9166	5,093.280
18258	16	5,740.51	0.8995	5,163.588
18259	16	5,264.54	0.8996	4,735.980
18436	21	7,716.91	0.9166	7,073.319
18437	21	7,712.59	0.9166	7,069.359
18438	22	7,992.82	0.9166	7,326.218
18439	21	7,584.76	0.9166	6,952.191
18440	18	6,329.73	0.9166	5,801.830
18442	19	6,765.92	0.8996	6,086.621
18443	18	6,422.64	0.8995	5,777.164
18557	18	6,415.54	0.8995	5,770.778
18558	18	6,383.80	0.8996	5,742.866
18559	15	5,146.92	0.8996	4,630.169
18560	18	6,413.22	0.9165	5,877.716
18561	18	6,298.16	0.9165	5,772.263

18562	19	6,730.30	0.9166	6,168.992
18563	19	6,648.24	0.9165	6,093.111
18867	21	7,172.81	0.8995	6,451.942
18937	18	6,447.83	0.8993	5,798.533
18938	16	5,536.12	0.8993	4,978.632
19208	16	5,779.15	0.9166	5,297.168
19209	15	5,440.60	0.9166	4,986.853
19210	15	5,363.24	0.9166	4,915.945
19211	13	4,637.83	0.8997	4,172.655
19212	12	4,204.45	0.8996	3,782.323
19224	13	4,397.98	0.8995	3,955.983
19237	23	8,196.45	0.8996	7,373.526
19238	22	7,787.65	0.8997	7,006.548
19239	22	7,664.24	0.8996	6,894.750
19241	22	7,885.71	0.8996	7,093.984
19242	21	7,465.70	0.8997	6,716.890
19243	21	7,327.10	0.8996	6,591.459
19244	22	7,905.78	0.9166	7,246.437
19245	22	7,777.56	0.9167	7,129.689
19264	22	7,829.71	0.8995	7,042.824
19265	23	7,661.83	0.8994	6,891.049
19266	22	7,626.08	0.9166	6,990.064
19339	14	4,716.46	0.9002	4,245.757
19342	17	6,088.32	0.9166	5,580.554
19343	19	6,437.82	0.9165	5,900.262
19355	22	7,634.05	0.9166	6,997.370
19362	16	5,744.20	0.9155	5,258.815
19364	23	8,073.90	0.9006	7,271.354
19563	18	5,808.85	0.8998	5,226.803
19565	14	4,904.40	0.9164	4,494.392
19566	14	4,611.13	0.9164	4,225.639
19591	23	8,117.42	0.9166	7,440.427
19592	23	8,073.23	0.9165	7,399.115
19593	23	7,601.98	0.9166	6,967.974
19594	15	5,184.64	0.8998	4,665.139
19616	19	6,551.01	0.8995	5,892.633
20027	14	4,790.05	0.9166	4,390.559
20028	15	5,066.95	0.9165	4,643.859
20035	19	6,556.65	0.9166	6,009.825
20036	18	5,973.18	0.9166	5,475.016
20455	17	5,861.74	0.9166	5,372.870
A 896	20	7,413.70	0.9000	6,672.330
A 897	21	7,726.70	0.9000	6,954.030
A 898	20	7,360.00	0.8999	6,623.264

A 899	20	7,313.50	0.8998	6,580.687
A 900	20	7,513.40	0.8999	6,761.308
A 902	20	7,510.20	0.8999	6,758.428
A 904	20	7,422.00	0.9001	6,680.542
A 905	19	6,927.20	0.8998	6,233.094
A 906	20	7,471.40	0.9000	6,724.260
A 907	20	7,254.30	0.8999	6,528.144
A 908	20	7,402.50	0.8998	6,660.769
A 909	20	7,317.60	0.9000	6,585.840
A 910	18	6,470.30	0.9000	5,823.270
A 911	20	7,319.80	0.9000	6,587.820
A 912	20	7,260.60	0.8999	6,533.813
A 913	20	7,274.90	0.9000	6,547.410
A 914	20	7,418.20	0.9000	6,676.380
B 895	21	7,787.20	0.8999	7,007.701
B 896	20	7,017.10	0.9000	6,315.390
B 898	20	7,337.60	0.9000	6,603.840
B 899	20	7,306.25	0.8997	6,573.433
B 900	20	7,500.50	0.9000	6,750.450
B 901	20	7,482.80	0.8999	6,733.771
B 902	19	6,965.40	0.9000	6,268.860
B 903	20	7,373.90	0.8999	6,635.772
B 904	20	7,424.10	0.8998	6,680.205
B 905	20	7,485.20	0.8998	6,735.182
B 906	20	7,415.10	0.8999	6,672.848
B 907	20	7,369.60	0.8999	6,631.903
B 908	20	7,568.50	0.8998	6,810.136
B 909	20	7,456.60	0.8999	6,710.194
B 910	20	7,262.10	0.8997	6,533.711
B 911	20	7,314.10	0.9000	6,582.690
B 912	20	7,461.90	0.8999	6,714.963
B 913	20	7,223.60	0.8999	6,500.517
B 914	20	7,411.10	0.9000	6,669.990
C 895	22	8,413.10	0.8999	7,570.948
C 896	21	7,705.70	0.9000	6,935.130
C 897	20	7,419.40	0.8998	6,675.976
C 898	20	7,364.30	0.8999	6,627.133
C 899	20	7,573.15	0.8997	6,813.563
C 900	20	7,394.50	0.9000	6,655.050
C 902	20	7,515.80	0.8999	6,763.468
C 903	20	7,617.50	0.9001	6,856.511
C 904	20	7,353.20	0.8998	6,616.409
C 905	20	7,471.10	0.8999	6,723.242
C 906	20	7,546.60	0.8998	6,790.430

C 907	20	7,380.60	0.9000	6,642.540
C 908	20	7,407.60	0.8999	6,666.099
C 909	19	7,194.80	0.9000	6,475.320
C 910	20	7,404.90	0.8999	6,663.669
C 911	19	7,100.20	0.8999	6,389.469
C 912	20	7,387.70	0.8999	6,648.191
C 913	20	7,364.00	0.8999	6,626.863
C 914	20	7,320.60	0.9000	6,588.540
D 895	22	8,111.70	0.9000	7,300.530
D 896	22	8,163.70	0.9000	7,347.330
D 897	20	7,205.70	0.8999	6,484.409
D 898	20	7,473.55	0.9000	6,726.195
D 899	20	7,319.50	0.8997	6,585.354
D 900	20	7,466.40	0.9000	6,719.760
D 901	20	7,462.70	0.8999	6,715.683
D 902	20	7,404.30	0.9000	6,663.870
D 903	20	7,241.80	0.9000	6,517.620
D 904	20	7,490.70	0.8997	6,739.382
D 905	20	7,394.40	0.8999	6,654.220
D 906	20	7,460.85	0.8999	6,714.018
D 907	20	7,405.40	0.8998	6,663.378
D 908	20	7,464.20	0.8999	6,717.033
D 909	19	7,072.90	0.9000	6,365.610
D 910	20	7,341.00	0.9000	6,606.900
D 911	20	7,254.00	0.8999	6,527.874
D 912	20	7,225.30	0.8999	6,502.047
D 913	20	7,307.60	0.8999	6,576.109
D 914	20	7,476.00	0.8999	6,727.652
E 895	22	8,100.60	0.8999	7,289.729
E 896	19	6,320.20	0.8998	5,686.915
E 897	20	7,412.00	0.9000	6,670.800
E 898	20	7,409.45	0.9000	6,668.505
E 899	20	7,449.80	0.8998	6,703.330
E 900	20	7,330.90	0.8998	6,596.343
E 901	19	7,063.60	0.9000	6,357.240
E 902	20	7,411.40	0.8999	6,669.518
E 903	20	7,238.60	0.9000	6,514.740
E 904	20	7,454.50	0.8998	6,707.559
E 905	20	7,602.70	0.8999	6,841.669
E 907	20	7,433.60	0.8997	6,688.009
E 908	19	7,194.10	0.8999	6,473.970
E 909	20	7,401.30	0.9001	6,661.910
E 910	20	7,482.20	0.9000	6,733.980
E 911	20	7,323.20	0.8999	6,590.147

E 912	20	7,357.40	0.8997	6,619.452
E 913	20	7,385.20	0.9000	6,646.680
E 914	20	7,372.30	0.9000	6,635.070
F 895	20	7,705.50	0.9000	6,934.950
F 896	21	7,614.20	0.8999	6,852.018
F 898	20	7,362.60	0.8999	6,625.603
F 900	20	7,414.00	0.9000	6,672.600
F 901	20	7,615.50	0.8997	6,851.665
F 902	20	7,475.60	0.8998	6,726.544
F 903	19	7,266.50	0.9000	6,539.850
F 906	20	7,439.70	0.8998	6,694.242
F 907	19	7,143.80	0.8998	6,427.991
F 908	19	7,060.50	0.8999	6,353.743
F 909	19	7,124.55	0.8998	6,410.670
F 910	20	7,455.90	0.9000	6,710.310
F 911	20	7,201.70	0.9000	6,481.530
F 913	20	7,390.00	0.9000	6,651.000
G 895	21	7,713.00	0.9000	6,941.700
G 896	21	7,874.40	0.8999	7,086.172
G 897	20	7,273.10	0.9001	6,546.517
G 898	20	7,559.00	0.8999	6,802.344
G 899	20	7,253.80	0.8999	6,527.694
G 900	20	7,516.10	0.8999	6,763.738
G 901	20	7,479.10	0.8999	6,730.442
G 903	20	7,310.40	0.9000	6,579.360
G 904	20	7,419.20	0.8999	6,676.538
G 905	20	7,394.40	0.9000	6,654.960
G 906	20	7,431.60	0.8999	6,687.696
G 907	20	7,417.40	0.8997	6,673.434
G 908	20	7,454.90	0.9000	6,709.410
G 909	20	7,343.80	0.8998	6,607.951
G 911	19	6,944.30	0.9000	6,249.870
G 912	20	7,187.30	0.9000	6,468.570
G 914	20	7,443.00	0.9000	6,698.700
H 895	21	7,604.20	0.9000	6,843.780
H 896	21	7,481.60	0.8999	6,732.691
H 897	20	7,401.60	0.9000	6,661.440
H 898	21	7,680.70	0.8999	6,911.861
H 899	20	7,388.80	0.8998	6,648.442
H 900	20	7,422.10	0.9000	6,679.890
H 902	20	7,242.10	0.9000	6,517.890
H 903	20	7,335.20	0.8999	6,600.946
H 904	20	7,342.00	0.8999	6,607.065
H 905	20	7,513.60	0.9000	6,762.240

H 906	20	7,516.70	0.9000	6,765.030
H 907	20	7,427.50	0.8998	6,683.264
H 908	20	7,549.80	0.9002	6,796.329
H 909	20	7,493.90	0.8998	6,743.011
H 910	20	7,388.50	0.9000	6,649.650
H 912	20	7,289.50	0.8998	6,559.092
H 913	20	7,355.00	0.8998	6,618.029
H 914	20	7,408.25	0.8999	6,666.684
I 895	16	6,135.80	0.9000	5,522.220
I 896	19	6,908.60	0.8999	6,217.049
I 897	18	6,454.30	0.9001	5,809.515
I 898	16	5,976.80	0.9000	5,379.120
I 899	17	6,520.60	0.8998	5,867.235
I 900	17	6,293.30	0.8998	5,662.711
I 901	18	6,773.50	0.9000	6,096.150
I 902	19	7,139.80	0.9000	6,425.820
I 903	17	6,468.70	0.8998	5,820.536
I 904	17	6,273.00	0.8998	5,644.445
I 905	18	6,641.60	0.9000	5,977.440
I 906	18	6,722.30	0.8999	6,049.397
I 907	19	7,137.00	0.8999	6,422.586
I 908	19	7,018.40	0.8999	6,315.858
I 909	18	6,769.60	0.9000	6,092.640
I 910	19	6,994.90	0.8999	6,294.710
I 911	17	6,356.70	0.8999	5,720.394
I 912	19	6,916.00	0.8998	6,223.016
I 913	19	7,004.10	0.9000	6,303.690
I 914	19	6,930.30	0.8999	6,236.576
J 895	15	5,178.70	0.9000	4,660.830
J 896	16	5,925.50	0.8999	5,332.357
J 897	17	6,441.80	0.9000	5,797.620
J 898	17	6,462.05	0.8998	5,814.552
J 899	17	6,155.50	0.9000	5,539.950
J 900	17	6,407.90	0.8998	5,765.828
J 901	17	6,427.70	0.8999	5,784.287
J 902	16	6,123.90	0.8999	5,510.897
J 903	19	6,907.80	0.8999	6,216.329
J 904	18	6,770.00	0.9000	6,093.000
J 906	17	6,254.45	0.8999	5,628.379
J 907	18	6,629.20	0.8998	5,964.954
J 908	18	6,639.50	0.9000	5,975.550
J 909	19	6,960.10	0.9001	6,264.786
J 910	20	7,285.40	0.8998	6,555.402
J 911	22	7,822.20	0.8998	7,038.415

J 914	22	7,937.30	0.8998	7,141.982
K 896	20	7,466.50	0.8999	6,719.103
K 897	18	6,442.50	0.8999	5,797.605
K 899	22	7,701.70	0.8999	6,930.759
K 900	20	7,388.90	0.8997	6,647.793
K 901	20	7,141.10	0.8999	6,426.275
K 902	21	7,475.70	0.8999	6,727.382
K 903	22	7,715.60	0.8999	6,943.268
K 904	20	7,234.30	0.8999	6,510.146
K 906	19	6,901.00	0.9000	6,210.900
K 907	20	7,098.20	0.8999	6,387.670
K 908	19	6,847.50	0.9000	6,162.750
K 909	21	7,439.90	0.8998	6,694.422
K 910	21	7,594.80	0.8998	6,833.801
K 912	19	6,898.80	0.8998	6,207.540
K 913	19	6,731.50	0.8999	6,057.676
L 900	19	7,298.90	0.9000	6,569.010
L 905	17	6,381.70	0.9000	5,743.530
L 909	19	6,957.70	0.9000	6,261.930
L 914	18	6,722.60	0.8999	6,049.667
M 900	18	6,678.50	0.9000	6,010.650
M 905	19	6,998.60	0.9000	6,298.740
M 909	17	6,247.40	0.8999	5,622.035
M 914	19	6,856.00	0.8999	6,169.714
N 900	22	7,784.50	0.9001	7,006.828
N 905	23	8,379.10	0.9000	7,541.190
N 909	24	8,550.40	0.8998	7,693.649
N 914	23	8,178.30	0.8999	7,359.652
04370	21	7,836.58	0.9166	7,183.009
T 774	21	7,473.89	0.8993	6,721.269
T 727	21	7,411.89	0.8995	6,666.995
04363	21	7,759.93	0.9166	7,112.752
03193	20	7,547.93	0.9165	6,917.678
T1084	22	7,624.67	0.8993	6,856.866
T1082	18	6,670.35	0.8994	5,999.313
04304	21	7,679.82	0.9165	7,038.555
04327	21	7,672.94	0.9166	7,033.017
04286	17	6,466.43	0.9166	5,927.130
03483	20	7,135.39	0.9073	6,473.939
03916	19	6,942.56	0.9166	6,363.550
T 989	20	7,156.80	0.8992	6,435.395
T 749	20	7,380.96	0.8993	6,637.697
T 761	20	7,090.27	0.8993	6,376.280
04096	21	7,734.55	0.9166	7,089.489

03879	22	8,036.23	0.9165	7,365.205
04046	21	7,765.72	0.9166	7,118.059
03754	19	6,995.34	0.9166	6,411.929
04036	20	7,484.80	0.9166	6,860.568
04111	21	7,621.15	0.9166	6,985.546
04118	23	8,255.37	0.9166	7,566.872
03873	21	7,466.89	0.9165	6,843.405
06425	21	7,742.50	0.9166	7,096.775
04112	22	7,934.63	0.9166	7,272.882
06399	20	7,569.87	0.9166	6,938.543
06352	20	7,341.33	0.9166	6,729.063
06466	19	7,012.09	0.9166	6,427.282
06408	21	7,772.79	0.9166	7,124.539
06396	20	7,718.97	0.9166	7,075.208
03742	21	7,746.94	0.9166	7,100.845
05186	19	7,102.41	0.9165	6,509.359
06330	21	7,739.76	0.9165	7,093.490
05051	19	6,878.31	0.9166	6,304.659
06376	21	7,707.67	0.9166	7,064.850
06148	21	7,870.84	0.9166	7,214.412
06146	21	7,844.68	0.9166	7,190.434
06103	21	7,712.87	0.9166	7,069.617
05234	13	4,718.59	0.9166	4,325.060
05522	21	7,799.00	0.9166	7,148.563
05520	21	7,660.15	0.9165	7,020.527
05524	21	7,793.42	0.9167	7,144.228
05408	21	7,912.96	0.9166	7,253.019
06367	21	7,779.43	0.9166	7,130.625
09387	19	6,634.32	0.8997	5,968.898
06000	20	7,101.50	0.9063	6,436.090
05996	20	7,190.46	0.9050	6,507.366
T 671	20	7,205.26	0.8993	6,479.690
05152	20	7,299.87	0.9010	6,577.183
T 497	17	6,043.47	0.8993	5,434.893
T 446	18	6,441.38	0.8993	5,792.733
T 443	18	6,387.61	0.8991	5,743.100
T 432	17	5,969.46	0.8992	5,367.739
20597	18	6,674.37	0.9166	6,117.728
T 722	21	7,497.06	0.8994	6,742.856
T 712	20	7,263.80	0.8993	6,532.335
T 477	17	6,112.16	0.8992	5,496.054
20663	20	7,293.80	0.9166	6,685.497
T 591	18	6,467.84	0.8993	5,816.529
20621	20	7,243.51	0.9166	6,639.401

T 426	15	5,184.41	0.8993	4,662.340
T 328	17	6,012.75	0.8995	5,408.469
20786	20	7,370.88	0.9166	6,756.149
20784	20	7,322.01	0.9166	6,711.354
20607	20	7,344.20	0.9165	6,730.959
20602	20	7,291.88	0.9166	6,683.737
20611	18	6,357.45	0.9165	5,826.603
T1068	20	7,226.94	0.8992	6,498.464
T1061	21	7,652.12	0.8993	6,881.552
T1067	20	7,166.37	0.8994	6,445.433
T1062	20	7,155.17	0.8994	6,435.360
T1069	20	7,224.28	0.8992	6,496.073
T1072	21	7,631.26	0.8992	6,862.029
T1071	21	7,620.52	0.8993	6,853.134
T1076	20	7,246.80	0.8991	6,515.598
T1070	21	7,534.36	0.8992	6,774.897
T1073	21	7,547.28	0.8993	6,787.269
T1075	20	7,227.80	0.8992	6,499.238
T1080	20	7,294.53	0.8992	6,559.241
T1074	17	5,976.71	0.8991	5,373.660
T1077	20	7,269.94	0.8993	6,537.857
T1078	20	7,139.58	0.8993	6,420.624
T1079	20	7,285.46	0.8993	6,551.814
T1081	20	7,377.68	0.8993	6,634.748
T1083	20	6,848.15	0.8993	6,158.541
T1085	21	7,414.58	0.8993	6,667.932
T1054	21	7,614.60	0.8992	6,847.048
T1063	20	7,048.53	0.8994	6,339.448
T1086	19	6,730.83	0.8994	6,053.709
T1059	20	7,090.83	0.8994	6,377.493
T1058	21	7,455.45	0.8993	6,704.686
T1057	20	7,128.02	0.8993	6,410.228
T1056	21	7,559.47	0.8993	6,798.231
T1055	20	7,211.77	0.8993	6,485.545
00472	21	7,122.94	0.8997	6,408.509
00473	21	7,057.50	0.8998	6,350.339
01522	22	7,656.03	0.9166	7,017.517
00475	21	7,219.44	0.8998	6,496.052
00474	21	7,335.23	0.8998	6,600.240
01523	22	7,732.20	0.9166	7,087.335
01524	22	7,691.45	0.9166	7,049.983
01525	21	7,421.35	0.9166	6,802.409
01526	21	7,288.20	0.9166	6,680.364
01527	19	6,611.55	0.9166	6,060.147

01123	20	6,979.50	0.8994	6,277.362
01127	19	6,829.03	0.8994	6,142.030
01126	17	5,953.18	0.8993	5,353.695
01125	19	6,747.02	0.8992	6,066.920
01124	20	7,147.01	0.8993	6,427.306
01131	19	6,735.65	0.8992	6,056.696
01130	20	6,966.53	0.8993	6,265.000
01129	19	6,758.05	0.8992	6,076.839
01128	20	7,002.72	0.8992	6,296.846
01132	20	6,868.82	0.8992	6,176.443
01133	20	7,093.70	0.8994	6,380.074
01134	20	7,007.75	0.8993	6,302.070
01135	20	7,124.19	0.8994	6,407.496
01139	18	6,403.38	0.8993	5,758.560
01138	20	6,933.41	0.8992	6,234.522
01137	21	7,487.11	0.8993	6,733.158
01136	20	6,891.65	0.8993	6,197.661
01140	20	6,985.02	0.8991	6,280.231
01141	20	7,061.59	0.8993	6,350.488
01142	19	6,637.45	0.8993	5,969.059
01143	20	7,187.91	0.8993	6,464.087
03177	21	7,109.43	0.8993	6,393.510
03178	21	7,110.76	0.8993	6,394.706
03179	21	7,140.40	0.8994	6,422.076
03180	20	6,774.43	0.8993	6,092.245
03181	20	6,741.53	0.8994	6,063.332
03182	21	7,009.30	0.8992	6,302.763
03183	21	7,068.06	0.8992	6,355.600
03184	21	7,022.45	0.8992	6,314.587
03185	21	7,057.00	0.8992	6,345.654
03186	21	7,053.79	0.8993	6,343.473
03187	20	6,858.11	0.8993	6,167.498
03188	20	6,961.45	0.8993	6,260.432
03189	20	6,901.90	0.8993	6,206.879
03190	21	7,287.47	0.8994	6,554.351
03191	21	7,274.60	0.8993	6,542.048
03192	20	6,899.90	0.8994	6,205.770
03196	20	6,937.77	0.8993	6,239.137
03195	20	6,964.97	0.8994	6,264.294
03194	20	7,048.95	0.8993	6,339.121
03193	20	6,917.27	0.8993	6,220.701
03197	21	6,927.92	0.8994	6,230.971
03198	21	6,919.06	0.8993	6,222.311
03199	21	6,944.13	0.8994	6,245.551

03201	20	6,749.17	0.8993	6,069.529
03200	21	7,015.05	0.8993	6,308.634
03236	19	6,503.38	0.8991	5,847.189
03234	21	7,069.54	0.8993	6,357.637
03230	20	6,968.75	0.8992	6,266.300
03231	18	6,168.65	0.8992	5,546.850
03232	21	7,030.87	0.8992	6,322.158
03233	21	7,099.46	0.8993	6,384.544
03244	21	6,989.90	0.8993	6,286.017
03243	21	7,032.37	0.8992	6,323.507
03242	21	7,068.95	0.8992	6,356.400
03241	21	7,196.80	0.8992	6,471.363
03246	22	7,420.72	0.8992	6,672.711
03245	21	7,070.84	0.8993	6,358.806
03247	18	6,187.74	0.8993	5,564.635
03248	18	6,334.11	0.8993	5,696.265
03252	19	6,550.90	0.8992	5,890.569
03251	19	6,441.50	0.8993	5,792.841
03250	19	6,503.66	0.8992	5,848.091
03226	19	6,754.90	0.8993	6,074.682
03249	18	6,313.51	0.8994	5,678.371
03227	21	7,285.29	0.8994	6,552.390
03228	21	7,236.69	0.8992	6,507.232
03229	21	7,338.65	0.8992	6,598.914
03225	20	7,155.69	0.8993	6,435.112
03224	20	7,195.42	0.8994	6,471.561
03223	20	7,191.59	0.8994	6,468.116
03222	20	7,065.41	0.8994	6,354.630
03221	21	7,377.04	0.8992	6,633.434
03220	20	6,866.44	0.8992	6,174.303
03219	20	6,876.94	0.8993	6,184.432
03218	20	6,956.65	0.8994	6,256.811
03214	21	7,027.88	0.8994	6,320.875
03215	21	7,046.40	0.8994	6,337.532
03216	21	7,027.13	0.8994	6,320.201
03217	20	6,759.35	0.8995	6,080.035
03210	21	7,324.87	0.8993	6,587.256
03211	20	6,996.50	0.8993	6,291.952
03212	21	6,895.26	0.8994	6,201.597
03213	21	6,998.25	0.8993	6,293.526
03209	20	6,850.40	0.8993	6,160.565
03208	20	6,933.20	0.8993	6,235.027
03207	21	7,149.91	0.8993	6,429.914
03294	21	7,171.30	0.8994	6,449.867

03206	19	6,496.60	0.8993	5,842.392
03205	21	7,225.38	0.8993	6,497.784
03204	21	7,173.82	0.8993	6,451.416
03202	21	7,170.76	0.8993	6,448.664
03203	21	7,172.26	0.8992	6,449.296
03239	20	6,989.50	0.8992	6,284.958
03240	21	7,301.06	0.8992	6,565.113
03237	20	6,668.78	0.8993	5,997.234
03238	20	6,749.18	0.8993	6,069.538
03295	20	6,685.60	0.8994	6,013.029
03296	20	6,778.49	0.8993	6,095.896
03297	20	6,846.96	0.8994	6,158.156
03292	21	7,079.78	0.8994	6,367.554
03293	21	7,053.09	0.8994	6,343.549
03273	20	6,938.55	0.8995	6,241.226
03272	20	7,003.72	0.8996	6,300.547
03271	21	7,196.90	0.8995	6,473.612
03278	21	7,140.89	0.8994	6,422.516
03277	20	6,804.50	0.8994	6,119.967
03276	20	6,738.24	0.8994	6,060.373
03275	20	7,018.23	0.8996	6,313.600
03282	21	7,219.27	0.8994	6,493.011
03281	21	7,142.06	0.8993	6,422.855
03280	21	7,328.31	0.8995	6,591.815
03279	21	7,295.49	0.8995	6,562.293
03286	20	6,590.25	0.8994	5,927.271
03285	18	6,218.79	0.8993	5,592.558
03284	21	7,209.04	0.8993	6,483.090
03283	21	7,179.65	0.8994	6,457.377
03290	21	7,413.65	0.8994	6,667.837
03289	21	7,239.85	0.8994	6,511.521
03288	20	6,923.13	0.8994	6,226.663
03287	20	6,888.19	0.8993	6,194.549
03323	20	6,814.55	0.8995	6,129.688
03324	21	7,349.00	0.8994	6,609.691
03322	20	6,820.32	0.8995	6,134.878
03325	20	6,988.12	0.8994	6,285.115
03318	21	7,071.77	0.8994	6,360.350
03319	21	7,068.34	0.8995	6,357.972
03320	20	6,697.24	0.8994	6,023.498
03321	21	7,049.33	0.8995	6,340.872
03314	21	7,197.50	0.8995	6,474.151
03317	21	7,065.95	0.8995	6,355.822
03316	21	7,007.50	0.8994	6,302.546

03315	20	6,834.15	0.8994	6,146.635
T 995	20	7,293.18	0.8992	6,558.027
T 992	20	7,160.98	0.8993	6,439.869
T 993	20	7,147.67	0.8992	6,427.185
T 994	20	7,100.25	0.8993	6,385.255
T 999	21	7,446.55	0.8993	6,696.682
T 996	20	7,240.90	0.8993	6,511.741
T 997	20	7,231.04	0.8993	6,502.874
T 998	20	7,074.14	0.8993	6,361.774
T1003	20	7,260.22	0.8994	6,529.842
T1002	19	6,797.28	0.8992	6,112.114
T 939	20	7,210.35	0.8993	6,484.268
T1064	20	7,337.52	0.8993	6,598.632
T1037	20	7,195.74	0.8993	6,471.129
T1065	20	7,324.34	0.8993	6,586.779
T1066	19	6,857.55	0.8994	6,167.680
T1022	21	7,397.68	0.8993	6,652.734
T1018	20	7,067.74	0.8993	6,356.019
T1021	21	7,493.52	0.8993	6,738.923
T1030	20	6,898.07	0.8993	6,203.434
T1040	20	7,316.32	0.8992	6,578.835
T1039	20	7,286.20	0.8993	6,552.480
T1038	21	7,615.88	0.8993	6,848.961
T1041	20	7,378.92	0.8993	6,635.863
T1044	17	5,878.22	0.8993	5,286.283
T1043	20	6,906.22	0.8995	6,212.145
T1042	20	7,077.88	0.8993	6,365.137
T1050	18	6,033.04	0.8993	5,425.513
T1045	17	5,641.79	0.8994	5,074.226
T1046	12	3,886.44	0.8992	3,494.687
T1049	21	7,486.02	0.8993	6,732.178
T1060	20	7,047.42	0.8993	6,337.745
03310	19	6,515.58	0.8993	5,859.461
03311	21	6,995.37	0.8994	6,291.636
03312	21	7,230.63	0.8995	6,503.952
03313	21	7,103.48	0.8995	6,389.580
03306	21	7,042.66	0.8995	6,334.873
03307	21	7,195.80	0.8994	6,471.903
03308	21	7,272.39	0.8994	6,540.788
03309	20	6,899.60	0.8994	6,205.500
03302	20	6,995.70	0.8993	6,291.233
03303	20	6,997.28	0.8993	6,292.654
03304	20	7,039.96	0.8994	6,331.740
03305	20	6,969.85	0.8993	6,267.986

03298	21	7,117.10	0.8994	6,401.120
T 857	20	7,249.87	0.8992	6,519.083
T 856	20	7,195.03	0.8994	6,471.210
T 848	20	7,301.52	0.8993	6,566.257
03299	21	7,236.65	0.8995	6,509.367
03300	20	6,788.25	0.8994	6,105.352
03301	20	6,947.30	0.8993	6,247.707
T1053	20	7,157.79	0.8994	6,437.716
T1051	20	7,218.55	0.8994	6,492.364
T1052	20	7,174.19	0.8994	6,452.466
T 820	20	7,322.99	0.8994	6,586.297
T 821	20	7,293.37	0.8993	6,558.928
T 824	21	7,542.78	0.8993	6,783.222
T 841	21	7,439.53	0.8993	6,690.369
T 825	20	7,079.63	0.8993	6,366.711
T 826	20	7,204.43	0.8992	6,478.223
T 862	20	7,045.51	0.8992	6,335.323
T 881	20	7,191.38	0.8992	6,466.489
T 882	20	7,095.39	0.8992	6,380.175
T 855	20	7,378.58	0.8993	6,635.557
T 863	20	7,012.88	0.8994	6,307.384
T 860	20	7,115.00	0.8995	6,399.943
T 859	19	6,806.10	0.8992	6,120.045
T 858	20	7,335.08	0.8993	6,596.437
T 864	20	6,999.25	0.8994	6,295.125
T 865	20	6,954.09	0.8994	6,254.509
T 867	20	7,286.72	0.8993	6,552.947
T 866	20	7,274.91	0.8994	6,543.054
T 868	20	7,182.90	0.8992	6,458.864
T 869	20	7,226.75	0.8993	6,499.016
T 870	22	8,028.95	0.8993	7,220.435
T 871	20	7,275.50	0.8993	6,542.857
T 872	20	7,198.80	0.8992	6,473.161
T 876	20	7,262.85	0.8994	6,532.207
T 877	20	7,237.80	0.8993	6,508.954
T 777	20	7,233.72	0.8993	6,505.284
T 788	20	7,085.27	0.8994	6,372.492
T 792	19	6,944.23	0.8992	6,244.252
T 760	20	6,973.24	0.8993	6,271.035
T 768	20	6,968.91	0.8991	6,265.747
T 769	21	7,413.56	0.8993	6,667.015
T 770	21	7,318.10	0.8994	6,581.899
T 781	20	7,302.45	0.8992	6,566.363
T 789	18	6,423.29	0.8991	5,775.180

T 793	20	7,313.27	0.8994	6,577.555
T 873	20	7,265.83	0.8993	6,534.161
T 874	22	7,879.50	0.8992	7,085.246
T 875	21	7,562.46	0.8992	6,800.164
T 852	20	7,311.62	0.8993	6,575.340
T 878	20	7,198.96	0.8993	6,474.025
T 879	20	7,146.43	0.8993	6,426.784
T 835	20	7,235.95	0.8993	6,507.290
T 854	20	7,318.88	0.8992	6,581.137
T 861	21	7,434.36	0.8994	6,686.463
T 849	20	7,064.35	0.8994	6,353.676
T 851	20	7,194.15	0.8993	6,469.699
T 880	20	7,117.26	0.8993	6,400.552
T 885	21	7,511.98	0.8993	6,755.524
T 883	20	7,191.52	0.8993	6,467.334
T 884	20	7,193.48	0.8993	6,469.097
T 886	20	7,153.42	0.8992	6,432.355
T 890	21	7,651.92	0.8992	6,880.606
T 888	20	7,243.76	0.8993	6,514.313
T 887	20	7,219.02	0.8992	6,491.343
T 893	20	7,315.03	0.8993	6,578.406
T 889	20	7,226.77	0.8992	6,498.312
T 895	20	7,396.35	0.8994	6,652.277
T 894	20	7,407.78	0.8991	6,660.335
T 892	20	7,314.24	0.8993	6,577.696
T 896	20	7,378.72	0.8993	6,635.683
T 897	20	7,405.45	0.8994	6,660.462
T 898	21	7,689.47	0.8994	6,915.909
T 899	20	7,173.57	0.8994	6,451.909
T 900	20	7,257.02	0.8992	6,525.512
T 901	20	7,180.00	0.8992	6,456.256
T 902	20	7,251.02	0.8993	6,520.842
T 903	20	7,235.01	0.8993	6,506.444
T 904	21	7,506.43	0.8994	6,751.283
T 905	18	6,226.50	0.8994	5,600.114
T 906	20	7,121.30	0.8992	6,403.473
T 907	20	7,126.07	0.8993	6,408.475
T 909	20	7,239.75	0.8993	6,510.707
T 910	20	7,194.58	0.8993	6,470.086
T 911	20	7,205.21	0.8993	6,479.645
T 912	20	7,151.17	0.8992	6,430.332
T 913	21	7,608.43	0.8991	6,840.739
T 914	20	7,130.29	0.8994	6,412.983
T 915	20	7,015.77	0.8993	6,309.282

T 916	20	7,073.42	0.8993	6,361.127
T 917	20	7,133.16	0.8994	6,415.564
T 918	20	7,014.63	0.8991	6,306.854
T 919	20	6,919.65	0.8993	6,222.841
T 920	20	6,913.35	0.8992	6,216.484
T 922	20	7,324.00	0.8993	6,586.473
T 923	20	7,300.85	0.8993	6,565.654
T 932	21	7,301.35	0.8993	6,566.104
01529	21	7,292.44	0.9166	6,684.251
01530	21	7,425.00	0.9166	6,805.755
01531	21	7,414.20	0.9165	6,795.114
01532	20	7,016.65	0.9166	6,431.461
01533	19	6,561.35	0.9166	6,014.133
01534	21	7,427.80	0.9165	6,807.579
01535	21	7,341.05	0.9166	6,728.806
01536	21	7,319.40	0.9165	6,708.230
01537	20	6,954.05	0.9166	6,374.082
01538	20	6,987.88	0.9166	6,405.091
01539	20	7,035.74	0.9166	6,448.959
01540	21	7,392.17	0.9166	6,775.663
01541	21	7,331.85	0.9165	6,719.641
01542	21	7,272.58	0.9165	6,665.320
01543	20	6,962.97	0.9166	6,382.258
01544	20	6,995.75	0.9166	6,412.304
01545	20	6,919.94	0.9165	6,342.125
01546	21	7,223.77	0.9166	6,621.308
01547	21	7,196.90	0.9166	6,596.679
01548	21	7,248.20	0.9166	6,643.700
01549	21	7,252.18	0.9166	6,647.348
01553	21	7,356.10	0.9166	6,742.601
01552	21	7,443.25	0.9166	6,822.483
01551	20	6,917.62	0.9166	6,340.690
01550	21	7,263.85	0.9166	6,658.045
01557	19	6,612.65	0.9166	6,061.155
01556	20	7,055.80	0.9166	6,467.346
01555	20	6,978.94	0.9166	6,396.896
01554	21	7,413.28	0.9166	6,795.012
01558	21	7,486.32	0.9166	6,861.961
01559	21	7,273.88	0.9166	6,667.238
01560	21	7,241.55	0.9166	6,637.605
01561	20	6,798.87	0.9166	6,231.844
01562	21	7,204.40	0.9166	6,603.553
01563	21	7,190.88	0.9166	6,591.161
01426	13	5,239.50	0.9164	4,801.477

01427	13	5,335.35	0.9164	4,889.314
01428	14	5,759.32	0.9165	5,278.416
01429	15	6,117.50	0.9165	5,606.688
01110	20	6,977.34	0.8992	6,274.024
01111	20	7,026.67	0.8993	6,319.084
01112	20	7,152.44	0.8993	6,432.189
01113	18	6,575.98	0.8993	5,913.779
01114	20	7,054.24	0.8992	6,343.173
01115	19	6,838.32	0.8992	6,149.017
01116	20	7,101.12	0.8992	6,385.327
01117	19	6,765.65	0.8991	6,082.996
01118	19	6,649.44	0.8991	5,978.512
01119	18	6,370.86	0.8991	5,728.040
01121	19	6,455.35	0.8992	5,804.651
01122	20	6,999.61	0.8992	6,294.049
T 930	21	7,302.44	0.8993	6,567.084
T 938	20	7,109.91	0.8992	6,393.231
T 941	20	7,119.66	0.8992	6,401.998
T 940	20	7,119.23	0.8992	6,401.612
T 946	21	7,537.10	0.8993	6,778.114
T 945	20	7,209.03	0.8993	6,483.081
T 943	20	7,175.26	0.8992	6,451.994
T 944	20	7,134.36	0.8993	6,415.930
T 952	21	7,517.38	0.8992	6,759.628
T 951	21	7,610.03	0.8993	6,843.700
T 950	21	6,924.13	0.8994	6,227.563
T 949	21	7,350.72	0.8993	6,610.502
T 956	20	7,229.64	0.8993	6,501.615
T 955	19	6,763.63	0.8991	6,081.180
T 954	21	7,454.80	0.8994	6,704.847
T 960	19	6,755.96	0.8993	6,075.635
T 953	21	7,179.88	0.8994	6,457.584
T 958	20	7,283.40	0.8993	6,549.962
T 957	20	7,207.67	0.8993	6,481.858
T 964	20	7,192.17	0.8994	6,468.638
T 963	21	7,278.65	0.8992	6,544.962
T 962	21	7,333.33	0.8993	6,594.864
T 961	21	7,414.06	0.8992	6,666.723
T 965	20	7,170.82	0.8994	6,449.436
T 966	20	7,216.22	0.8994	6,490.268
T 967	20	7,204.61	0.8993	6,479.106
T 968	21	7,403.41	0.8993	6,657.887
T1000	20	7,172.10	0.8992	6,449.152
T1001	21	7,592.59	0.8992	6,827.257

T1007	20	7,169.03	0.8993	6,447.109
T1006	20	7,126.78	0.8994	6,409.826
T1004	20	7,171.55	0.8995	6,450.809
T1005	20	7,180.80	0.8993	6,457.693
T1011	20	7,195.08	0.8993	6,470.535
T1008	20	7,059.89	0.8992	6,348.253
T1010	19	6,916.75	0.8992	6,219.542
T1009	21	7,525.85	0.8994	6,768.749
T1015	20	7,064.71	0.8991	6,351.881
T1014	20	7,190.97	0.8992	6,466.120
T1012	20	7,070.40	0.8993	6,358.411
T1013	20	7,284.27	0.8993	6,550.744
T1020	21	7,453.64	0.8993	6,703.058
T1019	20	7,206.44	0.8994	6,481.472
T1016	20	7,115.06	0.8993	6,398.573
T1017	22	7,836.85	0.8992	7,046.896
T1023	21	7,397.97	0.8994	6,653.734
T1024	21	7,359.75	0.8995	6,620.095
T1025	21	7,320.55	0.8993	6,583.371
T1026	21	7,323.01	0.8992	6,584.851
T1031	20	7,301.75	0.8994	6,567.194
T1029	21	7,120.47	0.8994	6,404.151
T1027	21	7,466.43	0.8993	6,714.560
T1028	21	7,495.48	0.8992	6,739.936
T1035	20	7,200.60	0.8992	6,474.780
T1034	20	7,216.70	0.8992	6,489.257
T1032	20	7,100.42	0.8993	6,385.408
T1033	20	7,263.70	0.8993	6,532.245
T1048	22	7,778.55	0.8993	6,995.250
T1036	19	6,759.19	0.8994	6,079.215
T1047	21	7,269.55	0.8994	6,538.233
T 959	20	7,303.33	0.8993	6,567.885
T 908	20	7,072.15	0.8992	6,359.277
T 947	20	7,261.50	0.8994	6,530.993
T 942	20	7,108.14	0.8991	6,390.929
T 850	20	7,227.00	0.8993	6,499.241
01120	19	6,370.14	0.8991	5,727.393
03235	21	7,160.55	0.8993	6,439.483
03291	21	7,156.20	0.8994	6,436.286
03274	20	7,086.25	0.8994	6,373.373
01528	21	7,320.50	0.9166	6,709.970
T 931	18	5,999.12	0.8993	5,395.009
T 929	21	7,322.97	0.8993	6,585.547
T 937	20	7,079.54	0.8993	6,366.630

T 926	21	7,247.72	0.8993	6,517.875
T 925	21	7,422.39	0.8993	6,674.955
T 927	21	7,334.48	0.8992	6,595.164
T 928	20	7,073.19	0.8994	6,361.627
T 921	24	8,552.41	0.8992	7,690.327
T 924	19	6,648.40	0.8993	5,978.906
T 752	19	6,697.03	0.8992	6,021.969
T 891	19	6,768.52	0.8993	6,086.930
T 990	20	7,145.58	0.8993	6,426.020
T 991	20	7,069.05	0.8993	6,357.197
T 988	19	6,779.70	0.8994	6,097.662
T 986	20	7,209.25	0.8995	6,484.720
T 985	20	7,127.56	0.8994	6,410.527
T 987	21	7,543.15	0.8993	6,783.555
T 750	20	7,205.28	0.8993	6,479.708
T 984	20	7,206.47	0.8992	6,480.058
T 981	21	7,559.91	0.8993	6,798.627
T 982	20	7,181.69	0.8992	6,457.776
T 973	21	7,507.51	0.8992	6,750.753
T 983	20	7,183.04	0.8996	6,461.863
T 971	20	7,233.79	0.8992	6,504.624
T 972	20	7,265.24	0.8993	6,533.630
T 970	20	7,145.27	0.8991	6,424.312
T 977	20	7,022.65	0.8993	6,315.469
T 751	21	7,748.42	0.8993	6,968.154
T 978	20	7,017.93	0.8993	6,311.224
T 948	20	7,013.34	0.8993	6,307.097
T 980	22	7,908.22	0.8993	7,111.862
T 979	20	7,090.02	0.8993	6,376.055
T 934	21	7,370.75	0.8994	6,629.253
T 976	20	6,987.17	0.8994	6,284.261
T 974	21	7,351.15	0.8993	6,610.889
T 822	20	7,237.77	0.8992	6,508.203
T 969	20	7,148.42	0.8992	6,427.859
T 936	23	7,991.21	0.8993	7,186.495
T 823	17	6,057.90	0.8992	5,447.264
T 817	19	6,947.97	0.8992	6,247.615
T 816	20	7,211.90	0.8994	6,486.383
T 813	20	7,360.19	0.8992	6,618.283
T 819	20	7,357.48	0.8993	6,616.582
T 818	20	7,264.71	0.8993	6,533.154
T 765	21	7,490.03	0.8993	6,735.784
T 814	20	7,328.79	0.8993	6,590.781
T 812	20	7,310.97	0.8993	6,574.755

T 764	20	7,130.56	0.8993	6,412.513
T 762	20	7,098.53	0.8994	6,384.418
T 759	21	7,486.25	0.8994	6,733.133
T 758	21	7,291.15	0.8993	6,556.931
T 757	21	7,163.87	0.8996	6,444.617
T 756	20	6,833.86	0.8994	6,146.374
T 755	21	7,456.27	0.8994	6,706.169
T 754	21	7,454.25	0.8995	6,705.098
04390	21	7,704.10	0.9166	7,061.578
04397	21	7,752.95	0.9165	7,105.579
04402	21	7,612.77	0.9165	6,977.104
04393	21	7,862.10	0.9166	7,206.401
04398	18	6,729.80	0.9166	6,168.535
04391	21	7,745.19	0.9166	7,099.241
04389	20	7,265.92	0.9166	6,659.942
04388	21	7,785.80	0.9165	7,135.686
04387	20	7,410.50	0.9166	6,792.464
T 747	20	7,166.27	0.8993	6,444.627
T 746	19	6,853.23	0.8994	6,163.795
T 745	20	7,326.42	0.8993	6,588.650
T 744	20	7,306.24	0.8993	6,570.502
T 741	20	7,212.04	0.8993	6,485.788
T 742	20	7,170.33	0.8992	6,447.561
T 743	20	7,265.90	0.8993	6,534.224
T 738	20	7,282.73	0.8994	6,550.087
T 739	20	7,302.69	0.8994	6,568.039
T 740	20	7,345.96	0.8993	6,606.222
T 734	20	7,218.18	0.8993	6,491.309
T 736	20	7,198.27	0.8993	6,473.404
T 737	20	7,214.50	0.8993	6,488.000
T 731	21	7,087.39	0.8993	6,373.690
T 732	21	7,239.99	0.8993	6,510.923
T 733	20	7,184.15	0.8993	6,460.706
T 729	21	7,201.58	0.8992	6,475.661
T 728	21	7,557.55	0.8995	6,798.016
T 730	21	7,342.92	0.8993	6,603.488
07997	18	6,665.35	0.9165	6,108.793
07998	17	6,187.80	0.9164	5,670.500
07996	18	6,720.15	0.9164	6,158.345
07369	20	7,319.83	0.9165	6,708.624
07371	20	7,240.45	0.9166	6,636.596
07372	18	6,463.35	0.9166	5,924.307
07368	20	7,399.21	0.9166	6,782.116
T 846	20	7,259.68	0.8991	6,527.178

T 845	20	7,216.57	0.8993	6,489.861
T 844	20	7,220.18	0.8993	6,493.108
T 847	20	7,281.10	0.8993	6,547.893
T 842	20	7,179.63	0.8990	6,454.487
T 840	19	6,870.93	0.8992	6,178.340
T 839	20	7,053.53	0.8993	6,343.240
T 843	20	7,161.88	0.8993	6,440.679
T 809	21	7,510.86	0.8994	6,755.267
T 808	21	7,560.08	0.8993	6,798.780
T 815	20	7,351.47	0.8993	6,611.177
T 810	20	6,947.63	0.8993	6,248.004
T 811	18	6,318.64	0.8994	5,682.985
T 805	22	7,858.13	0.8993	7,066.816
T 806	21	7,698.63	0.8993	6,923.378
T 807	21	7,672.85	0.8994	6,900.961
T 802	20	7,016.10	0.8993	6,309.579
T 801	20	7,124.34	0.8993	6,406.919
T 800	20	7,119.19	0.8993	6,402.288
T 797	22	7,649.27	0.8992	6,878.224
T 803	20	6,920.79	0.8993	6,223.866
T 798	20	7,214.54	0.8992	6,487.314
T 799	20	7,183.07	0.8993	6,459.735
07995	17	6,143.95	0.8998	5,528.326
T 795	21	7,009.84	0.8994	6,304.650
T 796	21	7,025.86	0.8993	6,318.356
07994	18	6,528.02	0.8997	5,873.260
07993	16	5,795.38	0.8995	5,212.944
07370	20	7,307.48	0.9166	6,698.036
07992	19	6,859.05	0.8995	6,169.715
07991	19	6,797.75	0.8994	6,113.896
04812	15	5,545.65	0.9165	5,082.588
04868	21	7,689.74	0.9166	7,048.416
04819	20	7,424.62	0.9165	6,804.664
04818	20	7,434.77	0.9166	6,814.710
T 836	20	7,315.50	0.8994	6,579.561
T 838	20	7,165.77	0.8994	6,444.894
T 837	20	7,286.52	0.8993	6,552.767
04820	18	6,649.45	0.9166	6,094.886
04821	14	4,914.90	0.9165	4,504.506
T 832	19	6,640.86	0.8993	5,972.125
T 834	20	7,022.00	0.8994	6,315.587
04815	21	7,762.83	0.9166	7,115.410
04816	21	7,623.60	0.9166	6,987.792
T 831	20	7,116.38	0.8993	6,399.761

T 830	21	7,510.83	0.8993	6,754.489
T 833	20	7,400.45	0.8992	6,654.485
T 794	21	7,206.49	0.8992	6,480.076
04814	21	7,766.75	0.9166	7,119.003
04817	20	7,568.75	0.9166	6,937.516
04325	23	8,358.10	0.9166	7,661.034
04810	22	8,199.57	0.9165	7,514.906
04811	20	7,438.48	0.9166	6,818.111
04424	22	8,075.15	0.9165	7,400.875
04323	21	7,399.90	0.9165	6,782.008
04324	22	7,769.25	0.9165	7,120.518
04383	21	7,734.10	0.9167	7,089.849
04423	22	8,153.48	0.9165	7,472.664
04420	21	7,766.23	0.9166	7,118.526
04376	21	7,782.30	0.9166	7,133.256
04381	20	7,317.35	0.9166	6,707.083
04382	20	7,433.75	0.9166	6,813.775
04375	21	7,706.40	0.9166	7,063.686
04365	23	8,442.60	0.9165	7,737.643
04364	21	7,755.26	0.9166	7,108.471
04350	20	7,405.52	0.9166	6,787.900
04356	21	7,757.52	0.9166	7,110.543
04362	20	7,310.92	0.9166	6,701.189
04344	21	7,693.70	0.9167	7,052.815
04335	21	7,715.30	0.9165	7,071.072
04336	21	7,633.04	0.9166	6,996.444
04455	22	8,090.12	0.9165	7,414.595
04454	22	8,083.63	0.9165	7,408.647
04453	21	7,870.05	0.9166	7,213.688
04326	20	7,300.65	0.9165	6,691.046
04449	21	7,877.27	0.9166	7,220.306
04448	21	7,886.73	0.9165	7,228.188
04447	21	7,949.22	0.9166	7,286.255
04450	22	8,000.24	0.9166	7,333.020
04439	20	7,441.50	0.9166	6,820.879
04441	21	7,663.99	0.9165	7,024.047
04442	21	7,582.39	0.9165	6,949.260
04443	20	7,276.55	0.9166	6,669.686
04438	22	8,125.55	0.9166	7,447.879
04436	21	7,872.55	0.9166	7,215.979
04435	22	8,229.34	0.9166	7,543.013
04437	22	8,285.78	0.9165	7,593.917
04432	21	7,635.10	0.9166	6,998.333
04431	22	7,936.03	0.9165	7,273.371

04433	22	8,029.22	0.9166	7,359.583
04430	22	8,081.75	0.9166	7,407.732
04427	20	7,473.15	0.9166	6,849.889
04428	20	7,357.58	0.9166	6,743.958
04422	22	8,123.28	0.9166	7,445.798
04429	22	8,134.93	0.9166	7,456.477
04374	20	7,384.20	0.9166	6,768.358
04373	21	7,727.95	0.9166	7,083.439
04416	20	7,643.75	0.9166	7,006.261
04417	20	7,495.05	0.9166	6,869.963
04419	21	7,788.25	0.9166	7,138.710
04418	21	7,883.35	0.9166	7,225.879
T 829	20	7,046.30	0.8992	6,336.033
T 828	20	7,057.78	0.8993	6,347.062
T 791	20	7,261.64	0.8992	6,529.667
T 790	20	7,206.86	0.8992	6,480.409
T 827	21	7,467.04	0.8993	6,715.109
T 785	21	7,442.88	0.8993	6,693.382
T 784	21	7,477.57	0.8994	6,725.326
T 787	20	7,220.46	0.8992	6,492.638
T 780	21	7,648.36	0.8992	6,877.405
T 783	21	7,539.63	0.8992	6,779.635
T 782	19	6,763.15	0.8992	6,081.424
04277	21	7,798.52	0.9165	7,147.344
04143	21	7,712.99	0.9165	7,068.955
T 772	20	7,147.35	0.8993	6,427.612
T 773	20	7,144.19	0.8992	6,424.056
T 775	20	7,149.72	0.8993	6,429.743
T 779	20	7,317.97	0.8993	6,581.050
T 778	20	7,269.87	0.8992	6,537.067
T 776	20	7,219.68	0.8994	6,493.380
T 767	20	7,250.55	0.8994	6,521.145
T 766	20	7,246.60	0.8993	6,516.867
T 771	20	7,156.70	0.8993	6,436.020
04267	19	6,988.48	0.9166	6,405.641
04263	20	7,418.08	0.9166	6,799.412
04264	20	7,443.15	0.9166	6,822.391
04268	20	7,147.77	0.9166	6,551.646
04266	19	7,037.81	0.9166	6,450.857
04270	15	5,508.36	0.9166	5,048.963
04412	22	8,283.00	0.9166	7,592.198
04413	21	7,939.60	0.9166	7,277.437
04414	21	7,876.05	0.9166	7,219.187
T 853	19	6,884.30	0.8994	6,191.739

04371	21	7,724.53	0.9166	7,080.304
04411	22	8,254.93	0.9166	7,566.469
04369	21	7,791.10	0.9166	7,141.322
04357	21	7,685.30	0.9166	7,044.346
04351	20	7,469.40	0.9166	6,846.452
04329	21	7,671.48	0.9166	7,031.679
04339	21	7,665.80	0.9166	7,026.472
04345	22	8,111.60	0.9166	7,435.093
04319	21	7,657.10	0.9166	7,018.498
04320	20	7,268.05	0.9166	6,661.895
04328	21	7,549.80	0.9165	6,919.392
04269	18	6,445.35	0.9166	5,907.808
04265	20	7,381.14	0.9166	6,765.553
04330	21	7,746.60	0.9166	7,100.534
04314	20	7,480.62	0.9166	6,856.736
04313	20	7,443.96	0.9166	6,823.134
04312	19	6,901.83	0.9166	6,326.217
04307	21	7,636.88	0.9165	6,999.201
04306	21	7,654.46	0.9166	7,016.078
04308	21	7,651.45	0.9166	7,013.319
04337	21	7,757.90	0.9166	7,110.891
04415	19	7,128.59	0.9166	6,534.066
T 786	21	7,501.02	0.8993	6,745.667
04292	16	5,878.43	0.9166	5,388.169
04281	20	7,481.60	0.9166	6,857.635
04301	21	7,775.02	0.9166	7,126.583
04322	22	8,003.31	0.9166	7,335.834
04317	20	7,336.38	0.9166	6,724.526
04300	21	7,804.35	0.9166	7,153.467
04311	21	7,605.35	0.9165	6,970.303
04305	21	7,673.65	0.9165	7,032.900
T 804	20	7,081.23	0.8992	6,367.442
T 748	20	7,352.64	0.8993	6,612.229
04299	20	7,374.46	0.9165	6,758.693
04321	22	7,867.82	0.9166	7,211.644
04316	21	7,827.05	0.9166	7,174.274
T 735	20	7,205.75	0.8992	6,479.410
T 975	20	7,153.84	0.8994	6,434.164
T 753	20	7,058.13	0.8994	6,348.082
04392	21	7,585.25	0.9166	6,952.640
04315	21	7,845.55	0.9166	7,191.231
04310	20	7,268.98	0.9166	6,662.747
04309	20	7,299.97	0.9165	6,690.423
04808	21	7,872.75	0.9166	7,216.163

04809	22	8,141.10	0.9166	7,462.132
04813	21	7,713.60	0.9166	7,070.286
04360	21	7,762.00	0.9166	7,114.649
04359	21	7,751.83	0.9165	7,104.552
04318	21	7,727.50	0.9165	7,082.254
04807	21	7,697.41	0.9166	7,055.446
04298	21	7,774.70	0.9166	7,126.290
04303	21	7,689.25	0.9165	7,047.198
04805	22	8,088.18	0.9166	7,413.626
04802	21	7,795.31	0.9166	7,145.181
04801	20	7,428.69	0.9166	6,809.137
04796	22	8,145.15	0.9166	7,465.844
04797	20	7,389.30	0.9166	6,773.032
04800	20	7,383.41	0.9166	6,767.634
04410	21	7,710.32	0.9166	7,067.279
04463	17	5,975.98	0.9165	5,476.986
04792	21	7,795.05	0.9166	7,144.943
04407	21	7,717.50	0.9166	7,073.861
04408	21	7,688.43	0.9166	7,047.215
04409	21	7,809.86	0.9165	7,157.737
04404	20	7,313.22	0.9165	6,702.566
04405	21	7,702.39	0.9166	7,060.011
04406	21	7,665.30	0.9166	7,026.014
04403	21	7,625.02	0.9166	6,989.093
04262	19	7,044.97	0.9166	6,457.420
04132	21	7,887.48	0.9166	7,229.664
04128	22	8,161.19	0.9166	7,480.547
04126	21	7,706.62	0.9165	7,063.117
04108	20	7,116.98	0.9166	6,523.424
03484	20	7,193.75	0.9069	6,524.012
03482	21	7,683.85	0.9047	6,951.579
03703	16	5,767.75	0.9062	5,226.735
03702	18	6,457.70	0.9061	5,851.322
03701	18	6,556.20	0.9059	5,939.262
03700	20	7,189.20	0.9058	6,511.977
03699	17	6,056.88	0.9069	5,492.984
03698	20	7,215.05	0.9064	6,539.721
04102	21	7,729.17	0.9166	7,084.557
03201	20	7,271.82	0.9165	6,664.623
03200	20	7,343.70	0.9165	6,730.501
03197	20	7,324.16	0.9165	6,712.593
03198	20	7,340.15	0.9166	6,727.981
03199	17	6,167.30	0.9166	5,652.947
03196	20	7,385.53	0.9165	6,768.838

03192	20	7,551.85	0.9165	6,921.271
03194	20	7,513.95	0.9165	6,886.535
03195	19	7,022.28	0.9166	6,436.622
03191	20	7,353.52	0.9165	6,739.501
03704	15	5,132.25	0.9062	4,650.845
T 933	21	7,300.25	0.8993	6,565.115
T 763	20	7,231.92	0.8994	6,504.389
T 935	21	7,393.38	0.8993	6,648.867
02931	15	5,265.10	0.8996	4,736.484
03377	19	6,695.40	0.8999	6,025.190
03375	19	6,934.55	0.8997	6,239.015
04302	21	7,768.72	0.9166	7,120.809
04127	21	7,707.88	0.9166	7,065.043
04806	21	7,730.80	0.9165	7,085.278
04421	22	8,126.73	0.9166	7,448.961
03376	20	7,235.97	0.8995	6,508.755
02785	18	6,274.25	0.8998	5,645.570
02957	17	6,031.76	0.8996	5,426.171
02958	17	6,092.97	0.8999	5,483.064
02784	18	6,490.40	0.8995	5,838.115
02928	18	6,176.89	0.8998	5,557.966
02657	18	6,540.62	0.8995	5,883.288
02270	17	5,931.21	0.8998	5,336.903
02927	18	6,274.72	0.8998	5,645.993
02659	18	6,344.40	0.8994	5,706.153
02658	17	6,182.40	0.8994	5,560.451
04026	21	7,784.71	0.9165	7,134.687
04029	22	7,936.20	0.9166	7,274.321
04032	22	7,902.87	0.9166	7,243.771
04033	19	6,851.99	0.9167	6,281.219
04030	22	7,943.13	0.9166	7,280.673
04031	22	7,830.36	0.9166	7,177.308
04042	20	7,366.25	0.9166	6,751.905
04035	20	7,504.99	0.9165	6,878.323
04034	20	7,602.46	0.9166	6,968.415
04041	20	7,467.80	0.9167	6,845.732
04040	20	7,299.95	0.9166	6,691.134
04037	20	7,545.10	0.9166	6,915.839
03731	22	7,936.45	0.9166	7,274.550
04045	21	7,751.35	0.9166	7,104.887
04043	21	7,775.05	0.9166	7,126.611
03726	22	8,015.57	0.9166	7,347.071
04048	19	6,821.91	0.9167	6,253.645
04044	21	7,802.72	0.9166	7,151.973

03738	21	7,813.70	0.9166	7,162.037
03732	21	7,624.37	0.9165	6,987.735
03725	21	7,618.80	0.9166	6,983.392
03745	21	7,572.10	0.9166	6,940.587
03733	22	8,187.94	0.9166	7,505.066
03737	21	7,805.03	0.9166	7,154.090
03743	22	7,893.14	0.9166	7,234.852
03749	21	7,787.51	0.9166	7,138.032
03744	21	7,527.74	0.9166	6,899.926
03750	21	7,724.77	0.9165	7,079.752
03831	19	6,949.30	0.9165	6,369.033
03751	21	7,786.52	0.9166	7,137.124
03865	22	7,875.59	0.9166	7,218.766
03866	22	8,070.14	0.9166	7,397.090
03832	19	6,820.49	0.9166	6,251.661
03869	18	6,376.69	0.9166	5,844.874
03868	22	8,109.45	0.9166	7,433.122
03867	22	8,073.29	0.9166	7,399.978
04271	20	7,327.85	0.9165	6,715.975
03870	21	7,437.44	0.9165	6,816.414
03871	21	7,620.08	0.9166	6,984.565
04272	20	7,246.40	0.9166	6,642.050
04275	20	7,251.92	0.9165	6,646.385
04274	21	7,531.38	0.9165	6,902.510
04273	21	7,572.39	0.9166	6,940.853
04280	18	6,690.72	0.9166	6,132.714
04276	17	6,065.00	0.9166	5,559.179
03874	21	7,613.80	0.9165	6,978.048
03864	22	8,002.05	0.9166	7,334.679
04279	20	7,477.08	0.9166	6,853.492
04278	20	7,447.15	0.9165	6,825.313
04282	21	7,836.32	0.9165	7,181.987
04283	19	7,059.59	0.9166	6,470.820
04284	20	7,443.77	0.9165	6,822.215
04285	17	6,321.45	0.9166	5,794.241
04289	20	7,373.20	0.9165	6,757.538
04288	19	6,964.60	0.9166	6,383.752
04287	18	6,376.45	0.9165	5,844.016
03747	20	7,480.60	0.9166	6,856.718
03748	20	7,391.73	0.9166	6,775.260
03863	21	7,600.60	0.9166	6,966.710
03875	21	7,772.38	0.9166	7,124.164
03876	22	7,934.67	0.9166	7,272.919
03885	20	7,287.25	0.9166	6,679.493

03880	21	7,544.62	0.9166	6,915.399
03882	19	6,804.45	0.9166	6,236.959
03881	22	7,937.67	0.9166	7,275.668
03889	22	8,148.27	0.9166	7,468.704
03888	22	8,153.57	0.9166	7,473.562
03887	22	8,041.07	0.9165	7,369.641
03890	22	8,143.05	0.9166	7,463.920
03893	19	7,080.53	0.9166	6,490.014
03892	21	7,832.22	0.9167	7,179.796
03897	18	6,672.20	0.9166	6,115.739
03891	21	7,782.07	0.9166	7,133.045
03896	19	7,007.75	0.9166	6,423.304
03895	19	6,996.30	0.9166	6,412.809
03894	20	7,073.05	0.9166	6,483.158
03712	22	7,942.51	0.9166	7,280.105
03915	22	8,052.01	0.9166	7,380.472
04103	22	8,074.96	0.9166	7,401.508
03988	20	7,320.10	0.9166	6,709.604
03970	24	8,598.24	0.9165	7,880.287
03946	19	7,033.62	0.9165	6,446.313
03964	17	6,216.72	0.9166	5,698.246
04047	15	5,485.19	0.9166	5,027.725
04039	21	7,714.40	0.9166	7,071.019
04038	18	6,623.71	0.9166	6,071.293
04099	21	7,738.25	0.9166	7,092.880
04098	21	7,730.30	0.9166	7,085.593
04097	21	7,718.63	0.9166	7,074.896
04114	21	7,450.71	0.9165	6,828.576
04122	19	7,035.99	0.9166	6,449.188
04100	21	7,656.70	0.9166	7,018.131
04105	21	7,609.72	0.9166	6,975.069
04104	21	7,506.30	0.9166	6,880.275
04120	21	7,822.32	0.9166	7,169.939
04166	12	4,092.40	0.9166	3,751.094
04121	21	7,913.65	0.9166	7,253.652
04107	20	7,136.25	0.9166	6,541.087
04331	21	7,698.20	0.9165	7,055.400
04332	21	7,700.80	0.9166	7,058.553
04333	21	7,699.84	0.9166	7,057.673
04334	22	8,115.20	0.9165	7,437.581
04340	21	7,672.80	0.9166	7,032.888
04343	21	7,670.02	0.9166	7,030.340
04342	21	7,700.82	0.9166	7,058.572
04341	21	7,738.42	0.9165	7,092.262

04291	21	7,718.28	0.9166	7,074.575
04347	21	7,792.20	0.9166	7,142.331
04346	21	7,806.25	0.9165	7,154.428
04349	21	7,668.40	0.9165	7,028.089
04297	21	7,712.78	0.9165	7,068.763
04125	21	7,712.58	0.9166	7,069.351
04352	21	7,809.75	0.9164	7,156.855
04353	20	7,392.15	0.9165	6,774.905
04354	19	7,036.13	0.9166	6,449.317
04361	21	7,764.62	0.9166	7,117.051
04358	21	7,781.90	0.9165	7,132.111
04355	21	7,805.85	0.9166	7,154.842
04138	21	7,839.40	0.9166	7,185.594
04139	21	7,807.55	0.9166	7,156.400
04129	21	7,753.93	0.9166	7,107.252
04136	20	7,435.64	0.9166	6,815.508
02656	14	5,062.41	0.9165	4,639.699
04137	19	7,222.52	0.9166	6,620.162
04141	21	7,715.36	0.9164	7,070.356
04119	21	7,539.69	0.9165	6,910.126
04113	21	7,521.80	0.9165	6,893.730
04142	21	7,816.17	0.9166	7,164.301
04145	23	8,382.10	0.9166	7,683.033
04144	20	7,086.30	0.9166	6,495.303
04025	21	7,750.65	0.9166	7,104.246
04027	19	6,825.73	0.9166	6,256.464
04028	22	7,865.84	0.9166	7,209.829
04130	21	7,778.34	0.9166	7,129.626
04022	21	7,783.36	0.9167	7,135.006
04021	20	7,310.92	0.9166	6,701.189
03753	21	7,745.60	0.9166	7,099.617
04123	21	7,732.93	0.9166	7,088.004
04131	19	6,924.12	0.9165	6,345.956
04110	21	7,346.22	0.9166	6,733.545
04116	21	7,509.10	0.9166	6,882.841
04117	21	7,515.22	0.9166	6,888.451
04140	19	7,005.87	0.9166	6,421.580
04135	21	7,694.29	0.9165	7,051.817
04101	21	7,775.13	0.9166	7,126.684
04106	22	7,997.85	0.9166	7,330.829
04115	21	7,473.55	0.9165	6,849.509
04109	23	8,287.05	0.9165	7,595.081
06426	21	7,792.52	0.9166	7,142.624
04133	21	7,869.28	0.9165	7,212.195

04134	21	7,860.73	0.9166	7,205.145
04124	21	7,780.00	0.9166	7,131.148
03741	21	7,748.95	0.9167	7,103.462
03752	21	7,757.42	0.9166	7,110.451
06422	21	7,661.72	0.9165	7,021.966
06420	21	7,721.83	0.9166	7,077.829
06424	21	7,776.55	0.9166	7,127.986
03886	22	8,237.55	0.9164	7,548.891
04290	20	7,268.83	0.9165	6,661.883
04348	21	7,756.30	0.9165	7,108.649
03378	19	6,781.20	0.9005	6,106.471
06421	21	7,692.83	0.9166	7,051.248
06419	21	7,684.53	0.9165	7,042.872
06418	21	7,678.03	0.9165	7,036.914
06414	22	7,680.68	0.9166	7,040.111
06415	22	7,795.10	0.9166	7,144.989
06416	22	7,755.73	0.9166	7,108.902
06410	21	7,498.48	0.9166	6,873.107
06409	21	7,750.13	0.9165	7,102.994
06413	22	7,902.89	0.9166	7,243.789
06407	21	7,694.08	0.9165	7,051.624
06412	22	7,626.79	0.9165	6,989.953
06411	21	7,541.78	0.9165	6,912.041
06402	22	8,295.08	0.9166	7,603.270
06404	21	7,831.50	0.9165	7,177.570
06405	21	7,824.90	0.9166	7,172.303
06368	21	7,682.65	0.9166	7,041.917
06369	21	7,832.79	0.9166	7,179.535
06403	21	7,729.15	0.9166	7,084.539
06460	21	7,672.71	0.9166	7,032.806
06454	21	7,665.72	0.9166	7,026.399
06400	21	7,624.90	0.9166	6,988.983
06472	21	7,593.63	0.9165	6,959.562
06401	20	7,495.20	0.9166	6,870.100
06406	21	7,727.65	0.9166	7,083.164
06397	20	7,578.30	0.9165	6,945.512
06398	20	7,548.41	0.9166	6,918.873
06389	21	7,857.00	0.9166	7,201.726
06394	21	8,013.87	0.9166	7,345.513
06393	21	7,628.92	0.9166	6,992.668
04023	21	7,803.81	0.9166	7,152.972
04024	21	7,835.00	0.9165	7,180.778
06392	21	7,697.40	0.9166	7,055.437
06395	21	7,983.25	0.9166	7,317.447

06391	21	7,790.83	0.9166	7,141.075
06390	21	7,908.67	0.9166	7,249.087
06387	21	7,669.05	0.9166	7,029.451
06388	21	7,710.44	0.9166	7,067.389
04019	21	7,679.72	0.9166	7,039.231
04018	21	7,584.97	0.9166	6,952.384
03746	21	7,784.87	0.9165	7,134.833
03730	19	6,992.28	0.9166	6,409.124
03735	21	7,637.75	0.9166	7,000.762
03734	22	7,922.15	0.9165	7,260.650
03728	22	8,142.95	0.9166	7,463.828
03736	19	6,709.95	0.9166	6,150.340
03729	21	7,783.19	0.9166	7,134.072
03723	21	7,584.48	0.9165	6,951.176
03724	18	6,192.73	0.9166	5,676.256
03727	21	7,672.55	0.9166	7,032.659
03898	9	3,268.10	0.9166	2,995.540
03187	19	7,212.23	0.9166	6,610.730
03884	21	7,640.73	0.9166	7,003.493
03878	21	7,601.17	0.9166	6,967.232
03883	22	8,043.10	0.9167	7,373.110
03877	22	7,841.74	0.9166	7,187.739
06358	21	7,628.30	0.9166	6,992.100
06361	21	7,668.82	0.9166	7,029.240
03872	21	7,657.40	0.9166	7,018.773
06360	21	7,626.25	0.9166	6,990.221
06359	21	7,675.20	0.9166	7,035.088
06364	21	7,798.47	0.9166	7,148.078
06357	21	7,711.25	0.9166	7,068.132
06355	21	7,797.92	0.9165	7,146.794
06353	21	7,718.53	0.9166	7,074.805
06351	20	7,331.10	0.9166	6,719.686
06349	21	7,817.56	0.9166	7,165.575
06348	21	7,737.86	0.9166	7,092.522
06347	20	7,443.23	0.9166	6,822.465
06346	21	7,885.13	0.9165	7,226.722
06345	21	7,651.43	0.9166	7,013.301
06344	21	7,638.08	0.9166	7,001.064
06343	21	7,691.84	0.9166	7,050.341
06342	21	7,581.08	0.9166	6,948.818
06341	21	7,605.44	0.9166	6,971.146
06340	21	7,563.95	0.9166	6,933.117
06339	19	6,985.80	0.9166	6,403.184
06338	21	7,722.65	0.9165	7,077.809

06337	21	7,770.05	0.9166	7,122.028
06336	21	7,790.74	0.9166	7,140.992
06335	21	7,815.95	0.9165	7,163.318
06334	21	7,712.14	0.9165	7,068.176
06333	20	7,272.20	0.9165	6,664.971
06332	21	7,732.55	0.9166	7,087.655
06331	21	7,735.32	0.9166	7,090.194
06329	21	7,682.85	0.9165	7,041.332
06328	21	7,712.15	0.9166	7,068.957
06327	20	6,685.10	0.9166	6,127.563
06326	22	7,875.29	0.9166	7,218.491
06322	22	7,789.42	0.9166	7,139.782
06323	22	7,860.15	0.9166	7,204.613
06325	22	7,925.67	0.9166	7,264.669
06309	18	6,307.55	0.9060	5,714.640
06310	18	6,300.60	0.9074	5,717.164
06307	14	4,866.15	0.9011	4,384.888
06308	18	6,386.55	0.9053	5,781.744
06311	14	4,899.30	0.9067	4,442.195
06182	22	8,124.65	0.9166	7,447.054
06181	21	7,840.48	0.9166	7,186.584
06306	14	5,049.30	0.9012	4,550.429
06178	21	7,811.53	0.9166	7,160.048
06180	21	7,811.17	0.9166	7,159.718
06179	21	7,748.50	0.9166	7,102.275
06173	21	7,850.20	0.9166	7,195.493
06176	21	7,701.30	0.9165	7,058.241
06177	19	6,945.80	0.9166	6,366.520
06174	21	7,835.45	0.9166	7,181.973
06385	21	7,733.58	0.9166	7,088.599
06384	21	7,620.60	0.9166	6,985.042
06386	21	7,709.34	0.9165	7,065.610
06175	21	7,786.12	0.9165	7,135.979
06172	21	7,780.75	0.9166	7,131.835
04020	21	7,694.70	0.9166	7,052.962
06383	21	7,736.31	0.9166	7,091.102
04015	21	7,706.51	0.9166	7,063.787
06442	21	7,661.62	0.9165	7,021.875
06443	21	7,701.58	0.9165	7,058.498
06444	21	7,800.60	0.9166	7,150.030
06380	21	7,694.08	0.9166	7,052.394
06169	21	7,929.60	0.9166	7,268.271
06381	21	7,643.37	0.9166	7,005.913
03740	21	7,695.53	0.9166	7,053.723

06356	21	7,705.48	0.9166	7,062.843
03739	19	7,000.58	0.9166	6,416.732
06354	21	7,669.75	0.9166	7,030.093
06438	22	8,280.95	0.9166	7,590.319
06439	22	8,248.75	0.9166	7,560.804
06440	23	8,679.12	0.9166	7,955.281
06437	21	7,817.75	0.9166	7,165.750
06433	21	7,614.05	0.9166	6,979.038
06434	22	7,873.57	0.9165	7,216.127
06430	22	7,955.05	0.9166	7,291.599
06436	21	7,842.75	0.9165	7,187.880
06432	21	7,576.90	0.9166	6,944.987
06431	21	7,598.85	0.9166	6,965.106
06427	21	7,768.96	0.9166	7,121.029
06428	21	7,736.18	0.9165	7,090.209
06147	20	7,158.10	0.9166	6,561.114
06149	21	7,891.45	0.9166	7,233.303
06145	21	7,761.75	0.9166	7,114.420
06144	21	7,610.26	0.9166	6,975.564
06143	21	7,783.48	0.9166	7,134.338
06140	21	7,715.61	0.9167	7,072.900
06141	21	7,634.55	0.9166	6,997.829
06142	21	7,756.30	0.9166	7,109.425
06139	21	7,708.52	0.9166	7,065.629
06138	21	7,689.58	0.9166	7,048.269
06137	20	7,437.10	0.9166	6,816.846
06134	21	7,753.50	0.9166	7,106.858
06135	21	7,719.96	0.9166	7,076.115
06136	21	7,664.78	0.9166	7,025.537
06133	21	7,768.06	0.9166	7,120.204
06132	21	7,771.62	0.9167	7,124.244
06128	22	8,042.91	0.9166	7,372.131
06129	22	7,842.13	0.9166	7,188.096
06130	22	7,867.65	0.9166	7,211.488
06131	21	7,377.03	0.9166	6,761.786
06127	22	7,726.55	0.9166	7,082.156
06126	22	7,732.56	0.9166	7,087.664
06125	19	6,998.40	0.9166	6,414.733
06122	21	7,861.80	0.9166	7,206.126
06124	22	7,962.61	0.9167	7,299.325
06123	21	7,769.84	0.9166	7,121.835
06117	21	7,753.78	0.9166	7,107.115
06120	21	7,507.93	0.9167	6,882.519
06121	21	7,826.74	0.9166	7,173.990

06119	20	7,248.34	0.9167	6,644.553
06118	21	7,714.49	0.9166	7,071.102
06116	21	7,712.93	0.9165	7,068.900
06115	21	7,732.82	0.9166	7,087.903
06114	21	7,689.88	0.9166	7,048.544
06113	20	7,397.09	0.9166	6,780.173
06109	21	7,665.22	0.9166	7,025.941
06108	21	7,619.46	0.9166	6,983.997
06112	21	7,805.57	0.9166	7,154.585
06111	21	7,703.58	0.9166	7,061.101
06106	21	7,696.17	0.9166	7,054.309
06104	21	7,750.45	0.9166	7,104.062
06107	20	7,322.16	0.9166	6,711.492
05856	19	6,796.80	0.9164	6,228.588
05756	21	7,553.50	0.9021	6,814.012
05855	18	6,465.95	0.9165	5,926.043
06102	21	7,775.00	0.9166	7,126.565
05235	13	4,887.73	0.9166	4,480.093
06010	18	6,417.00	0.9058	5,812.519
05854	18	6,418.15	0.9166	5,882.876
06011	19	6,631.20	0.9056	6,005.215
06009	18	6,393.45	0.9050	5,786.072
06170	21	7,988.58	0.9166	7,322.332
06008	18	6,479.95	0.9049	5,863.707
06006	19	6,656.90	0.9062	6,032.483
05838	21	7,554.69	0.8995	6,795.444
05842	20	7,266.45	0.8993	6,534.718
05843	20	7,347.70	0.8995	6,609.256
05839	21	7,495.32	0.8996	6,742.790
05837	21	7,467.45	0.8998	6,719.212
05836	20	7,264.95	0.8993	6,533.370
05834	21	7,559.95	0.8994	6,799.419
05835	20	7,201.85	0.8995	6,478.064
05832	21	7,624.55	0.8993	6,856.758
05754	20	7,265.23	0.8993	6,533.621
05755	20	7,241.00	0.9008	6,522.693
05607	12	4,283.10	0.8996	3,853.077
05475	21	7,687.17	0.8994	6,913.841
05474	19	6,916.46	0.8994	6,220.664
05473	18	6,351.12	0.8999	5,715.373
05470	19	6,923.09	0.8995	6,227.319
05606	12	4,333.77	0.8996	3,898.659
05471	17	6,263.70	0.8997	5,635.451
05469	20	7,066.48	0.8994	6,355.592

05164	13	4,714.80	0.9005	4,245.677
05472	18	6,532.42	0.8995	5,875.912
04712	14	4,982.75	0.8996	4,482.482
04713	13	4,457.85	0.9000	4,012.065
05158	20	7,293.20	0.9007	6,568.985
05161	20	7,294.80	0.9007	6,570.426
05154	17	6,217.50	0.9005	5,598.859
05576	15	5,354.99	0.9165	4,907.848
05575	21	7,765.61	0.9166	7,117.958
05578	20	7,491.46	0.9166	6,866.672
05185	19	7,072.50	0.9163	6,480.532
05574	21	7,708.68	0.9165	7,065.005
05573	22	8,101.33	0.9164	7,424.059
05570	20	7,352.28	0.9165	6,738.365
05569	21	7,650.75	0.9165	7,011.912
05568	21	7,798.10	0.9166	7,147.738
05567	21	7,710.10	0.9166	7,067.078
05564	20	7,133.28	0.9166	6,538.364
05563	21	7,816.80	0.9166	7,164.879
05562	21	7,882.20	0.9165	7,224.036
05561	21	7,884.85	0.9166	7,227.254
05558	22	8,149.67	0.9166	7,469.988
05557	22	8,253.15	0.9166	7,564.837
05552	20	7,161.14	0.9166	6,563.901
05551	21	7,653.13	0.9166	7,014.859
05528	18	6,330.48	0.9165	5,801.885
05529	22	8,154.40	0.9166	7,474.323
05050	21	7,791.67	0.9166	7,141.845
05541	20	7,461.80	0.9165	6,838.740
05535	19	6,702.98	0.9166	6,143.951
05485	21	7,715.86	0.9165	7,071.586
05481	22	7,967.44	0.9166	7,302.956
05480	21	7,712.44	0.9166	7,069.223
05479	21	7,685.43	0.9166	7,044.465
06382	21	7,571.83	0.9166	6,940.339
06377	21	7,823.26	0.9165	7,170.018
06375	21	7,825.90	0.9166	7,173.220
06378	21	7,702.70	0.9166	7,060.295
06372	21	7,861.15	0.9166	7,205.530
06373	21	7,921.72	0.9166	7,261.049
06374	21	8,064.42	0.9166	7,391.847
06371	21	8,064.23	0.9166	7,391.673
06366	21	7,724.07	0.9166	7,079.883
06363	22	7,996.21	0.9165	7,328.526

06110	21	7,711.70	0.9166	7,068.544
06324	22	7,816.38	0.9166	7,164.494
06350	21	7,826.30	0.9166	7,173.587
06105	21	7,743.99	0.9165	7,097.367
05831	21	7,574.74	0.8995	6,813.479
05833	21	7,555.20	0.8997	6,797.413
06362	21	7,459.55	0.9166	6,837.424
06365	21	7,808.79	0.9166	7,157.537
06370	21	7,861.48	0.9166	7,205.833
05410	21	7,628.45	0.9166	6,992.237
05409	18	6,658.60	0.9166	6,103.273
05407	21	8,015.30	0.9166	7,346.824
05406	21	7,773.50	0.9166	7,125.190
05405	21	7,850.42	0.9166	7,195.695
05404	21	7,764.62	0.9166	7,117.051
05400	21	8,027.94	0.9166	7,358.410
05401	21	7,994.30	0.9166	7,327.575
05403	18	6,592.42	0.9166	6,042.612
05397	19	6,890.00	0.9166	6,315.374
05396	21	7,757.48	0.9166	7,110.506
05399	21	7,970.18	0.9166	7,305.467
05395	21	7,853.20	0.9166	7,198.243
05402	21	7,955.83	0.9165	7,291.518
05398	20	7,505.18	0.9166	6,879.248
05394	21	7,850.80	0.9166	7,196.043
05393	21	7,720.20	0.9166	7,076.335
05392	21	7,772.61	0.9167	7,125.152
05527	22	8,056.24	0.9165	7,383.544
05526	19	6,956.68	0.9165	6,375.797
05523	21	7,862.17	0.9165	7,205.679
05525	21	7,805.59	0.9166	7,154.604
05521	21	7,693.30	0.9165	7,050.909
05519	21	7,772.67	0.9166	7,124.429
11031	20	7,014.47	0.8998	6,311.620
11028	19	6,731.06	0.9000	6,057.954
05164	13	4,553.00	0.9006	4,100.432
11029	19	6,703.35	0.9000	6,033.015
11027	19	6,727.43	0.9004	6,057.378
11024	21	7,274.55	0.8997	6,544.913
11026	19	6,526.59	0.8997	5,871.973
11025	22	7,881.42	0.8996	7,090.125
11030	19	6,712.84	0.8999	6,040.885
10574	21	7,362.95	0.8994	6,622.237
10575	19	6,751.69	0.8994	6,072.470

11023	20	7,324.15	0.8997	6,589.538
11022	21	7,795.25	0.8997	7,013.386
11021	21	7,712.10	0.8996	6,937.805
09385	19	6,659.42	0.8997	5,991.480
08616	19	6,806.92	0.8993	6,121.463
08615	17	5,981.14	0.8994	5,379.437
08613	19	6,775.75	0.8993	6,093.432
08612	19	6,753.63	0.8993	6,073.539
08614	18	6,497.00	0.8995	5,844.052
09384	19	6,655.37	0.8998	5,988.502
09388	19	6,539.92	0.8995	5,882.658
T 725	21	7,570.63	0.8994	6,809.025
08611	19	6,808.90	0.8995	6,124.606
06171	17	6,246.60	0.9166	5,725.634
06005	19	6,523.10	0.9055	5,906.667
05162	19	6,911.50	0.9010	6,227.262
06007	19	6,639.60	0.9065	6,018.797
06004	19	6,697.20	0.9053	6,062.975
06168	21	7,887.62	0.9166	7,229.792
06164	20	7,358.10	0.9165	6,743.699
06166	21	7,660.63	0.9166	7,021.733
06165	19	6,669.90	0.9166	6,113.630
06167	21	7,784.92	0.9165	7,134.879
06162	22	8,066.00	0.9166	7,393.296
06163	22	8,171.80	0.9166	7,490.272
06161	22	7,877.15	0.9166	7,220.196
06160	22	7,970.22	0.9166	7,305.504
06157	21	7,731.35	0.9166	7,086.555
06156	21	7,727.95	0.9166	7,083.439
06159	20	7,296.57	0.9165	6,687.306
06158	21	7,742.10	0.9166	7,096.409
06153	18	6,568.95	0.9166	6,021.100
06154	21	7,767.77	0.9166	7,119.938
06155	21	7,749.15	0.9165	7,102.096
06151	21	7,966.02	0.9165	7,300.857
06152	21	7,896.37	0.9166	7,237.813
06150	21	7,840.05	0.9166	7,186.190
06002	19	6,710.90	0.9060	6,080.075
05422	20	7,482.08	0.9165	6,857.326
T 699	20	7,251.74	0.8993	6,521.490
T 500	18	6,453.47	0.8992	5,802.960
T 504	18	6,472.92	0.8993	5,821.097
T 503	17	6,191.92	0.8992	5,567.774
T 495	18	6,170.43	0.8994	5,549.685

T 499	18	6,506.53	0.8991	5,850.021
T 498	17	5,930.11	0.8993	5,332.948
T 491	17	6,144.52	0.8994	5,526.381
T 496	17	5,921.63	0.8993	5,325.322
T 494	18	6,386.58	0.8993	5,743.451
T 493	17	5,859.00	0.8992	5,268.413
T 490	17	6,021.42	0.8997	5,417.472
T 487	18	6,287.96	0.8991	5,653.505
T 468	17	5,889.00	0.8993	5,295.978
T 472	17	6,174.22	0.8992	5,551.859
T 475	16	5,743.63	0.8993	5,165.246
T 407	18	6,577.70	0.8993	5,915.326
T 465	17	5,909.67	0.8994	5,315.157
T 466	16	5,685.20	0.8994	5,113.269
T 486	18	6,294.65	0.8993	5,660.779
T 483	19	6,727.03	0.8990	6,047.600
T 547	17	6,129.20	0.8993	5,511.990
T 489	16	5,644.17	0.8994	5,076.366
T 492	16	5,604.31	0.8993	5,039.956
T 488	17	6,083.21	0.8996	5,472.456
T 480	17	6,154.44	0.8992	5,534.072
T 717	21	7,502.20	0.8993	6,746.728
T 718	20	7,251.59	0.8992	6,520.630
T 719	20	7,227.43	0.8993	6,499.628
T 716	20	7,052.68	0.8994	6,343.180
T 605	20	7,246.84	0.8994	6,517.808
T 604	20	7,247.60	0.8993	6,517.767
T 603	20	7,227.17	0.8993	6,499.394
T 714	20	7,238.75	0.8993	6,509.808
T 715	20	7,152.80	0.8993	6,432.513
T 713	20	7,145.65	0.8993	6,426.083
T 689	20	7,088.52	0.8995	6,376.124
T 688	20	7,066.30	0.8994	6,355.430
T 711	20	7,132.98	0.8995	6,416.116
T 709	18	6,372.35	0.8993	5,730.654
T 710	20	6,887.24	0.8995	6,195.072
T 706	21	7,464.93	0.8993	6,713.212
T 707	21	7,437.95	0.8993	6,688.948
T 705	19	6,897.20	0.8993	6,202.652
T 702	20	7,148.25	0.8993	6,428.421
T 701	20	7,022.98	0.8993	6,315.766
T 698	20	7,215.24	0.8992	6,487.944
T 708	20	7,126.18	0.8992	6,407.861
T 544	18	6,196.60	0.8994	5,573.222

T 704	20	7,216.63	0.8994	6,490.637
T 703	20	7,199.84	0.8994	6,475.536
T 470	17	6,155.33	0.8993	5,535.488
T 485	16	5,585.02	0.8992	5,022.050
T 549	17	6,092.70	0.8993	5,479.165
T 481	17	6,133.95	0.8992	5,515.648
T 550	17	6,139.85	0.8994	5,522.181
T 464	17	5,941.89	0.8994	5,344.136
T 545	18	6,196.55	0.8994	5,573.177
T 606	20	7,232.15	0.8993	6,503.872
T 479	17	6,057.88	0.8993	5,447.851
T 416	17	6,086.83	0.8993	5,473.886
T 396	19	6,863.59	0.8993	6,172.426
T 400	17	6,018.50	0.8993	5,412.437
T 393	17	6,089.75	0.8992	5,475.903
T 394	17	6,134.48	0.8994	5,517.351
T 395	17	6,092.10	0.8993	5,478.626
T 388	17	6,084.84	0.8993	5,472.097
T 389	17	6,258.16	0.8993	5,627.963
T 390	18	6,451.70	0.8994	5,802.659
T 323	17	6,158.18	0.8992	5,537.435
T 324	17	6,146.60	0.8994	5,528.252
T 387	17	6,126.60	0.8992	5,509.039
T 478	17	6,098.41	0.8992	5,483.690
T 484	18	6,459.73	0.8993	5,809.235
T 460	18	6,198.37	0.8994	5,574.814
T 471	17	6,216.37	0.8993	5,590.382
T 459	18	6,261.71	0.8995	5,632.408
T 456	18	5,911.17	0.8991	5,314.733
T 457	18	6,242.73	0.8992	5,613.463
T 458	18	6,166.28	0.8993	5,545.336
06003	19	6,714.20	0.9063	6,085.079
06001	19	6,602.30	0.9056	5,979.043
T 723	21	7,540.31	0.8994	6,781.755
T 720	20	7,318.66	0.8993	6,581.671
T 726	21	7,523.36	0.8993	6,765.758
T 721	19	6,965.06	0.8992	6,262.982
05852	19	6,941.66	0.8993	6,242.635
05853	20	6,990.96	0.8995	6,288.369
05997	20	7,178.80	0.9051	6,497.532
05850	19	6,996.64	0.8996	6,294.177
05848	20	7,375.07	0.8995	6,633.875
05846	20	7,315.59	0.8995	6,580.373
05847	20	7,318.49	0.8995	6,582.982

05840	21	7,714.20	0.8998	6,941.237
05841	19	6,812.75	0.8994	6,127.387
05844	20	7,361.69	0.8993	6,620.368
T 696	20	7,298.92	0.8993	6,563.919
T 700	20	7,375.12	0.8993	6,632.445
T 697	20	7,332.32	0.8992	6,593.222
T 695	20	7,124.25	0.8992	6,406.126
T 694	20	7,162.45	0.8993	6,441.191
T 693	21	7,457.02	0.8993	6,706.098
T 692	22	7,687.80	0.8995	6,915.176
T 691	20	7,022.32	0.8994	6,315.875
T 684	20	7,122.00	0.8993	6,404.815
T 687	20	7,062.55	0.8993	6,351.351
T 690	20	7,084.69	0.8994	6,371.970
T 685	13	4,614.58	0.8992	4,149.430
T 683	20	7,275.43	0.8993	6,542.794
T 686	20	6,960.05	0.8993	6,259.173
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T 679	19	6,730.11	0.8993	6,052.388
T 680	20	7,300.73	0.8993	6,565.546
T 681	20	7,172.09	0.8994	6,450.578
T 682	20	7,370.42	0.8993	6,628.219
T 676	20	7,235.52	0.8993	6,506.903
T 677	20	7,333.65	0.8993	6,595.151
T 678	20	7,093.25	0.8992	6,378.250
T 673	21	7,314.10	0.8993	6,577.570
T 675	21	7,439.97	0.8993	6,690.765
05849	19	6,987.90	0.8996	6,286.315
05999	20	7,141.95	0.9050	6,463.465
05851	19	6,934.60	0.8996	6,238.366
05998	20	7,155.80	0.9055	6,479.577
T 628	19	6,728.91	0.8994	6,051.982
T 674	21	7,318.65	0.8993	6,581.662
T 672	20	6,883.05	0.8993	6,189.927
T 668	20	7,348.50	0.8992	6,607.771
T 669	20	7,353.02	0.8993	6,612.571
T 670	20	7,300.00	0.8993	6,564.890
06379	21	7,873.86	0.9166	7,217.180
09386	19	6,619.46	0.8998	5,956.190
09383	19	6,503.87	0.8998	5,852.182
T 724	21	7,673.32	0.8993	6,900.617
T 666	20	7,222.27	0.8992	6,494.265
T 667	20	7,279.06	0.8992	6,545.331
T 664	20	7,044.07	0.8992	6,334.028

T 629	20	7,119.72	0.8992	6,402.052
T 630	22	7,899.69	0.8994	7,104.981
T 663	20	7,172.69	0.8991	6,448.966
T 625	20	7,278.26	0.8993	6,545.339
T 646	17	6,021.00	0.8994	5,415.287
T 627	20	6,950.12	0.8991	6,248.853
T 620	22	7,902.03	0.8993	7,106.296
T 623	20	7,233.52	0.8993	6,505.105
T 624	21	7,430.04	0.8993	6,681.835
T 619	21	7,072.60	0.8993	6,360.389
T 621	20	7,116.65	0.8993	6,400.003
T 626	20	7,334.19	0.8993	6,595.637
T 616	23	8,086.37	0.8993	7,272.073
T 617	21	7,057.66	0.8993	6,346.954
T 622	20	7,141.45	0.8993	6,422.306
T 618	21	7,021.06	0.8994	6,314.741
T 612	20	6,995.36	0.8994	6,291.627
T 615	20	6,926.07	0.8993	6,228.615
T 608	20	7,279.65	0.8993	6,546.589
T 611	20	7,294.06	0.8992	6,558.819
T 613	20	6,914.85	0.8992	6,217.833
05157	20	7,328.05	0.9010	6,602.573
T 609	20	7,093.09	0.8993	6,378.816
T 614	20	6,992.90	0.8993	6,288.715
05159	20	7,354.00	0.9010	6,625.954
05160	20	7,298.40	0.9011	6,576.588
05163	21	7,487.70	0.9012	6,747.915
05155	20	7,277.70	0.9011	6,557.935
05153	20	7,309.50	0.9015	6,589.514
05156	20	7,291.55	0.9011	6,570.416
05151	20	7,362.70	0.9011	6,634.529
05150	21	7,705.45	0.9013	6,944.922
05149	21	7,622.30	0.9012	6,869.217
05421	20	7,507.58	0.9165	6,880.697
05420	21	7,797.70	0.9165	7,146.592
05419	21	7,895.98	0.9165	7,236.666
05416	21	7,873.53	0.9164	7,215.303
05417	21	7,925.13	0.9166	7,264.174
05418	21	7,961.02	0.9166	7,297.071
05415	20	7,319.83	0.9166	6,709.356
05414	21	7,909.50	0.9166	7,249.848
05411	21	7,838.50	0.9165	7,183.985
05412	21	7,768.02	0.9165	7,119.390
05413	21	7,654.68	0.9165	7,015.514

T 577	21	7,595.53	0.8992	6,829.901
T 564	18	6,441.79	0.8993	5,793.102
T 570	19	6,738.42	0.8992	6,059.187
T 576	20	7,179.13	0.8993	6,456.192
T 558	21	7,468.73	0.8993	6,716.629
T 562	17	6,074.30	0.8993	5,462.618
T 563	18	6,494.08	0.8992	5,839.477
T 552	17	6,194.18	0.8994	5,571.045
T 600	17	6,072.80	0.8993	5,461.269
T 665	20	7,282.40	0.8992	6,548.334
T 660	20	7,231.08	0.8994	6,503.633
T 662	20	7,225.40	0.8993	6,497.802
T 661	20	7,246.90	0.8994	6,517.862
T 657	21	7,344.03	0.8994	6,605.221
T 659	20	7,373.05	0.8992	6,629.847
T 658	20	7,215.98	0.8993	6,489.331
T 654	20	7,213.13	0.8992	6,486.046
T 655	20	7,012.41	0.8992	6,305.559
T 656	20	7,125.40	0.8993	6,407.872
T 651	19	6,906.20	0.8992	6,210.055
T 652	19	6,911.76	0.8993	6,215.746
T 653	18	6,476.35	0.8993	5,824.182
T 650	19	6,806.06	0.8994	6,121.370
T 647	19	6,748.00	0.8993	6,068.476
T 648	19	6,830.70	0.8992	6,142.165
T 643	17	6,185.69	0.8993	5,562.791
T 645	17	6,088.70	0.8993	5,475.568
T 649	19	6,821.69	0.8993	6,134.746
T 641	17	6,191.63	0.8994	5,568.752
T 642	17	6,187.65	0.8996	5,566.410
T 644	17	6,228.12	0.8993	5,600.948
T 640	16	5,639.00	0.8993	5,071.153
T 639	18	6,253.93	0.8994	5,624.785
T 638	18	6,249.88	0.8993	5,620.517
T 635	18	6,380.63	0.8993	5,738.101
T 637	18	6,256.23	0.8994	5,626.853
T 634	18	6,425.23	0.8993	5,778.209
T 631	17	6,095.20	0.8993	5,481.413
T 636	18	6,304.73	0.8993	5,669.844
T 633	17	6,106.08	0.8992	5,490.587
T 581	21	7,436.15	0.8993	6,687.330
T 580	20	7,043.90	0.8993	6,334.579
T 632	17	6,065.25	0.8993	5,454.479
T 575	20	7,288.95	0.8993	6,554.953

T 574	20	7,201.15	0.8993	6,475.994
T 573	20	7,228.05	0.8993	6,500.185
T 579	20	7,160.20	0.8993	6,439.168
T 572	20	7,248.63	0.8993	6,518.693
T 571	20	7,216.89	0.8992	6,489.427
T 565	17	6,189.72	0.8993	5,566.415
T 568	17	5,920.03	0.8993	5,323.883
T 569	18	6,383.42	0.8991	5,739.333
T 567	17	6,013.82	0.8993	5,408.228
T 566	17	5,865.25	0.8993	5,274.619
T 561	17	5,985.10	0.8994	5,382.999
T 559	17	6,042.58	0.8992	5,433.488
T 556	17	5,879.43	0.8994	5,287.959
T 557	17	5,891.03	0.8993	5,297.803
T 554	17	5,984.59	0.8994	5,382.540
T 553	17	5,887.15	0.8993	5,294.314
T 560	17	6,079.74	0.8993	5,467.510
T 555	17	5,886.34	0.8994	5,294.174
T 607	20	7,254.81	0.8994	6,524.976
T 610	20	7,196.78	0.8994	6,472.784
T 551	18	6,379.87	0.8992	5,736.779
T 512	18	6,410.90	0.8992	5,764.681
T 548	17	6,132.23	0.8993	5,514.714
T 516	20	6,993.63	0.8995	6,290.770
T 517	16	5,463.05	0.8994	4,913.467
T 513	18	6,430.08	0.8991	5,781.285
T 511	17	5,970.74	0.8993	5,369.486
T 507	18	6,482.15	0.8993	5,829.397
T 501	17	5,950.44	0.8993	5,351.231
T 506	17	6,083.45	0.8994	5,471.455
T 505	17	6,147.53	0.8994	5,529.088
T 431	19	6,836.56	0.8992	6,147.435
T 430	19	6,833.07	0.8992	6,144.297
T 425	16	5,717.23	0.8993	5,141.505
T 418	17	6,043.95	0.8992	5,434.720
T 419	18	6,466.00	0.8994	5,815.520
T 515	18	6,410.36	0.8993	5,764.837
T 502	18	6,574.01	0.8994	5,912.665
T 508	18	6,348.43	0.8993	5,709.143
T 514	18	6,484.83	0.8993	5,831.808
T 420	17	6,069.16	0.8994	5,458.603
T 421	17	6,057.75	0.8995	5,448.946
20613	20	7,329.81	0.9165	6,717.771
T 321	18	6,472.48	0.8994	5,821.349

20617	19	6,684.15	0.9165	6,126.023
20616	20	7,171.38	0.9165	6,572.570
05845	20	7,268.60	0.8995	6,538.106
T 417	18	6,471.95	0.8994	5,820.872
T 415	17	5,961.44	0.8994	5,361.719
T 414	17	5,965.53	0.8993	5,364.801
T 401	17	6,145.90	0.8993	5,527.008
T 402	18	6,360.02	0.8994	5,720.202
T 422	17	6,108.58	0.8993	5,493.446
20619	20	7,278.28	0.9166	6,671.271
20618	20	7,264.16	0.9166	6,658.329
T 427	17	6,129.86	0.8993	5,512.583
T 467	17	6,052.75	0.8993	5,443.238
T 429	17	6,068.82	0.8992	5,457.083
T 463	18	6,336.15	0.8994	5,698.733
T 469	17	5,876.64	0.8994	5,285.450
T 428	17	6,049.98	0.8994	5,441.352
T 322	18	6,488.98	0.8993	5,835.540
T 302	17	6,038.50	0.8992	5,429.819
T 423	19	6,805.40	0.8993	6,120.096
T 462	18	6,296.38	0.8992	5,661.705
T 461	18	6,228.53	0.8993	5,601.317
20622	20	7,293.75	0.9166	6,685.451
T 326	17	6,194.40	0.8994	5,571.243
T 331	17	6,124.45	0.8993	5,507.718
T 330	17	6,059.30	0.8993	5,449.128
T 327	17	6,087.95	0.8993	5,474.893
20623	20	7,252.78	0.9165	6,647.173
20624	21	7,661.95	0.9166	7,022.943
20620	20	7,228.30	0.9166	6,625.460
T 474	17	6,150.17	0.8992	5,530.233
T 473	17	6,115.19	0.8993	5,499.390
T 476	16	5,648.62	0.8992	5,079.239
20627	20	7,296.44	0.9166	6,687.917
20626	20	7,357.09	0.9165	6,742.773
20625	20	7,340.29	0.9166	6,728.110
20629	18	6,629.74	0.9165	6,076.157
20593	18	6,632.25	0.9166	6,079.120
20628	18	6,586.37	0.9166	6,037.067
T 524	20	7,081.90	0.8991	6,367.336
T 519	20	7,251.15	0.8992	6,520.234
T 518	20	7,209.93	0.8993	6,483.890
20642	20	7,395.17	0.9165	6,777.673
20631	20	7,529.00	0.9165	6,900.329

20632	20	7,291.64	0.9167	6,684.246
20633	20	7,295.75	0.9166	6,687.284
20634	19	6,969.52	0.9166	6,388.262
20635	18	6,548.70	0.9166	6,002.538
20636	20	7,272.96	0.9166	6,666.395
20630	20	7,180.79	0.9166	6,581.912
20595	19	6,890.49	0.9165	6,315.134
20594	18	6,565.70	0.9166	6,018.121
T 530	20	7,282.14	0.8991	6,547.372
T 536	17	5,817.61	0.8993	5,231.777
T 538	17	5,799.70	0.8993	5,215.670
T 532	20	7,157.58	0.8991	6,435.380
T 531	20	7,176.53	0.8993	6,453.853
T 520	20	7,272.39	0.8992	6,539.333
T 526	20	7,158.14	0.8993	6,437.315
T 525	20	7,087.29	0.8991	6,372.182
T 522	20	7,272.45	0.8992	6,539.387
T 529	20	7,242.35	0.8992	6,512.321
T 527	20	7,218.78	0.8992	6,491.127
T 528	20	7,145.73	0.8993	6,426.155
T 539	17	5,954.37	0.8993	5,354.765
T 424	17	6,133.16	0.8994	5,516.164
T 413	18	6,428.41	0.8993	5,781.069
T 412	17	6,087.30	0.8993	5,474.309
T 411	17	6,081.80	0.8992	5,468.755
T 410	17	6,079.23	0.8992	5,466.444
T 409	17	6,050.61	0.8993	5,441.314
T 408	17	6,030.40	0.8993	5,423.139
T 406	18	6,422.28	0.8992	5,774.914
T 405	18	6,448.47	0.8992	5,798.464
T 404	17	6,120.33	0.8993	5,504.013
T 398	17	6,049.57	0.8993	5,440.378
T 403	17	6,079.70	0.8994	5,468.082
T 399	17	6,019.65	0.8993	5,413.471
T 397	17	6,069.39	0.8993	5,458.202
T 392	17	6,153.04	0.8993	5,533.429
T 542	19	7,032.15	0.8992	6,323.309
T 540	17	6,065.77	0.8993	5,454.947
T 541	18	6,560.54	0.8993	5,899.894
T 391	17	6,083.07	0.8992	5,469.897
T 535	21	7,542.14	0.8993	6,782.647
T 534	17	6,127.23	0.8993	5,510.218
T 533	17	6,045.70	0.8992	5,436.293
T 509	17	6,034.06	0.8992	5,425.827

T 510	17	6,057.67	0.8992	5,447.057
T 521	20	7,281.48	0.8992	6,547.507
T 523	20	7,293.57	0.8992	6,558.378
20641	18	6,595.27	0.9166	6,045.224
20640	20	7,351.95	0.9164	6,737.327
20639	20	7,254.65	0.9165	6,648.887
20638	20	7,375.10	0.9166	6,760.017
20637	20	7,296.50	0.9166	6,687.972
20645	20	7,384.99	0.9166	6,769.082
20644	20	7,433.48	0.9165	6,812.784
20643	20	7,362.90	0.9166	6,748.834
20646	19	6,980.61	0.9165	6,397.729
20647	18	6,534.37	0.9166	5,989.404
20596	19	7,137.27	0.9166	6,542.022
T 584	18	6,381.82	0.8993	5,739.171
T 585	17	5,856.32	0.8993	5,266.589
T 329	18	6,587.70	0.8994	5,924.977
20648	20	7,412.85	0.9165	6,793.877
20649	20	7,344.15	0.9166	6,731.648
20650	20	7,449.98	0.9166	6,828.652
20598	19	6,955.10	0.9166	6,375.045
20599	18	6,545.51	0.9167	6,000.269
T 598	17	6,051.32	0.8995	5,443.162
T 602	20	7,190.80	0.8993	6,466.686
T 595	18	6,649.08	0.8993	5,979.518
T 543	18	6,085.00	0.8992	5,471.632
T 537	17	5,832.03	0.8993	5,244.745
T 596	17	6,146.34	0.8993	5,527.404
T 597	17	6,214.54	0.8993	5,588.736
T 594	17	6,024.02	0.8992	5,416.799
T 592	17	6,060.14	0.8994	5,450.490
T 593	18	6,344.23	0.8994	5,706.000
T 588	18	6,363.35	0.8994	5,723.197
T 589	17	5,926.75	0.8992	5,329.334
T 590	17	5,944.97	0.8993	5,346.312
T 587	18	6,092.65	0.8994	5,479.729
T 586	18	6,393.15	0.8993	5,749.360
T 583	18	6,408.34	0.8993	5,763.020
T 578	20	7,116.68	0.8993	6,400.030
T 582	17	5,987.67	0.8993	5,384.712
T 546	15	4,964.50	0.8994	4,465.071
T 482	18	6,574.68	0.8990	5,910.637
T 599	17	6,072.50	0.8995	5,462.214
T 601	20	7,185.60	0.8993	6,462.010

T 332	17	6,148.49	0.8993	5,529.337
T 333	17	6,106.82	0.8993	5,491.863
T 334	17	6,062.11	0.8994	5,452.262
T 335	18	6,507.64	0.8993	5,852.321
T 336	16	5,759.49	0.8993	5,179.509
T 368	18	6,342.20	0.8993	5,703.540
T 366	18	6,296.65	0.8992	5,661.948
T 371	20	7,194.09	0.8993	6,469.645
T 370	18	6,469.97	0.8993	5,818.444
T 369	18	6,315.15	0.8993	5,679.214
T 367	18	6,342.73	0.8993	5,704.017
T 379	18	6,553.45	0.8993	5,893.518
T 374	17	6,084.99	0.8992	5,471.623
T 373	17	6,174.77	0.8992	5,552.353
T 449	19	6,591.90	0.8992	5,927.436
T 442	17	5,914.80	0.8992	5,318.588
T 435	17	6,123.17	0.8992	5,505.954
T 375	17	6,147.01	0.8995	5,529.235
T 376	17	6,213.71	0.8995	5,589.232
T 377	17	6,088.38	0.8992	5,474.671
T 381	17	6,001.25	0.8993	5,396.924
T 380	18	6,261.82	0.8992	5,630.629
T 378	12	3,939.64	0.8993	3,542.918
T 384	18	6,373.66	0.8992	5,731.195
T 383	18	6,350.79	0.8992	5,710.630
T 382	18	6,234.43	0.8992	5,605.999
T 433	17	5,938.05	0.8992	5,339.495
T 386	17	6,135.65	0.8994	5,518.404
T 385	16	5,600.23	0.8993	5,036.287
T 437	17	6,065.60	0.8993	5,454.794
T 436	17	6,070.32	0.8993	5,459.039
T 434	19	6,637.75	0.8994	5,969.992
T 440	17	6,157.83	0.8993	5,537.737
T 439	17	6,145.90	0.8992	5,526.393
T 438	17	6,094.35	0.8992	5,480.040
T 444	18	6,472.50	0.8993	5,820.719
T 445	18	6,584.59	0.8992	5,920.863
T 441	17	6,129.90	0.8992	5,512.006
20654	20	7,425.22	0.9165	6,805.214
20653	18	6,524.20	0.9166	5,980.082
20652	20	7,182.30	0.9166	6,583.296
20651	20	7,226.48	0.9165	6,623.069
T 447	18	6,517.80	0.8993	5,861.458
T 448	17	6,093.14	0.8993	5,479.561

20657	20	7,438.44	0.9167	6,818.818
20656	20	7,296.70	0.9166	6,688.155
20655	20	7,403.23	0.9165	6,785.060
20658	19	7,024.68	0.9166	6,438.822
20659	18	6,412.30	0.9166	5,877.514
20660	20	7,240.57	0.9164	6,635.258
20664	20	7,241.55	0.9166	6,637.605
20662	20	7,276.44	0.9165	6,668.857
20661	20	7,346.17	0.9166	6,733.499
20777	19	6,893.62	0.9166	6,318.692
20778	20	7,280.00	0.9166	6,672.848
20665	18	6,507.22	0.9165	5,963.867
20776	20	7,265.46	0.9166	6,659.521
20781	20	7,397.46	0.9165	6,779.772
20782	19	7,040.29	0.9166	6,453.130
20785	19	7,001.80	0.9166	6,417.850
20780	20	7,437.90	0.9166	6,817.579
20779	19	7,000.63	0.9166	6,416.777
T 452	18	6,296.74	0.8994	5,663.288
T 451	18	6,364.37	0.8993	5,723.478
T 450	18	6,396.20	0.8993	5,752.103
T 453	18	6,430.11	0.8992	5,781.955
T 454	18	6,331.52	0.8995	5,695.202
T 455	18	6,430.00	0.8993	5,782.499
20666	20	7,304.94	0.9165	6,694.978
20791	20	7,287.70	0.9165	6,679.177
20792	19	7,025.85	0.9165	6,439.192
20796	19	6,984.50	0.9165	6,401.294
20795	19	7,096.00	0.9166	6,504.194
20794	19	7,056.59	0.9165	6,467.365
20668	20	7,292.97	0.9166	6,684.736
20790	19	6,944.42	0.9166	6,365.255
20793	20	7,394.11	0.9166	6,777.441
20788	20	7,413.25	0.9166	6,794.985
20789	19	6,968.45	0.9166	6,387.281
20600	19	6,834.72	0.9166	6,264.704
20614	20	7,341.31	0.9165	6,728.311
20612	20	7,301.03	0.9166	6,692.124
20615	20	7,234.70	0.9165	6,630.603
20787	19	7,001.24	0.9166	6,417.337
20667	20	7,327.56	0.9166	6,716.441
20609	20	7,394.10	0.9165	6,776.693
20610	20	7,490.70	0.9165	6,865.227
20605	20	7,276.30	0.9166	6,669.457

20606	20	7,396.13	0.9166	6,779.293
20783	19	7,079.53	0.9166	6,489.097
20608	20	7,310.17	0.9166	6,700.502
20604	20	7,334.83	0.9167	6,723.839
20603	20	7,282.32	0.9166	6,674.975
20601	20	7,243.12	0.9166	6,639.044
20555	20	7,296.75	0.9166	6,688.201
20553	18	6,544.87	0.9165	5,998.373
20554	19	6,896.78	0.9165	6,320.899
00007	19	6,756.51	0.8997	6,078.832
00014	1	227.30	0.8998	204.524
00042	2	452.53	0.8998	407.186
00043	2	439.52	0.8992	395.216
00045	18	6,746.42	0.8999	6,071.103
00047	12	4,056.97	0.9026	3,661.821
00049	18	6,366.00	0.8998	5,728.126
00049	21	7,409.75	0.9166	6,791.776
00052	2	507.66	0.9709	492.887
00053	2	410.84	0.9000	369.756
00073	23	7,792.41	0.9156	7,134.730
00106	18	6,636.05	0.8996	5,969.790
00110	19	6,914.32	0.8996	6,220.122
00120	19	6,628.05	0.9166	6,075.270
00139	20	7,224.64	0.9167	6,622.827
00143	19	6,719.67	0.9165	6,158.577
00151	23	8,325.26	0.9165	7,630.100
00161	21	7,478.83	0.9166	6,855.095
00173	15	5,399.31	0.8998	4,858.299
00210	18	5,998.69	0.9006	5,402.420
00214	19	6,361.71	0.9000	5,725.539
00235	20	6,696.30	0.8998	6,025.330
00266	20	7,074.21	0.8997	6,364.666
00277	18	6,303.07	0.8994	5,668.981
00280	21	7,252.36	0.9166	6,647.513
00323	18	5,789.68	0.9134	5,288.293
00325	23	8,126.16	0.8997	7,311.106
00338	20	7,526.03	0.8999	6,772.674
00376	19	7,368.72	0.8999	6,631.111
00391	19	7,321.74	0.9000	6,589.566
00410	18	6,582.29	0.9001	5,924.719
00412	20	7,486.58	0.9000	6,737.922
00424	13	4,374.11	0.8997	3,935.386
00430	19	7,487.09	0.8999	6,737.632
00432	19	7,568.09	0.9000	6,811.281

00446	18	6,998.28	0.9001	6,299.151
00459	18	6,695.36	0.9000	6,025.824
00461	17	6,418.88	0.8998	5,775.708
00478	15	5,798.97	0.8997	5,217.333
00488	19	6,878.61	0.8992	6,185.246
00489	18	7,051.78	0.8999	6,345.896
00505	19	7,472.08	0.9000	6,724.872
00518	20	7,490.97	0.9003	6,744.120
00525	17	6,394.80	0.9003	5,757.238
00536	17	6,537.30	0.8997	5,881.608
00540	10	3,268.38	0.9003	2,942.522
00544	19	7,562.46	0.9000	6,806.214
00545	18	6,779.58	0.9000	6,101.622
00551	18	6,913.55	0.9002	6,223.577
00559	19	7,256.98	0.9002	6,532.733
00565	17	6,483.08	0.9002	5,836.068
00566	19	7,358.31	0.9001	6,623.214
00571	19	6,436.31	0.8999	5,792.035
00574	19	7,293.35	0.9000	6,564.015
00574	19	6,565.18	0.8997	5,906.692
592	21	7,351.54	0.8999	6,615.650
00635	18	6,429.08	0.9166	5,892.894
00663	18	6,321.64	0.8997	5,687.579
00667	20	7,168.53	0.8996	6,448.809
00669	21	7,081.25	0.8996	6,370.292
00679	20	6,959.60	0.9000	6,263.640
00689	19	6,761.27	0.8998	6,083.790
00692	19	7,054.12	0.8999	6,348.002
00732	20	7,300.43	0.9000	6,570.387
00734	20	7,541.90	0.9000	6,787.710
00738	19	7,103.72	0.9098	6,462.964
00739	19	6,950.13	0.9094	6,320.448
00741	19	7,308.62	0.8999	6,577.027
00743	19	7,085.91	0.8999	6,376.610
00744	18	6,911.42	0.8997	6,218.204
00747	18	6,583.33	0.9091	5,984.905
00759	20	7,515.97	0.9001	6,765.124
00809	16	5,727.02	0.8997	5,152.599
00861	17	6,070.16	0.9164	5,562.694
00896	20	7,402.75	0.9000	6,662.475
00937	16	5,606.56	0.9000	5,045.904
00990	23	7,987.78	0.8998	7,187.404
01052	18	7,234.34	0.9001	6,511.629
01092	20	6,839.27	0.9162	6,266.139

01280	18	7,465.65	0.9000	6,719.085
01289	18	7,310.22	0.9000	6,579.198
01305	18	7,241.45	0.9000	6,517.305
01309	18	7,425.96	0.9000	6,683.364
01314	18	7,493.20	0.9000	6,743.880
01433	18	7,261.50	0.9000	6,535.350
01435	18	7,113.55	0.9001	6,402.906
01435	18	7,368.10	0.9000	6,631.290
01439	18	7,428.80	0.9000	6,685.920
01446	18	7,515.38	0.9001	6,764.593
01448	18	7,386.63	0.9001	6,648.705
01456	18	7,360.16	0.9000	6,624.144
01522	18	7,447.66	0.9000	6,702.894
01533	16	5,824.50	0.9166	5,338.736
01539	18	7,146.60	0.9002	6,433.369
01546	18	7,205.81	0.9000	6,485.229
01557	18	7,048.71	0.9001	6,344.543
01570	18	7,339.71	0.9000	6,605.739
01582	18	7,222.87	0.9000	6,500.583
01584	18	7,301.40	0.9001	6,571.990
01590	18	7,452.90	0.9001	6,708.355
01598	18	6,964.93	0.9000	6,268.437
01601	17	6,971.18	0.9001	6,274.759
01602	18	7,221.07	0.9001	6,499.685
01610	18	7,261.05	0.9001	6,535.671
01616	18	7,382.26	0.8999	6,643.295
01690	21	7,116.61	0.9011	6,412.777
01700	17	7,108.83	0.9000	6,397.947
01706	18	7,188.90	0.9000	6,470.010
01729	16	5,806.74	0.8994	5,222.581
01827	21	7,510.34	0.9166	6,883.977
01831	21	7,408.18	0.9165	6,789.596
01838	21	7,458.97	0.9166	6,836.891
01882	19	7,580.27	0.9001	6,823.001
01895	18	7,360.76	0.9000	6,624.684
01896	18	7,359.12	0.9000	6,623.208
01897	19	7,682.25	0.9000	6,914.025
01904	18	7,331.02	0.9000	6,597.918
01953	19	7,909.60	0.9164	7,248.357
01976	21	7,410.93	0.9166	6,792.858
01987	20	7,303.43	0.9166	6,694.323
01989	14	5,744.29	0.9164	5,264.067
02065	17	6,150.45	0.8994	5,531.714
02172	16	5,759.59	0.9165	5,278.664

02328	20	7,052.03	0.9166	6,463.890
02486	8	2,511.71	0.8999	2,260.287
02543	18	5,810.68	0.8993	5,225.544
02642	22	7,450.21	0.9166	6,828.862
02649	23	7,825.76	0.9166	7,173.091
02657	22	7,615.59	0.9166	6,980.449
02677	21	7,769.63	0.9166	7,121.642
02686	21	7,638.42	0.9166	7,001.375
02789	21	7,609.90	0.9166	6,975.234
02791	22	7,737.76	0.9167	7,093.204
02823	16	5,834.12	0.9166	5,347.554
02892	22	7,879.20	0.9166	7,222.074
02903	15	5,356.90	0.9166	4,910.134
02917	19	6,659.49	0.8993	5,988.879
02919	20	7,073.22	0.8993	6,360.946
02922	21	7,409.68	0.8993	6,663.525
02923	20	7,011.29	0.8996	6,307.356
02953	20	7,055.73	0.8993	6,345.217
02965	19	6,678.67	0.8992	6,005.460
02975	20	6,996.15	0.8993	6,291.637
03010	21	7,225.34	0.8992	6,497.025
03011	21	7,204.72	0.8992	6,478.484
03013	20	6,945.36	0.8992	6,245.267
03014	20	6,987.09	0.8991	6,282.092
03028	20	7,104.23	0.8992	6,388.123
03046	21	6,966.10	0.8994	6,265.310
03055	21	7,269.83	0.8992	6,537.031
03096	20	6,956.91	0.8994	6,257.044
03115	20	7,086.84	0.8992	6,372.486
03126	21	6,990.66	0.9054	6,329.343
03133	21	7,598.30	0.8995	6,834.670
03138	21	7,422.16	0.8995	6,676.232
03139	20	7,119.70	0.8995	6,404.170
03140	20	7,094.62	0.8995	6,381.610
03156	21	6,994.88	0.8993	6,290.495
03162	21	7,312.67	0.8994	6,577.015
03165	21	7,211.04	0.8994	6,485.609
03172	20	6,918.45	0.8994	6,222.453
03236	14	4,721.84	0.8997	4,248.239
03238	16	5,305.91	0.8997	4,773.727
03301	19	6,759.05	0.9165	6,194.669
03310	20	6,700.03	0.8997	6,028.016
03332	20	6,989.55	0.8994	6,286.401
03342	21	7,136.65	0.8995	6,419.416

03345	20	6,810.62	0.8993	6,124.790
03375	20	6,803.68	0.8995	6,119.910
03382	21	6,976.25	0.8994	6,274.439
03384	21	7,042.26	0.8995	6,334.512
03393	20	7,032.88	0.8993	6,324.668
03402	19	6,481.58	0.8994	5,829.533
03499	22	7,304.63	0.8993	6,569.053
03516	21	7,339.80	0.8994	6,601.416
03535	21	7,237.96	0.8995	6,510.545
03536	21	7,087.38	0.8994	6,374.389
03542	21	7,212.34	0.8994	6,486.778
03577	12	4,081.51	0.9000	3,673.359
03594	20	6,985.52	0.8996	6,284.173
03598	21	6,760.45	0.8997	6,082.376
03609	22	7,222.73	0.8997	6,498.290
03639	18	6,062.01	0.8993	5,451.565
03640	21	7,099.60	0.8993	6,384.670
03670	21	7,043.74	0.8995	6,335.844
03677	21	7,419.60	0.8994	6,673.188
03680	21	7,445.05	0.8994	6,696.077
03686	21	7,294.91	0.8992	6,559.583
03697	21	7,192.01	0.8995	6,469.212
03727	21	7,338.86	0.8994	6,600.570
03847	12	3,956.85	0.8996	3,559.582
03851	19	6,241.84	0.9005	5,620.776
03928	20	6,648.64	0.8996	5,981.116
03950	21	6,814.47	0.9001	6,133.704
03954	20	6,752.84	0.9001	6,078.231
03964	20	6,699.35	0.9002	6,030.754
03965	21	7,426.47	0.8994	6,679.367
03977	21	7,090.29	0.8994	6,377.006
03982	19	6,802.24	0.9166	6,234.933
03987	21	7,163.15	0.8994	6,442.537
03993	21	7,170.35	0.8994	6,449.012
04008	21	7,188.89	0.8995	6,466.406
04013	14	4,682.46	0.8999	4,213.745
04016	15	5,034.22	0.8998	4,529.791
04017	15	4,717.73	0.9165	4,323.799
04036	11	3,663.16	0.8997	3,295.745
04037	20	7,011.76	0.9078	6,365.275
04108	19	6,340.13	0.8992	5,701.044
04222	22	7,375.54	0.8998	6,636.510
04228	19	6,307.16	0.8999	5,675.813
04459	22	7,384.89	0.9001	6,647.139

04462	18	6,424.41	0.9004	5,784.538
04495	16	5,363.12	0.8997	4,825.199
04513	20	6,495.40	0.9165	5,953.034
04559	20	7,044.30	0.9000	6,339.870
04560	15	5,278.02	0.8995	4,747.578
04565	20	6,840.72	0.8996	6,153.911
04574	12	4,399.90	0.8998	3,959.030
04655	21	7,179.21	0.8998	6,459.853
04658	21	7,012.55	0.9001	6,311.996
04669	21	6,847.66	0.9001	6,163.578
04670	22	7,341.63	0.9000	6,607.467
04675	20	6,673.49	0.9001	6,006.808
04703	22	7,607.73	0.8992	6,840.870
04797	21	7,410.47	0.8995	6,665.717
04811	13	4,242.10	0.8995	3,815.768
04812	21	7,096.77	0.8998	6,385.673
04819	20	6,691.18	0.8999	6,021.392
04834	20	6,819.93	0.8996	6,135.209
04835	20	6,787.70	0.8997	6,106.893
04891	20	6,444.82	0.8999	5,799.693
04913	20	6,922.19	0.9165	6,344.187
04922	21	7,272.64	0.8997	6,543.194
05142	20	6,993.58	0.8995	6,290.725
05176	21	7,129.17	0.9007	6,421.243
05177	16	5,421.70	0.8996	4,877.361
05177	20	6,573.79	0.9010	5,922.984
05178	21	6,995.94	0.8994	6,292.148
05181	13	4,644.70	0.9083	4,218.781
05197	21	7,180.14	0.8996	6,459.253
05308	13	4,648.04	0.9166	4,260.393
05344	23	7,506.35	0.9011	6,763.971
05379	20	7,070.80	0.9013	6,372.912
05393	18	6,120.87	0.9166	5,610.389
05573	18	5,814.58	0.8999	5,232.540
05725	11	3,756.84	0.9165	3,443.143
05728	18	6,282.25	0.9167	5,758.938
05775	18	6,373.56	0.8993	5,731.742
05845	19	6,578.16	0.9166	6,029.541
05863	16	5,513.59	0.9165	5,053.205
05871	18	6,051.57	0.9164	5,545.658
05876	15	5,301.67	0.9166	4,859.510
05893	18	6,440.89	0.8999	5,796.156
06006	20	6,872.58	0.9164	6,298.032
06046	15	4,974.70	0.9166	4,559.810

06050	17	5,943.42	0.8998	5,347.889
06224	18	6,272.40	0.9166	5,749.281
06226	21	7,351.06	0.9167	6,738.716
06282	14	4,564.53	0.8997	4,106.707
06344	12	4,097.44	0.8997	3,686.466
06363	19	6,357.37	0.9166	5,827.165
06413	16	5,445.12	0.8996	4,898.429
06421	17	5,560.64	0.9000	5,004.576
06450	20	6,891.69	0.8999	6,201.831
06568	17	5,816.33	0.8997	5,232.952
06602	17	5,796.72	0.9166	5,313.273
06685	21	7,133.78	0.8993	6,415.408
06689	21	7,028.36	0.8994	6,321.306
06706	14	4,603.57	0.9166	4,219.632
06707	18	5,986.51	0.8996	5,385.464
06714	20	6,822.16	0.8994	6,135.850
06727	21	7,268.52	0.8997	6,539.487
06728	20	6,729.53	0.8993	6,051.866
06732	20	6,883.59	0.8994	6,191.100
06740	19	6,305.62	0.8994	5,671.274
06751	16	5,233.75	0.8998	4,709.328
06752	20	6,575.51	0.8993	5,913.356
06754	20	6,819.92	0.8994	6,133.836
06770	19	6,423.56	0.8994	5,777.349
06795	18	6,284.32	0.9166	5,760.207
06801	20	6,983.23	0.9166	6,400.828
06803	20	6,737.41	0.9167	6,176.183
06835	22	7,721.95	0.9166	7,077.939
06926	22	7,679.04	0.8999	6,910.368
06932	23	7,932.17	0.8999	7,138.159
06933	23	8,153.41	0.8998	7,336.438
06952	22	7,756.40	0.9166	7,109.516
07012	21	7,685.28	0.9166	7,044.327
07017	21	7,730.66	0.9166	7,085.922
07026	19	7,066.77	0.9166	6,477.401
07039	21	7,879.73	0.9166	7,222.560
07045	21	7,859.96	0.9166	7,204.439
07093	23	7,694.11	0.8998	6,923.160
07174	23	7,918.46	0.9166	7,258.060
07179	20	6,719.82	0.8999	6,047.166
07232	14	5,113.78	0.9166	4,687.290
07236	13	4,457.27	0.8998	4,010.651
07243	17	5,854.32	0.9166	5,366.069
07245	18	6,221.07	0.8998	5,597.718

07320	22	7,623.20	0.9166	6,987.425
07321	23	7,743.43	0.8997	6,966.763
07388	15	5,617.97	0.9166	5,149.431
07575	20	6,965.99	0.8994	6,265.211
07580	20	6,811.80	0.9084	6,187.839
07582	20	6,848.52	0.9073	6,213.662
07620	24	7,489.55	0.8995	6,736.850
07699	20	7,292.66	0.9165	6,683.722
07745	18	5,889.24	0.9015	5,309.149
07753	12	4,020.36	0.8995	3,616.313
07850	13	4,273.37	0.8998	3,845.178
07934	23	7,778.69	0.8997	6,998.487
07935	23	8,019.84	0.8998	7,216.252
07939	23	7,986.45	0.8995	7,183.811
07966	12	3,985.90	0.9165	3,653.077
08003	21	7,478.95	0.8996	6,728.063
08062	15	5,033.55	0.9166	4,613.751
08096	15	4,999.11	0.9165	4,581.684
08273	17	6,163.49	0.9166	5,649.454
08287	19	6,707.84	0.9166	6,148.406
08299	22	7,904.99	0.9166	7,245.713
08300	19	6,860.61	0.9165	6,287.749
08323	22	7,806.41	0.8996	7,022.646
08349	22	7,987.09	0.8994	7,183.588
08350	22	7,985.80	0.8995	7,183.227
08377	23	8,277.64	0.8997	7,447.392
08393	23	8,083.37	0.9165	7,408.408
08445	21	7,503.51	0.8995	6,749.407
08448	19	6,671.44	0.8997	6,002.294
08452	23	8,059.39	0.9127	7,355.805
08470	20	7,294.97	0.9166	6,686.569
08483	19	7,108.84	0.9166	6,515.962
08658	22	7,572.03	0.8996	6,811.798
08661	18	5,906.48	0.8998	5,314.650
08718	14	4,970.76	0.8994	4,470.701
08722	20	7,483.17	0.8999	6,734.104
08725	14	5,060.86	0.8999	4,554.267
08783	17	6,275.21	0.9165	5,751.229
08802	18	6,484.19	0.8995	5,832.528
08879	21	7,193.18	0.8995	6,470.265
08891	16	5,216.95	0.9000	4,695.255
08904	15	5,106.98	0.8997	4,594.749
08940	21	7,333.89	0.9165	6,721.510
08954	12	4,135.58	0.9001	3,722.435

09052	17	6,034.32	0.9165	5,530.454
09061	20	7,033.21	0.9166	6,446.640
09114	21	7,561.72	0.9135	6,907.631
09132	20	7,075.72	0.8999	6,367.440
09139	23	8,090.32	0.9141	7,395.361
09329	22	8,116.36	0.9166	7,439.455
09369	22	7,739.58	0.9166	7,094.099
09378	14	4,969.48	0.9003	4,474.022
09396	12	4,028.40	0.8998	3,624.754
09410	23	8,115.79	0.9166	7,438.933
09415	21	7,246.96	0.9165	6,641.838
09433	13	4,247.50	0.9166	3,893.258
09434	21	7,465.89	0.9166	6,843.234
09441	19	6,727.81	0.9166	6,166.710
09444	20	6,970.93	0.9013	6,282.899
09468	11	3,861.93	0.9166	3,539.845
09471	22	7,871.70	0.9166	7,215.200
09495	18	6,600.06	0.8994	5,936.093
09497	18	6,376.53	0.8992	5,733.775
09501	17	6,033.63	0.8995	5,427.250
09633	23	8,225.21	0.9165	7,538.404
09644	21	7,431.92	0.9005	6,692.443
09645	22	7,888.04	0.9166	7,230.177
09678	18	6,374.09	0.8997	5,734.768
09715	20	7,543.73	0.9166	6,914.582
09770	22	7,909.56	0.8997	7,116.231
09859	15	5,455.86	0.8997	4,908.637
09862	16	5,757.26	0.8997	5,179.806
09928	18	6,348.90	0.9166	5,819.401
10175	14	4,955.61	0.9144	4,531.409
10178	21	7,387.03	0.8999	6,647.588
10210	22	7,688.24	0.8996	6,916.340
10366	23	8,301.63	0.9165	7,608.443
10465	21	7,178.02	0.9165	6,578.655
10502	22	7,816.84	0.9165	7,164.133
10538	18	6,069.98	0.8996	5,460.554
10561	23	7,854.35	0.9165	7,198.511
10570	21	7,318.69	0.9155	6,700.260
10581	22	7,765.07	0.9163	7,115.133
10660	21	7,854.72	0.9166	7,199.636
10785	20	6,727.52	0.9166	6,166.444
10815	20	6,605.52	0.9141	6,038.105
10820	13	4,489.50	0.8999	4,040.101
10990	19	6,720.34	0.8997	6,046.289

11126	23	7,939.81	0.9153	7,267.308
11170	16	5,584.67	0.8995	5,023.410
11396	22	7,837.58	0.8996	7,050.686
11581	21	6,939.76	0.8997	6,243.702
11781	20	6,664.97	0.8998	5,997.140
11901	21	7,436.21	0.8998	6,691.101
11903	21	7,389.26	0.8999	6,649.595
11905	21	7,658.68	0.8998	6,891.280
11909	21	7,115.93	0.9000	6,404.337
11910	20	6,541.62	0.9159	5,991.469
12117	15	5,463.17	0.9165	5,006.995
12130	20	7,088.14	0.8998	6,377.908
12369	20	6,634.05	0.8996	5,967.991
12373	21	7,028.72	0.8996	6,323.036
12464	21	7,395.23	0.8994	6,651.269
12482	21	7,515.52	0.9166	6,888.725
12552	18	6,355.81	0.8998	5,718.957
12640	20	6,986.76	0.9165	6,403.365
12666	18	6,559.47	0.9166	6,012.410
12669	21	7,733.72	0.9166	7,088.727
12696	24	8,401.49	0.9001	7,562.181
13181	13	4,490.60	0.8993	4,038.396
13212	23	7,587.73	0.8999	6,828.198
13546	20	7,217.38	0.9065	6,542.554
13642	20	6,989.17	0.8997	6,288.156
13868	19	6,955.73	0.8995	6,256.679
13869	20	7,003.91	0.8995	6,300.017
13874	19	6,931.53	0.8997	6,236.297
13877	20	7,301.85	0.8996	6,568.744
13891	20	7,157.69	0.8999	6,441.205
13899	20	7,154.73	0.8995	6,435.679
13919	20	7,358.66	0.9165	6,744.211
13923	20	7,254.96	0.9166	6,649.896
14058	14	4,920.55	0.8997	4,427.018
14598	18	6,567.15	0.8996	5,907.808
14601	15	5,368.95	0.9162	4,919.031
14602	19	6,332.96	0.8992	5,694.597
14639	18	6,322.44	0.8994	5,686.402
14920	20	7,117.30	0.8996	6,402.723
14935	18	6,553.71	0.9164	6,005.819
14990	9	3,065.97	0.8998	2,758.759
15343	15	5,379.06	0.8995	4,838.464
15547	12	4,312.68	0.9165	3,952.571
15802	18	6,279.64	0.9167	5,756.545

15813	17	5,842.80	0.8994	5,255.014
15847	21	7,500.90	0.9166	6,875.324
15848	21	7,548.75	0.9166	6,919.184
15851	18	6,414.52	0.9166	5,879.549
16097	12	4,126.47	0.9166	3,782.322
16678	20	7,032.45	0.8997	6,327.095
17128	23	8,040.44	0.8993	7,230.767
17134	22	7,754.00	0.8992	6,972.396
17186	15	4,946.09	0.9008	4,455.437
17352	18	6,163.36	0.8995	5,543.942
17701	19	6,637.71	0.9165	6,083.461
17912	21	7,125.14	0.8999	6,411.913
18228	18	6,414.15	0.8993	5,768.245
18231	20	6,953.80	0.9006	6,262.592
18232	20	7,065.08	0.9017	6,370.582
18441	19	6,782.97	0.8996	6,101.959
18522	17	5,524.81	0.9051	5,000.505
18523	18	5,866.51	0.9049	5,308.604
18743	13	4,634.01	0.9167	4,247.996
18859	20	7,158.16	0.9055	6,481.713
18861	19	6,687.02	0.9067	6,063.121
18864	19	6,766.99	0.9058	6,129.539
19068	11	3,760.91	0.8998	3,384.066
19240	21	7,477.13	0.8997	6,727.173
19252	20	7,195.74	0.9157	6,589.139
19253	18	6,346.51	0.9155	5,810.229
19263	22	7,823.25	0.8994	7,036.231
19320	22	7,854.75	0.8995	7,065.347
19354	13	4,700.42	0.9165	4,307.934
19363	17	5,742.80	0.9152	5,255.810
19595	13	4,340.54	0.8996	3,904.749
19821	22	7,715.33	0.8996	6,940.710
19857	19	6,411.29	0.8998	5,768.878
19995	18	6,279.91	0.9166	5,756.165
20003	10	3,581.32	0.9166	3,282.637
20053	13	4,478.16	0.9167	4,105.129
20055	17	5,746.19	0.8994	5,168.123
20079	13	4,316.22	0.8998	3,883.734
20096	16	5,421.11	0.8993	4,875.204
20116	19	6,459.60	0.8997	5,811.702
20124	21	7,344.34	0.8996	6,606.968
20130	13	4,408.22	0.9166	4,040.574
20161	16	5,399.70	0.8995	4,857.030
20775	19	6,566.78	0.8999	5,909.445

21006	11	3,768.63	0.9009	3,395.158
21063	18	6,203.28	0.8994	5,579.230
21296	11	3,772.42	0.9013	3,400.082
21315	20	7,024.46	0.9001	6,322.716
21449	17	6,025.37	0.9000	5,422.833
21470	13	4,538.25	0.9166	4,159.759
21484	15	5,179.24	0.8993	4,657.690
21891	18	6,355.13	0.8997	5,717.710
22003	18	6,155.70	0.8997	5,538.283
22005	18	6,175.01	0.8995	5,554.421
22029	16	5,248.49	0.8999	4,723.116
22031	13	4,384.89	0.9165	4,018.751
22271	18	6,258.22	0.8992	5,627.391
23053	13	4,698.47	0.8994	4,225.803
23195	21	7,724.61	0.9166	7,080.377
23207	19	6,556.86	0.9166	6,010.017
23233	20	6,912.95	0.8994	6,217.507
23336	18	6,456.84	0.8998	5,809.864
23337	18	6,566.55	0.8998	5,908.581
23516	17	6,099.59	0.9166	5,590.884
23746	16	5,346.28	0.9166	4,900.400
25014	22	7,733.06	0.8996	6,956.660
25031	21	7,625.21	0.8998	6,861.163
25146	20	7,159.20	0.8999	6,442.564
25150	19	6,689.13	0.8997	6,018.210
25198	20	7,156.10	0.8999	6,439.774
25429	20	7,208.29	0.8999	6,486.740
25720	20	7,021.69	0.9001	6,320.223
26272	21	7,243.87	0.9000	6,519.483
26848	17	5,982.34	0.9000	5,384.106
26986	20	7,266.94	0.8999	6,539.519
26A	12	4,018.65	0.8998	3,615.981
27253	19	6,883.97	0.9000	6,195.573
27301	19	6,353.40	0.9000	5,718.060
27457	20	7,423.18	0.8999	6,680.119
27459	20	7,490.98	0.8999	6,741.132
27464	17	5,730.86	0.9000	5,157.774
27587	23	7,809.74	0.8998	7,027.204
27599	18	6,269.14	0.8999	5,641.599
27646	18	6,681.85	0.8998	6,012.328
27649	20	6,960.62	0.8996	6,261.773
27650	20	7,055.52	0.8998	6,348.556
27662	16	5,411.50	0.8996	4,868.185
27720	19	6,684.26	0.8994	6,011.823

27735	20	6,771.56	0.8995	6,091.018
27745	15	5,368.87	0.8996	4,829.835
27771	20	7,143.52	0.8996	6,426.310
27773	21	7,210.49	0.8997	6,487.277
28033	11	3,581.30	0.9167	3,282.977
28035	15	5,655.25	0.9166	5,183.602
28038	19	7,009.60	0.9166	6,424.999
28048	22	7,953.56	0.8996	7,155.022
28050	22	7,746.08	0.8997	6,969.148
28110	20	7,073.10	0.8997	6,363.668
28120	22	8,045.49	0.9000	7,240.941
28122	22	8,057.41	0.8999	7,250.863
28151	16	5,857.24	0.9166	5,368.746
28159	18	6,635.12	0.9166	6,081.750
28161	18	6,642.91	0.9166	6,088.891
28168	18	6,589.10	0.8998	5,928.872
28456	20	7,159.44	0.9166	6,562.342
28460	20	7,168.36	0.9166	6,570.518
28487	15	5,463.37	0.9166	5,007.724
28601	20	7,138.15	0.9167	6,543.542
29113	11	3,876.63	0.9166	3,553.319
29835	17	5,989.46	0.9166	5,489.939
29882	20	6,726.05	0.8999	6,052.772
30194	23	8,169.97	0.9168	7,490.228
30559	20	7,314.33	0.8998	6,581.434
30581	21	7,398.30	0.9001	6,659.209
30604	21	7,384.50	0.8997	6,643.834
30707	21	7,365.68	0.8996	6,626.165
30740	16	5,384.80	0.9166	4,935.707
30837	21	7,505.80	0.9166	6,879.816
30908	21	7,547.49	0.9153	6,908.217
31344	18	6,021.83	0.9166	5,519.609
31376	14	4,905.77	0.9165	4,496.138
32557	20	7,242.09	0.8993	6,512.811
32561	20	7,395.25	0.8994	6,651.287
32567	21	7,706.56	0.8993	6,930.509
32568	20	7,380.38	0.8994	6,637.913
32639	22	7,814.96	0.9000	7,033.464
32640	22	7,821.76	0.9000	7,039.584
32725	19	6,314.21	0.9000	5,682.789
32728	22	7,911.08	0.8997	7,117.598
34621	22	7,756.91	0.8994	6,976.564
35277	19	6,682.06	0.8994	6,009.844
35293	18	6,303.53	0.9166	5,777.815

35294	18	6,378.04	0.9166	5,846.111
35313	22	7,735.82	0.8994	6,957.596
35653	20	6,859.50	0.9167	6,288.103
35674	12	3,891.57	0.8999	3,502.023
35703	23	8,269.14	0.8999	7,441.399
35710	15	5,332.99	0.8999	4,799.157
35715	18	5,990.94	0.9000	5,391.846
35814	18	6,157.68	0.8999	5,541.296
36290	22	7,690.54	0.9003	6,923.793
36294	22	7,844.99	0.9001	7,061.275
36322	17	5,577.04	0.9165	5,111.357
36364	23	7,899.88	0.8998	7,108.312
36453	21	7,363.08	0.9165	6,748.262
36484	21	7,316.37	0.8999	6,584.001
36752	21	7,543.05	0.8997	6,786.482
37528	16	5,568.81	0.9165	5,103.814
44942	20	7,163.34	0.9165	6,565.201
45247	14	5,057.02	0.9164	4,634.253
47023	19	6,580.25	0.8997	5,920.250
47027	19	6,739.04	0.9153	6,168.243
A 675	21	7,813.59	0.8999	7,031.449
A 681	20	7,474.02	0.9003	6,728.860
A 684	19	6,890.07	0.9000	6,201.063
A 736	20	7,375.49	0.9000	6,637.941
A 760	19	7,096.87	0.8999	6,386.473
A 763	20	7,733.20	0.9001	6,960.653
A 772	19	7,055.98	0.9000	6,350.382
A 895	20	7,485.80	0.9000	6,737.220
A 901	20	7,321.34	0.8999	6,588.473
A 903	19	6,958.70	0.8999	6,262.134
B 676	20	7,673.27	0.9001	6,906.710
B 685	20	7,584.78	0.9001	6,827.060
B 692	20	7,471.72	0.8999	6,723.800
B 696	18	6,697.49	0.8999	6,027.071
B 750	19	7,081.97	0.8999	6,373.064
B 755	20	7,246.50	0.8999	6,521.125
B 757	19	7,272.42	0.9000	6,545.178
B 897	21	7,815.69	0.9001	7,034.902
C 028	23	8,054.79	0.8998	7,247.700
C 045	23	8,100.56	0.8998	7,288.883
C 049	23	8,058.11	0.8998	7,250.687
C 051	23	8,086.58	0.8999	7,277.113
C 078	23	7,979.81	0.8998	7,180.233
C 082	23	8,181.98	0.8999	7,362.963

C 084	23	8,025.11	0.8998	7,220.993
C 114	23	7,879.83	0.8999	7,091.059
C 116	25	8,643.49	0.8998	7,777.412
C 123	23	8,164.99	0.9000	7,348.491
C 128	23	7,620.14	0.8999	6,857.363
C 147	23	8,137.16	0.8999	7,322.630
C 155	23	7,979.93	0.8998	7,180.341
C 160	23	8,112.35	0.8999	7,300.303
C 168	22	7,613.46	0.8998	6,850.591
C 171	23	8,025.10	0.9001	7,223.392
C 177	23	8,082.50	0.8999	7,273.441
C 689	21	7,535.19	0.9000	6,781.671
C 725	19	7,200.09	0.8999	6,479.360
C 740	20	7,321.01	0.8997	6,586.712
C 743	19	7,265.89	0.9000	6,539.301
C 753	18	6,789.98	0.9000	6,110.982
C 754	19	7,076.68	0.9000	6,369.012
C 764	19	7,009.89	0.9000	6,308.901
C 770	19	7,237.78	0.8999	6,513.278
C 773	18	6,931.56	0.8999	6,237.710
C 901	20	7,554.92	0.9000	6,799.428
D 023	22	7,651.13	0.9166	7,013.025
D 046	22	7,834.60	0.8997	7,048.789
D 106	22	7,749.80	0.8996	6,971.720
D 109	22	7,536.66	0.8996	6,779.979
D 115	22	7,947.93	0.8997	7,150.752
D 115	21	7,427.98	0.8994	6,680.725
D 206	20	7,185.23	0.9165	6,585.263
D 207	21	7,375.36	0.9166	6,760.254
D 518	22	8,273.04	0.9164	7,581.413
D 583	22	7,998.62	0.8996	7,195.558
D 584	23	8,122.07	0.8994	7,304.989
D 681	20	7,199.36	0.9000	6,479.424
D 697	20	7,541.18	0.8998	6,785.553
D 698	19	7,022.66	0.9001	6,321.096
D 750	18	6,653.74	0.8999	5,987.700
D 751	19	7,238.39	0.9000	6,514.551
D 756	19	6,965.01	0.9000	6,268.509
D 760	19	7,130.37	0.8999	6,416.619
D 761	19	7,393.51	0.8999	6,653.419
D 771	19	7,292.33	0.9000	6,563.097
E 684	16	6,064.98	0.9001	5,459.088
E 685	20	7,623.48	0.9000	6,861.132
E 739	20	7,305.90	0.8998	6,573.848

E 745	22	8,190.18	0.8999	7,370.342
E 746	20	7,902.79	0.8997	7,110.140
E 748	20	7,372.79	0.8996	6,632.561
E 906	20	7,468.60	0.9000	6,721.740
F 011	24	8,384.39	0.8998	7,544.274
F 013	23	8,169.26	0.8998	7,350.700
F 015	22	7,830.34	0.8998	7,045.739
F 020	23	8,039.84	0.8999	7,235.052
F 049	23	8,132.83	0.8998	7,317.920
F 051	22	7,812.17	0.8998	7,029.390
F 056	22	7,688.10	0.8998	6,917.752
F 067	23	8,348.61	0.8998	7,512.079
F 075	23	8,047.73	0.8998	7,241.347
F 079	24	8,309.24	0.8998	7,476.654
F 091	23	8,138.94	0.8997	7,322.604
F 100	23	8,071.57	0.8998	7,262.798
F 104	23	8,136.98	0.8999	7,322.468
F 115	23	8,306.28	0.8998	7,473.990
F 129	23	7,867.96	0.8998	7,079.590
F 134	23	8,003.99	0.8998	7,201.990
F 135	22	7,631.13	0.8999	6,867.253
F 148	23	8,255.20	0.8997	7,427.203
F 152	23	8,230.63	0.8998	7,405.920
F 176	24	8,478.14	0.8998	7,628.630
F 186	22	7,654.34	0.9000	6,888.906
F 196	22	7,726.89	0.8998	6,952.655
F 199	24	8,631.51	0.8997	7,765.769
F 205	23	8,074.13	0.8998	7,265.102
F 219	22	7,741.29	0.8998	6,965.612
F 230	16	5,545.20	0.8998	4,989.570
F 737	19	7,038.89	0.8998	6,333.593
F 760	18	6,595.20	0.8999	5,935.020
F 770	17	6,421.98	0.8999	5,779.139
F 897	21	7,955.69	0.9001	7,160.916
F 899	20	7,616.95	0.9000	6,855.255
F 904	20	7,475.14	0.8999	6,726.878
F 905	20	7,402.27	0.9001	6,662.783
F 912	20	7,333.40	0.9000	6,600.060
F 914	19	6,993.55	0.9000	6,294.195
F1808	19	6,941.84	0.8998	6,246.267
F1816	23	8,305.55	0.8999	7,474.164
F2041	23	8,284.79	0.8999	7,455.482
F2046	23	8,290.52	0.8999	7,460.638
F2064	23	8,094.54	0.8999	7,284.276

F2066	23	8,215.53	0.8999	7,393.155
F2083	23	8,312.98	0.8998	7,480.019
F2093	19	6,764.62	0.8998	6,086.805
F2097	22	7,961.46	0.8998	7,163.721
F2115	23	8,235.76	0.8999	7,411.360
F2152	23	8,243.42	0.8998	7,417.429
F2158	23	8,316.03	0.8998	7,482.763
F2175	23	8,168.69	0.8999	7,351.004
F2326	24	8,920.24	0.9166	8,176.291
G 683	18	6,469.70	0.9001	5,823.376
G 688	18	6,855.69	0.9001	6,170.806
G 689	19	7,058.44	0.9002	6,354.007
G 724	20	7,349.77	0.8999	6,614.058
G 726	20	7,170.19	0.8998	6,451.736
G 727	17	6,197.71	0.9000	5,577.939
G 736	18	6,679.77	0.8999	6,011.125
G 757	17	6,448.00	0.8998	5,801.910
G 766	20	7,427.25	0.8999	6,683.782
G 902	20	7,337.24	0.8999	6,602.782
G 910	20	7,265.82	0.9000	6,539.238
G 913	20	7,123.90	0.9000	6,411.510
H 673	16	5,864.76	0.9000	5,278.284
H 677	17	6,094.89	0.9001	5,486.010
H 683	20	7,548.29	0.9000	6,793.461
H 692	20	7,118.58	0.9000	6,406.722
H 735	20	7,391.18	0.8997	6,649.844
H 764	22	8,176.31	0.8998	7,357.043
H 901	19	7,145.68	0.8998	6,429.682
H 911	20	7,311.05	0.8999	6,579.213
J 905	17	6,179.16	0.8999	5,560.626
J 912	22	7,836.59	0.9000	7,052.931
J 913	21	7,526.58	0.9000	6,773.922
K 898	21	7,590.62	0.9000	6,831.558
K 905	21	7,611.01	0.8999	6,849.147
K 911	21	7,635.28	0.8999	6,870.988
K 914	17	6,296.95	0.8998	5,665.995
T 020	21	6,892.68	0.8994	6,199.276
T 044	23	7,833.71	0.8998	7,048.772
T 045	21	6,996.31	0.8997	6,294.580
T 054	19	6,376.00	0.8998	5,737.124
T 058	20	6,887.51	0.8996	6,196.003
T 104	17	5,759.35	0.9002	5,184.566
T 110	16	5,665.96	0.9070	5,139.025
T 130	11	3,512.01	0.8999	3,160.457

T 151	16	5,112.43	0.8998	4,600.164
T 161	20	6,623.28	0.8997	5,958.965
T 166	20	6,907.96	0.8999	6,216.473
T 209	21	7,209.78	0.8998	6,487.360
T 211	20	6,645.98	0.8997	5,979.388
T 212	21	6,911.46	0.8997	6,218.240
T 217	20	6,818.09	0.8994	6,132.190
Samples	0	11.26	0.9034	10.172
00035	10	3,544.32	0.8996	3,188.470
D 202	21	7,434.07	0.9155	6,805.891
00350	10	3,585.80	0.9165	3,286.385
00372	17	5,706.20	0.8993	5,131.585
00373	17	5,755.50	0.8993	5,175.921
00451	10	3,587.83	0.9166	3,288.604
00745	18	6,684.88	0.9086	6,073.881
00805	21	7,426.35	0.8997	6,681.487
00806	21	7,438.72	0.8997	6,692.616
00807	21	7,435.09	0.8997	6,689.350
00808	21	7,546.01	0.8995	6,787.635
00840	20	7,177.18	0.9075	6,513.290
00841	20	6,995.82	0.9066	6,342.410
00842	20	7,001.83	0.9057	6,341.557
00843	19	6,681.34	0.9070	6,059.975
00844	17	5,922.23	0.9060	5,365.540
00845	18	6,319.05	0.9068	5,730.114
00846	18	6,388.38	0.9066	5,791.705
00847	18	6,426.23	0.9058	5,820.879
00848	19	6,709.64	0.9061	6,079.604
00849	19	6,736.47	0.9061	6,103.915
00970	13	4,642.40	0.8992	4,174.446
01049	17	6,749.87	0.9000	6,074.883
01288	18	7,220.61	0.9000	6,498.549
01290	18	7,312.93	0.9000	6,581.637
01291	18	7,202.35	0.9000	6,482.115
01292	18	7,268.66	0.9000	6,541.794
01293	18	7,170.45	0.9001	6,454.122
01294	18	7,574.60	0.9001	6,817.897
01295	18	7,222.23	0.9001	6,500.729
01426	18	7,339.61	0.9000	6,605.649
01432	18	7,260.71	0.9000	6,534.639
01449	18	7,062.85	0.9000	6,356.565
01454	18	7,416.36	0.9001	6,675.465
01463	18	7,149.01	0.9000	6,434.109
01469	17	6,897.73	0.9001	6,208.646

01470	18	7,461.10	0.9000	6,714.990
01471	18	7,338.52	0.9000	6,604.668
01472	18	7,353.88	0.9000	6,618.492
01473	16	6,468.10	0.9000	5,821.290
01521	18	7,393.80	0.9001	6,655.159
01523	18	7,330.45	0.9001	6,598.138
01524	17	6,780.11	0.9001	6,102.777
01530	18	7,265.76	0.9001	6,539.910
01540	18	7,238.13	0.9001	6,515.040
01541	18	7,414.42	0.9000	6,672.978
01542	18	7,394.23	0.9001	6,655.546
01543	18	6,855.85	0.9001	6,170.950
01544	18	7,038.23	0.9001	6,335.110
01545	18	7,178.05	0.9000	6,460.245
01547	18	7,179.31	0.9002	6,462.814
01548	18	7,254.38	0.9000	6,528.942
01549	18	7,297.47	0.9000	6,567.723
01550	18	7,301.20	0.9001	6,571.810
01551	18	7,259.00	0.9001	6,533.825
01552	18	7,377.98	0.9001	6,640.919
01553	18	7,413.57	0.9001	6,672.950
01554	18	7,230.24	0.9001	6,507.939
01555	18	7,275.10	0.9001	6,548.317
01556	18	6,964.18	0.9001	6,268.458
01558	18	7,300.52	0.9000	6,570.468
01559	18	7,354.72	0.9001	6,619.983
01560	18	7,417.94	0.9000	6,676.146
01561	18	7,523.10	0.9000	6,770.790
01562	18	7,323.53	0.9001	6,591.909
01563	18	6,944.38	0.9001	6,250.636
01564	18	7,084.55	0.9000	6,376.095
01565	18	7,210.55	0.9001	6,490.216
01566	18	7,176.72	0.9000	6,459.048
01567	18	7,205.73	0.9000	6,485.157
01568	18	7,315.75	0.9001	6,584.906
01569	18	7,435.52	0.9001	6,692.711
01571	18	7,390.90	0.9001	6,652.549
01572	17	7,128.80	0.9000	6,415.920
01579	17	6,917.47	0.9000	6,225.723
01585	18	7,411.00	0.9001	6,670.641
01586	17	6,920.22	0.9001	6,228.890
01606	18	7,226.04	0.9000	6,503.436
01618	18	7,315.76	0.9000	6,584.184
01689	21	7,261.80	0.9009	6,542.155

01691	21	7,148.88	0.9009	6,440.425
01692	21	7,165.72	0.9009	6,455.597
01693	19	6,341.46	0.9011	5,714.289
01694	20	6,636.51	0.9011	5,980.159
01695	22	7,304.87	0.9006	6,578.765
01696	21	7,053.21	0.9049	6,382.449
01697	21	7,030.26	0.9057	6,367.306
01698	21	7,182.75	0.9062	6,509.008
01901	18	7,259.36	0.9001	6,534.149
02352	18	6,047.23	0.8997	5,440.692
02353	18	6,060.97	0.8997	5,453.054
02354	20	6,782.72	0.8996	6,101.734
02355	17	5,651.77	0.8996	5,084.332
02356	17	5,747.24	0.8997	5,170.791
02357	16	5,275.46	0.8997	4,746.331
02636	22	7,408.68	0.9166	6,790.796
02637	22	7,505.93	0.9166	6,879.935
02638	22	7,649.93	0.9166	7,011.925
02639	22	7,667.88	0.9166	7,028.378
02640	22	7,661.07	0.9166	7,022.136
02641	22	7,629.69	0.9166	6,993.373
02643	22	7,514.05	0.9166	6,887.378
02644	22	7,605.16	0.9166	6,970.889
02645	22	7,538.56	0.9167	6,910.597
02646	23	7,812.88	0.9166	7,161.285
02647	23	7,790.66	0.9166	7,140.918
02648	23	7,765.49	0.9167	7,118.624
02650	22	7,466.82	0.9166	6,844.087
02651	22	7,417.48	0.9166	6,798.862
02652	22	7,398.89	0.9166	6,781.822
02653	23	7,857.01	0.9166	7,201.735
02654	21	7,601.77	0.9167	6,968.542
02655	22	8,181.66	0.9166	7,499.309
02656	22	7,761.89	0.9166	7,114.548
02658	22	7,654.10	0.9166	7,015.748
02659	22	7,672.60	0.9166	7,032.705
02660	21	7,219.02	0.9166	6,616.953
02661	22	8,029.09	0.9166	7,359.463
02662	22	7,895.52	0.9167	7,237.823
02663	21	7,517.62	0.9166	6,890.650
02664	21	7,515.25	0.9166	6,888.478
02665	20	6,914.69	0.9166	6,338.004
02666	22	7,649.30	0.9166	7,011.348
02667	22	7,693.04	0.9166	7,051.440

02668	22	7,747.85	0.9166	7,101.679
02669	22	7,573.76	0.9166	6,942.108
02670	22	7,642.56	0.9167	7,005.934
02671	22	7,776.50	0.9165	7,127.162
02672	22	7,799.94	0.9167	7,150.204
02673	22	7,784.15	0.9167	7,135.730
02674	21	7,361.25	0.9166	6,747.321
02675	21	7,316.22	0.9166	6,706.047
02676	21	7,830.84	0.9166	7,177.747
02678	21	7,799.19	0.9166	7,149.104
02679	21	7,770.98	0.9165	7,122.103
02680	18	6,628.62	0.9166	6,075.793
02681	21	7,644.07	0.9166	7,006.554
02682	21	7,659.30	0.9166	7,020.514
02683	20	7,219.13	0.9165	6,616.332
02684	21	7,712.94	0.9166	7,069.680
02685	21	7,757.36	0.9167	7,111.171
02687	21	7,701.61	0.9166	7,059.295
02688	20	7,335.98	0.9166	6,724.159
02689	22	7,743.45	0.9166	7,097.646
02690	21	7,638.75	0.9166	7,001.678
02691	21	7,703.25	0.9166	7,060.798
02692	20	7,256.53	0.9166	6,651.335
02693	20	7,282.00	0.9166	6,674.681
02694	20	7,258.63	0.9166	6,653.260
02786	12	4,299.44	0.9164	3,940.006
03025	21	7,288.54	0.8992	6,553.855
03056	21	7,312.57	0.8993	6,576.194
03057	21	7,270.95	0.8994	6,539.492
03058	21	7,236.57	0.8995	6,509.294
03059	20	6,925.48	0.8992	6,227.391
03060	18	6,124.30	0.8993	5,507.582
03061	21	7,000.06	0.8992	6,294.453
03062	21	7,174.80	0.8992	6,451.580
03063	21	7,255.47	0.8992	6,524.118
03064	21	7,235.29	0.8993	6,506.696
03065	21	7,252.29	0.8992	6,521.259
03066	20	7,057.90	0.8993	6,347.169
03067	20	6,972.66	0.8993	6,270.513
03068	20	7,091.34	0.8992	6,376.532
03069	20	6,823.65	0.8992	6,135.826
03070	20	7,018.63	0.8993	6,311.853
03071	22	7,452.31	0.8993	6,701.862
03072	22	7,550.27	0.8992	6,789.202

03073	21	7,139.08	0.8993	6,420.174
03074	21	6,990.20	0.8993	6,286.286
03075	20	6,724.37	0.8993	6,047.225
03092	21	7,173.30	0.8994	6,451.666
03093	21	7,194.08	0.8994	6,470.355
03094	20	6,850.52	0.8995	6,162.042
03095	20	6,863.99	0.8995	6,174.159
03097	20	6,832.03	0.8992	6,143.361
03098	20	6,895.75	0.8992	6,200.658
03099	20	6,942.90	0.8993	6,243.749
03100	21	7,236.64	0.8993	6,507.910
03101	21	7,365.63	0.8993	6,623.911
03102	20	7,090.42	0.8992	6,375.705
03103	20	7,106.23	0.8993	6,390.632
03104	20	7,013.66	0.8992	6,306.683
03105	20	6,910.98	0.8992	6,214.353
03106	20	7,093.26	0.8993	6,378.968
03107	21	7,054.00	0.8994	6,344.367
03108	21	7,049.40	0.8993	6,339.525
03109	21	7,064.53	0.8993	6,353.131
03110	21	7,215.68	0.8993	6,489.061
03111	20	6,739.38	0.8993	6,060.724
03112	20	7,000.41	0.8993	6,295.468
03113	20	7,023.63	0.8993	6,316.350
03114	20	6,992.90	0.8992	6,288.015
03116	20	7,028.30	0.8993	6,320.550
03117	20	6,830.60	0.8993	6,142.758
03118	21	7,289.80	0.8995	6,557.175
03119	21	7,226.61	0.8993	6,498.890
03120	21	7,160.70	0.8993	6,439.617
03121	20	6,896.75	0.8993	6,202.247
03122	21	7,140.30	0.8993	6,421.271
03123	21	7,071.39	0.8992	6,358.593
03124	20	6,676.26	0.9054	6,044.685
03124	21	7,109.78	0.8992	6,393.114
03125	20	6,558.01	0.9060	5,941.557
03125	21	7,073.40	0.8992	6,360.401
03126	20	6,742.08	0.8992	6,062.478
03127	21	6,884.96	0.9061	6,238.462
03127	21	6,917.12	0.8995	6,221.949
03128	20	6,623.02	0.9056	5,997.806
03128	21	7,047.77	0.8995	6,339.469
03129	20	6,610.84	0.9065	5,992.726
03129	21	7,160.50	0.8993	6,439.437

03130	16	5,134.39	0.9062	4,652.784
03130	21	7,131.10	0.8995	6,414.424
03131	21	7,067.50	0.8994	6,356.509
03132	21	7,170.18	0.8994	6,448.859
03134	21	7,385.26	0.8994	6,642.302
03135	21	7,387.80	0.8994	6,644.587
03136	17	5,623.39	0.8993	5,057.114
03137	21	7,367.47	0.8994	6,626.302
03141	18	6,230.04	0.8995	5,603.920
03142	21	7,384.14	0.8992	6,639.818
03143	20	6,926.99	0.8994	6,230.134
03144	20	6,923.52	0.8993	6,226.321
03145	20	7,019.50	0.8992	6,311.934
03146	20	6,942.10	0.8993	6,243.030
03147	21	7,139.32	0.8994	6,421.104
03148	20	6,813.17	0.8993	6,127.083
03149	21	7,161.00	0.8992	6,439.171
03150	21	7,253.86	0.8992	6,522.670
03151	20	6,840.40	0.8992	6,150.887
03152	21	7,058.32	0.8993	6,347.547
03153	21	7,059.05	0.8993	6,348.203
03154	21	7,014.88	0.8992	6,307.780
03155	21	7,002.12	0.8993	6,297.006
03157	21	7,287.63	0.8993	6,553.765
03158	21	7,346.12	0.8993	6,606.365
03159	20	6,962.64	0.8993	6,261.502
03160	20	7,011.12	0.8992	6,304.399
03161	18	6,323.02	0.8993	5,686.291
03163	21	7,370.80	0.8993	6,628.560
03164	21	7,270.90	0.8993	6,538.720
03166	17	5,865.84	0.8993	5,275.149
03167	21	7,228.87	0.8994	6,501.645
03168	21	7,062.62	0.8993	6,351.414
03169	21	7,131.50	0.8993	6,413.357
03170	21	6,968.85	0.8993	6,267.086
03171	20	6,803.12	0.8993	6,118.045
03173	20	6,932.01	0.8995	6,235.342
03174	20	6,870.66	0.8994	6,179.471
03175	21	7,235.09	0.8993	6,506.516
03176	20	6,866.42	0.8993	6,174.971
03202	10	3,416.35	0.8996	3,073.348
03296	20	6,872.32	0.8995	6,181.651
03297	20	6,840.25	0.8995	6,152.804
03298	20	6,881.97	0.8992	6,188.267

03299	20	6,880.62	0.8994	6,188.429
03300	20	6,875.68	0.8992	6,182.611
03358	21	7,123.74	0.8994	6,407.091
03497	22	7,486.73	0.8993	6,732.816
03547	20	6,963.46	0.8995	6,263.632
03584	20	6,623.92	0.8996	5,958.878
03585	20	6,971.68	0.8996	6,271.723
03586	20	6,949.16	0.8998	6,252.854
03587	20	6,934.13	0.8996	6,237.943
03588	19	6,586.19	0.8996	5,924.936
03589	19	6,573.08	0.8996	5,913.142
03590	18	6,147.75	0.8996	5,530.515
03591	20	6,829.74	0.8996	6,144.034
03592	22	7,345.17	0.8993	6,605.511
03592	20	6,886.83	0.8995	6,194.703
03593	20	6,923.75	0.8995	6,227.913
03595	19	6,482.44	0.8997	5,832.251
03596	21	6,837.86	0.8997	6,152.022
03597	21	6,914.29	0.8997	6,220.786
03599	21	6,913.97	0.8997	6,220.498
03600	21	6,753.68	0.8997	6,076.285
03601	21	7,006.15	0.8997	6,303.433
03602	21	7,044.24	0.8997	6,337.702
03603	21	7,064.42	0.8996	6,355.152
03604	20	6,798.29	0.8997	6,116.421
03605	20	6,806.23	0.8997	6,123.565
03606	20	6,832.58	0.8996	6,146.588
03607	21	7,137.60	0.8996	6,420.984
03608	21	6,735.00	0.8996	6,058.806
03610	20	6,717.81	0.8997	6,044.013
03611	21	7,019.05	0.8996	6,314.337
03685	21	7,232.90	0.8992	6,503.823
03715	21	7,152.84	0.8994	6,433.264
03716	21	7,221.34	0.8994	6,494.873
03717	21	7,302.16	0.8993	6,566.832
03718	21	7,307.07	0.8993	6,571.248
03719	21	7,123.65	0.8993	6,406.298
03720	22	7,515.19	0.8995	6,759.913
03721	22	7,437.68	0.8994	6,689.449
03722	22	7,491.09	0.8994	6,737.486
03951	21	6,917.04	0.9002	6,226.719
03953	22	7,233.77	0.9001	6,511.116
03975	21	7,279.83	0.8994	6,547.479
04036	20	7,101.18	0.9083	6,450.001

04038	19	6,697.65	0.9074	6,077.447
04039	19	6,624.65	0.9060	6,001.932
04040	17	5,990.61	0.9062	5,428.690
04041	19	6,388.01	0.9071	5,794.563
04042	19	6,421.84	0.9082	5,832.315
04043	19	6,404.79	0.9078	5,814.268
04044	20	6,679.25	0.9076	6,062.087
04045	20	6,682.87	0.9073	6,063.367
04229	19	6,279.53	0.8998	5,650.321
04230	19	6,334.54	0.8999	5,700.452
04231	20	6,710.87	0.8998	6,038.440
04232	21	7,199.50	0.8999	6,478.830
04233	21	7,024.64	0.8999	6,321.473
04234	21	6,992.55	0.8998	6,291.896
04235	19	6,389.56	0.9000	5,750.604
04304	18	6,095.67	0.8998	5,484.883
04305	17	5,735.18	0.8999	5,161.088
04306	17	5,652.34	0.8999	5,086.540
04307	19	6,233.30	0.8997	5,608.100
04308	19	6,260.81	0.8997	5,632.850
04309	21	6,927.60	0.8997	6,232.761
04310	21	7,008.15	0.8998	6,305.933
04560	20	6,978.13	0.9000	6,280.317
04561	20	7,106.80	0.9001	6,396.830
04562	20	6,899.66	0.8999	6,209.004
04563	20	6,889.27	0.9001	6,201.031
04564	20	6,769.98	0.9000	6,092.982
04565	20	6,804.99	0.8999	6,123.810
04566	21	7,053.92	0.9000	6,348.528
04567	20	7,148.16	0.8999	6,432.629
04571	20	6,775.77	0.9000	6,098.193
04572	20	6,829.30	0.9000	6,146.370
04657	20	6,916.30	0.9000	6,224.670
04667	20	6,635.36	0.9000	5,971.824
04781	12	4,332.75	0.9011	3,904.241
04822	11	3,922.70	0.8998	3,529.645
04915	20	6,954.70	0.9166	6,374.678
05002	20	6,551.25	0.8997	5,894.159
05172	21	6,944.42	0.9008	6,255.533
05173	22	7,283.75	0.9009	6,561.930
05174	22	7,192.68	0.9010	6,480.604
05175	20	6,640.90	0.9008	5,982.122
05178	19	6,251.51	0.9006	5,630.109
05179	20	6,583.86	0.9010	5,932.057

05180	20	6,645.20	0.9007	5,985.331
05182	13	4,591.18	0.9041	4,150.885
05874	21	7,146.75	0.8995	6,428.501
05875	21	7,137.72	0.8996	6,421.092
05876	21	7,146.07	0.8996	6,428.604
05877	22	7,493.60	0.8995	6,740.493
05878	20	7,022.33	0.8997	6,317.990
05879	21	7,321.76	0.9165	6,710.393
05880	22	7,679.95	0.9165	7,038.674
06733	20	6,721.02	0.8994	6,044.885
06795	21	6,945.42	0.8993	6,246.016
06846	21	7,224.82	0.9076	6,557.246
06847	21	7,213.71	0.9082	6,551.491
06848	22	7,577.20	0.9074	6,875.551
06849	22	7,574.36	0.9072	6,871.459
06850	22	7,614.48	0.9076	6,910.902
06851	22	7,526.17	0.9065	6,822.473
06852	22	7,442.54	0.9074	6,753.360
06853	22	7,465.35	0.9064	6,766.593
06854	22	7,482.70	0.9078	6,792.795
06855	22	7,381.70	0.9078	6,701.107
06856	22	7,376.09	0.9069	6,689.376
06857	22	7,372.12	0.9076	6,690.936
06858	22	7,409.20	0.9081	6,728.294
07007	21	7,568.95	0.9166	6,937.699
07008	21	7,672.84	0.9166	7,032.925
07009	21	7,732.30	0.9165	7,086.652
07010	21	7,755.57	0.9166	7,108.755
07011	21	7,831.20	0.9166	7,178.077
07013	21	7,825.35	0.9166	7,172.715
07014	21	7,890.13	0.9166	7,232.093
07015	21	7,562.16	0.9165	6,930.719
07016	21	7,902.52	0.9166	7,243.449
07018	21	7,796.40	0.9166	7,146.180
07019	21	7,680.20	0.9166	7,039.671
07020	21	7,870.59	0.9166	7,214.182
07021	21	7,779.72	0.9166	7,130.891
07022	21	7,732.38	0.9166	7,087.499
07023	22	8,128.56	0.9166	7,450.638
07024	19	6,961.39	0.9165	6,380.113
07025	19	7,111.75	0.9166	6,518.630
07027	19	7,206.35	0.9166	6,605.340
07028	21	7,754.94	0.9166	7,108.178
07029	20	7,447.39	0.9166	6,826.277

07030	21	7,837.78	0.9165	7,183.325
07031	22	8,136.95	0.9166	7,458.328
07032	22	8,241.15	0.9166	7,553.838
07033	20	7,460.78	0.9166	6,838.550
07034	20	7,423.47	0.9166	6,804.352
07035	20	7,362.20	0.9166	6,748.192
07036	20	7,368.90	0.9166	6,754.333
07037	21	7,762.13	0.9166	7,114.768
07038	21	7,990.48	0.9166	7,324.073
07040	21	7,872.62	0.9166	7,216.043
07041	21	7,817.95	0.9166	7,165.932
07042	18	6,500.33	0.9166	5,958.202
07043	21	7,832.37	0.9166	7,179.150
07044	21	7,909.52	0.9166	7,249.866
07046	21	7,834.60	0.9166	7,181.194
07047	22	8,053.90	0.9166	7,382.204
07048	18	6,545.77	0.9165	5,999.198
07049	20	7,456.43	0.9165	6,833.818
07050	20	7,589.50	0.9166	6,956.535
07051	21	7,750.03	0.9166	7,103.677
07052	21	7,689.02	0.9166	7,047.755
07053	22	8,030.40	0.9166	7,360.664
07054	21	7,770.34	0.9166	7,122.293
07055	21	7,850.66	0.9166	7,195.914
07056	21	7,770.48	0.9166	7,122.421
07057	21	7,747.35	0.9166	7,101.221
07058	21	7,822.59	0.9166	7,170.185
07059	21	7,770.50	0.9165	7,121.663
07060	18	6,630.77	0.9166	6,077.763
07061	21	7,895.21	0.9167	7,237.539
07062	21	7,774.30	0.9166	7,125.923
07063	21	7,755.37	0.9166	7,108.572
07064	21	7,730.07	0.9166	7,085.382
07065	21	7,592.73	0.9166	6,959.496
07066	19	6,839.33	0.9166	6,268.929
07067	14	5,113.82	0.9166	4,687.327
07087	23	7,710.66	0.8997	6,937.280
07088	23	7,785.36	0.8997	7,004.488
07089	23	7,693.56	0.8997	6,921.895
07090	15	5,503.66	0.9163	5,043.003
07090	23	7,765.57	0.8997	6,986.683
07091	14	5,050.88	0.9161	4,627.111
07091	23	7,679.34	0.8997	6,909.102
07092	22	7,407.71	0.8997	6,664.716

07094	23	7,713.41	0.8998	6,940.526
07095	23	7,688.95	0.8997	6,917.748
07096	24	7,933.26	0.8997	7,137.554
07579	20	6,760.83	0.9076	6,136.129
07581	20	6,941.91	0.9073	6,298.394
07583	19	6,403.65	0.9073	5,810.031
07584	18	6,025.76	0.9077	5,469.582
07585	19	6,300.28	0.9070	5,714.353
07586	19	6,406.50	0.9081	5,817.742
07587	20	6,731.77	0.9080	6,112.447
07588	20	6,728.21	0.9079	6,108.541
07620	12	4,381.97	0.9164	4,015.637
07700	16	5,575.45	0.8993	5,014.002
07854	19	6,780.40	0.8999	6,101.681
07855	19	6,764.70	0.8995	6,084.847
07856	19	6,814.82	0.8994	6,129.249
07857	19	6,864.92	0.8994	6,174.309
07858	19	6,765.44	0.8995	6,085.513
07987	18	6,485.83	0.8993	5,832.706
07988	19	6,843.95	0.8994	6,155.448
07989	19	6,900.15	0.8994	6,205.994
07990	19	6,918.90	0.8993	6,222.166
08468	20	7,260.02	0.9165	6,653.808
08469	20	7,216.10	0.9165	6,613.555
08471	20	7,415.88	0.9166	6,797.395
08472	20	7,365.21	0.9166	6,750.951
08473	17	6,211.41	0.9165	5,692.757
08474	19	7,128.80	0.9166	6,534.258
08475	19	7,107.40	0.9166	6,514.642
08476	19	7,114.35	0.9166	6,521.013
08477	19	7,178.42	0.9165	6,579.021
08478	19	7,211.12	0.9166	6,609.712
08479	20	7,477.91	0.9166	6,854.252
08480	20	7,339.56	0.9166	6,727.440
08481	19	7,026.13	0.9166	6,440.150
08482	20	7,347.75	0.9165	6,734.212
08484	19	6,772.67	0.9166	6,207.829
08485	19	6,958.57	0.9166	6,378.225
08486	18	6,818.90	0.9166	6,250.203
08487	18	6,762.53	0.9166	6,198.534
08488	18	6,662.00	0.9166	6,106.389
08489	18	6,772.42	0.9166	6,207.600
08490	18	6,681.10	0.9166	6,123.896
08491	17	6,301.85	0.9166	5,776.275

08492	18	6,805.91	0.9166	6,238.297
08493	18	6,724.36	0.9166	6,163.548
08494	19	7,163.45	0.9166	6,566.018
08495	12	4,293.28	0.9166	3,935.220
08496	18	6,685.47	0.8999	6,016.254
08497	18	6,418.75	0.8996	5,774.307
08498	19	6,783.49	0.8995	6,101.749
08712	14	4,850.98	0.9164	4,445.438
08713	15	5,474.11	0.9161	5,014.532
08714	14	5,078.85	0.9161	4,652.734
08715	16	5,759.80	0.8995	5,180.940
08716	15	5,397.33	0.8994	4,854.358
08717	16	5,931.92	0.8995	5,335.762
08723	20	7,585.39	0.9001	6,827.609
08724	17	6,352.75	0.9000	5,717.475
08775	18	6,608.35	0.8993	5,942.889
08776	19	7,028.90	0.8995	6,322.495
08777	18	6,653.15	0.8995	5,984.508
08778	18	6,630.85	0.8995	5,964.449
08779	18	6,729.00	0.9166	6,167.801
08780	18	6,680.25	0.9166	6,123.117
08781	17	6,234.23	0.9166	5,714.295
08782	17	6,247.92	0.9166	5,726.843
08784	17	6,324.54	0.9165	5,796.440
08785	19	7,002.55	0.9166	6,418.537
08786	19	6,909.15	0.9165	6,332.235
08787	18	6,600.05	0.9166	6,049.605
08788	18	6,666.55	0.9166	6,110.559
08789	18	6,650.90	0.9165	6,095.549
08790	18	6,723.95	0.9166	6,163.172
08791	18	6,554.04	0.9165	6,006.777
08792	19	6,901.30	0.9166	6,325.731
08793	18	6,718.73	0.9166	6,158.387
08794	18	6,740.33	0.9166	6,178.186
08795	18	6,761.43	0.9165	6,196.850
08796	18	6,619.99	0.9165	6,067.220
08797	18	6,634.98	0.9165	6,080.959
08798	20	7,401.85	0.9165	6,783.795
08799	19	7,007.22	0.9166	6,422.817
08800	18	6,570.30	0.9166	6,022.336
08801	18	6,542.83	0.8996	5,885.929
08803	18	6,655.80	0.8995	5,986.892
08804	18	6,756.30	0.8996	6,077.967
08805	18	6,589.05	0.8995	5,926.850

08806	16	5,620.60	0.8995	5,055.729
09065	21	7,287.83	0.9058	6,601.316
09066	21	7,760.25	0.9053	7,025.354
09067	21	7,656.83	0.9052	6,930.962
09068	21	7,473.42	0.9055	6,767.181
09069	21	7,528.25	0.9049	6,812.313
09070	17	6,140.48	0.9050	5,557.134
09071	20	7,376.60	0.9051	6,676.560
09072	20	7,303.06	0.9049	6,608.538
09073	20	7,317.00	0.9056	6,626.275
09074	20	7,062.56	0.9064	6,401.504
09164	18	6,541.20	0.9072	5,934.176
09402	19	6,632.60	0.8996	5,966.686
09403	19	6,676.90	0.8997	6,007.206
09404	19	6,660.15	0.8998	5,992.802
09405	20	7,195.03	0.8999	6,474.807
09406	19	6,706.83	0.9166	6,147.480
09407	19	6,696.55	0.9165	6,137.388
09408	18	6,433.55	0.9166	5,896.991
09409	18	6,570.65	0.9164	6,021.343
09410	18	6,618.30	0.9165	6,065.671
09411	18	6,536.25	0.9165	5,990.473
09412	18	6,459.05	0.9165	5,919.719
09492	17	6,054.55	0.8993	5,444.856
09493	17	6,175.95	0.8993	5,554.031
09494	18	6,579.22	0.8993	5,916.692
09496	19	6,924.20	0.8992	6,226.240
09498	19	7,055.00	0.9165	6,465.907
09499	19	7,059.20	0.9166	6,470.462
09500	20	7,394.50	0.9165	6,777.059
09517	21	7,566.00	0.8996	6,806.373
09675	19	6,886.39	0.8997	6,195.685
09676	18	6,446.55	0.8997	5,799.961
09677	18	6,411.75	0.8998	5,769.292
09679	17	6,125.48	0.8998	5,511.706
09680	17	6,189.63	0.8999	5,570.048
09681	19	6,741.10	0.8999	6,066.315
09682	17	6,140.53	0.8998	5,525.248
09683	17	6,147.37	0.8998	5,531.403
09684	17	6,105.18	0.8997	5,492.830
09706	22	8,224.99	0.9166	7,539.025
09707	22	8,152.81	0.9165	7,472.050
09708	21	7,769.30	0.9165	7,120.563
09709	21	7,805.25	0.9165	7,153.511

09710	21	7,779.95	0.9166	7,131.102
09711	22	8,174.03	0.9166	7,492.315
09712	21	7,724.69	0.9165	7,079.678
09713	20	7,214.05	0.9165	6,611.676
09714	20	7,374.30	0.9165	6,758.545
09716	20	7,602.33	0.9165	6,967.535
09717	21	7,925.90	0.9165	7,264.087
09718	20	7,455.10	0.9165	6,832.599
09719	21	7,874.18	0.9166	7,217.473
09720	21	7,776.77	0.9166	7,128.187
09721	21	7,733.65	0.9165	7,087.890
09722	20	7,460.35	0.9166	6,838.156
09723	16	5,886.80	0.9166	5,395.840
09724	16	5,990.22	0.9166	5,490.635
09725	11	3,918.02	0.9165	3,590.865
09857	14	5,147.50	0.9162	4,716.139
09858	13	4,582.57	0.9165	4,199.925
09860	15	5,425.13	0.8997	4,880.989
09861	15	5,501.44	0.8998	4,950.195
10453	22	7,626.50	0.8999	6,863.087
10454	22	7,856.35	0.9000	7,070.715
10455	22	7,871.75	0.9000	7,084.575
10456	22	7,976.02	0.8999	7,177.620
10457	22	7,830.80	0.8999	7,046.936
10458	19	6,777.87	0.9000	6,100.083
10459	21	7,423.00	0.8998	6,679.215
10564	11	4,005.00	0.8999	3,604.099
10565	11	3,714.90	0.8999	3,343.038
10653	16	5,554.36	0.8997	4,997.257
10654	21	7,702.05	0.9166	7,059.699
10655	21	7,914.53	0.9165	7,253.666
10656	21	7,743.20	0.9166	7,097.417
10657	19	6,907.58	0.9166	6,331.487
10658	21	7,804.32	0.9165	7,152.659
10659	21	7,818.90	0.9165	7,166.021
10661	21	7,888.77	0.9165	7,230.057
10662	21	7,908.93	0.9164	7,247.743
10663	18	6,659.72	0.9165	6,103.633
10664	21	7,699.76	0.9166	7,057.600
10665	21	7,677.64	0.9165	7,036.557
10666	21	7,753.70	0.9166	7,107.041
10667	21	7,631.86	0.9165	6,994.599
10668	20	7,367.85	0.9167	6,754.108
10669	17	6,082.96	0.9165	5,575.032

10670	20	7,406.90	0.9166	6,789.164
10671	20	7,332.54	0.9166	6,721.006
10672	20	7,348.25	0.9165	6,734.671
10673	20	7,269.05	0.9166	6,662.811
10674	18	6,593.26	0.9166	6,043.382
10675	20	7,179.60	0.8995	6,458.050
10676	20	7,253.92	0.8996	6,525.626
10677	18	6,549.00	0.9166	6,002.813
11539	19	6,739.34	0.9162	6,174.583
12111	20	7,049.42	0.8995	6,340.953
12112	20	7,219.02	0.9165	6,616.231
12113	19	7,010.67	0.9166	6,425.980
12114	19	7,039.73	0.9166	6,452.616
12115	19	7,121.66	0.9166	6,527.713
12116	18	6,629.59	0.9166	6,076.682
12623	20	7,242.20	0.9165	6,637.476
12624	20	7,254.47	0.9166	6,649.447
12625	20	7,297.72	0.9165	6,688.360
12626	20	7,396.25	0.9165	6,778.663
12627	20	7,409.60	0.9166	6,791.639
12628	20	7,271.33	0.9165	6,664.173
12629	19	7,069.34	0.9165	6,479.050
12630	20	7,479.80	0.9166	6,855.984
12631	20	7,382.11	0.9166	6,766.442
12632	20	7,303.40	0.9166	6,694.296
12633	20	7,315.66	0.9165	6,704.802
12634	20	7,376.03	0.9166	6,760.869
12635	20	7,410.62	0.9166	6,792.574
12636	20	7,403.02	0.9166	6,785.608
12637	20	7,426.37	0.9166	6,807.010
12638	20	7,185.81	0.9165	6,585.794
12639	20	7,037.23	0.9166	6,450.325
12641	20	7,060.82	0.9166	6,471.947
12642	20	7,070.08	0.9166	6,480.435
12643	19	6,870.50	0.9166	6,297.500
12644	19	7,119.30	0.9166	6,525.550
12645	19	7,060.20	0.9166	6,471.379
12646	20	7,341.95	0.9166	6,729.631
12647	20	7,381.77	0.9165	6,765.392
12648	20	7,467.78	0.9166	6,844.967
12649	20	7,260.47	0.9165	6,654.220
12650	20	7,341.30	0.9166	6,729.035
12651	20	7,429.11	0.9166	6,809.522
12652	20	7,304.65	0.9165	6,694.711

12653	20	7,191.76	0.9165	6,591.248
12654	20	7,157.91	0.9166	6,560.940
12655	20	7,341.62	0.9166	6,729.328
12656	20	7,365.82	0.9166	6,751.510
12657	20	7,317.92	0.9165	6,706.873
12658	20	7,299.74	0.9165	6,690.211
12659	19	6,981.29	0.9165	6,398.352
12660	18	6,693.62	0.9165	6,134.702
12661	20	7,411.65	0.9166	6,793.518
12662	18	6,657.76	0.9166	6,102.502
12663	18	6,505.14	0.9166	5,962.611
12664	20	7,408.50	0.9166	6,790.631
12665	20	7,356.33	0.9166	6,742.812
12667	20	7,027.57	0.9165	6,440.767
12668	20	7,100.27	0.9166	6,508.107
12670	18	6,746.51	0.9166	6,183.851
12671	18	6,688.32	0.9166	6,130.514
12672	18	6,793.04	0.9166	6,226.500
12673	19	7,036.35	0.9166	6,449.518
12674	18	6,735.52	0.9166	6,173.777
12675	19	7,036.92	0.9166	6,450.040
12676	20	7,408.59	0.9166	6,790.713
12677	19	6,861.36	0.9166	6,289.122
12678	18	6,499.00	0.9166	5,956.983
12679	20	7,339.22	0.9166	6,727.129
12680	19	7,066.30	0.9166	6,476.970
12681	19	6,873.42	0.8997	6,184.015
12682	19	6,912.34	0.8995	6,217.649
12683	19	6,888.20	0.8994	6,195.247
12684	20	7,144.32	0.8995	6,426.315
12685	19	6,604.23	0.8995	5,940.504
12686	19	6,788.88	0.8997	6,107.955
12687	19	6,875.75	0.8995	6,184.737
12688	19	6,896.42	0.8997	6,204.709
12689	19	6,898.85	0.8996	6,206.205
12690	19	6,816.55	0.8995	6,131.486
12691	19	6,746.97	0.8995	6,068.899
12692	17	5,948.70	0.8994	5,350.260
12971	16	5,927.05	0.9166	5,432.734
12972	14	5,137.35	0.9164	4,707.867
12998	17	6,105.50	0.8995	5,491.897
12999	17	6,193.52	0.8995	5,571.071
13000	17	6,070.68	0.8994	5,459.969
13001	15	5,190.49	0.8994	4,668.326

13002	14	4,952.30	0.9166	4,539.278
13003	14	4,897.12	0.9165	4,488.210
13544	20	7,053.43	0.9063	6,392.523
13545	20	7,430.44	0.9064	6,734.950
13547	20	7,324.78	0.9064	6,639.180
13548	20	7,342.08	0.9060	6,651.924
13549	18	6,513.75	0.9067	5,906.017
13550	18	6,296.05	0.9072	5,711.776
13551	18	6,446.17	0.9063	5,842.163
13552	18	6,375.37	0.9063	5,777.997
13553	18	6,484.40	0.9061	5,875.514
13554	18	6,406.80	0.9050	5,798.154
13555	20	7,267.57	0.9058	6,582.964
13556	17	6,059.85	0.9060	5,490.224
13867	19	6,942.77	0.8996	6,245.715
13870	19	6,952.45	0.8994	6,253.033
13871	20	7,331.05	0.8996	6,595.012
13872	19	6,855.75	0.8996	6,167.432
13873	19	6,837.59	0.8997	6,151.779
13875	19	6,919.45	0.8998	6,226.121
13876	20	7,267.07	0.8998	6,538.909
13878	18	6,527.64	0.8997	5,872.917
13879	20	7,196.96	0.8997	6,475.104
13880	20	7,288.56	0.8997	6,557.517
13881	19	6,819.28	0.8995	6,133.942
13882	19	6,936.30	0.8999	6,241.976
13883	19	6,919.20	0.9009	6,233.507
13884	18	6,445.21	0.9000	5,800.689
13885	20	7,250.77	0.8997	6,523.517
13886	20	7,178.82	0.8995	6,457.348
13887	20	7,250.37	0.8998	6,523.882
13888	20	7,202.80	0.8998	6,481.079
13889	20	7,274.18	0.8998	6,545.307
13890	16	5,637.40	0.8998	5,072.532
13892	20	7,228.46	0.8998	6,504.168
13893	20	7,215.50	0.8997	6,491.785
13894	20	7,194.84	0.8998	6,473.917
13895	20	7,223.57	0.8996	6,498.323
13896	18	6,383.21	0.8995	5,741.697
13897	20	6,915.77	0.8995	6,220.735
13898	20	7,205.68	0.8995	6,481.509
13900	19	6,762.30	0.8995	6,082.688
13901	20	7,204.74	0.9165	6,603.144
13902	20	7,266.83	0.9166	6,660.776

13903	20	7,225.19	0.9157	6,616.106
13904	20	7,231.96	0.9164	6,627.368
13905	19	6,822.80	0.9166	6,253.778
13906	18	6,690.68	0.9164	6,131.339
13907	19	6,939.81	0.9166	6,361.029
13908	19	6,976.77	0.9166	6,394.907
13909	19	6,976.05	0.9166	6,394.247
13910	20	7,328.06	0.9165	6,716.166
13911	19	6,925.07	0.9165	6,346.826
13912	20	7,441.79	0.9165	6,820.400
13913	19	6,998.54	0.9166	6,414.861
13914	20	7,438.23	0.9166	6,817.881
13915	19	6,955.87	0.9166	6,375.750
13916	19	7,060.88	0.9165	6,471.296
13917	19	7,074.93	0.9165	6,484.173
13918	19	7,102.66	0.9165	6,509.587
13920	20	7,378.81	0.9166	6,763.417
13921	20	7,259.55	0.9166	6,654.103
13922	20	7,268.68	0.9166	6,662.472
13924	18	6,528.45	0.9166	5,983.977
13925	18	6,628.69	0.9165	6,075.194
13926	18	6,627.30	0.9165	6,073.920
13927	18	6,618.49	0.9166	6,066.507
13928	18	6,595.38	0.9166	6,045.325
13929	18	6,552.80	0.9166	6,006.296
13930	17	6,243.52	0.9166	5,722.810
13931	18	6,633.93	0.9165	6,079.996
13932	17	6,112.84	0.9166	5,603.029
13933	21	7,443.18	0.9165	6,821.674
14053	17	6,101.89	0.8995	5,488.650
14054	17	6,101.80	0.8996	5,489.179
14055	17	6,100.81	0.8997	5,488.898
14056	17	6,132.09	0.8996	5,516.428
14057	17	6,086.70	0.8997	5,476.203
14597	18	6,507.51	0.8996	5,854.155
14599	18	6,588.19	0.8996	5,926.735
14600	19	6,724.93	0.8995	6,049.074
14602	16	5,861.53	0.9164	5,371.506
14603	16	5,797.85	0.9164	5,313.149
14604	16	5,729.35	0.9166	5,251.522
14605	16	5,921.57	0.9166	5,427.711
14606	19	7,049.39	0.9165	6,460.765
14796	19	6,982.08	0.9165	6,399.076
14797	14	4,871.73	0.8996	4,382.608

14914	21	7,405.72	0.8996	6,662.185
14915	21	7,581.33	0.8996	6,820.164
14916	21	7,730.18	0.8997	6,954.842
14917	21	7,662.04	0.8993	6,890.472
14918	21	7,622.10	0.8995	6,856.078
14919	19	6,964.79	0.8996	6,265.525
14921	20	7,190.36	0.9004	6,474.200
14922	20	7,117.88	0.8999	6,405.380
14923	20	7,203.18	0.8996	6,479.980
14924	19	6,708.32	0.8996	6,034.804
14925	20	6,971.43	0.8994	6,270.104
14926	20	7,414.68	0.8994	6,668.763
14927	18	6,652.21	0.8996	5,984.328
14928	18	6,699.66	0.8996	6,027.014
14929	19	7,087.45	0.8996	6,375.870
14930	19	7,018.03	0.9016	6,327.455
14931	19	7,021.77	0.9002	6,320.997
14932	20	7,325.43	0.8996	6,589.956
14933	18	6,594.94	0.9165	6,044.262
14934	18	6,523.65	0.9156	5,973.053
14936	17	6,213.24	0.9167	5,695.677
14937	17	6,262.74	0.9166	5,740.427
14938	17	6,277.49	0.9165	5,753.319
14939	18	6,579.73	0.9166	6,030.980
14940	15	5,528.48	0.9165	5,066.851
14941	15	5,480.67	0.9166	5,023.582
15544	13	4,668.40	0.8995	4,199.225
15545	15	5,497.59	0.9166	5,039.090
15546	15	5,501.87	0.9166	5,043.014
16119	18	6,520.40	0.9166	5,976.598
16120	18	6,514.37	0.9166	5,971.071
16121	18	6,581.98	0.9166	6,033.042
16122	18	6,525.45	0.9166	5,981.227
16123	18	6,492.80	0.9166	5,951.300
16124	20	7,204.36	0.9167	6,604.236
16293	18	6,443.22	0.9068	5,842.711
16294	18	6,516.97	0.9075	5,914.150
16295	18	6,568.83	0.9066	5,955.301
16296	18	6,528.06	0.9065	5,917.686
16297	18	6,503.20	0.9068	5,897.101
16298	20	7,223.31	0.9070	6,551.542
16299	19	6,736.76	0.9059	6,102.830
16300	19	6,746.49	0.9066	6,116.367
16301	19	6,814.88	0.9056	6,171.555

16302	19	6,831.63	0.9073	6,198.337
16303	15	5,362.30	0.9076	4,866.823
16304	19	6,779.30	0.9073	6,150.858
16305	19	6,706.24	0.9074	6,085.242
16306	19	6,750.53	0.9084	6,132.181
16307	19	6,581.02	0.9088	5,980.830
16676	20	7,058.99	0.8997	6,350.973
16677	20	6,976.78	0.8997	6,277.008
16679	21	7,402.36	0.8997	6,659.903
16822	20	6,873.99	0.8997	6,184.528
16823	21	7,207.56	0.8996	6,483.920
17055	20	7,024.20	0.8997	6,319.672
17056	20	6,938.31	0.8996	6,241.703
17057	20	6,933.20	0.8995	6,236.413
17058	21	7,266.27	0.8997	6,537.463
17059	21	7,248.87	0.8997	6,521.808
17347	18	6,454.65	0.9165	5,915.686
17348	18	6,480.25	0.9166	5,939.797
17349	18	6,529.07	0.9166	5,984.545
17350	18	6,449.80	0.9166	5,911.886
17351	16	5,723.00	0.9166	5,245.701
17353	19	6,725.40	0.8996	6,050.169
17354	19	6,697.90	0.8997	6,026.100
17355	18	6,279.45	0.8996	5,648.993
17356	18	6,307.08	0.8998	5,675.110
17904	20	7,156.51	0.9166	6,559.657
17905	20	7,169.47	0.9166	6,571.536
17906	20	7,187.74	0.9165	6,587.563
17907	20	7,142.70	0.9166	6,546.998
17908	19	6,668.42	0.9166	6,112.273
17909	19	6,754.90	0.9165	6,190.865
17910	19	6,754.19	0.9166	6,190.890
17911	19	6,646.80	0.9166	6,092.456
17913	21	7,211.89	0.8997	6,488.537
17914	21	7,259.73	0.8999	6,533.031
17915	21	7,274.78	0.8999	6,546.574
17916	21	7,348.80	0.8999	6,613.185
17917	21	7,236.60	0.8999	6,512.216
17918	21	7,135.53	0.8999	6,421.263
18273	20	7,176.55	0.9166	6,578.025
18274	20	7,112.52	0.9166	6,519.335
18275	20	7,203.87	0.9166	6,603.067
18276	20	7,217.00	0.9166	6,615.102
18277	20	7,111.38	0.9167	6,519.002

18278	20	7,131.68	0.9166	6,536.897
18279	20	7,156.90	0.9166	6,560.014
18280	20	7,178.32	0.9166	6,579.648
18281	19	6,809.35	0.9166	6,241.450
18282	19	6,763.03	0.9167	6,199.669
18283	22	7,601.41	0.8992	6,835.187
18284	21	7,308.25	0.8995	6,573.770
18285	21	7,300.49	0.8994	6,566.060
18286	21	7,198.10	0.8994	6,473.971
18287	23	8,093.06	0.8993	7,278.088
18288	22	7,620.63	0.8995	6,854.756
18289	20	6,778.51	0.8995	6,097.269
18378	20	6,753.68	0.8998	6,076.961
18379	18	6,183.04	0.8998	5,563.499
18517	18	6,480.29	0.9007	5,836.797
18518	18	6,741.19	0.9016	6,077.856
18519	17	6,297.86	0.9014	5,676.891
18520	18	6,573.65	0.9058	5,954.412
18521	16	5,773.95	0.9057	5,229.466
18524	21	6,954.39	0.9010	6,265.905
18525	20	6,777.59	0.9006	6,103.897
18526	21	7,137.53	0.9006	6,428.059
18527	18	6,036.93	0.9006	5,436.859
18744	15	5,361.72	0.8998	4,824.475
18745	17	5,888.90	0.8998	5,298.832
18854	18	6,509.29	0.9053	5,892.860
18855	18	6,497.30	0.9066	5,890.452
18856	18	6,567.25	0.9066	5,953.868
18857	18	6,371.10	0.9059	5,771.579
18858	20	7,114.42	0.9064	6,448.510
18860	19	6,637.26	0.9065	6,016.676
18862	19	6,549.97	0.9062	5,935.582
18863	19	6,680.10	0.9063	6,054.174
18865	20	7,063.95	0.9063	6,402.057
18866	16	5,747.23	0.9056	5,204.691
18867	16	5,633.61	0.9058	5,102.923
19355	12	4,258.57	0.9165	3,902.979
20513	13	4,599.96	0.9150	4,208.963
20644	21	7,265.07	0.9166	6,659.163
20645	21	7,384.93	0.9165	6,768.288
20646	20	7,121.20	0.9165	6,526.579
20647	20	7,229.10	0.9166	6,626.193
20648	19	6,898.03	0.9166	6,322.734
20649	17	5,964.22	0.9013	5,375.551

20650	16	5,537.74	0.9012	4,990.611
20840	21	7,183.98	0.9068	6,514.433
20841	21	7,239.22	0.9068	6,564.524
20842	21	7,423.06	0.9060	6,725.292
20843	21	7,322.42	0.9063	6,636.309
20844	21	7,502.10	0.9059	6,796.152
20845	20	7,094.86	0.9058	6,426.524
20846	21	7,386.08	0.9060	6,691.788
20847	21	7,424.91	0.9062	6,728.453
20848	21	7,397.18	0.9073	6,711.461
20849	21	7,423.75	0.9077	6,738.537
20850	21	7,410.70	0.9072	6,722.987
20851	19	6,539.41	0.9060	5,924.705
20866	12	4,260.30	0.9146	3,896.470
21165	20	6,973.63	0.8996	6,273.477
21166	20	6,957.40	0.8996	6,258.877
21167	20	6,899.78	0.8996	6,207.042
21168	20	6,934.49	0.8995	6,237.573
21169	22	7,637.22	0.8996	6,870.443
D 101	21	7,800.44	0.8996	7,017.275
D 102	20	7,330.67	0.8995	6,593.937
D 103	21	7,718.37	0.8995	6,942.673
D 104	20	7,152.28	0.8996	6,434.191
D 105	22	7,739.02	0.8995	6,961.248
D 107	22	7,701.03	0.8996	6,927.846
D 108	21	7,299.32	0.8998	6,567.928
D 110	22	7,450.26	0.8995	6,701.508
D 111	22	7,514.32	0.8998	6,761.385
D 112	22	7,650.96	0.8996	6,882.803
D 113	22	7,481.82	0.8996	6,730.645
D 114	22	7,608.89	0.8997	6,845.718
D 116	22	7,378.08	0.8996	6,637.320
D 201	22	7,766.82	0.9163	7,116.737
D 203	22	7,813.08	0.9166	7,161.469
D 204	22	7,743.65	0.9166	7,097.829
D 205	21	7,382.02	0.9165	6,765.621
D 206	21	7,220.22	0.9165	6,617.331
D 208	21	7,334.00	0.9135	6,699.609
D 209	20	7,101.01	0.9164	6,507.365
D 210	21	7,453.91	0.9165	6,831.508
D 211	17	6,240.77	0.9046	5,645.400
D 212	21	7,233.60	0.9165	6,629.594
D 213	21	7,337.34	0.9164	6,723.938
D 214	19	6,790.73	0.9164	6,223.024

D 215	17	5,955.61	0.9094	5,416.031
00599	21	7,483.52	0.8998	6,733.671
00735	19	6,821.37	0.9095	6,204.036
00736	18	6,694.55	0.9095	6,088.693
00737	19	7,093.57	0.9098	6,453.729
00740	18	6,855.16	0.9094	6,234.082
00741	19	6,899.95	0.9089	6,271.364
00742	18	6,760.12	0.9090	6,144.949
00743	19	7,086.73	0.9092	6,443.254
00744	19	7,032.05	0.9093	6,394.243
00746	18	6,625.29	0.9086	6,019.738
00748	19	7,039.93	0.9091	6,400.000
00749	18	6,577.00	0.9091	5,979.150
00750	18	6,595.03	0.9091	5,995.541
00862	17	6,166.37	0.9164	5,650.861
00863	14	5,008.11	0.9164	4,589.432
01018	19	7,564.92	0.9002	6,809.940
01019	18	7,305.72	0.9001	6,575.878
01020	18	7,243.94	0.9001	6,520.270
01021	18	7,187.19	0.9000	6,468.471
01022	17	6,681.77	0.9000	6,013.593
01023	18	7,538.11	0.8999	6,783.545
01024	18	7,424.45	0.9000	6,682.005
01025	18	7,256.91	0.9000	6,531.219
01026	18	7,236.46	0.9000	6,512.814
01027	16	6,449.20	0.9000	5,804.280
01028	18	7,386.20	0.9000	6,647.580
01029	18	7,415.60	0.9002	6,675.523
01030	18	7,321.32	0.9001	6,589.920
01031	17	7,045.17	0.9001	6,341.357
01032	17	6,950.95	0.9001	6,256.550
01033	17	6,810.88	0.9002	6,131.154
01034	17	6,868.57	0.9001	6,182.399
01035	17	6,756.00	0.9002	6,081.751
01036	17	6,793.10	0.9001	6,114.469
01037	17	6,865.95	0.9000	6,179.355
01038	17	6,866.37	0.9001	6,180.419
01039	18	7,102.30	0.9000	6,392.070
01040	17	6,970.10	0.9001	6,273.787
01041	17	6,827.64	0.9001	6,145.558
01042	16	6,469.40	0.9000	5,822.460
01043	17	6,875.18	0.8999	6,186.974
01044	17	7,056.80	0.9000	6,351.120
01045	17	7,049.55	0.9001	6,345.299

01046	17	6,927.19	0.9000	6,234.471
01047	16	6,297.75	0.9001	5,668.604
01048	17	6,527.28	0.9000	5,874.552
01050	17	6,887.49	0.9000	6,198.741
01051	17	6,819.36	0.9001	6,138.105
01053	17	6,640.95	0.9000	5,976.855
01054	17	6,662.60	0.9000	5,996.340
01055	17	6,810.70	0.9001	6,130.311
01056	17	6,839.09	0.9000	6,155.181
01057	18	7,138.20	0.9002	6,425.807
01058	17	6,810.93	0.9001	6,130.518
01059	17	6,850.22	0.9000	6,165.198
01060	17	6,971.50	0.9001	6,275.047
01061	17	6,814.45	0.9001	6,133.686
01062	17	6,871.45	0.8999	6,183.617
01063	17	7,148.70	0.9001	6,434.544
01064	17	7,162.88	0.9001	6,447.308
01065	17	6,991.91	0.9000	6,292.719
01066	17	6,932.75	0.9000	6,239.475
01067	15	5,981.10	0.8999	5,382.391
01068	17	6,678.05	0.9000	6,010.245
01069	17	6,667.10	0.9000	6,000.390
01070	17	6,722.28	0.9000	6,050.052
01071	18	7,059.52	0.9001	6,354.273
01072	18	7,093.15	0.9001	6,383.835
01275	18	7,276.28	0.9000	6,548.652
01276	18	7,210.50	0.8999	6,488.728
01277	18	7,484.40	0.9000	6,735.960
01278	17	6,728.13	0.9000	6,055.317
01279	18	7,440.13	0.8999	6,695.372
01281	18	7,452.45	0.9000	6,707.205
01282	18	7,212.10	0.9000	6,490.890
01283	16	6,638.87	0.9000	5,974.983
01284	18	7,131.05	0.9001	6,418.658
01285	18	7,275.51	0.9000	6,547.959
01286	18	7,238.88	0.9000	6,514.992
01287	18	7,223.41	0.9000	6,501.069
01296	18	7,425.15	0.9001	6,683.377
01297	18	7,373.50	0.9000	6,636.150
01298	17	6,908.48	0.9000	6,217.632
01299	18	7,260.85	0.9000	6,534.765
01300	18	7,401.70	0.8999	6,660.789
01301	18	7,332.03	0.9001	6,599.560
01302	18	7,377.33	0.9002	6,641.072

01303	17	6,904.05	0.9000	6,213.645
01304	18	7,307.34	0.9001	6,577.336
01306	18	7,334.56	0.9001	6,601.837
01307	16	6,495.70	0.9000	5,846.130
01308	18	7,235.50	0.9002	6,513.397
01310	18	7,003.52	0.8999	6,302.467
01311	18	7,421.33	0.8999	6,678.454
01312	17	7,024.10	0.9000	6,321.690
01313	18	7,423.60	0.9000	6,681.240
01315	18	7,392.66	0.9000	6,653.394
01316	18	7,281.17	0.9001	6,553.781
01317	16	6,469.12	0.9000	5,822.208
01318	18	7,293.38	0.9000	6,564.042
01359	7	2,409.41	0.9165	2,208.224
01400	19	6,537.46	0.8997	5,881.752
01401	19	6,621.60	0.8997	5,957.453
01416	18	7,270.01	0.9001	6,543.736
01417	18	7,215.12	0.9000	6,493.608
01418	18	7,380.40	0.9000	6,642.360
01419	18	7,267.64	0.9000	6,540.876
01420	18	7,334.31	0.9000	6,600.879
01421	18	7,269.61	0.9001	6,543.375
01422	18	7,356.39	0.9001	6,621.486
01423	18	7,227.19	0.9001	6,505.193
01424	18	7,206.90	0.9000	6,486.210
01425	18	7,201.60	0.9000	6,481.440
01427	18	7,407.57	0.9000	6,666.813
01428	18	7,351.51	0.9001	6,617.094
01429	18	7,361.14	0.9000	6,625.026
01430	17	6,851.32	0.9000	6,166.188
01430	18	7,173.78	0.9001	6,457.119
01431	18	7,143.19	0.9001	6,429.585
01431	18	7,293.80	0.9001	6,565.149
01432	18	7,224.78	0.9001	6,503.024
01433	18	7,370.35	0.9000	6,633.315
01434	18	7,271.10	0.9000	6,543.990
01434	18	7,317.60	0.9001	6,586.571
01436	18	7,224.97	0.9000	6,502.473
01436	18	7,539.53	0.9001	6,786.330
01437	18	7,298.15	0.9000	6,568.335
01437	18	7,332.97	0.9000	6,599.673
01438	18	7,267.65	0.9000	6,540.885
01438	18	7,380.08	0.9000	6,642.072
01439	18	7,393.10	0.9000	6,653.790

01440	17	6,901.67	0.9001	6,212.193
01440	18	7,111.73	0.8999	6,399.845
01441	18	7,163.40	0.9000	6,447.060
01441	18	7,501.70	0.9000	6,751.530
01442	18	7,226.60	0.9000	6,503.940
01442	17	7,024.10	0.9000	6,321.690
01443	18	7,121.93	0.9000	6,409.737
01443	18	7,411.93	0.9001	6,671.478
01444	18	7,026.77	0.9000	6,324.093
01444	17	6,905.28	0.9000	6,214.752
01445	19	7,646.82	0.9000	6,882.138
01445	16	6,503.62	0.9000	5,853.258
01446	18	7,451.32	0.9001	6,706.933
01447	18	7,514.20	0.9001	6,763.531
01447	17	6,998.60	0.9000	6,298.740
01448	18	7,478.54	0.9000	6,730.686
01449	18	7,456.76	0.9000	6,711.084
01450	15	6,206.90	0.9000	5,586.210
01450	18	6,946.83	0.9001	6,252.841
01451	18	7,237.27	0.9000	6,513.543
01451	18	7,096.28	0.9001	6,387.361
01452	18	7,397.67	0.9000	6,657.903
01452	18	7,053.45	0.9001	6,348.810
01453	18	7,276.25	0.9000	6,548.625
01453	18	7,188.15	0.9001	6,470.053
01454	18	7,266.74	0.9001	6,540.792
01455	17	6,978.00	0.9000	6,280.200
01455	18	7,387.20	0.9001	6,649.218
01454	18	7,281.25	0.9001	6,553.853
01457	18	7,295.70	0.9001	6,566.859
01457	18	7,500.10	0.9000	6,750.090
01458	18	7,279.30	0.9001	6,552.097
01458	18	7,458.53	0.8999	6,711.931
01459	17	6,813.50	0.9000	6,132.150
01459	18	7,413.60	0.8999	6,671.498
01460	18	6,965.00	0.8999	6,267.803
01461	18	7,213.05	0.8999	6,491.023
01462	18	7,205.45	0.8999	6,484.184
01464	18	7,345.85	0.9000	6,611.265
01465	18	7,329.90	0.8999	6,596.177
01466	18	7,259.33	0.9000	6,533.397
01467	18	7,379.55	0.9000	6,641.595
01468	18	7,357.00	0.9001	6,622.035
01525	18	7,551.75	0.9000	6,796.575

01526	18	7,547.03	0.9001	6,793.081
01527	18	7,461.86	0.9001	6,716.420
01528	18	7,209.73	0.9000	6,488.757
01529	18	7,162.63	0.9000	6,446.367
01531	18	6,964.00	0.9001	6,268.296
01532	18	7,425.00	0.9000	6,682.500
01533	18	7,337.60	0.9001	6,604.573
01534	18	7,313.92	0.9000	6,582.528
01535	15	5,992.97	0.9000	5,393.673
01536	18	7,225.05	0.9001	6,503.267
01537	18	7,234.40	0.9000	6,510.960
01538	18	7,363.85	0.9000	6,627.465
01563	18	7,264.00	0.9000	6,537.600
01564	18	7,360.30	0.9000	6,624.270
01565	18	7,321.78	0.9001	6,590.334
01566	18	7,327.97	0.9001	6,595.905
01567	18	7,256.74	0.9001	6,531.791
01568	18	7,378.39	0.8999	6,639.813
01569	18	7,485.40	0.9000	6,736.860
01570	18	7,337.45	0.9000	6,603.705
01571	17	6,947.25	0.9000	6,252.525
01572	16	6,646.95	0.9000	5,982.255
01573	18	7,365.35	0.8999	6,628.078
01573	18	7,444.95	0.9000	6,700.455
01574	18	7,365.85	0.9001	6,630.001
01574	18	6,906.25	0.9001	6,216.315
01575	18	7,538.27	0.8999	6,783.689
01575	18	6,971.10	0.9001	6,274.687
01576	18	7,394.67	0.9001	6,655.942
01576	18	7,097.84	0.9000	6,388.056
01577	16	6,504.41	0.9000	5,853.969
01577	18	7,223.45	0.9001	6,501.827
01578	18	7,388.87	0.9000	6,649.983
01578	18	7,501.50	0.9001	6,752.100
01579	18	7,419.22	0.8999	6,676.556
01580	18	7,300.21	0.9000	6,570.189
01580	18	7,319.70	0.9001	6,588.461
01581	18	7,244.78	0.8999	6,519.577
01581	18	7,314.28	0.9001	6,583.583
01582	18	7,322.38	0.9000	6,590.142
01583	18	7,408.25	0.8999	6,666.684
01583	18	7,370.55	0.9001	6,634.232
01584	18	7,402.20	0.9001	6,662.720
01585	18	7,395.25	0.9000	6,655.725

01586	17	7,033.94	0.9000	6,330.546
01587	16	6,519.43	0.9000	5,867.487
01588	18	7,322.33	0.9000	6,590.097
01589	18	7,435.23	0.9000	6,691.707
01591	18	7,141.17	0.8999	6,426.338
01592	17	6,762.90	0.9000	6,086.610
01593	18	7,365.00	0.9000	6,628.500
01594	18	7,427.30	0.9002	6,686.055
01595	17	7,028.74	0.9000	6,325.866
01596	17	7,148.77	0.9000	6,433.893
01597	17	7,119.32	0.9000	6,407.388
01598	18	7,206.70	0.9000	6,486.030
01599	18	7,049.45	0.9000	6,344.505
01599	18	7,294.64	0.9002	6,566.634
01600	18	7,203.52	0.9001	6,483.888
01600	18	7,301.25	0.9001	6,571.855
01601	18	7,202.48	0.9000	6,482.232
01602	18	7,342.58	0.9002	6,609.790
01603	18	7,446.24	0.9001	6,702.360
01603	18	7,279.40	0.9000	6,551.460
01604	18	7,402.70	0.9002	6,663.910
01604	18	7,233.65	0.9001	6,511.008
01605	18	7,115.60	0.9002	6,405.463
01605	18	7,304.98	0.9001	6,575.212
01606	19	7,620.15	0.9001	6,858.897
01607	18	7,415.20	0.9002	6,675.163
01608	18	7,285.62	0.9001	6,557.786
01609	17	6,852.54	0.9000	6,167.286
01611	18	7,395.17	0.9001	6,656.392
01612	18	7,335.40	0.9001	6,602.593
01613	18	7,236.80	0.9000	6,513.120
01614	18	7,287.95	0.9000	6,559.155
01615	18	7,124.16	0.8999	6,411.031
01617	18	7,436.83	0.9000	6,693.147
01619	17	6,815.20	0.9000	6,133.680
01623	17	5,764.17	0.8996	5,185.447
01676	18	7,235.19	0.9000	6,511.671
01677	18	7,223.25	0.9000	6,500.925
01678	18	7,249.67	0.9001	6,525.427
01679	18	7,254.74	0.9001	6,529.991
01680	18	7,201.95	0.9000	6,481.755
01681	18	7,248.85	0.9001	6,524.689
01682	18	7,268.70	0.8999	6,541.103
01683	18	7,307.20	0.9000	6,576.480

01684	18	7,213.46	0.9001	6,492.835
01685	17	6,963.28	0.9000	6,266.952
01686	18	7,199.35	0.9001	6,480.134
01687	18	7,397.30	0.9000	6,657.570
01688	18	7,404.66	0.9000	6,664.194
01689	18	7,374.27	0.8999	6,636.105
01690	16	6,521.48	0.8999	5,868.679
01691	18	7,257.55	0.9000	6,531.795
01692	18	7,320.50	0.9000	6,588.450
01693	18	7,359.58	0.9000	6,623.622
01694	18	7,228.00	0.9000	6,505.200
01695	17	6,908.62	0.8999	6,217.067
01696	18	7,453.57	0.9000	6,708.213
01697	18	7,443.40	0.9000	6,699.060
01698	18	7,321.18	0.9000	6,589.062
01699	18	7,339.28	0.8999	6,604.618
01701	18	7,425.22	0.9000	6,682.698
01702	18	7,445.75	0.9001	6,701.919
01703	18	7,544.45	0.9000	6,790.005
01704	17	7,155.25	0.9000	6,439.725
01705	16	6,615.90	0.8999	5,953.648
01707	18	7,225.63	0.9000	6,503.067
01708	18	7,252.85	0.8999	6,526.839
01709	18	7,249.92	0.9000	6,524.928
01710	18	7,321.70	0.9000	6,589.530
01711	18	7,443.50	0.9001	6,699.894
01712	18	7,522.53	0.9000	6,770.277
01713	18	7,204.70	0.9000	6,484.230
01714	18	7,368.34	0.9000	6,631.506
01715	17	6,755.42	0.9000	6,079.878
01716	18	7,171.12	0.9001	6,454.725
01717	18	7,266.90	0.9000	6,540.210
01718	18	7,203.82	0.9000	6,483.438
01719	18	7,260.33	0.9000	6,534.297
01868	18	7,325.11	0.9001	6,593.331
01869	18	7,303.87	0.9001	6,574.213
01870	18	7,408.14	0.9001	6,668.066
01871	18	7,483.71	0.9001	6,736.087
01872	17	6,964.34	0.9000	6,267.906
01873	18	7,206.16	0.9002	6,486.985
01874	18	7,246.50	0.9000	6,521.850
01875	18	7,196.40	0.8999	6,476.040
01876	18	7,190.04	0.9001	6,471.755
01877	18	6,940.17	0.9001	6,246.847

01878	18	6,979.05	0.9000	6,281.145
01879	18	7,029.56	0.9000	6,326.604
01880	18	7,208.97	0.9001	6,488.793
01881	18	7,163.53	0.9000	6,447.177
01883	18	7,207.78	0.9000	6,487.002
01884	18	7,388.48	0.9000	6,649.632
01885	18	7,369.53	0.9001	6,633.313
01886	18	7,395.63	0.9000	6,656.067
01887	17	6,885.71	0.9000	6,197.139
01888	18	7,354.89	0.9000	6,619.401
01889	18	7,297.69	0.9000	6,567.921
01890	18	7,332.07	0.9001	6,599.596
01891	18	7,308.75	0.9001	6,578.605
01892	17	6,853.74	0.9001	6,169.051
01893	18	7,113.50	0.9000	6,402.150
01894	18	7,251.50	0.9000	6,526.350
01898	18	7,245.02	0.9000	6,520.518
01899	18	7,295.42	0.9000	6,565.878
01900	18	7,342.14	0.9001	6,608.660
01902	17	6,848.00	0.9000	6,163.200
01903	18	7,320.60	0.8999	6,587.807
01905	18	7,393.15	0.8999	6,653.095
01906	18	7,386.75	0.8999	6,647.336
01907	17	6,842.80	0.8999	6,157.835
01908	18	7,298.67	0.8999	6,568.073
01909	17	6,787.62	0.9001	6,109.536
01910	18	7,302.76	0.9000	6,572.484
01911	18	7,193.00	0.9000	6,473.700
01936	18	7,472.35	0.9164	6,847.661
01937	18	7,659.78	0.9165	7,020.188
01938	19	8,139.93	0.9165	7,460.245
01939	19	7,943.47	0.9165	7,280.190
01940	19	7,840.80	0.9166	7,186.877
01941	18	7,443.20	0.9165	6,821.692
01942	18	7,587.00	0.9165	6,953.485
01943	18	7,500.95	0.9165	6,874.620
01944	18	7,483.69	0.9165	6,858.801
01945	17	6,889.33	0.9165	6,314.070
01946	20	8,438.10	0.9165	7,733.518
01948	19	7,744.12	0.9166	7,098.260
01949	19	7,748.11	0.9164	7,100.368
01950	18	7,317.00	0.9162	6,703.835
01951	20	8,324.73	0.9160	7,625.452
01952	19	7,974.34	0.9164	7,307.685

01954	19	8,046.07	0.9165	7,374.223
01973	21	7,298.64	0.9165	6,689.203
01974	22	7,803.57	0.9165	7,151.971
01975	21	7,494.28	0.9166	6,869.257
01977	21	7,557.43	0.9166	6,927.140
01978	22	7,968.55	0.9165	7,303.176
01979	21	7,146.32	0.9164	6,548.887
01980	22	7,597.38	0.9166	6,963.758
01981	22	7,560.68	0.9165	6,929.363
01982	22	7,597.28	0.9165	6,962.907
01983	22	7,599.10	0.9165	6,964.575
01984	22	7,507.44	0.9166	6,881.319
01985	20	7,220.44	0.9166	6,618.255
01985	17	6,987.06	0.9164	6,402.941
01986	21	7,583.68	0.9165	6,950.442
01986	17	7,038.85	0.9165	6,451.106
01987	17	6,916.32	0.9165	6,338.807
01988	19	6,774.69	0.9166	6,209.680
01988	17	6,922.03	0.9164	6,343.348
01989	21	7,549.80	0.9166	6,920.146
01990	21	7,303.27	0.9166	6,694.177
01990	17	7,089.40	0.9164	6,496.726
01991	20	6,983.50	0.9166	6,401.076
01991	17	7,029.23	0.9164	6,441.586
01992	20	7,077.49	0.9166	6,487.227
01992	17	7,048.02	0.9164	6,458.805
01993	20	7,088.33	0.9165	6,496.454
01993	17	6,915.02	0.9164	6,336.924
01994	21	7,194.38	0.9165	6,593.649
01994	16	6,672.80	0.9165	6,115.621
01995	21	7,141.43	0.9166	6,545.834
01995	17	7,072.52	0.9165	6,481.964
01996	21	7,175.10	0.9166	6,576.696
01996	15	6,265.30	0.9164	5,741.520
01997	21	7,161.95	0.9165	6,563.927
01997	16	6,490.23	0.8997	5,839.259
01998	22	7,442.47	0.9166	6,821.768
02918	19	6,702.54	0.8992	6,026.923
02920	20	6,827.18	0.8994	6,140.365
02921	21	7,456.32	0.8992	6,704.722
02923	20	7,046.10	0.8993	6,336.557
02924	19	6,769.80	0.8994	6,088.758
02925	17	6,006.85	0.8991	5,400.758
02926	20	6,864.60	0.8991	6,171.961

02927	20	6,720.65	0.8992	6,043.208
02928	20	6,846.63	0.8992	6,156.489
02929	20	6,807.73	0.8994	6,122.872
02930	22	7,493.22	0.8992	6,737.903
02931	20	7,263.00	0.8992	6,530.889
02932	20	7,102.93	0.8992	6,386.954
02933	20	7,137.25	0.8992	6,417.815
02934	20	7,172.20	0.8994	6,450.676
02935	17	6,105.70	0.8993	5,490.856
02936	19	6,832.62	0.8991	6,143.208
02937	19	6,852.32	0.8992	6,161.606
02938	19	6,795.74	0.8992	6,110.729
02951	21	7,382.09	0.8992	6,637.975
02952	20	6,928.99	0.8992	6,230.547
02954	20	7,127.83	0.8993	6,410.057
02955	19	6,798.50	0.8993	6,113.891
02956	21	7,234.22	0.8993	6,505.734
02957	21	7,278.52	0.8993	6,545.573
02958	20	6,899.62	0.8993	6,204.828
02959	20	6,989.04	0.8993	6,285.243
02960	21	7,255.22	0.8992	6,523.893
02961	20	6,901.13	0.8994	6,206.876
02962	20	6,987.90	0.8992	6,283.519
02963	20	6,909.94	0.8992	6,213.418
02964	21	7,369.20	0.8993	6,627.121
02966	20	7,137.56	0.8992	6,418.093
02967	20	7,062.82	0.8992	6,350.887
02968	20	7,037.48	0.8993	6,328.805
02969	19	6,768.25	0.8992	6,086.010
02970	20	7,159.51	0.8992	6,437.831
02971	20	7,017.04	0.8994	6,311.125
02972	20	6,985.31	0.8993	6,281.889
02973	20	7,023.17	0.8993	6,315.936
02974	21	7,425.52	0.8994	6,678.512
02976	20	7,005.58	0.8993	6,300.118
02977	20	7,094.52	0.8991	6,378.682
02978	20	7,105.25	0.8992	6,389.040
02979	20	7,041.70	0.8992	6,331.896
02980	19	6,680.05	0.8992	6,006.700
02981	20	7,027.76	0.8993	6,320.064
02982	20	7,027.65	0.8991	6,318.560
02983	20	7,013.28	0.8992	6,306.341
02984	21	7,462.29	0.8993	6,710.837
02985	18	6,357.52	0.8992	5,716.681

02986	20	6,912.25	0.8992	6,215.495
02987	20	6,955.84	0.8992	6,254.691
02988	20	6,813.36	0.8991	6,125.891
02989	21	7,174.28	0.8992	6,451.112
02990	20	6,833.30	0.8992	6,144.503
02991	21	7,220.68	0.8992	6,492.835
02992	20	6,948.65	0.8993	6,248.920
02993	20	6,941.80	0.8992	6,242.066
02994	21	7,172.09	0.8992	6,449.143
02995	21	7,261.25	0.8992	6,529.316
02996	20	7,091.29	0.8990	6,375.069
02997	20	7,163.25	0.8992	6,441.194
02998	20	7,093.95	0.8991	6,378.170
02999	20	7,127.86	0.8991	6,408.658
03000	19	6,676.45	0.8992	6,003.463
03001	20	6,973.13	0.8992	6,270.238
03002	20	6,974.09	0.8992	6,271.101
03003	20	6,846.90	0.8993	6,157.417
03004	20	7,023.03	0.8994	6,316.513
03005	21	7,279.29	0.8993	6,546.265
03006	20	6,711.96	0.8993	6,036.065
03007	21	7,067.22	0.8993	6,355.550
03008	21	7,070.95	0.8992	6,358.198
03009	21	7,072.78	0.8991	6,359.136
03012	20	6,902.75	0.8993	6,207.643
03015	20	6,989.21	0.8992	6,284.697
03016	20	6,840.10	0.8993	6,151.301
03017	21	7,099.65	0.8993	6,384.715
03018	21	7,052.74	0.8993	6,342.529
03019	21	7,037.40	0.8993	6,328.733
03020	21	7,090.01	0.8993	6,376.045
03021	20	6,733.30	0.8992	6,054.583
03022	20	6,737.42	0.8992	6,058.288
03023	20	6,903.90	0.8993	6,208.677
03024	21	7,259.42	0.8992	6,527.670
03026	20	7,106.50	0.8993	6,390.875
03027	20	7,112.50	0.8993	6,396.271
03029	20	7,089.97	0.8992	6,375.301
03030	17	5,990.53	0.8993	5,387.283
03031	20	6,784.71	0.8993	6,101.489
03032	20	6,778.20	0.8993	6,095.635
03033	21	7,133.34	0.8993	6,415.012
03034	21	7,164.42	0.8993	6,442.962
03035	21	7,121.68	0.8993	6,404.526

03036	20	7,051.90	0.8993	6,341.773
03037	20	7,090.00	0.8992	6,375.328
03038	20	7,116.14	0.8993	6,399.544
03039	20	7,067.28	0.8993	6,355.604
03040	18	6,298.32	0.8992	5,663.449
03041	21	7,027.90	0.8993	6,320.190
03042	21	7,065.05	0.8993	6,353.599
03043	21	7,144.14	0.8994	6,425.439
03044	21	7,144.25	0.8993	6,424.824
03045	19	6,479.10	0.8992	5,826.006
03047	21	6,985.69	0.8995	6,283.628
03048	21	6,980.00	0.8994	6,277.812
03049	21	7,006.37	0.8994	6,301.529
03050	22	7,484.90	0.8993	6,731.170
03051	20	6,938.40	0.8994	6,240.396
03052	21	7,054.50	0.8993	6,344.111
03053	21	7,169.30	0.8993	6,447.351
03054	21	7,208.49	0.8992	6,481.874
03326	21	7,000.90	0.8995	6,297.309
03327	21	7,055.38	0.8995	6,346.314
03328	21	7,120.58	0.8994	6,404.249
03329	21	7,099.32	0.8994	6,385.128
03330	21	7,146.20	0.8994	6,427.292
03331	20	6,974.90	0.8994	6,273.225
03333	20	7,039.22	0.8994	6,331.074
03334	20	7,094.28	0.8993	6,379.886
03335	21	7,380.90	0.8993	6,637.643
03336	20	6,923.45	0.8996	6,228.335
03337	20	6,878.60	0.8996	6,187.988
03338	21	7,207.49	0.8996	6,483.858
03339	21	7,266.41	0.8994	6,535.409
03340	20	6,958.73	0.8995	6,259.377
03341	21	7,043.70	0.8994	6,335.103
03343	21	7,144.63	0.8993	6,425.165
03344	21	7,191.72	0.8994	6,468.232
03346	21	7,095.60	0.8994	6,381.782
03347	21	7,188.60	0.8993	6,464.707
03348	20	6,917.62	0.8994	6,221.707
03349	21	7,297.59	0.8994	6,563.452
03350	20	6,888.81	0.8994	6,195.795
03351	21	7,118.23	0.8994	6,402.136
03352	21	7,161.58	0.8993	6,440.408
03353	21	7,076.80	0.8994	6,364.873
03354	20	6,904.86	0.8994	6,210.231

03355	20	6,887.46	0.8995	6,195.270
03356	20	6,787.32	0.8994	6,104.515
03357	20	6,800.08	0.8994	6,115.991
03359	21	7,128.13	0.8993	6,410.327
03360	20	6,864.38	0.8994	6,173.823
03361	20	6,959.46	0.8993	6,258.642
03362	20	6,983.33	0.8993	6,280.108
03363	20	6,975.25	0.8993	6,272.842
03364	20	6,918.62	0.8992	6,221.223
03365	21	7,233.37	0.8993	6,504.969
03366	20	6,904.28	0.8996	6,211.090
03367	20	6,917.69	0.8995	6,222.462
03368	20	6,896.94	0.8994	6,203.107
03369	21	7,288.10	0.8994	6,554.917
03370	21	7,228.29	0.8995	6,501.846
03371	21	7,097.58	0.8994	6,383.563
03372	21	7,157.20	0.8995	6,437.901
03373	21	7,032.64	0.8994	6,325.156
03374	21	7,116.78	0.8995	6,401.543
03376	21	7,201.08	0.8995	6,477.371
03377	20	6,957.59	0.8995	6,258.352
03378	20	6,942.20	0.8994	6,243.814
03379	21	7,240.63	0.8995	6,512.946
03380	19	6,663.73	0.8994	5,993.358
03381	21	6,951.20	0.8994	6,251.909
03383	21	7,036.78	0.8995	6,329.583
03385	22	7,367.46	0.8995	6,627.030
03386	21	7,336.30	0.8994	6,598.268
03387	21	7,300.30	0.8995	6,566.619
03388	21	7,294.09	0.8994	6,560.304
03389	21	7,384.14	0.8993	6,640.557
03390	19	6,622.58	0.8994	5,956.348
03391	20	6,943.05	0.8993	6,243.884
03392	20	7,037.75	0.8994	6,329.752
03394	20	7,124.62	0.8995	6,408.595
03395	21	7,347.45	0.8993	6,607.561
03396	20	6,966.77	0.8995	6,266.609
03397	20	6,934.62	0.8995	6,237.690
03398	20	6,972.70	0.8995	6,271.943
03399	21	7,332.98	0.8995	6,596.015
03400	21	7,239.57	0.8995	6,511.993
03401	19	6,367.03	0.8994	5,726.506
03403	18	6,062.18	0.8993	5,451.718
03404	18	6,027.67	0.8994	5,421.286

03467	21	7,233.98	0.8999	6,509.858
03474	21	7,281.16	0.8993	6,547.947
03477	20	6,728.80	0.8992	6,050.536
03494	22	7,371.05	0.8994	6,629.522
03495	22	7,337.15	0.8994	6,599.032
03496	22	7,387.97	0.8993	6,644.001
03498	19	6,426.78	0.8993	5,779.603
03500	22	7,375.20	0.8993	6,632.517
03501	22	7,354.58	0.8994	6,614.709
03502	22	7,269.00	0.8994	6,537.738
03503	19	6,246.30	0.8995	5,618.546
03504	21	7,267.44	0.8993	6,535.608
03505	21	7,293.31	0.8994	6,559.603
03506	21	7,256.17	0.8994	6,526.199
03507	21	7,362.08	0.8994	6,621.454
03508	18	6,281.56	0.8993	5,649.006
03509	21	7,404.87	0.8994	6,659.940
03510	21	7,385.41	0.8993	6,641.699
03511	21	7,342.68	0.8993	6,603.272
03512	20	7,039.52	0.8994	6,331.344
03513	20	6,920.33	0.8993	6,223.452
03514	21	7,316.52	0.8995	6,581.209
03515	21	7,345.23	0.8994	6,606.299
03517	20	7,013.89	0.8995	6,308.994
03518	20	6,955.79	0.8993	6,255.341
03519	21	7,077.16	0.8993	6,364.489
03520	21	7,121.18	0.8994	6,404.789
03521	21	7,193.89	0.8994	6,470.184
03522	21	7,283.32	0.8994	6,550.618
03523	21	7,274.50	0.8994	6,542.685
03524	21	7,110.54	0.8994	6,395.219
03525	21	7,106.69	0.8995	6,392.467
03526	21	7,161.26	0.8995	6,441.553
03527	21	7,031.69	0.8993	6,323.598
03528	21	7,153.24	0.8993	6,432.908
03529	22	7,400.22	0.8994	6,655.757
03530	22	7,398.10	0.8994	6,653.851
03531	22	7,280.12	0.8994	6,547.739
03532	22	7,267.07	0.8994	6,536.002
03533	21	6,813.28	0.8993	6,127.182
03534	21	7,253.45	0.8994	6,523.752
03537	22	7,635.92	0.8994	6,867.746
03538	20	6,940.36	0.8995	6,242.853
03539	21	7,336.15	0.8995	6,598.866

03540	21	7,408.46	0.8994	6,663.168
03541	21	7,071.90	0.8995	6,361.174
03543	20	6,801.26	0.8994	6,117.053
03544	21	7,185.75	0.8995	6,463.582
03545	21	7,258.36	0.8994	6,528.168
03546	21	7,355.42	0.8994	6,615.464
03548	20	7,069.98	0.8996	6,360.154
03549	22	7,360.46	0.8994	6,619.997
03550	22	7,607.55	0.8994	6,842.230
03551	22	7,669.69	0.8994	6,898.119
03552	21	7,137.60	0.8993	6,418.843
03553	18	6,055.80	0.8994	5,446.586
03589	22	7,294.31	0.8994	6,560.502
03590	22	7,388.54	0.8993	6,644.514
03591	22	7,354.76	0.8993	6,614.135
03593	22	7,247.85	0.8993	6,517.991
03594	21	7,065.92	0.8994	6,355.088
03595	21	6,975.22	0.8994	6,273.512
03596	21	7,032.51	0.8993	6,324.336
03597	22	7,408.83	0.8994	6,663.501
03598	22	7,535.98	0.8994	6,777.860
03599	21	7,437.91	0.8993	6,688.912
03600	21	7,446.08	0.8993	6,696.259
03601	21	7,344.37	0.8993	6,604.791
03602	21	7,293.96	0.8993	6,559.458
03603	18	6,269.16	0.8993	5,637.855
03604	21	7,426.09	0.8995	6,679.767
03605	21	7,386.46	0.8994	6,643.382
03606	21	7,434.50	0.8995	6,687.332
03607	20	7,063.82	0.8994	6,353.199
03608	19	6,664.79	0.8993	5,993.645
03609	21	7,147.31	0.8994	6,428.290
03610	21	7,110.00	0.8995	6,395.445
03611	21	7,215.26	0.8995	6,490.126
03612	20	6,893.94	0.8994	6,200.409
03630	22	7,311.34	0.8994	6,575.819
03631	22	7,534.11	0.8993	6,775.425
03632	21	7,277.54	0.8994	6,545.419
03633	21	7,179.04	0.8995	6,457.546
03634	19	6,434.11	0.8994	5,786.838
03635	22	7,417.54	0.8994	6,671.335
03636	22	7,483.16	0.8994	6,730.354
03637	22	7,413.49	0.8995	6,668.434
03638	21	7,077.34	0.8994	6,365.359

03641	21	7,212.47	0.8993	6,486.174
03642	21	7,177.36	0.8994	6,455.317
03643	21	7,160.55	0.8995	6,440.914
03644	21	7,134.09	0.8994	6,416.400
03645	21	7,267.71	0.8994	6,536.578
03646	21	7,282.10	0.8994	6,549.520
03647	21	7,106.15	0.8993	6,390.560
03648	20	6,767.41	0.8993	6,085.931
03649	21	7,392.23	0.8993	6,647.832
03650	21	7,473.35	0.8994	6,721.530
03651	21	7,485.39	0.8996	6,733.856
03652	21	7,472.57	0.8995	6,721.576
03653	20	6,946.70	0.8994	6,247.861
03654	19	6,606.42	0.8994	5,941.814
03655	21	6,986.30	0.8993	6,282.779
03656	21	7,294.01	0.8993	6,559.503
03657	21	7,265.32	0.8993	6,533.702
03658	21	7,352.00	0.8992	6,610.918
03659	20	6,874.65	0.8993	6,182.372
03660	22	7,389.23	0.8995	6,646.612
03661	21	7,050.18	0.8994	6,340.931
03662	22	7,518.12	0.8994	6,761.797
03663	21	7,168.93	0.8993	6,447.018
03664	20	6,923.10	0.8993	6,225.943
03665	22	7,504.77	0.8995	6,750.540
03666	22	7,485.14	0.8994	6,732.134
03667	21	7,173.13	0.8994	6,451.513
03668	21	7,169.28	0.8994	6,448.050
03669	20	6,789.14	0.8994	6,106.152
03671	21	7,068.52	0.8995	6,358.133
03672	21	7,076.46	0.8995	6,365.275
03673	22	7,374.61	0.8994	6,632.724
03674	22	7,408.31	0.8994	6,663.034
03675	21	7,296.78	0.8993	6,561.994
03676	21	7,384.07	0.8993	6,640.494
03678	20	7,022.25	0.8995	6,316.513
03679	20	7,108.70	0.8995	6,394.275
03681	21	7,391.47	0.8994	6,647.888
03682	20	7,104.86	0.8994	6,390.111
03683	20	7,062.92	0.8993	6,351.683
03684	20	7,032.72	0.8995	6,325.931
03687	21	7,353.90	0.8993	6,613.362
03688	21	7,308.98	0.8995	6,574.427
03689	20	6,826.31	0.8993	6,138.900

03690	22	7,520.19	0.8994	6,763.658
03691	21	7,269.93	0.8994	6,538.575
03692	21	7,270.47	0.8994	6,539.060
03693	21	7,257.81	0.8995	6,528.400
03694	20	6,853.74	0.8995	6,164.939
03695	22	7,505.02	0.8994	6,750.014
03696	22	7,471.36	0.8995	6,720.488
03698	21	7,251.09	0.8993	6,520.905
03699	19	6,481.11	0.8995	5,829.758
03700	21	7,173.20	0.8994	6,451.576
03701	21	7,148.63	0.8994	6,429.477
03702	21	7,209.61	0.8994	6,484.323
03703	21	7,234.58	0.8994	6,506.781
03704	22	7,486.89	0.8993	6,732.960
03705	21	7,341.72	0.8994	6,603.142
03706	21	7,367.88	0.8993	6,625.934
03707	21	7,287.49	0.8994	6,554.368
03708	21	7,297.66	0.8994	6,563.515
03709	17	5,888.80	0.8994	5,296.386
03710	21	7,134.64	0.8993	6,416.181
03711	21	7,291.80	0.8993	6,557.515
03712	21	7,375.73	0.8994	6,633.731
03713	21	7,388.94	0.8994	6,645.612
03714	20	6,871.92	0.8993	6,179.917
03723	21	7,210.92	0.8995	6,486.222
03724	21	7,079.80	0.8995	6,368.280
03725	21	7,375.21	0.8993	6,632.526
03726	21	7,304.14	0.8993	6,568.613
03728	21	7,429.38	0.8994	6,681.984
03729	21	7,391.32	0.8994	6,647.753
03730	17	5,827.70	0.8994	5,241.433
03731	17	5,801.47	0.8993	5,217.261
03732	16	5,519.79	0.8995	4,965.051
03914	21	7,436.60	0.8993	6,687.734
03915	21	7,276.16	0.8994	6,544.178
03916	21	7,444.21	0.8993	6,694.578
03917	21	7,210.65	0.8993	6,484.537
03918	19	6,500.78	0.8993	5,846.151
03919	21	6,960.96	0.8993	6,259.991
03920	21	6,983.54	0.8994	6,280.995
03921	22	7,421.67	0.8994	6,675.049
03922	22	7,483.80	0.8993	6,730.181
03923	21	7,148.74	0.8993	6,428.861
03952	21	6,768.57	0.9001	6,092.389

03955	20	6,848.70	0.9003	6,165.884
03956	20	6,816.37	0.9001	6,135.414
03957	21	7,187.15	0.9002	6,469.872
03958	21	6,851.08	0.9004	6,168.712
03959	21	7,299.51	0.8995	6,565.909
03959	21	6,927.58	0.9002	6,236.207
03960	21	7,208.35	0.8995	6,483.910
03960	21	6,884.97	0.9002	6,197.849
03961	21	7,237.14	0.8995	6,509.807
03961	21	6,994.38	0.9002	6,296.340
03962	21	7,172.56	0.8993	6,450.283
03962	21	7,148.00	0.9003	6,435.344
03963	22	7,486.02	0.8994	6,732.926
03963	21	7,159.35	0.9002	6,444.846
03964	21	7,299.22	0.8994	6,564.918
03965	21	7,045.62	0.9002	6,342.467
03966	21	7,158.76	0.8994	6,438.588
03967	21	7,143.25	0.8993	6,423.924
03968	20	6,818.25	0.8993	6,131.652
03969	21	7,211.66	0.8994	6,486.167
03970	21	7,279.33	0.8995	6,547.757
03971	21	7,263.74	0.8995	6,533.734
03972	21	7,254.08	0.8993	6,523.594
03973	20	6,879.78	0.8993	6,186.986
03974	21	7,341.67	0.8994	6,603.097
03976	21	7,313.02	0.8994	6,577.330
03978	20	6,913.94	0.8993	6,217.706
03979	22	7,180.13	0.8993	6,457.090
03980	21	7,126.12	0.8994	6,409.232
03981	21	7,110.05	0.8994	6,394.778
03982	22	7,318.25	0.8993	6,581.302
03983	22	7,310.70	0.8993	6,574.512
03984	22	7,461.40	0.8994	6,710.783
03985	22	7,456.65	0.8995	6,707.256
03986	21	7,138.98	0.8993	6,420.084
03988	19	6,538.20	0.8993	5,879.803
03989	21	7,182.10	0.8994	6,459.580
03990	21	7,170.76	0.8995	6,450.098
03991	21	7,212.46	0.8995	6,487.607
03992	21	7,229.43	0.8994	6,502.149
03994	21	7,153.12	0.8994	6,433.516
03995	21	7,186.86	0.8994	6,463.861
03996	21	7,177.10	0.8994	6,455.083
03997	21	7,276.90	0.8994	6,544.843

03998	21	7,338.90	0.8994	6,600.606
03999	21	6,990.98	0.8994	6,287.687
04000	21	7,031.20	0.8992	6,322.455
04001	21	7,081.50	0.8993	6,368.392
04002	22	7,445.64	0.8993	6,695.864
04003	22	7,556.49	0.8994	6,796.307
04004	21	7,360.00	0.8994	6,619.584
04005	21	7,283.05	0.8994	6,550.375
04006	21	7,362.27	0.8994	6,621.625
04007	21	7,078.90	0.8994	6,366.762
04009	21	6,971.51	0.8995	6,270.873
04010	21	6,887.35	0.8995	6,195.171
04011	22	7,321.62	0.8993	6,584.332
04012	22	7,461.42	0.8992	6,709.308
04013	21	7,231.85	0.8994	6,504.325
04014	22	7,643.15	0.8995	6,875.013
04015	22	7,428.13	0.8994	6,680.860
04016	21	7,004.44	0.8995	6,300.493
04017	21	7,105.65	0.8995	6,391.532
04018	21	7,119.34	0.8995	6,403.846
04019	21	7,168.21	0.8995	6,447.804
04020	21	7,142.71	0.8994	6,424.153
04021	21	7,067.98	0.8994	6,356.941
04022	21	7,185.20	0.8993	6,461.650
04118	19	6,571.49	0.9005	5,917.626
04119	19	6,640.26	0.9005	5,979.554
04120	19	6,581.51	0.9004	5,925.991
04121	19	6,506.65	0.9004	5,858.587
04122	19	6,470.33	0.9004	5,825.885
04123	19	6,504.53	0.9004	5,856.678
04124	19	6,624.30	0.9004	5,964.519
04125	18	6,163.89	0.9004	5,549.966
04126	18	6,177.65	0.9004	5,562.356
04243	18	6,183.06	0.9003	5,566.608
04244	18	6,166.18	0.9004	5,552.028
04245	19	6,621.72	0.9002	5,960.872
04552	20	6,792.57	0.8999	6,112.633
04553	20	6,711.52	0.9001	6,041.039
04554	20	6,975.43	0.9000	6,277.887
04555	20	7,024.81	0.8999	6,321.626
04556	21	7,386.23	0.9001	6,648.345
04557	20	6,859.16	0.8999	6,172.558
04558	20	6,860.82	0.9000	6,174.738
04568	21	6,848.36	0.9000	6,163.524

04569	20	6,624.63	0.8998	5,960.842
04570	21	7,346.05	0.8999	6,610.710
04573	20	6,700.57	0.8999	6,029.842
04574	21	7,221.47	0.8999	6,498.600
04653	20	6,835.58	0.9000	6,152.022
04654	21	7,142.35	0.9001	6,428.829
04655	20	6,600.61	0.9001	5,941.209
04656	20	6,965.40	0.9000	6,268.860
04659	21	7,104.45	0.9000	6,394.005
04660	21	7,052.20	0.9003	6,349.095
04661	20	6,650.98	0.9001	5,986.547
04662	20	6,918.14	0.9000	6,226.326
04663	20	6,685.82	0.9001	6,017.906
04664	20	6,712.32	0.9000	6,041.088
04665	20	6,858.65	0.9000	6,172.785
04666	20	6,792.80	0.9000	6,113.520
04668	22	7,294.60	0.9001	6,565.869
04671	22	7,394.64	0.9000	6,655.176
04672	22	7,337.40	0.9001	6,604.393
04673	21	7,062.14	0.9000	6,355.926
04674	21	7,021.13	0.9000	6,319.017
04689	21	7,036.80	0.8992	6,327.490
04690	21	7,102.65	0.8993	6,387.413
04691	22	7,360.10	0.8993	6,618.937
04692	22	7,308.30	0.8992	6,571.623
04693	22	7,523.58	0.8992	6,765.203
04694	22	7,527.02	0.8991	6,767.543
04695	22	7,503.92	0.8992	6,747.524
04696	22	7,526.78	0.8992	6,768.080
04697	20	6,813.06	0.8993	6,126.984
04698	20	6,655.70	0.8992	5,984.805
04702	21	7,261.54	0.8991	6,528.850
04733	17	6,834.94	0.8999	6,150.762
04911	20	7,040.75	0.9166	6,453.551
04912	20	6,930.57	0.9165	6,351.867
04914	20	6,936.70	0.9166	6,358.179
05176	22	7,335.51	0.8994	6,597.557
05177	22	7,348.55	0.8995	6,610.020
05179	21	6,975.70	0.8994	6,273.944
05180	19	6,682.58	0.8997	6,012.317
05181	23	7,702.87	0.8998	6,931.042
05182	20	7,031.23	0.8998	6,326.700
05183	20	6,994.11	0.8998	6,293.300
05184	20	6,955.54	0.8997	6,257.899

05185	20	7,031.63	0.8994	6,324.248
05186	20	7,013.32	0.8995	6,308.481
05187	20	6,995.44	0.8995	6,292.398
05188	20	6,869.99	0.8995	6,179.556
05189	20	7,050.41	0.8997	6,343.253
05190	20	6,862.28	0.8994	6,171.934
05191	20	6,956.35	0.8998	6,259.323
05192	17	5,794.13	0.8996	5,212.399
05193	21	7,321.68	0.8996	6,586.583
05194	21	7,128.42	0.8997	6,413.439
05195	21	7,196.96	0.8997	6,475.104
05196	21	7,125.71	0.8997	6,411.001
05198	21	7,172.56	0.8995	6,451.717
05199	19	6,426.20	0.8994	5,779.724
05200	20	7,077.70	0.8998	6,368.514
05201	20	7,054.50	0.8996	6,346.228
05202	20	6,941.05	0.8996	6,244.168
05230	22	7,639.18	0.9166	7,002.072
05231	21	7,264.17	0.9165	6,657.611
05232	22	7,629.21	0.9165	6,992.170
05233	21	7,235.48	0.9166	6,632.040
05234	21	7,295.69	0.9165	6,686.499
05235	20	6,844.50	0.9166	6,273.668
05993	21	7,338.29	0.9078	6,661.699
05994	21	7,475.62	0.9081	6,788.610
05995	20	7,025.07	0.9076	6,375.953
05996	20	6,974.45	0.9076	6,330.010
05997	20	6,984.25	0.9068	6,333.317
05998	18	6,205.83	0.9077	5,633.031
06681	21	6,929.07	0.8995	6,232.698
06682	21	7,252.45	0.8993	6,522.128
06683	22	7,062.62	0.8993	6,351.414
06684	22	7,260.35	0.8992	6,528.506
06686	20	6,910.07	0.8994	6,214.916
06687	22	7,196.55	0.8992	6,471.137
06688	22	7,234.92	0.8994	6,507.087
06690	19	6,512.01	0.8994	5,856.901
06691	20	6,636.18	0.8992	5,967.253
06692	20	6,847.88	0.8993	6,158.298
06693	20	6,683.97	0.8994	6,011.562
06694	19	6,335.49	0.8994	5,698.139
06695	20	6,604.51	0.8994	5,940.096
06696	21	7,113.54	0.8993	6,397.206
06697	20	6,619.14	0.8994	5,953.254

06698	20	6,689.10	0.8993	6,015.507
06699	20	6,675.35	0.8995	6,004.477
06700	20	6,830.62	0.8994	6,143.459
06701	20	6,908.90	0.8996	6,215.246
06702	19	6,590.20	0.8993	5,926.566
06703	19	6,422.82	0.8995	5,777.326
06704	19	6,530.42	0.8993	5,872.806
06705	20	6,646.04	0.8994	5,977.448
06706	20	6,586.85	0.8993	5,923.554
06707	20	6,635.80	0.8994	5,968.238
06708	20	6,685.26	0.8994	6,012.722
06709	20	6,654.62	0.8993	5,984.499
06710	20	6,642.00	0.8994	5,973.814
06711	20	6,744.02	0.8998	6,068.269
06712	20	6,736.45	0.8999	6,062.131
06713	20	6,731.72	0.8996	6,055.855
06715	20	6,918.16	0.8998	6,224.960
06716	20	6,824.17	0.8996	6,139.023
06717	20	6,799.45	0.8996	6,116.785
06718	15	5,154.16	0.8995	4,636.166
06719	20	6,681.72	0.8993	6,008.870
06720	20	6,588.30	0.8994	5,925.517
06721	19	6,405.65	0.8994	5,761.241
06722	20	6,891.68	0.8994	6,198.376
06723	20	6,719.73	0.8993	6,043.053
06724	20	6,721.69	0.8993	6,044.815
06725	20	6,773.92	0.8994	6,092.463
06726	20	6,813.42	0.8994	6,127.989
06727	20	6,780.01	0.8993	6,097.262
06729	20	6,729.30	0.8993	6,051.659
06730	19	6,266.22	0.8993	5,635.211
06731	18	6,371.04	0.8994	5,730.113
06734	20	6,892.07	0.8993	6,198.038
06735	20	6,800.38	0.8992	6,114.901
06736	19	6,675.55	0.8993	6,003.322
06737	20	6,628.70	0.8993	5,961.189
06738	19	6,269.50	0.8993	5,638.161
06739	21	6,996.77	0.8995	6,293.594
06741	20	6,773.65	0.8994	6,092.220
06742	19	6,455.57	0.8994	5,806.139
06743	20	6,604.40	0.8993	5,939.336
06744	20	6,563.10	0.8993	5,902.195
06745	21	6,956.53	0.8994	6,256.703
06746	20	6,652.48	0.8995	5,983.905

06747	20	6,664.32	0.8994	5,993.889
06748	20	6,744.16	0.8994	6,065.697
06749	20	6,725.10	0.8994	6,048.554
06750	20	6,716.70	0.8993	6,040.328
06751	21	7,045.59	0.8993	6,336.099
06753	20	6,716.23	0.8994	6,040.577
06755	20	6,836.10	0.8994	6,148.388
06756	20	6,868.06	0.8994	6,177.133
06757	20	6,704.80	0.8994	6,030.297
06758	20	6,666.80	0.8993	5,995.453
06759	20	6,678.38	0.8993	6,005.867
06760	20	6,715.92	0.8994	6,040.298
06761	20	6,687.48	0.8994	6,014.719
06762	20	6,685.19	0.8994	6,012.659
06763	20	6,773.31	0.8993	6,091.237
06764	20	6,751.65	0.8993	6,071.758
06765	20	6,828.03	0.8994	6,141.130
06766	20	6,708.78	0.8994	6,033.876
06767	20	6,860.29	0.8993	6,169.458
06768	18	6,184.77	0.8994	5,562.582
06769	19	6,350.10	0.8994	5,711.279
06771	19	6,481.75	0.8994	5,829.685
06772	22	7,596.78	0.8994	6,832.543
06773	22	7,587.64	0.8993	6,823.564
06793	20	6,602.11	0.8993	5,937.277
06794	21	7,002.36	0.8994	6,297.922
06796	21	6,998.85	0.8993	6,294.065
06797	21	7,024.40	0.8993	6,317.042
06798	21	7,007.70	0.8993	6,302.024
06799	21	6,996.78	0.8993	6,292.204
06800	21	7,050.05	0.8994	6,340.814
06801	21	7,123.72	0.8993	6,406.361
06802	21	7,129.07	0.8993	6,411.172
06803	20	6,644.62	0.8993	5,975.506
06804	20	6,595.59	0.8994	5,932.073
06808	19	6,554.23	0.8993	5,894.219
06811	21	6,985.70	0.8994	6,282.938
06812	20	6,684.98	0.8994	6,012.471
06814	20	6,624.05	0.8992	5,956.345
08399	19	6,475.13	0.8995	5,824.379
08400	21	7,179.30	0.9000	6,461.370
08403	21	7,168.50	0.9001	6,452.366
08404	20	6,765.40	0.8998	6,087.506
08938	21	7,162.94	0.9166	6,565.550

08941	21	7,258.35	0.9165	6,652.277
08943	15	5,264.96	0.9165	4,825.335
08944	13	4,544.14	0.9165	4,164.704
D 141	16	5,213.23	0.8995	4,689.300
D 142	20	6,504.65	0.8998	5,852.884

ATTACHMENT 4: PART 2
U.S. MINT'S SCHEDULE OF INVENTORY OF DEEP STORAGE
GOLD RESERVES (DENVER)

Official Joint Seals Total	70,631	Denver 48,086,282.730	43,853,707.279
Difference: Bar Inventory Total :	-	(0.000)	(0.000)
	70,631	48,086,282.730	43,853,707.279

<i>Average Fineness:</i> 0.9281
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Melt	Bars	Gross Wt	Fineness	Gold FTO
2855	7	5,317.56	0.8999	4,785.272
2864	8	6,933.17	0.8999	6,239.159
2865	8	6,504.68	0.8999	5,853.561
2867	8	6,827.51	0.8998	6,143.393
2872	8	6,870.84	0.8997	6,181.694
2873	8	6,378.26	0.8998	5,739.158
2874	8	6,715.78	0.8998	6,042.859
2875	8	6,644.14	0.8998	5,978.397
2876	8	6,899.27	0.8998	6,207.963
2877	8	6,750.10	0.8998	6,073.740
2878	8	6,643.38	0.8999	5,978.377
2879	8	6,406.27	0.8999	5,765.002
2880	8	6,611.21	0.8998	5,948.766
2881	8	6,705.87	0.9000	6,035.283
2882	8	7,172.30	0.8999	6,454.352
2883	8	6,799.71	0.8999	6,119.059

2884	8	6,872.11	0.8998	6,183.524
2885	8	6,657.11	0.8998	5,990.067
2886	8	6,606.82	0.8999	5,945.477
2887	8	6,674.17	0.8998	6,005.418
2888	8	6,627.16	0.8998	5,963.118
2889	8	6,866.74	0.8998	6,178.692
2890	8	6,889.49	0.8998	6,199.163
2891	8	6,266.57	0.8998	5,638.659
2892	8	6,683.52	0.8998	6,013.831
2893	8	6,746.54	0.8998	6,070.536
2894	8	6,760.15	0.8998	6,082.783
2895	8	6,741.45	0.8998	6,065.956
2896	8	6,804.06	0.8998	6,122.293
2897	8	6,780.08	0.9000	6,102.072
2898	8	6,585.88	0.8998	5,925.975
2899	8	6,940.51	0.8998	6,245.071
2900	8	6,702.43	0.8998	6,030.846
2901	8	6,851.17	0.8998	6,164.682
2902	8	6,894.77	0.8998	6,203.914
2903	8	6,871.00	0.8998	6,182.526
2904	8	6,775.80	0.8998	6,096.865
2905	8	6,667.35	0.8999	5,999.948

2906	8	6,774.48	0.8998	6,095.677
2907	8	6,652.81	0.8998	5,986.198
2908	8	6,683.26	0.8998	6,013.597
2909	8	6,409.73	0.8998	5,767.475
2910	8	6,753.53	0.8997	6,076.150
2911	8	6,810.94	0.8998	6,128.484
2912	8	6,623.79	0.8998	5,960.086
2913	8	6,673.50	0.8998	6,004.815
2914	8	6,900.32	0.8998	6,208.908
2915	8	6,901.15	0.8998	6,209.654
2916	8	6,699.97	0.8999	6,029.303
2917	8	6,998.84	0.8998	6,297.556
2918	8	6,640.15	0.8998	5,974.807
2919	8	6,767.57	0.8998	6,089.459
2920	8	6,831.32	0.8998	6,146.821
2921	8	6,783.77	0.8998	6,104.036
2922	8	6,700.56	0.8998	6,029.164
2923	8	6,888.76	0.8999	6,199.195
2924	8	6,837.87	0.8999	6,153.399
2925	8	6,615.65	0.8998	5,952.762
2926	8	6,827.32	0.8998	6,143.222
2927	7	6,130.36	0.8998	5,516.098

2928	8	6,946.58	0.8998	6,250.532
2929	8	6,781.31	0.8998	6,101.822
2930	8	6,653.60	0.8999	5,987.574
2931	8	6,673.38	0.8998	6,004.707
2932	8	6,591.74	0.8998	5,931.247
2933	8	6,751.10	0.8998	6,074.639
2934	8	6,912.44	0.8998	6,219.813
2935	8	6,781.54	0.8998	6,102.029
2936	7	6,074.81	0.8998	5,466.114
2937	8	6,789.31	0.8998	6,109.021
2938	8	6,882.10	0.8998	6,192.513
2939	8	6,579.79	0.8998	5,920.495
2940	8	7,046.95	0.8998	6,340.845
2941	8	6,891.14	0.8998	6,200.647
2942	8	6,769.58	0.8998	6,091.268
2943	8	6,681.04	0.8999	6,012.268
2944	8	6,936.98	0.8998	6,241.894
2945	8	6,701.69	0.8998	6,030.180
2946	8	6,789.60	0.8998	6,109.282
2947	8	6,590.80	0.8997	5,929.742
2948	8	6,753.97	0.8998	6,077.222
2949	8	6,710.50	0.8998	6,038.108

2950	8	6,819.57	0.8998	6,136.249
2951	8	6,761.18	0.8998	6,083.709
2952	8	6,684.31	0.8997	6,013.873
2953	8	6,991.32	0.8998	6,290.789
2954	7	5,473.01	0.8998	4,924.614
2955	8	6,581.37	0.8997	5,921.258
2956	8	6,721.15	0.8999	6,048.363
2957	8	6,860.72	0.8998	6,173.276
2958	8	6,643.32	0.8997	5,976.995
2959	8	6,789.86	0.8998	6,109.516
2960	8	6,927.79	0.8998	6,233.625
2961	8	6,729.74	0.8998	6,055.420
2962	8	6,983.79	0.8998	6,284.014
2963	8	6,185.69	0.8998	5,565.884
2964	8	6,837.27	0.8997	6,151.492
2965	8	6,684.90	0.8998	6,015.073
2966	8	6,773.16	0.8997	6,093.812
2967	8	6,454.71	0.8998	5,807.948
2968	8	6,813.31	0.8997	6,129.935
2969	8	6,780.87	0.8997	6,100.748
2970	8	6,866.06	0.8997	6,177.394
2971	8	6,823.88	0.8998	6,140.127

2972	8	6,404.17	0.8997	5,761.831
2973	8	6,688.13	0.8997	6,017.310
2974	8	6,890.50	0.8997	6,199.383
2975	8	6,704.15	0.8997	6,031.723
2976	8	6,428.52	0.8997	5,783.739
2977	8	6,803.38	0.8997	6,121.001
2978	8	6,518.29	0.8998	5,865.157
2979	8	6,425.76	0.8998	5,781.899
2980	8	7,294.22	0.8997	6,562.609
2981	8	6,681.82	0.8997	6,011.633
2982	8	6,660.23	0.8998	5,992.875
2983	8	6,426.96	0.8997	5,782.336
2984	8	6,809.48	0.8997	6,126.490
2985	8	6,765.07	0.8997	6,086.533
2986	8	7,051.86	0.8998	6,345.263
2987	8	7,144.43	0.8998	6,428.558
2988	8	6,697.18	0.8998	6,026.122
2989	8	6,169.05	0.8998	5,550.911
2990	8	6,747.43	0.8998	6,071.337
2991	8	6,679.43	0.8998	6,010.151
2992	8	6,759.14	0.8998	6,081.874
2993	8	6,845.54	0.8998	6,159.617

2994	8	7,069.61	0.8997	6,360.528
2995	7	6,194.83	0.8997	5,573.488
2996	8	6,758.56	0.8997	6,080.676
2997	8	6,625.01	0.8997	5,960.521
2998	8	6,741.27	0.8997	6,065.120
2999	8	6,844.15	0.8998	6,158.366
3000	8	6,921.77	0.8998	6,228.208
3001	8	6,885.13	0.8998	6,195.240
3002	8	6,753.16	0.8997	6,075.818
3003	8	6,193.70	0.8997	5,572.472
3004	8	6,738.63	0.8998	6,063.419
3005	8	6,608.82	0.8998	5,946.616
3006	8	6,546.45	0.8999	5,891.150
3007	8	6,780.64	0.8999	6,101.898
3008	7	6,121.30	0.8998	5,507.945
3009	8	6,759.96	0.8998	6,082.612
3010	8	6,846.64	0.8997	6,159.922
3011	8	7,123.90	0.8998	6,410.085
3012	8	6,898.18	0.8998	6,206.982
3013	8	6,561.55	0.8998	5,904.082
3014	8	6,615.08	0.8997	5,951.587
3015	8	6,704.42	0.8998	6,032.637

3016	8	6,617.12	0.8998	5,954.084
3017	8	6,923.19	0.8998	6,229.486
3018	8	6,698.74	0.8998	6,027.526
3019	8	6,585.69	0.8998	5,925.804
3020	8	6,819.68	0.8998	6,136.348
3021	8	6,902.84	0.8998	6,211.175
3022	8	6,631.84	0.8999	5,967.993
3023	8	6,429.07	0.8998	5,784.877
3024	8	6,767.36	0.8998	6,089.270
3025	9	7,063.17	0.8998	6,355.440
3026	8	6,763.98	0.8998	6,086.229
3027	8	6,607.08	0.8998	5,945.050
3028	8	6,536.64	0.8998	5,881.668
3029	8	6,554.65	0.8998	5,897.874
3030	9	7,066.92	0.8998	6,358.814
3031	8	6,895.78	0.8998	6,204.823
3032	8	6,712.54	0.8998	6,039.943
3033	8	6,693.78	0.8998	6,023.063
3034	8	6,607.90	0.8998	5,945.788
3035	8	6,701.46	0.8997	6,029.303
3036	8	6,942.58	0.8999	6,247.627
3037	8	6,781.91	0.8998	6,102.362

3038	8	7,148.39	0.8998	6,432.121
3039	8	5,928.23	0.8998	5,334.221
3040	8	6,636.03	0.8998	5,971.099
3041	8	6,641.01	0.8998	5,975.580
3042	8	6,816.86	0.8998	6,133.810
3043	8	6,950.72	0.8999	6,254.952
3044	8	6,794.91	0.8999	6,114.739
3045	8	6,573.18	0.8998	5,914.547
3046	8	6,627.86	0.8998	5,963.748
3047	8	6,650.30	0.8998	5,983.940
3048	8	6,735.76	0.8999	6,061.510
3049	8	6,723.44	0.8999	6,050.423
3050	8	6,843.98	0.8998	6,158.213
3051	8	6,782.82	0.8997	6,102.503
3052	8	6,802.34	0.8998	6,120.745
3053	8	6,713.35	0.8997	6,040.001
3054	8	6,774.23	0.8997	6,094.774
3055	8	6,872.42	0.8997	6,183.116
3056	8	6,443.56	0.8997	5,797.271
3057	8	5,795.26	0.8997	5,213.995
3058	8	6,126.57	0.8998	5,512.687
3059	8	6,801.94	0.8998	6,120.385

3060	8	5,201.27	0.8998	4,680.102
3061	8	6,308.56	0.8997	5,675.811
3062	8	6,772.78	0.8998	6,094.147
3063	8	6,618.51	0.8997	5,954.673
3064	8	6,569.90	0.8998	5,911.596
3065	8	6,810.09	0.8998	6,127.719
3066	8	6,732.51	0.8998	6,057.912
3067	8	6,835.61	0.8998	6,150.682
3068	8	6,926.22	0.8998	6,232.212
3069	8	6,818.50	0.8997	6,134.604
3070	8	6,834.09	0.8998	6,149.314
3071	8	6,793.62	0.8997	6,112.220
3072	8	6,569.06	0.8998	5,910.840
3073	8	6,627.80	0.8997	5,963.031
3074	8	6,686.63	0.8997	6,015.961
3075	8	6,627.27	0.8997	5,962.555
3076	8	6,894.20	0.8998	6,203.401
3077	8	6,775.32	0.8998	6,096.433
3078	8	6,648.93	0.8998	5,982.707
3079	8	6,609.82	0.8998	5,947.516
3080	8	6,900.74	0.8997	6,208.595
3081	8	6,772.37	0.8997	6,093.101

3082	8	6,842.51	0.8998	6,156.890
3083	8	6,886.67	0.8997	6,195.937
3084	8	6,304.12	0.8997	5,671.816
3085	8	6,800.60	0.8998	6,119.180
3086	8	6,766.79	0.8998	6,088.757
3087	8	6,879.83	0.8997	6,189.783
3088	8	6,770.58	0.8997	6,091.491
3089	8	6,760.31	0.8998	6,082.927
3090	8	6,808.04	0.8997	6,125.193
3091	8	6,839.76	0.8997	6,153.732
3092	8	6,885.44	0.8998	6,195.519
3093	8	6,775.93	0.8998	6,096.982
3094	8	6,931.90	0.8997	6,236.630
3095	8	6,189.66	0.8998	5,569.456
3096	8	6,156.88	0.8998	5,539.960
3097	8	6,774.36	0.8998	6,095.569
3098	8	6,582.71	0.8998	5,923.122
3099	8	6,541.58	0.8999	5,886.768
3100	8	6,891.98	0.8998	6,201.403
3101	8	6,711.41	0.8997	6,038.255
3102	8	6,764.75	0.8998	6,086.922
3103	8	6,810.21	0.8998	6,127.826

3104	8	6,842.36	0.8998	6,156.755
3105	8	6,647.47	0.8998	5,981.393
3106	8	7,141.66	0.8998	6,426.065
3107	8	6,570.17	0.8998	5,911.839
3108	8	6,276.42	0.8999	5,648.150
1	8	7,056.19	0.8997	6,348.454
2	8	7,144.95	0.8997	6,428.311
3	8	7,255.47	0.8997	6,527.746
4	8	7,338.13	0.8997	6,602.115
5	7	5,516.24	0.8997	4,962.961
6	8	5,980.90	0.8997	5,381.015
7	8	6,506.58	0.8997	5,853.970
8	8	6,937.26	0.8997	6,241.453
9	8	6,845.30	0.8999	6,160.085
10	8	6,891.87	0.8997	6,200.615
11	8	6,524.15	0.8997	5,869.777
12	8	6,591.61	0.8997	5,930.471
13	8	6,858.41	0.8997	6,170.511
14	8	6,799.45	0.8997	6,117.465
15	8	6,886.67	0.8997	6,195.937
16	8	6,818.37	0.8997	6,134.487
17	8	6,850.66	0.8997	6,163.539

18	8	6,082.02	0.8997	5,471.993
19	8	6,673.41	0.8997	6,004.067
20	8	6,979.64	0.8997	6,279.582
21	8	6,708.31	0.8997	6,035.466
22	8	7,087.84	0.8997	6,376.929
23	8	6,417.76	0.8997	5,774.058
24	8	6,421.86	0.8997	5,777.747
25	8	6,837.24	0.8997	6,151.465
26	8	6,942.44	0.8997	6,246.113
27	8	6,615.13	0.8997	5,951.632
28	8	7,020.54	0.8997	6,316.380
29	8	6,675.12	0.8997	6,005.605
30	8	6,201.92	0.8997	5,579.867
31	8	6,716.04	0.8997	6,042.421
32	8	6,717.50	0.8997	6,043.734
33	8	6,713.48	0.8997	6,040.118
34	8	6,966.47	0.8996	6,267.036
35	8	6,781.69	0.8997	6,101.486
36	8	6,898.40	0.8997	6,206.490
37	8	7,071.54	0.8997	6,362.264
38	8	6,699.71	0.8997	6,027.729
39	7	5,874.81	0.8997	5,285.566

40	8	7,044.96	0.8997	6,338.350
41	8	6,928.28	0.8997	6,233.373
42	8	6,713.88	0.8997	6,040.478
43	8	7,093.44	0.8997	6,381.968
44	8	6,577.51	0.8998	5,918.443
45	8	6,515.31	0.8997	5,861.824
46	8	6,417.52	0.8998	5,774.484
47	8	6,621.95	0.8997	5,957.768
48	8	6,813.75	0.8997	6,130.331
49	8	7,100.37	0.8996	6,387.493
50	8	6,374.67	0.8997	5,735.290
51	8	6,389.03	0.8997	5,748.210
52	8	6,723.77	0.8997	6,049.376
53	8	6,931.33	0.8997	6,236.117
54	8	6,822.92	0.8997	6,138.581
55	8	6,927.29	0.8998	6,233.175
56	8	6,858.23	0.8997	6,170.349
57	8	6,501.28	0.8997	5,849.201
58	8	6,961.31	0.8997	6,263.090
59	8	6,732.70	0.8997	6,057.410
60	8	6,585.69	0.8997	5,925.145
61	8	6,849.18	0.8998	6,162.892

62	8	6,448.95	0.8999	5,803.410
63	7	6,247.04	0.8998	5,621.086
64	8	6,853.04	0.8997	6,165.680
65	7	6,264.18	0.8997	5,635.882
66	8	6,918.49	0.8998	6,225.257
67	8	6,643.47	0.8997	5,977.130
68	8	6,705.68	0.8997	6,033.100
69	8	6,937.11	0.8998	6,242.011
70	8	6,633.01	0.8998	5,968.382
71	8	6,960.87	0.8998	6,263.391
72	8	6,726.05	0.8997	6,051.427
73	8	6,913.66	0.8997	6,220.220
74	8	6,408.14	0.8998	5,766.044
75	8	6,625.87	0.8998	5,961.958
76	8	6,833.73	0.8998	6,148.990
77	8	7,047.37	0.8997	6,340.518
78	8	6,960.65	0.8997	6,262.497
79	8	7,122.41	0.8997	6,408.032
80	8	6,863.73	0.8998	6,175.984
81	8	6,841.78	0.8997	6,155.549
82	8	6,785.85	0.8997	6,105.229
83	8	6,798.15	0.8998	6,116.975

84	7	6,251.32	0.9000	5,626.188
85	7	5,655.10	0.8997	5,087.893
86	8	6,730.79	0.8996	6,055.018
87	8	7,065.76	0.8998	6,357.771
88	8	6,876.71	0.8998	6,187.663
89	8	7,077.25	0.8998	6,368.109
90	8	6,844.56	0.8998	6,158.735
91	7	5,692.41	0.8999	5,122.599
92	8	6,916.09	0.8997	6,222.406
93	8	6,950.13	0.8998	6,253.727
94	8	6,925.04	0.8998	6,231.151
95	8	7,048.97	0.8998	6,342.663
96	8	6,857.32	0.8998	6,170.216
97	8	7,176.30	0.8998	6,457.234
98	8	6,770.94	0.8998	6,092.492
99	8	6,757.83	0.8998	6,080.695
100	8	6,637.23	0.8998	5,972.179
101	9	7,568.71	0.8998	6,810.325
102	8	6,605.59	0.8998	5,943.710
103	8	6,636.08	0.8998	5,971.144
104	8	6,349.43	0.8998	5,713.217
105	8	6,671.45	0.8998	6,002.970

106	8	6,501.93	0.8999	5,851.087
107	8	6,692.51	0.8997	6,021.251
108	7	6,065.01	0.8998	5,457.296
109	8	6,178.06	0.8997	5,558.400
110	8	6,485.50	0.8998	5,835.653
111	8	6,575.70	0.8998	5,916.815
112	8	6,720.88	0.8999	6,048.120
113	8	6,657.39	0.8998	5,990.319
114	8	6,865.61	0.8997	6,176.989
115	8	6,939.57	0.8997	6,243.531
116	8	6,656.17	0.8998	5,989.221
117	8	6,816.46	0.8998	6,133.450
118	8	6,994.29	0.8997	6,292.762
119	8	6,584.47	0.8997	5,924.047
120	8	6,900.70	0.8998	6,209.250
121	8	6,879.26	0.8998	6,189.958
122	8	6,629.27	0.8998	5,965.017
123	8	6,775.93	0.8998	6,096.982
124	8	6,649.32	0.8997	5,982.393
125	7	5,904.50	0.8997	5,312.278
126	8	6,862.00	0.8997	6,173.741
127	8	6,652.53	0.8999	5,986.611

128	8	6,476.97	0.8997	5,827.330
129	8	6,800.14	0.8997	6,118.086
130	8	6,717.43	0.8998	6,044.343
131	8	7,135.08	0.8998	6,420.145
132	8	6,794.39	0.8998	6,113.592
133	8	6,859.63	0.8998	6,172.295
134	8	6,769.37	0.8998	6,091.079
135	8	6,633.95	0.8999	5,969.891
136	8	6,542.76	0.8999	5,887.829
137	8	6,330.73	0.8999	5,697.024
138	7	6,074.51	0.8998	5,465.844
139	8	6,899.36	0.8999	6,208.734
140	8	6,656.63	0.8999	5,990.301
141	8	6,736.57	0.8999	6,062.239
142	8	7,052.84	0.8999	6,346.850
143	8	6,590.04	0.8998	5,929.718
144	8	6,956.32	0.8998	6,259.296
145	8	7,159.54	0.8998	6,442.154
146	8	6,879.48	0.8998	6,190.156
147	8	6,557.30	0.8998	5,900.258
148	8	7,037.59	0.8998	6,332.423
149	8	6,736.06	0.8998	6,061.106

150	8	6,586.20	0.8997	5,925.604
151	8	6,809.82	0.8998	6,127.476
152	8	6,861.55	0.8998	6,174.022
153	7	5,856.15	0.8997	5,268.778
154	8	6,584.18	0.8998	5,924.445
155	8	6,907.88	0.8998	6,215.710
156	8	6,873.79	0.8999	6,185.723
157	7	6,105.31	0.8999	5,494.168
158	8	6,952.32	0.8998	6,255.697
159	8	6,981.58	0.8998	6,282.025
160	8	6,842.62	0.8998	6,156.989
161	8	6,902.39	0.8997	6,210.080
162	8	6,295.42	0.8998	5,664.619
163	8	6,684.66	0.8998	6,014.857
164	8	6,518.44	0.8998	5,865.292
165	8	6,872.46	0.8998	6,183.839
166	8	6,654.60	0.8997	5,987.143
167	8	6,872.43	0.8998	6,183.812
168	8	6,930.77	0.8998	6,236.307
169	8	7,019.04	0.8998	6,315.732
170	8	6,722.93	0.8998	6,049.292
171	8	6,919.46	0.8998	6,226.130

172	8	6,851.51	0.8998	6,164.988
173	8	6,495.85	0.8998	5,844.966
174	8	6,782.18	0.8998	6,102.605
175	8	6,627.59	0.8998	5,963.505
176	8	6,869.75	0.8998	6,181.401
177	8	6,901.53	0.8997	6,209.306
178	8	6,515.33	0.8998	5,862.494
179	8	6,231.61	0.8998	5,607.202
180	8	6,406.07	0.8997	5,763.541
181	8	6,526.86	0.8998	5,872.868
182	8	6,842.16	0.8998	6,156.575
183	8	6,958.72	0.8998	6,261.456
184	8	6,784.78	0.8998	6,104.945
185	8	6,785.68	0.8999	6,106.433
186	8	6,875.12	0.8999	6,186.920
187	8	7,159.37	0.8998	6,442.001
188	8	6,625.76	0.8998	5,961.859
189	8	7,305.99	0.8997	6,573.199
190	8	6,637.19	0.8998	5,972.143
191	8	6,660.52	0.8998	5,993.136
192	8	7,025.64	0.8998	6,321.671
193	8	6,703.63	0.8999	6,032.596

194	8	6,828.30	0.8998	6,144.104
195	8	6,881.97	0.9000	6,193.773
196	8	6,641.37	0.8999	5,976.569
197	7	5,495.09	0.8998	4,944.482
198	8	6,147.86	0.8998	5,531.844
199	8	6,728.81	0.8999	6,055.256
200	7	6,236.98	0.8998	5,612.034
201	8	6,527.85	0.8999	5,874.412
202	8	6,878.55	0.8999	6,190.007
203	8	6,812.40	0.9000	6,131.160
204	8	6,653.98	0.8998	5,987.251
205	8	6,999.17	0.8998	6,297.853
206	8	6,831.41	0.8999	6,147.586
207	8	6,527.25	0.8999	5,873.872
208	8	6,755.82	0.8998	6,078.887
209	8	6,766.79	0.8997	6,088.081
210	8	6,740.22	0.8997	6,064.176
211	8	6,715.65	0.8998	6,042.742
212	8	6,764.80	0.8998	6,086.967
213	8	6,790.44	0.8998	6,110.038
214	8	6,743.57	0.8997	6,067.190
215	8	6,443.54	0.8998	5,797.897

216	8	6,966.31	0.8999	6,268.982
217	8	6,812.79	0.8999	6,130.829
218	8	6,778.44	0.8999	6,099.918
219	8	6,984.47	0.8998	6,284.626
220	8	6,811.93	0.8999	6,130.056
221	8	6,785.39	0.8999	6,106.172
222	8	6,784.43	0.8999	6,105.308
223	8	7,046.64	0.8998	6,340.566
224	8	6,808.23	0.8999	6,126.726
225	8	6,628.96	0.8998	5,964.738
226	7	5,731.14	0.8998	5,156.879
227	8	6,943.47	0.8999	6,248.428
228	8	6,747.89	0.8999	6,072.426
229	8	6,851.32	0.9000	6,166.188
230	8	7,374.79	0.8999	6,636.573
231	8	6,411.62	0.8998	5,769.175
232	8	6,650.32	0.8997	5,983.293
233	7	6,022.88	0.8998	5,419.387
234	7	6,138.74	0.8999	5,524.252
235	8	6,949.97	0.8998	6,253.583
236	8	6,924.72	0.8999	6,231.555
237	8	6,793.06	0.9000	6,113.754

238	8	6,651.77	0.8999	5,985.928
239	8	6,863.22	0.9000	6,176.898
240	8	6,943.30	0.9000	6,248.970
241	8	6,828.05	0.8999	6,144.562
242	8	6,929.54	0.8999	6,235.893
243	8	6,665.67	0.9000	5,999.103
244	8	6,860.04	0.8999	6,173.350
245	8	6,966.31	0.9000	6,269.679
246	8	6,842.15	0.8999	6,157.250
247	8	6,713.68	0.8999	6,041.640
248	8	6,688.26	0.8999	6,018.765
249	8	6,690.86	0.8999	6,021.105
250	8	6,243.69	0.9000	5,619.321
251	7	5,292.74	0.9000	4,763.466
252	8	7,026.03	0.8999	6,322.724
253	8	6,776.54	0.8999	6,098.208
254	8	6,828.53	0.8998	6,144.311
255	8	6,885.47	0.8999	6,196.234
256	8	6,771.54	0.8999	6,093.709
257	8	6,754.65	0.8999	6,078.509
258	8	6,487.75	0.8998	5,837.677
259	8	6,642.32	0.8999	5,977.423

260	8	6,742.07	0.8999	6,067.188
261	8	6,982.36	0.9000	6,284.124
262	8	6,858.60	0.8999	6,172.054
263	8	6,972.08	0.8999	6,274.174
264	8	6,886.82	0.8999	6,197.449
265	8	6,772.25	0.8998	6,093.670
266	8	6,836.45	0.8998	6,151.437
267	8	7,019.37	0.8998	6,316.029
268	8	7,058.97	0.9000	6,353.073
269	8	6,669.96	0.8998	6,001.630
270	8	6,807.41	0.8998	6,125.307
271	8	6,964.36	0.8999	6,267.227
272	8	6,768.60	0.9000	6,091.740
273	8	6,625.72	0.9000	5,963.148
274	8	6,773.19	0.9000	6,095.871
275	8	6,814.04	0.8998	6,131.273
276	8	6,328.04	0.8999	5,694.603
277	7	5,855.86	0.8998	5,269.103
278	6	5,005.57	0.9000	4,505.013
279	8	6,732.00	0.9000	6,058.800
280	8	6,898.75	0.8999	6,208.185
281	8	6,560.73	0.9000	5,904.657

282	8	6,691.58	0.8998	6,021.083
283	8	6,932.96	0.8998	6,238.277
284	8	6,801.20	0.8999	6,120.400
285	8	6,799.79	0.8999	6,119.131
286	8	6,857.15	0.8999	6,170.749
287	8	7,040.98	0.8999	6,336.178
288	8	6,689.04	0.9000	6,020.136
289	8	6,870.94	0.8999	6,183.159
290	8	6,949.29	0.8999	6,253.666
291	8	6,633.01	0.8999	5,969.045
292	8	6,661.98	0.9000	5,995.782
293	8	6,569.39	0.9000	5,912.451
294	8	6,686.87	0.8999	6,017.514
295	8	6,587.47	0.8999	5,928.064
296	7	5,659.28	0.8999	5,092.786
297	8	6,538.94	0.8998	5,883.738
298	8	6,717.91	0.8999	6,045.447
299	8	6,814.91	0.8997	6,131.374
300	8	7,190.42	0.8999	6,470.659
301	8	7,505.58	0.8999	6,754.271
302	8	7,277.94	0.8999	6,549.418
303	8	7,237.04	0.8999	6,512.612

304	8	7,440.68	0.9000	6,696.612
305	8	6,903.99	0.8998	6,212.210
306	8	7,320.25	0.8998	6,586.761
307	8	7,351.61	0.8998	6,614.978
308	8	7,574.21	0.8998	6,815.274
309	8	7,266.56	0.9000	6,539.904
310	8	7,333.69	0.8999	6,599.587
311	8	7,638.60	0.8999	6,873.976
312	8	6,436.12	0.8998	5,791.220
313	8	6,943.48	0.8999	6,248.437
314	8	7,661.14	0.8998	6,893.493
315	8	6,914.96	0.8999	6,222.772
316	8	7,375.81	0.8999	6,637.491
317	8	7,089.87	0.8999	6,380.174
318	8	7,293.92	0.8999	6,563.798
319	8	7,274.63	0.8999	6,546.439
320	8	7,037.33	0.8998	6,332.189
321	8	7,256.75	0.8999	6,530.349
322	8	7,482.75	0.8998	6,732.978
323	8	7,391.09	0.8999	6,651.242
324	8	7,179.51	0.8998	6,460.123
325	8	7,065.58	0.8998	6,357.609

326	8	7,111.87	0.8998	6,399.260
327	8	7,361.21	0.8998	6,623.616
328	8	7,185.44	0.8998	6,465.459
329	8	7,544.46	0.8999	6,789.259
330	8	6,882.90	0.8997	6,192.545
331	8	6,971.38	0.8998	6,272.847
332	8	6,484.03	0.8998	5,834.330
333	8	7,338.42	0.8998	6,603.110
334	8	7,415.38	0.8997	6,671.617
335	8	7,007.58	0.8997	6,304.719
336	8	7,109.12	0.8997	6,396.075
337	8	7,407.60	0.8999	6,666.099
338	8	7,204.51	0.8998	6,482.618
339	8	7,424.53	0.8999	6,681.334
340	8	7,585.87	0.8998	6,825.766
341	8	7,277.88	0.8998	6,548.636
342	8	7,338.67	0.8997	6,602.601
343	8	7,126.99	0.8997	6,412.153
344	8	7,845.55	0.8998	7,059.426
345	8	7,252.31	0.8998	6,525.628
346	8	7,326.12	0.8998	6,592.042
347	8	7,720.45	0.8997	6,946.089

348	8	6,664.28	0.8998	5,996.519
349	7	6,267.68	0.8998	5,639.658
350	7	5,571.02	0.8998	5,012.803
351	8	7,371.48	0.8999	6,633.595
352	8	7,207.62	0.8998	6,485.416
353	8	6,989.75	0.8998	6,289.377
354	8	7,463.37	0.8998	6,715.540
355	8	7,497.59	0.8999	6,747.081
356	8	7,300.88	0.8997	6,568.601
357	8	7,296.32	0.8998	6,565.228
358	8	6,667.70	0.8998	5,999.596
359	8	6,632.07	0.8998	5,967.536
360	8	6,890.29	0.8998	6,199.883
361	8	6,941.21	0.8998	6,245.700
362	8	7,041.68	0.8998	6,336.103
363	8	6,968.37	0.8998	6,270.139
364	8	7,018.34	0.8998	6,315.102
365	8	7,243.55	0.8998	6,517.746
366	8	6,890.98	0.8999	6,201.193
367	8	6,884.87	0.8998	6,195.006
368	8	7,002.11	0.8998	6,300.498
369	8	6,794.65	0.8998	6,113.826

370	8	6,753.47	0.8998	6,076.772
371	8	6,917.86	0.8999	6,225.382
372	8	7,021.32	0.8998	6,317.783
373	8	7,067.03	0.8998	6,358.913
374	8	6,812.62	0.8999	6,130.676
375	7	5,823.04	0.8998	5,239.571
376	6	4,902.72	0.8999	4,411.957
377	7	5,908.19	0.8998	5,316.189
378	8	6,847.20	0.8999	6,161.795
379	8	6,857.34	0.8997	6,169.548
380	8	6,779.09	0.8998	6,099.825
381	8	6,805.46	0.8998	6,123.553
382	8	7,003.47	0.8998	6,301.722
383	8	6,948.97	0.8998	6,252.683
385	8	7,008.25	0.8999	6,306.724
386	8	6,916.35	0.8999	6,224.023
387	8	6,969.12	0.8999	6,271.511
388	8	6,871.44	0.8998	6,182.921
390	8	6,670.48	0.8998	6,002.098
391	8	6,961.90	0.8999	6,265.014
392	8	6,861.50	0.8999	6,174.664
1833	8	6,729.16	0.9001	6,056.916

1911	9	7,437.88	0.8999	6,693.348
2013	8	6,988.69	0.8999	6,289.122
2071	8	6,598.39	0.9000	5,938.551
2074	8	6,823.02	0.8999	6,140.035
2076	8	6,774.41	0.9000	6,096.969
2080	8	6,949.03	0.8999	6,253.432
2093	8	6,620.37	0.9000	5,958.333
2094	8	6,758.68	0.9000	6,082.812
2095	8	6,769.52	0.8999	6,091.891
2096	8	6,818.01	0.8999	6,135.527
2097	8	6,856.64	0.9000	6,170.976
2098	8	6,556.24	0.9000	5,900.616
2099	8	6,890.79	0.9000	6,201.711
2100	8	6,705.47	0.8999	6,034.252
2101	8	6,677.29	0.9001	6,010.228
2102	8	6,645.90	0.9000	5,981.310
2103	8	6,628.42	0.9000	5,965.578
2104	8	6,813.43	0.9000	6,132.087
2105	8	6,803.06	0.9000	6,122.754
2106	8	6,791.38	0.9000	6,112.242
2107	8	6,651.69	0.9000	5,986.521
2108	8	6,961.29	0.9000	6,265.161

2109	8	6,688.19	0.9000	6,019.371
2110	8	6,871.07	0.9001	6,184.650
2111	8	7,053.22	0.9000	6,347.898
2112	8	6,939.18	0.8999	6,244.568
2113	8	6,944.37	0.9000	6,249.933
2114	8	6,976.44	0.9000	6,278.796
2115	8	6,693.15	0.8999	6,023.165
2116	8	6,778.94	0.8999	6,100.368
2117	8	6,585.08	0.8999	5,925.913
2118	8	6,652.17	0.9001	5,987.618
2119	8	6,824.48	0.9000	6,142.032
2120	8	6,570.91	0.8999	5,913.162
2121	8	6,561.23	0.9001	5,905.763
2122	8	7,019.70	0.9000	6,317.730
2123	7	5,260.55	0.9000	4,734.495
2124	8	6,654.51	0.9000	5,989.059
2125	8	6,659.05	0.9000	5,993.145
2126	8	6,935.96	0.9000	6,242.364
2127	8	6,758.07	0.8999	6,081.587
2128	8	6,998.90	0.8999	6,298.310
2129	8	6,687.83	0.9000	6,019.047
2130	8	6,837.90	0.9000	6,154.110

2131	8	6,908.25	0.8999	6,216.734
2132	8	6,670.68	0.9000	6,003.612
2133	8	6,723.74	0.9000	6,051.366
2134	8	6,734.99	0.8999	6,060.817
2135	8	6,874.94	0.8999	6,186.758
2136	8	6,816.92	0.8999	6,134.546
2137	8	6,965.10	0.9000	6,268.590
2138	8	6,723.68	0.9000	6,051.312
2139	8	6,492.79	0.9000	5,843.511
2140	8	6,920.65	0.8999	6,227.893
2141	7	5,282.14	0.8999	4,753.397
2142	8	6,926.51	0.9000	6,233.859
2143	8	6,826.25	0.9001	6,144.307
2144	8	6,724.49	0.9000	6,052.041
2145	8	6,759.59	0.9001	6,084.307
2146	8	6,838.18	0.9000	6,154.362
2147	8	6,648.30	0.9000	5,983.470
2148	8	6,688.57	0.9000	6,019.713
2149	8	6,698.15	0.9001	6,029.005
2150	8	6,160.89	0.9000	5,544.801
2151	8	6,714.74	0.9000	6,043.266
2152	8	6,623.25	0.9000	5,960.925

2153	8	6,804.18	0.9000	6,123.762
2154	8	6,830.80	0.9000	6,147.720
2155	8	6,760.21	0.9000	6,084.189
2156	8	6,691.99	0.9000	6,022.791
2157	8	6,642.41	0.9000	5,978.169
2158	8	6,619.40	0.8999	5,956.798
2159	8	7,008.47	0.9000	6,307.623
2160	8	6,710.56	0.9001	6,040.175
2161	9	6,904.89	0.9000	6,214.401
2162	8	6,677.00	0.9001	6,009.967
2163	8	6,714.04	0.9000	6,042.636
2164	9	6,695.09	0.9000	6,025.581
2165	8	6,811.12	0.9000	6,130.008
2166	8	6,703.11	0.9000	6,032.799
2167	8	6,035.48	0.8999	5,431.328
2168	8	6,725.74	0.9000	6,053.166
2169	8	6,789.95	0.9000	6,110.955
2170	8	6,628.44	0.9000	5,965.596
2171	8	6,778.39	0.9000	6,100.551
2172	8	6,702.50	0.9000	6,032.250
2173	8	6,622.96	0.9000	5,960.664
2174	7	5,840.02	0.9000	5,256.018

2175	8	6,872.97	0.9000	6,185.673
2176	8	6,929.84	0.9000	6,236.856
2177	8	6,497.49	0.9000	5,847.741
2178	8	6,933.88	0.9000	6,240.492
2179	8	6,195.20	0.9001	5,576.299
2180	8	6,634.37	0.9000	5,970.933
2181	8	7,305.85	0.9000	6,575.265
2182	8	6,505.05	0.9001	5,855.195
2183	8	7,128.18	0.9000	6,415.362
2184	8	7,219.14	0.9000	6,497.226
2185	8	6,519.42	0.9000	5,867.478
2186	8	6,594.59	0.8999	5,934.471
2187	7	5,654.25	0.8999	5,088.259
2188	8	6,678.78	0.8999	6,010.234
2189	8	6,809.98	0.9000	6,128.982
2190	8	6,982.94	0.9000	6,284.646
2191	8	6,531.28	0.9000	5,878.152
2192	8	6,594.20	0.9001	5,935.439
2193	8	6,692.22	0.9000	6,022.998
2194	8	6,775.02	0.9000	6,097.518
2195	8	7,085.74	0.9000	6,377.166
2196	8	6,934.17	0.8999	6,240.059

2197	8	6,301.23	0.9000	5,671.107
2198	8	6,821.37	0.8999	6,138.551
2199	8	6,897.73	0.9000	6,207.957
2200	8	6,448.81	0.8999	5,803.284
2201	8	6,783.69	0.9000	6,105.321
2202	8	7,315.92	0.8999	6,583.596
2203	8	6,397.09	0.9000	5,757.381
2204	8	7,106.70	0.9000	6,396.030
2205	8	6,649.68	0.8999	5,984.047
2207	8	6,716.81	0.8999	6,044.457
2208	8	6,851.18	0.9000	6,166.062
2209	8	6,828.30	0.9000	6,145.470
2210	8	7,009.09	0.9000	6,308.181
2211	8	6,834.43	0.9000	6,150.987
2212	8	6,520.92	0.9000	5,868.828
2213	8	7,123.61	0.8999	6,410.536
2214	8	6,788.93	0.8999	6,109.358
2215	8	6,489.31	0.9000	5,840.379
2216	8	6,802.28	0.9001	6,122.732
2217	8	6,819.65	0.9000	6,137.685
2219	8	6,837.85	0.9000	6,154.065
2220	8	6,635.96	0.8999	5,971.700

2221	8	6,534.46	0.8999	5,880.360
2222	7	6,050.20	0.9000	5,445.180
2223	8	6,637.52	0.9000	5,973.768
2224	8	6,813.53	0.9000	6,132.177
2225	8	6,325.72	0.9000	5,693.148
2226	8	6,627.94	0.8999	5,964.483
2227	8	6,882.00	0.8999	6,193.112
2228	8	6,774.80	0.9000	6,097.320
2229	8	6,710.10	0.8999	6,038.419
2230	8	6,782.26	0.9001	6,104.712
2231	8	6,691.60	0.9000	6,022.440
00001	1	402.33	0.9999	402.289
00001	1	427.44	0.9999	427.397
00001	1	397.79	0.9999	397.750
00001	24	9,683.25	0.9999	9,682.281
00001	1	395.75	0.9999	395.710
00001	1	431.29	0.9999	431.246
00001	1	393.64	0.9999	393.600
00001	1	427.97	0.9999	427.927
00001	1	388.38	0.9999	388.341
00001	1	416.00	0.9999	415.958
00001	1	422.42	0.9999	422.377

00001	1	429.25	0.9999	429.207
00001	1	415.68	0.9999	415.638
00001	1	430.02	0.9999	429.976
00001	1	387.58	0.9999	387.541
00001	1	427.07	0.9999	427.027
00001	1	388.28	0.9999	388.241
00001	1	425.81	0.9999	425.767
00001	24	9,500.10	0.9999	9,499.149
00001	1	436.77	0.9999	436.726
00001	1	390.52	0.9999	390.480
00001	1	423.80	0.9999	423.757
00001	1	392.74	0.9999	392.700
00001	1	423.09	0.9999	423.047
00001	1	393.42	0.9999	393.380
00001	1	420.06	0.9999	420.017
00001	1	430.22	0.9999	430.176
00001	1	408.36	0.9999	408.319
00001	1	426.83	0.9999	426.787
00001	1	400.57	0.9999	400.529
00001	1	426.32	0.9999	426.277
00001	1	388.23	0.9999	388.191
00001	1	425.58	0.9999	425.537

00001	1	429.33	0.9999	429.287
00001	1	423.97	0.9999	423.927
00001	1	415.51	0.9999	415.468
00001	1	421.67	0.9999	421.627
00001	1	424.28	0.9999	424.237
00001	1	419.64	0.9999	419.598
00001	1	420.73	0.9999	420.687
00001	1	419.50	0.9999	419.458
00001	1	407.28	0.9999	407.239
00001	1	419.16	0.9999	419.118
00001	1	428.32	0.9999	428.277
00001	1	419.15	0.9999	419.108
00001	1	414.55	0.9999	414.508
00001	1	418.02	0.9999	417.978
00001	1	419.17	0.9999	419.128
00001	1	416.18	0.9999	416.138
00001	1	432.30	0.9999	432.256
00001	1	399.30	0.9999	399.260
00001	1	423.73	0.9999	423.687
00001	1	437.76	0.9999	437.716
00002	24	9,387.82	0.9999	9,386.881
00002	24	9,617.65	0.9999	9,616.688

00002	1	415.50	0.9999	415.458
00002	1	423.89	0.9999	423.847
00002	1	421.31	0.9999	421.267
00002	1	434.83	0.9999	434.786
00002	1	418.15	0.9999	418.108
00002	1	432.83	0.9999	432.786
00002	1	419.02	0.9999	418.978
00002	1	407.59	0.9999	407.549
00002	1	429.86	0.9999	429.817
00002	1	411.93	0.9999	411.888
00002	1	428.71	0.9999	428.667
00002	1	417.91	0.9999	417.868
00002	1	425.71	0.9999	425.667
00002	1	410.86	0.9999	410.818
00002	1	424.65	0.9999	424.607
00002	1	447.04	0.9999	446.995
00002	1	424.51	0.9999	424.467
00002	1	428.40	0.9999	428.357
00002	1	424.03	0.9999	423.987
00002	1	414.84	0.9999	414.798
00002	1	421.97	0.9999	421.927
00002	1	414.41	0.9999	414.368

00002	1	426.36	0.9999	426.317
00002	1	411.92	0.9999	411.878
00002	1	405.11	0.9999	405.069
00002	1	430.99	0.9999	430.946
00002	1	426.53	0.9999	426.487
00003	1	393.02	0.9999	392.980
00003	1	425.16	0.9999	425.117
00003	1	425.34	0.9999	425.297
00003	1	419.59	0.9999	419.548
00003	1	425.49	0.9999	425.447
00003	1	401.77	0.9999	401.729
00003	1	426.40	0.9999	426.357
00003	1	396.80	0.9999	396.760
00003	1	426.54	0.9999	426.497
00003	1	395.54	0.9999	395.500
00003	1	430.47	0.9999	430.426
00003	1	453.17	0.9999	453.124
00003	1	431.30	0.9999	431.256
00003	24	9,450.75	0.9999	9,449.804
00003	1	431.57	0.9999	431.526
00003	1	424.18	0.9999	424.137
00003	1	438.20	0.9999	438.156

00003	1	422.74	0.9999	422.697
00003	1	439.17	0.9999	439.126
00003	1	396.29	0.9999	396.250
00003	24	9,812.29	0.9999	9,811.308
00003	1	386.60	0.9999	386.561
00003	1	400.19	0.9999	400.149
00003	1	394.97	0.9999	394.930
00003	1	439.52	0.9999	439.476
00003	1	440.53	0.9999	440.485
00003	1	398.74	0.9999	398.700
00003	1	404.73	0.9999	404.689
00003	1	440.32	0.9999	440.275
00004	1	421.94	0.9999	421.897
00004	1	418.57	0.9999	418.528
00004	1	417.65	0.9999	417.608
00004	24	9,757.30	0.9999	9,756.324
00004	1	417.22	0.9999	417.178
00004	1	392.96	0.9999	392.920
00004	1	416.84	0.9999	416.798
00004	1	395.09	0.9999	395.050
00004	1	415.29	0.9999	415.248
00004	1	398.37	0.9999	398.330

00004	1	412.68	0.9999	412.638
00004	1	399.56	0.9999	399.520
00004	1	412.51	0.9999	412.468
00004	1	402.86	0.9999	402.819
00004	1	410.37	0.9999	410.328
00004	1	423.62	0.9999	423.577
00004	1	406.88	0.9999	406.839
00004	1	408.22	0.9999	408.179
00004	1	401.97	0.9999	401.929
00004	1	409.95	0.9999	409.909
00004	1	415.65	0.9999	415.608
00004	1	436.37	0.9999	436.326
00004	1	429.98	0.9999	429.937
00004	1	431.14	0.9999	431.096
00004	1	427.28	0.9999	427.237
00004	1	425.09	0.9999	425.047
00004	1	427.22	0.9999	427.177
00004	1	420.80	0.9999	420.757
00004	1	423.78	0.9999	423.737
00004	24	9,588.19	0.9999	9,587.231
00004	1	423.47	0.9999	423.427
00004	1	393.42	0.9999	393.380

00004	1	420.75	0.9999	420.707
00004	1	399.31	0.9999	399.270
00004	1	419.61	0.9999	419.568
00004	1	405.87	0.9999	405.829
00004	1	419.30	0.9999	419.258
00004	1	404.60	0.9999	404.559
00004	1	419.29	0.9999	419.248
00004	1	434.83	0.9999	434.786
00004	1	418.86	0.9999	418.818
00004	1	423.90	0.9999	423.857
00004	1	418.81	0.9999	418.768
00004	1	404.88	0.9999	404.839
00004	1	415.10	0.9999	415.058
00004	1	401.05	0.9999	401.009
00004	1	414.92	0.9999	414.878
00004	1	419.47	0.9999	419.428
00004	1	414.58	0.9999	414.538
00004	1	420.26	0.9999	420.217
00004	1	412.54	0.9999	412.498
00004	1	424.03	0.9999	423.987
00004	1	395.47	0.9999	395.430
00004	1	427.32	0.9999	427.277

00004	1	410.97	0.9999	410.928
00005	1	387.76	0.9999	387.721
00005	1	404.52	0.9999	404.479
00005	1	410.12	0.9999	410.078
00005	24	9,758.80	0.9999	9,757.824
00005	1	407.63	0.9999	407.589
00005	1	407.92	0.9999	407.879
00005	1	421.83	0.9999	421.787
00005	1	402.87	0.9999	402.829
00005	1	392.72	0.9999	392.680
00005	1	407.82	0.9999	407.779
00005	1	414.60	0.9999	414.558
00005	1	428.27	0.9999	428.227
00005	1	397.08	0.9999	397.040
00005	1	384.86	0.9999	384.821
00005	1	384.43	0.9999	384.391
00005	1	390.24	0.9999	390.200
00005	1	413.93	0.9999	413.888
00005	1	406.42	0.9999	406.379
00005	24	9,804.00	0.9999	9,803.019
00005	1	390.65	0.9999	390.610
00006	24	9,721.50	0.9999	9,720.527

00006	1	389.84	0.9999	389.801
00006	1	394.13	0.9999	394.090
00006	24	9,907.59	0.9999	9,906.599
00006	1	395.45	0.9999	395.410
00006	1	380.87	0.9999	380.831
00006	1	407.85	0.9999	407.809
00006	1	388.83	0.9999	388.791
00006	1	411.49	0.9999	411.448
00006	1	383.30	0.9999	383.261
00006	1	413.03	0.9999	412.988
00006	1	398.20	0.9999	398.160
00006	1	415.68	0.9999	415.638
00006	1	399.35	0.9999	399.310
00006	1	385.97	0.9999	385.931
00006	1	397.66	0.9999	397.620
00006	1	420.15	0.9999	420.107
00007	1	398.06	0.9999	398.020
00007	1	405.64	0.9999	405.599
00007	1	414.97	0.9999	414.928
00007	1	405.89	0.9999	405.849
00007	1	390.36	0.9999	390.320
00007	1	406.56	0.9999	406.519

00007	1	392.19	0.9999	392.150
00007	1	394.06	0.9999	394.020
00007	1	396.15	0.9999	396.110
00007	24	9,861.28	0.9999	9,860.293
00007	24	9,759.65	0.9999	9,758.674
00007	1	394.34	0.9999	394.300
00007	1	399.56	0.9999	399.520
00007	1	397.87	0.9999	397.830
00007	1	401.45	0.9999	401.409
00007	1	401.73	0.9999	401.689
00007	1	403.28	0.9999	403.239
00007	1	401.81	0.9999	401.769
00007	1	404.02	0.9999	403.979
00007	1	401.94	0.9999	401.899
00007	1	391.55	0.9999	391.510
00007	1	401.95	0.9999	401.909
00007	1	397.13	0.9999	397.090
00007	1	402.40	0.9999	402.359
00007	1	400.95	0.9999	400.909
00007	1	404.78	0.9999	404.739
00007	1	403.92	0.9999	403.879
00007	1	404.99	0.9999	404.949

00007	1	393.09	0.9999	393.050
00007	1	405.47	0.9999	405.429
00007	1	402.48	0.9999	402.439
00007	1	398.91	0.9999	398.870
00007	1	390.15	0.9999	390.110
00007	1	412.76	0.9999	412.718
00008	1	414.53	0.9999	414.488
00008	1	395.28	0.9999	395.240
00008	1	394.07	0.9999	394.030
00008	1	411.53	0.9999	411.488
00008	1	393.50	0.9999	393.460
00008	1	415.38	0.9999	415.338
00008	1	391.74	0.9999	391.700
00008	1	417.82	0.9999	417.778
00008	1	389.05	0.9999	389.011
00008	1	411.00	0.9999	410.958
00008	1	388.50	0.9999	388.461
00008	1	409.23	0.9999	409.189
00008	1	387.93	0.9999	387.891
00008	1	408.30	0.9999	408.259
00008	1	386.31	0.9999	386.271
00008	1	407.08	0.9999	407.039

00008	1	384.63	0.9999	384.591
00008	1	404.70	0.9999	404.659
00008	1	379.75	0.9999	379.712
00008	1	403.24	0.9999	403.199
00008	1	405.81	0.9999	405.769
00008	1	393.00	0.9999	392.960
00008	1	404.43	0.9999	404.389
00008	24	9,885.94	0.9999	9,884.951
00008	1	403.69	0.9999	403.649
00008	1	401.95	0.9999	401.909
00008	1	378.59	0.9999	378.552
00008	1	404.29	0.9999	404.249
00008	24	9,670.08	0.9999	9,669.112
00008	1	396.80	0.9999	396.760
00008	1	394.01	0.9999	393.970
00008	1	402.77	0.9999	402.729
00008	1	421.17	0.9999	421.127
00008	1	415.92	0.9999	415.878
00008	1	389.65	0.9999	389.611
00008	1	410.43	0.9999	410.388
00008	1	392.25	0.9999	392.210
00008	1	407.78	0.9999	407.739

00008	1	394.69	0.9999	394.650
00008	1	403.82	0.9999	403.779
00008	1	395.76	0.9999	395.720
00008	1	398.73	0.9999	398.690
00008	1	396.63	0.9999	396.590
00008	1	407.08	0.9999	407.039
00008	1	397.93	0.9999	397.890
00008	1	395.39	0.9999	395.350
00008	1	398.19	0.9999	398.150
00008	1	420.45	0.9999	420.407
00008	1	398.25	0.9999	398.210
00008	1	406.41	0.9999	406.369
00008	1	398.54	0.9999	398.500
00008	1	398.77	0.9999	398.730
00008	1	398.79	0.9999	398.750
00008	1	415.36	0.9999	415.318
00008	1	399.19	0.9999	399.150
00008	1	400.77	0.9999	400.729
00008	1	408.69	0.9999	408.649
00008	1	397.89	0.9999	397.850
00008	1	402.36	0.9999	402.319
00009	1	406.63	0.9999	406.589

00009	1	411.63	0.9999	411.588
00009	1	421.83	0.9999	421.787
00009	1	388.04	0.9999	388.001
00009	1	400.28	0.9999	400.239
00009	1	398.30	0.9999	398.260
00009	1	413.41	0.9999	413.368
00009	1	385.54	0.9999	385.501
00009	1	416.68	0.9999	416.638
00009	1	403.73	0.9999	403.689
00009	1	413.19	0.9999	413.148
00009	1	391.19	0.9999	391.150
00009	1	412.67	0.9999	412.628
00009	1	379.11	0.9999	379.072
00009	1	413.55	0.9999	413.508
00009	1	406.41	0.9999	406.369
00009	1	416.21	0.9999	416.168
00009	1	404.28	0.9999	404.239
00009	1	399.98	0.9999	399.940
00009	1	400.17	0.9999	400.129
00009	1	431.09	0.9999	431.046
00009	1	399.88	0.9999	399.840
00009	1	426.74	0.9999	426.697

00009	1	406.81	0.9999	406.769
00009	1	389.57	0.9999	389.531
00009	1	406.52	0.9999	406.479
00009	1	397.95	0.9999	397.910
00009	1	419.54	0.9999	419.498
00009	1	404.49	0.9999	404.449
00009	24	9,942.54	0.9999	9,941.545
00009	1	413.75	0.9999	413.708
00009	1	405.53	0.9999	405.489
00009	1	404.54	0.9999	404.499
00009	1	397.50	0.9999	397.460
00009	1	413.34	0.9999	413.298
00009	1	406.89	0.9999	406.849
00009	1	429.65	0.9999	429.607
00009	1	397.17	0.9999	397.130
00009	1	389.69	0.9999	389.651
00009	1	408.96	0.9999	408.919
00009	1	418.50	0.9999	418.458
00009	1	410.14	0.9999	410.098
00009	1	418.54	0.9999	418.498
00009	1	405.79	0.9999	405.749
00009	1	426.00	0.9999	425.957

00009	24	9,729.49	0.9999	9,728.517
00009	1	412.82	0.9999	412.778
00009	1	410.19	0.9999	410.148
00009	1	400.32	0.9999	400.279
00009	1	410.53	0.9999	410.488
00010	1	414.40	0.9999	414.358
00010	1	417.89	0.9999	417.848
00010	1	403.42	0.9999	403.379
00010	1	413.03	0.9999	412.988
00010	1	397.50	0.9999	397.460
00010	1	393.47	0.9999	393.430
00010	1	393.36	0.9999	393.320
00010	1	425.88	0.9999	425.837
00010	1	421.88	0.9999	421.837
00010	24	9,829.98	0.9999	9,828.997
00010	1	422.72	0.9999	422.677
00010	1	413.01	0.9999	412.968
00010	1	423.14	0.9999	423.097
00010	1	414.35	0.9999	414.308
00010	1	429.30	0.9999	429.257
00010	1	395.91	0.9999	395.870
00010	1	402.11	0.9999	402.069

00010	1	397.92	0.9999	397.880
00010	1	417.72	0.9999	417.678
00010	1	400.12	0.9999	400.079
00010	1	407.42	0.9999	407.379
00010	1	401.17	0.9999	401.129
00010	1	407.83	0.9999	407.789
00010	1	401.74	0.9999	401.699
00010	1	408.62	0.9999	408.579
00010	1	403.15	0.9999	403.109
00010	1	408.74	0.9999	408.699
00010	1	418.61	0.9999	418.568
00010	1	417.27	0.9999	417.228
00010	1	423.06	0.9999	423.017
00010	1	416.81	0.9999	416.768
00010	1	416.66	0.9999	416.618
00010	1	411.35	0.9999	411.308
00010	24	9,487.65	0.9999	9,486.701
00010	1	415.56	0.9999	415.518
00010	1	414.66	0.9999	414.618
00010	1	409.28	0.9999	409.239
00010	1	410.73	0.9999	410.688
00010	1	397.95	0.9999	397.910

00010	1	397.56	0.9999	397.520
00010	1	395.48	0.9999	395.440
00010	1	400.99	0.9999	400.949
00010	1	379.41	0.9999	379.372
00010	1	402.48	0.9999	402.439
00010	1	417.46	0.9999	417.418
00010	1	435.55	0.9999	435.506
00010	1	421.05	0.9999	421.007
00010	1	406.00	0.9999	405.959
00010	1	409.78	0.9999	409.739
00010	1	422.49	0.9999	422.447
00010	1	409.98	0.9999	409.939
00010	1	414.74	0.9999	414.698
00010	1	410.69	0.9999	410.648
00010	1	404.23	0.9999	404.189
00010	1	391.63	0.9999	391.590
00010	1	415.18	0.9999	415.138
00010	1	418.70	0.9999	418.658
00010	1	415.53	0.9999	415.488
00010	1	408.50	0.9999	408.459
00010	1	410.00	0.9999	409.959
00010	1	416.00	0.9999	415.958

00011	24	9,770.72	0.9999	9,769.742
00011	24	9,811.92	0.9999	9,810.938
00012	1	395.93	0.9999	395.890
00012	1	393.72	0.9999	393.680
00012	1	399.76	0.9999	399.720
00012	24	9,676.55	0.9999	9,675.582
00012	1	399.68	0.9999	399.640
00012	1	407.29	0.9999	407.249
00012	1	399.20	0.9999	399.160
00012	1	405.70	0.9999	405.659
00012	1	399.20	0.9999	399.160
00012	1	400.53	0.9999	400.489
00012	1	398.77	0.9999	398.730
00012	24	9,770.77	0.9999	9,769.792
00012	1	394.90	0.9999	394.860
00012	1	410.79	0.9999	410.748
00012	1	395.92	0.9999	395.880
00012	1	402.53	0.9999	402.489
00012	1	398.56	0.9999	398.520
00012	1	396.20	0.9999	396.160
00012	1	399.89	0.9999	399.850
00012	1	405.74	0.9999	405.699

00012	1	396.87	0.9999	396.830
00013	1	426.18	0.9999	426.137
00013	1	411.57	0.9999	411.528
00013	1	402.33	0.9999	402.289
00013	1	434.88	0.9999	434.836
00013	1	401.10	0.9999	401.059
00013	1	403.14	0.9999	403.099
00013	1	442.04	0.9999	441.995
00013	1	424.85	0.9999	424.807
00013	1	401.42	0.9999	401.379
00013	1	398.79	0.9999	398.750
00013	1	405.32	0.9999	405.279
00013	1	424.56	0.9999	424.517
00013	24	9,899.42	0.9999	9,898.430
00013	1	423.51	0.9999	423.467
00013	1	402.07	0.9999	402.029
00013	1	420.79	0.9999	420.747
00013	1	427.22	0.9999	427.177
00013	1	402.86	0.9999	402.819
00013	24	9,689.40	0.9999	9,688.431
00013	1	419.75	0.9999	419.708
00013	1	405.16	0.9999	405.119

00013	1	418.61	0.9999	418.568
00013	1	402.04	0.9999	401.999
00013	1	418.59	0.9999	418.548
00013	1	400.63	0.9999	400.589
00013	1	399.33	0.9999	399.290
00013	1	411.73	0.9999	411.688
00013	1	410.43	0.9999	410.388
00013	1	405.95	0.9999	405.909
00013	1	402.80	0.9999	402.759
00014	1	415.50	0.9999	415.458
00014	1	397.52	0.9999	397.480
00014	1	403.88	0.9999	403.839
00014	1	413.19	0.9999	413.148
00014	1	428.53	0.9999	428.487
00014	1	433.85	0.9999	433.806
00014	1	420.85	0.9999	420.807
00014	1	428.75	0.9999	428.707
00014	1	425.85	0.9999	425.807
00014	1	404.58	0.9999	404.539
00014	1	423.70	0.9999	423.657
00014	24	9,697.35	0.9999	9,696.380
00014	1	418.35	0.9999	418.308

00014	1	408.19	0.9999	408.149
00014	1	418.16	0.9999	418.118
00014	1	413.65	0.9999	413.608
00014	1	417.80	0.9999	417.758
00014	1	414.54	0.9999	414.498
00014	1	417.19	0.9999	417.148
00014	1	412.42	0.9999	412.378
00014	1	416.08	0.9999	416.038
00014	1	404.76	0.9999	404.719
00014	1	415.33	0.9999	415.288
00014	24	9,793.69	0.9999	9,792.710
00014	1	415.32	0.9999	415.278
00014	1	413.91	0.9999	413.868
00014	1	415.29	0.9999	415.248
00014	1	430.82	0.9999	430.776
00014	1	414.99	0.9999	414.948
00014	1	413.17	0.9999	413.128
00014	1	406.45	0.9999	406.409
00014	24	9,653.52	0.9999	9,652.554
00014	1	423.66	0.9999	423.617
00015	1	416.61	0.9999	416.568
00015	1	412.45	0.9999	412.408

00015	24	9,923.88	0.9999	9,922.887
00015	1	412.21	0.9999	412.168
00015	1	427.14	0.9999	427.097
00015	1	397.47	0.9999	397.430
00015	1	404.15	0.9999	404.109
00015	1	410.00	0.9999	409.959
00015	1	428.07	0.9999	428.027
00015	1	409.82	0.9999	409.779
00015	1	415.76	0.9999	415.718
00015	1	405.21	0.9999	405.169
00015	1	415.25	0.9999	415.208
00015	1	407.57	0.9999	407.529
00015	1	414.90	0.9999	414.858
00015	1	408.06	0.9999	408.019
00015	1	414.63	0.9999	414.588
00015	1	408.50	0.9999	408.459
00015	24	9,716.80	0.9999	9,715.828
00015	1	410.18	0.9999	410.138
00015	1	418.10	0.9999	418.058
00015	1	419.91	0.9999	419.868
00015	24	9,629.62	0.9999	9,628.657
00015	1	411.87	0.9999	411.828

00015	1	416.07	0.9999	416.028
00015	1	417.94	0.9999	417.898
00015	1	415.73	0.9999	415.688
00015	1	392.53	0.9999	392.490
00015	1	407.38	0.9999	407.339
00015	1	417.32	0.9999	417.278
00016	1	399.39	0.9999	399.350
00016	1	412.38	0.9999	412.338
00016	1	390.97	0.9999	390.930
00016	1	394.95	0.9999	394.910
00016	1	394.66	0.9999	394.620
00016	1	404.14	0.9999	404.099
00016	1	396.67	0.9999	396.630
00016	1	403.02	0.9999	402.979
00016	1	396.47	0.9999	396.430
00016	1	401.54	0.9999	401.499
00016	24	9,643.58	0.9999	9,642.615
00016	1	398.68	0.9999	398.640
00016	1	405.10	0.9999	405.059
00016	24	9,875.12	0.9999	9,874.132
00016	24	9,755.65	0.9999	9,754.674
00016	1	402.77	0.9999	402.729

00016	1	411.00	0.9999	410.958
00016	1	389.61	0.9999	389.571
00016	1	399.67	0.9999	399.630
00016	1	403.67	0.9999	403.629
00016	1	405.85	0.9999	405.809
00017	24	9,789.15	0.9999	9,788.171
00017	1	404.90	0.9999	404.859
00017	24	9,743.10	0.9999	9,742.125
00017	1	406.55	0.9999	406.509
00017	1	410.53	0.9999	410.488
00017	1	415.79	0.9999	415.748
00017	1	420.65	0.9999	420.607
00017	24	9,901.67	0.9999	9,900.679
00017	1	398.49	0.9999	398.450
00017	1	423.74	0.9999	423.697
00017	1	412.35	0.9999	412.308
00017	1	417.04	0.9999	416.998
00018	1	393.92	0.9999	393.880
00018	1	404.97	0.9999	404.929
00018	24	9,687.40	0.9999	9,686.431
00018	1	399.18	0.9999	399.140
00018	1	430.20	0.9999	430.156

00018	1	397.85	0.9999	397.810
00018	1	409.43	0.9999	409.389
00018	1	396.68	0.9999	396.640
00018	1	404.91	0.9999	404.869
00018	1	396.41	0.9999	396.370
00018	1	402.60	0.9999	402.559
00018	1	395.25	0.9999	395.210
00018	1	400.64	0.9999	400.599
00018	1	397.88	0.9999	397.840
00018	1	421.64	0.9999	421.597
00018	1	391.49	0.9999	391.450
00018	1	420.38	0.9999	420.337
00018	1	419.99	0.9999	419.948
00018	1	428.38	0.9999	428.337
00018	1	415.71	0.9999	415.668
00018	1	423.53	0.9999	423.487
00018	1	413.79	0.9999	413.748
00018	1	409.79	0.9999	409.749
00018	1	424.07	0.9999	424.027
00018	1	404.90	0.9999	404.859
00018	1	413.72	0.9999	413.678
00018	1	423.45	0.9999	423.407

00018	1	412.11	0.9999	412.068
00018	24	9,609.55	0.9999	9,608.589
00018	1	408.04	0.9999	407.999
00018	24	9,902.48	0.9999	9,901.489
00018	1	403.59	0.9999	403.549
00018	1	400.72	0.9999	400.679
00018	1	396.32	0.9999	396.280
00018	1	413.12	0.9999	413.078
00018	1	421.81	0.9999	421.767
00018	1	404.95	0.9999	404.909
00018	1	427.25	0.9999	427.207
00019	1	411.92	0.9999	411.878
00019	1	404.69	0.9999	404.649
00019	1	399.02	0.9999	398.980
00019	1	405.43	0.9999	405.389
00019	1	396.32	0.9999	396.280
00019	1	405.92	0.9999	405.879
00019	1	402.11	0.9999	402.069
00019	1	409.62	0.9999	409.579
00019	1	383.13	0.9999	383.091
00019	1	412.05	0.9999	412.008
00019	1	402.42	0.9999	402.379

00019	1	417.65	0.9999	417.608
00019	1	403.15	0.9999	403.109
00019	1	418.42	0.9999	418.378
00019	1	395.93	0.9999	395.890
00019	24	9,665.09	0.9999	9,664.123
00019	1	401.56	0.9999	401.519
00019	24	9,844.15	0.9999	9,843.165
00019	1	396.98	0.9999	396.940
00019	1	413.55	0.9999	413.508
00019	1	391.14	0.9999	391.100
00019	24	9,594.40	0.9999	9,593.440
00020	24	9,949.65	0.9999	9,948.655
00020	24	9,533.51	0.9999	9,532.556
00020	24	9,792.35	0.9999	9,791.370
00021	1	415.19	0.9999	415.148
00021	1	396.14	0.9999	396.100
00021	1	418.05	0.9999	418.008
00021	1	404.50	0.9999	404.459
00021	1	417.84	0.9999	417.798
00021	1	386.82	0.9999	386.781
00021	1	400.83	0.9999	400.789
00021	1	393.31	0.9999	393.270

00021	1	400.96	0.9999	400.919
00021	1	406.55	0.9999	406.509
00021	1	403.27	0.9999	403.229
00021	24	9,805.22	0.9999	9,804.239
00021	24	9,636.48	0.9999	9,635.516
00021	1	385.61	0.9999	385.571
00021	24	9,786.65	0.9999	9,785.671
00021	1	405.19	0.9999	405.149
00021	1	400.91	0.9999	400.869
00021	1	418.68	0.9999	418.638
00021	1	414.94	0.9999	414.898
00021	1	392.44	0.9999	392.400
00021	1	385.03	0.9999	384.991
00022	1	411.95	0.9999	411.908
00022	1	425.00	0.9999	424.957
00022	1	410.79	0.9999	410.748
00022	1	410.94	0.9999	410.898
00022	1	391.26	0.9999	391.220
00022	1	411.01	0.9999	410.968
00022	1	397.81	0.9999	397.770
00022	1	413.02	0.9999	412.978
00022	1	398.45	0.9999	398.410

00022	1	413.35	0.9999	413.308
00022	1	403.36	0.9999	403.319
00022	1	414.14	0.9999	414.098
00022	1	405.13	0.9999	405.089
00022	1	416.00	0.9999	415.958
00022	1	403.80	0.9999	403.759
00022	1	419.83	0.9999	419.788
00022	24	9,607.68	0.9999	9,606.719
00022	1	420.73	0.9999	420.687
00022	1	415.59	0.9999	415.548
00022	1	422.65	0.9999	422.607
00022	1	401.55	0.9999	401.509
00022	1	422.99	0.9999	422.947
00022	1	407.45	0.9999	407.409
00022	1	425.64	0.9999	425.597
00022	1	409.26	0.9999	409.219
00022	1	428.53	0.9999	428.487
00022	1	395.96	0.9999	395.920
00022	1	432.31	0.9999	432.266
00022	1	406.60	0.9999	406.559
00022	1	401.76	0.9999	401.719
00022	24	9,856.75	0.9999	9,855.764

00022	1	412.13	0.9999	412.088
00022	1	399.44	0.9999	399.400
00022	1	411.18	0.9999	411.138
00022	1	408.38	0.9999	408.339
00022	1	405.31	0.9999	405.269
00022	23	9,076.95	0.9977	9,056.073
00022	1	409.27	0.9999	409.229
00022	24	9,668.15	0.9999	9,667.183
00022	1	407.68	0.9999	407.639
00022	1	394.78	0.9999	394.740
00022	1	403.64	0.9999	403.599
00022	1	403.56	0.9999	403.519
00022	1	408.02	0.9999	407.979
00023	1	392.81	0.9999	392.770
00023	24	9,844.76	0.9999	9,843.775
00023	1	403.51	0.9999	403.469
00023	1	396.07	0.9999	396.030
00023	1	378.45	0.9998	378.374
00023	23	9,103.80	0.9976	9,081.950
00023	1	378.51	0.9998	378.434
00023	1	403.62	0.9999	403.579
00023	1	421.76	0.9999	421.717

00023	24	9,636.63	0.9999	9,635.666
00023	1	399.77	0.9999	399.730
00023	1	392.05	0.9999	392.010
00023	1	410.59	0.9999	410.548
00023	1	397.40	0.9999	397.360
00023	1	393.97	0.9999	393.930
00023	1	414.94	0.9999	414.898
00023	1	391.07	0.9999	391.030
00023	1	417.46	0.9999	417.418
00023	1	402.10	0.9999	402.059
00023	24	9,704.80	0.9999	9,703.829
00023	1	394.73	0.9999	394.690
00023	1	391.32	0.9999	391.280
00023	1	380.37	0.9998	380.293
00023	1	398.09	0.9999	398.050
00024	1	417.45	0.9999	417.408
00024	24	9,220.90	0.9971	9,194.159
00024	1	413.40	0.9999	413.358
00024	24	9,713.66	0.9999	9,712.688
00024	1	416.44	0.9999	416.398
00024	24	9,549.20	0.9999	9,548.245
00024	24	9,881.65	0.9999	9,880.661

00025	24	9,951.10	0.9999	9,950.104
00025	1	402.43	0.9999	402.389
00025	1	420.30	0.9999	420.257
00025	24	9,687.53	0.9999	9,686.561
00025	24	9,473.00	0.9999	9,472.052
00025	1	426.52	0.9999	426.477
00025	1	410.37	0.9999	410.328
00026	24	9,951.15	0.9999	9,950.154
00026	1	365.10	0.9999	365.063
00026	1	366.68	0.9999	366.643
00026	1	393.31	0.9999	393.270
00026	1	368.52	0.9999	368.483
00026	24	9,823.03	0.9999	9,822.047
00026	1	370.60	0.9999	370.562
00026	1	381.04	0.9999	381.001
00026	1	371.13	0.9999	371.092
00026	1	386.08	0.9999	386.041
00026	24	9,641.13	0.9999	9,640.165
00026	1	385.60	0.9999	385.561
00026	1	372.70	0.9999	372.662
00027	1	377.41	0.9998	377.334
00027	1	375.35	0.9998	375.274

00027	1	373.46	0.9998	373.385
00027	1	401.88	0.9999	401.839
00027	1	385.61	0.9998	385.532
00027	1	386.78	0.9999	386.741
00027	24	9,829.98	0.9999	9,828.997
00027	24	9,640.19	0.9999	9,639.225
00027	1	384.51	0.9998	384.433
00027	1	418.44	0.9999	418.398
00027	1	403.88	0.9999	403.839
00027	24	9,949.38	0.9999	9,948.385
00027	1	384.11	0.9998	384.033
00027	1	414.69	0.9999	414.648
00027	1	417.90	0.9998	417.816
00027	1	408.96	0.9999	408.919
00027	1	378.38	0.9998	378.304
00027	1	397.76	0.9999	397.720
00027	1	378.20	0.9998	378.124
00027	1	397.99	0.9999	397.950
00027	1	403.93	0.9999	403.889
00027	1	400.79	0.9999	400.749
00027	1	410.31	0.9999	410.268
00027	1	413.63	0.9999	413.588

00027	1	395.30	0.9998	395.220
00027	1	398.69	0.9998	398.610
00027	1	377.07	0.9998	376.994
00027	1	412.12	0.9999	412.078
00027	1	423.88	0.9999	423.837
00027	1	397.86	0.9999	397.820
00027	1	376.51	0.9998	376.434
00027	1	369.37	0.9998	369.296
00027	1	393.44	0.9999	393.400
00027	1	396.14	0.9999	396.100
00027	1	404.75	0.9998	404.669
00027	1	395.33	0.9999	395.290
00027	1	402.17	0.9999	402.129
00027	1	409.27	0.9998	409.188
00027	1	372.79	0.9998	372.715
00028	1	402.67	0.9999	402.629
00028	24	9,711.35	0.9999	9,710.378
00028	1	397.47	0.9999	397.430
00028	1	387.53	0.9999	387.491
00028	1	402.23	0.9999	402.189
00028	1	390.86	0.9999	390.820
00028	1	362.10	0.9997	361.991

00028	1	409.88	0.9999	409.839
00028	1	364.52	0.9997	364.410
00028	1	387.11	0.9999	387.071
00028	1	366.96	0.9997	366.849
00028	1	411.92	0.9999	411.878
00028	1	370.41	0.9997	370.298
00028	1	385.90	0.9999	385.861
00028	1	387.82	0.9999	387.781
00028	1	421.08	0.9999	421.037
00028	1	389.70	0.9999	389.661
00028	24	9,961.20	0.9999	9,960.203
00028	1	391.11	0.9999	391.070
00028	1	361.89	0.9997	361.781
00028	1	363.26	0.9997	363.151
00028	1	387.21	0.9999	387.171
00028	1	369.95	0.9997	369.839
00028	1	384.09	0.9999	384.051
00028	1	389.24	0.9999	389.201
00028	24	9,638.37	0.9999	9,637.406
00028	1	408.97	0.9999	408.929
00028	1	395.57	0.9999	395.530
00028	1	371.02	0.9997	370.908

00028	1	365.42	0.9997	365.310
00028	1	387.80	0.9999	387.761
00028	1	381.77	0.9999	381.731
00029	1	404.38	0.9999	404.339
00029	1	387.28	0.9999	387.241
00029	1	393.81	0.9999	393.770
00029	1	392.22	0.9999	392.180
00029	1	396.06	0.9999	396.020
00029	1	395.52	0.9999	395.480
00029	1	398.43	0.9999	398.390
00029	1	379.98	0.9999	379.942
00029	1	399.82	0.9999	399.780
00029	1	381.80	0.9999	381.761
00029	1	403.31	0.9999	403.269
00029	1	411.77	0.9999	411.728
00029	24	9,688.81	0.9999	9,687.841
00029	1	381.03	0.9999	380.991
00029	24	9,668.68	0.9999	9,667.713
00029	1	405.80	0.9999	405.759
00029	1	405.95	0.9999	405.909
00030	1	412.72	0.9999	412.678
00030	1	362.07	0.9996	361.925

00030	1	369.16	0.9996	369.012
00030	1	431.62	0.9999	431.576
00030	1	400.80	0.9999	400.759
00030	1	408.18	0.9999	408.139
00030	1	399.70	0.9999	399.660
00030	1	408.34	0.9999	408.299
00030	1	419.67	0.9999	419.628
00030	1	403.90	0.9999	403.859
00030	1	420.18	0.9999	420.137
00030	1	414.14	0.9999	414.098
00030	24	9,806.62	0.9999	9,805.639
00030	1	406.91	0.9999	406.869
00030	24	9,722.13	0.9999	9,721.157
00030	1	418.19	0.9999	418.148
00030	1	405.55	0.9999	405.509
00030	1	409.72	0.9999	409.679
00030	1	425.75	0.9999	425.707
00031	1	407.27	0.9999	407.229
00031	1	414.31	0.9999	414.268
00031	1	414.29	0.9999	414.248
00031	1	417.83	0.9999	417.788
00031	1	416.68	0.9999	416.638

00031	1	383.86	0.9999	383.821
00031	1	414.34	0.9999	414.298
00031	1	413.92	0.9999	413.878
00031	1	404.41	0.9999	404.369
00031	1	384.69	0.9999	384.651
00031	1	401.82	0.9999	401.779
00031	24	9,782.62	0.9999	9,781.641
00031	1	413.87	0.9999	413.828
00031	1	404.72	0.9999	404.679
00031	1	410.41	0.9999	410.368
00031	1	403.41	0.9999	403.369
00031	1	407.88	0.9999	407.839
00031	1	418.91	0.9999	418.868
00031	1	399.98	0.9999	399.940
00031	1	369.78	0.9998	369.706
00031	1	398.66	0.9999	398.620
00031	1	417.92	0.9999	417.878
00031	1	386.87	0.9999	386.831
00031	1	411.51	0.9999	411.468
00031	1	387.08	0.9999	387.041
00031	1	386.27	0.9999	386.231
00031	1	390.85	0.9999	390.810

00031	1	408.59	0.9999	408.549
00031	1	393.24	0.9999	393.200
00031	1	391.91	0.9998	391.831
00031	1	395.21	0.9999	395.170
00031	1	419.44	0.9999	419.398
00031	1	396.70	0.9999	396.660
00031	1	404.61	0.9999	404.569
00031	1	397.71	0.9999	397.670
00031	1	369.44	0.9998	369.366
00031	1	421.98	0.9999	421.937
00031	1	402.71	0.9999	402.669
00031	1	398.03	0.9999	397.990
00032	24	9,756.92	0.9999	9,755.944
00032	1	399.55	0.9999	399.510
00032	24	9,856.05	0.9999	9,855.064
00032	1	403.76	0.9999	403.719
00032	24	9,742.05	0.9999	9,741.075
00032	1	411.56	0.9999	411.518
00032	1	396.27	0.9999	396.230
00032	1	411.09	0.9999	411.048
00033	1	399.35	0.9999	399.310
00033	1	405.81	0.9999	405.769

00033	1	405.29	0.9999	405.249
00033	1	419.91	0.9999	419.868
00033	24	9,732.02	0.9999	9,731.046
00033	1	419.21	0.9999	419.168
00033	1	365.41	0.9999	365.373
00033	1	419.05	0.9999	419.008
00033	24	9,853.68	0.9999	9,852.694
00033	1	417.73	0.9999	417.688
00033	1	397.85	0.9999	397.810
00033	1	413.94	0.9999	413.898
00033	1	422.10	0.9999	422.057
00033	1	412.16	0.9999	412.118
00033	1	385.89	0.9999	385.851
00033	1	409.58	0.9999	409.539
00033	1	423.34	0.9999	423.297
00033	1	395.51	0.9999	395.470
00033	24	9,916.29	0.9999	9,915.298
00033	1	408.43	0.9999	408.389
00034	1	428.49	0.9999	428.447
00034	1	417.71	0.9999	417.668
00034	1	417.78	0.9999	417.738
00034	1	416.82	0.9999	416.778

00034	1	420.17	0.9999	420.127
00034	1	416.48	0.9999	416.438
00034	1	425.72	0.9999	425.677
00034	1	406.28	0.9999	406.239
00034	24	9,813.66	0.9999	9,812.678
00034	1	413.92	0.9999	413.878
00034	24	9,826.35	0.9999	9,825.367
00034	1	412.45	0.9999	412.408
00034	1	413.39	0.9999	413.348
00034	1	409.79	0.9999	409.749
00034	1	410.48	0.9999	410.438
00034	1	404.41	0.9999	404.369
00034	1	414.91	0.9999	414.868
00034	24	9,844.48	0.9999	9,843.495
00034	1	411.35	0.9999	411.308
00035	1	428.80	0.9999	428.757
00035	1	410.18	0.9999	410.138
00035	1	416.06	0.9999	416.018
00035	1	419.50	0.9999	419.458
00035	1	410.16	0.9999	410.118
00035	1	412.78	0.9999	412.738
00035	1	406.39	0.9999	406.349

00035	24	9,658.78	0.9999	9,657.814
00035	1	397.66	0.9999	397.620
00035	1	406.05	0.9999	406.009
00035	24	9,859.64	0.9999	9,858.654
00035	1	418.33	0.9999	418.288
00035	1	405.99	0.9999	405.949
00035	1	410.62	0.9999	410.578
00035	1	404.52	0.9999	404.479
00036	24	9,721.41	0.9999	9,720.437
00036	24	9,804.92	0.9999	9,803.939
00037	1	416.40	0.9999	416.358
00037	1	398.12	0.9999	398.080
00037	1	432.63	0.9999	432.586
00037	1	397.00	0.9999	396.960
00037	24	9,764.92	0.9999	9,763.943
00037	1	396.65	0.9999	396.610
00037	1	402.43	0.9999	402.389
00037	1	396.42	0.9999	396.380
00037	1	415.98	0.9999	415.938
00037	1	395.87	0.9999	395.830
00037	24	9,700.06	0.9999	9,699.089
00037	1	394.98	0.9999	394.940

00037	1	408.48	0.9999	408.439
00037	1	394.41	0.9999	394.370
00037	1	402.38	0.9999	402.339
00037	1	394.06	0.9999	394.020
00037	1	400.74	0.9999	400.699
00037	1	392.76	0.9999	392.720
00037	1	398.39	0.9999	398.350
00037	1	385.16	0.9999	385.121
00037	1	420.62	0.9999	420.577
00037	1	382.88	0.9999	382.841
00037	1	414.11	0.9999	414.068
00037	1	377.66	0.9999	377.622
00037	1	404.24	0.9999	404.199
00037	1	398.20	0.9999	398.160
00037	1	399.95	0.9999	399.910
00037	1	397.48	0.9999	397.440
00037	1	419.05	0.9999	419.008
00037	1	397.06	0.9999	397.020
00037	1	404.62	0.9999	404.579
00037	1	411.12	0.9999	411.078
00037	24	9,841.20	0.9999	9,840.215
00037	1	392.86	0.9999	392.820

00038	1	406.33	0.9999	406.289
00038	1	403.95	0.9999	403.909
00038	24	9,688.27	0.9999	9,687.301
00038	24	9,741.41	0.9999	9,740.435
00038	1	406.35	0.9999	406.309
00038	1	410.37	0.9999	410.328
00038	1	403.39	0.9999	403.349
00038	1	413.45	0.9999	413.408
00038	1	402.08	0.9999	402.039
00038	1	417.20	0.9999	417.158
00038	1	399.30	0.9999	399.260
00038	1	419.37	0.9999	419.328
00038	1	397.42	0.9999	397.380
00038	1	431.09	0.9999	431.046
00038	1	392.62	0.9999	392.580
00038	1	435.51	0.9999	435.466
00038	1	401.85	0.9999	401.809
00038	1	392.01	0.9999	391.970
00038	1	406.92	0.9999	406.879
00038	1	389.06	0.9999	389.021
00038	1	416.29	0.9999	416.248
00038	1	387.23	0.9999	387.191

00038	1	402.92	0.9999	402.879
00038	1	405.86	0.9999	405.819
00038	1	397.58	0.9999	397.540
00038	1	397.92	0.9999	397.880
00038	1	400.04	0.9999	399.999
00038	24	9,841.95	0.9999	9,840.965
00038	1	407.23	0.9999	407.189
00038	1	386.71	0.9999	386.671
00038	1	399.96	0.9999	399.920
00038	1	386.65	0.9999	386.611
00038	1	404.45	0.9999	404.409
00038	1	395.02	0.9999	394.980
00038	1	384.24	0.9999	384.201
00038	1	385.32	0.9999	385.281
00039	1	404.41	0.9999	404.369
00039	1	405.17	0.9999	405.129
00039	1	386.61	0.9999	386.571
00039	1	406.17	0.9999	406.129
00039	1	398.08	0.9999	398.040
00039	1	396.68	0.9999	396.640
00039	1	391.62	0.9999	391.580
00039	24	9,708.61	0.9999	9,707.639

00039	1	391.53	0.9999	391.490
00039	1	393.71	0.9999	393.670
00039	1	389.10	0.9999	389.061
00039	1	393.67	0.9999	393.630
00039	1	401.73	0.9999	401.689
00039	1	390.50	0.9999	390.460
00039	1	402.11	0.9999	402.069
00039	24	9,718.09	0.9999	9,717.118
00039	1	404.47	0.9999	404.429
00039	1	395.80	0.9999	395.760
00039	1	416.62	0.9999	416.578
00039	1	416.17	0.9999	416.128
00039	1	399.46	0.9999	399.420
00039	1	400.41	0.9999	400.369
00039	1	393.34	0.9999	393.300
00039	1	402.34	0.9999	402.299
00039	1	423.16	0.9999	423.117
00039	1	415.07	0.9999	415.028
00039	1	402.46	0.9999	402.419
00039	1	414.69	0.9999	414.648
00039	1	413.11	0.9999	413.068
00039	1	404.80	0.9999	404.759

00039	1	388.99	0.9999	388.951
00039	1	411.64	0.9999	411.598
00039	1	407.75	0.9999	407.709
00039	24	9,777.13	0.9999	9,776.152
00039	1	406.27	0.9999	406.229
00039	1	411.12	0.9999	411.078
00040	1	407.49	0.9999	407.449
00040	1	392.36	0.9999	392.320
00040	1	410.19	0.9999	410.148
00040	1	394.02	0.9999	393.980
00040	1	401.53	0.9999	401.489
00040	1	416.37	0.9999	416.328
00040	1	397.20	0.9999	397.160
00040	1	395.01	0.9999	394.970
00040	1	378.75	0.9999	378.712
00040	1	396.28	0.9999	396.240
00040	1	381.75	0.9999	381.711
00040	1	396.49	0.9999	396.450
00040	1	386.30	0.9999	386.261
00040	1	397.33	0.9999	397.290
00040	1	387.61	0.9999	387.571
00040	1	397.55	0.9999	397.510

00040	1	389.95	0.9999	389.911
00040	1	400.51	0.9999	400.469
00040	24	9,818.90	0.9999	9,817.918
00040	1	416.33	0.9999	416.288
00040	1	381.28	0.9999	381.241
00040	1	416.24	0.9999	416.198
00040	24	9,759.78	0.9999	9,758.804
00040	1	415.87	0.9999	415.828
00040	1	404.87	0.9999	404.829
00040	1	414.60	0.9999	414.558
00040	1	381.89	0.9999	381.851
00040	24	9,754.78	0.9999	9,753.804
00040	1	388.17	0.9999	388.131
00040	1	413.35	0.9999	413.308
00041	1	405.74	0.9999	405.699
00041	1	410.04	0.9999	409.998
00041	1	411.99	0.9999	411.948
00041	1	394.70	0.9999	394.660
00041	24	9,606.27	0.9999	9,605.309
00041	1	432.38	0.9999	432.336
00041	1	409.05	0.9999	409.009
00041	24	9,641.36	0.9999	9,640.395

00041	1	408.59	0.9999	408.549
00041	1	407.20	0.9999	407.159
00041	1	380.44	0.9999	380.401
00041	1	419.94	0.9999	419.898
00041	1	407.26	0.9999	407.219
00041	24	9,753.00	0.9999	9,752.024
00041	1	401.69	0.9999	401.649
00042	24	9,789.11	0.9999	9,788.131
00042	24	9,718.00	0.9999	9,717.028
00042	24	9,796.19	0.9999	9,795.210
00043	1	406.96	0.9999	406.919
00043	1	408.41	0.9999	408.369
00043	1	409.46	0.9999	409.419
00043	24	9,821.34	0.9999	9,820.357
00043	1	410.16	0.9999	410.118
00043	1	395.30	0.9999	395.260
00043	1	410.64	0.9999	410.598
00043	1	401.82	0.9999	401.779
00043	1	411.94	0.9999	411.898
00043	24	9,712.58	0.9999	9,711.608
00043	1	412.95	0.9999	412.908
00043	24	9,667.40	0.9999	9,666.433

00043	1	415.70	0.9999	415.658
00043	1	404.72	0.9999	404.679
00043	1	398.82	0.9999	398.780
00043	1	404.36	0.9999	404.319
00043	1	419.42	0.9999	419.378
00044	24	9,775.25	0.9999	9,774.272
00044	24	9,770.30	0.9999	9,769.322
00044	24	9,802.63	0.9999	9,801.649
00045	1	381.09	0.9999	381.051
00045	1	390.76	0.9999	390.720
00045	1	392.91	0.9999	392.870
00045	1	404.31	0.9999	404.269
00045	24	9,748.01	0.9999	9,747.035
00045	1	392.35	0.9999	392.310
00045	1	389.76	0.9999	389.721
00045	1	391.19	0.9999	391.150
00045	1	398.26	0.9999	398.220
00045	1	405.22	0.9999	405.179
00045	1	403.99	0.9999	403.949
00045	1	405.69	0.9999	405.649
00045	1	402.98	0.9999	402.939
00045	1	405.97	0.9999	405.929

00045	1	400.80	0.9999	400.759
00045	1	406.64	0.9999	406.599
00045	1	400.56	0.9999	400.519
00045	1	408.73	0.9999	408.689
00045	1	396.07	0.9999	396.030
00045	1	410.39	0.9999	410.348
00045	1	395.09	0.9999	395.050
00045	24	9,820.66	0.9999	9,819.677
00045	1	390.94	0.9999	390.900
00045	1	415.11	0.9999	415.068
00045	1	398.82	0.9999	398.780
00045	1	416.85	0.9999	416.808
00045	1	401.25	0.9999	401.209
00045	1	384.00	0.9999	383.961
00045	1	398.63	0.9999	398.590
00045	1	389.58	0.9999	389.541
00045	1	416.94	0.9999	416.898
00045	1	389.73	0.9999	389.691
00045	1	403.58	0.9999	403.539
00045	1	422.78	0.9999	422.737
00045	1	395.17	0.9999	395.130
00045	1	400.69	0.9999	400.649

00045	1	397.44	0.9999	397.400
00045	1	419.75	0.9999	419.708
00046	1	395.23	0.9999	395.190
00046	1	386.20	0.9999	386.161
00046	24	9,770.03	0.9999	9,769.052
00046	1	385.59	0.9999	385.551
00046	1	394.57	0.9999	394.530
00046	1	396.52	0.9999	396.480
00046	1	393.08	0.9999	393.040
00046	1	383.71	0.9999	383.671
00046	1	391.69	0.9999	391.650
00046	1	397.95	0.9999	397.910
00046	24	9,838.62	0.9999	9,837.636
00046	1	381.08	0.9999	381.041
00046	1	390.07	0.9999	390.030
00046	24	9,834.70	0.9999	9,833.716
00046	1	394.19	0.9999	394.150
00046	1	366.57	0.9999	366.533
00046	1	391.12	0.9999	391.080
00046	1	401.05	0.9999	401.009
00046	1	402.13	0.9999	402.089
00046	1	390.15	0.9999	390.110

00046	1	392.04	0.9999	392.000
00046	1	411.88	0.9999	411.838
00047	1	388.10	0.9999	388.061
00047	1	387.95	0.9999	387.911
00047	1	402.29	0.9999	402.249
00047	1	426.34	0.9999	426.297
00047	1	396.77	0.9999	396.730
00047	1	410.51	0.9999	410.468
00047	1	394.24	0.9999	394.200
00047	1	399.98	0.9999	399.940
00047	1	397.06	0.9999	397.020
00047	1	410.43	0.9999	410.388
00047	1	398.55	0.9999	398.510
00047	1	409.38	0.9999	409.339
00047	1	386.77	0.9999	386.731
00047	1	405.88	0.9999	405.839
00047	24	9,737.78	0.9999	9,736.806
00047	1	404.64	0.9999	404.599
00047	1	398.20	0.9999	398.160
00047	1	401.07	0.9999	401.029
00047	24	9,664.43	0.9999	9,663.463
00047	1	398.64	0.9999	398.600

00047	1	405.86	0.9999	405.819
00047	24	9,858.47	0.9999	9,857.484
00048	1	394.27	0.9999	394.230
00048	1	398.63	0.9999	398.590
00048	1	394.57	0.9999	394.530
00048	1	398.58	0.9999	398.540
00048	1	390.77	0.9999	390.730
00048	1	398.40	0.9999	398.360
00048	1	389.94	0.9999	389.901
00048	1	407.25	0.9999	407.209
00048	1	385.77	0.9999	385.731
00048	1	397.71	0.9999	397.670
00048	1	376.17	0.9999	376.132
00048	1	399.32	0.9999	399.280
00048	12	5,009.92	0.9999	5,009.419
00048	1	389.61	0.9999	389.571
00048	12	5,009.92	0.9999	5,009.419
00048	1	403.28	0.9999	403.239
00048	1	386.60	0.9999	386.561
00048	1	405.03	0.9999	404.989
00048	1	396.42	0.9999	396.380
00048	24	9,485.77	0.9999	9,484.821

00048	1	390.73	0.9999	390.690
00048	24	9,865.95	0.9999	9,864.963
00048	1	384.43	0.9999	384.391
00048	1	410.08	0.9999	410.038
00049	24	9,640.87	0.9999	9,639.905
00049	1	390.06	0.9999	390.020
00049	1	366.33	0.9999	366.293
00049	1	394.51	0.9999	394.470
00049	1	403.68	0.9999	403.639
00049	1	403.07	0.9999	403.029
00049	1	381.72	0.9999	381.681
00049	1	403.02	0.9999	402.979
00049	1	397.81	0.9999	397.770
00049	1	402.76	0.9999	402.719
00049	1	367.01	0.9999	366.973
00049	1	402.60	0.9999	402.559
00049	24	9,948.85	0.9999	9,947.855
00049	1	401.26	0.9999	401.219
00049	1	404.47	0.9999	404.429
00049	1	400.33	0.9999	400.289
00049	1	394.89	0.9999	394.850
00049	1	398.46	0.9999	398.420

00049	1	392.24	0.9999	392.200
00049	1	388.39	0.9999	388.351
00049	1	406.59	0.9999	406.549
00049	1	396.60	0.9999	396.560
00049	1	393.25	0.9999	393.210
00049	1	404.44	0.9999	404.399
00049	1	389.22	0.9999	389.181
00049	1	395.04	0.9999	395.000
00050	1	386.58	0.9999	386.541
00050	1	395.33	0.9999	395.290
00050	1	387.71	0.9999	387.671
00050	24	9,787.99	0.9999	9,787.011
00050	1	409.13	0.9999	409.089
00050	1	395.14	0.9999	395.100
00050	1	406.56	0.9999	406.519
00050	1	394.41	0.9999	394.370
00050	1	423.46	0.9999	423.417
00050	1	392.47	0.9999	392.430
00050	1	397.02	0.9999	396.980
00050	1	391.12	0.9999	391.080
00050	1	378.45	0.9999	378.412
00050	1	390.84	0.9999	390.800

00050	24	9,925.76	0.9999	9,924.767
00050	1	382.62	0.9999	382.581
00050	1	396.20	0.9999	396.160
00050	1	404.58	0.9999	404.539
00050	1	408.07	0.9999	408.029
00050	1	401.74	0.9999	401.699
00051	1	390.05	0.9999	390.010
00051	1	396.95	0.9999	396.910
00051	1	388.62	0.9999	388.581
00051	1	392.29	0.9999	392.250
00051	1	408.72	0.9999	408.679
00051	1	389.85	0.9999	389.811
00051	1	402.68	0.9999	402.639
00051	24	9,713.11	0.9999	9,712.138
00051	1	399.03	0.9999	398.990
00051	1	376.97	0.9999	376.932
00051	1	398.89	0.9999	398.850
00051	24	9,832.91	0.9999	9,831.926
00051	1	392.78	0.9999	392.740
00051	1	389.66	0.9999	389.621
00051	1	394.72	0.9999	394.680
00051	1	388.44	0.9999	388.401

00051	1	397.22	0.9999	397.180
00051	1	395.85	0.9999	395.810
00051	1	386.55	0.9999	386.511
00051	1	389.97	0.9999	389.931
00051	1	396.78	0.9999	396.740
00052	1	392.38	0.9999	392.340
00052	1	392.72	0.9999	392.680
00052	1	375.76	0.9999	375.722
00052	1	393.70	0.9999	393.660
00052	1	381.19	0.9999	381.151
00052	1	404.90	0.9998	404.819
00052	1	388.76	0.9999	388.721
00052	1	370.00	0.9999	369.963
00052	1	392.17	0.9999	392.130
00052	1	397.17	0.9999	397.130
00052	1	380.61	0.9999	380.571
00052	1	398.01	0.9999	397.970
00052	1	391.42	0.9999	391.380
00052	1	388.03	0.9999	387.991
00052	24	9,681.33	0.9999	9,680.361
00052	1	403.45	0.9999	403.409
00053	1	419.41	0.9999	419.368

00053	1	423.84	0.9999	423.797
00053	1	423.02	0.9999	422.977
00053	1	411.88	0.9999	411.838
00053	1	363.30	0.9997	363.191
00053	1	411.85	0.9999	411.808
00053	1	416.96	0.9999	416.918
00053	1	420.44	0.9999	420.397
00053	1	415.91	0.9999	415.868
00053	24	9,666.39	0.9999	9,665.423
00053	1	418.79	0.9999	418.748
00053	1	412.78	0.9999	412.738
00053	1	416.39	0.9999	416.348
00053	1	377.47	0.9997	377.356
00054	1	364.08	0.9999	364.043
00054	1	383.37	0.9999	383.331
00054	1	379.61	0.9999	379.572
00054	1	408.44	0.9999	408.399
00054	24	9,618.98	0.9999	9,618.018
00054	1	385.74	0.9999	385.701
00055	1	405.52	0.9999	405.479
00055	1	403.55	0.9999	403.509
00055	1	362.71	0.9999	362.673

00055	1	405.90	0.9999	405.859
00055	1	392.05	0.9999	392.010
00055	1	410.01	0.9999	409.968
00055	1	395.27	0.9999	395.230
00055	1	426.97	0.9999	426.927
00055	1	397.55	0.9999	397.510
00055	1	407.16	0.9999	407.119
00055	1	405.38	0.9999	405.339
00055	1	419.23	0.9999	419.188
00055	1	398.65	0.9999	398.610
00056	1	411.51	0.9999	411.468
00056	1	400.95	0.9999	400.909
00056	1	417.49	0.9999	417.448
00056	1	419.39	0.9999	419.348
00056	1	408.45	0.9999	408.409
00056	1	400.00	0.9999	399.960
00056	1	409.26	0.9999	409.219
00056	1	399.45	0.9999	399.410
00056	1	413.66	0.9999	413.618
00056	1	398.01	0.9999	397.970
00056	1	415.70	0.9999	415.658
00056	1	395.85	0.9999	395.810

00056	1	409.77	0.9999	409.729
00056	1	424.20	0.9999	424.157
00056	1	404.95	0.9999	404.909
00056	1	426.40	0.9999	426.357
00056	1	401.60	0.9999	401.559
00056	1	395.05	0.9999	395.010
00056	1	409.47	0.9999	409.429
00056	1	404.37	0.9999	404.329
00056	1	410.21	0.9999	410.168
00056	1	404.77	0.9999	404.729
00056	1	404.21	0.9999	404.169
00056	1	401.20	0.9999	401.159
00056	1	414.45	0.9999	414.408
00056	1	409.05	0.9999	409.009
00056	1	406.65	0.9999	406.609
00056	1	406.67	0.9999	406.629
00057	1	380.00	0.9999	379.962
00057	1	393.59	0.9999	393.550
00057	1	396.14	0.9999	396.100
00057	1	390.94	0.9999	390.900
00057	1	407.03	0.9999	406.989
00057	1	404.45	0.9999	404.409

00057	1	382.79	0.9999	382.751
00057	1	398.84	0.9999	398.800
00057	1	398.13	0.9999	398.090
00057	1	398.17	0.9999	398.130
00057	1	388.18	0.9999	388.141
00057	1	383.54	0.9999	383.501
00057	1	396.07	0.9999	396.030
00057	1	386.70	0.9999	386.661
00058	1	404.88	0.9999	404.839
00058	1	382.61	0.9999	382.571
00058	1	396.73	0.9999	396.690
00058	1	389.39	0.9999	389.351
00058	1	390.01	0.9999	389.970
00058	1	391.04	0.9999	391.000
00058	1	386.94	0.9999	386.901
00058	1	387.95	0.9999	387.911
00058	1	405.38	0.9999	405.339
00058	1	391.06	0.9999	391.020
00059	1	414.68	0.9999	414.638
00059	1	407.72	0.9999	407.679
00059	1	404.53	0.9999	404.489
00059	1	411.56	0.9999	411.518

00059	1	406.85	0.9999	406.809
00059	1	402.82	0.9999	402.779
00059	1	408.96	0.9999	408.919
00059	1	402.62	0.9999	402.579
00059	1	410.55	0.9999	410.508
00059	1	400.89	0.9999	400.849
00059	1	431.65	0.9999	431.606
00059	1	414.33	0.9999	414.288
00059	1	386.42	0.9999	386.381
00059	1	415.47	0.9999	415.428
00059	1	396.30	0.9999	396.260
00059	1	417.14	0.9999	417.098
00059	1	402.64	0.9999	402.599
00059	1	408.06	0.9999	408.019
00059	1	393.81	0.9999	393.770
00059	1	406.78	0.9999	406.739
00059	1	405.71	0.9999	405.669
00059	1	403.21	0.9999	403.169
00059	1	408.33	0.9999	408.289
00059	1	385.31	0.9999	385.271
00059	1	397.44	0.9999	397.400
00059	1	389.99	0.9999	389.951

00059	1	394.82	0.9999	394.780
00059	1	390.69	0.9999	390.650
00059	1	405.45	0.9999	405.409
00059	1	403.17	0.9999	403.129
00059	1	405.34	0.9999	405.299
00059	1	392.73	0.9999	392.690
00059	1	377.58	0.9999	377.542
00059	1	395.08	0.9999	395.040
00059	1	405.70	0.9999	405.659
00059	1	400.05	0.9999	400.009
00059	1	409.05	0.9999	409.009
00059	1	403.03	0.9999	402.989
00060	1	414.15	0.9999	414.108
00060	1	387.39	0.9999	387.351
00060	1	416.14	0.9999	416.098
00060	1	397.77	0.9999	397.730
00060	1	415.05	0.9999	415.008
00060	1	384.01	0.9999	383.971
00060	1	398.18	0.9999	398.140
00060	1	410.75	0.9999	410.708
00060	1	398.39	0.9999	398.350
00060	1	395.57	0.9999	395.530

00060	1	402.27	0.9999	402.229
00060	1	403.91	0.9999	403.869
00060	1	388.41	0.9999	388.371
00060	1	402.74	0.9999	402.699
00060	1	405.10	0.9999	405.059
00060	1	400.52	0.9999	400.479
00060	24	9,712.13	0.9999	9,711.158
00060	1	390.40	0.9999	390.360
00060	1	405.02	0.9999	404.979
00060	1	389.59	0.9999	389.551
00060	1	382.20	0.9999	382.161
00060	1	398.08	0.9999	398.040
00061	1	405.15	0.9999	405.109
00061	1	409.18	0.9999	409.139
00061	1	407.68	0.9999	407.639
00061	1	401.12	0.9999	401.079
00061	1	402.90	0.9999	402.859
00061	1	396.85	0.9999	396.810
00061	1	402.88	0.9999	402.839
00061	1	412.14	0.9999	412.098
00061	1	417.01	0.9999	416.968
00061	24	9,828.06	0.9999	9,827.077

00061	1	416.93	0.9999	416.888
00061	1	399.91	0.9999	399.870
00061	1	422.71	0.9999	422.667
00061	1	416.43	0.9999	416.388
00061	1	407.33	0.9999	407.289
00061	1	410.62	0.9999	410.578
00061	1	400.41	0.9999	400.369
00061	1	417.69	0.9999	417.648
00061	1	401.83	0.9999	401.789
00062	1	416.60	0.9999	416.558
00062	1	430.38	0.9999	430.336
00062	1	408.35	0.9999	408.309
00062	1	401.66	0.9999	401.619
00062	1	411.46	0.9999	411.418
00062	1	392.70	0.9999	392.660
00062	1	415.17	0.9999	415.128
00062	1	437.90	0.9999	437.856
00062	1	403.11	0.9999	403.069
00062	1	417.26	0.9999	417.218
00062	1	411.56	0.9999	411.518
00062	24	9,859.77	0.9999	9,858.784
00063	1	418.90	0.9999	418.858

00063	24	9,839.75	0.9999	9,838.766
00063	1	405.95	0.9999	405.909
00064	1	392.38	0.9999	392.340
00064	1	391.96	0.9999	391.920
00064	1	387.88	0.9999	387.841
00064	1	401.70	0.9999	401.659
00064	1	387.45	0.9999	387.411
00064	1	399.13	0.9999	399.090
00064	1	385.87	0.9999	385.831
00064	1	396.91	0.9999	396.870
00064	1	381.90	0.9999	381.861
00064	1	395.24	0.9999	395.200
00064	24	9,781.30	0.9999	9,780.321
00064	1	394.22	0.9999	394.180
00064	1	428.14	0.9999	428.097
00064	1	393.30	0.9999	393.260
00064	1	393.72	0.9999	393.680
00064	1	421.85	0.9999	421.807
00064	1	399.01	0.9999	398.970
00064	1	399.80	0.9999	399.760
00064	1	403.87	0.9999	403.829
00064	1	396.40	0.9999	396.360

00064	1	404.07	0.9999	404.029
00064	1	393.63	0.9999	393.590
00064	1	405.65	0.9999	405.609
00064	1	402.54	0.9999	402.499
00064	1	419.18	0.9999	419.138
00064	1	404.38	0.9999	404.339
00064	1	397.50	0.9999	397.460
00064	1	392.71	0.9999	392.670
00064	1	420.42	0.9999	420.377
00065	1	399.54	0.9999	399.500
00065	1	401.21	0.9999	401.169
00065	1	392.17	0.9999	392.130
00065	1	390.90	0.9999	390.860
00065	1	390.92	0.9999	390.880
00065	1	411.53	0.9999	411.488
00065	1	390.84	0.9999	390.800
00065	1	407.38	0.9999	407.339
00065	1	390.50	0.9999	390.460
00065	1	405.04	0.9999	404.999
00065	1	388.26	0.9999	388.221
00065	1	401.92	0.9999	401.879
00065	1	382.82	0.9999	382.781

00065	1	398.81	0.9999	398.770
00065	1	397.70	0.9999	397.660
00065	1	394.75	0.9999	394.710
00065	1	397.22	0.9999	397.180
00065	1	394.58	0.9999	394.540
00065	1	396.09	0.9999	396.050
00065	1	396.27	0.9999	396.230
00065	1	395.24	0.9999	395.200
00065	1	405.20	0.9999	405.159
00065	1	395.85	0.9999	395.810
00065	1	399.13	0.9999	399.090
00065	1	402.33	0.9999	402.289
00065	1	423.02	0.9999	422.977
00065	1	400.26	0.9999	400.219
00065	1	407.68	0.9999	407.639
00065	1	394.44	0.9999	394.400
00065	1	395.34	0.9999	395.300
00065	1	403.73	0.9999	403.689
00065	24	9,877.78	0.9999	9,876.792
00065	1	392.57	0.9999	392.530
00066	1	406.47	0.9999	406.429
00066	24	9,890.84	0.9999	9,889.850

00066	1	394.79	0.9999	394.750
00066	1	397.18	0.9999	397.140
00066	1	410.53	0.9999	410.488
00066	1	395.00	0.9999	394.960
00066	1	412.92	0.9999	412.878
00066	1	394.69	0.9999	394.650
00066	1	409.39	0.9999	409.349
00066	1	393.02	0.9999	392.980
00066	1	406.67	0.9999	406.629
00066	1	383.39	0.9999	383.351
00066	1	379.65	0.9999	379.612
00066	1	413.32	0.9999	413.278
00066	1	401.30	0.9999	401.259
00066	1	402.79	0.9999	402.749
00066	1	409.46	0.9999	409.419
00066	1	394.81	0.9999	394.770
00066	1	421.74	0.9999	421.697
00066	1	387.72	0.9999	387.681
00066	1	405.30	0.9999	405.259
00066	1	417.39	0.9999	417.348
00066	1	394.43	0.9999	394.390
00066	1	390.69	0.9999	390.650

00066	1	406.99	0.9999	406.949
00066	1	398.13	0.9999	398.090
00066	1	404.89	0.9999	404.849
00066	1	388.89	0.9999	388.851
00067	24	9,952.60	0.9999	9,951.604
00067	1	398.15	0.9999	398.110
00067	1	387.81	0.9999	387.771
00067	1	385.34	0.9999	385.301
00067	1	386.77	0.9999	386.731
00067	1	409.39	0.9999	409.349
00067	1	396.85	0.9999	396.810
00067	1	391.48	0.9999	391.440
00067	1	396.46	0.9999	396.420
00067	1	406.97	0.9999	406.929
00067	1	395.79	0.9999	395.750
00067	1	400.56	0.9999	400.519
00067	1	407.34	0.9999	407.299
00067	1	390.12	0.9999	390.080
00067	1	391.51	0.9999	391.470
00067	1	397.48	0.9999	397.440
00067	1	403.52	0.9999	403.479
00067	1	407.42	0.9999	407.379

00067	1	402.47	0.9999	402.429
00067	1	400.40	0.9999	400.359
00067	1	395.38	0.9999	395.340
00067	1	396.50	0.9999	396.460
00067	1	402.40	0.9999	402.359
00067	1	401.18	0.9999	401.139
00067	1	394.89	0.9999	394.850
00068	1	426.31	0.9999	426.267
00068	1	409.37	0.9999	409.329
00068	1	407.93	0.9999	407.889
00068	1	425.43	0.9999	425.387
00068	1	401.29	0.9999	401.249
00068	1	431.71	0.9999	431.666
00068	1	407.14	0.9999	407.099
00068	1	420.51	0.9999	420.467
00068	1	421.55	0.9999	421.507
00068	1	445.29	0.9999	445.245
00068	1	412.26	0.9999	412.218
00068	1	415.66	0.9999	415.618
00068	1	415.91	0.9999	415.868
00068	1	413.19	0.9999	413.148
00068	1	403.31	0.9999	403.269

00068	1	406.38	0.9999	406.339
00068	1	393.21	0.9999	393.170
00068	1	416.09	0.9999	416.048
00068	1	404.45	0.9999	404.409
00068	1	401.10	0.9999	401.059
00068	1	424.00	0.9999	423.957
00068	1	400.99	0.9999	400.949
00068	1	413.01	0.9999	412.968
00068	1	399.67	0.9999	399.630
00068	24	9,908.75	0.9999	9,907.759
00068	1	396.72	0.9999	396.680
00068	1	409.42	0.9999	409.379
00068	1	391.71	0.9999	391.670
00068	1	405.36	0.9999	405.319
00068	1	386.26	0.9999	386.221
00068	1	413.98	0.9999	413.938
00068	1	388.19	0.9999	388.151
00069	1	410.17	0.9999	410.128
00069	1	407.54	0.9999	407.499
00069	1	409.95	0.9999	409.909
00069	1	420.98	0.9999	420.937
00069	24	9,769.50	0.9999	9,768.523

00070	1	401.88	0.9999	401.839
00070	1	397.98	0.9999	397.940
00070	1	386.94	0.9999	386.901
00070	1	389.43	0.9999	389.391
00070	1	384.10	0.9999	384.061
00070	1	392.32	0.9999	392.280
00070	1	382.87	0.9999	382.831
00070	1	395.28	0.9999	395.240
00070	1	385.69	0.9999	385.651
00070	1	390.90	0.9999	390.860
00070	24	9,824.67	0.9999	9,823.687
00070	1	394.44	0.9999	394.400
00070	1	391.85	0.9999	391.810
00070	1	396.98	0.9999	396.940
00070	1	389.76	0.9999	389.721
00071	1	404.41	0.9999	404.369
00071	1	393.25	0.9999	393.210
00071	1	393.21	0.9999	393.170
00071	1	401.71	0.9999	401.669
00071	1	401.68	0.9999	401.639
00071	1	404.59	0.9999	404.549
00071	1	401.61	0.9999	401.569

00071	1	408.11	0.9999	408.069
00071	1	400.71	0.9999	400.669
00071	1	410.80	0.9999	410.758
00071	1	400.19	0.9999	400.149
00071	1	406.77	0.9999	406.729
00071	1	416.86	0.9999	416.818
00071	1	406.21	0.9999	406.169
00071	1	390.14	0.9999	390.100
00071	1	402.82	0.9999	402.779
00071	1	386.70	0.9999	386.661
00071	1	393.68	0.9999	393.640
00071	1	380.30	0.9999	380.261
00071	1	407.75	0.9999	407.709
00071	1	391.22	0.9999	391.180
00071	1	406.28	0.9999	406.239
00071	24	9,594.97	0.9999	9,594.010
00071	1	405.13	0.9999	405.089
00071	1	401.82	0.9999	401.779
00071	1	406.52	0.9999	406.479
00071	1	395.34	0.9999	395.300
00072	1	399.50	0.9999	399.460
00072	1	383.23	0.9999	383.191

00072	1	409.22	0.9999	409.179
00072	1	421.33	0.9999	421.287
00072	1	407.93	0.9999	407.889
00072	1	390.13	0.9999	390.090
00072	1	400.65	0.9999	400.609
00072	1	394.14	0.9999	394.100
00072	1	408.20	0.9999	408.159
00072	24	9,759.08	0.9999	9,758.104
00072	1	399.43	0.9999	399.390
00072	1	394.36	0.9999	394.320
00073	1	390.99	0.9999	390.950
00073	1	405.77	0.9999	405.729
00073	1	402.50	0.9999	402.459
00073	1	405.07	0.9999	405.029
00073	1	403.63	0.9999	403.589
00073	24	9,835.25	0.9999	9,834.266
00073	1	403.07	0.9999	403.029
00073	1	387.93	0.9999	387.891
00073	1	402.26	0.9999	402.219
00073	1	391.81	0.9999	391.770
00073	1	408.52	0.9999	408.479
00073	1	393.24	0.9999	393.200

00073	1	408.45	0.9999	408.409
00073	1	383.50	0.9999	383.461
00073	1	401.97	0.9999	401.929
00073	1	406.40	0.9999	406.359
00073	1	385.43	0.9999	385.391
00073	1	407.44	0.9999	407.399
00073	1	385.44	0.9999	385.401
00073	1	400.30	0.9999	400.259
00073	1	390.22	0.9999	390.180
00073	1	391.55	0.9999	391.510
00073	1	390.25	0.9999	390.210
00073	1	393.31	0.9999	393.270
00073	1	393.74	0.9999	393.700
00073	1	406.48	0.9999	406.439
00073	1	396.05	0.9999	396.010
00073	1	378.77	0.9999	378.732
00073	1	397.05	0.9999	397.010
00073	1	396.25	0.9999	396.210
00073	1	392.37	0.9999	392.330
00073	1	408.28	0.9999	408.239
00073	1	398.00	0.9999	397.960
00074	1	401.24	0.9999	401.199

00074	1	398.37	0.9999	398.330
00074	1	382.38	0.9999	382.341
00074	1	398.67	0.9999	398.630
00074	1	404.49	0.9999	404.449
00074	1	402.64	0.9999	402.599
00074	1	384.86	0.9999	384.821
00074	24	9,713.25	0.9999	9,712.278
00074	1	401.95	0.9999	401.909
00074	1	399.08	0.9999	399.040
00074	1	389.37	0.9999	389.331
00074	1	403.60	0.9999	403.559
00074	1	391.03	0.9999	390.990
00074	1	405.20	0.9999	405.159
00074	1	393.84	0.9999	393.800
00074	1	400.52	0.9999	400.479
00074	1	395.16	0.9999	395.120
00074	1	399.04	0.9999	399.000
00074	1	402.21	0.9999	402.169
00074	1	402.71	0.9999	402.669
00074	1	400.78	0.9999	400.739
00074	1	397.27	0.9999	397.230
00074	1	379.20	0.9999	379.162

00074	1	395.58	0.9999	395.540
00074	1	390.62	0.9999	390.580
00074	1	391.13	0.9999	391.090
00074	1	409.30	0.9999	409.259
00074	1	408.43	0.9999	408.389
00074	1	402.47	0.9999	402.429
00074	1	409.58	0.9999	409.539
00074	1	388.26	0.9999	388.221
00074	1	381.52	0.9999	381.481
00074	1	396.64	0.9999	396.600
00074	1	383.67	0.9999	383.631
00075	1	400.13	0.9999	400.089
00075	24	9,717.12	0.9999	9,716.148
00076	1	401.15	0.9999	401.109
00076	1	409.84	0.9999	409.799
00076	1	412.24	0.9999	412.198
00076	1	410.72	0.9999	410.678
00076	1	397.58	0.9999	397.540
00076	1	411.54	0.9999	411.498
00076	1	408.17	0.9999	408.129
00076	1	410.90	0.9999	410.858
00076	1	423.40	0.9999	423.357

00076	1	422.36	0.9999	422.317
00076	1	398.00	0.9999	397.960
00076	1	411.40	0.9999	411.358
00076	1	406.30	0.9999	406.259
00076	1	409.27	0.9999	409.229
00076	1	406.53	0.9999	406.489
00076	1	386.19	0.9999	386.151
00076	1	409.81	0.9999	409.769
00076	1	397.65	0.9999	397.610
00076	1	413.68	0.9999	413.638
00076	1	424.40	0.9999	424.357
00076	1	389.50	0.9999	389.461
00076	1	423.16	0.9999	423.117
00076	1	406.33	0.9999	406.289
00076	1	416.91	0.9999	416.868
00076	1	393.04	0.9999	393.000
00076	1	416.17	0.9999	416.128
00076	1	403.96	0.9999	403.919
00076	1	400.21	0.9999	400.169
00076	1	407.94	0.9999	407.899
00076	1	413.54	0.9999	413.498
00077	1	391.85	0.9999	391.810

00077	1	406.05	0.9999	406.009
00077	1	393.65	0.9999	393.610
00077	1	404.60	0.9999	404.559
00077	1	413.57	0.9999	413.528
00077	1	404.45	0.9999	404.409
00077	1	411.27	0.9999	411.228
00077	1	403.65	0.9999	403.609
00077	1	395.02	0.9999	394.980
00077	1	403.76	0.9999	403.719
00077	1	400.36	0.9999	400.319
00077	1	403.23	0.9999	403.189
00077	1	403.94	0.9999	403.899
00077	1	402.88	0.9999	402.839
00077	1	406.53	0.9999	406.489
00077	1	401.77	0.9999	401.729
00077	1	411.16	0.9999	411.118
00077	1	401.10	0.9999	401.059
00077	1	414.07	0.9999	414.028
00077	1	403.22	0.9999	403.179
00077	1	419.93	0.9999	419.888
00077	1	402.36	0.9999	402.319
00077	1	379.94	0.9999	379.902

00077	24	9,804.58	0.9999	9,803.599
00077	1	426.43	0.9999	426.387
00077	1	399.00	0.9999	398.960
00077	1	405.30	0.9999	405.259
00077	1	396.53	0.9999	396.490
00077	1	411.35	0.9999	411.308
00077	1	385.66	0.9999	385.621
00077	1	397.32	0.9999	397.280
00077	1	385.89	0.9999	385.851
00077	1	405.23	0.9999	405.189
00077	1	387.02	0.9999	386.981
00077	1	413.37	0.9999	413.328
00077	1	387.63	0.9999	387.591
00077	1	363.17	0.9999	363.133
00077	1	389.09	0.9999	389.051
00077	1	410.00	0.9999	409.959
00077	1	389.17	0.9999	389.131
00077	1	384.42	0.9999	384.381
00077	1	389.18	0.9999	389.141
00077	1	410.08	0.9999	410.038
00077	1	389.25	0.9999	389.211
00077	1	425.04	0.9999	424.997

00077	1	390.60	0.9999	390.560
00077	1	400.56	0.9999	400.519
00077	1	415.48	0.9999	415.438
00077	1	418.86	0.9999	418.818
00077	1	392.54	0.9999	392.500
00078	1	388.44	0.9999	388.401
00078	1	385.31	0.9999	385.271
00078	12	5,008.07	0.9999	5,007.569
00078	1	385.74	0.9999	385.701
00078	1	401.83	0.9999	401.789
00078	1	387.30	0.9999	387.261
00078	1	400.61	0.9999	400.569
00078	1	387.46	0.9999	387.421
00078	1	398.28	0.9999	398.240
00078	1	388.38	0.9999	388.341
00078	1	396.73	0.9999	396.690
00078	1	392.11	0.9999	392.070
00078	1	395.77	0.9999	395.730
00078	1	388.61	0.9999	388.571
00078	1	403.81	0.9999	403.769
00078	1	392.93	0.9999	392.890
00078	1	401.50	0.9999	401.459

00078	1	394.28	0.9999	394.240
00078	1	378.02	0.9999	377.982
00078	1	403.32	0.9999	403.279
00078	1	403.77	0.9999	403.729
00078	1	405.05	0.9999	405.009
00078	1	400.95	0.9999	400.909
00078	1	411.88	0.9999	411.838
00078	1	395.81	0.9999	395.770
00078	1	419.06	0.9999	419.018
00078	1	392.92	0.9999	392.880
00078	1	390.02	0.9999	389.980
00078	1	379.94	0.9999	379.902
00078	1	392.66	0.9999	392.620
00078	1	396.90	0.9999	396.860
00078	12	5,008.07	0.9999	5,007.569
00078	1	401.42	0.9999	401.379
00078	1	393.50	0.9999	393.460
00078	1	399.62	0.9999	399.580
00078	1	399.48	0.9999	399.440
00079	1	393.83	0.9999	393.790
00079	1	402.05	0.9999	402.009
00079	1	398.84	0.9999	398.800

00079	24	9,643.95	0.9999	9,642.985
00079	1	408.10	0.9999	408.059
00079	1	407.47	0.9999	407.429
00079	1	395.27	0.9999	395.230
00079	1	401.34	0.9999	401.299
00079	1	393.72	0.9999	393.680
00079	1	411.31	0.9999	411.268
00079	1	395.42	0.9999	395.380
00079	1	412.33	0.9999	412.288
00079	1	399.91	0.9999	399.870
00079	1	400.19	0.9999	400.149
00079	1	410.89	0.9999	410.848
00079	1	414.09	0.9999	414.048
00079	1	405.73	0.9999	405.689
00079	1	416.65	0.9999	416.608
00079	1	404.84	0.9999	404.799
00079	1	417.01	0.9999	416.968
00079	1	396.01	0.9999	395.970
00079	1	420.42	0.9999	420.377
00079	1	388.55	0.9999	388.511
00079	1	423.32	0.9999	423.277
00079	1	410.87	0.9999	410.828

00079	1	397.36	0.9999	397.320
00079	1	411.86	0.9999	411.818
00079	1	396.90	0.9999	396.860
00079	1	411.30	0.9999	411.258
00079	1	391.65	0.9999	391.610
00079	1	404.71	0.9999	404.669
00079	1	391.09	0.9999	391.050
00080	1	414.49	0.9999	414.448
00080	1	418.13	0.9999	418.088
00080	24	9,776.09	0.9999	9,775.112
00080	1	402.21	0.9999	402.169
00080	1	401.90	0.9999	401.859
00080	1	415.78	0.9999	415.738
00080	1	417.65	0.9999	417.608
00080	1	423.52	0.9999	423.477
00080	1	414.30	0.9999	414.258
00080	1	413.11	0.9999	413.068
00080	1	409.23	0.9999	409.189
00080	1	403.99	0.9999	403.949
00080	1	407.87	0.9999	407.829
00080	1	384.10	0.9999	384.061
00080	1	404.25	0.9999	404.209

00080	1	385.90	0.9999	385.861
00080	1	416.82	0.9999	416.778
00080	1	394.99	0.9999	394.950
00080	1	408.54	0.9999	408.499
00080	1	395.60	0.9999	395.560
00080	1	421.75	0.9999	421.707
00080	1	407.38	0.9999	407.339
00080	1	413.39	0.9999	413.348
00080	1	400.97	0.9999	400.929
00081	1	389.82	0.9999	389.781
00081	1	376.64	0.9999	376.602
00081	1	385.22	0.9999	385.181
00081	24	9,756.07	0.9999	9,755.094
00082	1	412.35	0.9999	412.308
00082	1	407.34	0.9999	407.299
00082	1	410.24	0.9999	410.198
00082	1	410.36	0.9999	410.318
00082	24	9,918.29	0.9999	9,917.298
00082	1	404.07	0.9999	404.029
00082	1	404.07	0.9999	404.029
00082	1	414.95	0.9999	414.908
00083	1	411.22	0.9999	411.178

00083	1	399.01	0.9999	398.970
00083	1	397.64	0.9999	397.600
00083	1	405.64	0.9999	405.599
00083	1	386.31	0.9999	386.271
00083	1	396.17	0.9999	396.130
00083	1	400.87	0.9999	400.829
00083	24	9,578.68	0.9999	9,577.722
00083	1	396.26	0.9999	396.220
00083	1	394.25	0.9999	394.210
00083	1	418.70	0.9999	418.658
00083	1	392.40	0.9999	392.360
00083	1	398.62	0.9999	398.580
00083	1	409.15	0.9999	409.109
00083	1	376.31	0.9999	376.272
00083	1	390.65	0.9999	390.610
00084	1	384.53	0.9999	384.491
00084	1	395.02	0.9999	394.980
00084	1	413.03	0.9999	412.988
00084	1	403.66	0.9999	403.619
00084	1	397.04	0.9999	397.000
00084	1	404.22	0.9999	404.179
00084	1	399.10	0.9999	399.060

00084	1	404.27	0.9999	404.229
00084	1	393.74	0.9999	393.700
00084	1	405.50	0.9999	405.459
00084	1	401.03	0.9999	400.989
00084	1	406.08	0.9999	406.039
00084	1	393.59	0.9999	393.550
00084	1	406.84	0.9999	406.799
00084	1	400.92	0.9999	400.879
00084	1	407.96	0.9999	407.919
00084	24	9,871.85	0.9999	9,870.862
00084	1	408.05	0.9999	408.009
00084	1	395.36	0.9999	395.320
00084	1	407.06	0.9999	407.019
00084	1	386.12	0.9999	386.081
00084	1	402.17	0.9999	402.129
00084	1	395.20	0.9999	395.160
00084	1	388.90	0.9999	388.861
00084	1	393.47	0.9999	393.430
00084	1	395.62	0.9999	395.580
00085	1	404.58	0.9999	404.539
00085	1	391.99	0.9999	391.950
00085	1	399.40	0.9999	399.360

00085	1	389.62	0.9999	389.581
00085	1	403.98	0.9999	403.939
00085	1	402.88	0.9999	402.839
00085	1	391.93	0.9999	391.890
00085	1	400.09	0.9999	400.049
00085	1	406.81	0.9999	406.769
00085	24	9,735.93	0.9999	9,734.956
00085	1	408.32	0.9999	408.279
00085	1	377.82	0.9999	377.782
00085	1	415.89	0.9999	415.848
00085	1	400.71	0.9999	400.669
00085	1	407.47	0.9999	407.429
00085	1	381.06	0.9999	381.021
00085	1	404.43	0.9999	404.389
00085	1	385.41	0.9999	385.371
00085	1	404.82	0.9999	404.779
00085	1	386.24	0.9999	386.201
00085	1	382.61	0.9999	382.571
00085	1	397.70	0.9999	397.660
00085	1	409.01	0.9999	408.969
00085	1	396.94	0.9999	396.900
00085	1	403.99	0.9999	403.949

00085	1	405.13	0.9999	405.089
00085	1	402.91	0.9999	402.869
00085	1	406.40	0.9999	406.359
00085	1	411.12	0.9999	411.078
00085	1	395.79	0.9999	395.750
00086	1	378.72	0.9999	378.682
00086	1	392.32	0.9999	392.280
00086	1	389.66	0.9999	389.621
00086	1	391.71	0.9999	391.670
00086	1	411.42	0.9999	411.378
00086	1	389.76	0.9999	389.721
00086	1	424.86	0.9999	424.817
00086	1	387.12	0.9999	387.081
00086	1	406.20	0.9999	406.159
00086	1	395.16	0.9999	395.120
00086	1	427.90	0.9999	427.857
00086	1	386.00	0.9999	385.961
00086	1	400.33	0.9999	400.289
00086	1	401.05	0.9999	401.009
00086	1	403.90	0.9999	403.859
00086	1	394.97	0.9999	394.930
00086	1	394.48	0.9999	394.440

00086	1	408.41	0.9999	408.369
00086	1	382.66	0.9999	382.621
00086	1	394.86	0.9999	394.820
00086	1	374.48	0.9999	374.442
00086	1	394.19	0.9999	394.150
00086	1	399.82	0.9999	399.780
00086	1	394.01	0.9999	393.970
00086	1	409.53	0.9999	409.489
00086	1	372.88	0.9999	372.842
00086	1	402.69	0.9999	402.649
00086	24	9,734.30	0.9999	9,733.326
00086	1	398.50	0.9999	398.460
00086	1	390.00	0.9999	389.961
00087	1	393.85	0.9999	393.810
00087	24	9,755.50	0.9999	9,754.524
00087	1	405.39	0.9999	405.349
00087	1	395.40	0.9999	395.360
00087	1	405.93	0.9999	405.889
00087	1	402.16	0.9999	402.119
00087	1	397.62	0.9999	397.580
00087	1	402.43	0.9999	402.389
00087	1	379.88	0.9999	379.842

00087	1	402.95	0.9999	402.909
00087	1	382.35	0.9999	382.311
00087	1	384.40	0.9999	384.361
00087	1	398.09	0.9999	398.050
00087	1	401.30	0.9999	401.259
00087	1	390.74	0.9999	390.700
00087	1	387.39	0.9999	387.351
00087	1	393.08	0.9999	393.040
00087	1	387.48	0.9999	387.441
00087	1	403.33	0.9999	403.289
00087	1	390.27	0.9999	390.230
00087	1	400.44	0.9999	400.399
00087	1	390.86	0.9999	390.820
00087	1	391.73	0.9999	391.690
00087	1	397.28	0.9999	397.240
00087	1	400.94	0.9999	400.899
00087	1	395.19	0.9999	395.150
00087	1	389.21	0.9999	389.171
00087	1	397.32	0.9999	397.280
00088	1	422.22	0.9999	422.177
00088	1	424.04	0.9999	423.997
00088	1	412.78	0.9999	412.738

00088	1	425.46	0.9999	425.417
00088	1	416.72	0.9999	416.678
00088	1	426.66	0.9999	426.617
00088	24	9,603.95	0.9999	9,602.989
00088	1	413.08	0.9999	413.038
00088	24	9,846.15	0.9999	9,845.165
00088	1	429.55	0.9999	429.507
00089	24	9,920.73	0.9999	9,919.737
00089	24	9,636.40	0.9999	9,635.436
00090	1	407.46	0.9999	407.419
00090	1	422.26	0.9999	422.217
00090	1	433.01	0.9999	432.966
00090	24	9,420.08	0.9999	9,419.137
00090	1	427.73	0.9999	427.687
00090	1	395.80	0.9999	395.760
00090	1	416.53	0.9999	416.488
00090	1	395.37	0.9999	395.330
00090	1	396.36	0.9999	396.320
00090	1	415.92	0.9999	415.878
00090	1	404.14	0.9999	404.099
00090	1	393.07	0.9999	393.030
00090	1	389.33	0.9999	389.291

00090	1	389.33	0.9999	389.291
00090	1	399.93	0.9999	399.890
00090	1	388.68	0.9999	388.641
00090	24	9,812.57	0.9999	9,811.588
00090	1	382.33	0.9999	382.291
00090	1	393.65	0.9999	393.610
00090	1	380.90	0.9999	380.861
00090	1	414.64	0.9999	414.598
00090	1	413.88	0.9999	413.838
00090	1	399.18	0.9999	399.140
00090	1	407.49	0.9999	407.449
00090	1	406.39	0.9999	406.349
00090	1	396.88	0.9999	396.840
00090	1	402.92	0.9999	402.879
00090	1	419.06	0.9999	419.018
00091	1	420.13	0.9999	420.087
00091	1	418.93	0.9999	418.888
00091	1	420.12	0.9999	420.077
00091	1	406.55	0.9999	406.509
00091	1	415.51	0.9999	415.468
00091	1	376.81	0.9999	376.772
00091	1	414.88	0.9999	414.838

00091	1	394.37	0.9999	394.330
00091	1	414.35	0.9999	414.308
00091	1	397.89	0.9999	397.850
00091	1	414.13	0.9999	414.088
00091	1	419.94	0.9999	419.898
00091	1	409.38	0.9999	409.339
00091	1	401.50	0.9999	401.459
00091	1	408.80	0.9999	408.759
00091	1	399.15	0.9999	399.110
00091	1	431.96	0.9999	431.916
00091	1	387.53	0.9999	387.491
00091	1	408.17	0.9999	408.129
00091	1	391.38	0.9999	391.340
00091	1	407.73	0.9999	407.689
00091	1	399.07	0.9999	399.030
00091	24	9,505.98	0.9999	9,505.029
00091	1	401.97	0.9999	401.929
00091	1	406.35	0.9999	406.309
00091	1	385.20	0.9999	385.161
00091	1	398.96	0.9999	398.920
00091	1	399.28	0.9999	399.240
00091	1	400.74	0.9999	400.699

00091	1	418.97	0.9999	418.928
00091	24	9,829.07	0.9999	9,828.087
00092	1	418.40	0.9999	418.358
00092	1	407.75	0.9999	407.709
00092	1	397.63	0.9999	397.590
00092	1	399.46	0.9999	399.420
00092	1	404.89	0.9999	404.849
00092	24	9,603.75	0.9999	9,602.789
00092	1	394.63	0.9999	394.590
00092	1	430.82	0.9999	430.776
00092	1	392.74	0.9999	392.700
00092	1	428.83	0.9999	428.787
00092	1	389.76	0.9999	389.721
00092	1	422.38	0.9999	422.337
00092	1	389.23	0.9999	389.191
00092	1	416.21	0.9999	416.168
00092	1	388.03	0.9999	387.991
00092	1	412.55	0.9999	412.508
00092	1	385.98	0.9999	385.941
00092	24	9,851.25	0.9999	9,850.264
00092	1	398.30	0.9999	398.260
00092	1	429.28	0.9999	429.237

00092	1	429.57	0.9999	429.527
00092	1	421.93	0.9999	421.887
00092	1	384.61	0.9999	384.571
00092	1	400.62	0.9999	400.579
00092	1	382.83	0.9999	382.791
00092	1	428.34	0.9999	428.297
00092	1	431.37	0.9999	431.326
00092	1	414.21	0.9999	414.168
00092	1	373.23	0.9999	373.192
00093	1	411.22	0.9999	411.178
00093	1	406.96	0.9999	406.919
00093	1	409.32	0.9999	409.279
00093	1	396.32	0.9999	396.280
00093	1	415.33	0.9999	415.288
00093	1	395.53	0.9999	395.490
00093	24	9,765.18	0.9999	9,764.203
00093	1	389.85	0.9999	389.811
00093	1	404.41	0.9999	404.369
00093	1	405.22	0.9999	405.179
00093	1	385.38	0.9999	385.341
00093	1	415.74	0.9999	415.698
00093	1	381.39	0.9999	381.351

00093	1	412.91	0.9999	412.868
00093	1	408.13	0.9999	408.089
00093	1	397.22	0.9999	397.180
00093	1	395.80	0.9999	395.760
00093	1	397.82	0.9999	397.780
00093	1	393.30	0.9999	393.260
00093	1	412.34	0.9999	412.298
00093	1	388.15	0.9999	388.111
00093	1	397.28	0.9999	397.240
00093	24	9,673.44	0.9999	9,672.472
00093	1	403.46	0.9999	403.419
00093	1	385.80	0.9999	385.761
00094	24	9,684.22	0.9999	9,683.251
00094	1	389.00	0.9999	388.961
00094	24	9,721.08	0.9999	9,720.107
00095	24	9,670.03	0.9999	9,669.062
00095	24	9,839.38	0.9999	9,838.396
00095	1	407.56	0.9999	407.519
00096	1	414.29	0.9999	414.248
00096	24	9,749.00	0.9999	9,748.025
00096	1	407.92	0.9999	407.879
00096	1	417.17	0.9999	417.128

00096	1	404.78	0.9999	404.739
00096	1	406.78	0.9999	406.739
00096	1	411.70	0.9999	411.658
00097	24	9,729.70	0.9999	9,728.727
00098	1	439.20	0.9999	439.156
00098	1	391.36	0.9999	391.320
00098	1	413.83	0.9999	413.788
00098	1	398.34	0.9999	398.300
00098	1	403.49	0.9999	403.449
00098	1	391.27	0.9999	391.230
00098	1	402.94	0.9999	402.899
00098	1	400.30	0.9999	400.259
00098	1	375.67	0.9999	375.632
00098	24	9,578.89	0.9999	9,577.932
00098	1	416.12	0.9999	416.078
00098	1	395.72	0.9999	395.680
00098	1	408.91	0.9999	408.869
00098	1	406.08	0.9999	406.039
00098	1	405.90	0.9999	405.859
00098	1	395.66	0.9999	395.620
00098	1	405.61	0.9999	405.569
00098	1	387.16	0.9999	387.121

00098	24	9,745.71	0.9999	9,744.735
00098	1	415.52	0.9999	415.478
00098	1	403.38	0.9999	403.339
00098	1	403.26	0.9999	403.219
00098	1	409.26	0.9999	409.219
00098	1	405.88	0.9999	405.839
00098	1	402.90	0.9999	402.859
00099	1	396.76	0.9999	396.720
00099	1	423.14	0.9999	423.097
00099	1	403.73	0.9999	403.689
00099	1	397.26	0.9999	397.220
00099	1	394.77	0.9999	394.730
00099	1	425.29	0.9999	425.247
00099	1	393.97	0.9999	393.930
00099	1	409.19	0.9999	409.149
00099	1	419.92	0.9999	419.878
00099	1	410.60	0.9999	410.558
00099	1	402.32	0.9999	402.279
00099	1	418.70	0.9999	418.658
00099	1	404.59	0.9999	404.549
00099	1	406.86	0.9999	406.819
00099	1	388.28	0.9999	388.241

00099	1	414.53	0.9999	414.488
00099	1	395.10	0.9999	395.060
00099	1	419.22	0.9999	419.178
00099	1	393.46	0.9999	393.420
00099	1	422.92	0.9999	422.877
00099	1	393.03	0.9999	392.990
00099	1	404.98	0.9999	404.939
00099	1	379.49	0.9999	379.452
00099	1	404.65	0.9999	404.609
00099	24	9,749.66	0.9999	9,748.685
00099	24	9,747.22	0.9999	9,746.245
00099	1	408.08	0.9999	408.039
00099	1	398.93	0.9999	398.890
00100	1	393.43	0.9999	393.390
00100	24	9,714.32	0.9999	9,713.348
00100	1	388.20	0.9999	388.161
00100	1	393.20	0.9999	393.160
00100	1	378.43	0.9999	378.392
00100	1	392.97	0.9999	392.930
00100	1	399.70	0.9999	399.660
00100	1	403.34	0.9999	403.299
00100	1	395.66	0.9999	395.620

00100	1	397.90	0.9999	397.860
00100	1	391.88	0.9999	391.840
00100	1	379.11	0.9999	379.072
00100	24	9,722.18	0.9999	9,721.207
00101	1	404.89	0.9999	404.849
00101	1	410.40	0.9999	410.358
00101	1	407.42	0.9999	407.379
00101	1	421.99	0.9999	421.947
00101	1	422.04	0.9999	421.997
00101	1	427.07	0.9999	427.027
00101	1	400.39	0.9999	400.349
00102	24	9,721.65	0.9999	9,720.677
00102	24	9,555.25	0.9999	9,554.294
00103	1	380.89	0.9999	380.851
00103	1	387.93	0.9999	387.891
00103	1	429.66	0.9999	429.617
00103	24	9,573.60	0.9999	9,572.642
00103	1	408.87	0.9999	408.829
00103	1	399.27	0.9999	399.230
00103	1	408.48	0.9999	408.439
00103	1	393.98	0.9999	393.940
00103	1	406.86	0.9999	406.819

00103	1	391.01	0.9999	390.970
00103	1	406.32	0.9999	406.279
00103	1	386.52	0.9999	386.481
00103	1	423.22	0.9999	423.177
00103	1	403.26	0.9999	403.219
00103	1	422.30	0.9999	422.257
00103	1	391.49	0.9999	391.450
00103	1	393.27	0.9999	393.230
00103	1	385.34	0.9999	385.301
00103	1	387.63	0.9999	387.591
00103	1	394.15	0.9999	394.110
00103	24	9,721.05	0.9999	9,720.077
00104	1	408.59	0.9999	408.549
00104	1	403.17	0.9999	403.129
00104	1	427.38	0.9999	427.337
00104	1	392.04	0.9999	392.000
00104	1	420.87	0.9999	420.827
00104	1	385.82	0.9999	385.781
00104	1	416.84	0.9999	416.798
00104	1	381.88	0.9999	381.841
00104	24	9,661.18	0.9999	9,660.213
00104	1	386.87	0.9999	386.831

00104	1	397.43	0.9999	397.390
00104	1	393.18	0.9999	393.140
00104	1	417.84	0.9999	417.798
00104	1	393.57	0.9999	393.530
00104	24	9,716.45	0.9999	9,715.478
00104	1	392.02	0.9999	391.980
00104	1	423.06	0.9999	423.017
00104	1	394.61	0.9999	394.570
00105	1	410.51	0.9999	410.468
00105	1	398.03	0.9999	397.990
00105	1	399.51	0.9999	399.470
00105	1	402.84	0.9999	402.799
00105	24	9,678.59	0.9999	9,677.622
00105	1	402.18	0.9999	402.139
00105	1	412.66	0.9999	412.618
00105	1	401.15	0.9999	401.109
00105	1	404.51	0.9999	404.469
00105	1	400.82	0.9999	400.779
00105	1	407.77	0.9999	407.729
00105	24	9,755.00	0.9999	9,754.024
00105	1	403.92	0.9999	403.879
00105	1	399.65	0.9999	399.610

00105	1	412.97	0.9999	412.928
00105	1	397.21	0.9999	397.170
00105	1	409.07	0.9999	409.029
00105	1	392.63	0.9999	392.590
00105	1	399.37	0.9999	399.330
00105	1	404.66	0.9999	404.619
00105	1	404.66	0.9999	404.619
00105	1	392.51	0.9999	392.470
00106	24	9,752.14	0.9999	9,751.164
00106	1	397.14	0.9999	397.100
00106	1	404.33	0.9999	404.289
00106	1	407.12	0.9999	407.079
00106	1	412.14	0.9999	412.098
00106	1	402.09	0.9999	402.049
00106	1	396.57	0.9999	396.530
00106	1	404.80	0.9999	404.759
00106	1	377.99	0.9999	377.952
00106	1	398.70	0.9999	398.660
00106	1	375.44	0.9999	375.402
00106	1	373.90	0.9999	373.862
00106	1	416.73	0.9999	416.688
00106	24	9,599.17	0.9999	9,598.210

00106	1	397.95	0.9999	397.910
00107	24	9,682.04	0.9999	9,681.071
00107	24	9,705.35	0.9999	9,704.379
00108	24	9,798.85	0.9999	9,797.870
00108	1	400.20	0.9999	400.159
00108	1	419.34	0.9999	419.298
00108	1	400.34	0.9999	400.299
00108	1	413.16	0.9999	413.118
00108	24	9,728.58	0.9999	9,727.607
00108	1	372.86	0.9999	372.822
00108	1	405.92	0.9999	405.879
00108	1	389.93	0.9999	389.891
00108	1	402.84	0.9999	402.799
00109	24	9,821.35	0.9999	9,820.367
00109	24	9,734.63	0.9999	9,733.656
00110	1	402.05	0.9999	402.009
00110	1	408.64	0.9999	408.599
00110	1	410.00	0.9999	409.959
00110	1	407.19	0.9999	407.149
00110	1	401.59	0.9999	401.549
00110	1	404.71	0.9999	404.669
00110	1	410.86	0.9999	410.818

00110	1	386.18	0.9999	386.141
00110	1	399.11	0.9999	399.070
00110	1	402.27	0.9999	402.229
00110	1	395.91	0.9999	395.870
00110	1	395.57	0.9999	395.530
00110	1	393.96	0.9999	393.920
00110	1	378.89	0.9999	378.852
00110	1	389.40	0.9999	389.361
00110	1	367.42	0.9999	367.383
00110	1	400.52	0.9999	400.479
00110	1	385.99	0.9999	385.951
00110	1	399.24	0.9999	399.200
00110	1	399.72	0.9999	399.680
00110	24	9,749.82	0.9999	9,748.845
00110	24	9,724.30	0.9999	9,723.327
00110	1	409.12	0.9999	409.079
00110	1	385.94	0.9999	385.901
00110	1	397.40	0.9999	397.360
00110	1	416.31	0.9999	416.268
00110	1	389.87	0.9999	389.831
00110	1	385.37	0.9999	385.331
00111	1	404.81	0.9999	404.769

00111	1	392.82	0.9999	392.780
00111	1	392.93	0.9999	392.890
00111	1	407.65	0.9999	407.609
00111	1	392.95	0.9999	392.910
00111	24	9,601.20	0.9999	9,600.239
00111	1	393.97	0.9999	393.930
00111	1	402.49	0.9999	402.449
00111	1	394.47	0.9999	394.430
00111	1	385.61	0.9999	385.571
00111	1	396.26	0.9999	396.220
00111	1	409.07	0.9999	409.029
00111	1	397.13	0.9999	397.090
00111	1	401.67	0.9999	401.629
00111	1	399.24	0.9999	399.200
00111	1	387.89	0.9999	387.851
00111	1	385.58	0.9999	385.541
00111	1	406.41	0.9999	406.369
00111	1	401.24	0.9999	401.199
00112	1	397.70	0.9999	397.660
00112	1	399.59	0.9999	399.550
00112	1	411.17	0.9999	411.128
00112	1	408.75	0.9999	408.709

00112	1	423.89	0.9999	423.847
00112	1	402.98	0.9999	402.939
00112	1	398.78	0.9999	398.740
00112	1	400.47	0.9999	400.429
00112	1	399.10	0.9999	399.060
00112	1	394.28	0.9999	394.240
00112	1	396.35	0.9999	396.310
00112	1	405.72	0.9999	405.679
00112	1	393.80	0.9999	393.760
00112	1	402.30	0.9999	402.259
00112	1	404.95	0.9999	404.909
00112	24	9,703.48	0.9999	9,702.509
00112	1	399.02	0.9999	398.980
00112	1	409.32	0.9999	409.279
00112	1	390.83	0.9999	390.790
00113	1	388.55	0.9999	388.511
00113	1	417.84	0.9999	417.798
00113	1	390.64	0.9999	390.600
00113	1	408.95	0.9999	408.909
00113	1	388.93	0.9999	388.891
00113	1	402.05	0.9999	402.009
00113	1	394.41	0.9999	394.370

00113	1	402.27	0.9999	402.229
00113	24	9,734.69	0.9999	9,733.716
00113	1	411.62	0.9999	411.578
00113	1	397.14	0.9999	397.100
00113	1	393.28	0.9999	393.240
00113	1	412.20	0.9999	412.158
00113	1	397.08	0.9999	397.040
00113	1	390.61	0.9999	390.570
00113	1	405.41	0.9999	405.369
00113	1	421.40	0.9999	421.357
00113	1	393.91	0.9999	393.870
00113	1	391.56	0.9999	391.520
00113	1	405.29	0.9999	405.249
00113	1	403.46	0.9999	403.419
00114	1	397.73	0.9999	397.690
00114	1	397.96	0.9999	397.920
00114	1	375.55	0.9999	375.512
00116	24	9,823.00	0.9999	9,822.017
00117	24	9,845.40	0.9999	9,844.415
00118	24	9,847.80	0.9999	9,846.815
00119	24	9,764.85	0.9999	9,763.873
00120	24	9,640.34	0.9999	9,639.375

00121	24	9,839.74	0.9999	9,838.756
00122	1	408.72	0.9998	408.638
00122	1	391.42	0.9999	391.380
00122	1	393.94	0.9999	393.900
00122	1	380.18	0.9999	380.141
00122	1	395.04	0.9999	395.000
00122	24	9,730.80	0.9999	9,729.826
00122	1	396.78	0.9999	396.740
00122	1	417.95	0.9998	417.866
00122	1	402.83	0.9999	402.789
00122	1	382.23	0.9999	382.191
00122	1	409.54	0.9998	409.458
00122	1	384.88	0.9999	384.841
00122	1	405.64	0.9999	405.599
00123	1	370.39	0.9998	370.315
00123	1	387.74	0.9999	387.701
00123	1	387.12	0.9999	387.081
00123	24	9,735.05	0.9999	9,734.076
00123	1	387.76	0.9998	387.682
00123	1	400.31	0.9999	400.269
00123	1	385.94	0.9999	385.901
00124	1	399.76	0.9998	399.680

00124	1	413.04	0.9998	412.957
00124	24	9,952.63	0.9999	9,951.634
00124	1	405.17	0.9998	405.088
00125	1	414.83	0.9998	414.747
00125	24	9,869.02	0.9999	9,868.033
00126	1	379.09	0.9999	379.052
00126	1	371.80	0.9998	371.725
00126	1	382.34	0.9999	382.301
00126	1	385.85	0.9998	385.772
00126	1	384.02	0.9999	383.981
00126	1	388.12	0.9998	388.042
00126	1	388.38	0.9999	388.341
00126	1	392.33	0.9998	392.251
00126	1	389.90	0.9999	389.861
00126	1	397.70	0.9999	397.660
00126	1	383.25	0.9999	383.211
00126	1	403.61	0.9999	403.569
00126	1	388.75	0.9999	388.711
00126	1	384.35	0.9999	384.311
00126	1	372.92	0.9999	372.882
00126	24	9,857.60	0.9999	9,856.614
00127	1	396.28	0.9997	396.161

00127	1	385.75	0.9997	385.634
00127	1	397.09	0.9997	396.970
00127	1	386.81	0.9997	386.693
00127	1	379.89	0.9997	379.776
00127	1	391.84	0.9997	391.722
00127	1	417.15	0.9997	417.024
00127	1	396.04	0.9997	395.921
00127	1	411.53	0.9997	411.406
00127	24	9,869.65	0.9999	9,868.663
00127	1	403.58	0.9997	403.458
00127	1	403.09	0.9997	402.969
00127	1	379.00	0.9997	378.886
00127	1	402.40	0.9997	402.279
00127	1	417.15	0.9997	417.024
00127	1	398.26	0.9997	398.140
00127	1	383.68	0.9997	383.564
00127	1	403.72	0.9997	403.598
00127	1	381.79	0.9997	381.675
00127	1	403.84	0.9997	403.718
00128	1	395.17	0.9997	395.051
00128	1	393.87	0.9999	393.830
00128	1	397.78	0.9999	397.740

00128	1	391.83	0.9999	391.790
00128	1	388.40	0.9999	388.361
00128	1	389.10	0.9999	389.061
00128	1	400.77	0.9999	400.729
00128	1	401.89	0.9997	401.769
00128	1	393.75	0.9997	393.631
00128	1	374.79	0.9999	374.752
00128	1	408.02	0.9999	407.979
00128	1	393.02	0.9999	392.980
00128	1	373.73	0.9997	373.617
00128	1	402.78	0.9999	402.739
00128	1	385.64	0.9999	385.601
00128	1	378.48	0.9997	378.366
00128	1	398.63	0.9999	398.590
00128	1	418.05	0.9997	417.924
00128	1	420.40	0.9999	420.357
00128	1	419.64	0.9997	419.514
00128	1	386.76	0.9999	386.721
00128	1	401.32	0.9999	401.279
00128	1	405.63	0.9999	405.589
00128	24	9,963.61	0.9999	9,962.613
00128	1	420.87	0.9997	420.743

00129	24	9,905.80	0.9999	9,904.809
00130	24	9,879.00	0.9999	9,878.012
00131	24	9,952.19	0.9999	9,951.194
00132	1	378.35	0.9998	378.274
00133	24	9,782.15	0.9999	9,781.171
00133	1	407.81	0.9998	407.728
00133	1	382.33	0.9998	382.253
00134	1	364.14	0.9999	364.103
00134	1	403.10	0.9999	403.059
00134	1	399.97	0.9999	399.930
00134	1	390.64	0.9999	390.600
00134	1	391.95	0.9999	391.910
00134	24	9,954.89	0.9999	9,953.894
00135	24	9,726.89	0.9999	9,725.917
00136	1	380.05	0.9997	379.935
00136	1	410.77	0.9997	410.646
00136	24	9,734.00	0.9999	9,733.026
00136	1	407.94	0.9997	407.817
00136	1	397.27	0.9997	397.150
00136	1	405.63	0.9997	405.508
00136	1	412.71	0.9997	412.586
00136	1	402.26	0.9997	402.139

00136	1	378.20	0.9997	378.086
00136	1	405.37	0.9997	405.248
00136	1	375.78	0.9997	375.667
00136	1	387.71	0.9997	387.593
00136	1	396.61	0.9997	396.491
00136	1	387.67	0.9997	387.553
00136	1	379.28	0.9997	379.166
00136	1	374.91	0.9997	374.797
00136	1	364.15	0.9997	364.040
00136	1	377.91	0.9997	377.796
00136	1	384.09	0.9997	383.974
00136	1	389.01	0.9997	388.893
00137	1	401.65	0.9999	401.609
00137	1	410.67	0.9999	410.628
00137	1	400.00	0.9999	399.960
00137	1	410.99	0.9999	410.948
00137	1	404.04	0.9999	403.999
00137	1	417.05	0.9999	417.008
00137	1	406.04	0.9999	405.999
00137	1	399.05	0.9999	399.010
00137	1	410.41	0.9999	410.368
00137	1	397.88	0.9999	397.840

00137	1	399.99	0.9999	399.950
00137	1	395.16	0.9999	395.120
00137	1	409.31	0.9999	409.269
00137	1	405.94	0.9999	405.899
00137	1	410.53	0.9999	410.488
00137	1	390.59	0.9999	390.550
00138	1	407.83	0.9999	407.789
00138	1	415.69	0.9999	415.648
00138	1	409.34	0.9999	409.299
00138	1	411.64	0.9999	411.598
00138	1	408.68	0.9999	408.639
00138	1	397.45	0.9999	397.410
00138	1	387.17	0.9999	387.131
00138	1	416.67	0.9999	416.628
00138	1	406.25	0.9999	406.209
00138	1	424.47	0.9999	424.427
00138	1	420.37	0.9999	420.327
00138	1	409.36	0.9999	409.319
00138	1	405.69	0.9999	405.649
00138	1	399.39	0.9999	399.350
00138	1	411.84	0.9999	411.798
00139	1	405.95	0.9999	405.909

00139	1	416.18	0.9999	416.138
00139	1	414.04	0.9999	413.998
00139	1	426.20	0.9999	426.157
00139	1	401.03	0.9999	400.989
00139	1	422.21	0.9999	422.167
00139	1	397.78	0.9999	397.740
00139	1	419.79	0.9999	419.748
00139	1	404.65	0.9999	404.609
00139	1	408.65	0.9999	408.609
00139	1	413.38	0.9999	413.338
00139	1	409.44	0.9999	409.399
00139	1	398.24	0.9999	398.200
00139	1	413.43	0.9999	413.388
00139	1	399.99	0.9999	399.950
00139	1	412.91	0.9999	412.868
00142	1	413.72	0.9998	413.637
00145	1	417.94	0.9999	417.898
00145	1	405.13	0.9999	405.089
00145	1	405.38	0.9999	405.339
00145	1	417.35	0.9999	417.308
00145	1	386.55	0.9999	386.511
00145	1	411.05	0.9999	411.008

00145	1	397.60	0.9999	397.560
00145	1	429.03	0.9999	428.987
00145	1	403.15	0.9999	403.109
00145	1	422.42	0.9999	422.377
00145	1	403.98	0.9999	403.939
00145	1	418.57	0.9999	418.528
00145	1	416.78	0.9999	416.738
00145	1	412.31	0.9999	412.268
00145	1	407.01	0.9999	406.969
00145	1	426.61	0.9999	426.567
00145	1	408.77	0.9999	408.729
00145	1	418.38	0.9999	418.338
00145	1	420.50	0.9999	420.457
00145	1	408.22	0.9999	408.179
00145	1	410.67	0.9999	410.628
00146	1	418.17	0.9999	418.128
00146	1	412.23	0.9999	412.188
00146	1	416.17	0.9999	416.128
00146	1	412.93	0.9999	412.888
00146	1	399.96	0.9999	399.920
00146	1	415.32	0.9999	415.278
00146	1	404.47	0.9999	404.429

00146	1	415.36	0.9999	415.318
00146	1	420.01	0.9999	419.967
00146	1	407.57	0.9999	407.529
00146	1	400.25	0.9999	400.209
00146	1	415.41	0.9999	415.368
00147	1	414.66	0.9999	414.618
00147	1	402.95	0.9999	402.909
00147	1	402.91	0.9999	402.869
00147	1	422.42	0.9999	422.377
00147	1	416.65	0.9999	416.608
00147	1	401.26	0.9999	401.219
00147	1	403.65	0.9999	403.609
00147	1	391.17	0.9999	391.130
00147	1	403.70	0.9999	403.659
00147	1	397.61	0.9999	397.570
00147	1	404.82	0.9999	404.779
00147	1	423.21	0.9999	423.167
00147	1	431.38	0.9999	431.336
00147	1	394.14	0.9999	394.100
00147	1	416.18	0.9999	416.138
00148	1	385.28	0.9999	385.241
00148	1	416.34	0.9999	416.298

00148	1	422.05	0.9999	422.007
00148	1	405.20	0.9999	405.159
00148	1	416.10	0.9999	416.058
00148	1	404.33	0.9999	404.289
00148	1	407.95	0.9999	407.909
00148	1	399.64	0.9999	399.600
00148	1	371.66	0.9999	371.622
00148	1	397.06	0.9999	397.020
00148	1	408.22	0.9999	408.179
00148	1	386.35	0.9999	386.311
00148	1	407.85	0.9999	407.809
00148	1	417.71	0.9999	417.668
00150	1	400.50	0.9999	400.459
00150	1	423.55	0.9999	423.507
00150	1	398.63	0.9999	398.590
00150	1	422.69	0.9999	422.647
00150	1	390.91	0.9999	390.870
00150	1	414.87	0.9999	414.828
00150	1	403.02	0.9999	402.979
00150	1	408.82	0.9999	408.779
00150	1	426.19	0.9999	426.147
00150	1	404.15	0.9999	404.109

00150	1	398.34	0.9999	398.300
00150	1	400.78	0.9999	400.739
00150	1	373.95	0.9999	373.912
00150	1	402.83	0.9999	402.789
00151	1	391.25	0.9997	391.132
00151	1	395.90	0.9999	395.860
00151	1	414.93	0.9999	414.888
00151	1	398.30	0.9999	398.260
00151	1	398.46	0.9999	398.420
00151	1	401.92	0.9999	401.879
00151	1	374.83	0.9999	374.792
00151	1	402.51	0.9999	402.469
00151	1	399.58	0.9999	399.540
00151	1	404.80	0.9999	404.759
00151	1	362.36	0.9997	362.251
00151	1	405.05	0.9999	405.009
00151	1	388.43	0.9999	388.391
00151	1	405.59	0.9999	405.549
00151	1	403.95	0.9997	403.828
00151	1	410.41	0.9997	410.286
00151	1	381.24	0.9997	381.125
00151	1	405.97	0.9999	405.929

00151	1	423.50	0.9999	423.457
00151	1	409.56	0.9999	409.519
00151	1	400.97	0.9997	400.849
00151	1	391.05	0.9999	391.010
00151	1	416.80	0.9997	416.674
00151	1	413.66	0.9999	413.618
00152	1	424.20	0.9999	424.157
00152	1	402.40	0.9999	402.359
00152	1	403.27	0.9999	403.229
00152	1	411.45	0.9999	411.408
00152	1	400.89	0.9999	400.849
00152	1	409.87	0.9999	409.829
00152	1	420.71	0.9999	420.667
00152	1	409.45	0.9999	409.409
00152	1	419.47	0.9999	419.428
00152	1	405.88	0.9999	405.839
00152	1	405.11	0.9999	405.069
00152	1	402.49	0.9999	402.449
00152	1	419.91	0.9999	419.868
00152	1	402.05	0.9999	402.009
00152	1	414.67	0.9999	414.628
00152	1	425.93	0.9999	425.887

00153	1	400.21	0.9999	400.169
00153	1	414.64	0.9999	414.598
00153	1	412.75	0.9999	412.708
00153	1	424.23	0.9999	424.187
00153	1	410.77	0.9999	410.728
00153	1	380.62	0.9999	380.581
00153	1	406.67	0.9999	406.629
00153	1	399.63	0.9999	399.590
00153	1	415.90	0.9999	415.858
00153	1	403.88	0.9999	403.839
00153	1	409.54	0.9999	409.499
00153	1	400.19	0.9999	400.149
00266	1	377.44	0.9999	377.402
00266	1	396.53	0.9999	396.490
00281	20	8,108.86	0.9998	8,107.238
00303	4	1,798.32	0.9996	1,797.600
00459	1	424.13	0.9999	424.087
00468	1	367.21	0.9998	367.136
00468	1	369.52	0.9998	369.446
00475	1	389.09	0.9999	389.051
00481	1	379.26	0.9999	379.222
00486	1	386.39	0.9998	386.312

00486	1	361.89	0.9998	361.817
00486	1	408.17	0.9998	408.088
00490	1	372.76	0.9998	372.685
00715	1	388.70	0.9999	388.661
00979	1	362.10	0.9999	362.063
01012	10	3,722.27	0.9998	3,721.525
01171	1	376.26	0.9999	376.222
01180	1	398.51	0.9999	398.470
01181	1	361.97	0.9999	361.933
01194	9	3,373.42	0.9998	3,372.745
01344	8	2,908.12	0.9998	2,907.538
01403	1	408.14	0.9964	406.670
01403	1	382.07	0.9964	380.694
01438	1	406.03	0.9998	405.948
01566	1	404.45	0.9999	404.409
01566	1	400.27	0.9999	400.229
01566	1	389.99	0.9999	389.951
01566	1	402.36	0.9999	402.319
01567	1	378.25	0.9999	378.212
01567	1	387.18	0.9999	387.141
01567	1	389.72	0.9999	389.681
01567	1	399.46	0.9999	399.420

01567	1	365.71	0.9999	365.673
01567	1	381.64	0.9999	381.601
01567	1	385.58	0.9999	385.541
01567	1	389.74	0.9999	389.701
01568	1	361.51	0.9999	361.473
01568	1	382.29	0.9999	382.251
01572	1	360.97	0.9999	360.933
01701	1	361.11	0.9999	361.073
01767	1	370.79	0.9998	370.715
01840	13	5,015.71	0.9999	5,015.208
01934	1	370.89	0.9997	370.778
01934	1	387.02	0.9997	386.903
01934	1	383.98	0.9997	383.864
01934	1	388.76	0.9997	388.643
01934	1	388.60	0.9997	388.483
01934	1	366.18	0.9997	366.070
01934	1	388.42	0.9997	388.303
01934	1	390.78	0.9997	390.662
01934	1	382.94	0.9997	382.825
01934	1	381.13	0.9997	381.015
01934	1	390.72	0.9997	390.602
01934	1	391.35	0.9997	391.232

01934	1	380.73	0.9997	380.615
01935	1	382.79	0.9997	382.675
01935	1	389.24	0.9997	389.123
01935	1	376.17	0.9997	376.057
01935	1	395.57	0.9997	395.451
01935	1	387.19	0.9997	387.073
01935	1	371.83	0.9997	371.718
01935	1	387.80	0.9997	387.683
02105	1	368.05	0.9999	368.013
02108	1	362.71	0.9999	362.673
02182	8	3,160.32	0.9994	3,158.423
02210	6	2,225.80	0.9998	2,225.354
02243	5	1,800.97	0.9998	1,800.609
02375	2	720.83	0.9985	719.748
02530	8	3,020.55	0.9999	3,020.247
02552	14	5,493.82	0.9998	5,492.721
02622	6	2,019.45	0.9998	2,019.046
02658	11	4,009.97	0.9998	4,009.168
02746	18	7,006.17	0.9999	7,005.469
02772	8	3,004.29	0.9998	3,003.689
02793	8	3,003.77	0.9998	3,003.169
2092	8	6,806.08	0.9000	6,125.472

2091	8	6,764.30	0.9000	6,087.870
2090	8	6,506.36	0.9000	5,855.724
2089	8	6,795.71	0.8999	6,115.459
2088	8	6,747.99	0.8999	6,072.516
2087	7	6,036.77	0.9000	5,433.093
2086	8	6,578.16	0.9000	5,920.344
2085	8	6,773.16	0.8999	6,095.166
2084	8	6,875.65	0.9000	6,188.085
2083	8	6,855.30	0.8999	6,169.084
2082	8	6,942.71	0.9000	6,248.439
2081	8	6,534.46	0.8999	5,880.360
2079	8	6,626.03	0.8999	5,962.764
2078	8	6,633.56	0.9001	5,970.867
2077	8	6,969.67	0.8999	6,272.006
2075	8	6,796.01	0.8999	6,115.729
2073	8	6,688.83	0.8999	6,019.278
2072	8	6,664.07	0.8999	5,996.996
2070	8	6,699.67	0.9000	6,029.703
2069	8	6,656.12	0.8999	5,989.842
2068	8	6,797.81	0.9000	6,118.029
2067	8	6,853.55	0.8999	6,167.509
2066	8	6,715.52	0.9000	6,043.968

2060	8	6,932.18	0.9000	6,238.962
2055	8	6,582.05	0.8999	5,923.186
2054	7	6,022.25	0.8999	5,419.422
2053	8	6,898.30	0.9001	6,209.160
2049	8	6,972.15	0.8999	6,274.237
2047	8	6,997.45	0.8999	6,297.005
2065	8	7,003.86	0.9000	6,303.474
2064	8	6,807.57	0.9001	6,127.493
2063	8	6,775.47	0.9000	6,097.923
2062	8	6,929.29	0.9001	6,237.054
2061	8	6,960.12	0.9000	6,264.108
2059	8	6,751.15	0.9000	6,076.035
2058	8	6,425.43	0.8999	5,782.244
2057	8	6,922.78	0.9000	6,230.502
2056	8	6,795.55	0.9000	6,115.995
2052	8	6,680.77	0.9000	6,012.693
2050	8	6,938.77	0.9000	6,244.893
2051	7	6,522.87	0.9000	5,870.583
2048	8	7,042.92	0.9000	6,338.628
2045	8	6,719.43	0.8999	6,046.815
2046	8	6,923.25	0.9000	6,230.925
2044	8	6,556.98	0.8999	5,900.626

2043	7	5,148.61	0.8999	4,633.234
2042	7	6,265.57	0.9000	5,639.013
2041	8	6,490.78	0.8999	5,841.053
2040	8	6,467.83	0.8999	5,820.400
2039	8	6,969.17	0.8999	6,271.556
2038	8	6,939.44	0.8999	6,244.802
2037	8	6,559.36	0.9000	5,903.424
2036	8	6,817.42	0.9000	6,135.678
2035	8	6,857.31	0.8999	6,170.893
2034	8	6,919.67	0.9000	6,227.703
2033	8	6,887.12	0.9000	6,198.408
2032	8	6,814.83	0.8999	6,132.665
1989	8	6,576.08	0.8998	5,917.156
2031	8	6,694.74	0.8999	6,024.596
2030	8	6,796.55	0.9000	6,116.895
2029	8	6,760.80	0.9000	6,084.720
2028	8	6,743.38	0.9000	6,069.042
2027	8	6,683.38	0.9000	6,015.042
2026	8	6,542.71	0.9000	5,888.439
2025	7	6,124.08	0.8999	5,511.059
2024	8	6,899.22	0.9000	6,209.298
2023	8	6,659.19	0.8999	5,992.605

2022	8	6,728.68	0.8999	6,055.139
2014	8	6,729.87	0.9000	6,056.883
2003	8	6,493.60	0.8999	5,843.590
2021	8	6,625.63	0.8999	5,962.404
2020	8	6,807.89	0.9000	6,127.101
2019	8	6,568.93	0.8999	5,911.380
2018	8	6,655.74	0.8999	5,989.500
2017	8	6,687.99	0.8999	6,018.522
2016	8	6,956.20	0.8999	6,259.884
2015	8	6,777.06	0.9000	6,099.354
2012	8	6,920.77	0.8999	6,228.001
2011	8	6,449.70	0.9000	5,804.730
2010	8	6,964.44	0.8999	6,267.299
2009	8	6,680.89	0.8999	6,012.133
2008	8	6,533.29	0.8998	5,878.654
2007	9	7,221.68	0.8999	6,498.790
2004	8	6,590.88	0.9000	5,931.792
2002	8	6,727.07	0.9000	6,054.363
2006	8	6,981.89	0.9000	6,283.701
2005	8	6,836.73	0.9001	6,153.740
2001	8	6,777.70	0.8999	6,099.252
2000	8	6,623.09	0.9000	5,960.781

1999	8	6,649.53	0.8999	5,983.912
1998	8	6,786.30	0.9000	6,107.670
1997	8	6,690.65	0.9000	6,021.585
1996	8	6,639.64	0.8999	5,975.012
1995	8	6,776.57	0.9000	6,098.913
1994	8	6,594.90	0.8999	5,934.750
1993	8	6,273.20	0.9000	5,645.880
1990	8	6,878.33	0.8999	6,189.809
1988	8	6,709.23	0.8999	6,037.636
1986	8	6,899.40	0.8999	6,208.770
1984	8	6,723.98	0.9000	6,051.582
1992	9	7,337.36	0.9000	6,603.624
1991	8	6,696.22	0.8999	6,025.928
1987	8	6,685.79	0.9001	6,017.879
1985	8	6,816.86	0.9000	6,135.174
1975	8	6,589.94	0.9000	5,930.946
1983	8	6,817.71	0.9000	6,135.939
1982	8	6,616.39	0.9000	5,954.751
1981	8	6,816.35	0.9000	6,134.715
1980	8	6,874.20	0.9000	6,186.780
1979	8	6,735.22	0.9000	6,061.698
1978	8	6,781.36	0.9000	6,103.224

1977	8	6,709.44	0.9000	6,038.496
1976	8	6,624.92	0.9000	5,962.428
1974	8	6,524.57	0.9000	5,872.113
1973	8	6,791.75	0.9000	6,112.575
1972	8	6,890.33	0.9000	6,201.297
1966	8	6,779.63	0.9000	6,101.667
1959	8	6,412.43	0.9000	5,771.187
1954	8	6,741.65	0.9000	6,067.485
1953	8	7,026.16	0.9000	6,323.544
1971	8	6,714.73	0.9000	6,043.257
1970	8	6,826.75	0.8999	6,143.392
1969	8	6,847.44	0.9000	6,162.696
1968	8	6,731.93	0.9000	6,058.737
1967	8	6,658.05	0.9000	5,992.245
1965	8	6,663.53	0.9000	5,997.177
1964	8	6,624.89	0.9000	5,962.401
1963	8	6,795.22	0.9000	6,115.698
1962	8	6,720.43	0.9000	6,048.387
1961	8	6,617.91	0.9000	5,956.119
1960	8	7,134.67	0.9000	6,421.203
1958	8	6,560.85	0.9000	5,904.765
1957	8	6,512.42	0.8999	5,860.526

1956	7	5,904.73	0.8999	5,313.666
1955	7	6,102.01	0.9000	5,491.809
1952	8	6,977.65	0.9000	6,279.885
1951	8	6,748.20	0.9000	6,073.380
1950	8	7,002.35	0.9000	6,302.115
1949	8	6,887.45	0.9000	6,198.705
1948	8	7,013.74	0.9000	6,312.366
1947	7	5,648.08	0.8998	5,082.142
1946	7	5,737.79	0.8999	5,163.437
1945	8	6,918.13	0.8999	6,225.625
1944	8	6,869.48	0.9000	6,182.532
1943	8	7,004.89	0.8999	6,303.700
1942	8	6,894.40	0.8999	6,204.270
1941	8	6,988.93	0.8999	6,289.338
1940	8	6,888.02	0.9000	6,199.218
1939	8	6,778.60	0.9000	6,100.740
1938	8	6,562.70	0.9000	5,906.430
1937	8	6,753.18	0.9000	6,077.862
1936	8	7,006.71	0.9000	6,306.039
1935	8	6,856.57	0.8999	6,170.227
1934	8	6,567.18	0.8999	5,909.805
1902	8	6,506.31	0.8999	5,855.028

1933	8	6,605.98	0.8999	5,944.721
1906	8	6,775.92	0.9000	6,098.328
1932	8	7,135.20	0.8999	6,420.966
1931	8	7,019.76	0.8999	6,317.082
1930	8	6,605.03	0.8998	5,943.206
1929	8	6,199.13	0.8999	5,578.597
1928	8	6,704.08	0.8999	6,033.001
1927	8	6,807.90	0.8999	6,126.429
1926	8	6,740.78	0.9000	6,066.702
1925	8	6,751.24	0.8999	6,075.441
1924	8	6,891.96	0.8998	6,201.385
1923	8	6,866.94	0.8999	6,179.559
1922	8	6,753.41	0.9000	6,078.069
1921	8	6,549.51	0.9000	5,894.559
1920	8	6,711.55	0.9000	6,040.395
1894	8	6,445.45	0.9001	5,801.549
1910	8	6,737.67	0.8999	6,063.229
1909	9	7,650.96	0.9000	6,885.864
1908	8	6,730.94	0.9000	6,057.846
1919	8	7,003.09	0.8999	6,302.080
1918	8	6,810.83	0.8999	6,129.066
1917	8	6,969.26	0.9000	6,272.334

1916	8	6,945.75	0.8999	6,250.480
1915	8	6,885.68	0.8999	6,196.423
1914	8	6,962.18	0.9000	6,265.962
1913	8	6,732.16	0.9000	6,058.944
1912	8	6,883.13	0.9000	6,194.817
1907	8	6,940.11	0.8999	6,245.405
1905	8	6,715.59	0.8999	6,043.359
1904	8	6,815.59	0.8999	6,133.349
1903	8	6,693.55	0.8999	6,023.525
1901	8	6,757.10	0.9000	6,081.390
1900	8	6,509.18	0.9000	5,858.262
1899	8	6,642.65	0.8999	5,977.720
1898	8	6,529.57	0.9000	5,876.613
1897	8	6,475.20	0.9000	5,827.680
1896	8	6,682.50	0.9000	6,014.250
1895	8	6,499.75	0.8999	5,849.125
1893	8	6,477.95	0.8999	5,829.507
1892	8	6,444.93	0.8999	5,799.792
1891	8	6,539.29	0.8999	5,884.707
1890	8	6,848.55	0.8999	6,163.010
1889	8	6,751.34	0.8999	6,075.531
1888	8	6,787.85	0.8999	6,108.386

1887	8	6,931.61	0.9000	6,238.449
1886	8	6,640.02	0.8999	5,975.354
1885	8	6,729.27	0.9000	6,056.343
1884	8	6,835.31	0.9000	6,151.779
1883	8	6,542.95	0.8999	5,888.000
1882	8	6,562.17	0.8999	5,905.296
1881	8	6,757.07	0.9000	6,081.363
1880	8	6,678.30	0.8999	6,009.802
1879	8	6,694.26	0.8999	6,024.164
1878	9	7,373.89	0.8985	6,625.440
1877	8	6,555.89	0.8999	5,899.645
1876	8	6,637.52	0.8999	5,973.104
1875	7	5,742.57	0.9000	5,168.313
1874	7	6,312.00	0.9000	5,680.800
1873	8	6,959.98	0.9000	6,263.982
1872	8	6,823.30	0.9000	6,140.970
1871	8	6,876.70	0.8999	6,188.342
1870	8	6,672.08	0.9000	6,004.872
1869	8	6,661.34	0.9000	5,995.206
1868	8	6,701.64	0.9000	6,031.476
1867	8	6,787.76	0.9000	6,108.984
1866	8	6,648.37	0.8999	5,982.868

1865	8	6,710.42	0.8999	6,038.707
1864	8	6,851.65	0.9000	6,166.485
1863	8	6,805.16	0.9000	6,124.644
1862	8	6,786.02	0.8999	6,106.739
1861	8	6,975.69	0.8999	6,277.423
1860	8	6,772.28	0.8999	6,094.374
1859	8	6,742.25	0.9000	6,068.025
1858	8	6,854.92	0.9000	6,169.428
1857	8	6,178.75	0.9000	5,560.875
1856	8	6,863.12	0.9000	6,176.808
1855	7	6,197.10	0.9000	5,577.390
1854	8	6,995.55	0.9000	6,295.995
1853	8	6,749.16	0.9000	6,074.244
1852	9	7,183.84	0.8999	6,464.737
1851	8	6,512.22	0.9000	5,860.998
1848	7	5,709.64	0.9000	5,138.676
1847	7	5,946.79	0.9000	5,352.111
1846	8	6,681.93	0.9000	6,013.737
1831	8	7,020.07	0.9000	6,318.063
1832	8	6,889.36	0.9001	6,201.113
1829	8	6,880.49	0.9000	6,192.441
1850	8	6,986.71	0.9000	6,288.039

1845	8	6,965.14	0.9001	6,269.322
1849	8	6,633.43	0.9000	5,970.087
1844	8	7,001.95	0.9002	6,303.155
1840	8	6,711.97	0.8999	6,040.102
1834	8	6,611.41	0.8999	5,949.608
1843	8	6,795.62	0.9001	6,116.737
1842	8	6,669.19	0.8999	6,001.604
1841	8	6,760.25	0.8999	6,083.549
1839	8	6,852.20	0.8998	6,165.609
1838	8	6,878.49	0.8999	6,189.953
1837	8	6,793.13	0.8999	6,113.137
1836	8	6,798.36	0.8998	6,117.164
1835	8	6,859.38	0.8999	6,172.756
1830	8	6,733.68	0.9000	6,060.312
1823	8	6,793.67	0.9000	6,114.303
1822	8	6,582.94	0.9000	5,924.646
1828	7	6,036.72	0.9000	5,433.048
1827	8	6,571.40	0.9000	5,914.260
1826	8	6,610.93	0.9001	5,950.498
1825	8	6,783.45	0.9000	6,105.105
1824	8	6,858.59	0.9000	6,172.731
1821	8	6,888.26	0.8999	6,198.745

1820	8	6,675.04	0.8998	6,006.201
1804	8	6,723.05	0.8998	6,049.400
1799	8	6,624.11	0.8998	5,960.374
1778	8	6,574.01	0.8999	5,915.951
1706	8	6,841.84	0.8999	6,156.972
1698	8	6,483.77	0.9002	5,836.689
1819	8	6,812.40	0.8999	6,130.478
1818	8	6,898.12	0.9001	6,208.998
1817	8	6,828.01	0.9000	6,145.209
1816	8	6,620.54	0.8999	5,957.824
1815	8	6,840.24	0.9001	6,156.900
1814	8	6,773.25	0.9001	6,096.602
1813	8	6,721.71	0.9001	6,050.211
1812	7	6,052.34	0.8999	5,446.500
1811	7	5,925.98	0.8999	5,332.789
1810	8	6,695.78	0.9000	6,026.202
1800	8	6,913.06	0.9000	6,221.754
1809	8	6,826.38	0.8999	6,143.059
1808	8	6,817.24	0.9000	6,135.516
1807	8	6,653.91	0.9000	5,988.519
1806	8	6,900.91	0.8998	6,209.439
1805	8	6,726.04	0.8999	6,052.763

1803	8	6,799.65	0.9000	6,119.685
1802	8	6,976.62	0.8999	6,278.260
1801	8	6,898.05	0.9000	6,208.245
1798	8	6,949.56	0.8999	6,253.909
1797	8	6,779.80	0.8999	6,101.142
1796	8	6,702.73	0.9000	6,032.457
1793	8	6,948.14	0.9000	6,253.326
1792	8	6,626.36	0.8999	5,963.061
1791	8	6,735.68	0.9001	6,062.785
1690	8	6,359.62	0.8999	5,723.022
1743	8	6,741.27	0.8999	6,066.468
1776	8	6,705.36	0.9000	6,034.824
1795	8	6,819.42	0.8999	6,136.796
2748	8	6,780.63	0.8998	6,101.210
2642	8	6,535.81	0.8999	5,881.575
2695	8	6,787.47	0.9000	6,108.723
2451	8	6,676.63	0.9000	6,008.967
2553	8	6,715.57	0.8999	6,043.341
2250	8	6,730.22	0.9000	6,057.198
2354	8	6,826.27	0.8999	6,142.960
2495	7	5,211.57	0.9000	4,690.413
1576	8	6,609.08	0.9000	5,948.172

2389	8	6,782.10	0.9000	6,103.890
2595	8	6,665.89	0.8999	5,998.634
2461	8	6,591.42	0.9000	5,932.278
1640	8	6,670.33	0.8999	6,002.629
2297	8	6,707.49	0.9000	6,036.741
2569	8	6,860.04	0.8999	6,173.349
1790	8	6,824.85	0.9000	6,142.365
1794	8	6,972.86	0.8999	6,274.876
1788	8	6,780.93	0.8998	6,101.481
1789	8	6,688.15	0.8999	6,018.666
1786	8	6,689.36	0.8999	6,019.755
1787	8	6,718.81	0.8999	6,046.257
1785	8	6,780.08	0.9001	6,102.750
1784	8	6,609.39	0.9000	5,948.451
1783	8	6,681.50	0.8999	6,012.682
1782	8	6,688.98	0.8999	6,019.413
1781	8	6,413.68	0.8999	5,771.670
1780	8	6,628.76	0.9000	5,965.884
1779	8	6,524.98	0.9000	5,872.482
1775	8	6,658.40	0.8998	5,991.228
1774	8	6,720.75	0.8999	6,048.003
1777	8	6,598.43	0.8998	5,937.267

1772	8	6,742.62	0.9000	6,068.358
1773	8	6,804.89	0.8999	6,123.720
1771	8	6,742.68	0.9000	6,068.412
1770	8	6,856.14	0.8999	6,169.840
1769	8	6,367.28	0.8999	5,729.915
1768	8	6,600.33	0.8999	5,939.637
1767	8	6,757.63	0.8999	6,081.191
1766	8	6,898.90	0.8999	6,208.320
1765	8	6,723.40	0.8999	6,050.387
1761	8	6,718.69	0.8999	6,046.149
1760	8	6,931.43	0.8999	6,237.594
1764	8	6,810.13	0.8999	6,128.436
1763	8	6,613.01	0.8999	5,951.047
1762	8	6,664.20	0.8999	5,997.113
1742	8	6,594.74	0.8999	5,934.606
1741	8	6,828.14	0.8999	6,144.643
1758	8	6,741.29	0.8999	6,066.487
1759	8	6,458.72	0.8999	5,812.202
1757	8	6,907.00	0.9000	6,215.609
1756	8	6,730.42	0.8999	6,057.378
1755	8	6,697.34	0.8999	6,026.936
1754	8	6,802.99	0.8999	6,122.010

1753	8	6,647.89	0.8999	5,982.436
1752	8	6,766.37	0.9000	6,089.733
1751	8	6,298.36	0.8999	5,667.894
1720	8	6,572.94	0.8999	5,914.988
1749	8	6,668.19	0.8999	6,000.704
1750	8	6,664.36	0.8999	5,997.257
1748	8	6,562.87	0.8998	5,905.270
1747	8	6,931.01	0.9000	6,237.909
1745	8	6,575.88	0.8999	5,917.634
1740	8	6,790.57	0.8999	6,110.834
1744	8	6,940.89	0.8999	6,246.107
1739	8	6,633.22	0.8999	5,969.234
1746	8	6,771.17	0.8999	6,093.376
1738	8	6,627.20	0.8999	5,963.817
1737	8	6,838.48	0.9000	6,154.632
1736	8	6,594.71	0.8999	5,934.579
1735	8	6,776.66	0.8999	6,098.316
1716	8	6,369.93	0.9000	5,732.937
1715	8	6,971.74	0.9000	6,274.566
1714	8	6,871.85	0.9000	6,184.665
1734	8	6,982.51	0.8999	6,283.560
1713	8	6,792.33	0.9000	6,113.097

1733	8	6,322.34	0.9000	5,690.106
1732	8	7,188.38	0.9000	6,469.542
1730	8	6,611.46	0.9000	5,950.314
1731	8	6,855.20	0.9000	6,169.680
1729	8	6,914.72	0.9000	6,223.248
1728	8	6,882.65	0.8999	6,193.696
1727	8	6,699.77	0.8998	6,028.453
1726	8	6,817.20	0.8998	6,134.116
1724	8	6,760.17	0.8999	6,083.477
1725	8	6,670.79	0.8999	6,003.044
1723	8	6,757.51	0.9000	6,081.759
1722	8	7,068.90	0.9000	6,362.010
1721	8	6,946.82	0.8999	6,251.443
1719	8	6,712.34	0.9000	6,041.106
1718	8	6,706.03	0.8999	6,034.756
1717	8	6,671.91	0.9000	6,004.719
1707	8	6,769.45	0.9000	6,092.505
1701	8	6,634.76	0.9000	5,971.284
1687	8	6,950.75	0.8999	6,254.980
1691	8	6,374.35	0.8998	5,735.640
1711	8	6,739.64	0.9000	6,065.676
1712	8	6,604.79	0.8999	5,943.650

1710	8	6,738.47	0.9000	6,064.623
1709	8	6,564.03	0.8999	5,906.970
1708	8	6,700.29	0.8998	6,028.921
1705	8	6,657.44	0.8998	5,990.364
1704	8	6,554.01	0.8999	5,897.953
1703	9	7,121.30	0.9000	6,409.170
1700	8	6,472.15	0.8999	5,824.287
1702	8	6,639.06	0.9000	5,975.154
1699	8	6,524.01	0.8999	5,870.956
1697	9	6,860.67	0.8999	6,173.917
1696	8	6,531.26	0.8999	5,877.481
1695	9	7,696.65	0.8999	6,926.215
1693	8	6,634.05	0.8999	5,969.981
1680	8	6,399.82	0.9001	5,760.478
1694	8	6,610.01	0.9000	5,949.009
1692	8	6,782.00	0.8999	6,103.122
1688	8	6,686.56	0.8999	6,017.235
1689	8	6,605.48	0.8998	5,943.611
1686	8	7,086.31	0.8999	6,376.970
1685	8	6,550.16	0.9000	5,895.144
1683	8	6,490.80	0.8999	5,841.071
1684	8	7,093.52	0.9000	6,384.168

1682	8	6,622.13	0.8999	5,959.254
1672	8	6,861.14	0.9000	6,175.026
1663	8	6,509.09	0.8999	5,857.530
1681	8	6,297.33	0.9000	5,667.597
1678	8	6,797.23	0.8999	6,116.827
1679	8	6,842.08	0.8999	6,157.187
1677	8	6,759.64	0.8999	6,083.000
1676	8	6,694.23	0.8999	6,024.137
1674	8	6,704.78	0.8999	6,033.631
1675	8	6,595.05	0.8999	5,934.885
1673	8	6,751.52	0.9000	6,076.368
1671	8	6,395.85	0.9000	5,756.265
1670	8	6,499.61	0.9000	5,849.649
1666	8	6,888.53	0.9001	6,200.366
1655	8	6,529.00	0.8999	5,875.447
1665	8	6,912.34	0.8999	6,220.414
1646	8	6,627.07	0.9000	5,964.363
1669	7	5,736.36	0.8999	5,162.150
1667	8	6,672.53	0.8999	6,004.609
1668	8	6,725.11	0.9000	6,052.599
1664	8	6,924.96	0.9000	6,232.464
1662	8	6,783.55	0.9000	6,105.195

1661	8	7,070.39	0.9000	6,363.351
1660	8	6,782.48	0.8999	6,103.553
1659	8	6,936.89	0.8999	6,242.507
1654	8	6,779.46	0.9000	6,101.514
1653	8	6,590.09	0.8999	5,930.422
1621	8	6,920.77	0.9000	6,228.693
1658	8	6,781.44	0.8999	6,102.618
1657	8	6,812.97	0.8999	6,130.991
1656	8	6,812.13	0.8999	6,130.235
1652	8	6,506.47	0.8999	5,855.172
1651	8	6,504.36	0.9000	5,853.924
1650	8	6,804.12	0.9000	6,123.708
1648	8	6,367.52	0.8999	5,730.131
1649	8	6,604.84	0.9001	5,945.016
1647	8	6,818.72	0.8999	6,136.166
1645	8	6,670.08	0.8999	6,002.405
1644	8	6,866.15	0.9000	6,179.535
1643	8	6,594.05	0.9000	5,934.645
1642	8	6,908.89	0.8999	6,217.310
1641	9	7,568.32	0.9000	6,811.488
1630	8	6,631.35	0.8999	5,967.552
1639	8	6,768.18	0.8999	6,090.685

1638	8	6,756.72	0.8999	6,080.372
1637	8	6,651.84	0.8999	5,985.991
1635	8	6,487.92	0.8999	5,838.479
1636	8	6,622.52	0.8999	5,959.605
1634	8	6,299.06	0.8999	5,668.524
1633	8	6,397.75	0.9000	5,757.975
1631	8	6,661.81	0.9000	5,995.629
1632	8	6,935.18	0.9000	6,241.662
1629	8	6,875.92	0.9000	6,188.328
1628	8	6,615.37	0.8999	5,953.171
1626	8	6,670.14	0.9000	6,003.126
1627	8	6,453.84	0.8999	5,807.810
1625	8	6,571.18	0.9000	5,914.062
1624	8	6,671.41	0.9000	6,004.269
1618	9	7,119.64	0.9000	6,407.676
1617	8	6,031.17	0.9000	5,428.053
1610	8	6,711.13	0.8999	6,039.346
1614	8	6,592.74	0.9000	5,933.466
1595	8	6,636.66	0.8999	5,972.330
1557	7	6,246.07	0.8999	5,620.838
1623	8	6,881.10	0.9000	6,192.990
1622	8	6,354.00	0.9000	5,718.600

1620	8	6,804.26	0.9000	6,123.834
1619	8	6,997.80	0.9000	6,298.020
1616	9	7,817.29	0.9000	7,035.561
1615	8	6,671.43	0.9000	6,004.287
1613	8	6,680.56	0.9000	6,012.504
1611	8	6,716.82	0.8999	6,044.466
1603	8	6,454.16	0.9000	5,808.744
1604	8	6,708.75	0.9000	6,037.875
1602	8	6,684.04	0.9001	6,016.304
1601	8	6,804.63	0.9000	6,124.167
1594	8	6,713.77	0.9000	6,042.393
1593	8	6,669.05	0.9000	6,002.145
1556	8	6,460.82	0.8999	5,814.092
1612	8	6,689.25	0.8998	6,018.987
1608	8	6,646.40	0.8999	5,981.095
1609	8	6,413.34	0.8999	5,771.364
1606	8	6,591.97	0.9000	5,932.773
1607	8	6,783.28	0.8999	6,104.273
1605	8	6,688.42	0.8999	6,018.909
1600	9	7,230.17	0.9000	6,507.153
1599	8	6,804.73	0.9000	6,124.257
1598	9	7,200.27	0.9000	6,480.243

1597	8	6,927.44	0.9000	6,234.696
1596	8	6,547.54	0.9000	5,892.786
1591	7	4,567.87	0.9000	4,111.083
1592	8	6,748.88	0.9000	6,073.992
1565	8	6,813.65	0.8990	6,131.603
1590	8	6,672.69	0.9000	6,005.421
1589	8	6,873.44	0.9000	6,186.096
1588	8	6,398.28	0.9000	5,758.452
1587	8	6,604.15	0.9001	5,944.395
1586	8	6,657.85	0.8999	5,991.399
1585	8	6,649.72	0.8999	5,984.083
1584	8	6,441.09	0.8999	5,796.337
1583	9	7,032.44	0.9000	6,329.196
1582	8	6,641.23	0.8999	5,976.443
1580	8	6,600.24	0.9000	2,940.216
1581	8	6,753.40	0.9000	6,078.060
1579	8	6,465.28	0.8999	5,818.105
1578	8	6,668.81	0.9000	6,001.929
1577	8	6,724.17	0.9000	6,051.753
1575	8	6,851.51	0.9000	6,166.359
170	16	6,648.59	0.9000	5,983.731
983	17	7,426.47	0.8998	6,682.337

1028	16	6,911.56	0.8998	6,219.021
250	15	6,519.93	0.9000	5,867.937
336	16	6,613.23	0.8999	5,951.245
332	16	6,838.51	0.8998	6,153.291
185	16	6,727.93	0.8998	6,053.791
420	15	6,495.15	0.8998	5,844.335
472	17	6,992.50	0.8998	6,291.851
519	17	7,509.81	0.8998	6,757.327
567	16	6,768.19	0.8998	6,090.017
616	16	6,945.09	0.8999	6,249.886
629	16	6,889.70	0.8999	6,200.041
673	16	6,956.42	0.8999	6,260.082
771	16	7,128.37	0.8999	6,414.820
2826	8	6,786.92	0.8998	6,106.870
2835	8	6,806.61	0.8998	6,124.587
2838	8	6,474.95	0.8998	5,826.160
2844	8	6,797.54	0.8998	6,116.426
2847	8	6,828.13	0.8998	6,143.951
2849	8	6,780.35	0.8999	6,101.637
2853	8	6,796.86	0.8999	6,116.494
2854	8	6,925.76	0.8999	6,232.491
2799	8	6,510.48	0.8998	5,858.130

2812	8	6,718.21	0.8998	6,045.045
2814	8	6,762.65	0.8998	6,085.032
2834	8	6,492.39	0.8999	5,842.501
2845	8	6,916.82	0.8999	6,224.446
2846	8	6,846.10	0.8999	6,160.805
2848	8	6,716.09	0.8997	6,042.466
2850	8	6,851.94	0.8998	6,165.375
2851	8	6,696.94	0.8998	6,025.906
2852	8	6,774.70	0.8998	6,095.875
2856	8	6,513.22	0.8998	5,860.595
2857	8	6,821.53	0.8998	6,138.012
2858	8	6,761.80	0.8999	6,084.944
2859	8	6,803.73	0.8998	6,121.996
2860	8	6,550.61	0.8999	5,894.894
2861	8	6,586.06	0.9000	5,927.454
2862	8	6,754.54	0.8999	6,078.410
2863	8	6,898.72	0.8999	6,208.158
2866	8	6,541.90	0.8999	5,887.056
2868	8	6,742.18	0.8997	6,065.939
2869	8	6,851.94	0.8998	6,165.375
2870	8	6,761.90	0.8998	6,084.357
2871	8	6,689.98	0.8998	6,019.644

2795	8	6,179.02	0.8999	5,560.500
2805	8	7,253.14	0.8998	6,526.375
2806	8	6,886.13	0.8998	6,196.139
2807	8	6,598.73	0.8997	5,936.877
2808	8	7,145.27	0.8998	6,429.314
2816	8	6,552.16	0.8998	5,895.633
2827	8	6,735.69	0.8998	6,060.774
2828	8	6,370.45	0.8998	5,732.131
2829	8	6,675.40	0.8998	6,006.525
2830	8	6,858.16	0.8998	6,170.972
2831	8	6,759.98	0.8998	9,082.630
2832	8	6,538.90	0.8997	5,883.048
2833	8	6,714.91	0.8998	6,042.076
2836	8	7,195.49	0.8998	6,474.502
2837	8	6,376.17	0.8999	5,737.915
2839	8	6,803.34	0.8999	6,122.325
2840	8	6,866.26	0.8999	6,178.947
2841	8	6,679.19	0.8998	6,009.935
2842	8	6,931.84	0.8999	6,237.963
2843	8	6,784.93	0.8998	6,105.080
2794	8	6,575.99	0.8998	5,917.076
2800	8	7,064.30	0.8999	6,357.163

2801	8	6,877.93	0.8998	6,188.761
2803	8	6,671.76	0.8998	6,003.249
2813	8	6,495.36	0.8998	5,844.525
2815	8	6,623.28	0.8998	5,959.627
2817	8	6,706.01	0.8998	6,034.067
2818	8	6,324.82	0.8998	5,691.073
2819	8	6,979.65	0.8998	6,280.289
2820	8	6,822.54	0.8998	6,138.921
2821	8	6,827.11	0.8998	6,143.033
2822	9	7,394.98	0.8999	6,654.742
2823	8	6,698.60	0.8998	6,027.400
2824	8	6,615.05	0.8998	5,952.222
2825	8	6,797.17	0.8999	6,116.773
2753	8	6,766.45	0.8998	6,088.451
2784	8	6,651.28	0.8998	5,984.821
2785	8	6,843.32	0.8998	6,157.619
2786	8	6,831.74	0.8998	6,147.199
2787	8	6,793.26	0.8999	6,113.254
2788	8	6,665.58	0.9000	5,999.022
2789	8	6,879.02	0.8999	6,190.430
2791	8	6,614.11	0.8998	5,951.376
2792	8	7,090.70	0.8998	6,380.212

2793	8	6,836.67	0.8998	6,151.635
2796	8	6,752.50	0.8998	6,075.899
2797	8	6,462.98	0.8998	5,815.389
2798	8	6,286.04	0.8998	5,656.178
2790	8	6,904.17	0.8999	6,213.062
2802	8	7,233.11	0.8998	6,508.352
2804	8	7,045.68	0.8998	6,339.703
2809	8	6,689.06	0.8999	6,019.485
2810	7	5,729.63	0.8998	5,155.521
2811	8	6,665.80	0.8998	5,997.887
2775	8	6,755.78	0.8997	6,078.175
2776	8	6,544.52	0.8997	5,888.104
2777	8	6,478.35	0.8997	5,828.571
2778	8	6,688.86	0.8999	6,019.305
2779	8	6,673.60	0.8998	6,004.905
2780	8	6,447.20	0.8999	5,801.835
2781	8	6,653.80	0.8999	5,987.754
2782	8	6,687.66	0.8999	6,018.225
2783	8	6,613.98	0.8999	5,951.920
73	17	6,895.34	0.9000	6,205.806
124	16	6,720.12	0.9001	6,048.780
23	16	7,284.51	0.8999	6,555.330

1515	8	6,740.73	0.9000	6,066.657
1460	8	6,787.06	0.8999	6,107.675
1409	8	6,673.17	0.9000	6,005.853
1357	8	6,923.46	0.9000	6,231.114
1309	8	6,619.79	0.9000	5,957.811
1265	8	6,946.14	0.9000	6,251.526
1218	16	6,735.80	0.8999	6,061.546
1165	16	6,822.41	0.8999	6,139.486
1062	16	7,116.97	0.8998	6,403.849
1113	15	6,176.00	0.8999	5,557.782
1050	16	6,772.77	0.9001	6,096.170
1051	16	7,141.99	0.8999	6,427.077
1052	16	6,997.84	0.8898	6,296.656
1053	16	6,630.47	0.8998	5,966.097
1054	16	6,757.86	0.8999	6,081.398
1055	16	6,689.79	0.8999	6,020.142
1056	16	6,655.92	0.8999	5,989.662
1057	16	6,659.64	0.8999	5,993.010
1058	16	6,686.34	0.9001	6,018.374
1059	16	6,724.43	0.8999	6,051.314
1060	15	6,061.69	0.9000	5,455.521
1106	16	7,155.22	0.8999	6,438.982

1107	16	6,625.19	0.9000	5,962.671
1114	14	5,703.41	0.8999	5,132.498
1117	16	6,692.57	0.8999	6,022.643
1118	17	7,490.26	0.8998	6,739.736
1122	16	7,312.32	0.9000	6,581.088
1123	16	6,866.62	0.8999	6,179.271
1124	16	6,828.06	0.8999	6,144.571
1125	16	6,769.86	0.8999	6,092.197
1126	16	6,810.42	0.8999	6,128.697
1127	16	6,600.63	0.8999	5,939.907
1129	16	6,829.92	0.9000	6,146.928
1130	16	6,646.61	0.8999	5,981.284
1131	15	6,235.21	0.8998	5,610.442
1132	13	5,364.73	0.8999	4,827.720
1098	16	6,875.44	0.8999	6,187.208
1099	16	6,720.35	0.8999	6,047.643
1100	16	7,131.46	0.9000	6,418.314
1101	17	7,117.33	0.9000	6,405.597
1102	16	6,719.26	0.9000	6,047.334
1103	16	6,968.67	0.9000	6,271.803
1104	17	7,380.16	0.8999	6,641.406
1105	16	6,662.66	0.9000	5,996.394

1108	16	6,728.19	0.8998	6,054.025
1109	16	6,880.67	0.8999	6,191.915
1110	16	6,632.74	0.8998	5,968.139
1111	16	6,729.24	0.8999	6,055.643
1112	16	6,910.96	0.8998	6,218.482
1065	16	7,145.01	0.8999	6,429.794
1069	16	6,957.63	0.8998	6,260.475
1070	16	6,843.39	0.8999	6,158.366
1071	16	6,731.29	0.8998	6,056.814
1072	17	7,091.60	0.8999	6,381.731
1073	16	6,882.54	0.8999	6,193.597
1074	16	6,737.39	0.8998	6,062.303
1075	16	6,671.98	0.8999	6,004.115
1076	16	6,665.43	0.8999	5,998.220
1077	14	6,014.98	0.8999	5,412.880
1078	14	5,696.79	0.8999	5,126.541
1079	14	5,839.87	0.8998	5,254.715
1080	15	6,678.92	0.8999	6,010.360
1081	16	6,919.49	0.8999	6,226.849
1082	15	6,560.09	0.8999	5,903.425
1084	16	6,912.57	0.9001	6,222.004
1085	17	7,381.44	0.9000	6,643.296

1086	15	6,829.18	0.8999	6,145.579
1087	16	6,790.74	0.8999	6,110.987
1088	16	6,977.34	0.8999	6,278.908
1089	16	6,749.84	0.8999	6,074.181
1090	16	6,767.51	0.8999	6,090.082
1092	16	6,720.23	0.8999	6,047.535
1093	16	6,766.98	0.8998	6,088.928
1094	16	6,847.67	0.9000	6,162.903
1095	15	6,252.02	0.8998	5,625.567
1096	14	5,692.60	0.9000	5,123.340
1097	14	5,828.66	0.8999	5,245.211
1091	16	6,991.54	0.8998	6,290.987
1061	16	6,877.76	0.8999	6,189.296
1063	16	6,778.78	0.8999	6,100.224
1064	16	6,866.46	0.9000	6,179.814
1066	16	6,849.47	0.8998	6,163.153
1067	16	6,772.26	0.8998	6,093.679
1068	16	7,095.34	0.8999	6,385.096
1083	16	7,149.32	0.8999	6,433.673
	5	5,352.73	0.8999	4,816.921
	5	5,345.76	0.8999	4,810.649
	5	5,349.71	0.8998	4,813.669

5	5,350.96	0.8999	4,815.328
5	5,352.92	0.8998	4,816.557
5	5,353.34	0.8999	4,817.470
5	5,352.23	0.8999	4,816.471
5	5,351.99	0.8999	4,816.255
5	5,350.45	0.8998	4,814.334
5	5,348.69	0.8998	4,812.751
5	5,349.48	0.8999	4,813.997
5	5,351.03	0.9000	4,815.927
5	5,348.95	0.8998	4,812.985
5	5,352.22	0.8998	4,815.927
5	5,349.67	0.8998	4,813.633
5	5,350.51	0.8999	4,814.923
5	5,353.74	0.8997	4,816.759
5	5,350.89	0.8998	4,814.730
5	5,349.85	0.8998	4,813.795
5	5,352.14	0.8999	4,816.390
5	5,323.42	0.8999	4,790.545
5	5,355.39	0.8998	4,818.779
5	5,353.74	0.8998	4,817.295
5	5,383.00	0.8998	4,843.623
5	5,353.32	0.8999	4,817.452

5	5,352.38	0.8999	4,816.606
5	5,352.48	0.8999	4,816.696
5	5,353.48	0.8999	4,817.596
5	5,354.57	0.8999	4,818.577
5	5,352.00	0.8999	4,816.264
5	5,353.02	0.8999	4,817.182
5	5,349.79	0.8999	4,814.276
5	5,347.04	0.8999	4,811.801
5	5,354.01	0.8998	4,817.538
5	5,354.85	0.8998	4,818.294
5	5,351.49	0.8999	4,815.805
5	5,351.79	0.8998	4,815.540
5	5,351.54	0.8998	4,815.315
5	5,353.33	0.8998	4,816.926
5	5,351.33	0.8998	4,815.126
5	5,352.63	0.8998	4,816.296
5	5,353.79	0.8999	4,817.875
5	5,352.00	0.8997	4,815.194
5	5,354.78	0.8999	4,818.766
5	5,351.89	0.8999	4,816.165
5	5,348.75	0.8999	4,813.340
5	5,351.62	0.8999	4,815.922

5	5,354.00	0.8998	4,817.529
5	5,354.69	0.8998	4,818.150
5	5,352.39	0.8998	4,816.080
5	5,353.29	0.8999	4,817.425
5	5,350.50	0.8998	4,814.379
5	5,352.62	0.8998	4,816.287
5	5,349.56	0.8999	4,814.069
5	5,351.28	0.8999	4,815.616
5	5,351.55	0.8998	4,815.324
5	5,351.10	0.8999	4,815.454
5	5,353.74	0.8999	4,817.830
5	5,348.63	0.8999	4,813.232
5	5,353.22	0.8999	4,817.362
5	5,349.38	0.8999	4,813.907
5	5,353.78	0.9000	4,818.402
5	5,351.08	0.9000	4,815.972
5	5,346.28	0.8999	4,811.117
5	5,351.89	0.8999	4,816.165
5	5,353.07	0.8998	4,816.692
5	5,354.62	0.8998	4,818.087
5	5,349.82	0.8999	4,814.303
5	5,351.71	0.8999	4,816.003

5	5,352.55	0.8999	4,816.759
5	5,353.12	0.8999	4,817.272
5	5,350.82	0.8999	4,815.202
5	5,351.90	0.8998	4,815.639
5	5,350.59	0.9000	4,815.531
5	5,353.18	0.8999	4,817.326
5	5,348.28	0.8997	4,811.847
5	5,353.13	0.8999	4,817.281
5	5,352.85	0.9000	4,817.565
5	5,353.39	0.8998	4,816.980
5	5,353.87	0.8999	4,817.947
5	5,352.76	0.8999	4,816.948
5	5,348.10	0.8999	4,812.755
5	5,353.22	0.8999	4,817.362
5	5,346.20	0.8999	4,811.045
5	5,345.43	0.8999	4,810.352
5	5,352.98	0.8999	4,817.146
5	5,353.57	0.8999	4,817.677
5	5,350.91	0.8999	4,815.283
9	9,373.40	0.8999	8,435.122
5	5,353.18	0.8999	4,817.326
5	5,351.74	0.8999	4,816.030

5	5,352.28	0.9000	4,817.052
5	5,354.67	0.8999	4,818.667
5	5,350.21	0.8999	4,814.653
5	5,353.64	0.8999	4,817.740
5	5,353.32	0.8998	4,816.917
5	5,352.66	0.8999	4,816.858
5	5,350.78	0.8999	4,815.166
5	5,353.20	0.8999	4,817.344
5	5,349.96	0.8999	4,814.429
5	5,352.40	0.8998	4,816.089
5	5,351.27	0.8999	4,815.607
5	5,354.55	0.8999	4,818.559
5	5,351.84	0.8999	4,816.120
5	5,350.91	0.8999	4,815.283
5	5,353.02	0.8999	4,817.182
5	5,354.78	0.9000	4,819.302
5	5,351.14	0.8999	4,815.490
5	5,352.20	0.8999	4,816.444
5	5,351.23	0.8998	4,815.036
5	5,351.81	0.8998	4,815.558
5	5,352.00	0.9000	4,816.800
5	5,349.59	0.8999	4,814.096

5	5,357.20	0.8998	4,820.408
5	5,346.57	0.8998	4,810.843
5	5,350.20	0.9000	4,815.180
5	5,351.39	0.8999	4,815.715
5	5,350.78	0.8999	4,815.166
5	5,353.84	0.8999	4,817.920
5	5,350.36	0.8999	4,814.788
5	5,356.20	0.8999	4,820.044
5	5,349.13	0.8998	4,813.147
5	5,352.23	0.8999	4,816.471
5	5,349.52	0.8999	4,814.033
5	5,352.05	0.8999	4,816.309
5	5,351.81	0.8998	4,815.558
5	5,354.69	0.8998	4,818.150
5	5,351.88	0.9000	4,816.692
5	5,350.59	0.8999	4,814.995
5	5,340.38	0.8999	4,805.807
5	5,349.13	0.8999	4,813.682
5	5,353.32	0.8998	4,816.917
5	5,355.33	0.8999	4,819.261
5	5,351.49	0.8999	4,815.805
5	5,352.17	0.8999	4,816.417

5	5,353.73	0.8998	4,817.286
5	5,351.93	0.8998	4,815.666
5	5,353.07	0.8999	4,817.227
5	5,348.04	0.9000	4,813.236
5	5,352.67	0.8999	4,816.867
5	5,351.35	0.8999	4,815.679
5	5,350.53	0.8999	4,814.941
5	5,351.97	0.8998	4,815.702
3	2,672.91	0.8998	2,405.084
5	5,353.25	0.8999	4,817.389
5	5,353.77	0.9000	4,818.393
5	5,353.80	0.9000	4,818.420
5	5,352.11	0.8999	4,816.363
5	5,350.08	0.8999	4,814.536
5	5,351.32	0.8999	4,815.652
5	5,351.94	0.9000	4,816.746
5	5,353.45	0.8999	4,817.569
5	5,351.60	0.8999	4,815.904
5	5,353.83	0.8998	4,817.376
5	5,350.67	0.8999	4,815.067
5	5,353.40	0.8998	4,816.989
5	5,351.12	0.8999	4,815.472

5	5,353.19	0.8999	4,817.335
5	5,352.51	0.9000	4,817.259
5	5,353.70	0.8999	4,817.794
5	5,349.33	0.8999	4,813.862
5	5,352.52	0.9000	4,817.268
5	5,351.35	0.8999	4,815.679
5	5,353.69	0.8999	4,817.785
5	5,351.92	0.8998	4,815.657
3	2,675.64	0.8999	2,407.808
5	5,353.62	0.8998	4,817.187
5	5,351.98	0.8999	4,816.246
5	5,353.20	0.8998	4,816.809
5	5,352.48	0.9000	4,817.232
5	5,353.06	0.8999	4,817.218
5	5,351.13	0.8999	4,815.481
5	5,352.20	0.8999	4,816.444
5	5,351.05	0.9000	4,815.945
5	5,352.50	0.8999	4,816.714
5	5,351.32	0.8999	4,815.652
5	5,352.20	0.8999	4,816.444
5	5,355.47	0.8998	4,818.851
5	5,351.96	0.8998	4,815.693

5	5,354.88	0.9000	4,819.392
5	5,355.20	0.8999	4,819.144
5	5,352.10	0.8999	4,816.354
5	5,352.82	0.8999	4,817.002
5	5,353.27	0.8999	4,817.407
5	5,353.80	0.8999	4,817.884
5	5,350.55	0.9000	4,815.495
5	5,351.00	0.9000	4,815.900
5	5,351.70	0.9000	4,816.530
5	5,352.36	0.8999	4,816.588
5	5,350.99	0.8998	4,814.820
5	5,352.73	0.8999	4,816.921
5	5,351.48	0.8999	4,815.796
5	5,353.79	0.9000	4,818.411
5	5,351.07	0.8999	4,815.427
5	5,351.88	0.8999	4,816.156
5	5,353.31	0.8999	4,817.443
5	5,351.42	0.8999	4,815.742
5	5,352.12	0.9000	4,816.908
5	5,348.24	0.9000	4,813.416
5	5,350.27	0.8999	4,814.707
5	5,350.04	0.8998	4,813.965

5	5,350.19	0.8998	4,814.100
5	5,351.55	0.8999	4,815.859
5	5,351.48	0.8999	4,815.796
5	5,351.00	0.8999	4,815.364
5	5,351.30	0.8998	4,815.099
5	5,354.80	0.8998	4,818.249
5	5,351.03	0.8999	4,815.391
5	5,353.84	0.8999	4,817.920
5	5,351.93	0.8999	4,816.201
5	5,351.85	0.8999	4,816.129
5	5,350.87	0.8999	4,815.247
5	5,352.87	0.9000	4,817.583
5	5,350.60	0.9000	4,815.540
5	5,354.19	0.8999	4,818.235
5	5,354.28	0.8998	4,817.781
5	5,351.28	0.9000	4,816.152
5	5,351.78	0.8999	4,816.066
5	5,353.55	0.8999	4,817.659
5	5,352.53	0.9000	4,817.277
5	5,352.66	0.8999	4,816.858
5	5,351.64	0.8998	4,815.405
5	5,353.04	0.9000	4,817.736

5	5,350.97	0.8999	4,815.337
5	5,352.10	0.8998	4,815.819
5	5,349.63	0.8999	4,814.132
5	5,351.13	0.8999	4,815.481
5	5,350.83	0.8999	4,815.211
5	5,350.99	0.8998	4,814.820
5	5,352.35	0.8999	4,816.579
5	5,351.98	0.8998	4,815.711
5	5,357.65	0.8999	4,821.349
5	5,351.37	0.8999	4,815.697
5	5,351.53	0.8998	4,815.306
5	5,352.74	0.8998	4,816.395
3	2,674.58	0.8998	2,406.587
5	5,351.25	0.8999	4,815.589
5	5,351.56	0.8999	4,815.868
5	5,342.86	0.8999	4,808.039
5	5,351.55	0.8998	4,815.324
5	5,347.06	0.9000	4,812.354
5	5,350.53	0.8999	4,814.941
3	2,675.47	0.8999	2,407.655
5	5,353.08	0.8999	4,817.236
5	5,354.25	0.8998	4,817.754

5	5,353.33	0.8999	4,817.461
5	5,352.02	0.8999	4,816.282
5	5,352.97	0.8997	4,816.067
5	5,350.93	0.8998	4,814.766
5	5,351.99	0.8998	4,815.720
5	5,351.37	0.8999	4,815.697
5	5,352.00	0.8998	4,815.729
5	5,352.19	0.8999	4,816.435
5	5,350.19	0.8998	4,814.100
5	5,351.20	0.8999	4,815.544
5	5,351.90	0.8998	4,815.639
5	5,349.72	0.8998	4,813.678
5	5,351.48	0.8998	4,815.261
5	5,352.90	0.8998	4,816.539
5	5,351.70	0.8998	4,815.459
5	5,352.38	0.8998	4,816.071
5	5,353.25	0.8999	4,817.389
5	5,355.54	0.9000	4,819.986
5	5,349.88	0.8998	4,813.822
5	5,350.21	0.8998	4,814.118
5	5,353.65	0.8999	4,817.749
5	5,354.40	0.8999	4,818.424

5	5,353.33	0.8998	4,816.926
5	5,351.33	0.8998	4,815.126
5	5,351.20	0.8998	4,815.009
5	5,350.35	0.8999	4,814.779
5	5,352.94	0.8998	4,816.575
5	5,352.81	0.8999	4,816.993
5	5,353.37	0.8998	4,816.962
5	5,352.65	0.8998	4,816.314
5	5,353.55	0.8999	4,817.659
5	5,351.44	0.8998	4,815.225
5	5,352.82	0.8998	4,816.467
5	5,354.85	0.8999	4,818.829
5	5,355.11	0.8999	4,819.063
5	5,351.08	0.8998	4,814.901
5	5,351.79	0.8999	4,816.075
5	5,350.15	0.8998	4,814.064
5	5,352.51	0.8999	4,816.723
5	5,349.99	0.8999	4,814.456
5	5,355.24	0.9000	4,819.716
5	5,350.72	0.8997	4,814.042
5	5,351.22	0.8999	4,815.562
5	5,351.72	0.9000	4,816.548

5	5,353.10	0.8999	4,817.254
5	5,350.95	0.8999	4,815.319
5	5,356.77	0.8998	4,820.021
5	5,352.82	0.8999	4,817.002
5	5,352.30	0.8999	4,816.534
5	5,354.90	0.8999	4,818.874
5	5,353.30	0.8999	4,817.434
5	5,347.12	0.8999	4,811.873
5	5,352.32	0.9000	4,817.088
5	5,350.78	0.8999	4,815.166
5	5,353.95	0.8999	4,818.019
5	5,352.88	0.8999	4,817.056
5	5,351.55	0.8999	4,815.859
5	5,353.35	0.8999	4,817.479
5	5,358.91	0.8998	4,821.947
5	5,354.64	0.8999	4,818.640
5	5,354.84	0.8999	4,818.820
5	5,355.92	0.8999	4,819.792
5	5,353.06	0.8999	4,817.218
5	5,352.60	0.8999	4,816.804
5	5,351.80	0.8999	4,816.084
5	5,349.94	0.8999	4,814.411

5	5,352.14	0.8999	4,816.390
5	5,353.46	0.8999	4,817.578
5	5,352.47	0.8998	4,816.152
5	5,351.69	0.8999	4,815.985
5	5,343.08	0.8999	4,808.237
5	5,359.47	0.8999	4,822.987
5	5,351.88	0.8998	4,815.621
5	5,355.77	0.9000	4,820.193
5	5,351.31	0.8999	4,815.643
5	5,352.56	0.8999	4,816.768
5	5,351.40	0.8998	4,815.189
5	5,353.05	0.8998	4,816.674
5	5,351.62	0.8998	4,815.387
5	5,352.85	0.8999	4,817.029
5	5,354.29	0.9000	4,818.861
5	5,354.15	0.8998	4,817.664
5	5,353.42	0.9000	4,818.078
5	5,352.37	0.8999	4,816.597
5	5,352.41	0.8999	4,816.633
5	5,352.88	0.9000	4,817.592
5	5,353.30	0.8998	4,816.899
5	5,351.30	0.8999	4,815.634

5	5,354.76	0.8999	4,818.748
5	5,351.34	0.8999	4,815.670
5	5,351.57	0.8999	4,815.877
5	5,353.82	0.8999	4,817.902
5	5,353.65	0.9000	4,818.285
5	5,352.99	0.8999	4,817.155
5	5,352.10	0.8998	4,815.819
5	5,352.12	0.8998	4,815.837
3	2,675.23	0.8998	2,407.171
5	5,351.75	0.8998	4,815.504
5	5,352.43	0.8999	4,816.651
5	5,352.60	0.8999	4,816.804
5	5,351.75	0.8998	4,815.504
5	5,351.29	0.8999	4,815.625
5	5,351.55	0.8998	4,815.324
5	5,352.72	0.8998	4,816.377
5	5,354.37	0.8998	4,817.862
5	5,354.46	0.9000	4,819.014
5	5,355.10	0.8999	4,819.054
5	5,353.58	0.8999	4,817.686
5	5,352.90	0.8999	4,817.074
5	5,351.68	0.8997	4,814.906

5	5,353.05	0.8998	4,816.674
5	5,354.13	0.8999	4,818.181
5	5,354.22	0.8999	4,818.262
5	5,354.79	0.8998	4,818.240
5	5,352.59	0.8998	4,816.260
5	5,356.95	0.8998	4,820.183
5	5,353.09	0.8998	4,816.710
5	5,352.64	0.8999	4,816.840
5	5,352.70	0.9000	4,817.430
5	5,353.62	0.8999	4,817.722
5	5,353.27	0.8999	4,817.407
5	5,352.73	0.8999	4,816.921
5	5,354.12	0.8999	4,818.172
5	5,353.59	0.8999	4,817.695
5	5,353.24	0.8998	4,816.845
5	5,353.53	0.8999	4,817.641
5	5,357.50	0.8998	4,820.678
5	5,355.83	0.8998	4,819.175
5	5,354.02	0.8998	4,817.547
5	5,353.20	0.8998	4,816.809
5	5,352.36	0.8998	4,816.053
5	5,354.23	0.8998	4,817.736

5	5,352.78	0.8998	4,816.431
5	5,355.66	0.8998	4,819.022
5	5,352.68	0.8999	4,816.876
5	5,353.25	0.8999	4,817.389
5	5,353.89	0.8999	4,817.965
5	5,384.31	0.8999	4,845.340
5	5,353.38	0.8999	4,817.506
5	5,352.49	0.8999	4,816.705
5	5,352.30	0.8998	4,815.999
5	5,352.37	0.8999	4,816.597
5	5,350.92	0.8999	4,815.292
5	5,353.89	0.8999	4,817.965
5	5,351.14	0.8999	4,815.490
5	5,352.21	0.8999	4,816.453
5	5,354.35	0.8999	4,818.379
5	5,351.36	0.8999	4,815.688
5	5,353.58	0.8999	4,817.686
5	5,353.33	0.8999	4,817.461
5	5,352.19	0.8998	4,815.900
5	5,350.86	0.8998	4,814.703
5	5,351.22	0.8999	4,815.562
5	5,349.19	0.8999	4,813.736

5	5,351.48	0.8999	4,815.796
5	5,349.39	0.8999	4,813.916
5	5,349.91	0.8999	4,814.384
5	5,349.34	0.8999	4,813.871
5	5,352.55	0.8998	4,816.224
5	5,351.04	0.8998	4,814.865
5	5,355.20	0.8998	4,818.608
5	5,351.19	0.8998	4,815.000
5	5,352.69	0.8999	4,816.885
5	5,353.62	0.8998	4,817.187
5	5,353.04	0.8999	4,817.200
5	5,352.02	0.8999	4,816.282
5	5,350.88	0.8999	4,815.256
5	5,354.46	0.9000	4,819.014
5	5,353.70	0.8998	4,817.259
5	5,309.15	0.8998	4,777.173
5	5,354.29	0.8999	4,818.325
5	5,351.67	0.8998	4,815.432
5	5,354.22	0.8997	4,817.191
5	5,352.11	0.8998	4,815.828
5	5,351.70	0.8998	4,815.459
5	5,399.01	0.8998	4,858.029

5	5,353.10	0.9000	4,817.790
5	5,352.30	0.8998	4,815.999
5	5,355.70	0.8999	4,819.594
5	5,351.06	0.8999	4,815.418
5	5,351.73	0.8999	4,816.021
5	5,353.18	0.8999	4,817.326
5	5,353.52	0.8998	4,817.097
5	5,353.83	0.8999	4,817.911
5	5,351.88	0.8999	4,816.156
5	5,350.77	0.8998	4,814.622
5	5,353.77	0.8999	4,817.857
5	5,348.72	0.8999	4,813.313
5	5,351.73	0.9000	4,816.557
5	5,353.60	0.9000	4,818.240
5	5,354.08	0.8999	4,818.136
5	5,353.90	0.9000	4,818.510
5	5,358.66	0.8999	4,822.258
5	5,347.17	0.8999	4,811.918
5	5,347.68	0.8999	4,812.377
5	5,350.90	0.8999	4,815.274
5	5,353.24	0.8999	4,817.380
5	5,352.89	0.9000	4,817.601

5	5,356.39	0.9000	4,820.751
5	5,352.39	0.8999	4,816.615
5	5,344.54	0.8999	4,809.551
5	5,349.99	0.8999	4,814.456
5	5,349.79	0.8999	4,814.276
5	5,349.41	0.8998	4,813.399
5	5,358.25	0.9000	4,822.425
5	5,351.27	0.8999	4,815.607
5	5,349.14	0.8999	4,813.691
5	5,350.27	0.8998	4,814.172
5	5,346.34	0.8998	4,810.636
5	5,348.88	0.8999	4,813.457
5	5,347.52	0.8999	4,812.233
5	5,348.97	0.8999	4,813.538
5	5,347.20	0.8999	4,811.945
5	5,352.70	0.8999	4,816.894
5	5,348.07	0.8999	4,812.728
5	5,350.01	0.8999	4,814.473
5	5,347.23	0.8998	4,811.437
5	5,350.73	0.8999	4,815.121
5	5,347.63	0.8998	4,811.797
5	5,349.61	0.8998	4,813.579

5	5,349.31	0.8999	4,813.844
5	5,346.38	0.8999	4,811.207
5	5,350.40	0.8999	4,814.824
5	5,350.27	0.8999	4,814.707
5	5,352.32	0.8999	4,816.552
5	5,351.72	0.8999	4,816.012
5	5,353.67	0.8999	4,817.767
3	2,677.82	0.9000	2,410.038
5	5,356.37	0.8999	4,820.197
5	5,352.48	0.8999	4,816.696
5	5,353.40	0.9000	4,818.060
5	5,353.60	0.8999	4,817.704
5	5,351.95	0.8999	4,816.219
5	5,348.42	0.8999	4,813.043
5	5,349.39	0.8999	4,813.916
5	5,350.18	0.8999	4,814.626
5	5,352.38	0.8999	4,816.606
5	5,352.45	0.8998	4,816.134
5	5,357.50	0.8999	4,821.214
5	5,347.73	0.8998	4,811.887
5	5,351.78	0.8999	4,816.066
5	5,348.38	0.8999	4,813.007

5	5,351.32	0.8998	4,815.117
5	5,355.30	0.8998	4,818.698
5	5,351.85	0.8999	4,816.129
5	5,349.59	0.8999	4,814.096
5	5,349.55	0.8999	4,814.060
5	5,352.85	0.8998	4,816.494
5	5,353.57	0.8998	4,817.142
5	5,353.06	0.8998	4,816.683
5	5,352.00	0.8998	4,815.729
5	5,353.30	0.8999	4,817.434
5	5,351.69	0.8998	4,815.450
5	5,354.59	0.8999	4,818.595
5	5,350.23	0.8998	4,814.136
5	5,353.52	0.8999	4,817.632
5	5,352.26	0.8999	4,816.498
5	5,353.30	0.8999	4,817.434
5	5,353.99	0.9000	4,818.591
5	5,353.87	0.9000	4,818.483
5	5,354.65	0.8998	4,818.114
5	5,350.35	0.8999	4,814.779
5	5,356.20	0.8999	4,820.044
3	2,675.60	0.9000	2,408.040

5	5,353.15	0.9000	4,817.835
5	5,352.38	0.8999	4,816.606
5	5,353.31	0.9000	4,817.979
5	5,351.35	0.9000	4,816.215
5	5,354.39	0.8999	4,818.415
5	5,352.03	0.8998	4,815.756
5	5,353.75	0.8999	4,817.839
5	5,350.32	0.8999	4,814.752
5	5,351.39	0.8999	4,815.715
5	5,352.65	0.8999	4,816.849
5	5,351.70	0.9000	4,816.530
5	5,351.75	0.9000	4,816.575
5	5,354.33	0.8999	4,818.361
5	5,352.30	0.8998	4,815.999
5	5,352.90	0.8999	4,817.074
5	5,354.46	0.8999	4,818.478
5	5,351.61	0.8999	4,815.913
5	5,352.83	0.8999	4,817.011
5	5,352.93	0.9000	4,817.637
5	5,350.83	0.8999	4,815.211
5	5,351.30	0.8999	4,815.634
5	5,354.53	0.8999	4,818.541

5	5,353.79	0.9000	4,818.411
5	5,353.08	0.9000	4,817.772
5	5,353.41	0.8999	4,817.533
5	5,351.88	0.8999	4,816.156
5	5,353.73	0.8998	4,817.286
5	5,353.12	0.9000	4,817.808
5	5,352.88	0.9000	4,817.592
5	5,352.35	0.8999	4,816.579
5	5,352.17	0.8998	4,815.882
5	5,352.52	0.8999	4,816.732
5	5,312.47	0.8999	4,780.691
5	5,393.74	0.8999	4,853.826
5	5,353.74	0.8999	4,817.830
3	2,674.96	0.8998	2,406.929
5	5,351.19	0.8998	4,815.000
5	5,352.59	0.8999	4,816.795
3	2,674.92	0.9000	2,407.428
5	5,353.35	0.8999	4,817.479
5	5,351.90	0.8999	4,816.174
5	5,354.15	0.9000	4,818.735
5	5,353.43	0.8999	4,817.551
5	5,354.64	0.8999	4,818.640

3	2,675.82	0.8999	2,407.970
5	5,353.87	0.8999	4,817.947
5	5,354.18	0.8999	4,818.226
5	5,352.61	0.8999	4,816.813
5	5,353.25	0.9000	4,817.925
5	5,350.30	0.8999	4,814.734
5	5,353.46	0.9000	4,818.114
5	5,353.85	0.8999	4,817.929
5	5,351.60	0.8999	4,815.904
5	5,351.25	0.9000	4,816.125
5	5,353.35	0.9000	4,818.015
5	5,352.68	0.8999	4,816.876
5	5,352.87	0.9000	4,817.583
5	5,352.55	0.8999	4,816.759
5	5,352.98	0.8999	4,817.146
5	5,342.95	0.8999	4,808.120
5	5,317.32	0.8999	4,785.056
5	5,292.02	0.8999	4,762.288
5	5,350.38	0.8998	4,814.271
5	5,352.71	0.8998	4,816.368
5	5,353.07	0.8997	4,816.157
5	5,353.87	0.8999	4,817.947

5	5,352.75	0.8998	4,816.404
5	5,352.54	0.8999	4,816.750
5	5,353.04	0.8998	4,816.665
5	5,350.54	0.8998	4,814.415
5	5,353.14	0.8998	4,816.755
5	5,352.49	0.8998	4,816.170
5	5,352.22	0.8998	4,815.927
3	2,676.24	0.8999	2,408.348
5	5,353.35	0.8999	4,817.479
5	5,361.30	0.8999	4,824.633
5	5,353.50	0.8999	4,817.614
5	5,353.32	0.8999	4,817.452
5	5,350.79	0.8999	4,815.175
5	5,352.74	0.9000	4,817.466
5	5,355.75	0.9000	4,820.175
5	5,353.22	0.8998	4,816.827
5	5,351.78	0.9000	4,816.602
5	5,350.78	0.8999	4,815.166
5	5,352.95	0.8999	4,817.119
5	5,349.14	0.9000	4,814.226
5	5,352.65	0.8999	4,816.849
5	5,349.37	0.8999	4,813.898

5	5,353.19	0.8999	4,817.335
5	5,353.55	0.8998	4,817.124
5	5,353.10	0.8999	4,817.254
5	5,353.06	0.8998	4,816.683
5	5,347.22	0.8998	4,811.428
5	5,350.23	0.8999	4,814.671
5	5,350.24	0.9000	4,815.216
5	5,349.70	0.8999	4,814.195
5	5,354.20	0.9000	4,818.780
5	5,359.18	0.8999	4,822.726
5	5,354.60	0.8999	4,818.604
5	5,352.01	0.8999	4,816.273
5	5,354.92	0.9000	4,819.428
5	5,348.82	0.8999	4,813.403
5	5,351.35	0.8999	4,815.679
5	5,354.03	0.8999	4,818.091
5	5,352.38	0.8998	4,816.071
3	2,667.94	0.8999	2,400.879
5	5,348.18	0.8999	4,812.827
5	5,350.32	0.9000	4,815.288
5	5,349.16	0.8999	4,813.709
5	5,354.47	0.8999	4,818.487

5	5,354.13	0.8999	4,818.181
5	5,354.23	0.8998	4,817.736
5	5,352.70	0.8998	4,816.359
5	5,352.40	0.8998	4,816.089
5	5,353.50	0.8999	4,817.614
5	5,353.01	0.8999	4,817.173
5	5,351.98	0.8998	4,815.711
5	5,351.65	0.8997	4,814.879
5	5,353.59	0.8999	4,817.695
5	5,350.46	0.8998	4,814.343
5	5,350.62	0.8999	4,815.022
5	5,352.70	0.8998	4,816.359
5	5,351.72	0.8999	4,816.012
5	5,352.77	0.8998	4,816.422
5	5,352.38	0.8999	4,816.606
5	5,355.37	0.8998	4,818.761
5	5,353.01	0.8999	4,817.173
5	5,353.09	0.8998	4,816.710
3	2,672.22	0.9000	2,404.998
5	5,353.30	0.9000	4,817.970
5	5,353.40	0.8999	4,817.524
5	5,350.40	0.8999	4,814.824

5	5,345.00	0.8999	4,809.965
5	5,348.75	0.9000	4,813.875
5	5,348.84	0.8998	4,812.886
5	5,352.49	0.9000	4,817.241
5	5,346.00	0.8998	4,810.330
5	5,353.43	0.8999	4,817.551
5	5,353.24	0.8998	4,816.845
5	5,350.62	0.8998	4,814.487
5	5,357.73	0.8999	4,821.421
5	5,352.32	0.8998	4,816.017
5	5,352.92	0.8998	4,816.557
5	5,354.97	0.8998	4,818.402
5	5,351.04	0.8998	4,814.865
5	5,353.23	0.8998	4,816.836
5	5,350.54	0.8998	4,814.415
5	5,354.23	0.8998	4,817.736
5	5,353.32	0.8998	4,816.917
5	5,354.25	0.8999	4,818.289
5	5,347.20	0.8999	4,811.945
3	2,672.92	0.8998	2,405.093
5	5,352.10	0.8998	4,815.819
5	5,352.89	0.8998	4,816.530

5	5,351.00	0.8999	4,815.364
3	2,675.17	0.8999	2,407.385
5	5,353.45	0.8998	4,817.034
5	5,353.97	0.8999	4,818.037
5	5,351.12	0.8999	4,815.472
5	5,350.35	0.8999	4,814.779
5	5,345.02	0.9000	4,810.518
5	5,354.20	0.8998	4,817.709
5	5,351.90	0.8999	4,816.174
5	5,347.55	0.8999	4,812.260
5	5,346.00	0.8999	4,810.865
5	5,346.87	0.8998	4,811.113
5	5,349.75	0.8998	4,813.705
5	5,350.25	0.8998	4,814.154
5	5,349.95	0.8998	4,813.885
5	5,352.59	0.9000	4,817.331
5	5,349.38	0.8998	4,813.372
5	5,353.27	0.9000	4,817.943
5	5,353.48	0.8998	4,817.061
5	5,351.56	0.8999	4,815.868
5	5,350.80	0.8998	4,814.649
5	5,350.50	0.8998	4,814.379

5	5,350.75	0.8998	4,814.604
5	5,353.36	0.8998	4,816.953
5	5,352.25	0.8999	4,816.489
5	5,351.94	0.8999	4,816.210
5	5,352.64	0.9000	4,817.376
5	5,354.70	0.8999	4,818.694
5	5,352.03	0.8999	4,816.291
5	5,348.17	0.9000	4,813.353
5	5,348.64	0.9000	4,813.776
5	5,346.54	0.8998	4,810.816
5	5,348.43	0.8999	4,813.052
5	5,348.15	0.8999	4,812.800
5	5,350.33	0.8999	4,814.761
5	5,345.89	0.8999	4,810.766
5	5,355.02	0.8998	4,818.446
5	5,349.10	0.8998	4,813.120
5	5,354.49	0.8998	4,817.970
5	5,353.07	0.8998	4,816.692
5	5,354.30	0.8998	4,817.799
5	5,351.88	0.8998	4,815.621
5	5,352.95	0.8999	4,817.119
5	5,352.32	0.8998	4,816.017

5	5,353.33	0.8998	4,816.926
5	5,352.97	0.8998	4,816.602
5	5,350.65	0.8999	4,815.049
5	5,353.20	0.8998	4,816.809
5	5,353.22	0.8998	4,816.827
5	5,352.50	0.8999	4,816.714
5	5,351.95	0.8999	4,816.219
5	5,351.08	0.8998	4,814.901
5	5,351.14	0.9000	4,816.026
5	5,353.07	0.8998	4,816.692
5	5,353.03	0.9000	4,817.727
5	5,352.90	0.8997	4,816.004
5	5,349.74	0.8999	4,814.231
5	5,350.70	0.8999	4,815.094
6	6,415.04	0.9167	5,880.667
6	6,416.07	0.9166	5,880.969
6	6,400.15	0.9166	5,866.377
6	6,401.86	0.9167	5,868.585
6	6,401.25	0.9166	5,867.385
5	5,354.25	0.9000	4,818.825
5	5,353.13	0.8999	4,817.281
5	5,357.80	0.9000	4,822.020

5	5,353.01	0.8999	4,817.173
5	5,351.93	0.9000	4,816.737
5	5,353.05	0.8999	4,817.209
5	5,356.48	0.9000	4,820.832
5	5,354.54	0.9000	4,819.086
5	5,354.79	0.8999	4,818.775
5	5,354.07	0.9000	4,818.663
5	5,354.21	0.8999	4,818.253
5	5,352.71	0.8999	4,816.903
5	5,352.30	0.8999	4,816.534
5	5,353.97	0.8999	4,818.037
5	5,354.91	0.8999	4,818.883
5	5,353.39	0.9000	4,818.051
5	5,354.48	0.8999	4,818.496
5	5,354.02	0.9000	4,818.618
5	5,353.64	0.9000	4,818.276
5	5,352.71	0.9000	4,817.439
5	5,307.32	0.8999	4,776.057
5	5,352.87	0.8999	4,817.047
5	5,356.40	0.9000	4,820.760
5	5,354.53	0.8999	4,818.541
5	5,353.39	0.9000	4,818.051

	5	5,351.86	0.9000	4,816.674
	5	5,355.71	0.8999	4,819.603
	5	5,353.54	0.8999	4,817.650
	5	5,352.98	0.8999	4,817.146
	5	5,354.83	0.8999	4,818.811
	5	5,354.36	0.9000	4,818.924
	5	5,354.26	0.9000	4,818.834
61	16	6,463.39	0.8998	5,815.758
62	17	6,900.81	0.8998	6,209.348
	5	5,354.05	0.8999	4,818.109
	5	5,355.66	0.9000	4,820.094
	5	5,352.09	0.8999	4,816.345
	5	5,354.05	0.9001	4,819.180
	5	5,352.85	0.8998	4,816.494
	5	5,354.02	0.8999	4,818.082
	5	5,352.75	0.8999	4,816.939
	5	5,353.47	0.9000	4,818.123
	5	5,353.26	0.8999	4,817.398
	5	5,353.85	0.9000	4,818.465
	5	5,354.20	0.8999	4,818.244
	5	5,354.40	0.8999	4,818.424
	5	5,353.88	0.8999	4,817.956

5	5,353.78	0.8999	4,817.866
5	5,353.99	0.9000	4,818.591
2	1,885.16	0.8999	1,696.455
5	5,353.89	0.9000	4,818.501
3	3,233.74	0.9000	2,910.366
5	5,353.74	0.8999	4,817.830
5	5,352.70	0.8999	4,816.894
5	5,352.45	0.9000	4,817.205
5	5,352.69	0.8999	4,816.885
5	5,352.28	0.8998	4,815.981
5	5,353.77	0.8999	4,817.857
5	5,354.47	0.9000	4,819.023
5	5,353.22	0.8999	4,817.362
5	5,352.62	0.9000	4,817.358
5	5,353.29	0.9000	4,817.961
5	5,353.10	0.8999	4,817.254
5	5,353.29	0.8999	4,817.425
3	2,674.47	0.8999	2,406.755
5	5,304.33	0.8998	4,772.836
2	2,378.98	0.8999	2,140.844
5	5,355.56	0.9000	4,820.004
5	5,355.87	0.8999	4,819.747

5	5,352.45	0.9000	4,817.205
5	5,355.57	0.9000	4,820.013
5	5,354.20	0.8999	4,818.244
5	5,352.85	0.9000	4,817.565
5	5,352.18	0.8999	4,816.426
5	5,352.57	0.8999	4,816.777
5	5,356.40	0.9000	4,820.760
5	5,355.39	0.9000	4,819.851
5	5,352.93	0.8999	4,817.101
5	5,352.50	0.8999	4,816.714
5	5,348.38	0.8999	4,813.007
5	5,353.90	0.8998	4,817.439
5	5,354.82	0.8999	4,818.802
5	5,353.45	0.8999	4,817.569
5	5,353.02	0.8999	4,817.182
5	5,356.16	0.9000	4,820.544
5	5,353.29	0.9000	4,817.961
5	5,352.59	0.8999	4,816.795
4	4,613.21	0.9167	4,228.929
5	5,351.93	0.8999	4,816.201
5	5,352.90	0.8999	4,817.074
3	2,674.30	0.9000	2,406.870

5	5,352.94	0.9000	4,817.646
5	5,353.93	0.8999	4,818.001
5	5,351.43	0.9000	4,816.287
5	5,353.13	0.9000	4,817.817
5	5,352.78	0.9000	4,817.502
5	5,352.49	0.8999	4,816.705
5	5,352.35	0.9000	4,817.115
5	5,354.51	0.9000	4,819.059
5	5,353.05	0.9000	4,817.745
5	5,353.18	0.9000	4,817.862
6	6,848.18	0.9166	6,277.041
5	5,358.00	0.9000	4,822.200
4	4,612.87	0.9167	4,228.617
5	5,383.52	0.8999	4,844.629
5	5,354.73	0.8999	4,818.721
5	5,354.24	0.8999	4,818.280
5	5,355.42	0.8999	4,819.342
5	5,355.24	0.8999	4,819.180
5	5,354.71	0.9000	4,819.239
8	9,221.23	0.9166	8,452.179
7	8,012.25	0.9166	7,344.028
5	5,124.36	0.8999	4,611.411

5	5,362.80	0.8999	4,825.983
5	5,363.00	0.9000	4,826.700
5	5,359.82	0.9000	4,823.838
5	5,362.15	0.8999	4,825.398
5	5,361.95	0.8999	4,825.218
5	5,360.90	0.8999	4,824.273
5	5,362.70	0.8999	4,825.893
5	5,358.25	0.8999	4,821.889
5	5,354.57	0.8999	4,818.577
5	5,360.53	0.8999	4,823.940
5	5,361.70	0.9000	4,825.530
5	5,359.31	0.8999	4,822.843
5	5,353.92	0.9000	4,818.528
5	5,352.27	0.8999	4,816.507
5	5,354.45	0.8999	4,818.469
5	5,352.24	0.8999	4,816.480
5	5,350.92	0.9000	4,815.828
5	5,354.50	0.9000	4,819.050
5	5,352.16	0.9000	4,816.944
5	5,352.85	0.9000	4,817.565
9	9,149.05	0.8999	8,233.230
8	8,370.65	0.8999	7,532.747

155	16	5,900.15	0.8998	5,308.954
	5	5,351.59	0.8999	4,815.895
	5	5,352.92	0.8998	4,816.557
	5	5,352.75	0.8999	4,816.939
	5	5,352.45	0.9000	4,817.205
	5	5,352.75	0.8999	4,816.939
	5	5,354.47	0.9000	4,819.023
	5	5,352.65	0.9000	4,817.385
	5	5,353.14	0.8999	4,817.290
	5	5,353.39	0.9000	4,818.051
	5	5,354.10	0.8999	4,818.154
	5	5,353.93	0.9000	4,818.537
	5	5,354.27	0.8999	4,818.307
	5	5,353.12	0.8998	4,816.737
	5	5,353.27	0.8999	4,817.407
	5	5,354.55	0.9000	4,819.095
	5	5,353.17	0.8999	4,817.317
	5	5,354.41	0.8999	4,818.433
	5	5,354.54	0.9000	4,819.086
	5	5,352.79	0.8999	4,816.975
	5	5,354.76	0.9000	4,819.284
	5	5,353.01	0.8999	4,817.173

5	5,354.65	0.9000	4,819.185
5	5,353.34	0.9000	4,818.006
5	5,353.15	0.8999	4,817.299
5	5,353.27	0.8999	4,817.407
5	5,356.72	0.8999	4,820.512
5	5,354.54	0.9000	4,819.086
5	5,352.22	0.8999	4,816.462
5	5,352.97	0.8998	4,816.602
5	5,353.55	0.8999	4,817.659
5	5,352.48	0.8999	4,816.696
5	5,353.75	0.9000	4,818.375
5	5,355.52	0.9000	4,819.968
5	5,353.81	0.8999	4,817.893
5	5,355.45	0.9000	4,819.905
5	5,352.90	0.8998	4,816.539
5	5,353.86	0.8999	4,817.938
5	5,353.06	0.8999	4,817.218
5	5,354.32	0.9000	4,818.888
5	5,353.54	0.9000	4,818.186
5	5,352.29	0.8999	4,816.525
5	5,352.90	0.8999	4,817.074
5	5,356.40	0.9000	4,820.760

3	2,674.82	0.8999	2,407.070
5	5,351.92	0.8999	4,816.192
5	5,353.95	0.8999	4,818.019
5	5,353.88	0.8998	4,817.421
5	5,355.95	0.9000	4,820.355
5	5,351.91	0.8999	4,816.183
5	5,355.40	0.9000	4,819.860
5	5,352.29	0.8999	4,816.525
5	5,353.79	0.9000	4,818.411
5	5,354.00	0.8998	4,817.529
5	5,354.07	0.8999	4,818.127
5	5,353.98	0.8999	4,818.046
5	5,355.22	0.8999	4,819.162
5	5,352.28	0.8999	4,816.516
5	5,354.10	0.8999	4,818.154
5	5,354.20	0.9000	4,818.780
5	5,353.79	0.8999	4,817.875
5	5,352.78	0.9000	4,817.502
5	5,353.49	0.8999	4,817.605
5	5,354.05	0.8999	4,818.109
5	5,353.65	0.8999	4,817.749
5	5,355.15	0.9000	4,819.635

3	2,675.54	0.8999	2,407.718
5	5,355.28	0.9000	4,819.752
5	5,348.28	0.8998	4,812.382
5	5,355.32	0.8999	4,819.252
5	5,350.15	0.8998	4,814.064
5	5,357.32	0.9000	4,821.588
5	5,351.38	0.9000	4,816.242
5	5,354.83	0.9000	4,819.347
5	5,352.78	0.8999	4,816.966
5	5,353.75	0.8999	4,817.839
5	5,349.92	0.9000	4,814.928
5	5,352.90	0.8998	4,816.539
5	5,351.80	0.8999	4,816.084
5	5,350.23	0.8999	4,814.671
3	2,672.92	0.8998	2,405.093
5	5,350.37	0.9000	4,815.333
5	5,354.35	0.8999	4,818.379
5	5,353.93	0.9000	4,818.537
5	5,354.25	0.8999	4,818.289
3	2,680.57	0.8999	2,412.244
5	5,355.27	0.8999	4,819.207
5	5,354.14	0.8998	4,817.655

5	5,353.42	0.8999	4,817.542
5	5,352.45	0.8998	4,816.134
5	5,356.09	0.9000	4,820.481
5	5,353.02	0.8998	4,816.647
5	5,353.62	0.8999	4,817.722
5	5,353.50	0.8998	4,817.079
5	5,354.05	0.8999	4,818.109
5	5,354.18	0.8998	4,817.691
5	5,352.58	0.8999	4,816.786
5	5,353.78	0.8998	4,817.331
5	5,354.59	0.8999	4,818.595
5	5,353.63	0.8999	4,817.731
5	5,353.33	0.8999	4,817.461
5	5,353.40	0.8998	4,816.989
5	5,353.38	0.8999	4,817.506
5	5,354.59	0.8999	4,818.595
5	5,353.20	0.8999	4,817.344
5	5,354.49	0.8999	4,818.505
5	5,354.75	0.8999	4,818.739
5	5,354.32	0.8998	4,817.817
5	5,347.49	0.9000	4,812.741
5	5,354.95	0.8999	4,818.919

	5	5,354.80	0.8999	4,818.784
	5	5,352.68	0.8999	4,816.876
	5	5,353.55	0.9000	4,818.195
	5	5,353.88	0.9000	4,818.492
	5	5,352.93	0.8999	4,817.101
	5	5,353.42	0.8999	4,817.542
	5	5,353.97	0.9000	4,818.573
	5	5,354.39	0.8999	4,818.415
	5	5,354.05	0.9000	4,818.645
	5	5,354.15	0.8999	4,818.199
	3	2,674.99	0.9000	2,407.491
	5	5,354.45	0.8999	4,818.469
	5	5,352.10	0.8999	4,816.354
	5	5,353.22	0.9000	4,817.898
	5	5,353.00	0.8999	4,817.164
	5	5,353.62	0.8999	4,817.722
	5	5,352.62	0.9000	4,817.358
	5	5,355.20	0.9000	4,819.680
873	8	6,812.98	0.8998	6,130.319
	5	5,354.08	0.9000	4,818.672
	5	5,353.27	0.8999	4,817.407
	5	5,355.87	0.8999	4,819.747

	5	5,353.32	0.8999	4,817.452
	5	5,354.62	0.8999	4,818.622
	5	5,353.60	0.9000	4,818.240
	5	5,353.40	0.8999	4,817.524
	5	5,353.20	0.9000	4,817.880
	5	5,354.35	0.9000	4,818.915
	5	5,358.25	0.8999	4,821.889
880	8	6,767.28	0.8999	6,089.875
	5	5,353.10	0.8999	4,817.254
	5	5,353.00	0.9000	4,817.700
881	8	6,732.54	0.8998	6,057.939
	5	5,354.15	0.9000	4,818.735
	5	5,352.65	0.9000	4,817.385
	5	5,354.34	0.8999	4,818.370
883	8	6,602.51	0.8999	5,941.598
	5	5,352.82	0.9000	4,817.538
884	8	7,017.19	0.8998	6,314.067
	5	5,352.88	0.9000	4,817.592
	5	5,354.28	0.9000	4,818.852
885	8	6,845.59	0.8997	6,158.977
	5	5,353.40	0.9000	4,818.060
	5	5,353.07	0.9000	4,817.763

886	8	6,629.11	0.8998	5,964.873
	5	5,354.27	0.8999	4,818.307
887	8	6,771.37	0.8998	6,092.878
	5	5,355.34	0.8999	4,819.270
	5	5,354.85	0.9000	4,819.365
	5	5,355.05	0.9000	4,819.545
889	8	6,461.74	0.8999	5,814.919
	5	5,353.62	0.9000	4,818.258
	5	5,354.49	0.8999	4,818.505
890	8	6,253.03	0.8998	5,626.476
	5	5,353.85	0.9000	4,818.465
	5	5,355.42	0.9000	4,819.878
891	8	6,887.02	0.8999	6,197.629
892	8	6,694.01	0.8999	6,023.939
	5	5,355.88	0.8999	4,819.756
	5	5,355.55	0.8999	4,819.459
893	8	6,765.72	0.8999	6,088.471
	5	5,354.49	0.8999	4,818.505
894	8	6,744.22	0.8999	6,069.123
	5	5,353.09	0.9000	4,817.781
	5	5,353.12	0.9000	4,817.808
895	8	6,508.88	0.8998	5,856.690

	5	5,354.17	0.9000	4,818.753
	5	5,355.71	0.8999	4,819.603
896	8	6,688.45	0.8998	6,018.267
	5	5,355.32	0.8999	4,819.252
897	8	6,766.82	0.8999	6,089.461
	5	5,353.75	0.8999	4,817.839
	5	5,353.02	0.8999	4,817.182
898	8	6,574.02	0.8999	5,915.960
	5	5,354.09	0.9000	4,818.681
899	8	6,848.49	0.8998	6,162.271
	5	5,352.14	0.8999	4,816.390
	5	5,353.92	0.8999	4,817.992
900	8	6,922.43	0.8998	6,228.802
	5	5,351.95	0.9000	4,816.755
	5	5,353.80	0.9000	4,818.420
901	8	6,474.81	0.9000	5,827.329
	5	5,354.15	0.9000	4,818.735
902	8	6,700.26	0.8998	6,028.893
	5	5,354.79	0.8999	4,818.775
	5	5,287.67	0.8999	4,758.374
903	8	6,780.97	0.8998	6,101.516
	5	5,354.99	0.8999	4,818.955

904	8	7,061.50	0.8998	6,353.937
	5	5,354.25	0.8999	4,818.289
	5	5,422.45	0.8999	4,879.662
905	8	6,972.13	0.8998	6,273.522
	5	5,355.05	0.8999	4,819.009
	5	5,355.70	0.9000	4,820.130
906	8	6,749.32	0.8998	6,073.038
	5	5,358.98	0.8999	4,822.546
907	8	6,748.45	0.8998	6,072.255
	5	5,355.20	0.9000	4,819.680
	5	5,355.13	0.9000	4,819.617
908	8	6,726.83	0.8998	6,052.801
	5	5,353.78	0.9000	4,818.402
909	8	6,755.17	0.8998	6,078.301
	5	5,351.15	0.9000	4,816.035
	5	5,353.79	0.9000	4,818.411
910	8	6,757.72	0.8998	6,080.596
	5	5,354.37	0.9000	4,818.933
	5	5,353.75	0.9000	4,818.375
911	8	6,745.01	0.8998	6,069.159
	5	5,425.96	0.8999	4,882.821
912	8	6,703.90	0.8998	6,032.169

	5	5,354.48	0.8999	4,818.496
	5	5,356.58	0.9000	4,820.922
913	8	6,396.80	0.8999	5,756.480
	5	5,354.33	0.9000	4,818.897
914	7	6,173.45	0.8998	5,554.870
	5	5,355.44	0.8999	4,819.360
915	8	6,776.68	0.8998	6,097.656
	5	5,353.42	0.8999	4,817.542
916	8	6,835.63	0.8998	6,150.699
	5	5,354.06	0.8999	4,818.118
	5	5,353.77	0.8998	4,817.322
917	8	6,831.20	0.8999	6,147.396
	5	5,354.48	0.8999	4,818.496
	5	5,356.28	0.8999	4,820.116
918	8	6,712.16	0.8998	6,039.601
	5	5,354.98	0.8999	4,818.946
919	8	6,598.61	0.8998	5,937.429
	5	5,355.79	0.9000	4,820.211
920	8	6,802.57	0.8998	6,120.952
	5	5,283.03	0.8999	4,754.198
921	8	6,895.69	0.8998	6,204.741
	5	5,354.13	0.8999	4,818.181

	5	5,355.45	0.8999	4,819.369
922	8	6,769.41	0.8999	6,091.792
	5	5,352.49	0.8999	4,816.705
	5	5,354.42	0.8999	4,818.442
923	8	7,058.13	0.8998	6,350.905
	5	5,355.15	0.8999	4,819.099
924	8	6,855.51	0.8999	6,169.273
	5	5,352.32	0.9000	4,817.088
	5	5,354.72	0.9001	4,819.783
925	8	6,130.17	0.8998	5,515.926
	5	5,371.82	0.9000	4,834.638
	5	5,354.47	0.8999	4,818.487
926	7	6,304.50	0.9000	5,674.050
	5	5,353.97	0.8999	4,818.037
	5	5,356.85	0.9000	4,821.165
	5	5,353.30	0.8999	4,817.434
928	8	6,619.94	0.8999	5,957.284
	5	5,354.57	0.8999	4,818.577
	5	5,355.87	0.8999	4,819.747
929	8	6,773.03	0.8998	6,094.372
	5	5,351.99	0.8999	4,816.255
	5	5,353.48	0.9000	4,818.132

930	8	6,802.52	0.8997	6,120.227
	5	5,354.96	0.9000	4,819.464
	5	5,352.35	0.9000	4,817.115
	5	5,354.15	0.8999	4,818.199
932	8	6,869.65	0.8998	6,181.311
	5	5,353.55	0.9000	4,818.195
933	8	6,854.55	0.8997	6,167.038
	5	5,354.65	0.8999	4,818.649
934	8	6,775.57	0.8998	6,096.657
935	8	6,931.76	0.8999	6,237.890
936	8	6,789.92	0.8999	6,110.249
937	8	6,416.92	0.8998	5,773.944
938	7	6,281.87	0.8998	5,652.426
	6	6,415.49	0.9166	5,880.438
939	8	6,766.99	0.8998	6,088.937
	6	6,414.65	0.9166	5,879.668
940	8	6,829.68	0.8998	6,145.346
	6	6,415.56	0.9166	5,880.502
	6	6,414.31	0.9166	5,879.356
941	8	6,825.47	0.8998	6,141.557
	6	6,413.97	0.9166	5,879.044
942	8	6,759.08	0.8998	6,081.820

	4	3,848.71	0.9166	3,527.727
943	8	6,738.09	0.8998	6,062.933
944	8	6,869.28	0.8998	6,180.978
945	8	6,682.68	0.8998	6,013.075
946	8	6,619.89	0.8998	5,956.577
947	8	6,915.34	0.8998	6,222.422
948	8	6,643.94	0.8998	5,978.217
949	8	6,425.19	0.8998	5,781.385
950	8	6,490.33	0.8999	5,840.647
951	8	6,931.56	0.8998	6,237.017
952	8	6,715.13	0.8997	6,041.602
953	8	7,016.15	0.8998	6,313.131
954	8	6,857.93	0.8998	6,170.765
956	8	6,995.38	0.8997	6,293.743
957	8	6,603.38	0.8998	5,941.721
958	8	6,815.15	0.8998	6,132.271
959	8	7,114.30	0.8998	6,401.447
	5	5,372.88	0.9000	4,835.592
	5	5,371.69	0.9001	4,835.058
961	8	6,340.54	0.8998	5,705.217
	5	5,370.32	0.9001	4,833.825
	5	5,371.80	0.9000	4,834.620

962	7	5,761.76	0.8998	5,184.431
	5	5,371.62	0.8999	4,833.920
963	8	6,480.88	0.8998	5,831.495
964	8	6,507.85	0.8998	5,855.763
965	8	7,005.77	0.8998	6,303.791
966	8	6,580.19	0.8998	5,920.854
967	8	6,592.78	0.8999	5,932.842
968	8	6,535.50	0.8999	5,881.296
	5	5,369.59	0.8999	4,832.094
969	8	6,884.83	0.8998	6,194.970
971	8	6,308.12	0.8998	5,676.046
972	8	7,583.95	0.8998	6,824.038
973	8	6,986.32	0.8998	6,286.290
974	8	7,385.58	0.8999	6,646.283
975	8	6,735.72	0.8997	6,060.127
976	8	6,722.19	0.8999	6,049.298
977	8	6,682.81	0.8999	6,013.860
978	8	6,779.85	0.8998	6,100.509
	5	5,370.66	0.9000	4,833.594
979	8	6,740.16	0.8999	6,065.469
980	8	6,787.39	0.8999	6,107.972
981	8	6,966.76	0.8998	6,268.690

982	8	6,764.23	0.8998	6,086.454
983	8	6,835.43	0.8999	6,151.203
	5	5,369.88	0.9000	4,832.892
984	8	6,864.74	0.8998	6,176.893
985	8	7,041.48	0.8998	6,335.923
986	8	6,732.86	0.8999	6,058.900
987	8	6,738.06	0.8998	6,062.906
	5	5,253.71	0.9000	4,728.339
988	8	6,867.33	0.8999	6,179.910
989	8	6,955.24	0.8999	6,259.020
990	8	6,831.47	0.8998	6,146.956
991	8	6,743.51	0.8999	6,068.484
992	8	6,673.89	0.8998	6,005.166
	5	5,368.24	0.8999	4,830.879
993	8	6,795.15	0.8998	6,114.275
	5	5,369.09	0.9000	4,832.181
994	8	6,863.90	0.8999	6,176.823
	5	5,371.30	0.9000	4,834.170
995	8	6,765.29	0.8998	6,087.407
996	8	6,801.18	0.8997	6,119.021
	5	5,370.35	0.9000	4,833.315
997	8	6,776.86	0.8998	6,097.818

	5	5,370.35	0.9000	4,833.315
	5	5,368.85	0.9000	4,831.965
998	8	6,835.89	0.8997	6,150.250
	5	5,370.73	0.9000	4,833.657
	5	5,370.99	0.9000	4,833.891
999	8	6,684.37	0.8998	6,014.596
	5	5,371.44	0.9000	4,834.296
1000	8	6,756.19	0.8999	6,079.895
1001	8	6,943.92	0.8999	6,248.833
1002	8	6,787.37	0.8998	6,107.275
	5	5,367.36	0.9001	4,831.160
1003	8	6,791.64	0.8998	6,111.117
1004	8	6,879.74	0.8998	6,190.390
1005	8	6,909.51	0.8997	6,216.486
1006	8	7,018.35	0.8998	6,315.111
1007	8	6,962.94	0.8998	6,265.253
1008	8	7,056.42	0.8998	6,349.366
1009	8	6,689.89	0.8999	6,020.232
1010	8	6,169.94	0.8998	5,551.712
1011	8	6,889.89	0.8997	6,198.834
1012	8	6,932.25	0.8998	6,237.638
1013	8	6,808.76	0.8998	6,126.522

1014	8	6,956.08	0.8998	6,259.080
1015	8	6,821.01	0.8998	6,137.544
1016	8	6,770.65	0.8998	6,092.230
1017	8	6,856.72	0.8998	6,169.676
1018	8	6,822.72	0.8998	6,139.083
1019	8	6,751.90	0.8998	6,075.359
1020	8	6,869.06	0.8999	6,181.467
1021	8	6,910.48	0.8998	6,218.049
1022	8	6,256.51	0.8998	5,629.607
1023	8	6,866.71	0.8998	6,178.665
1024	8	6,754.71	0.8998	6,077.888
1025	8	6,857.20	0.8998	6,170.108
1026	8	6,789.33	0.8997	6,108.360
1027	8	6,681.92	0.8998	6,012.391
1028	8	6,874.20	0.8997	6,184.717
1029	8	6,772.62	0.8999	6,094.680
1030	8	6,779.09	0.8998	6,099.825
1031	8	6,724.88	0.8998	6,051.047
1032	8	6,988.57	0.8998	6,288.315
1033	8	6,313.49	0.8998	5,680.878
1034	8	7,241.64	0.8998	6,516.027
1035	8	6,860.72	0.8999	6,173.961

1036	8	6,698.66	0.8998	6,027.454
1037	8	6,911.47	0.8998	6,218.940
1038	8	6,752.08	0.8997	6,074.846
1039	8	6,928.49	0.8999	6,234.948
1040	8	6,891.52	0.8997	6,200.300
1041	8	7,000.47	0.8998	6,299.022
1042	8	6,750.04	0.8998	6,073.685
1043	8	6,875.81	0.8998	6,186.853
1044	8	6,912.86	0.8998	6,220.191
1046	8	6,347.19	0.8998	5,711.201
1047	8	6,789.06	0.8998	6,108.796
1048	8	6,952.77	0.8998	6,256.102
1049	8	6,927.07	0.8999	6,233.670
1050	8	6,890.97	0.8998	6,200.494
1051	8	7,152.08	0.8997	6,434.726
1053	8	6,812.86	0.8998	6,130.211
1054	8	7,009.28	0.8998	6,306.950
1055	8	6,793.89	0.8998	6,113.142
1056	8	6,945.18	0.8998	6,249.272
1058	8	5,758.25	0.8998	5,181.273
1059	8	6,950.39	0.8999	6,254.655
1060	8	6,860.03	0.8998	6,172.654

1061	8	6,827.53	0.8999	6,144.094
1062	8	6,761.73	0.8998	6,084.204
1063	8	7,020.97	0.8998	6,317.468
1064	8	6,928.92	0.8997	6,233.949
1065	8	7,039.19	0.8998	6,333.863
1066	8	6,860.71	0.8998	6,173.266
1067	8	6,730.12	0.8998	6,055.761
1068	8	6,561.79	0.8998	5,904.298
1069	8	6,719.29	0.9000	6,047.361
1070	7	6,383.14	0.8998	5,743.549
1071	8	6,899.22	0.8998	6,207.918
1072	8	7,001.23	0.8998	6,299.706
	5	5,369.09	0.9000	4,832.181
1073	8	6,894.82	0.8998	6,203.959
1074	8	6,964.35	0.8998	6,266.522
1075	8	7,034.51	0.8998	6,329.652
1076	8	6,905.49	0.8998	6,213.559
	5	5,373.75	0.9000	4,836.375
1077	8	6,902.96	0.8998	6,211.283
1078	8	6,956.84	0.8999	6,260.460
1079	8	6,961.14	0.8999	6,264.329
1080	8	6,882.21	0.8998	6,192.612

1081	8	6,303.70	0.8998	5,672.069
1082	7	5,941.76	0.8998	5,346.395
1083	8	6,868.72	0.8998	6,180.474
1084	8	6,841.64	0.8999	6,156.791
1086	8	6,655.25	0.8999	5,989.059
1087	8	6,855.52	0.9000	6,169.968
1088	8	6,943.41	0.8999	6,248.374
1089	8	6,682.40	0.9000	6,014.160
1090	8	6,974.51	0.9000	6,277.059
1091	8	6,751.51	0.8998	6,075.008
1092	8	6,191.10	0.8998	5,570.751
1093	8	6,946.42	0.8998	6,250.388
1094	7	6,063.69	0.8998	5,456.108
1095	8	7,464.78	0.8999	6,717.555
1096	8	7,472.67	0.8997	6,723.161
1097	7	6,362.80	0.8998	5,725.247
1098	8	7,181.40	0.8998	6,461.823
1099	8	6,899.65	0.8999	6,208.995
1100	7	6,035.44	0.8997	5,430.085
1101	8	6,924.27	0.8997	6,229.765
1102	8	6,655.23	0.8997	5,987.710
	5	5,371.07	0.9000	4,833.963

5	5,372.83	0.8999	4,835.009
5	5,372.49	0.9000	4,835.241
5	5,371.85	0.9000	4,834.665
5	5,373.23	0.9000	4,835.907
5	5,367.81	0.9001	4,831.565
5	5,373.60	0.9000	4,836.240
5	5,369.26	0.9000	4,832.334
5	5,369.19	0.8999	4,831.734
5	5,370.01	0.9000	4,833.009
5	5,366.89	0.9000	4,830.201
5	5,371.08	0.9000	4,833.972
5	5,375.73	0.9000	4,838.157
5	5,364.96	0.9000	4,828.464
5	5,367.04	0.9000	4,830.336
5	5,371.09	0.9000	4,833.981
5	5,371.12	0.9000	4,834.008
5	5,369.10	0.9000	4,832.190
5	5,371.54	0.9000	4,834.386
5	5,371.05	0.9000	4,833.945
5	5,369.83	0.8999	4,832.310
5	5,371.34	0.9000	4,834.206
5	5,369.97	0.9000	4,832.973

	5	5,373.54	0.8999	4,835.648
	5	5,371.41	0.9000	4,834.269
	5	5,372.66	0.9000	4,835.394
	5	5,376.29	0.9000	4,838.661
	5	5,372.97	0.9000	4,835.673
790	17	7,500.69	0.9000	6,750.621
808	16	7,163.46	0.8998	6,445.681
815	16	6,706.36	0.8999	6,035.053
832	16	6,713.67	0.8999	6,041.631
833	16	6,651.83	0.8998	5,985.316
834	16	6,665.60	0.8999	5,998.373
835	14	5,867.24	0.9000	5,280.516
836	14	5,675.74	0.8999	5,107.598
837	15	6,484.11	0.9001	5,836.347
838	16	6,955.05	0.8999	6,258.849
839	16	7,111.81	0.8999	6,399.917
840	16	6,495.73	0.8999	5,845.507
842	16	6,993.07	0.8998	6,292.364
843	16	6,957.45	0.8998	6,260.313
844	16	7,200.35	0.8998	6,478.874
845	16	7,224.00	0.8998	6,500.155
846	16	6,715.60	0.9000	6,044.040

847	16	7,126.28	0.8999	6,412.939
848	15	6,328.31	0.8998	5,694.213
849	16	7,054.26	0.8999	6,348.128
850	16	6,965.60	0.8999	6,268.343
851	16	6,714.74	0.8999	6,042.594
852	16	6,746.65	0.8999	6,071.310
853	14	5,907.25	0.8999	5,315.934
854	13	5,369.70	0.8999	4,832.193
855	17	7,540.32	0.8999	6,785.533
856	15	6,483.13	0.8999	5,834.168
857	16	7,194.70	0.9000	6,475.230
859	17	7,230.33	0.8998	6,505.850
860	15	6,455.03	0.8999	5,808.881
861	16	6,735.12	0.8999	6,060.934
862	16	6,652.17	0.8999	5,986.287
863	16	6,804.25	0.8999	6,123.144
864	16	6,799.07	0.8999	6,118.483
865	16	6,789.65	0.8998	6,109.327
866	16	6,515.23	0.8998	5,862.403
867	15	6,267.43	0.8999	5,640.060
868	15	6,034.75	0.8999	5,430.671
869	15	6,186.70	0.8999	5,567.411

870	16	6,894.85	0.9000	6,205.365
871	14	5,903.16	0.9000	5,312.844
872	14	6,395.09	0.8999	5,754.941
873	16	7,003.94	0.8999	6,302.845
874	15	6,642.97	0.8999	5,978.008
876	16	7,247.29	0.8997	6,520.386
877	17	7,346.23	0.8998	6,610.137
878	16	7,149.24	0.8998	6,432.886
879	16	6,703.84	0.8999	6,032.785
880	16	6,661.74	0.9000	5,995.566
881	15	6,629.97	0.8999	5,966.310
882	16	6,896.21	0.8999	6,205.899
883	16	6,663.42	0.9000	5,997.078
884	16	7,131.35	0.8999	6,417.501
885	16	6,875.87	0.8998	6,186.907
887	14	5,938.58	0.8999	5,344.128
888	16	6,872.91	0.8998	6,184.244
889	15	6,704.66	0.8999	6,033.523
890	17	7,490.07	0.8999	6,740.313
891	16	6,922.53	0.8999	6,229.584
892	16	7,053.94	0.9000	6,348.546
893	15	6,716.20	0.9000	6,044.580

894	15	6,229.19	0.8998	5,605.025
895	16	7,082.44	0.8999	6,373.487
896	16	6,798.95	0.8999	6,118.375
897	16	7,290.99	0.8998	6,560.432
898	17	7,133.51	0.8998	6,418.732
899	16	6,733.24	0.8998	6,058.569
900	16	7,019.24	0.8999	6,316.614
901	16	6,793.71	0.8999	6,113.659
902	15	6,271.49	0.9000	5,644.341
903	14	5,866.70	0.8999	5,279.443
904	12	5,096.10	0.8999	4,585.980
905	16	6,816.51	0.8999	6,134.177
906	17	7,157.76	0.8998	6,440.552
907	17	7,438.10	0.8999	6,693.546
908	15	6,560.89	0.8998	5,903.488
909	16	7,005.40	0.8999	6,304.159
910	15	6,565.70	0.8999	5,908.473
911	14	6,226.23	0.8998	5,602.361
912	16	6,895.32	0.8998	6,204.408
913	16	6,804.70	0.8998	6,122.869
914	16	6,633.99	0.8999	5,969.927
915	16	6,688.53	0.8998	6,018.339

916	16	6,871.88	0.8998	6,183.317
917	16	6,717.34	0.8999	6,044.934
918	16	6,794.03	0.8999	6,113.947
919	16	6,726.78	0.8998	6,052.756
920	16	6,752.71	0.8998	6,076.088
921	15	6,166.97	0.8998	5,549.039
922	15	6,309.92	0.8998	5,677.666
923	16	6,881.38	0.8998	6,191.865
924	16	6,711.94	0.8998	6,039.403
925	16	6,855.50	0.8999	6,169.264
926	15	6,544.47	0.8999	5,889.368
927	16	7,020.23	0.9000	6,318.207
928	17	7,358.02	0.8998	6,620.746
929	16	7,113.16	0.8999	6,401.132
930	17	7,276.54	0.8999	6,548.158
931	16	7,017.22	0.9000	6,315.498
932	16	6,894.73	0.8999	6,204.567
934	15	6,437.70	0.8999	5,793.286
938	14	5,672.25	0.8998	5,103.890
939	14	5,586.41	0.8998	5,026.651
941	16	7,135.14	0.8998	6,420.198
942	15	6,734.48	0.8998	6,059.685

944	16	7,112.29	0.8999	6,400.349
945	16	6,628.27	0.8998	5,964.117
946	16	6,921.86	0.8999	6,228.981
947	17	7,370.50	0.8999	6,632.712
948	16	6,743.16	0.8998	6,067.495
949	16	6,777.04	0.8999	6,098.658
950	16	6,710.10	0.8999	6,038.418
951	16	6,815.90	0.8999	6,133.628
952	16	6,707.57	0.8999	6,036.142
953	16	6,664.87	0.8998	5,997.050
954	16	6,938.42	0.8999	6,243.884
7	1	1,337.64	0.8998	1,203.541
7	1	454.26	0.8998	408.720
8	1	1,336.94	0.8998	1,202.911
9	1	1,364.47	0.8998	1,227.681
10	1	481.14	0.9000	433.026
12	1	463.02	0.9000	416.718
13	1	640.85	0.9000	576.765
14	1	641.18	0.8998	576.901
16	1	416.48	0.9000	374.832
17	1	892.72	0.9000	803.448
17	1	802.44	0.8998	721.995

18	1	854.83	0.8998	769.133
18	1	443.88	0.8998	399.381
19	1	533.73	0.8998	480.223
19	1	272.73	0.9000	245.457
20	1	422.83	0.9000	380.547
20	1	267.27	0.8998	240.476
21	1	643.69	0.9000	579.321
22	1	641.45	0.9000	577.305
22	1	266.90	0.9000	240.210
23	1	598.70	0.8995	538.530
25	1	985.36	0.9000	886.824
25	1	266.76	0.8995	239.950
25	1	272.37	0.8998	245.064
26	1	481.74	0.9000	433.566
27	1	266.97	0.8995	240.139
28	1	615.17	0.8998	553.499
28	1	533.56	0.8998	480.070
29	1	267.31	0.8995	240.445
30	1	457.58	0.9000	411.822
31	1	739.45	0.9000	665.505
31	1	373.77	0.8998	336.299
31	1	267.16	0.8995	240.310

32	1	273.32	0.8993	245.783
33	1	451.39	0.8998	406.138
34	1	272.97	0.8995	245.536
34	1	551.03	0.9000	495.927
35	1	272.81	0.8998	245.460
35	1	266.94	0.8995	240.112
36	1	1,070.00	0.9000	963.000
36	1	609.80	0.8998	548.667
36	1	267.12	0.8995	240.274
36	1	269.84	0.9000	242.856
37	1	427.48	0.8998	384.625
37	1	1,161.36	0.9000	1,045.224
37	1	266.77	0.9000	240.093
38	1	558.35	0.8998	502.375
38	1	267.12	0.8995	240.274
38	1	1,139.47	0.8998	1,025.238
39	1	320.72	0.9000	288.648
39	1	267.12	0.8995	240.274
41	1	272.79	0.9000	245.511
42	1	588.34	0.9000	529.506
42	1	272.64	0.8995	245.239
43	1	267.01	0.8990	240.041

43	1	1,132.48	0.9000	1,019.232
43	1	267.06	0.8998	240.287
44	1	510.89	0.9000	459.801
44	1	267.23	0.8993	240.306
44	1	267.00	0.8998	240.233
45	1	588.13	0.9000	529.317
45	1	267.05	0.8995	240.211
46	1	266.62	0.8995	239.824
46	1	272.15	0.9000	244.935
47	1	555.73	0.9000	500.157
47	1	267.07	0.8995	240.229
47	1	574.69	0.9000	517.221
48	1	584.73	0.8995	525.964
49	1	267.25	0.8995	240.391
50	1	656.67	0.8998	590.838
50	1	267.15	0.8995	240.301
51	1	586.12	0.9000	527.508
51	1	1,338.14	0.9000	1,204.326
51	1	373.67	0.8998	336.209
52	1	1,337.80	0.8995	1,203.351
52	1	267.24	0.8995	240.382
53	1	1,338.13	0.8998	1,203.982

54	1	763.87	0.9000	687.483
54	1	1,228.74	0.8998	1,105.558
54	1	533.76	0.8998	480.250
55	1	532.90	0.9000	479.610
55	1	1,310.62	0.8998	1,179.230
56	1	267.22	0.8998	240.431
58	1	533.09	0.8995	479.514
58	1	299.13	0.9000	269.217
59	1	487.20	0.9000	438.480
59	1	758.78	0.8998	682.712
60	1	534.76	0.8998	481.150
60	1	552.70	0.9000	497.430
61	1	267.15	0.8995	240.301
62	1	601.45	0.9000	541.305
62	1	266.84	0.8998	240.089
63	1	1,070.00	0.8998	962.732
63	1	533.21	0.8995	479.622
63	1	910.18	0.9000	819.162
64	1	865.76	0.9000	779.184
64	1	1,203.18	0.8998	1,082.561
64	1	347.11	0.8998	312.312
65	1	534.26	0.8998	480.700

65	1	803.20	0.8998	722.679
66	1	267.06	0.8998	240.287
66	1	841.20	0.9000	757.080
67	1	320.65	0.8998	288.504
67	1	392.22	0.9000	352.998
68	1	534.25	0.8998	480.691
68	1	530.14	0.9000	477.126
69	1	320.64	0.8995	288.415
69	1	266.96	0.8998	240.197
69	1	481.27	0.9000	433.143
70	1	277.38	0.8995	249.503
71	1	577.83	0.8998	519.902
73	1	403.50	0.9000	363.150
76	1	450.97	0.9000	405.873
78	1	929.15	0.9000	836.235
86	1	320.56	0.8998	288.423
87	1	513.36	0.8995	461.767
89	1	534.51	0.8995	480.791
89	1	266.88	0.8995	240.058
91	1	267.02	0.8998	240.251
91	1	510.31	0.9000	459.279
91	1	264.81	0.8993	238.130

92	1	476.58	0.9000	428.922
92	1	405.91	0.8998	365.217
94	1	267.09	0.8998	240.314
94	1	520.72	0.9000	468.648
95	1	381.52	0.8998	343.272
96	1	506.93	0.9000	456.237
96	1	449.18	0.8995	404.037
96	1	267.00	0.8995	240.166
97	1	641.81	0.8998	577.468
97	1	339.11	0.8998	305.114
98	1	602.32	0.8998	541.937
99	1	455.29	0.9000	409.761
99	1	266.93	0.8995	240.103
100	1	266.99	0.8998	240.224
100	1	640.70	0.9000	576.630
100	1	668.14	0.8998	601.158
101	1	639.76	0.8998	575.624
101	1	588.27	0.8998	529.295
101	1	267.19	0.8995	240.337
102	1	491.62	0.8998	442.335
102	1	267.00	0.8995	240.166
102	1	341.19	0.8998	306.985

102	1	802.41	0.9000	722.169
103	1	266.43	0.8998	239.720
103	1	267.02	0.8995	240.184
103	1	267.14	0.8995	240.292
103	1	802.37	0.8995	721.731
104	1	1,070.05	0.8998	962.777
104	1	534.63	0.8995	480.899
104	1	424.02	0.9000	381.618
105	1	534.63	0.8995	480.899
105	1	493.62	0.9000	444.258
105	1	1,123.24	0.8998	1,010.635
106	1	644.42	0.9000	579.978
106	1	993.64	0.9000	894.276
106	1	534.43	0.8998	480.853
107	1	267.38	0.8998	240.575
107	1	637.56	0.9000	573.804
108	1	534.27	0.9000	480.843
108	1	355.32	0.8998	319.699
109	1	267.16	0.9000	240.444
109	1	553.01	0.9000	497.709
110	1	534.71	0.8998	481.105
111	1	534.51	0.9000	481.059

111	1	533.21	0.8995	479.622
111	1	1,337.48	0.8998	1,203.397
112	1	267.12	0.9000	240.408
112	1	266.73	0.8995	239.923
112	1	878.19	0.8998	790.151
112	1	268.65	0.8998	241.717
113	1	266.62	0.8998	239.891
113	1	1,126.43	0.8998	1,013.505
113	1	373.62	0.8995	336.071
113	1	303.71	0.8998	273.263
114	1	320.89	0.8998	288.720
114	1	560.93	0.8995	504.556
115	1	330.89	0.8998	297.718
115	1	534.24	0.8998	480.682
115	1	400.62	0.8995	360.357
116	1	267.13	0.8998	240.350
116	1	534.83	0.8995	481.079
116	1	389.04	0.8995	349.941
117	1	532.16	0.8995	478.677
117	1	274.66	0.8990	246.919
118	1	533.22	0.9000	479.898
118	1	840.97	0.8995	756.452

118	1	407.35	0.9000	366.615
119	1	370.98	0.9000	333.882
119	1	668.27	0.8998	601.275
119	1	319.91	0.9000	287.919
120	1	267.15	0.9000	240.435
120	1	320.42	0.9000	288.378
121	1	268.42	0.8998	241.510
122	1	320.72	0.9000	288.648
123	1	450.07	0.9000	405.063
123	1	267.38	0.8998	240.575
123	1	320.85	0.8998	288.684
124	1	319.96	0.9000	287.964
124	1	694.44	0.8998	624.822
124	1	408.06	0.8998	367.151
125	1	645.43	0.8998	580.725
125	1	320.61	0.8998	288.468
125	1	483.34	0.8998	434.885
126	1	641.81	0.8998	577.468
126	1	530.10	0.8998	476.957
126	1	534.70	0.8995	480.962
127	1	267.12	0.8995	240.274
127	1	696.56	0.8998	626.729

127	1	441.45	0.8998	397.194
128	1	320.38	0.8995	288.181
128	1	642.05	0.9000	577.845
129	1	320.73	0.8995	288.496
129	1	622.61	0.9000	560.349
130	1	429.22	0.8998	386.190
130	1	454.32	0.9000	408.888
130	1	1,069.98	0.9000	962.982
130	1	320.79	0.8995	288.550
131	1	653.71	0.9000	588.339
131	1	266.86	0.8995	240.040
131	1	1,060.46	0.8998	954.148
132	1	645.51	0.8998	580.797
132	1	917.43	0.8998	825.457
132	1	320.56	0.8995	288.343
133	1	320.59	0.8998	288.450
133	1	546.14	0.8995	491.252
134	1	520.89	0.8998	468.670
135	1	636.55	0.8998	572.735
135	1	383.81	0.9000	345.429
135	1	320.05	0.8995	287.884
136	1	266.70	0.8995	239.896

136	1	485.72	0.8998	437.026
136	1	647.19	0.9000	582.471
137	1	320.54	0.8998	288.405
137	1	646.41	0.8998	581.607
137	1	641.33	0.9000	577.197
138	1	641.38	0.9000	577.242
138	1	320.69	0.8998	288.540
139	1	319.12	0.8990	286.888
139	1	643.13	0.8998	578.656
140	1	645.87	0.9000	581.283
140	1	267.41	0.8998	240.602
141	1	534.80	0.8998	481.186
141	1	485.08	0.9000	436.572
142	1	534.53	0.9000	481.077
143	1	350.74	0.8998	315.578
143	1	651.20	0.9000	586.080
144	1	534.28	0.8998	480.718
145	1	584.81	0.9000	526.329
145	1	266.82	0.8990	239.871
145	1	350.71	0.8998	315.551
146	1	267.40	0.8998	240.593
146	1	952.72	0.9000	857.448

147	1	266.86	0.8990	239.907
148	1	802.26	0.9000	722.034
148	1	267.11	0.8993	240.198
149	1	614.83	0.9000	553.347
151	1	266.74	0.8995	239.932
151	1	1,069.60	0.8998	962.372
151	1	835.08	0.9000	751.572
152	1	1,069.80	0.8998	962.552
152	1	354.36	0.8995	318.746
152	1	546.02	0.9000	491.418
153	1	497.03	0.8998	447.202
153	1	987.60	0.8998	888.593
154	1	883.43	0.8998	794.866
154	1	985.31	0.8998	886.532
155	1	654.23	0.8998	588.643
156	1	641.64	0.9000	577.476
157	1	641.81	0.9000	577.629
158	1	573.35	0.9000	516.015
159	1	442.30	0.9000	398.070
159	1	533.85	0.8998	480.331
161	1	652.33	0.8998	586.933
162	1	579.10	0.8998	521.045

162	1	668.75	0.8998	601.707
162	1	641.69	0.8998	577.360
163	1	924.77	0.9000	832.293
163	1	480.76	0.8995	432.443
164	1	360.75	0.8998	324.584
165	1	460.15	0.9000	414.135
166	1	601.48	0.9000	541.332
166	1	537.28	0.8998	483.417
167	1	386.94	0.9000	348.246
167	1	648.20	0.8998	583.217
168	1	387.36	0.9000	348.624
169	1	579.07	0.9000	521.163
169	1	325.79	0.9000	293.211
170	1	535.04	0.8998	481.402
171	1	571.31	0.8998	514.036
171	1	1,069.79	0.8995	962.276
171	1	641.75	0.9000	577.575
172	1	1,070.02	0.8998	962.750
172	1	272.79	0.8998	245.442
172	1	466.82	0.8998	420.021
173	1	1,256.48	0.8998	1,130.517
173	1	601.05	0.8998	540.794

173	1	435.14	0.8998	391.517
174	1	438.04	0.8998	394.126
175	1	275.27	0.8998	247.674
176	1	400.43	0.9000	360.387
176	1	860.32	0.9000	774.288
177	1	521.68	0.8998	469.381
177	1	818.22	0.9000	736.398
178	1	428.22	0.8998	385.290
179	1	707.06	0.9000	636.354
181	1	1,337.79	0.9000	1,204.011
182	1	1,221.37	0.9000	1,099.233
183	1	1,288.81	0.8998	1,159.606
184	1	419.01	0.9000	377.109
184	1	272.95	0.9000	245.655
185	1	641.69	0.8998	577.360
185	1	464.87	0.8995	418.150
186	1	668.66	0.9000	601.794
187	1	445.32	0.9000	400.788
187	1	534.63	0.9000	481.167
188	1	640.88	0.9000	576.792
188	1	610.25	0.9000	549.225
189	1	651.28	0.8998	585.989

190	1	272.76	0.8998	245.415
191	1	466.62	0.8998	419.841
191	1	647.18	0.8998	582.300
192	1	425.47	0.8998	382.816
192	1	588.77	0.9000	529.893
193	1	275.04	0.8998	247.467
193	1	548.18	0.8998	493.224
194	1	567.00	0.9000	510.300
195	1	628.37	0.8998	565.375
195	1	588.33	0.8998	529.349
196	1	1,337.70	0.8998	1,203.595
196	1	500.65	0.8998	450.459
197	1	1,284.05	0.9000	1,155.645
197	1	534.07	0.9000	480.663
197	1	642.17	0.8995	577.631
198	1	445.50	0.9000	400.950
200	1	294.01	0.8998	264.535
203	1	842.17	0.8998	757.742
204	1	641.00	0.8998	576.739
205	1	641.11	0.8998	576.838
206	1	641.40	0.8995	576.939
206	1	799.42	0.8998	719.278

207	1	378.60	0.8998	340.645
208	1	641.33	0.9000	577.197
212	1	681.22	0.9000	613.098
213	1	219.40	0.8995	197.350
213	1	1,337.96	0.8998	1,203.829
214	1	1,069.96	0.9000	962.964
214	1	533.75	0.8998	480.241
215	1	1,122.69	0.9000	1,010.421
215	1	350.58	0.8995	315.346
216	1	1,384.28	0.8998	1,245.505
216	1	350.91	0.8995	315.643
217	1	265.99	0.9000	239.391
217	1	323.56	0.9000	291.204
218	1	350.11	0.8995	314.923
219	1	534.26	0.9000	480.834
220	1	644.94	0.9000	580.446
220	1	534.43	0.8998	480.853
220	1	292.78	0.9000	263.502
221	1	454.72	0.9000	409.248
221	1	266.64	0.8998	239.909
221	1	401.19	0.8998	360.970
221	1	292.69	0.8998	263.347

222	1	547.19	0.8998	492.334
222	1	351.00	0.8995	315.724
223	1	613.49	0.9000	552.141
223	1	637.42	0.8998	573.518
224	1	365.93	0.9000	329.337
224	1	350.79	0.8998	315.623
224	1	621.14	0.9000	559.026
225	1	272.24	0.8995	244.879
226	1	652.71	0.8995	587.112
226	1	267.26	0.8998	240.467
227	1	453.55	0.8998	408.081
227	1	548.05	0.8998	493.107
228	1	654.38	0.9000	588.942
228	1	266.78	0.8998	240.035
228	1	224.52	0.8998	202.011
229	1	266.18	0.8995	239.428
229	1	241.13	0.8995	216.896
230	1	1,337.73	0.8995	1,203.288
230	1	654.85	0.8998	589.201
231	1	1,337.53	0.8998	1,203.442
231	1	350.78	0.8998	315.614
231	1	651.25	0.9000	586.125

231	1	534.90	0.9000	481.410
232	1	801.78	0.9000	721.602
232	1	701.81	0.8998	631.453
232	1	1,337.99	0.9000	1,204.191
233	1	267.09	0.8998	240.314
233	1	641.80	0.8998	577.459
233	1	1,274.81	0.8998	1,147.010
234	1	216.37	0.8995	194.624
234	1	1,156.05	0.8998	1,040.155
235	1	639.01	0.9000	575.109
235	1	567.37	0.8998	510.491
235	1	433.65	0.9000	390.285
236	1	641.50	0.8998	577.189
236	1	483.82	0.8998	435.317
237	1	602.40	0.9000	542.160
238	1	1,171.58	0.9000	1,054.422
239	1	1,115.76	0.9000	1,004.184
240	1	483.75	0.9000	435.375
240	1	847.15	0.9000	762.435
240	1	256.02	0.9000	230.418
241	1	591.15	0.9000	532.035
241	1	1,069.92	0.8995	962.393

242	1	266.87	0.8995	240.049
242	1	1,070.17	0.8995	962.617
243	1	800.83	0.8995	720.346
244	1	267.02	0.8998	240.251
245	1	269.53	0.8998	242.509
246	1	481.92	0.8998	433.607
247	1	324.78	0.8998	292.220
247	1	454.68	0.8998	409.098
248	1	537.58	0.8998	483.687
248	1	219.15	0.9000	197.235
249	1	272.57	0.8998	245.244
249	1	267.31	0.8995	240.445
249	1	640.40	0.8998	576.199
250	1	651.95	0.9000	586.755
250	1	216.56	0.8998	194.849
251	1	608.30	0.9000	547.470
251	1	601.17	0.9000	541.053
251	1	270.11	0.8998	243.031
251	1	400.17	0.8998	360.052
252	1	987.25	0.9000	888.525
252	1	267.06	0.8998	240.287
253	1	323.35	0.9000	291.015

253	1	489.85	0.9000	440.865
253	1	613.94	0.9000	552.546
254	1	323.85	0.8998	291.384
255	1	496.23	0.8998	446.482
255	1	471.65	0.8998	424.367
256	1	1,310.72	0.8998	1,179.320
256	1	269.97	0.8995	242.838
257	1	554.23	0.8998	498.668
257	1	486.92	0.9000	438.228
259	1	587.36	0.8998	528.477
259	1	631.09	0.8998	567.823
259	1	323.44	0.8998	291.015
260	1	408.91	0.8998	367.916
260	1	613.01	0.8985	550.789
260	1	381.59	0.9000	343.431
262	1	641.49	0.8998	577.180
263	1	641.52	0.9000	577.368
263	1	534.47	0.9000	481.023
264	1	374.00	0.9000	336.600
265	1	802.59	0.8998	722.130
265	1	640.87	0.8998	576.622
266	1	272.82	0.8998	245.469

266	1	1,364.03	0.8998	1,227.285
266	1	855.35	0.9000	769.815
267	1	1,337.96	0.9000	1,204.164
268	1	517.41	0.9000	465.669
268	1	1,337.71	0.8998	1,203.604
268	1	640.70	0.9000	576.630
269	1	640.81	0.8998	576.568
269	1	817.14	0.9000	735.426
269	1	541.74	0.9000	487.566
270	1	614.03	0.9000	552.627
270	1	297.40	0.8998	267.585
277	1	343.60	0.9000	309.240
278	1	270.02	0.9000	243.018
279	1	267.40	0.9000	240.660
281	1	418.58	0.9000	376.722
282	1	320.13	0.8998	288.036
283	1	267.25	0.8995	240.391
284	1	935.07	0.9000	841.563
284	1	216.63	0.8998	194.912
285	1	267.27	0.8998	240.476
285	1	266.77	0.9000	240.093
286	1	272.76	0.8998	245.415

286	1	265.63	0.9000	239.067
287	1	281.42	0.8998	253.207
290	1	265.98	0.8998	239.315
291	1	1,070.16	0.8998	962.876
291	1	266.85	0.8998	240.098
292	1	1,101.62	0.9000	991.458
293	1	1,009.73	0.8998	908.504
293	1	246.06	0.8995	221.330
295	1	267.16	0.8995	240.310
296	1	304.63	0.8998	274.090
297	1	245.87	0.8998	221.221
298	1	382.77	0.9000	344.493
298	1	802.15	0.8995	721.533
299	1	775.16	0.8998	697.450
310	1	1,337.89	0.8998	1,203.766
311	1	1,337.42	0.8998	1,203.343
312	1	1,336.35	0.8998	1,202.380
313	1	1,139.41	0.8998	1,025.184
314	1	400.60	0.8998	360.439
327	1	1,096.94	0.8998	986.971
328	1	989.03	0.8995	889.632
330	1	802.20	0.8998	721.779

331	1	882.64	0.8998	794.155
341	1	1,070.27	0.8995	962.707
342	1	1,176.45	0.8998	1,058.510
349	1	239.26	0.8998	215.274
352	1	266.57	0.9000	239.913
357	1	1,337.91	0.8995	1,203.450
358	1	1,337.81	0.8998	1,203.694
359	1	1,338.11	0.8998	1,203.964
360	1	1,260.07	0.8998	1,133.747
361	1	1,337.68	0.8998	1,203.577
362	1	1,145.57	0.8998	1,030.726
371	1	802.68	0.8998	722.211
371	1	534.18	0.9000	480.762
372	1	649.06	0.8998	583.991
372	1	961.21	0.8998	864.848
373	1	802.30	0.9000	722.070
373	1	668.55	0.8998	601.527
374	1	855.40	0.8998	769.646
384	1	320.11	0.8998	288.018
392	1	909.51	0.8998	818.331
393	1	802.40	0.8998	721.959
394	1	946.73	0.9000	852.057

399	1	722.04	0.8998	649.655
406	1	1,070.07	0.8998	962.795
407	1	1,337.60	0.8998	1,203.505
408	1	1,069.96	0.8998	962.696
409	1	802.31	0.9000	722.079
410	1	801.96	0.8998	721.563
411	1	266.07	0.8998	239.396
421	1	829.26	0.8998	746.126
422	1	614.82	0.8998	553.184
426	1	802.03	0.8998	721.626
427	1	802.38	0.8998	721.941
428	1	1,337.73	0.8998	1,203.622
429	1	1,337.84	0.8998	1,203.721
430	1	1,096.27	0.9000	986.643
444	1	802.56	0.8998	722.103
445	1	1,069.99	0.8998	962.723
446	1	1,150.06	0.9000	1,035.054
450	1	267.22	0.8998	240.431
454	1	1,150.29	0.8998	1,034.973
456	1	801.86	0.8998	721.473
457	1	695.36	0.9000	625.824
459	1	453.73	0.8998	408.243

467	1	1,070.10	0.8998	962.822
468	1	1,070.21	0.8998	962.921
469	1	1,070.37	0.8998	963.065
470	1	774.99	0.9000	697.491
475	1	615.30	0.8998	553.616
476	1	1,177.45	0.8995	1,059.116
477	1	1,176.87	0.8998	1,058.888
478	1	1,069.96	0.8998	962.696
479	1	1,070.07	0.9000	963.063
480	1	1,070.05	0.8998	962.777
481	1	962.55	0.8998	866.054
493	1	281.58	0.9000	253.422
494	1	1,177.24	0.8998	1,059.221
495	1	1,069.97	0.9000	962.973
502	1	1,070.24	0.8998	962.948
503	1	1,069.92	0.8998	962.660
504	1	614.67	0.8998	553.049
505	1	802.54	0.8998	722.085
506	1	695.53	0.8998	625.803
508	1	427.18	0.8998	384.355
516	1	1,177.14	0.9000	1,059.426
526	1	668.59	0.8998	601.563

531	1	1,017.08	0.9000	915.372
532	1	802.41	0.8998	721.968
533	1	802.44	0.9000	722.196
535	1	266.84	0.8998	240.089
536	1	1,070.06	0.8998	962.786
537	1	932.51	0.8998	839.025
538	1	992.17	0.8998	892.704
544	1	1,070.04	0.8998	962.768
545	1	1,069.86	0.8998	962.606
546	1	962.91	0.8998	866.378
547	1	802.43	0.8998	721.986
548	1	796.09	0.8998	716.281
549	1	614.03	0.8998	552.473
553	1	533.60	0.9000	480.240
560	1	266.75	0.8998	240.008
561	1	1,311.11	0.9000	1,179.999
562	1	267.10	0.8998	240.323
562	1	802.45	0.8998	722.004
563	1	802.52	0.9000	722.268
563	1	266.71	0.9000	240.039
569	1	1,070.37	0.8995	962.797
579	1	1,070.52	0.8998	963.200

580	1	273.83	0.9000	246.447
580	1	909.40	0.8998	818.232
582	1	1,204.19	0.9000	1,083.771
583	1	1,204.28	0.8998	1,083.550
584	1	1,203.81	0.9000	1,083.429
595	1	1,204.29	0.8998	1,083.559
596	1	1,204.37	0.8998	1,083.631
597	1	1,043.04	0.8998	938.475
600	1	287.95	0.9000	259.155
601	1	802.44	0.9000	722.196
602	1	668.49	0.8998	601.473
608	1	802.71	0.8998	722.238
609	1	641.71	0.8998	577.378
612	1	1,204.22	0.8998	1,083.496
613	1	1,229.63	0.8998	1,106.359
619	1	802.06	0.8998	721.653
620	1	728.13	0.8998	655.134
625	1	668.48	0.8998	601.464
629	1	1,069.99	0.9000	962.991
630	1	989.40	0.8998	890.212
632	1	909.07	0.8998	817.935
633	1	802.07	0.9000	721.863

649	1	1,096.72	0.8993	986.225
650	1	1,069.49	0.8998	962.273
655	1	1,043.75	0.8998	939.114
656	1	668.60	0.8998	601.572
670	1	1,203.81	0.8998	1,083.128
671	1	1,203.00	0.9000	1,082.700
672	1	1,203.91	0.8998	1,083.218
673	1	1,203.64	0.8998	1,082.975
674	1	883.32	0.8998	794.767
675	1	1,263.86	0.8998	1,137.158
676	1	1,264.19	0.9000	1,137.771
677	1	1,270.92	0.9000	1,143.828
679	1	802.84	0.8998	722.355
679	1	1,070.33	0.9000	963.297
680	1	266.38	0.8998	239.675
680	1	561.31	0.8998	505.038
681	1	266.79	0.9000	240.111
688	1	1,070.30	0.9000	963.270
689	1	909.28	0.8998	818.124
693	1	855.94	0.8998	770.132
695	1	266.51	0.9000	239.859
702	1	273.04	0.8998	245.667

703	1	1,070.17	0.8998	962.885
704	1	1,070.32	0.8998	963.020
705	1	694.74	0.9000	625.266
718	1	266.31	0.9000	239.679
726	1	1,204.46	0.9000	1,084.014
732	1	264.83	0.8998	238.280
737	1	1,231.05	0.8998	1,107.637
738	1	829.10	0.8998	745.982
739	1	668.63	0.9000	601.767
741	1	882.47	0.8998	794.002
742	1	936.41	0.9000	842.769
745	1	1,069.56	0.8998	962.336
746	1	266.79	0.8998	240.044
750	1	802.24	0.9000	722.016
751	1	748.34	0.9000	673.506
753	1	264.85	0.9000	238.365
767	1	266.88	0.8998	240.125
768	1	1,337.79	0.9000	1,204.011
769	1	1,070.33	0.9000	963.297
770	1	857.23	0.9000	771.507
779	1	534.46	0.8998	480.880
782	1	1,337.77	0.8998	1,203.658

783	1	300.23	0.8998	270.131
787	1	829.35	0.8998	746.207
789	1	1,070.02	0.8998	962.750
790	1	831.44	0.8998	748.088
804	1	882.41	0.9000	794.169
806	1	1,284.38	0.8998	1,155.620
816	1	534.63	0.8998	481.033
818	1	1,042.96	0.8998	938.403
824	1	266.40	0.8995	239.626
825	1	266.70	0.9000	240.030
826	1	266.17	0.8998	239.486
832	1	534.93	0.8998	481.303
833	1	533.54	0.8998	480.052
839	1	667.70	0.8998	600.763
839	1	1,069.82	0.8998	962.570
840	1	891.05	0.8998	801.722
851	1	1,230.99	0.8998	1,107.583
858	1	802.16	0.8998	721.743
859	1	855.43	0.8998	769.673
860	1	936.32	0.8998	842.453
861	1	935.35	0.8998	841.581
862	1	802.43	0.9000	722.187

863	1	694.54	0.8995	624.738
869	1	266.42	0.8998	239.711
870	1	265.95	0.9000	239.355
876	1	1,070.12	0.9000	963.108
877	1	984.86	0.8998	886.127
878	1	881.38	0.8998	793.021
882	1	935.84	0.8998	842.022
883	1	936.20	0.8998	842.345
893	1	667.54	0.8998	600.619
897	1	990.07	0.8998	890.815
898	1	1,070.30	0.9000	963.270
899	1	534.95	0.9000	481.455
910	1	962.39	0.8993	865.429
911	1	534.48	0.9000	481.032
915	1	802.16	0.9000	721.944
916	1	1,149.85	0.8998	1,034.577
917	1	303.84	0.8998	273.380
918	1	1,204.28	0.8998	1,083.550
919	1	1,203.58	0.8998	1,082.921
920	1	1,204.13	0.8998	1,083.415
921	1	533.47	0.8998	479.989
921	1	1,203.78	0.8998	1,083.101

922	1	252.97	0.9000	227.673
922	1	971.01	0.9000	873.909
933	1	1,149.76	0.8998	1,034.496
935	1	667.65	0.9000	600.885
936	1	721.57	0.9000	649.413
937	1	936.25	0.8998	842.390
938	1	936.35	0.8998	842.480
944	1	1,070.64	0.9000	963.576
953	1	1,070.37	0.8998	963.065
954	1	346.09	0.8998	311.394
957	1	534.61	0.9000	481.149
967	1	534.95	0.8998	481.321
980	1	266.47	0.8998	239.756
982	1	534.62	0.8998	481.024
985	1	1,204.07	0.8998	1,083.361
986	1	266.40	0.8998	239.693
994	1	534.93	0.9000	481.437
996	1	266.51	0.8998	239.792
1004	1	1,069.82	0.8998	962.570
1005	1	828.72	0.9000	745.848
1009	1	265.97	0.9000	239.373
1010	1	801.77	0.8998	721.392

1023	1	1,070.61	0.9000	963.549
1024	1	802.90	0.9000	722.610
1027	1	594.79	0.9000	535.311
1030	1	1,338.36	0.9000	1,204.524
1038	1	989.49	0.8998	890.293
1041	1	346.44	0.9000	311.796
1053	1	266.54	0.8998	239.819
1054	1	209.28	0.9000	188.352
1055	1	266.36	0.8998	239.657
1055	1	266.22	0.9000	239.598
1060	1	1,070.13	0.9000	963.117
1068	1	802.61	0.8998	722.148
1074	1	535.21	0.8998	481.555
1075	1	207.76	0.9000	186.984
1076	1	534.83	0.9000	481.347
1078	1	1,070.32	0.8998	963.020
1079	1	898.50	0.9000	808.650
1082	1	1,177.07	0.8998	1,059.068
1089	1	882.50	0.9000	794.250
1097	1	802.62	0.9000	722.358
1098	1	213.40	0.9000	192.060
1098	1	802.11	0.9000	721.899

1100	1	801.58	0.9000	721.422
1101	1	802.25	0.9000	722.025
1113	1	532.94	0.9000	479.646
1116	1	266.44	0.9000	239.796
1127	1	802.33	0.8998	721.896
1128	1	936.36	0.8998	842.489
1129	1	534.68	0.8998	481.078
1131	1	802.43	0.9000	722.187
1132	1	801.59	0.9000	721.431
1133	1	533.82	0.9000	480.438
1133	1	801.85	0.9000	721.665
1134	1	535.10	0.9000	481.590
1134	1	962.85	0.9000	866.565
1144	1	401.01	0.8998	360.808
1145	1	962.72	0.9000	866.448
1147	1	265.70	0.8998	239.063
1148	1	1,204.12	0.9000	1,083.708
1149	1	801.45	0.8998	721.104
1149	1	1,204.23	0.9000	1,083.807
1150	1	1,204.22	0.9000	1,083.798
1151	1	1,204.12	0.9000	1,083.708
1151	1	1,068.45	0.9000	961.605

1152	1	1,070.27	0.8998	962.975
1153	1	1,070.04	0.8998	962.768
1154	1	1,170.72	0.8998	1,053.355
1161	1	1,177.46	0.8998	1,059.419
1164	1	802.17	0.9000	721.953
1165	1	534.56	0.8998	480.970
1166	1	721.72	0.9000	649.548
1167	1	960.20	0.8998	863.939
1170	1	266.64	0.8998	239.909
1173	1	1,070.40	0.8998	963.092
1174	1	1,070.46	0.8998	963.146
1186	1	801.45	0.9000	721.305
1198	1	285.09	0.8998	256.509
1208	1	801.88	0.8998	721.491
1208	1	250.29	0.9000	225.261
1210	1	962.87	0.9000	866.583
1215	1	1,068.38	0.8998	961.274
1222	1	868.92	0.8998	781.810
1223	1	868.51	0.8998	781.441
1225	1	1,070.10	0.9000	963.090
1226	1	800.68	0.9000	720.612
1229	1	936.50	0.9000	842.850

1230	1	909.35	0.8998	818.187
1230	1	801.53	0.9000	721.377
1231	1	1,244.57	0.9000	1,120.113
1231	1	267.00	0.8998	240.233
1232	1	1,205.20	0.9000	1,084.680
1237	1	1,257.95	0.9000	1,132.155
1238	1	297.69	0.9000	267.921
1241	1	533.97	0.9000	480.573
1241	1	326.91	0.8998	294.137
1242	1	801.18	0.9000	721.062
1247	1	1,002.47	0.8998	901.972
1248	1	1,002.06	0.8998	901.603
1250	1	1,069.89	0.8998	962.633
1251	1	533.99	0.9000	480.591
1258	1	802.09	0.8998	721.680
1259	1	722.15	0.9000	649.935
1261	1	212.73	0.9000	191.457
1264	1	266.10	0.8998	239.423
1266	1	800.99	0.9000	720.891
1267	1	534.60	0.8998	481.006
1268	1	935.85	0.9000	842.265
1272	1	533.68	0.8985	479.511

1273	1	266.47	0.8998	239.756
1278	1	1,069.95	0.8998	962.687
1279	1	1,070.25	0.8995	962.689
1279	1	533.98	0.9000	480.582
1282	1	534.87	0.9000	481.383
1285	1	668.30	0.8998	601.302
1286	1	694.94	0.8998	625.272
1289	1	326.95	0.8998	294.173
1290	1	802.70	0.8998	722.229
1291	1	533.81	0.9000	480.429
1292	1	400.73	0.9000	360.657
1300	1	936.25	0.9000	842.625
1301	1	936.00	0.9000	842.400
1302	1	828.51	0.9000	745.659
1311	1	748.43	0.9000	673.587
1312	1	309.54	0.9000	278.586
1314	1	265.99	0.9000	239.391
1315	1	534.56	0.8998	480.970
1316	1	1,334.35	0.9000	1,200.915
1317	1	1,335.12	0.9000	1,201.608
1318	1	800.97	0.8998	720.672
1327	1	535.09	0.8998	481.447

1331	1	533.91	0.8998	480.385
1333	1	668.26	0.9000	601.434
1338	1	802.44	0.8998	721.995
1339	1	641.65	0.8998	577.324
1340	1	1,070.02	0.8998	962.750
1341	1	1,070.03	0.8998	962.759
1342	1	935.95	0.8998	842.121
1347	1	1,230.31	0.8998	1,106.971
1348	1	882.37	0.8998	793.912
1351	1	534.30	0.8998	480.736
1352	1	801.23	0.8998	720.906
1353	1	534.20	0.9000	480.780
1366	1	453.78	0.8998	408.288
1367	1	560.55	0.9000	504.495
1368	1	1,068.64	0.8998	961.508
1369	1	266.21	0.8998	239.522
1369	1	1,070.03	0.9000	963.027
1370	1	1,334.05	0.9000	1,200.645
1374	1	802.13	0.9000	721.917
1375	1	801.94	0.9000	721.746
1387	1	1,070.01	0.8995	962.473
1395	1	800.40	0.8998	720.159

1396	1	533.88	0.8998	480.358
1396	1	614.31	0.8998	552.725
1397	1	532.92	0.8998	479.494
1399	1	534.62	0.8998	481.024
1400	1	533.46	0.9000	480.114
1401	1	800.51	0.9000	720.459
1402	1	535.08	0.9000	481.572
1403	1	801.17	0.9000	721.053
1404	1	1,177.07	0.9000	1,059.363
1409	1	668.34	0.8998	601.338
1412	1	400.48	0.8998	360.331
1417	1	266.50	0.8998	239.783
1426	1	1,336.73	0.9000	1,203.057
1427	1	533.82	0.9000	480.438
1428	1	936.18	0.9000	842.562
1429	1	882.04	0.8998	793.615
1436	1	668.25	0.9000	601.425
1437	1	694.74	0.8998	625.092
1437	1	800.68	0.8998	720.411
1442	1	801.54	0.9000	721.386
1443	1	534.59	0.8998	480.997
1444	1	293.74	0.8998	264.292

1450	1	800.92	0.8998	720.627
1451	1	532.78	0.8998	479.368
1458	1	399.94	0.8998	359.846
1459	1	1,335.85	0.8998	1,201.931
1460	1	1,335.67	0.8998	1,201.769
1460	1	561.26	0.8998	504.993
1461	1	1,336.23	0.8998	1,202.272
1462	1	533.69	0.9000	480.321
1463	1	1,336.51	0.9000	1,202.859
1477	1	266.72	0.8998	239.981
1478	1	400.64	0.8998	360.475
1481	1	534.74	0.8998	481.132
1482	1	534.45	0.9000	481.005
1483	1	1,068.80	0.9000	961.920
1488	1	293.62	0.8998	264.184
1497	1	1,230.06	0.8998	1,106.746
1500	1	802.02	0.9000	721.818
1501	1	855.71	0.8998	769.925
1504	1	989.48	0.8998	890.284
1511	1	989.59	0.8998	890.383
1521	1	1,067.48	0.8998	960.465
1522	1	1,067.44	0.9000	960.696

1523	1	855.66	0.8998	769.880
1524	1	801.55	0.8998	721.194
1527	1	265.75	0.9000	239.175
1528	1	1,390.54	0.8998	1,251.138
1529	1	800.25	0.8998	720.024
1530	1	534.55	0.8998	480.961
1545	1	775.46	0.9000	697.914
1552	1	1,391.09	0.9000	1,251.981
1563	1	534.40	0.8998	480.826
1564	1	534.69	0.8998	481.087
1573	1	882.65	0.8998	794.164
1574	1	854.59	0.9000	769.131
1574	1	266.33	0.8998	239.630
1577	1	266.59	0.8998	239.864
1584	1	1,257.28	0.8998	1,131.237
1585	1	1,096.64	0.8998	986.701
1595	1	507.79	0.8998	456.884
1596	1	1,070.16	0.8998	962.876
1619	1	266.14	0.8998	239.459
1620	1	1,123.02	0.9000	1,010.718
1620	1	828.82	0.8998	745.730
1621	1	266.29	0.9000	239.661

1622	1	534.25	0.8998	480.691
1628	1	1,257.05	0.8998	1,131.030
1645	1	534.09	0.8998	480.547
1648	1	1,337.36	0.8995	1,202.955
1649	1	1,203.82	0.8998	1,083.137
1654	1	614.96	0.8998	553.310
1664	1	240.01	0.8998	215.948
1666	1	320.29	0.8998	288.180
1669	1	695.24	0.9000	625.716
1672	1	802.05	0.8998	721.644
1674	1	855.25	0.9000	769.725
1688	1	667.88	0.8998	600.925
1689	1	534.49	0.8993	480.640
1692	1	695.17	0.9000	625.653
1693	1	266.81	0.8998	240.062
1693	1	534.61	0.9000	481.149
1698	1	775.58	0.8998	697.828
1699	1	775.49	0.8998	697.747
1701	1	860.98	0.8998	774.666
1702	1	1,008.61	0.8998	907.496
1712	1	266.41	0.8998	239.702
1721	1	667.99	0.9000	601.191

1722	1	1,175.56	0.8998	1,057.710
1727	1	360.32	0.9000	324.288
1728	1	695.20	0.9000	625.680
1730	1	266.53	0.9000	239.877
1750	1	1,069.71	0.9000	962.739
1751	1	802.25	0.8998	721.824
1751	1	855.09	0.9000	769.581
1752	1	667.48	0.8998	600.565
1757	1	614.79	0.8998	553.157
1766	1	1,070.15	0.8998	962.867
1767	1	1,123.11	0.8998	1,010.518
1772	1	318.98	0.8998	287.002
1783	1	802.46	0.8998	722.013
1784	1	855.28	0.8998	769.538
1785	1	961.93	0.9000	865.737
1807	1	748.78	0.8998	673.714
1817	1	1,417.14	0.8998	1,275.071
1822	1	801.94	0.8998	721.545
1824	1	266.68	0.9000	240.012
1833	1	802.11	0.8998	721.698
1834	1	908.60	0.8998	817.512
1838	1	533.67	0.9000	480.303

1839	1	748.41	0.8998	673.381
1849	1	1,067.52	0.9000	960.768
1850	1	266.42	0.9000	239.778
1855	1	1,070.22	0.9000	963.198
1856	1	801.95	0.8998	721.554
1857	1	801.85	0.9000	721.665
1867	1	801.78	0.8995	721.201
1871	1	921.11	0.8998	828.768
1872	1	850.31	0.8998	765.066
1873	1	898.50	0.8998	808.425
1873	1	426.90	0.8998	384.103
1877	1	694.78	0.8998	625.128
1888	1	1,069.98	0.9000	962.982
1889	1	1,070.16	0.8998	962.876
1890	1	1,069.39	0.8998	962.183
1891	1	909.18	0.9000	818.262
1891	1	801.08	0.8998	720.771
1896	1	829.15	0.9000	746.235
1897	1	266.96	0.9000	240.264
1907	1	855.89	0.8998	770.087
1912	1	534.12	0.8998	480.574
1926	1	534.13	0.8998	480.583

1928	1	534.43	0.8995	480.719
1944	1	882.90	0.8998	794.389
1949	1	829.36	0.8998	746.216
1955	1	347.28	0.9000	312.552
1967	1	1,043.15	0.8998	938.574
1972	1	534.08	0.8998	480.538
1973	1	695.31	0.8998	625.605
1980	1	266.27	0.8998	239.576
1981	1	802.52	0.8998	722.067
1982	1	668.63	0.8998	601.599
1996	1	907.10	0.8998	816.163
1997	1	534.13	0.9000	480.717
1998	1	802.03	0.9000	721.827
1999	1	882.05	0.9000	793.845
2013	1	935.97	0.8998	842.139
2030	1	507.45	0.9000	456.705
2033	1	560.91	0.8998	504.678
2034	1	266.77	0.8998	240.026
2035	1	212.83	0.8998	191.493
2038	1	802.52	0.9000	722.268
2039	1	775.76	0.8998	697.990
2045	1	614.60	0.9000	553.140

2063	1	266.50	0.8998	239.783
2064	1	641.77	0.8998	577.432
2072	1	855.78	0.8998	769.988
2073	1	480.23	0.8998	432.086
2088	1	587.82	0.8998	528.891
2096	1	1,043.16	0.9000	938.844
2098	1	667.88	0.8998	600.925
2117	1	828.15	0.9000	745.335
2124	1	802.17	0.8998	721.752
2125	1	802.38	0.8998	721.941
2131	1	668.41	0.8998	601.401
2136	1	1,123.64	0.9000	1,011.276
2150	1	346.94	0.8998	312.159
2151	1	989.58	0.9000	890.622
2155	1	266.39	0.8998	239.684
2166	1	400.52	0.9000	360.468
2167	1	1,148.13	0.8998	1,033.029
2172	1	1,257.46	0.8998	1,131.399
2184	1	1,070.25	0.9000	963.225
2189	1	266.36	0.8998	239.657
2195	1	266.74	0.8998	239.999
2196	1	935.72	0.8998	841.914

2197	1	266.63	0.8998	239.900
2199	1	266.44	0.8995	239.662
2204	1	667.72	0.8998	600.781
2216	1	1,123.57	0.8998	1,010.932
2216	1	989.21	0.8998	890.041
2228	1	962.89	0.8998	866.360
2232	1	614.72	0.8993	552.786
2245	1	668.55	0.8998	601.527
2246	1	1,337.91	0.8998	1,203.784
2256	1	266.75	0.8998	240.008
2261	1	721.59	0.9000	649.431
2276	1	775.52	0.9000	697.968
2278	1	400.28	0.9000	360.252
2280	1	882.33	0.8998	793.876
2292	1	1,070.05	0.9000	963.045
2293	1	1,042.64	0.9000	938.376
2294	1	1,137.75	0.9000	1,023.975
2305	1	212.92	0.8998	191.574
2306	1	935.90	0.8998	842.076
2308	1	802.57	0.8998	722.112
2309	1	935.41	0.8998	841.635
2310	1	213.29	0.9000	191.961

2310	1	266.49	0.8998	239.774
2314	1	802.33	0.8995	721.695
2322	1	266.78	0.8998	240.035
2325	1	909.39	0.9000	818.451
2326	1	801.67	0.9000	721.503
2327	1	400.41	0.9000	360.369
2341	1	935.18	0.9000	841.662
2342	1	989.61	0.9000	890.649
2343	1	266.06	0.8998	239.387
2350	1	1,230.58	0.9000	1,107.522
2351	1	1,137.81	0.9000	1,024.029
2352	1	1,177.27	0.8998	1,059.248
2355	1	668.08	0.9000	601.272
2359	1	266.52	0.8998	239.801
2374	1	1,070.39	0.8998	963.083
2375	1	1,076.70	0.8998	968.760
2376	1	955.10	0.8998	859.351
2377	1	695.19	0.8998	625.497
2384	1	1,204.14	0.8998	1,083.424
2394	1	934.35	0.8998	840.681
2399	1	1,337.46	0.8998	1,203.379
2400	1	1,336.98	0.8998	1,202.947

2401	1	266.64	0.8998	239.909
2404	1	266.53	0.9000	239.877
2412	1	695.01	0.9000	625.509
2420	1	802.58	0.8998	722.121
2421	1	695.20	0.8998	625.506
2421	1	802.30	0.8998	721.869
2422	1	1,139.41	0.8998	1,025.184
2430	1	1,140.58	0.8998	1,026.236
2431	1	1,458.22	0.8998	1,312.033
2432	1	1,402.98	0.9000	1,262.682
2433	1	266.20	0.8998	239.513
2434	1	266.22	0.8998	239.531
2453	1	802.46	0.9000	722.214
2454	1	615.18	0.8998	553.508
2466	1	802.37	0.8998	721.932
2467	1	802.38	0.9000	722.142
2468	1	1,229.87	0.9000	1,106.883
2474	1	1,337.05	0.8998	1,203.010
2476	1	266.40	0.8998	239.693
2487	1	935.66	0.8998	841.860
2489	1	266.57	0.8998	239.846
2492	1	1,070.27	0.8998	962.975

2493	1	908.78	0.8998	817.674
2494	1	1,149.74	0.9000	1,034.766
2504	1	775.63	0.8998	697.873
2519	1	1,043.00	0.8998	938.439
2520	1	847.88	0.8998	762.880
2521	1	942.63	0.8990	847.424
2525	1	1,070.05	0.9000	963.045
2526	1	641.67	0.9000	577.503
2527	1	802.42	0.8995	721.776
2528	1	748.55	0.8998	673.507
2529	1	534.39	0.9000	480.951
2537	1	588.36	0.9000	529.524
2539	1	855.58	0.9000	770.022
2540	1	972.99	0.9000	875.691
2548	1	1,471.61	0.9000	1,324.449
2551	1	266.49	0.8998	239.774
2558	1	534.64	0.9000	481.176
2561	1	1,337.88	0.8998	1,203.757
2562	1	1,335.92	0.9000	1,202.328
2569	1	1,283.34	0.8998	1,154.685
2578	1	1,028.35	0.8998	925.257
2579	1	977.04	0.8995	878.847

2591	1	1,203.73	0.9000	1,083.357
2592	1	1,284.46	0.8998	1,155.692
2604	1	1,443.49	0.8998	1,298.780
2606	1	266.07	0.8998	239.396
2610	1	1,338.03	0.9000	1,204.227
2611	1	1,122.99	0.9000	1,010.691
2621	1	1,123.75	0.8998	1,011.094
2623	1	963.45	0.9000	867.105
2624	1	400.67	0.9000	360.603
2639	1	561.54	0.8998	505.245
2646	1	695.27	0.9000	625.743
2660	1	588.25	0.8998	529.277
2669	1	1,070.45	0.9000	963.405
2686	1	801.79	0.8998	721.410
2687	1	532.54	0.9000	479.286
2705	1	882.94	0.9000	794.646
2706	1	802.13	0.8998	721.716
2709	1	534.75	0.9000	481.275
2733	1	588.28	0.9000	529.452
2739	1	561.41	0.9000	505.269
2743	1	266.49	0.8998	239.774
2748	1	534.84	0.8998	481.222

2754	1	1,150.97	0.8998	1,035.585
2755	1	534.69	0.8998	481.087
2762	1	293.52	0.8998	264.094
2770	1	1,043.32	0.8998	938.727
2781	1	561.57	0.9000	505.413
2791	1	802.37	0.8998	721.932
2792	1	802.69	0.8998	722.220
2793	1	532.32	0.8998	478.954
2804	1	882.87	0.8998	794.362
2815	1	1,070.45	0.8998	963.137
2816	1	427.05	0.8998	384.238
2816	1	936.08	0.8998	842.237
2825	1	695.27	0.9000	625.743
2840	1	829.35	0.8998	746.207
2865	1	534.55	0.9000	481.095
2874	1	560.75	0.9000	504.675
2887	1	641.71	0.8998	577.378
2925	1	802.47	0.9000	722.223
053 1	1	640.72	0.9000	576.648
053 2	1	696.00	0.9000	626.400
074 1	1	557.60	0.9000	501.840
074 2	1	557.18	0.9000	501.462

075 1	1	476.43	0.9000	428.787
075 2	1	521.23	0.9000	469.107
076 1	1	477.58	0.9000	429.822
076 2	1	529.78	0.9000	476.802
095 1	1	745.00	0.9000	670.500
095 2	1	736.08	0.9000	662.472
10281	1	719.42	0.8998	647.298
10282	1	671.00	0.8998	603.732
10651	1	764.72	0.8998	688.056
10652	1	572.54	0.8998	515.142
10801	1	691.62	0.8998	622.285
10802	1	645.19	0.8998	580.509
10811	1	705.18	0.9000	634.662
10812	1	631.77	0.9000	568.593
115 1	1	627.89	0.9000	565.101
115 2	1	545.00	0.9000	490.500
12051	1	697.79	0.9000	628.011
12052	1	636.92	0.9000	573.228
132 1	1	595.21	0.9000	535.689
132 2	1	581.42	0.9000	523.278
133 1	1	860.87	0.8998	774.567
133 2	1	882.92	0.8998	794.407

134 1	1	606.30	0.9000	545.670
134 2	1	677.32	0.9000	609.588
155 1	1	567.92	0.9000	511.128
155 2	1	556.65	0.9000	500.985
156 1	1	617.30	0.8998	555.415
156 2	1	688.37	0.8998	619.360
160 1	1	499.40	0.9000	449.460
160 2	1	533.95	0.9000	480.555
165 1	1	646.93	0.8998	582.075
165 2	1	652.62	0.8998	587.194
19811	1	678.97	0.8998	610.903
19812	1	655.81	0.8998	590.065
201 1	1	698.80	0.8998	628.745
201 2	1	611.47	0.8998	550.170
202 1	1	824.77	0.9000	742.293
202 2	1	707.09	0.9000	636.381
209 1	1	635.32	0.8995	571.470
209 2	1	639.87	0.8995	575.563
232 1	1	590.30	0.8998	531.122
232 2	1	587.77	0.8998	528.846
233 1	1	645.83	0.8998	581.085
233 2	1	644.95	0.8998	580.293

254 1	1	646.90	0.8998	582.048
254 2	1	630.28	0.8998	567.094
257 1	1	662.17	0.9000	595.953
257 2	1	646.91	0.9000	582.219
265 1	1	444.66	0.9000	400.194
265 2	1	549.90	0.9000	494.910
26801	1	795.97	0.9000	716.373
26802	1	594.57	0.9000	535.113
300 1	1	492.56	0.9000	443.304
300 2	1	525.89	0.9000	473.301
301 1	1	519.05	0.9000	467.145
301 2	1	544.13	0.9000	489.717
776 1	1	643.81	0.8998	579.268
776 2	1	639.18	0.8998	575.102
810 1	1	844.60	0.8995	759.717
810 2	1	545.72	0.8995	490.875
823 1	1	634.66	0.8998	571.035
823 2	1	649.47	0.8998	584.360
33 B	6	2,424.04	0.9976	2,418.222
1	17	6,509.61	0.8999	5,857.998
2	16	6,867.06	0.8998	6,178.972
3	16	6,829.10	0.9000	6,146.190

4	16	6,800.40	0.8998	6,119.000
5	16	6,905.85	0.8998	6,213.884
6	16	6,375.74	0.8999	5,737.528
7	16	6,714.97	0.9000	6,043.473
8	16	6,886.59	0.8999	6,197.242
9	16	6,698.89	0.8998	6,027.661
10	16	7,026.72	0.9000	6,324.048
11	16	6,852.72	0.8998	6,166.077
12	16	6,110.70	0.8998	5,498.408
13	16	6,940.24	0.8999	6,245.522
14	16	6,682.55	0.8999	6,013.627
15	16	6,988.06	0.8999	6,288.555
16	16	7,259.65	0.9001	6,534.411
17	16	7,172.05	0.8998	6,453.411
18	16	7,106.98	0.9000	6,396.282
19	16	7,283.79	0.8998	6,553.954
20	16	6,987.69	0.8999	6,288.222
21	16	7,086.73	0.8999	6,377.348
22	16	7,035.95	0.8999	6,331.651
24	16	7,091.89	0.8998	6,381.283
25	16	6,821.32	0.8999	6,138.506
26	13	4,976.32	0.9000	4,478.688

27	16	6,522.93	0.8999	5,869.985
28	16	6,951.56	0.8999	6,255.709
29	16	6,685.86	0.8998	6,015.937
30	16	6,624.60	0.9002	5,963.465
31	16	6,643.21	0.8998	5,977.560
32	16	6,866.66	0.8998	6,178.621
33	16	6,655.10	0.9000	5,989.590
34	16	6,665.79	0.8998	5,997.878
35	16	6,764.52	0.8999	6,087.392
36	16	6,612.35	0.9000	5,951.115
37	16	6,787.01	0.8999	6,107.630
38	16	6,802.58	0.8999	6,121.642
39	16	6,773.27	0.8999	6,095.266
40	16	6,799.33	0.8998	6,118.037
41	16	6,808.83	0.8998	6,126.585
42	16	6,727.83	0.8999	6,054.374
43	16	6,698.43	0.8999	6,027.917
44	16	6,497.04	0.8999	5,846.686
45	16	7,308.98	0.9000	6,578.082
46	16	7,185.74	0.8999	6,466.447
47	16	7,134.58	0.9000	6,421.122
48	16	7,030.31	0.9000	6,327.279

49	17	7,372.67	0.8999	6,634.665
50	18	7,705.71	0.9000	6,935.139
51	16	6,593.84	0.8999	5,933.796
52	16	6,850.77	0.8999	6,165.008
53	16	6,665.30	0.8999	5,998.103
54	16	6,853.77	0.9000	6,168.393
55	16	6,754.48	0.8999	6,078.356
56	16	6,955.83	0.9000	6,260.247
57	16	6,606.37	0.9000	5,945.733
58	16	7,023.82	0.9000	6,321.438
59	16	7,285.59	0.9001	6,557.759
60	16	6,937.26	0.8999	6,242.840
61	15	6,376.12	0.8999	5,737.870
62	16	6,916.10	0.9000	6,224.490
63	16	6,835.06	0.9000	6,151.554
64	16	6,855.53	0.9001	6,170.662
65	16	6,545.95	0.8999	5,890.700
66	16	6,879.90	0.9000	6,191.910
67	16	6,266.13	0.8999	5,638.890
68	16	6,534.47	0.8999	5,880.369
69	16	6,711.09	0.8998	6,038.638
70	16	6,623.30	0.8997	5,958.983

71	16	6,892.12	0.8999	6,202.218
72	16	6,639.11	0.8999	5,974.535
74	16	6,484.37	0.8999	5,835.285
75	16	6,948.26	0.8998	6,252.044
76	16	6,916.84	0.8999	6,224.464
77	16	6,981.17	0.9000	6,283.053
78	16	6,590.71	0.8998	5,930.321
79	16	6,981.66	0.8999	6,282.796
80	16	6,676.17	0.8999	6,007.885
81	15	6,141.65	0.8999	5,526.871
82	16	6,325.86	0.9001	5,693.906
83	16	6,779.38	0.9000	6,101.442
84	16	6,489.32	0.9000	5,840.388
85	16	6,806.04	0.8999	6,124.755
86	16	6,927.79	0.8999	6,234.318
87	16	6,958.25	0.9000	6,262.425
88	16	6,720.13	0.9000	6,048.117
89	16	6,596.90	0.8999	5,936.550
90	16	6,804.15	0.8999	6,123.054
91	16	6,764.30	0.8999	6,087.193
92	16	7,108.90	0.8999	6,397.299
93	15	6,297.33	0.8999	5,666.967

94	16	6,939.82	0.9001	6,246.532
95	16	6,555.80	0.9000	5,900.220
96	16	6,830.86	0.8999	6,147.091
97	16	6,611.97	0.9000	5,950.773
98	16	6,912.93	0.9000	6,221.637
99	16	6,432.69	0.9001	5,790.064
100	16	6,952.39	0.9000	6,257.151
101	16	6,651.37	0.8999	5,985.568
102	16	6,841.96	0.8999	6,157.080
103	16	6,788.16	0.8998	6,107.986
104	16	6,751.58	0.9000	6,076.422
105	15	6,301.56	0.8999	5,670.774
106	16	6,857.41	0.8999	6,170.983
107	16	6,665.23	0.8999	5,998.040
108	16	6,922.33	0.8999	6,229.404
109	16	7,099.84	0.8999	6,389.146
110	16	6,753.09	0.9000	6,077.781
111	15	5,982.70	0.9000	5,384.430
112	16	6,707.28	0.9000	6,036.552
113	16	6,526.14	0.9001	5,874.178
114	16	6,918.19	0.9000	6,226.371
115	16	6,617.10	0.9001	5,956.051

116	16	6,804.32	0.8998	6,122.527
117	16	6,723.70	0.8999	6,050.657
118	16	6,980.02	0.8999	6,281.320
119	16	6,850.77	0.9000	6,165.693
120	16	6,762.73	0.8999	6,085.780
121	16	6,953.95	0.9000	6,258.555
122	16	6,495.44	0.8998	5,844.597
123	15	6,234.28	0.9000	5,610.852
125	16	7,015.67	0.9001	6,314.804
126	16	6,786.31	0.9000	6,107.679
127	16	7,169.61	0.9000	6,452.649
128	15	6,347.70	0.9001	5,713.564
129	15	6,253.69	0.8999	5,627.695
130	16	6,895.32	0.8998	6,204.409
131	16	6,730.23	0.8997	6,055.188
132	16	6,814.64	0.8997	6,131.131
133	16	6,671.10	0.8999	6,003.323
134	16	7,050.23	0.8999	6,344.502
135	15	6,128.67	0.8998	5,514.577
136	16	6,622.76	0.8999	5,959.821
137	15	6,286.30	0.8998	5,656.412
138	16	6,831.15	0.8999	6,147.352

139	16	6,983.73	0.8999	6,284.658
140	16	6,578.69	0.8999	5,920.163
141	17	6,987.69	0.9000	6,288.921
143	16	6,852.12	0.8998	6,165.537
144	16	6,769.55	0.8999	6,091.918
153	17	7,000.16	0.8997	6,298.044
165	17	6,924.30	0.9000	6,231.870
774	16	6,991.13	0.9000	6,292.017
1115	14	5,941.43	0.8999	5,346.693
1116	16	7,005.08	0.8999	6,303.871
1119	16	7,021.19	0.8999	6,318.369
1120	16	6,794.51	0.9000	6,115.059
1121	16	7,084.07	0.8999	6,374.954
1128	16	6,744.10	0.8999	6,069.015
1133	14	5,773.43	0.8999	5,195.509
1134	16	7,085.18	0.8999	6,375.953
1135	16	6,795.56	0.9000	6,116.004
1136	16	6,731.54	0.9000	6,058.386
1137	16	7,085.73	0.8999	6,376.448
1138	15	6,478.44	0.8999	5,829.948
1139	16	6,815.93	0.8999	6,133.655
1140	16	7,243.69	0.8999	6,518.596

1141	16	6,884.87	0.8999	6,195.694
1142	16	6,675.59	0.8999	6,007.363
1143	16	6,631.29	0.8999	5,967.498
1144	16	6,887.07	0.8998	6,196.985
1145	16	6,826.00	0.8998	6,142.035
1146	16	6,512.56	0.9000	5,861.304
1147	16	6,792.44	0.8999	6,112.516
1148	16	6,930.02	0.8999	6,236.325
1149	15	6,296.99	0.8998	5,666.031
1150	14	5,909.27	0.8999	5,317.752
1151	15	6,260.69	0.8998	5,633.369
1152	16	6,751.48	0.8999	6,075.657
1153	16	6,894.82	0.8998	6,203.959
1154	16	7,116.10	0.8999	6,403.778
1155	17	7,217.68	0.8999	6,495.190
1156	17	7,411.79	0.9000	6,670.611
1157	16	7,211.83	0.8998	6,489.204
1158	16	6,811.94	0.8999	6,130.065
1159	16	6,922.57	0.8998	6,228.928
1160	15	6,675.28	0.8999	6,007.084
1161	16	6,797.49	0.8999	6,117.061
1162	16	6,920.86	0.8998	6,227.390

1163	16	6,825.79	0.8998	6,141.846
1164	16	6,764.85	0.8998	6,087.012
1166	16	6,687.45	0.8999	6,018.036
1167	14	5,879.06	0.8999	5,290.566
1168	13	5,217.17	0.8999	4,694.931
1169	14	5,719.34	0.8999	5,146.834
1170	17	7,419.76	0.8998	6,676.300
1171	16	6,832.91	0.8998	6,148.252
1172	16	6,822.91	0.8998	6,139.254
1173	17	7,624.55	0.8998	6,860.570
1174	17	7,235.10	0.9000	6,511.590
1175	16	6,723.00	0.9000	6,050.700
1176	16	7,169.08	0.8999	6,451.455
1177	16	6,851.05	0.8999	6,165.260
1178	16	6,937.20	0.8999	6,242.786
1179	16	6,982.75	0.8998	6,283.078
1180	16	6,658.84	0.9000	5,992.956
1181	17	7,138.72	0.8999	6,424.134
1182	16	6,740.81	0.8999	6,066.055
1183	16	6,693.35	0.8998	6,022.676
1184	15	6,517.94	0.8999	5,865.494
1185	13	5,468.26	0.8998	4,920.340

1186	12	5,036.10	0.8998	4,531.482
1187	15	6,199.91	0.8999	5,579.299
1188	15	6,563.79	0.9000	5,907.411
1189	16	6,730.13	0.9000	6,057.117
1190	16	6,810.19	0.9000	6,129.171
1191	16	6,731.39	0.8999	6,057.578
1192	16	6,855.36	0.8999	6,169.138
1193	16	6,770.85	0.8999	6,093.088
1194	17	7,094.90	0.8998	6,383.991
1195	15	6,445.63	0.8999	5,800.422
1196	15	6,217.32	0.8999	5,594.966
1197	16	6,672.59	0.8998	6,003.996
1198	17	7,190.51	0.9000	6,471.459
1199	16	6,918.25	0.9000	6,226.425
1200	16	6,738.69	0.8999	6,064.147
1201	16	6,670.56	0.9000	6,003.504
1202	15	6,851.31	0.9000	6,166.179
1203	16	6,713.85	0.8999	6,041.793
1204	16	6,981.68	0.8999	6,282.814
1205	16	7,097.04	0.8999	6,386.626
1206	16	6,831.60	0.8999	6,147.757
1207	17	7,315.93	0.8999	6,583.605

1208	16	7,207.90	0.8998	6,485.668
1209	16	6,834.42	0.9000	6,150.978
1210	15	6,322.27	0.8999	5,689.410
1211	16	6,895.03	0.8999	6,204.837
1212	16	6,875.88	0.9001	6,188.979
1213	13	5,442.46	0.9000	4,898.214
1214	13	5,529.49	0.8998	4,975.435
1215	16	6,855.59	0.9000	6,170.031
1216	16	6,851.19	0.9000	6,166.071
1217	16	6,879.98	0.8999	6,191.294
1219	16	6,638.25	0.9000	5,974.425
1220	16	7,166.73	0.8999	6,449.340
1221	15	6,637.00	0.9000	5,973.300
1222	16	6,677.34	0.8999	6,008.938
1223	15	6,389.36	0.8999	5,749.785
1224	16	6,735.37	0.8999	6,061.159
1225	16	6,841.69	0.9000	6,157.521
1226	16	6,660.47	0.8998	5,993.091
1227	16	6,762.69	0.8998	6,085.068
1228	17	7,125.39	0.8999	6,412.138
1229	16	6,841.98	0.8998	6,156.413
1230	16	6,581.72	0.8999	5,922.890

1231	15	6,414.82	0.8999	5,772.696
1232	14	6,070.95	0.8999	5,463.248
1233	7	6,830.11	0.9000	6,147.099
1234	8	6,676.03	0.9000	6,008.427
1235	7	6,413.15	0.9000	5,771.835
1236	8	6,614.64	0.9000	5,953.176
1237	9	7,389.35	0.8999	6,649.676
1238	9	6,953.87	0.8999	6,257.787
1239	8	6,458.03	0.8999	5,811.581
1240	9	6,702.38	0.8999	6,031.471
1241	9	6,740.53	0.8999	6,065.803
1242	9	7,015.48	0.8999	6,313.230
1243	8	6,988.59	0.8999	6,289.032
1244	8	6,703.89	0.9000	6,033.501
1245	8	6,705.68	0.9000	6,035.112
1246	8	6,932.24	0.9000	6,239.016
1247	8	6,902.19	0.8999	6,211.280
1248	8	6,323.62	0.9000	5,691.258
1249	7	5,584.44	0.9000	5,025.996
1250	9	6,671.27	0.9000	6,004.143
1251	9	6,647.86	0.8999	5,982.409
1252	8	6,273.25	0.8999	5,645.297

1253	8	6,763.96	0.8999	6,086.887
1254	8	6,630.60	0.9000	5,967.540
1255	8	6,686.47	0.8999	6,017.154
1256	9	7,153.50	0.8999	6,437.434
1257	8	6,836.12	0.8999	6,151.824
1258	8	6,865.03	0.8998	6,177.154
1259	8	6,712.89	0.8998	6,040.258
1260	8	6,536.13	0.8999	5,881.863
1261	8	6,904.98	0.8999	6,213.791
1262	8	6,929.59	0.8999	6,235.938
1263	8	6,589.60	0.8999	5,929.981
1264	8	6,949.14	0.9000	6,254.226
1266	8	6,713.16	0.9000	6,041.844
1267	8	6,289.42	0.8999	5,659.849
1268	8	6,451.95	0.8999	5,806.110
1269	8	6,555.44	0.9000	5,899.896
1270	8	6,375.33	0.9000	5,737.797
1271	8	6,489.22	0.9001	5,840.947
1272	8	6,882.76	0.8999	6,193.795
1273	8	6,602.00	0.8999	5,941.140
1274	9	7,088.15	0.9000	6,379.335
1275	8	6,749.57	0.8999	6,073.938

1276	8	6,794.77	0.9001	6,115.972
1277	8	6,739.83	0.8999	6,065.173
1278	8	6,723.03	0.8998	6,049.382
1279	8	7,001.24	0.9000	6,301.116
1280	8	6,631.33	0.9000	5,968.197
1281	8	6,753.32	0.9000	6,077.988
1282	8	6,805.74	0.9000	6,125.166
1283	8	6,485.11	0.9000	5,836.599
1284	8	6,927.94	0.9000	6,235.146
1285	8	6,688.48	0.9000	6,019.632
1286	8	6,515.12	0.8999	5,862.956
1287	7	5,791.56	0.8999	5,211.825
1288	9	6,984.49	0.9000	6,286.041
1289	8	6,681.96	0.8999	6,013.096
1290	8	6,554.96	0.8999	5,898.808
1291	9	7,344.70	0.9000	6,610.230
1292	8	6,680.27	0.9000	6,012.243
1293	9	7,165.99	0.9000	6,449.391
1294	8	6,791.19	0.9001	6,112.750
1295	8	6,376.65	0.9000	5,738.985
1296	7	5,678.93	0.9001	5,111.605
1297	8	6,656.38	0.9000	5,990.742

1298	8	6,752.87	0.8999	6,076.907
1299	8	6,654.63	0.9001	5,989.832
1300	9	7,255.76	0.8999	6,529.458
1301	9	7,149.94	0.8998	6,433.516
1302	8	6,678.50	0.8998	6,009.314
1303	8	6,492.21	0.8999	5,842.339
1304	8	6,826.83	0.8999	6,143.464
1305	8	6,565.72	0.8998	5,907.835
1306	8	6,548.64	0.9000	5,893.776
1307	8	6,627.05	0.8999	5,963.682
1308	8	6,691.03	0.8999	6,021.258
1310	8	7,188.33	0.9000	6,469.497
1311	9	7,205.34	0.9001	6,485.526
1312	8	6,833.38	0.8999	6,149.358
1313	8	6,601.16	0.9000	5,941.044
1314	8	6,819.44	0.9000	6,137.496
1315	8	6,746.91	0.8999	6,071.544
1316	8	6,794.83	0.8998	6,113.988
1318	8	6,794.38	0.8999	6,114.262
1319	8	6,742.23	0.9000	6,068.007
1320	8	6,812.75	0.9000	6,131.475
1321	8	6,801.88	0.8999	6,121.012

1322	8	6,768.61	0.8998	6,090.395
1323	8	6,096.12	0.8999	5,485.898
1324	8	6,647.18	0.8999	5,981.797
1325	8	6,723.46	0.9001	6,051.786
1326	8	6,436.57	0.9000	5,792.913
1327	8	6,776.98	0.9000	6,099.282
1328	8	6,386.81	0.8999	5,747.490
1329	9	6,679.99	0.9000	6,011.991
1330	8	6,971.84	0.9001	6,275.353
1331	8	6,713.45	0.9001	6,042.776
1332	8	6,395.94	0.9001	5,756.985
1333	8	6,856.72	0.8999	6,170.362
1334	8	6,691.29	0.9000	6,022.161
1335	8	6,565.43	0.8999	5,908.230
1336	8	6,742.04	0.9000	6,067.836
1337	8	7,134.85	0.9000	6,421.365
1338	8	6,773.17	0.9000	6,095.853
1339	8	7,097.81	0.9000	6,388.029
1340	8	6,767.45	0.8999	6,090.028
1341	8	6,750.79	0.9000	6,075.711
1342	8	6,975.25	0.9000	6,277.725
1343	8	6,728.86	0.9000	6,055.974

1344	8	6,675.99	0.9000	6,008.391
1345	7	5,984.81	0.9000	5,386.329
1346	6	4,832.03	0.9001	4,349.310
1347	7	5,431.12	0.9000	4,888.008
1348	7	6,018.55	0.9000	5,416.695
1349	8	6,552.21	0.9000	5,896.989
1350	8	6,824.16	0.9000	6,141.744
1351	8	7,002.65	0.8999	6,301.684
1352	8	6,976.34	0.8999	6,278.008
1353	8	6,849.57	0.8999	6,163.928
1354	8	6,871.66	0.8999	6,183.807
1355	8	7,013.99	0.8999	6,311.889
1356	8	7,077.15	0.8999	6,368.727
1358	8	6,393.22	0.9000	5,753.898
1359	8	6,891.11	0.8999	6,201.310
1360	8	6,764.05	0.9000	6,087.645
1361	8	6,637.21	0.9000	5,973.489
1362	8	6,755.37	0.9000	6,079.833
1363	8	6,658.68	0.9000	5,992.812
1364	7	5,819.86	0.9000	5,237.874
1365	8	6,740.40	0.9000	6,066.360
1366	8	6,536.48	0.9001	5,883.485

1367	8	6,802.68	0.9001	6,123.092
1368	8	6,882.41	0.8999	6,193.480
1369	8	6,949.04	0.8999	6,253.441
1370	8	6,662.26	0.9000	5,996.034
1371	8	6,723.78	0.9001	6,052.074
1372	8	6,978.77	0.9000	6,280.893
1373	8	6,752.55	0.9000	6,077.295
1374	8	6,780.09	0.9000	6,102.081
1375	8	6,679.98	0.8999	6,011.314
1376	8	6,611.80	0.8999	5,949.959
1377	8	6,898.44	0.8999	6,207.906
1378	8	6,741.68	0.9000	6,067.512
1379	8	6,678.64	0.9000	6,010.776
1380	8	6,909.83	0.9000	6,218.847
1381	7	5,863.64	0.9001	5,277.862
1382	8	6,584.55	0.9000	5,926.095
1383	8	6,836.95	0.9000	6,153.255
1384	8	6,752.48	0.9000	6,077.232
1385	8	7,079.20	0.9000	6,371.280
1386	8	6,828.78	0.9001	6,146.585
1387	7	6,039.13	0.8999	5,434.613
1388	8	6,750.36	0.9001	6,075.999

1389	8	6,850.75	0.8999	6,164.990
1390	8	6,880.77	0.8999	6,192.005
1391	8	6,980.98	0.9000	6,282.882
1392	8	6,862.74	0.8999	6,175.779
1393	8	7,064.49	0.9000	6,358.041
1394	8	6,871.19	0.9000	6,184.071
1395	8	6,697.91	0.9000	6,028.119
1396	8	7,170.69	0.8999	6,452.904
1397	8	7,151.26	0.9001	6,436.849
1398	8	7,039.64	0.9000	6,335.676
1399	8	6,777.78	0.9000	6,100.002
1400	8	6,561.24	0.9000	5,905.116
1401	8	7,032.97	0.8999	6,328.969
1402	8	6,936.47	0.9001	6,243.516
1403	8	6,604.95	0.9000	5,944.455
1404	7	5,959.30	0.8999	5,362.774
1405	7	5,748.02	0.9000	5,173.218
1406	7	5,608.68	0.8999	5,047.251
1407	8	6,650.52	0.9000	5,985.468
1408	8	7,028.25	0.8999	6,324.722
1410	8	6,760.23	0.9001	6,084.883
1411	8	7,065.72	0.8999	6,358.441

1412	8	7,027.20	0.8999	6,323.777
1413	8	7,223.34	0.9001	6,501.728
1414	8	7,220.08	0.8999	6,497.350
1415	8	6,969.61	0.9000	6,272.649
1416	8	6,762.60	0.9001	6,087.016
1417	8	6,819.44	0.9000	6,137.496
1418	8	6,666.77	0.9000	6,000.093
1419	8	6,814.32	0.9001	6,133.569
1420	8	6,820.71	0.8999	6,137.957
1421	8	6,780.11	0.9000	6,102.099
1422	7	5,996.35	0.8999	5,396.115
1423	7	5,886.22	0.8999	5,297.009
1424	7	5,682.53	0.9000	5,114.277
1425	8	7,006.28	0.8999	6,304.951
1426	8	6,970.03	0.8998	6,271.633
1427	8	6,901.20	0.8999	6,210.390
1428	8	7,100.64	0.9000	6,390.576
1429	8	6,692.57	0.9000	6,023.313
1430	8	6,647.59	0.9000	5,982.831
1431	8	6,697.69	0.9001	6,028.590
1432	8	6,437.66	0.9000	5,793.894
1433	8	6,753.47	0.8999	6,077.447

1434	8	6,405.42	0.8999	5,764.237
1435	8	6,739.20	0.9000	6,065.280
1436	8	6,619.96	0.9000	5,957.964
1437	8	6,549.44	0.8998	5,893.186
1438	8	6,679.39	0.8999	6,010.783
1439	8	6,622.49	0.8999	5,959.578
1440	8	6,652.27	0.8999	5,986.377
1441	8	6,509.66	0.8999	5,858.043
1442	9	6,851.63	0.9000	6,166.467
1443	8	6,922.57	0.8999	6,229.620
1444	8	6,702.39	0.9000	6,032.151
1445	8	7,072.53	0.8999	6,364.569
1446	8	6,527.31	0.8999	5,873.926
1447	8	6,535.19	0.8999	5,881.017
1448	8	6,764.51	0.9000	6,088.059
1449	8	6,154.35	0.8999	5,538.299
1450	8	6,437.08	0.8999	5,792.728
1451	8	6,882.99	0.8999	6,194.002
1452	8	6,732.56	0.9000	6,059.304
1453	8	6,626.86	0.9000	5,964.174
1454	8	6,727.82	0.9000	6,055.038
1455	8	6,905.60	0.9000	6,215.040

1456	8	6,758.85	0.9000	6,082.965
1457	8	6,884.33	0.8999	6,195.208
1458	8	6,653.89	0.8999	5,987.835
1459	8	6,812.68	0.8998	6,130.049
1461	8	6,732.80	0.8999	6,058.846
1462	8	6,439.31	0.9000	5,795.379
1463	8	6,978.44	0.8999	6,279.898
1464	8	6,896.76	0.8999	6,206.394
1465	8	6,623.15	0.8999	5,960.172
1466	8	6,837.29	0.8999	6,152.877
1467	8	7,002.11	0.8999	6,301.198
1468	8	6,713.41	0.8999	6,041.397
1469	8	6,884.84	0.8999	6,195.667
1470	8	6,651.25	0.8999	5,985.460
1471	8	6,760.41	0.9000	6,084.369
1472	8	6,751.96	0.8999	6,076.089
1473	8	6,678.65	0.9000	6,010.785
1474	8	6,786.52	0.9000	6,107.868
1475	8	6,685.33	0.9000	6,016.797
1476	8	6,611.96	0.9000	5,950.764
1477	7	5,968.86	0.8999	5,371.377
1478	8	6,739.47	0.9000	6,065.523

1479	8	6,742.73	0.8999	6,067.782
1480	8	6,869.78	0.8999	6,182.115
1481	8	7,014.55	0.8999	6,312.393
1482	8	6,495.05	0.8999	5,844.895
1483	8	6,527.63	0.9000	5,874.867
1484	8	6,930.13	0.9000	6,237.117
1485	8	6,244.48	0.9000	5,620.032
1486	8	6,813.62	0.8999	6,131.576
1487	8	6,893.55	0.9001	6,204.884
1488	8	6,674.39	0.8999	6,006.283
1489	8	6,472.10	0.9000	5,824.890
1490	8	6,836.51	0.9000	6,152.859
1491	8	6,603.82	0.9000	5,943.438
1492	8	6,515.09	0.8999	5,862.929
1493	8	6,881.59	0.9000	6,193.431
1494	8	6,849.17	0.8999	6,163.568
1495	8	6,716.02	0.8999	6,043.746
1496	8	6,747.25	0.8999	6,071.850
1497	8	6,730.12	0.9000	6,057.108
1498	8	6,558.76	0.9000	5,902.884
1499	8	6,845.57	0.8999	6,160.328
1500	8	6,805.53	0.9000	6,124.977

1501	8	6,683.81	0.9000	6,015.429
1502	8	6,652.08	0.8999	5,986.206
1503	7	6,023.31	0.8999	5,420.376
1504	9	7,212.98	0.9000	6,491.682
1505	8	6,612.34	0.9000	5,951.106
1506	8	6,640.83	0.8999	5,976.083
1507	8	6,868.71	0.8999	6,181.152
1508	8	6,768.74	0.9000	6,091.866
1509	8	6,603.76	0.9000	5,943.384
1510	8	6,450.95	0.9000	5,805.855
1511	8	6,530.26	0.9000	5,877.234
1512	8	6,650.07	0.9000	5,985.063
1513	8	6,746.09	0.9000	6,071.481
1516	8	6,505.80	0.9000	5,855.220
1517	8	6,695.34	0.9000	6,025.806
1518	8	6,567.01	0.9000	5,910.309
1519	8	6,531.39	0.9000	5,878.251
1520	8	7,240.12	0.8999	6,515.384
1521	8	6,835.81	0.9000	6,152.229
1522	9	7,162.68	0.8999	6,445.695
1523	8	6,515.41	0.8999	5,863.217
1524	8	6,817.10	0.8999	6,134.708

1525	9	6,894.57	0.8999	6,204.423
1526	8	6,424.50	0.9000	5,782.050
1527	8	6,650.37	0.9000	5,985.333
1528	8	6,668.90	0.9000	6,002.010
1529	8	6,641.13	0.9001	5,977.681
1530	8	6,537.43	0.8999	5,883.033
1531	8	6,646.92	0.9000	5,982.228
1532	8	6,889.48	0.8999	6,199.843
1533	8	6,765.62	0.9000	6,089.058
1534	8	6,594.78	0.9000	5,935.302
1535	8	6,757.25	0.9000	6,081.525
1536	8	6,723.44	0.8999	6,050.423
1537	8	6,662.66	0.8999	5,995.727
1538	8	6,735.24	0.9000	6,061.716
1539	8	6,867.90	0.8999	6,180.423
1540	8	6,372.91	0.8999	5,734.981
1541	8	6,707.00	0.8999	6,035.629
1542	8	6,430.22	0.9000	5,787.198
1543	8	6,816.49	0.9000	6,134.841
1544	8	6,699.05	0.9000	6,029.145
1545	8	6,387.40	0.8999	5,748.021
1546	8	6,860.24	0.8999	6,173.530

1547	8	6,720.89	0.9000	6,048.801
1548	8	6,509.66	0.9000	5,858.694
1549	8	6,727.56	0.8999	6,054.131
1550	8	6,728.39	0.8999	6,054.878
1551	8	6,831.45	0.9000	6,148.305
1552	8	7,056.06	0.8999	6,349.748
1553	8	7,016.69	0.8999	6,314.319
1554	8	6,915.74	0.8999	6,223.474
1555	8	6,934.05	0.8999	6,239.951
1558	8	7,058.93	0.9000	6,353.037
1559	8	6,750.42	0.9000	6,075.378
1560	7	5,965.14	0.9001	5,369.222
1561	8	6,966.26	0.9001	6,270.330
1562	8	6,831.24	0.9001	6,148.799
1563	9	7,508.10	0.9000	6,757.290
1564	8	6,917.51	0.8999	6,225.067
1566	8	6,635.44	0.9000	5,971.896
1567	8	6,851.93	0.8999	6,166.052
384	8	6,876.00	0.8999	6,187.712
389	8	6,972.93	0.8999	6,274.939
393	8	6,849.79	0.8998	6,163.441
394	7	5,716.61	0.8998	5,143.805

395	6	4,973.96	0.8998	4,475.569
396	8	6,649.86	0.8999	5,984.209
397	8	6,596.13	0.8999	5,935.857
398	8	6,921.98	0.8998	6,228.397
399	8	6,929.46	0.8999	6,235.821
400	8	6,992.53	0.8998	6,291.878
401	8	6,628.32	0.8998	5,964.162
402	8	6,862.69	0.8998	6,175.048
403	8	6,848.58	0.8999	6,163.037
404	8	6,768.21	0.8998	6,090.035
405	8	6,817.93	0.8998	6,134.773
406	8	7,032.73	0.8999	6,328.753
407	8	6,659.66	0.8998	5,992.362
408	8	6,749.84	0.8998	6,073.506
409	8	6,731.79	0.8998	6,057.264
410	8	6,909.09	0.8998	6,216.799
411	8	6,431.29	0.8999	5,787.517
412	8	6,825.21	0.8998	6,141.323
413	7	5,531.08	0.8998	4,976.865
414	8	6,734.14	0.8998	6,059.379
415	8	6,746.60	0.8998	6,070.590
416	8	6,990.50	0.8999	6,290.750

417	8	6,815.15	0.8997	6,131.590
418	8	6,864.32	0.8999	6,177.201
419	8	7,288.43	0.8998	6,558.129
420	8	6,869.55	0.8999	6,181.908
421	8	6,818.55	0.8998	6,135.331
422	8	7,081.00	0.8998	6,371.483
423	8	6,683.09	0.8998	6,013.444
424	8	6,971.97	0.8998	6,273.378
425	8	6,845.01	0.8999	6,159.824
426	8	6,713.10	0.8997	6,039.776
427	8	6,892.55	0.8997	6,201.227
428	8	6,716.31	0.8998	6,043.335
429	8	6,339.57	0.8997	5,703.711
430	8	6,535.61	0.8998	5,880.741
431	6	4,979.01	0.8997	4,479.615
432	8	6,584.53	0.8999	5,925.418
433	8	6,703.81	0.8997	6,031.417
434	8	6,399.44	0.8998	5,758.216
435	8	6,879.08	0.8998	6,189.796
436	8	6,727.80	0.8999	6,054.347
437	7	5,918.50	0.8999	5,326.058
438	8	6,893.29	0.8999	6,203.271

439	8	6,764.70	0.8999	6,087.553
440	8	6,862.97	0.8998	6,175.300
441	8	6,674.51	0.8999	6,006.391
442	8	6,891.03	0.8997	6,199.859
443	8	6,657.59	0.8998	5,990.499
444	8	6,713.85	0.8998	6,041.122
445	8	6,842.59	0.8998	6,156.962
446	8	6,771.16	0.8999	6,093.366
447	8	6,854.21	0.8999	6,168.103
448	8	6,668.49	0.8999	6,000.974
449	8	7,087.73	0.8999	6,378.248
450	8	6,802.99	0.8998	6,121.330
451	8	6,826.72	0.8998	6,142.682
452	8	6,829.10	0.8999	6,145.507
453	8	6,653.73	0.8999	5,987.691
454	8	6,949.73	0.8998	6,253.367
455	8	6,985.11	0.8999	6,285.900
456	8	6,635.81	0.8998	5,970.901
457	8	6,857.82	0.8999	6,171.352
458	8	6,697.67	0.8999	6,027.233
459	8	7,021.56	0.8999	6,318.701
460	8	6,716.83	0.8998	6,043.803

461	8	6,706.71	0.8999	6,035.368
462	8	6,981.20	0.8998	6,281.683
463	8	6,970.09	0.8999	6,272.383
464	8	7,133.94	0.8998	6,419.119
465	8	7,068.01	0.8999	6,360.502
466	8	6,661.84	0.8998	5,994.323
467	8	7,044.43	0.8998	6,338.578
468	8	6,751.78	0.8998	6,075.251
469	8	6,912.61	0.8998	6,219.966
470	8	6,955.37	0.8997	6,257.746
471	8	6,710.02	0.8998	6,037.675
472	8	6,889.51	0.8998	6,199.181
473	8	6,776.39	0.8997	6,096.718
474	8	6,580.84	0.8998	5,921.439
475	7	5,656.62	0.8999	5,090.392
476	7	5,350.44	0.8997	4,813.790
477	8	6,515.74	0.8998	5,862.862
478	8	6,881.58	0.8998	6,192.045
479	8	6,421.09	0.8998	5,777.696
480	8	6,814.73	0.8998	6,131.894
481	8	6,719.83	0.8998	6,046.503
482	8	6,898.29	0.8998	6,207.081

483	8	6,690.58	0.8998	6,020.183
484	8	6,966.01	0.8997	6,267.319
485	8	6,728.95	0.8998	6,054.709
486	8	6,700.48	0.8998	6,029.091
487	8	6,757.81	0.8998	6,080.677
488	8	6,887.90	0.8998	6,197.732
489	8	6,690.06	0.8999	6,020.384
490	8	6,818.04	0.8997	6,134.190
491	8	6,624.38	0.8999	5,961.279
492	8	6,824.80	0.8998	6,140.955
493	8	6,565.23	0.8997	5,906.737
494	8	6,379.16	0.8998	5,739.968
495	8	6,802.49	0.8998	6,120.880
496	8	6,733.00	0.8997	6,057.680
497	8	7,016.69	0.9000	6,315.021
498	8	6,823.10	0.8999	6,140.107
499	8	6,993.75	0.8999	6,293.675
500	8	6,633.85	0.8999	5,969.801
501	8	6,812.66	0.8998	6,130.031
502	8	6,803.81	0.8998	6,122.068
503	8	6,723.74	0.8998	6,050.021
504	8	6,795.56	0.8998	6,114.644

505	8	6,824.67	0.8998	6,140.838
506	8	6,955.61	0.8999	6,259.353
507	8	6,682.11	0.8999	6,013.230
508	8	6,881.14	0.9000	6,193.026
509	8	6,903.61	0.8999	6,212.558
510	8	6,720.63	0.8998	6,047.222
511	8	6,401.79	0.8999	5,760.970
512	6	5,374.87	0.8998	4,836.308
513	8	6,787.82	0.8998	6,107.680
514	7	6,136.48	0.8999	5,522.218
515	8	6,705.99	0.8999	6,034.720
516	8	7,000.43	0.8998	6,298.986
517	8	7,021.87	0.8998	6,318.278
518	8	6,813.26	0.8997	6,129.890
519	8	6,914.99	0.8998	6,222.108
520	8	6,856.10	0.8998	6,169.118
521	8	6,951.27	0.8998	6,254.752
522	8	6,727.99	0.8997	6,053.172
523	8	6,697.82	0.8998	6,026.698
524	8	6,688.65	0.8998	6,018.447
525	8	6,679.68	0.8998	6,010.376
526	8	6,689.65	0.8998	6,019.347

527	8	6,785.31	0.8998	6,105.421
528	8	6,904.08	0.8997	6,211.600
529	8	6,526.07	0.8998	5,872.157
530	7	5,983.29	0.8998	5,383.764
531	8	6,793.06	0.8999	6,113.074
532	8	6,790.68	0.8998	6,110.253
533	7	6,317.81	0.8999	5,685.397
534	8	6,739.72	0.8998	6,064.400
535	8	6,957.33	0.8999	6,260.901
536	8	7,232.54	0.8998	6,507.839
537	8	6,795.09	0.8998	6,114.221
538	8	6,550.46	0.8998	5,894.103
539	8	6,741.15	0.8999	6,066.360
540	8	6,834.28	0.8998	6,149.485
541	8	6,758.73	0.8998	6,081.505
542	8	6,880.73	0.8998	6,191.280
543	8	6,704.00	0.9000	6,033.600
544	8	6,729.49	0.8999	6,055.868
545	8	6,778.60	0.8999	6,100.062
546	8	6,728.36	0.8999	6,054.851
547	8	6,438.37	0.8998	5,793.245
548	8	6,109.72	0.8999	5,498.137

549	8	6,404.89	0.8997	5,762.479
550	8	6,763.40	0.8998	6,085.707
551	8	6,699.40	0.8998	6,028.120
552	8	6,868.79	0.8999	6,181.224
553	8	6,876.78	0.8998	6,187.726
554	8	6,679.08	0.8998	6,009.836
555	8	6,826.88	0.8997	6,142.143
556	8	6,766.83	0.8998	6,088.793
557	8	6,898.42	0.8998	6,207.198
558	8	6,845.60	0.8998	6,159.670
559	8	6,388.45	0.8997	5,747.688
560	8	6,542.86	0.8999	5,887.919
561	8	6,861.68	0.8998	6,174.139
562	8	6,532.70	0.8998	5,878.123
563	8	6,742.13	0.8999	6,067.242
564	8	6,675.39	0.8999	6,007.183
565	8	6,678.14	0.8999	6,009.658
566	8	6,524.09	0.8998	5,870.376
567	8	6,940.20	0.8998	6,244.791
568	8	6,828.13	0.8998	6,143.951
569	8	6,627.47	0.8997	5,962.734
570	8	6,730.97	0.8998	6,056.526

571	8	6,643.45	0.8998	5,977.776
572	8	6,686.40	0.8999	6,017.091
573	8	6,934.76	0.8998	6,239.897
574	8	6,955.78	0.8999	6,259.506
575	8	6,325.60	0.8999	5,692.407
576	8	6,731.67	0.8997	6,056.483
577	8	6,892.29	0.8998	6,201.682
578	8	6,776.44	0.8998	6,097.440
579	8	6,714.51	0.8998	6,041.716
580	8	6,613.95	0.8997	5,950.570
581	8	6,551.96	0.8997	5,894.798
582	8	6,773.83	0.8999	6,095.769
583	8	6,660.63	0.8998	5,993.234
584	8	6,684.63	0.8999	6,015.498
585	8	6,786.52	0.8998	6,106.510
586	8	6,741.25	0.8997	6,065.102
587	8	6,715.34	0.8998	6,042.462
588	8	6,603.52	0.8999	5,942.507
589	8	6,686.65	0.8998	6,016.647
590	8	6,460.46	0.8998	5,813.121
591	8	6,792.86	0.8999	6,112.894
592	8	6,617.05	0.8998	5,954.021

593	8	7,019.60	0.8998	6,316.236
594	8	6,786.67	0.8998	6,106.645
595	8	6,779.97	0.8997	6,099.939
596	8	6,799.83	0.8999	6,119.167
597	8	6,532.09	0.8998	5,877.574
598	8	6,680.97	0.8999	6,012.204
599	8	6,645.92	0.8999	5,980.663
600	8	6,577.34	0.8998	5,918.290
601	8	6,596.71	0.8998	5,935.719
602	8	6,671.78	0.8998	6,003.267
603	8	7,016.51	0.8998	6,313.455
604	8	6,717.75	0.8998	6,044.631
605	8	6,750.73	0.8998	6,074.306
606	8	6,699.45	0.8998	6,028.165
607	8	6,240.72	0.8998	5,615.399
608	8	6,733.90	0.8998	6,059.163
609	8	6,609.73	0.8998	5,947.435
610	8	6,636.14	0.8998	5,971.198
611	8	6,580.38	0.8997	5,920.367
612	8	6,661.63	0.8997	5,993.468
613	8	6,839.99	0.8998	6,154.623
614	8	6,547.13	0.8997	5,890.452

615	8	7,143.26	0.8998	6,427.505
616	8	7,135.35	0.8998	6,420.387
617	8	6,727.28	0.8997	6,052.533
618	8	6,732.00	0.8998	6,057.453
619	8	6,836.68	0.8999	6,152.328
620	8	6,806.58	0.8998	6,124.560
621	8	6,518.53	0.8999	5,866.025
622	8	6,869.84	0.8998	6,181.482
623	8	6,679.73	0.8998	6,010.421
624	8	6,910.90	0.8998	6,218.427
625	8	6,915.68	0.8997	6,222.037
626	8	6,742.03	0.8999	6,067.152
627	8	6,875.16	0.8999	6,186.956
628	8	6,612.90	0.8997	5,949.626
629	7	6,062.19	0.8997	5,454.152
630	8	6,639.25	0.8997	5,973.333
631	8	6,963.87	0.8999	6,266.786
632	8	6,759.23	0.8998	6,081.955
633	8	6,640.43	0.8999	5,975.722
634	8	6,743.36	0.9000	6,069.024
635	8	6,762.52	0.8999	6,085.591
636	8	6,750.86	0.8999	6,075.098

637	8	6,975.05	0.8997	6,275.452
638	8	6,703.62	0.8998	6,031.917
639	8	6,397.25	0.8998	5,756.245
640	8	6,763.57	0.8998	6,085.860
641	8	6,464.27	0.8998	5,816.550
642	8	6,746.81	0.8998	6,070.779
643	8	7,024.08	0.8997	6,319.564
644	8	6,733.10	0.8998	6,058.443
645	8	6,610.87	0.8997	5,947.799
646	8	6,874.28	0.8998	6,185.477
647	8	6,768.56	0.8998	6,090.350
648	8	6,613.84	0.8998	5,951.133
649	8	7,036.07	0.8998	6,331.055
650	8	6,989.72	0.8998	6,289.350
651	8	6,809.26	0.8997	6,126.291
652	8	6,703.30	0.8998	6,031.629
653	7	5,646.19	0.8998	5,080.441
654	8	6,635.47	0.8997	5,969.932
655	8	6,723.41	0.8999	6,050.396
656	8	6,677.37	0.8998	6,008.297
657	8	6,765.40	0.8998	6,087.506
658	8	6,916.52	0.8998	6,223.484

659	8	6,737.39	0.8999	6,062.977
660	8	6,707.53	0.8997	6,034.764
661	8	6,746.42	0.8997	6,069.754
662	8	6,826.18	0.8998	6,142.196
663	8	6,662.48	0.8999	5,995.565
664	8	6,458.45	0.8999	5,811.959
665	8	6,699.13	0.8999	6,028.547
666	8	6,692.44	0.8998	6,021.857
667	8	6,705.55	0.8998	6,033.653
668	8	6,575.51	0.8998	5,916.643
669	8	6,751.29	0.8999	6,075.485
670	8	6,758.03	0.8999	6,081.551
671	8	6,881.00	0.9000	6,192.900
672	8	6,754.35	0.8998	6,077.564
673	8	6,913.25	0.8998	6,220.542
674	8	6,789.44	0.8998	6,109.138
675	8	6,759.70	0.8998	6,082.378
676	8	6,245.74	0.8999	5,620.541
677	8	6,726.34	0.8999	6,053.033
678	8	6,820.34	0.8998	6,136.941
679	8	7,006.77	0.8998	6,304.691
680	8	6,814.44	0.8998	6,131.633

681	8	6,752.72	0.8999	6,076.772
682	8	6,855.73	0.8998	6,168.785
683	8	6,929.78	0.8998	6,235.416
684	8	6,674.52	0.8998	6,005.733
685	8	6,814.02	0.8999	6,131.936
686	8	6,779.44	0.8998	6,100.140
687	8	6,616.20	0.8999	5,953.918
688	8	6,364.32	0.8999	5,727.251
689	7	6,130.40	0.8998	5,516.133
690	8	6,727.00	0.8999	6,053.627
691	8	6,770.95	0.8998	6,092.500
692	8	6,952.00	0.8998	6,255.409
693	8	6,748.33	0.8998	6,072.147
694	8	6,586.42	0.8998	5,926.460
695	8	6,675.37	0.8998	6,006.497
696	8	6,691.75	0.8999	6,021.905
697	8	6,543.04	0.8999	5,888.081
698	8	6,726.29	0.8999	6,052.988
699	8	6,748.87	0.8998	6,072.633
700	8	7,030.25	0.8998	6,325.818
701	8	6,929.63	0.8998	6,235.281
702	8	6,662.75	0.9000	5,996.475

703	8	6,876.31	0.8999	6,187.991
704	8	6,707.04	0.8999	6,035.665
705	8	6,602.68	0.8998	5,941.091
706	8	6,824.80	0.8998	6,140.955
707	8	6,898.37	0.8999	6,207.843
708	8	6,632.09	0.8998	5,967.554
709	8	6,551.23	0.8998	5,894.796
710	7	6,075.78	0.8997	5,466.379
711	8	6,760.08	0.8999	6,083.395
712	8	7,014.05	0.8998	6,311.242
713	8	7,066.72	0.8999	6,359.341
714	8	6,701.37	0.8998	6,029.892
715	8	6,731.70	0.8999	6,057.856
716	8	6,853.18	0.8999	6,167.176
717	8	6,701.88	0.8999	6,031.021
718	8	7,052.10	0.8998	6,345.479
719	8	7,211.38	0.8998	6,488.799
720	8	6,572.37	0.8999	5,914.475
721	8	6,532.54	0.9000	5,879.286
722	6	5,351.55	0.8999	4,815.859
723	8	6,751.19	0.8999	6,075.395
724	8	6,556.94	0.9000	5,901.246

725	8	6,872.36	0.8998	6,183.749
726	8	6,614.63	0.9000	5,953.167
727	8	6,570.02	0.8998	5,911.703
728	8	6,963.73	0.8998	6,265.964
729	8	6,791.68	0.8999	6,111.832
730	8	6,609.76	0.8998	5,947.462
731	8	6,744.39	0.8999	6,069.276
732	8	6,737.93	0.8999	6,063.463
733	8	6,888.08	0.8998	6,197.894
734	8	6,378.39	0.8999	5,739.913
735	8	6,761.81	0.8999	6,084.952
736	8	6,661.69	0.8999	5,994.854
737	8	6,829.50	0.8999	6,145.867
738	8	6,670.65	0.8999	6,002.917
739	8	6,626.13	0.9000	5,963.517
740	8	6,828.37	0.8999	6,144.850
741	8	6,842.91	0.8999	6,157.934
742	8	6,767.15	0.8999	6,089.758
743	8	6,851.68	0.9000	6,166.512
744	8	6,771.05	0.8998	6,092.590
745	8	6,241.81	0.9000	5,617.629
746	8	6,567.02	0.8999	5,909.661

747	8	6,630.22	0.8999	5,966.534
748	8	6,914.19	0.8999	6,222.079
749	8	6,719.83	0.8999	6,047.175
750	8	6,656.30	0.8999	5,990.004
751	8	6,619.56	0.8998	5,956.280
752	8	6,590.09	0.8999	5,930.421
753	8	6,572.04	0.8998	5,913.521
754	8	6,683.24	0.8999	6,014.247
755	8	6,690.25	0.8999	6,020.555
756	8	6,541.44	0.9000	5,887.296
757	8	7,031.98	0.8999	6,328.078
758	8	6,864.42	0.9000	6,177.978
759	8	6,769.92	0.8998	6,091.574
760	8	6,825.12	0.8999	6,141.925
761	8	6,843.92	0.9000	6,159.528
762	8	6,717.42	0.8999	6,045.006
763	8	6,627.66	0.8999	5,964.231
764	8	6,740.62	0.8999	6,065.883
765	8	6,837.24	0.8999	6,152.832
766	8	6,976.11	0.8999	6,277.801
767	8	6,804.95	0.8998	6,123.094
768	8	6,766.29	0.9000	6,089.661

769	8	6,340.11	0.8998	5,704.830
770	7	6,268.88	0.8998	5,640.738
771	8	6,686.70	0.9000	6,018.030
772	8	6,699.76	0.8998	6,028.444
773	8	6,744.53	0.8998	6,068.728
774	8	6,682.84	0.8998	6,013.219
775	8	6,559.21	0.8999	5,902.633
776	8	6,862.13	0.8999	6,175.230
777	8	6,591.76	0.8998	5,931.265
778	8	6,640.00	0.8999	5,975.336
779	8	6,809.24	0.8999	6,127.635
780	8	6,755.90	0.8998	6,078.958
781	8	7,022.68	0.8999	6,319.709
782	8	6,461.96	0.8998	5,814.471
783	8	6,738.40	0.8998	6,063.212
784	8	6,744.76	0.8999	6,069.609
785	8	6,706.94	0.8998	6,034.904
786	8	6,671.46	0.8999	6,003.646
787	8	6,655.51	0.8999	5,989.293
788	8	6,844.34	0.8999	6,159.221
789	8	6,713.49	0.8999	6,041.469
790	8	6,739.48	0.8999	6,064.858

791	8	6,803.26	0.8998	6,121.573
792	8	6,845.86	0.8999	6,160.589
793	8	6,542.40	0.8998	5,886.851
794	8	6,522.51	0.8999	5,869.606
795	8	6,852.02	0.8999	6,166.132
796	8	6,584.09	0.9000	5,925.681
797	8	6,695.91	0.8999	6,025.649
798	8	6,805.49	0.8999	6,124.260
799	8	6,667.58	0.8998	5,999.488
800	8	6,749.77	0.9000	6,074.793
801	8	6,685.30	0.8998	6,015.432
802	8	6,638.03	0.8999	5,973.563
803	8	6,815.51	0.8999	6,133.277
804	8	7,008.17	0.8999	6,306.652
805	8	6,468.02	0.8999	5,820.571
806	8	6,578.87	0.8999	5,920.325
807	8	6,780.76	0.8999	6,102.005
808	8	6,748.36	0.8999	6,072.849
809	8	6,750.63	0.8999	6,074.891
810	8	6,772.34	0.8999	6,094.428
811	8	6,480.22	0.8999	5,831.549
812	8	6,692.99	0.8999	6,023.021

813	8	6,738.81	0.8999	6,064.255
814	8	6,741.13	0.8999	6,066.342
815	8	6,689.82	0.8999	6,020.169
816	8	6,586.25	0.8999	5,926.966
817	8	6,220.07	0.8999	5,597.440
818	8	7,333.90	0.8999	6,599.776
819	8	6,714.16	0.8999	6,042.072
820	8	6,740.50	0.8999	6,065.775
821	8	6,829.84	0.8999	6,146.173
822	8	6,770.47	0.8999	6,092.745
823	8	6,744.48	0.8998	6,068.683
824	8	6,819.56	0.8998	6,136.240
825	8	6,834.06	0.8998	6,149.287
826	8	6,671.36	0.8999	6,003.556
827	8	6,817.85	0.8998	6,134.701
828	8	6,866.32	0.8999	6,179.001
829	8	6,412.59	0.8998	5,770.048
830	8	6,308.09	0.8999	5,676.650
831	8	6,780.96	0.8998	6,101.507
832	8	6,851.83	0.8998	6,165.276
833	8	6,700.49	0.8999	6,029.770
834	8	6,820.05	0.8999	6,137.362

835	8	6,639.78	0.8999	5,975.138
836	8	6,633.61	0.8999	5,969.585
837	8	6,889.93	0.8998	6,199.559
838	8	6,743.50	0.8999	6,068.475
839	8	6,620.86	0.8998	5,957.449
840	8	6,737.90	0.8998	6,062.762
841	8	6,515.27	0.8999	5,863.091
842	8	6,598.71	0.8999	5,938.179
843	8	6,802.73	0.8999	6,121.776
844	8	6,865.44	0.8999	6,178.209
845	8	6,763.33	0.8998	6,085.644
846	8	6,718.09	0.8998	6,044.937
847	8	6,715.55	0.8998	6,042.651
848	8	6,735.04	0.8997	6,059.515
849	8	6,893.03	0.8998	6,202.348
850	8	6,681.97	0.8999	6,013.104
851	8	6,656.47	0.8998	5,989.491
852	8	6,649.39	0.8998	5,983.121
853	8	6,190.20	0.8998	5,569.941
854	8	6,893.80	0.8999	6,203.730
855	8	6,768.37	0.8997	6,089.502
856	8	6,837.75	0.8999	6,153.291

857	8	6,734.21	0.8998	6,059.442
858	8	6,714.42	0.8999	6,042.306
859	8	6,748.28	0.9000	6,073.452
860	8	6,802.05	0.8999	6,121.164
861	8	6,939.53	0.8999	6,244.883
862	8	7,125.20	0.8999	6,411.967
863	8	6,732.92	0.8999	6,058.954
864	8	6,627.65	0.8998	5,963.559
865	8	6,197.06	0.8998	5,576.114
866	8	6,326.36	0.8997	5,691.826
867	8	6,920.59	0.8998	6,227.146
868	8	6,893.72	0.8998	6,202.969
869	8	6,626.22	0.8999	5,962.935
870	8	6,822.71	0.8998	6,139.074
871	8	6,636.87	0.8998	5,971.855
872	8	6,647.40	0.8998	5,981.330
874	8	6,765.22	0.8998	6,087.344
875	8	6,503.94	0.8997	5,851.594
876	8	6,812.45	0.8999	6,130.523
877	8	6,413.38	0.8998	5,770.759
878	8	6,712.88	0.8998	6,040.249
879	8	6,855.36	0.8999	6,169.138

443	16	6,848.43	0.8998	6,162.217
432	16	7,060.84	0.8999	6,354.049
465	16	7,054.74	0.8999	6,348.560
512	15	6,376.75	0.9000	5,739.075
576	14	6,047.29	0.8999	5,441.956
594	16	6,539.84	0.8998	5,884.548
640	12	4,931.32	0.8999	4,437.694
724	16	6,933.19	0.9000	6,239.871
969	16	6,756.92	0.8999	6,080.552
970	16	6,556.98	0.8999	5,900.626
980	15	6,766.25	0.9000	6,089.625
	6	6,400.50	0.9167	5,867.338
	5	5,352.57	0.8999	4,816.777
	5	5,352.97	0.8999	4,817.137
	5	5,353.38	0.8999	4,817.506
	5	5,349.96	0.8999	4,814.429
	5	5,352.24	0.8999	4,816.480
	5	5,351.71	0.8999	4,816.003
	5	5,353.00	0.8999	4,817.164
	5	5,352.24	0.8999	4,816.480
	6	6,728.11	0.9166	6,166.985
	5	5,347.50	0.8999	4,812.215

4	4,618.02	0.9167	4,233.338
3	2,675.41	0.8999	2,407.601
5	5,355.11	0.8999	4,819.063
5	5,355.62	0.9000	4,820.058
5	5,355.55	0.8999	4,819.459
5	5,355.35	0.8999	4,819.279
5	5,355.00	0.9000	4,819.500
5	5,354.80	0.8999	4,818.784
5	5,352.67	0.8999	4,816.867
5	5,354.49	0.9000	4,819.041
5	5,356.15	0.9000	4,820.535
5	5,353.68	0.9000	4,818.312
5	5,355.70	0.9000	4,820.130
5	5,355.10	0.9000	4,819.590
5	5,354.67	0.9000	4,819.203
5	5,355.07	0.9000	4,819.563
5	5,354.28	0.9000	4,818.852
5	5,354.07	0.9000	4,818.663
5	5,353.70	0.9000	4,818.330
5	5,357.92	0.8999	4,821.592
5	5,353.47	0.8999	4,817.587
5	5,354.43	0.9000	4,818.987

	5	5,353.19	0.9000	4,817.871
	5	5,354.20	0.9000	4,818.780
	5	5,355.37	0.8998	4,818.761
888	8	6,896.86	0.8999	6,206.484
	5	5,353.71	0.9000	4,818.339
	5	5,353.92	0.9000	4,818.528
	5	5,356.62	0.8999	4,820.422
927	8	6,807.10	0.8999	6,125.709
	5	5,369.37	0.9000	4,832.433
	5	5,372.43	0.8999	4,834.649
	5	5,372.08	0.8999	4,834.334
	5	5,371.39	0.8999	4,833.713
	5	5,369.39	0.8999	4,831.914
	5	5,371.72	0.9000	4,834.548
	5	5,368.78	0.9000	4,831.902
	5	5,372.29	0.8999	4,834.523
1045	8	6,714.39	0.8998	6,041.608
1052	8	6,896.58	0.8998	6,205.542
	5	5,371.86	0.9000	4,834.674
	5	5,371.03	0.9000	4,833.927
	5	5,372.05	0.8999	4,834.307
	5	5,370.78	0.9000	4,833.702

	5	5,370.16	0.9000	4,833.144
	5	5,371.49	0.9000	4,834.341
	5	5,366.00	0.9000	4,829.400
	5	5,371.15	0.9000	4,834.035
858	16	6,978.72	0.8999	6,280.150
933	16	6,884.06	0.8998	6,194.277
31	24	9,740.97	0.9980	9,721.488
32	24	9,728.21	0.9977	9,705.835
32A	18	7,310.22	0.9976	7,292.675
	1	43.73	0.0208	0.907
	1	30.51	0.0818	2.494
Sweeps	0	-		0.176
9972	23	9,784.76	0.9972	9,757.362
9971	24	9,798.43	0.9971	9,770.014
9967	24	10,068.46	0.9967	10,035.234
9973	24	9,984.45	0.9973	9,957.491
9972	24	9,790.68	0.9972	9,763.266
9973	24	10,092.84	0.9973	10,065.589
9970	24	10,047.98	0.9970	10,017.836
9969	24	9,808.30	0.9969	9,777.894
9978	24	9,833.89	0.9978	9,812.255
9975	24	10,157.24	0.9975	10,131.846
9970	24	9,709.50		

			0.9970	9,680.371
9978	24	9,784.39	0.9978	9,762.864
9977	24	9,785.74	0.9977	9,763.232
9975	24	9,969.21	0.9975	9,944.286
9966	24	9,722.32	0.9966	9,689.264
9975	24	9,832.11	0.9975	9,807.529
9970	24	9,641.45	0.9970	9,612.525
9974	24	10,096.61	0.9974	10,070.358
9974	24	9,795.08	0.9974	9,769.612
9978	24	10,047.22	0.9978	10,025.116
9970	24	9,759.76	0.9970	9,730.480
9977	23	9,438.39	0.9977	9,416.681
9975	24	10,140.16	0.9975	10,114.809
9974	24	9,851.47	0.9974	9,825.856
9975	24	9,921.10	0.9975	9,896.297
9978	24	9,667.32	0.9978	9,646.051
9974	24	10,041.67	0.9974	10,015.561
9977	24	9,900.87	0.9977	9,878.097
9976	24	9,770.78	0.9976	9,747.330
9979	24	9,834.04	0.9979	9,813.388
9975	24	9,936.65	0.9975	9,911.808
9974	24	9,865.92	0.9974	9,840.268
9972	24	9,923.27		

			0.9972	9,895.484
9972	24	9,866.27	0.9972	9,838.644
9970	24	9,753.48	0.9970	9,724.219
9975	24	9,854.10	0.9975	9,829.464
9973	24	9,909.18	0.9973	9,882.425
9974	24	9,805.47	0.9974	9,779.976
9974	24	9,950.06	0.9974	9,924.189
9975	24	9,790.48	0.9975	9,766.003
9970	24	9,911.03	0.9970	9,881.296
9975	24	9,820.88	0.9975	9,796.327
9973	24	9,992.46	0.9973	9,965.480
9972	24	9,786.04	0.9972	9,758.639
9971	24	9,977.16	0.9971	9,948.226
9970	24	10,028.19	0.9970	9,998.105
9972	24	9,966.03	0.9972	9,938.125
9975	24	9,703.29	0.9975	9,679.031
9973	24	9,704.43	0.9973	9,678.228
9973	24	9,838.23	0.9973	9,811.666
9973	24	9,967.59	0.9973	9,940.677
9978	24	10,004.02	0.9978	9,982.011
9975	24	9,716.41	0.9975	9,692.118
9973	24	9,829.37	0.9973	9,802.830
9981	24	9,962.41		

			0.9981	9,943.481
9970	24	9,869.57	0.9970	9,839.961
9976	24	9,736.33	0.9976	9,712.962
9973	24	9,688.61	0.9973	9,662.450
9976	24	9,747.59	0.9976	9,724.195
9979	24	9,984.09	0.9979	9,963.123
9972	24	9,708.99	0.9972	9,681.804
9978	24	9,861.02	0.9978	9,839.325
9979	24	9,768.97	0.9979	9,748.455
9974	24	9,806.47	0.9974	9,780.973
9977	23	9,301.22	0.9977	9,279.827
9973	24	9,695.49	0.9973	9,669.312
9975	24	9,753.61	0.9975	9,729.225
9973	24	9,911.33	0.9973	9,884.569
9974	24	9,890.66	0.9974	9,864.944
9966	24	9,636.68	0.9966	9,603.915
9973	24	9,840.43	0.9973	9,813.860
9977	24	9,924.01	0.9977	9,901.184
9975	24	9,683.87	0.9975	9,659.660
9974	23	9,492.76	0.9974	9,468.078
9975	23	9,522.20	0.9975	9,498.394
9973	24	9,707.04	0.9973	9,680.830
9976	24	9,767.61		

			0.9976	9,744.167
9974	24	9,907.65	0.9974	9,881.890
9975	24	9,986.84	0.9975	9,961.872
9972	24	9,700.24	0.9972	9,673.079
9977	24	9,949.86	0.9977	9,926.975
9974	24	9,658.00	0.9974	9,632.889
9973	24	9,920.86	0.9973	9,894.073
9976	24	9,749.24	0.9976	9,725.841
9974	24	9,841.95	0.9974	9,816.360
9975	24	9,825.64	0.9975	9,801.075
9980	24	9,721.81	0.9980	9,702.366
9974	24	10,091.86	0.9974	10,065.621
9975	24	9,701.54	0.9975	9,677.286
9974	24	9,907.15	0.9974	9,881.391
9973	24	10,010.34	0.9973	9,983.312
9977	24	9,708.23	0.9977	9,685.901
9973	23	9,482.29	0.9973	9,456.687
9977	24	9,725.16	0.9977	9,702.792
9976	24	9,982.82	0.9976	9,958.861
9973	24	9,670.63	0.9973	9,644.519
9976	24	9,665.09	0.9976	9,641.893
9978	23	9,631.02	0.9978	9,609.831
9974	24	9,575.60		

			0.9974	9,550.703
9975	24	10,054.31	0.9975	10,029.174
9973	23	9,554.63	0.9973	9,528.832
9977	24	9,652.03	0.9977	9,629.830
9973	24	9,972.73	0.9973	9,945.803
9975	24	10,132.89	0.9975	10,107.557
9977	24	9,680.90	0.9977	9,658.633
9976	24	9,559.18	0.9976	9,536.237
9976	24	9,586.88	0.9976	9,563.871
9974	24	9,895.50	0.9974	9,869.771
9977	24	9,833.82	0.9977	9,811.202
9978	24	9,734.59	0.9978	9,713.173
9977	24	9,629.02	0.9977	9,606.873
9978	24	9,926.68	0.9978	9,904.841
9976	24	9,983.12	0.9976	9,959.160
9975	24	9,595.00	0.9975	9,571.012
9975	24	10,060.99	0.9975	10,035.837
9975	24	9,993.49	0.9975	9,968.506
9976	24	9,794.80	0.9976	9,771.292
9976	24	9,635.79	0.9976	9,612.664
9976	24	9,996.52	0.9976	9,972.528
9977	24	10,039.39	0.9977	10,016.299
9975	24	10,105.70		

			0.9975	10,080.435
9972	24	9,663.45	0.9972	9,636.392
9975	24	10,007.11	0.9975	9,982.092
9973	24	10,151.21	0.9973	10,123.801
9972	24	10,040.67	0.9972	10,012.556
9978	24	9,894.53	0.9978	9,872.762
9974	24	10,078.28	0.9974	10,052.076
9973	24	10,200.30	0.9973	10,172.759
9977	24	9,760.58	0.9977	9,738.130
9975	24	9,753.44	0.9975	9,729.056
9971	24	9,934.83	0.9971	9,906.018
9969	24	10,277.07	0.9969	10,245.211
9973	24	10,039.72	0.9973	10,012.612
9978	23	9,272.91	0.9978	9,252.509
9975	24	10,220.10	0.9975	10,194.549
9975	24	9,836.21	0.9975	9,811.619
9972	24	9,924.46	0.9972	9,896.671
9975	24	9,904.09	0.9975	9,879.329
9974	24	9,782.63	0.9974	9,757.195
9976	23	9,296.38	0.9976	9,274.068
9974	22	9,284.58	0.9974	9,260.440
9972	24	10,112.07	0.9972	10,083.756
9975	24	9,674.49		

			0.9975	9,650.303
9973	24	9,948.76	0.9973	9,921.898
9976	24	9,818.94	0.9976	9,795.374
9972	24	10,082.52	0.9972	10,054.288
9969	24	9,904.60	0.9969	9,873.895
9978	24	9,718.75	0.9978	9,697.368
9980	23	9,694.56	0.9980	9,675.170
9970	24	9,812.10	0.9970	9,782.663
9972	23	9,587.81	0.9972	9,560.964
9980	24	9,913.99	0.9980	9,894.162
9974	24	9,755.65	0.9974	9,730.285
9976	24	10,132.83	0.9976	10,108.511
9974	23	9,715.82	0.9974	9,690.558
9970	24	9,774.31	0.9970	9,744.987
9973	24	10,109.22	0.9973	10,081.925
9976	24	9,933.27	0.9976	9,909.430
9974	24	10,147.94	0.9974	10,121.555
9974	23	9,675.46	0.9974	9,650.303
9974	23	9,693.79	0.9974	9,668.586
9969	24	9,814.44	0.9969	9,784.015
9976	24	9,958.37	0.9976	9,934.469
9975	24	9,889.65	0.9975	9,864.925
9976	23	9,661.00		

			0.9976	9,637.813
9970	24	9,882.55	0.9970	9,852.902
9979	24	9,801.01	0.9979	9,780.427
9973	24	9,913.42	0.9973	9,886.653
9978	24	9,821.21	0.9978	9,799.603
9973	24	9,979.75	0.9973	9,952.804
9977	23	9,651.39	0.9977	9,629.191
9978	24	9,876.88	0.9978	9,855.150
9972	23	9,601.28	0.9972	9,574.396
9968	24	9,979.66	0.9968	9,947.725
9971	24	10,029.96	0.9971	10,000.873
9973	24	9,803.74	0.9973	9,777.269
9974	23	9,545.19	0.9974	9,520.372
9975	24	9,822.99	0.9975	9,798.432
9973	23	9,553.48	0.9973	9,527.685
9975	23	9,610.62	0.9975	9,586.593
9976	23	9,611.37	0.9976	9,588.302
9970	24	9,854.22	0.9970	9,824.657
9973	24	9,822.23	0.9973	9,795.709
9974	24	10,060.59	0.9974	10,034.432
9972	24	9,921.67	0.9972	9,893.889
9972	24	9,836.43	0.9972	9,808.887
9977	21	8,876.64		

			0.9977	8,856.224
9977	24	10,118.92	0.9977	10,095.646
9976	23	9,696.96	0.9976	9,673.687
9979	24	10,011.32	0.9979	9,990.296
9978	23	9,541.83	0.9978	9,520.837
9976	24	9,964.00	0.9976	9,940.086
9979	24	10,004.50	0.9979	9,983.490
9965	24	9,693.98	0.9965	9,660.051
9970	24	10,107.10	0.9970	10,076.778
9976	24	9,931.89	0.9976	9,908.053
9973	24	9,882.12	0.9973	9,855.438
9972	24	9,631.49	0.9972	9,604.521
9973	24	9,745.70	0.9973	9,719.386
9975	24	9,652.59	0.9975	9,628.458
9981	24	9,653.08	0.9981	9,634.739
9978	24	10,050.05	0.9978	10,027.939
9975	23	9,536.34	0.9975	9,512.499
9977	24	10,062.38	0.9977	10,039.236
9972	24	10,018.70	0.9972	9,990.647
9978	24	10,024.96	0.9978	10,002.905
9977	24	10,001.16	0.9977	9,978.157
9972	24	9,968.76	0.9972	9,940.847
9974	24	9,810.26		

			0.9974	9,784.753
9972	24	10,042.74	0.9972	10,014.620
9975	22	9,021.95	0.9975	8,999.395
9979	24	9,841.32	0.9979	9,820.653
9972	24	9,781.51	0.9972	9,754.121
9975	24	9,826.95	0.9975	9,802.382
9971	23	9,663.67	0.9971	9,635.645
9977	24	9,751.06	0.9977	9,728.632
9974	23	9,711.50	0.9974	9,686.250
9979	24	10,011.89	0.9979	9,990.865
9976	24	9,855.94	0.9976	9,832.285
8999	5	5,350.29	0.8999	4,814.725
9000	5	5,348.43	0.9000	4,813.587
9000	5	5,350.73	0.9000	4,815.657
8999	5	5,351.17	0.8999	4,815.517
8999	5	5,351.45	0.8999	4,815.769
8998	5	5,353.45	0.8998	4,817.034
9000	5	5,350.28	0.9000	4,815.252
8999	5	5,350.99	0.8999	4,815.355
8998	5	5,352.30	0.8998	4,815.999
8998	5	5,350.72	0.8998	4,814.577
9000	5	5,352.78	0.9000	4,817.502
8999	5	5,370.75		

			0.8999	4,833.137
8998	5	5,352.24	0.8998	4,815.945
8999	5	5,351.25	0.8999	4,815.589
8998	5	5,353.18	0.8998	4,816.791
8999	5	5,352.64	0.8999	4,816.840
8998	5	5,352.39	0.8998	4,816.080
8998	5	5,353.53	0.8998	4,817.106
8998	5	5,355.40	0.8998	4,818.788
8998	5	5,354.16	0.8998	4,817.673
8999	5	5,350.90	0.8999	4,815.274
8999	5	5,371.90	0.8999	4,834.172
8999	5	5,351.52	0.8999	4,815.832
8999	5	5,351.14	0.8999	4,815.490
8999	5	5,351.18	0.8999	4,815.526
8999	5	5,350.74	0.8999	4,815.130
8999	5	5,369.84	0.8999	4,832.319
8998	5	5,351.50	0.8998	4,815.279
9000	5	5,371.17	0.9000	4,834.053
8999	5	5,370.33	0.8999	4,832.759
8998	5	5,350.63	0.8998	4,814.496
8998	5	5,352.78	0.8998	4,816.431
8998	5	5,351.16	0.8998	4,814.973
8999	5	5,353.14		

			0.8999	4,817.290
8998	5	5,371.68	0.8998	4,833.437
9000	5	5,371.46	0.9000	4,834.314
9000	5	5,371.76	0.9000	4,834.584
9000	5	5,370.69	0.9000	4,833.621
8998	5	5,350.65	0.8998	4,814.514
8999	5	5,371.18	0.8999	4,833.524
8999	5	5,352.68	0.8999	4,816.876
8998	5	5,355.22	0.8998	4,818.626
8998	5	5,353.09	0.8998	4,816.710
9000	5	5,353.81	0.9000	4,818.429
9000	5	5,352.40	0.9000	4,817.160
8999	5	5,350.39	0.8999	4,814.815
9996	8	8,034.22	0.9996	8,031.006
9994	8	8,116.45	0.9994	8,111.580
9996	8	8,261.55	0.9996	8,258.245
9996	8	8,253.64	0.9996	8,250.338
9970	8	7,890.57	0.9970	7,866.898
9995	8	8,075.21	0.9995	8,071.172
9994	8	8,020.28	0.9994	8,015.467
9954	8	8,027.54	0.9954	7,990.613
9950	8	7,897.16	0.9950	7,857.674
9951	8	7,830.37		

			0.9951	7,792.001
9958	8	8,001.34	0.9958	7,967.734
9980	8	7,828.70	0.9980	7,813.042
9952	8	7,782.17	0.9952	7,744.815
9980	8	7,998.12	0.9980	7,982.123
9979	8	8,002.15	0.9979	7,985.345
9963	8	7,958.41	0.9963	7,928.963
9978	8	7,990.32	0.9978	7,972.741
9954	8	7,816.49	0.9954	7,780.534
9997	8	8,180.36	0.9997	8,177.905
9998	8	8,084.57	0.9998	8,082.953
9998	8	8,091.13	0.9998	8,089.511
9987	8	7,961.11	0.9987	7,950.760
9980	8	7,922.01	0.9980	7,906.165
9980	8	7,896.31	0.9980	7,880.517
9950	8	7,553.99	0.9950	7,516.220
9993	8	7,966.37	0.9993	7,960.793
9984	8	7,935.80	0.9984	7,923.102
9965	8	7,910.57	0.9965	7,882.883
9956	8	7,911.29	0.9956	7,876.480
9970	8	7,947.51	0.9970	7,923.667
9977	8	7,799.82	0.9977	7,781.880
9988	8	7,955.55		

			0.9988	7,946.003
9962	8	8,042.55	0.9962	8,011.988
9995	8	8,013.54	0.9995	8,009.533
9995	8	7,860.95	0.9995	7,857.019
	6	6,412.89	0.9167	5,878.696
	6	6,414.03	0.9167	5,879.741
	6	6,414.21	0.9167	5,879.906
	6	6,416.16	0.9166	5,881.052
	6	6,415.44	0.9167	5,881.033
	6	6,417.04	0.9167	5,882.500
	3	3,848.52	0.9166	3,527.553
	6	6,415.74	0.9166	5,880.667
	6	6,415.55	0.9167	5,881.134
	6	6,416.79	0.9166	5,881.629
	6	6,415.49	0.9166	5,880.438
	6	6,402.05	0.9167	5,868.759
	6	6,401.12	0.9166	5,867.266
	6	6,402.61	0.9167	5,869.272
	6	6,400.78	0.9167	5,867.595
	6	6,400.61	0.9166	5,866.799
	5	5,353.85	0.8999	4,817.929
	5	5,355.44	0.8999	4,819.360
	5	5,352.24		

		0.8999	4,816.480
5	5,353.79	0.9000	4,818.411
5	5,355.25	0.8999	4,819.189
5	5,354.68	0.8999	4,818.676
5	5,354.94	0.8999	4,818.910
5	5,354.23	0.9000	4,818.807
5	5,353.16	0.8999	4,817.308
5	5,355.12	0.8999	4,819.072
5	5,353.84	0.9000	4,818.456
5	5,353.01	0.8999	4,817.173
5	5,355.08	0.9000	4,819.572
5	5,352.76	0.8999	4,816.948
5	5,354.72	0.9000	4,819.248
5	5,353.55	0.8999	4,817.659
5	5,352.04	0.8999	4,816.300
5	5,354.42	0.8999	4,818.442
5	5,353.12	0.8999	4,817.272
5	5,355.22	0.8999	4,819.162
5	5,356.00	0.9000	4,820.400
5	5,355.37	0.8999	4,819.297
5	5,354.93	0.8999	4,818.901
5	5,352.82	0.9000	4,817.538
5	5,355.92		

		0.9000	4,820.328
5	5,354.21	0.8999	4,818.253
5	5,355.43	0.8999	4,819.351
5	5,356.58	0.9000	4,820.922
5	5,352.55	0.8999	4,816.759
5	5,354.47	0.8999	4,818.487
5	5,353.95	0.9000	4,818.555
5	5,351.29	0.9000	4,816.161
5	5,354.01	0.9000	4,818.609
5	5,355.92	0.9000	4,820.328
5	5,353.84	0.8999	4,817.920
5	5,356.13	0.8999	4,819.981
5	5,353.89	0.8999	4,817.965
5	5,356.85	0.9000	4,821.165
5	5,356.05	0.8999	4,819.909
5	5,354.46	0.8999	4,818.478
5	5,355.29	0.8999	4,819.225
5	5,357.37	0.8999	4,821.097
5	5,355.21	0.8999	4,819.153
5	5,354.42	0.9000	4,818.978
5	5,354.68	0.9000	4,819.212
5	5,355.24	0.9000	4,819.716
5	5,354.62		

		0.9000	4,819.158
5	5,354.19	0.9000	4,818.771
5	5,352.05	0.9000	4,816.845
5	5,355.12	0.9000	4,819.608
5	5,353.39	0.9000	4,818.051
5	5,395.44	0.8999	4,855.356
5	5,356.68	0.8999	4,820.476
5	5,352.30	0.9000	4,817.070
5	5,355.12	0.9000	4,819.608
5	5,352.42	0.9000	4,817.178
5	5,357.21	0.8999	4,820.953
5	5,355.10	0.9000	4,819.590
5	5,354.20	0.8999	4,818.244
5	5,353.47	0.9000	4,818.123
5	5,354.25	0.8999	4,818.289
5	5,355.69	0.8999	4,819.585
5	5,353.93	0.9000	4,818.537
5	5,353.97	0.8999	4,818.037
5	5,355.04	0.8999	4,819.000
5	5,352.79	0.8999	4,816.975
5	5,351.83	0.8999	4,816.111
5	5,355.80	0.8999	4,819.684
5	5,355.27		

		0.9000	4,819.743
5	5,355.47	0.9000	4,819.923
5	5,354.95	0.8999	4,818.919
5	5,354.33	0.8999	4,818.361
5	5,355.99	0.8999	4,819.855
5	5,354.54	0.8999	4,818.550
5	5,353.61	0.8999	4,817.713
5	5,354.38	0.8999	4,818.406
5	5,354.04	0.9000	4,818.636
5	5,353.61	0.9000	4,818.249
5	5,355.10	0.9000	4,819.590
5	5,356.08	0.9000	4,820.472
5	5,349.78	0.9000	4,814.802
5	5,354.67	0.9000	4,819.203
5	5,353.81	0.9000	4,818.429
5	5,353.18	0.9000	4,817.862
5	5,354.09	0.9000	4,818.681
5	5,356.55	0.8999	4,820.359
5	5,359.07	0.9000	4,823.163
5	5,356.12	0.9000	4,820.508
5	5,351.39	0.8999	4,815.715
5	5,354.94	0.8999	4,818.910
5	5,351.35		

		0.8999	4,815.679
5	5,354.68	0.8999	4,818.676
4	4,616.54	0.9167	4,231.982
5	5,355.26	0.8999	4,819.198
4	4,616.62	0.9167	4,232.055
4	4,618.07	0.9167	4,233.384
5	5,352.00	0.8999	4,816.264
4	4,616.53	0.9167	4,231.973
4	4,617.05	0.9167	4,232.449
5	5,354.38	0.8999	4,818.406
3	2,565.69	0.9167	2,351.968
5	5,354.04	0.8999	4,818.100
5	5,351.20	0.8999	4,815.544
5	5,354.54	0.9000	4,819.086
5	5,355.32	0.9000	4,819.788
5	5,355.10	0.8999	4,819.054
5	5,359.75	0.8999	4,823.239
5	5,356.38	0.8999	4,820.206
5	5,352.35	0.8999	4,816.579
5	5,354.80	0.8999	4,818.784
5	5,354.28	0.9000	4,818.852
5	5,355.20	0.9000	4,819.680
5	5,355.10		

		0.8999	4,819.054
5	5,354.51	0.8999	4,818.523
5	5,354.83	0.8999	4,818.811
5	5,355.45	0.9000	4,819.905
5	5,353.65	0.9000	4,818.285
5	5,354.97	0.9000	4,819.473
5	5,356.10	0.9000	4,820.490
5	5,354.27	0.9000	4,818.843
5	5,354.55	0.9000	4,819.095
5	5,357.48	0.9000	4,821.732
5	5,360.18	0.9000	4,824.162
5	5,353.63	0.8999	4,817.731
5	5,355.47	0.8999	4,819.387
5	5,354.98	0.8999	4,818.946
8	9,234.98	0.9165	8,463.859
5	5,357.25	0.9000	4,821.525
5	5,347.84	0.9000	4,813.056
6	6,941.67	0.9166	6,362.734
6	6,910.80	0.9166	6,334.439
5	5,349.48	0.9000	4,814.532
5	5,355.30	0.9000	4,819.770
2	2,568.41	0.9165	2,353.947
5	5,354.90		

		0.8999	4,818.874
5	5,353.65	0.8999	4,817.749
5	5,353.51	0.8999	4,817.623
5	5,354.32	0.9000	4,818.888
5	5,355.15	0.8999	4,819.099
5	5,357.03	0.8999	4,820.791
5	5,356.35	0.9000	4,820.715
5	5,363.60	0.9000	4,827.240
5	5,355.23	0.9000	4,819.707
5	5,352.98	0.9000	4,817.682
5	5,353.68	0.9000	4,818.312
5	5,355.12	0.8999	4,819.072
5	5,356.99	0.9000	4,821.291
5	5,353.57	0.9000	4,818.213
5	5,353.20	0.8999	4,817.344
5	5,354.54	0.9000	4,819.086
5	5,353.22	0.9000	4,817.898
5	5,346.47	0.9000	4,811.823
5	5,355.77	0.9000	4,820.193
5	5,354.85	0.9000	4,819.365
5	5,353.05	0.9000	4,817.745
6	7,183.45	0.9166	6,584.350
6	6,654.99		

		0.9166	6,099.963
5	5,355.32	0.9000	4,819.788
5	5,354.27	0.8999	4,818.307
8	9,229.90	0.9166	8,460.126
5	5,354.59	0.9000	4,819.131
5	5,353.48	0.8999	4,817.596
8	9,232.85	0.9167	8,463.753
5	5,358.02	0.8999	4,821.682
6	6,707.61	0.9166	6,148.195
5	5,354.39	0.8999	4,818.415
5	5,354.77	0.9000	4,819.293
6	7,146.80	0.9166	6,550.756
5	5,354.72	0.9000	4,819.248
5	5,353.63	0.9000	4,818.267
6	7,116.60	0.9166	6,523.075
5	5,352.80	0.9000	4,817.520
4	4,616.65	0.9166	4,231.621
4	4,615.36	0.9166	4,230.438
5	5,353.48	0.8999	4,817.596
4	4,615.13	0.9167	4,230.689
6	6,997.28	0.9166	6,413.706
5	5,353.70	0.8999	4,817.794
6	6,840.48		

		0.9166	6,269.983
6	6,992.35	0.9166	6,409.188
5	5,353.97	0.8999	4,818.037
5	5,359.23	0.8999	4,822.771
4	4,614.76	0.9166	4,229.889
5	5,353.83	0.8999	4,817.911
6	7,049.48	0.9166	6,461.553
5	5,354.44	0.8999	4,818.460
6	6,788.41	0.9166	6,222.256
5	5,326.53	0.9000	4,793.877
8	9,231.40	0.9166	8,461.501
5	5,355.08	0.8999	4,819.036
5	5,354.50	0.9000	4,819.050
5	5,355.83	0.8999	4,819.711
5	5,354.28	0.9000	4,818.852
5	5,353.43	0.9000	4,818.087
4	4,617.81	0.9167	4,233.146
5	5,354.73	0.8999	4,818.721
8	9,225.69	0.9166	8,456.267
5	5,353.55	0.8999	4,817.659
7	8,077.11	0.9166	7,403.479
5	5,354.60	0.8999	4,818.604
7	8,147.27		

		0.9166	7,467.787
6	6,871.88	0.9166	6,298.765
8	9,238.37	0.9167	8,468.813
5	5,584.26	0.9000	5,025.834
5	5,353.43	0.8999	4,817.551
4	4,619.66	0.9166	4,234.380
5	5,354.08	0.9000	4,818.672
4	4,618.31	0.9167	4,233.604
8	9,232.06	0.9166	8,462.106
5	5,355.69	0.8999	4,819.585
5	5,353.37	0.8999	4,817.497
5	5,354.79	0.9000	4,819.311
4	4,618.94	0.9167	4,234.182
5	5,352.30	0.8999	4,816.534
5	5,353.73	0.8999	4,817.821
5	5,355.04	0.8999	4,819.000
8	9,234.21	0.9166	8,464.076
5	5,355.15	0.8999	4,819.099
8	9,233.59	0.9166	8,463.508
5	5,355.80	0.8999	4,819.684
5	5,355.26	0.8999	4,819.198
7	8,419.95	0.9166	7,717.726
5	5,354.50		

		0.9000	4,819.050
5	5,356.40	0.8999	4,820.224
5	5,354.12	0.9000	4,818.708
5	5,355.48	0.8999	4,819.396
5	5,355.03	0.9000	4,819.527
5	5,354.71	0.9000	4,819.239
5	5,353.73	0.9000	4,818.357
5	5,354.17	0.8999	4,818.217
5	5,353.21	0.9000	4,817.889
5	5,353.76	0.8999	4,817.848
5	5,355.90	0.8999	4,819.774
5	5,358.50	0.8999	4,822.114
5	5,354.49	0.8999	4,818.505
5	5,355.29	0.8999	4,819.225
5	5,354.70	0.8999	4,818.694
5	5,353.08	0.8999	4,817.236
5	5,354.38	0.8999	4,818.406
5	5,353.18	0.8999	4,817.326
5	5,352.60	0.8999	4,816.804
5	5,354.95	0.9000	4,819.455
5	5,355.05	0.8999	4,819.009
5	5,352.93	0.8999	4,817.101
5	5,353.79		

		0.8999	4,817.875
5	5,354.21	0.8999	4,818.253
5	5,356.23	0.8999	4,820.071
5	5,352.34	0.8999	4,816.570
5	5,356.45	0.8999	4,820.269
5	5,356.71	0.9000	4,821.039
5	5,353.92	0.8999	4,817.992
5	5,355.77	0.8999	4,819.657
3	2,676.01	0.9000	2,408.409
5	5,355.78	0.8999	4,819.666
5	5,352.27	0.8999	4,816.507
5	5,355.70	0.8999	4,819.594
5	5,354.79	0.9000	4,819.311
5	5,356.49	0.8999	4,820.305
5	5,355.05	0.8999	4,819.009
5	5,353.62	0.9000	4,818.258
5	5,354.70	0.9000	4,819.230
5	5,354.95	0.9000	4,819.455
5	5,370.13	0.9000	4,833.117
5	5,370.83	0.9000	4,833.747
5	5,370.65	0.9000	4,833.585
5	5,369.95	0.8999	4,832.418
5	5,368.37		

		0.9000	4,831.533
5	5,370.67	0.9000	4,833.603
5	5,370.78	0.9000	4,833.702
5	5,366.95	0.8999	4,829.718
5	5,370.77	0.9000	4,833.693
5	5,370.51	0.9000	4,833.459
5	5,369.17	0.9000	4,832.253
5	5,371.15	0.9000	4,834.035
5	5,375.00	0.9000	4,837.500
5	5,367.85	0.9000	4,831.065
5	5,370.30	0.9000	4,833.270
5	5,370.89	0.9000	4,833.801
5	5,370.83	0.9000	4,833.747
5	5,368.85	0.9000	4,831.965
5	5,369.87	0.8999	4,832.346
5	5,369.72	0.9000	4,832.748
5	5,374.85	0.9000	4,837.365
5	5,373.13	0.9000	4,835.817
5	5,372.31	0.9000	4,835.079
5	5,373.80	0.9000	4,836.420
5	5,371.83	0.9000	4,834.647
5	5,370.91	0.9000	4,833.819
5	5,370.80		

		0.9000	4,833.720
5	5,370.48	0.9000	4,833.432
5	5,369.63	0.9000	4,832.667
5	5,369.57	0.8999	4,832.076
5	5,368.98	0.8999	4,831.545
5	5,373.61	0.9000	4,836.249
5	5,369.26	0.9000	4,832.334
5	5,369.62	0.8999	4,832.121
5	5,372.25	0.9000	4,835.025
5	5,368.57	0.9000	4,831.713
5	5,371.04	0.9001	4,834.473
5	5,370.02	0.8999	4,832.480
5	5,370.56	0.9000	4,833.504
5	5,370.08	0.9000	4,833.072
5	5,369.14	0.9000	4,832.226
5	5,377.60	0.9000	4,839.840
5	5,372.44	0.9000	4,835.196
5	5,370.55	0.8999	4,832.957
5	5,370.30	0.9000	4,833.270
5	5,368.38	0.9000	4,831.542
5	5,369.95	0.9000	4,832.955
5	5,372.05	0.9001	4,835.382
5	5,369.77		

		0.9000	4,832.793
5	5,372.93	0.9000	4,835.637
5	5,372.12	0.8999	4,834.370
5	5,372.55	0.9000	4,835.295
5	5,368.45	0.9000	4,831.605
5	5,370.30	0.9000	4,833.270
5	5,372.45	0.9000	4,835.205
5	5,371.38	0.9000	4,834.242
5	5,369.53	0.8999	4,832.040
5	5,370.57	0.8999	4,832.975
5	5,371.05	0.9000	4,833.945
5	5,372.21	0.9000	4,834.989
5	5,372.02	0.9000	4,834.818
5	5,370.65	0.9000	4,833.585
5	5,373.03	0.9000	4,835.727
5	5,371.68	0.9001	4,835.049
5	5,370.08	0.8999	4,832.534
5	5,371.25	0.9000	4,834.125
5	5,373.78	0.9000	4,836.402
5	5,374.21	0.9001	4,837.326
5	5,372.35	0.8999	4,834.577
5	5,372.65	0.9000	4,835.385
5	5,372.10		

		0.8999	4,834.352
5	5,372.10	0.9000	4,834.890
5	5,372.85	0.9000	4,835.565
5	5,370.81	0.8999	4,833.191
5	5,373.26	0.8999	4,835.396
5	5,370.09	0.9000	4,833.081
5	5,372.67	0.9001	4,835.940
5	5,370.88	0.9001	4,834.329
5	5,371.12	0.9000	4,834.008
5	5,371.17	0.8999	4,833.515
5	5,371.37	0.9000	4,834.233
5	5,370.87	0.9000	4,833.783
5	5,371.34	0.9000	4,834.206
5	5,366.90	0.9000	4,830.210
5	5,370.43	0.8999	4,832.849
5	5,373.12	0.9000	4,835.808
5	5,366.49	0.9000	4,829.841
5	5,375.03	0.9000	4,837.527
5	5,372.68	0.9000	4,835.412
5	5,371.85	0.9001	4,835.202
5	5,372.08	0.9001	4,835.409
5	5,373.51	0.9001	4,836.696
5	5,370.99		

		0.9000	4,833.891
5	5,373.89	0.8999	4,835.963
5	5,370.91	0.9000	4,833.819
5	5,370.66	0.9001	4,834.131
5	5,374.20	0.9000	4,836.780
5	5,371.36	0.9000	4,834.224
5	5,367.83	0.9000	4,831.047
5	5,372.38	0.9000	4,835.142
5	5,370.82	0.8999	4,833.200
5	5,383.20	0.8999	4,844.341
5	5,374.70	0.9000	4,837.230
5	5,370.89	0.9000	4,833.801
5	5,369.13	0.8999	4,831.680
5	5,371.43	0.8999	4,833.749
5	5,370.00	0.8999	4,832.463
5	5,375.52	0.8999	4,837.430
5	5,372.00	0.8999	4,834.262
5	5,370.09	0.8999	4,832.543
5	5,369.24	0.9000	4,832.316
5	5,370.50	0.9001	4,833.987
5	5,368.34	0.9000	4,831.506
5	5,367.77	0.9001	4,831.529
5	5,369.85		

		0.9001	4,833.401
5	5,370.99	0.9001	4,834.428
5	5,371.21	0.9000	4,834.089
5	5,368.65	0.8999	4,831.248
5	5,372.31	0.8999	4,834.541
5	5,370.82	0.9000	4,833.738
5	5,371.45	0.9000	4,834.305
5	5,368.15	0.8999	4,830.798
5	5,371.41	0.9000	4,834.269
5	5,369.64	0.9000	4,832.676
5	5,370.97	0.9001	4,834.410
5	5,370.36	0.8999	4,832.786
5	5,368.18	0.9000	4,831.362
5	5,376.38	0.9000	4,838.742
5	5,370.13	0.8999	4,832.579
5	5,369.99	0.8999	4,832.454
5	5,370.43	0.8999	4,832.849
5	5,368.03	0.8999	4,830.690
5	5,372.20	0.8999	4,834.442
5	5,371.39	0.8999	4,833.713
5	5,371.55	0.9000	4,834.395
5	5,370.17	0.9000	4,833.153
5	5,370.55		

		0.8999	4,832.957
5	5,369.82	0.9000	4,832.838
5	5,373.22	0.8999	4,835.360
5	5,371.59	0.9000	4,834.431
5	5,370.23	0.9000	4,833.207
5	5,378.93	0.8999	4,840.499
5	5,401.03	0.8999	4,860.386
5	5,391.91	0.8999	4,852.179
5	5,403.29	0.9000	4,862.961
5	5,369.66	0.9000	4,832.694
5	5,370.37	0.9000	4,833.333
5	5,369.48	0.9000	4,832.532
5	5,369.56	0.9001	4,833.140
5	5,370.05	0.9001	4,833.582
5	5,369.47	0.9000	4,832.523
5	5,371.97	0.9000	4,834.773
5	5,367.15	0.8999	4,829.898
5	5,370.75	0.9000	4,833.675
5	5,371.42	0.9000	4,834.278
5	5,372.84	0.8999	4,835.018
5	5,366.65	0.8999	4,829.448
5	5,370.98	0.8999	4,833.344
5	5,388.25		

		0.8999	4,848.886
5	5,373.32	0.9000	4,835.988
5	5,370.09	0.9000	4,833.081
5	5,377.64	0.9000	4,839.876
5	5,373.78	0.8999	4,835.864
5	5,370.14	0.8999	4,832.588
5	5,370.34	0.8999	4,832.768
5	5,375.04	0.8999	4,836.998
5	5,371.58	0.9000	4,834.422
5	5,372.20	0.9000	4,834.980
5	5,371.11	0.9000	4,833.999
5	5,374.19	0.8999	4,836.233
5	5,372.86	0.9000	4,835.574
5	5,374.21	0.9000	4,836.789
5	5,372.90	0.9000	4,835.610
5	5,371.86	0.9000	4,834.674
5	5,372.76	0.9000	4,835.484
5	5,370.31	0.9000	4,833.279
5	5,370.13	0.9000	4,833.117
5	5,371.10	0.9000	4,833.990
5	5,372.26	0.9000	4,835.034
5	5,374.12	0.9000	4,836.708
5	5,371.64		

		0.9000	4,834.476
5	5,371.74	0.9000	4,834.566
5	5,369.49	0.9000	4,832.541
5	5,371.85	0.9001	4,835.202
5	5,372.75	0.9000	4,835.475
5	5,366.70	0.9000	4,830.030
5	5,370.93	0.9000	4,833.837
5	5,375.38	0.9000	4,837.842
5	5,374.76	0.8999	4,836.746
5	5,370.31	0.8999	4,832.741
5	5,370.81	0.9000	4,833.729
5	5,371.24	0.8999	4,833.578
5	5,373.34	0.9000	4,836.006
5	5,370.52	0.9000	4,833.468
5	5,373.59	0.9000	4,836.231
5	5,370.90	0.9000	4,833.810
5	5,376.55	0.9000	4,838.895
5	5,371.52	0.9000	4,834.368
5	5,371.00	0.9000	4,833.900
5	5,372.52	0.9000	4,835.268
5	5,371.10	0.9000	4,833.990
5	5,372.09	0.9001	4,835.418
5	5,369.78		

		0.8999	4,832.265
5	5,367.65	0.9000	4,830.885
5	5,369.92	0.8999	4,832.391
5	5,371.61	0.9000	4,834.449
5	5,369.35	0.8999	4,831.878
5	5,369.59	0.9000	4,832.631
5	5,369.57	0.9000	4,832.613
5	5,369.54	0.8999	4,832.049
5	5,369.41	0.9000	4,832.469
5	5,371.52	0.9000	4,834.368
5	5,368.84	0.9000	4,831.956
5	5,370.76	0.9000	4,833.684
5	5,379.16	0.9001	4,841.781
5	5,371.71	0.9000	4,834.539
5	5,372.52	0.9000	4,835.268
5	5,376.89	0.8999	4,838.663
5	5,370.29	0.9000	4,833.261
5	5,371.91	0.9000	4,834.719
5	5,370.78	0.8999	4,833.164
5	5,370.04	0.9000	4,833.036
5	5,371.18	0.9000	4,834.062
5	5,370.35	0.8999	4,832.777
5	5,370.98		

		0.9000	4,833.882
5	5,372.63	0.9000	4,835.367
5	5,368.93	0.8999	4,831.500
5	5,372.99	0.9001	4,836.228
5	5,370.24	0.8999	4,832.678
5	5,370.49	0.9000	4,833.441
5	5,372.60	0.9000	4,835.340
5	5,369.85	0.9000	4,832.865
5	5,369.00	0.8999	4,831.563
5	5,373.00	0.8999	4,835.162
5	5,370.98	0.8999	4,833.344
5	5,370.03	0.9000	4,833.027
5	5,368.13	0.9000	4,831.317
5	5,371.29	0.8999	4,833.623
5	5,366.75	0.9000	4,830.075
5	5,373.05	0.9001	4,836.282
5	5,368.48	0.9000	4,831.632
5	5,370.60	0.9000	4,833.540
5	5,372.67	0.9001	4,835.940
5	5,374.33	0.9000	4,836.897
5	5,371.49	0.8999	4,833.803
5	5,371.45	0.9000	4,834.305
5	5,372.13		

		0.9000	4,834.917
5	5,369.29	0.9000	4,832.361
5	5,377.92	0.9000	4,840.128
5	5,372.04	0.9000	4,834.836
5	5,370.76	0.9000	4,833.684
5	5,370.25	0.8999	4,832.687
5	5,363.69	0.9000	4,827.321
5	5,368.34	0.9001	4,832.042
5	5,369.63	0.9001	4,833.203
5	5,369.51	0.8999	4,832.022
5	5,372.39	0.9000	4,835.151
5	5,375.64	0.9000	4,838.076
5	5,368.80	0.9000	4,831.920
5	5,366.32	0.9000	4,829.688
5	5,370.83	0.8999	4,833.209
5	5,370.08	0.8999	4,832.534
5	5,370.48	0.9000	4,833.432
5	5,374.21	0.8999	4,836.251
5	5,371.45	0.8999	4,833.767
5	5,371.23	0.9000	4,834.107
5	5,370.55	0.9000	4,833.495
5	5,369.50	0.9000	4,832.550
5	5,365.02		

		0.8999	4,827.981
5	5,369.76	0.8999	4,832.247
5	5,369.08	0.9000	4,832.172
5	5,369.60	0.9000	4,832.640
5	5,370.23	0.9000	4,833.207
5	5,371.69	0.8999	4,833.983
5	5,370.53	0.9000	4,833.477
5	5,376.37	0.8999	4,838.195
5	5,372.45	0.8999	4,834.667
5	5,372.73	0.9000	4,835.457
5	5,371.85	0.9000	4,834.665
5	5,372.23	0.9000	4,835.007
5	5,371.35	0.9000	4,834.215
5	5,372.49	0.9000	4,835.241
5	5,370.25	0.9000	4,833.225
5	5,369.26	0.8999	4,831.797
5	5,369.14	0.8999	4,831.689
5	5,362.39	0.9000	4,826.151
5	5,369.52	0.9000	4,832.568
5	5,369.55	0.9000	4,832.595
5	5,366.60	0.8999	4,829.403
5	5,370.65	0.9000	4,833.585
5	5,368.53		

		0.9001	4,832.213
5	5,374.78	0.9000	4,837.302
5	5,371.09	0.8999	4,833.443
5	5,373.87	0.9000	4,836.483
5	5,370.70	0.8999	4,833.092
5	5,365.55	0.9000	4,828.995
5	5,369.50	0.9000	4,832.550
5	5,368.87	0.9000	4,831.983
5	5,369.78	0.8999	4,832.265
5	5,367.40	0.8999	4,830.123
5	5,369.05	0.9000	4,832.145
5	5,365.02	0.8999	4,827.981
5	5,375.08	0.9000	4,837.572
5	5,367.18	0.9000	4,830.462
5	5,369.05	0.8999	4,831.608
5	5,369.84	0.8999	4,832.319
5	5,372.38	0.9000	4,835.142
5	5,370.14	0.9000	4,833.126
5	5,369.16	0.8999	4,831.707
5	5,368.81	0.8999	4,831.392
5	5,371.17	0.8999	4,833.515
5	5,371.42	0.8999	4,833.740
5	5,369.83		

		0.8999	4,832.310
5	5,369.95	0.8999	4,832.418
5	5,368.53	0.9000	4,831.677
5	5,378.76	0.9000	4,840.884
5	5,368.67	0.9000	4,831.803
5	5,369.15	0.9000	4,832.235
5	5,370.79	0.9000	4,833.711
5	5,371.97	0.9000	4,834.773
5	5,370.90	0.8999	4,833.272
5	5,369.76	0.9000	4,832.784
5	5,371.75	0.8999	4,834.037
5	5,372.98	0.9000	4,835.682
5	5,370.30	0.9000	4,833.270
5	5,371.85	0.9000	4,834.665
5	5,372.93	0.9000	4,835.637
5	5,371.25	0.9000	4,834.125
5	5,370.92	0.9001	4,834.365
5	5,376.67	0.8999	4,838.465
5	5,350.30	0.8999	4,814.734
5	5,370.36	0.9000	4,833.324
5	5,372.35	0.8999	4,834.577
5	5,368.67	0.8999	4,831.266
5	5,391.68		

		0.8999	4,851.972
5	5,374.80	0.8999	4,836.782
5	5,372.59	0.9000	4,835.331
5	5,374.07	0.9000	4,836.663
5	5,372.88	0.9000	4,835.592
5	5,374.27	0.9000	4,836.843
5	5,378.25	0.8999	4,839.887
5	5,373.18	0.8999	4,835.324
5	5,381.47	0.9000	4,843.323
5	5,374.90	0.8999	4,836.872
5	5,369.37	0.9000	4,832.433
5	5,370.87	0.9000	4,833.783
5	5,370.60	0.8999	4,833.002
5	5,368.76	0.9000	4,831.884
5	5,371.12	0.9000	4,834.008
5	5,370.35	0.9000	4,833.315
5	5,371.55	0.9000	4,834.395
5	5,373.21	0.9000	4,835.889
5	5,372.10	0.9000	4,834.890
5	5,373.13	0.8999	4,835.279
5	5,371.60	0.9000	4,834.440
5	5,371.72	0.9000	4,834.548
5	5,371.15		

		0.9000	4,834.035
5	5,371.27	0.8999	4,833.605
5	5,371.43	0.9000	4,834.287
5	5,372.49	0.9001	4,835.778
5	5,372.37	0.9000	4,835.133
5	5,372.45	0.9000	4,835.205
5	5,371.33	0.8999	4,833.659
5	5,373.05	0.9000	4,835.745
5	5,372.09	0.8999	4,834.343
5	5,371.72	0.9000	4,834.548
5	5,371.92	0.9000	4,834.728
5	5,372.14	0.9000	4,834.926
5	5,372.03	0.9000	4,834.827
5	5,391.87	0.9000	4,852.683
5	5,386.77	0.9000	4,848.093
5	5,378.85	0.9000	4,840.965
5	5,394.75	0.9000	4,855.275
5	5,391.17	0.9000	4,852.053
5	5,372.34	0.9000	4,835.106
5	5,370.91	0.9000	4,833.819
5	5,370.20	0.9000	4,833.180
5	5,372.25	0.9000	4,835.025
5	5,374.83		

			0.8999	4,836.809
	5	5,371.06	0.9000	4,833.954
	5	5,372.27	0.9000	4,835.043
	5	5,372.35	0.8999	4,834.577
	5	5,372.32	0.9001	4,835.625
	5	5,372.01	0.9000	4,834.809
	5	5,370.86	0.9001	4,834.311
	5	5,374.10	0.9000	4,836.690
	5	5,370.97	0.9000	4,833.873
	5	5,372.72	0.8999	4,834.910
	5	5,373.12	0.9001	4,836.345
1000	16	6,867.33	0.8999	6,179.910
142	16	6,709.27	0.8998	6,037.001
145	16	6,839.61	0.8997	6,153.597
146	16	6,467.11	0.8997	5,818.458
147	16	6,636.94	0.8997	5,971.254
148	16	6,814.93	0.8997	6,131.392
149	15	6,137.38	0.8998	5,522.414
150	16	6,856.09	0.8997	6,168.424
151	16	6,619.31	0.8997	5,955.393
152	16	6,879.94	0.8996	6,189.194
154	16	6,696.36	0.8997	6,024.715
155	16	6,860.33		

			0.8998	6,172.924
156	16	6,553.49	0.8997	5,896.174
157	16	6,863.20	0.8998	6,175.507
158	16	6,397.15	0.8998	5,756.155
159	17	6,913.66	0.8997	6,220.219
160	16	6,698.36	0.8999	6,027.854
161	16	6,808.55	0.8997	6,125.652
162	16	6,536.79	0.9000	5,883.111
163	16	6,729.03	0.8997	6,054.108
164	16	6,581.88	0.8999	5,923.033
166	16	6,741.69	0.9000	6,067.521
167	16	6,785.93	0.8998	6,105.979
168	16	6,661.74	0.9000	5,995.566
169	16	7,090.48	0.9000	6,381.432
171	16	6,356.07	0.8999	5,719.827
172	16	6,587.24	0.8999	5,927.857
173	16	6,875.69	0.9000	6,188.121
174	16	6,450.67	0.9000	5,805.603
175	16	6,759.00	0.9001	6,083.775
176	16	6,662.74	0.9000	5,996.466
177	17	6,956.28	0.9000	6,260.652
178	16	6,535.87	0.9000	5,882.283
179	16	6,772.27		

			0.8998	6,093.688
180	16	6,681.52	0.9000	6,013.368
181	15	6,593.73	0.9000	5,934.357
182	16	6,673.46	0.8998	6,004.779
183	17	7,023.15	0.8999	6,320.132
184	16	6,680.32	0.8999	6,011.619
186	16	6,721.93	0.9000	6,049.737
187	16	6,807.73	0.8998	6,125.595
188	16	6,630.89	0.8999	5,967.137
189	16	6,730.13	0.9000	6,057.117
190	16	6,593.71	0.8999	5,933.679
191	16	6,922.96	0.8999	6,229.971
192	16	6,662.99	0.8999	5,996.024
193	16	6,662.64	0.8999	5,995.709
194	16	6,608.63	0.8999	5,947.106
195	17	6,831.77	0.8997	6,146.543
196	16	6,667.10	0.8998	5,999.056
197	16	6,804.76	0.8999	6,123.603
198	16	6,731.65	0.9000	6,058.485
199	16	6,728.19	0.8997	6,053.352
200	16	6,710.00	0.8999	6,038.329
201	16	6,645.10	0.8998	5,979.260
202	16	6,604.17		

			0.8999	5,943.092
203	16	6,783.71	0.8998	6,103.982
204	16	6,581.77	0.8999	5,922.934
205	16	6,777.62	0.8998	6,098.502
206	16	6,652.63	0.9000	5,987.367
207	16	6,881.45	0.8999	6,192.616
208	16	6,651.96	0.9001	5,987.429
209	16	6,814.09	0.8998	6,131.318
210	16	6,675.09	0.8999	6,006.913
211	16	6,920.47	0.8998	6,227.038
212	16	6,701.20	0.8999	6,030.409
213	16	6,532.20	0.8999	5,878.326
214	16	6,689.68	0.9001	6,021.380
215	16	6,998.11	0.8999	6,297.599
216	16	6,664.69	0.9000	5,998.221
217	16	6,876.76	0.9000	6,189.084
218	16	6,710.93	0.9000	6,039.837
219	15	6,338.29	0.9000	5,704.461
220	15	6,338.83	0.8998	5,703.679
221	17	7,090.93	0.8999	6,381.127
222	15	6,429.75	0.8999	5,786.132
223	16	6,869.33	0.8999	6,181.710
224	16	7,142.27		

			0.8999	6,427.328
225	16	6,938.92	0.8997	6,242.946
226	16	6,943.42	0.8999	6,248.383
227	14	5,963.79	0.8999	5,366.814
228	16	6,927.39	0.8997	6,232.572
229	16	7,254.49	0.8999	6,528.315
230	16	6,709.96	0.8998	6,037.622
231	16	6,900.47	0.9000	6,210.423
232	15	6,374.29	0.9000	5,736.861
233	14	6,115.02	0.8998	5,502.294
234	16	6,832.73	0.8999	6,148.773
235	16	6,822.63	0.8998	6,139.002
236	16	6,798.24	0.8998	6,117.056
237	16	6,712.47	0.8999	6,040.551
238	18	7,799.53	0.8998	7,018.017
239	17	7,451.39	0.8999	6,705.505
240	16	6,801.99	0.8998	6,120.430
241	15	6,365.39	0.8999	5,728.214
242	12	4,828.04	0.8998	4,344.270
243	17	7,259.60	0.9000	6,533.640
244	17	7,075.28	0.8998	6,366.336
245	16	6,804.53	0.8999	6,123.396
246	17	7,175.16		

			0.8998	6,456.208
247	17	6,916.33	0.9000	6,224.697
248	17	7,327.06	0.8999	6,593.621
249	15	6,543.57	0.9000	5,889.213
251	12	4,825.75	0.8998	4,342.209
252	16	6,734.05	0.8999	6,059.971
253	16	6,824.64	0.8999	6,141.493
254	17	7,098.58	0.8999	6,388.012
255	17	7,118.21	0.8999	6,405.677
256	17	7,339.79	0.8999	6,605.077
257	16	6,804.20	0.8999	6,123.099
258	17	7,017.44	0.8998	6,314.292
259	14	5,861.95	0.8999	5,275.168
260	14	5,634.17	0.9000	5,070.753
261	16	6,883.27	0.8999	6,194.254
262	16	6,978.05	0.9000	6,280.245
263	17	7,069.29	0.8998	6,360.947
264	16	6,837.07	0.8999	6,152.679
265	16	6,883.30	0.9000	6,194.970
266	17	7,123.97	0.9000	6,411.573
267	17	7,354.93	0.9000	6,619.437
268	14	5,910.96	0.8999	5,319.272
269	14	5,372.95		

			0.8998	4,834.580
270	16	6,831.10	0.8998	6,146.623
271	16	6,755.29	0.8998	6,078.409
272	17	6,907.27	0.8998	6,215.161
273	17	7,186.18	0.8998	6,466.124
274	15	6,543.91	0.8998	5,888.210
275	16	6,779.08	0.8998	6,099.816
276	16	6,612.26	0.8999	5,950.372
277	15	6,535.34	0.8999	5,881.152
278	15	6,284.73	0.9000	5,656.257
279	16	6,959.32	0.8998	6,261.996
280	16	6,807.34	0.9000	6,126.606
281	17	7,338.44	0.9000	6,604.596
282	16	6,851.40	0.8999	6,165.574
283	15	6,390.10	0.9000	5,751.090
284	16	6,915.35	0.9000	6,223.815
285	14	5,741.69	0.8999	5,166.946
286	16	6,832.34	0.9000	6,149.106
287	16	6,758.51	0.9000	6,082.659
288	17	7,094.65	0.8998	6,383.766
289	16	6,860.11	0.9000	6,174.099
290	16	6,956.72	0.8999	6,260.352
291	16	6,811.84		

			0.8999	6,129.974
292	15	6,340.94	0.8999	5,706.211
293	15	6,549.77	0.8999	5,894.138
294	15	6,227.83	0.8999	5,604.424
295	16	6,925.40	0.8999	6,232.167
296	17	6,859.53	0.8999	6,172.891
297	16	6,430.19	0.8999	5,786.527
298	16	6,901.50	0.8999	6,210.659
299	16	6,691.69	0.8999	6,021.851
300	16	6,429.52	0.9000	5,786.568
301	16	6,713.47	0.8999	6,041.451
302	16	6,689.61	0.9000	6,020.649
303	17	6,790.79	0.9000	6,111.711
304	16	6,580.22	0.9000	5,922.198
305	15	6,309.94	0.8999	5,678.315
306	18	7,265.32	0.9000	6,538.788
307	16	6,886.67	0.8999	6,197.314
308	16	6,909.21	0.9000	6,218.289
309	17	7,177.38	0.8999	6,458.924
310	16	6,902.00	0.9001	6,212.490
311	16	6,819.96	0.9000	6,137.964
312	16	6,571.68	0.9000	5,914.512
313	16	6,813.79		

			0.9000	6,132.411
314	15	6,300.73	0.9000	5,670.657
315	15	6,043.27	0.8999	5,438.338
316	17	7,211.74	0.8999	6,489.844
317	16	6,504.47	0.8999	5,853.372
318	17	7,341.22	0.9000	6,607.098
319	16	6,766.38	0.8998	6,088.388
320	16	6,663.46	0.8999	5,996.447
321	16	7,015.30	0.8999	6,313.068
322	16	6,628.60	0.9000	5,965.740
323	15	6,053.27	0.9000	5,447.943
324	15	6,234.86	0.8999	5,610.750
325	16	6,824.80	0.8998	6,140.955
326	16	6,720.71	0.9000	6,048.639
327	16	6,493.21	0.8998	5,842.590
328	15	6,527.38	0.8999	5,873.989
329	15	6,512.27	0.8998	5,859.740
330	17	7,224.91	0.8999	6,501.696
331	15	6,534.77	0.8999	5,880.639
333	16	6,491.32	0.8999	5,841.538
334	16	7,002.98	0.8997	6,300.581
335	16	6,751.73	0.9000	6,076.557
337	16	6,957.98		

			0.8999	6,261.486
338	16	6,965.79	0.9001	6,269.907
339	17	7,066.57	0.8999	6,359.206
340	16	7,047.91	0.8999	6,342.414
341	14	6,007.01	0.9001	5,406.909
342	15	6,008.76	0.8999	5,407.283
343	17	7,217.63	0.8998	6,494.423
344	16	6,593.43	0.8998	5,932.768
345	17	7,063.62	0.8998	6,355.845
346	16	6,911.47	0.8998	6,218.940
347	17	7,022.85	0.8999	6,319.862
348	16	6,735.50	0.9000	6,061.950
349	16	6,622.51	0.8998	5,958.934
350	16	6,657.32	0.8999	5,990.922
351	14	5,622.16	0.8999	5,059.381
352	16	6,675.49	0.8999	6,007.273
353	16	6,574.93	0.8998	5,916.122
354	16	6,898.44	0.8998	6,207.216
355	17	7,135.69	0.8999	6,421.407
356	17	7,135.36	0.8998	6,420.396
357	16	6,891.05	0.8999	6,201.255
358	17	7,103.99	0.8998	6,392.170
359	16	6,849.95		

			0.8999	6,164.270
360	16	6,863.46	0.8998	6,175.741
361	17	6,882.27	0.8999	6,193.354
362	16	6,655.10	0.8998	5,988.258
363	13	5,354.54	0.8998	4,818.015
364	16	6,448.34	0.8999	5,802.861
365	16	6,897.43	0.8999	6,206.997
366	15	6,342.92	0.8999	5,707.993
367	16	6,643.63	0.8999	5,978.602
368	16	6,575.53	0.8999	5,917.319
369	16	6,610.96	0.8998	5,948.541
370	17	7,097.35	0.8998	6,386.195
371	18	7,652.15	0.8999	6,886.169
372	19	8,046.03	0.8999	7,240.622
373	16	6,670.83	0.8998	6,002.412
374	16	6,621.48	0.8998	5,958.007
375	17	7,076.77	0.8999	6,368.385
376	16	6,698.86	0.8998	6,027.634
377	17	7,034.46	0.8999	6,330.310
378	16	6,688.12	0.8999	6,018.639
379	16	6,740.08	0.8998	6,064.723
380	16	6,748.11	0.9000	6,073.299
381	16	6,837.05		

			0.8998	6,151.977
382	17	7,148.18	0.8998	6,431.932
383	16	6,759.12	0.8999	6,082.532
384	18	7,158.59	0.9000	6,442.731
385	16	6,522.57	0.8999	5,869.660
386	16	6,736.67	0.8998	6,061.655
387	16	6,560.81	0.8998	5,903.416
388	16	6,630.10	0.9000	5,967.090
389	15	6,320.46	0.8998	5,687.149
390	17	6,880.51	0.8998	6,191.082
391	16	6,541.06	0.8998	5,885.645
392	17	7,099.26	0.9000	6,389.334
393	16	6,506.53	0.8998	5,854.575
394	16	6,742.29	0.8998	6,066.712
395	16	6,727.22	0.8998	6,053.152
396	18	7,318.91	0.8998	6,585.555
397	16	6,860.84	0.8998	6,173.383
398	16	6,752.95	0.8999	6,076.979
399	16	6,536.74	0.8999	5,882.412
400	16	6,721.43	0.9000	6,049.287
401	16	6,644.33	0.9000	5,979.897
402	16	6,809.62	0.8998	6,127.296
403	17	7,152.91		

			0.8999	6,436.903
404	16	6,911.27	0.8999	6,219.451
405	16	6,823.46	0.8999	6,140.431
406	15	6,465.09	0.8999	5,817.934
407	15	6,207.64	0.9000	5,586.876
408	16	6,687.28	0.8998	6,017.214
409	16	6,736.82	0.8998	6,061.790
410	16	6,775.11	0.8999	6,096.921
411	16	6,634.18	0.8997	5,968.771
412	16	6,944.98	0.8999	6,249.787
413	17	7,134.71	0.8998	6,419.812
414	16	6,798.47	0.8998	6,117.263
415	16	6,842.05	0.8999	6,157.160
416	16	6,759.69	0.8999	6,083.045
417	16	6,915.00	0.8997	6,221.425
418	15	6,591.63	0.8998	5,931.148
419	16	6,928.42	0.8999	6,234.885
421	15	6,373.36	0.8998	5,734.749
422	15	6,382.98	0.8999	5,744.043
423	16	6,409.64	0.8998	5,767.394
424	16	6,866.53	0.8999	6,179.190
425	16	6,745.69	0.8999	6,070.446
426	16	7,076.31		

			0.8998	6,367.263
427	16	6,732.00	0.8999	6,058.126
428	16	6,663.74	0.8998	5,996.033
429	16	6,834.92	0.8999	6,150.744
430	16	6,706.26	0.8998	6,034.292
431	16	6,862.06	0.8998	6,174.481
433	16	6,701.62	0.8998	6,030.117
434	14	5,608.94	0.8998	5,046.924
435	16	6,884.48	0.8998	6,194.655
436	16	6,622.52	0.8999	5,959.605
437	16	6,755.09	0.8998	6,078.229
438	16	7,048.46	0.8999	6,342.909
439	16	6,870.19	0.8998	6,181.796
440	16	6,784.35	0.8999	6,105.236
441	16	7,160.43	0.8999	6,443.670
442	16	6,596.22	0.8999	5,935.938
444	16	7,027.46	0.8999	6,324.011
445	14	5,979.90	0.9000	5,381.910
446	14	5,986.57	0.8998	5,386.715
447	16	6,713.32	0.8998	6,040.645
448	16	6,844.93	0.8999	6,159.752
449	17	7,373.89	0.8998	6,635.026
450	16	7,047.31		

			0.9000	6,342.579
451	16	6,770.43	0.8998	6,092.032
452	16	6,725.56	0.8999	6,052.331
453	16	7,062.25	0.8997	6,353.906
454	16	6,978.20	0.8999	6,279.682
455	16	6,886.04	0.8999	6,196.747
456	15	6,643.49	0.9000	5,979.141
457	14	5,960.47	0.8998	5,363.230
458	14	5,890.30	0.8997	5,299.502
459	16	6,876.36	0.8998	6,187.348
460	15	6,291.87	0.8999	5,662.053
461	16	6,922.42	0.8998	6,228.793
462	16	6,959.23	0.8999	6,262.611
463	16	6,910.86	0.8998	6,218.391
464	16	6,879.25	0.8998	6,189.949
466	15	6,550.20	0.8999	5,894.524
467	16	6,855.95	0.9000	6,170.355
468	15	6,496.84	0.8999	5,846.506
469	14	6,094.46	0.8999	5,484.404
470	16	6,585.19	0.9000	5,926.671
471	16	6,994.43	0.8998	6,293.588
473	16	6,571.77	0.8998	5,913.278
474	16	7,014.14		

			0.8998	6,311.323
475	16	6,708.51	0.8998	6,036.317
476	16	6,797.90	0.8998	6,116.750
477	16	6,806.96	0.8998	6,124.902
478	16	6,804.68	0.8998	6,122.851
479	16	6,784.93	0.8998	6,105.080
480	16	6,878.98	0.8999	6,190.394
481	16	6,336.63	0.8999	5,702.333
482	14	5,689.05	0.8999	5,119.576
483	16	6,768.61	0.8999	6,091.072
484	16	6,661.43	0.9000	5,995.287
485	16	6,554.83	0.8999	5,898.691
486	16	6,984.95	0.8998	6,285.058
487	17	7,246.06	0.8999	6,520.729
488	16	6,869.72	0.8999	6,182.061
489	16	6,927.89	0.8999	6,234.408
490	17	7,007.73	0.8999	6,306.256
491	13	5,467.80	0.8998	4,919.926
492	16	6,679.65	0.9000	6,011.685
493	17	6,994.72	0.8999	6,294.548
494	16	6,865.82	0.9000	6,179.238
495	16	6,775.96	0.9000	6,098.364
496	16	6,413.47		

			0.8998	5,770.840
497	16	6,904.12	0.8999	6,213.017
498	16	6,765.91	0.8999	6,088.642
499	17	7,238.11	0.9000	6,514.299
500	16	6,911.52	0.9000	6,220.368
501	16	6,870.85	0.9000	6,183.765
502	16	6,778.38	0.8999	6,099.864
503	13	5,395.39	0.8999	4,855.311
504	16	6,943.19	0.9000	6,248.871
505	16	6,718.94	0.9000	6,047.046
506	16	7,002.30	0.9000	6,302.070
507	16	6,844.89	0.8999	6,159.716
508	16	6,789.51	0.8999	6,109.880
509	16	6,705.66	0.9000	6,035.094
510	16	6,962.56	0.9000	6,266.304
511	16	6,966.50	0.8999	6,269.153
513	16	6,819.82	0.8999	6,137.156
514	14	5,733.50	0.9000	5,160.150
515	16	6,793.05	0.8999	6,113.065
516	16	6,912.71	0.8998	6,220.056
517	16	6,652.16	0.8998	5,985.613
518	17	7,072.16	0.8998	6,363.529
520	16	6,850.51		

			0.8998	6,164.088
521	15	6,303.59	0.8999	5,672.600
522	16	6,868.58	0.8999	6,181.035
523	16	6,973.40	0.8999	6,275.362
524	16	6,853.01	0.8999	6,167.023
525	16	6,891.52	0.8999	6,201.678
526	16	6,759.90	0.8999	6,083.234
527	16	7,109.72	0.8998	6,397.326
528	17	7,191.76	0.8998	6,471.145
529	16	7,003.81	0.8999	6,302.728
530	16	7,033.14	0.8998	6,328.419
531	16	6,689.34	0.8999	6,019.737
532	16	6,784.99	0.9000	6,106.491
533	15	6,735.05	0.9000	6,061.545
534	16	6,624.83	0.9000	5,962.347
535	16	6,868.17	0.8999	6,180.666
536	16	7,087.02	0.8999	6,377.609
537	16	6,983.04	0.8999	6,284.037
538	16	6,904.76	0.8998	6,212.903
539	14	6,262.35	0.8999	5,635.488
540	16	6,843.33	0.8998	6,157.628
541	14	5,927.25	0.8999	5,333.932
542	16	6,815.29		

			0.8999	6,133.079
543	16	6,721.24	0.8999	6,048.443
544	16	6,822.23	0.9000	6,140.007
545	16	6,754.96	0.8999	6,078.788
546	16	6,832.66	0.9000	6,149.394
547	16	6,939.56	0.8999	6,244.910
548	16	7,098.25	0.8999	6,387.715
549	16	6,844.61	0.8999	6,159.464
550	16	7,018.42	0.8998	6,315.174
551	16	6,529.53	0.8999	5,875.924
552	15	6,433.67	0.8998	5,789.016
553	13	5,578.74	0.8998	5,019.750
554	16	6,799.30	0.8998	6,118.010
555	16	6,928.02	0.8998	6,233.832
556	16	7,026.35	0.8998	6,322.309
557	16	7,050.49	0.8998	6,344.030
558	16	6,946.27	0.8998	6,250.253
559	16	7,132.14	0.8999	6,418.212
560	16	7,039.90	0.8997	6,333.798
561	16	7,030.96	0.8998	6,326.457
562	16	7,040.29	0.8998	6,334.852
563	15	6,469.57	0.8998	5,821.319
564	14	6,027.81		

			0.8997	5,423.220
565	12	5,252.07	0.8997	4,725.287
566	16	6,649.19	0.8998	5,982.941
568	16	6,934.22	0.8998	6,239.411
569	16	6,783.01	0.8998	6,103.352
570	16	6,825.33	0.8998	6,141.431
571	17	7,074.29	0.8998	6,365.446
572	16	7,066.58	0.8998	6,358.508
573	17	7,301.71	0.8999	6,570.808
574	16	6,891.87	0.8998	6,201.304
575	15	6,219.02	0.8999	5,596.496
577	14	5,986.44	0.8998	5,386.598
578	16	6,823.38	0.8999	6,140.359
579	16	6,725.12	0.8998	6,051.262
580	16	6,706.06	0.8998	6,034.112
581	16	7,039.76	0.8999	6,335.080
582	16	6,849.01	0.8998	6,162.739
583	16	6,884.18	0.8999	6,195.073
584	16	6,731.53	0.9000	6,058.377
585	16	6,882.63	0.8998	6,192.990
586	16	6,941.63	0.9000	6,247.467
587	16	7,133.79	0.8999	6,419.697
588	12	5,018.25		

			0.8998	4,515.421
589	16	6,807.60	0.8998	6,125.478
590	16	6,996.66	0.8998	6,295.594
591	14	6,298.66	0.8998	5,667.534
592	16	6,911.06	0.8998	6,218.571
593	15	6,698.15	0.8999	6,027.665
595	16	7,120.15	0.9000	6,408.135
596	15	6,630.61	0.8998	5,966.222
597	16	6,821.86	0.9000	6,139.674
598	16	6,879.33	0.8998	6,190.021
599	16	7,100.94	0.8999	6,390.135
600	16	6,636.89	0.8998	5,971.873
601	17	7,185.00	0.8998	6,465.063
602	14	6,410.09	0.8999	5,768.439
603	16	6,625.59	0.8998	5,961.705
604	14	5,907.09	0.8998	5,315.199
605	14	6,273.06	0.8998	5,644.499
606	16	6,882.62	0.8999	6,193.669
607	15	6,308.91	0.8998	5,676.757
608	16	7,127.06	0.9000	6,414.354
609	16	6,946.48	0.9000	6,251.832
610	17	7,407.59	0.8999	6,666.090
611	15	6,729.76		

			0.9000	6,056.784
612	17	7,384.71	0.8998	6,644.762
613	17	7,303.58	0.8998	6,571.761
614	16	6,695.01	0.8998	6,024.169
615	16	6,817.74	0.8998	6,134.602
617	16	7,020.64	0.8999	6,317.873
618	16	7,020.06	0.9000	6,318.054
619	16	6,955.87	0.8999	6,259.587
620	16	6,843.13	0.8999	6,158.132
621	11	4,778.93	0.8999	4,300.559
622	12	5,139.57	0.8998	4,624.585
623	16	6,994.71	0.8998	6,293.840
624	16	6,942.90	0.8998	6,247.221
625	15	6,321.97	0.8998	5,688.508
626	15	6,798.10	0.8998	6,116.930
627	17	7,209.14	0.8998	6,486.784
628	16	7,045.35	0.8999	6,340.110
630	15	6,504.12	0.8999	5,853.057
631	16	6,883.01	0.8999	6,194.020
632	16	6,841.22	0.8999	6,156.413
633	16	6,748.31	0.8998	6,072.129
634	16	7,203.47	0.8999	6,482.402
635	16	6,904.78		

			0.8998	6,212.921
636	16	6,836.67	0.8998	6,151.635
637	16	7,159.74	0.9000	6,443.766
638	16	7,003.63	0.8998	6,301.866
639	13	5,467.81	0.8999	4,920.482
641	16	6,915.95	0.8999	6,223.663
642	16	6,963.00	0.8999	6,266.003
643	17	7,455.38	0.8998	6,708.350
644	15	6,774.94	0.8998	6,096.091
645	16	7,006.65	0.8998	6,304.583
646	17	7,364.52	0.8998	6,626.595
647	16	7,115.42	0.8998	6,402.454
648	16	6,899.83	0.8998	6,208.467
649	17	7,463.79	0.8999	6,716.664
650	16	6,677.96	0.8998	6,008.828
651	16	6,902.24	0.8998	6,210.635
652	16	6,817.52	0.8998	6,134.404
653	16	6,795.96	0.8999	6,115.684
654	17	7,207.29	0.8999	6,485.840
655	16	6,857.08	0.8999	6,170.686
656	14	5,782.89	0.8999	5,204.022
657	11	4,667.95	0.9000	4,201.155
658	13	5,361.99		

			0.9000	4,825.791
659	16	7,240.30	0.8999	6,515.545
660	15	6,580.98	0.8999	5,922.223
661	16	6,847.68	0.9000	6,162.912
662	16	7,361.94	0.8999	6,625.009
663	16	7,017.47	0.8999	6,315.021
664	16	7,160.23	0.9000	6,444.207
665	16	7,322.60	0.8999	6,589.607
666	16	7,055.72	0.8999	6,349.442
667	17	7,590.20	0.9000	6,831.180
668	16	6,726.15	0.8999	6,052.862
669	16	6,996.35	0.9000	6,296.715
670	16	6,862.24	0.8999	6,175.329
671	16	6,813.41	0.9000	6,132.069
672	16	6,882.73	0.8999	6,193.768
674	13	5,440.18	0.8998	4,895.073
675	11	4,647.56	0.9000	4,182.804
676	13	5,370.80	0.8998	4,832.645
677	15	6,908.55	0.8999	6,217.004
678	15	7,014.57	0.9000	6,313.113
679	16	7,049.13	0.8999	6,343.512
680	16	7,012.28	0.8999	6,310.350
681	16	7,206.35		

			0.9000	6,485.715
682	14	6,261.10	0.8999	5,634.363
683	16	7,140.54	0.8999	6,425.771
684	16	6,768.70	0.9000	6,091.830
685	16	6,916.81	0.8999	6,224.437
686	16	6,732.76	0.9000	6,059.484
687	16	6,749.01	0.8999	6,073.434
688	16	6,933.60	0.8999	6,239.546
689	16	6,760.82	0.8999	6,084.061
690	15	6,262.78	0.8998	5,635.249
691	14	5,870.55	0.8999	5,282.907
692	14	5,851.09	0.9000	5,265.981
693	16	7,121.18	0.8999	6,408.349
694	15	6,749.10	0.8999	6,073.515
695	16	7,248.68	0.9000	6,523.812
696	16	7,154.64	0.9000	6,439.176
697	16	7,210.53	0.9001	6,490.198
698	15	6,763.49	0.9000	6,087.141
699	16	7,256.84	0.8999	6,530.430
700	16	7,260.30	0.9000	6,534.270
701	16	7,244.62	0.8999	6,519.433
702	16	6,705.07	0.8999	6,033.892
703	16	7,023.71		

			0.9000	6,321.339
704	16	6,748.50	0.9000	6,073.650
705	16	6,735.15	0.9000	6,061.635
706	16	7,084.94	0.8998	6,375.029
707	16	6,785.07	0.8999	6,105.884
708	14	5,852.14	0.8999	5,266.340
709	12	5,009.95	0.8998	4,507.953
710	12	5,077.98	0.8999	4,569.674
711	16	7,093.24	0.9000	6,383.916
712	15	6,509.88	0.8999	5,858.241
713	16	7,166.44	0.8999	6,449.079
714	16	7,317.81	0.9000	6,586.029
715	17	7,713.84	0.8999	6,941.684
716	15	6,660.11	0.9000	5,994.099
717	15	6,934.52	0.9000	6,241.068
718	16	7,105.44	0.9000	6,394.896
719	16	7,095.95	0.9000	6,386.355
720	16	6,861.51	0.9001	6,176.045
721	16	6,812.39	0.9000	6,131.151
722	16	6,915.37	0.9000	6,223.833
723	15	6,383.36	0.9000	5,745.024
725	16	6,897.01	0.9000	6,207.309
726	13	5,455.54		

			0.8999	4,909.440
727	12	5,155.15	0.9000	4,639.635
728	13	5,575.96	0.9000	5,018.364
729	15	6,737.71	0.8999	6,063.265
730	15	6,588.21	0.9000	5,929.389
731	17	7,594.42	0.9000	6,834.978
732	16	7,124.96	0.8998	6,411.039
733	16	7,015.85	0.9000	6,314.265
734	16	7,156.59	0.8999	6,440.215
735	16	7,312.61	0.8999	6,580.617
736	16	6,938.51	0.9000	6,244.659
737	17	7,649.57	0.8999	6,883.848
738	16	6,777.31	0.8999	6,098.901
739	15	6,235.65	0.8999	5,611.461
740	16	6,819.32	0.8999	6,136.706
741	17	7,068.76	0.9000	6,361.884
742	17	7,312.74	0.8999	6,580.734
743	16	6,790.52	0.8999	6,110.788
744	13	5,547.77	0.8999	4,992.438
745	11	4,609.27	0.8999	4,147.882
746	13	5,493.51	0.9000	4,944.159
747	16	7,077.60	0.9000	6,369.840
748	16	7,251.72		

			0.8999	6,525.822
749	16	7,250.03	0.8999	6,524.301
750	16	6,846.04	0.8999	6,160.751
751	16	7,196.28	0.9000	6,476.652
752	17	7,701.07	0.8999	6,930.192
753	15	6,903.06	0.8999	6,212.063
754	15	6,548.39	0.8999	5,892.896
755	16	7,287.53	0.8999	6,558.048
756	15	6,249.35	0.9000	5,624.415
757	16	6,643.44	0.8999	5,978.431
759	16	7,117.65	0.9000	6,405.885
760	16	6,933.47	0.8998	6,238.736
761	16	7,187.76	0.8998	6,467.546
762	13	5,592.48	0.8999	5,032.672
763	12	4,949.14	0.9000	4,454.226
764	14	5,442.92	0.8998	4,897.539
766	17	7,516.98	0.8998	6,763.778
767	16	7,176.19	0.8999	6,457.853
768	17	7,423.16	0.8998	6,679.359
769	16	7,099.26	0.8998	6,387.914
770	16	7,327.13	0.8998	6,592.951
772	16	7,482.22	0.8999	6,733.249
773	16	7,225.83		

			0.8998	6,501.801
775	16	6,904.22	0.9000	6,213.798
777	16	6,979.68	0.8999	6,281.014
778	17	7,299.98	0.8999	6,569.252
875	14	6,051.25	0.8998	5,444.914
935	16	6,747.39	0.8999	6,071.976
936	16	6,735.54	0.8998	6,060.638
937	16	6,888.20	0.8997	6,197.313
940	14	6,027.86	0.8998	5,423.868
955	16	6,732.37	0.8999	6,058.459
956	14	5,698.16	0.8999	5,127.774
957	14	5,953.61	0.8999	5,357.653
958	16	6,859.33	0.8999	6,172.711
959	15	6,378.17	0.8999	5,739.715
960	16	6,992.82	0.8999	6,292.838
961	16	7,020.29	0.8999	6,317.558
962	15	6,542.72	0.8999	5,887.793
963	16	7,023.83	0.8999	6,320.744
964	16	7,378.86	0.8999	6,640.236
965	15	6,602.35	0.8999	5,941.454
966	16	6,701.25	0.8999	6,030.454
967	16	6,713.96	0.8999	6,041.892
968	16	6,664.76		

			0.8998	5,996.951
971	16	6,670.91	0.8999	6,003.151
972	16	6,699.62	0.8999	6,028.988
973	15	6,008.93	0.8998	5,406.835
974	16	6,610.24	0.8999	5,948.554
975	16	6,944.13	0.8998	6,248.328
976	17	7,453.05	0.8999	6,706.999
977	15	6,651.33	0.8998	5,984.866
978	16	7,058.86	0.8999	6,352.268
979	16	6,929.61	0.8999	6,235.956
981	15	6,663.44	0.8999	5,996.429
982	15	6,542.36	0.8999	5,887.469
984	16	6,710.91	0.8998	6,038.476
985	16	6,488.71	0.8998	5,838.541
986	16	6,770.25	0.8998	6,091.870
987	16	6,605.86	0.9000	5,945.274
988	16	6,658.36	0.9000	5,992.524
989	16	6,861.65	0.8999	6,174.798
990	15	6,358.47	0.8999	5,721.987
991	13	5,693.63	0.8998	5,123.128
992	15	6,169.39	0.8998	5,551.217
993	14	6,184.98	0.8999	5,565.863
994	16	6,974.46		

			0.8999	6,276.316
995	16	6,808.52	0.8999	6,126.987
996	15	6,682.60	0.8999	6,013.671
997	16	7,013.57	0.8998	6,310.810
998	16	7,052.83	0.8999	6,346.841
999	16	6,854.43	0.8998	6,167.616
1001	16	7,012.02	0.8998	6,309.415
1002	16	6,793.42	0.8999	6,113.398
1003	16	6,842.20	0.8999	6,157.295
1004	16	6,851.51	0.8999	6,165.673
1005	16	6,779.54	0.9000	6,101.586
1006	16	6,901.46	0.9001	6,212.004
1007	16	6,925.85	0.9000	6,233.265
1008	15	6,332.40	0.8998	5,697.893
1009	15	6,185.32	0.8998	5,565.550
1010	14	5,948.13	0.8998	5,352.127
1011	15	6,619.63	0.8999	5,957.005
1012	15	6,462.74	0.8998	5,815.173
1013	16	6,985.68	0.8998	6,285.714
1014	16	7,043.52	0.8998	6,337.759
1015	16	6,869.95	0.8998	6,181.581
1016	16	7,020.15	0.8998	6,316.730
1017	16	6,763.69		

			0.8998	6,085.968
1018	16	6,721.28	0.8998	6,047.807
1019	16	6,930.64	0.8998	6,236.189
1020	16	6,764.96	0.8999	6,087.787
1021	16	6,768.06	0.9000	6,091.254
1022	16	6,915.68	0.8999	6,223.420
1023	16	6,629.96	0.8999	5,966.301
1024	15	6,116.61	0.8999	5,504.337
1025	14	6,036.99	0.8999	5,432.687
1026	16	6,865.92	0.8998	6,177.954
1027	16	7,017.34	0.8999	6,314.904
1029	16	6,761.61	0.8999	6,084.772
1030	16	6,883.60	0.8999	6,194.551
1031	16	6,870.47	0.8999	6,182.735
1032	15	6,672.96	0.8999	6,004.996
1033	16	6,966.08	0.8999	6,268.775
1034	17	7,390.94	0.8999	6,651.106
1035	16	6,784.30	0.8999	6,105.191
1036	16	6,699.65	0.8999	6,029.015
1037	17	7,139.85	0.8999	6,425.151
1038	16	6,661.34	0.8999	5,994.539
1039	16	6,712.76	0.8999	6,040.812
1040	16	6,811.26		

			0.8999	6,129.452
1041	15	6,143.13	0.8998	5,527.588
1042	14	5,733.08	0.8998	5,158.625
1043	14	5,722.56	0.8999	5,149.731
1044	16	6,680.38	0.9000	6,012.342
1045	15	6,389.75	0.8999	5,750.136
1046	16	6,948.42	0.8999	6,252.883
1047	16	6,749.13	0.8999	6,073.542
1048	15	6,544.75	0.8998	5,888.966
1049	16	6,891.48	0.8999	6,201.642
882	8	6,737.56	0.8998	6,062.456
931	8	6,644.77	0.8998	5,978.964
955	8	6,850.35	0.8998	6,163.944
960	8	6,566.42	0.8998	5,908.464
970	8	6,793.80	0.8998	6,113.061
1057	8	6,709.13	0.8999	6,037.546
1085	8	6,784.96	0.8999	6,105.785
758	16	6,752.01	0.8999	6,076.133
765	15	6,629.48	0.8998	5,965.206
776	17	7,024.41	0.8998	6,320.564
779	16	6,798.71	0.9000	6,118.839
780	12	4,884.13	0.8999	4,395.228
781	11	4,478.29		

			0.8999	4,030.013
782	11	4,434.75	0.8999	3,990.831
783	16	6,994.94	0.8998	6,294.047
784	16	7,190.04	0.8999	6,470.316
785	16	7,028.80	0.8998	6,324.514
786	17	7,639.10	0.8999	6,874.426
787	16	7,264.90	0.8999	6,537.683
788	16	7,143.66	0.8999	6,428.579
789	16	7,210.90	0.8999	6,489.088
791	16	7,132.24	0.8999	6,418.302
792	16	6,942.19	0.8998	6,246.582
793	16	6,922.19	0.8998	6,228.586
794	16	6,821.83	0.8998	6,138.282
795	16	6,837.49	0.8998	6,152.373
796	16	6,810.59	0.8999	6,128.849
797	16	6,775.45	0.8999	6,097.227
798	12	4,758.59	0.8998	4,281.779
799	12	4,753.06	0.8998	4,276.803
800	11	4,532.12	0.8998	4,078.001
801	16	7,033.87	0.8998	6,329.076
802	14	5,954.76	0.8998	5,358.093
803	16	6,983.16	0.8998	6,283.447
804	16	7,207.50		

			0.8999	6,486.029
805	15	6,592.23	0.8999	5,932.347
806	16	6,898.32	0.8998	6,207.108
807	17	7,777.77	0.8997	6,997.659
809	17	7,529.21	0.8999	6,775.536
810	16	6,701.52	0.8999	6,030.697
811	16	6,873.46	0.8998	6,184.739
812	16	6,841.97	0.8998	6,156.404
813	16	6,580.74	0.8999	5,922.007
814	16	7,001.18	0.8998	6,299.661
816	15	6,045.54	0.9000	5,440.986
817	14	5,776.03	0.8999	5,197.849
818	14	5,702.29	0.8999	5,131.490
819	16	6,665.23	0.8998	5,997.373
820	16	6,884.47	0.8999	6,195.334
821	16	7,018.35	0.8999	6,315.813
822	16	6,890.86	0.8998	6,200.395
823	16	7,093.78	0.8998	6,382.983
824	16	6,944.10	0.8999	6,248.995
825	16	6,820.21	0.8998	6,136.824
826	16	6,976.53	0.9000	6,278.877
827	17	7,621.28	0.8999	6,858.389
828	16	6,563.74		

			0.8998	5,906.053
829	16	6,488.19	0.8998	5,838.073
830	16	6,366.50	0.8998	5,728.576
831	16	6,692.06	0.8998	6,021.515
841	15	6,725.42	0.8998	6,051.532
886	16	6,501.04	0.8999	5,850.285
943	16	6,616.15	0.8999	5,953.873
	5	5,352.21	0.8999	4,816.453
	5	5,352.14	0.8998	4,815.855
	5	5,352.63	0.9000	4,817.331
	5	5,350.19	0.8998	4,814.100
	5	5,353.15	0.8999	4,817.299
	5	5,355.07	0.8999	4,819.027
	5	5,355.23	0.8998	4,818.635
	5	5,359.78	0.8999	4,823.266
	5	5,353.84	0.8999	4,817.920
	5	5,352.93	0.8999	4,817.101
	5	5,353.71	0.9000	4,818.339
	5	5,350.15	0.9000	4,815.135
	5	5,359.72	0.9000	4,823.748
	5	5,346.41	0.8999	4,811.234
	5	5,349.99	0.8999	4,814.456
	5	5,349.37		

		0.9000	4,814.433
5	5,348.79	0.9000	4,813.911
5	5,352.88	0.8999	4,817.056
5	5,348.05	0.8998	4,812.175
5	5,351.68	0.8999	4,815.976
5	5,352.75	0.8999	4,816.939
5	5,350.28	0.8998	4,814.181
5	5,345.22	0.8999	4,810.163
5	5,349.97	0.8999	4,814.438
5	5,344.77	0.9000	4,810.293
5	5,348.71	0.9000	4,813.839
5	5,351.71	0.8999	4,816.003
5	5,348.17	0.8999	4,812.818
5	5,350.97	0.8998	4,814.802
5	5,349.70	0.8999	4,814.195
5	5,349.07	0.8999	4,813.628
5	5,347.83	0.8999	4,812.512
5	5,351.30	0.8998	4,815.099
5	5,348.44	0.8999	4,813.061
5	5,343.57	0.9000	4,809.213
5	5,346.69	0.8999	4,811.486
5	5,352.94	0.8999	4,817.110
5	5,354.05		

		0.8999	4,818.109
5	5,353.59	0.9000	4,818.231
5	5,352.47	0.8999	4,816.687
5	5,351.40	0.8999	4,815.724
5	5,352.27	0.8998	4,815.972
5	5,352.35	0.8999	4,816.579
5	5,353.81	0.8999	4,817.893
5	5,353.08	0.8998	4,816.701
5	5,352.95	0.8999	4,817.119
5	5,351.20	0.8999	4,815.544
5	5,349.88	0.8998	4,813.822
5	5,352.18	0.9000	4,816.962
5	5,351.49	0.8999	4,815.805
5	5,350.79	0.8998	4,814.640
5	5,350.90	0.8998	4,814.739
5	5,353.84	0.8999	4,817.920
5	5,354.79	0.8999	4,818.775
5	5,354.23	0.9000	4,818.807
5	5,352.09	0.8999	4,816.345
5	5,350.15	0.8999	4,814.599
5	5,353.13	0.8998	4,816.746
5	5,351.95	0.8998	4,815.684
5	5,352.40		

		0.9000	4,817.160
5	5,353.53	0.8999	4,817.641
5	5,352.37	0.9000	4,817.133
5	5,353.38	0.8999	4,817.506
5	5,354.15	0.9000	4,818.735
5	5,353.61	0.8999	4,817.713
5	5,354.60	0.8999	4,818.604
5	5,350.10	0.8997	4,813.484
5	5,352.50	0.8998	4,816.179
5	5,351.75	0.8998	4,815.504
5	5,355.75	0.8999	4,819.639
5	5,352.90	0.9000	4,817.610
5	5,351.71	0.8999	4,816.003
5	5,351.73	0.8999	4,816.021
3	2,672.02	0.8998	2,404.283
5	5,353.35	0.8998	4,816.944
5	5,350.45	0.8999	4,814.869
5	5,351.45	0.9000	4,816.305
5	5,352.03	0.8999	4,816.291
5	5,352.68	0.8998	4,816.341
5	5,352.91	0.9000	4,817.619
5	5,353.00	0.8998	4,816.629
5	5,351.52		

		0.8999	4,815.832
5	5,352.70	0.8999	4,816.894
5	5,353.77	0.8999	4,817.857
5	5,353.68	0.8999	4,817.776
5	5,352.45	0.8999	4,816.669
5	5,352.95	0.8999	4,817.119
5	5,351.01	0.9000	4,815.909
5	5,370.95	0.8999	4,833.317
5	5,352.37	0.8998	4,816.062
5	5,366.63	0.9000	4,829.967
5	5,351.40	0.8999	4,815.724
5	5,367.37	0.8999	4,830.096
5	5,352.68	0.8999	4,816.876
5	5,371.65	0.8999	4,833.947
5	5,353.85	0.8999	4,817.929
5	5,371.37	0.8998	4,833.158
5	5,349.75	0.8999	4,814.240
5	5,371.37	0.8999	4,833.695
5	5,353.60	0.8999	4,817.704
5	5,371.10	0.8999	4,833.452
5	5,351.90	0.9000	4,816.710
5	5,374.45	0.8999	4,836.467
5	5,353.17		

		0.9000	4,817.853
5	5,377.65	0.8999	4,839.347
5	5,352.64	0.8998	4,816.305
5	5,371.20	0.8999	4,833.542
5	5,351.44	0.9000	4,816.296
5	5,371.19	0.8999	4,833.533
5	5,352.30	0.8999	4,816.534
5	5,373.32	0.8999	4,835.450
5	5,353.02	0.8999	4,817.182
5	5,352.55	0.8999	4,816.759
5	5,356.13	0.8999	4,819.981
5	5,352.73	0.8999	4,816.921
5	5,353.52	0.8998	4,817.097
5	5,351.47	0.8998	4,815.252
5	5,352.30	0.8999	4,816.534
5	5,352.85	0.8998	4,816.494
5	5,356.10	0.8999	4,819.954
5	5,352.25	0.8999	4,816.489
5	5,353.37	0.8999	4,817.497
5	5,351.84	0.8998	4,815.585
5	5,353.12	0.8998	4,816.737
5	5,350.68	0.8999	4,815.076
5	5,351.65		

		0.8999	4,815.949
5	5,355.35	0.8999	4,819.279
5	5,347.90	0.8999	4,812.575
5	5,353.15	0.9000	4,817.835
5	5,352.14	0.8999	4,816.390
5	5,352.89	0.8999	4,817.065
5	5,351.45	0.8998	4,815.234
5	5,352.36	0.8998	4,816.053
5	5,352.43	0.8999	4,816.651
5	5,353.00	0.8998	4,816.629
5	5,352.10	0.8998	4,815.819
5	5,352.95	0.8999	4,817.119
5	5,374.23	0.8999	4,836.269
5	5,371.68	0.8998	4,833.437
5	5,367.37	0.9000	4,830.633
5	5,369.75	0.9000	4,832.775
5	5,371.35	0.9000	4,834.215
5	5,372.55	0.9000	4,835.295
5	5,370.89	0.8999	4,833.263
5	5,371.42	0.8999	4,833.740
5	5,351.85	0.8998	4,815.594
5	5,351.45	0.8998	4,815.234
5	5,351.80		

		0.8998	4,815.549
5	5,352.45	0.8999	4,816.669
5	5,353.13	0.8998	4,816.746
5	5,351.35	0.8998	4,815.144
5	5,352.15	0.8999	4,816.399
5	5,352.15	0.9000	4,816.935
5	5,351.95	0.8999	4,816.219
5	5,351.25	0.8999	4,815.589
5	5,350.90	0.8999	4,815.274
5	5,353.43	0.8999	4,817.551
5	5,351.55	0.8999	4,815.859
5	5,352.68	0.8999	4,816.876
3	2,674.22	0.8998	2,406.263
5	5,351.20	0.8999	4,815.544
5	5,351.65	0.9000	4,816.485
5	5,348.97	0.8999	4,813.538
5	5,351.77	0.8999	4,816.057
5	5,352.18	0.9000	4,816.962
5	5,352.24	0.9000	4,817.016
5	5,351.18	0.8999	4,815.526
5	5,353.23	0.8998	4,816.836
5	5,352.67	0.8998	4,816.332
5	5,353.28		

		0.8999	4,817.416
5	5,351.66	0.8999	4,815.958
5	5,352.20	0.8998	4,815.909
5	5,355.75	0.9000	4,820.175
5	5,352.59	0.8999	4,816.795
5	5,351.64	0.8999	4,815.940
5	5,352.83	0.9000	4,817.547
5	5,353.88	0.9000	4,818.492
5	5,353.03	0.9000	4,817.727
5	5,353.40	0.8998	4,816.989
5	5,352.51	0.9000	4,817.259
5	5,353.05	0.8999	4,817.209
5	5,352.48	0.8999	4,816.696
5	5,353.35	0.8999	4,817.479
5	5,352.02	0.8998	4,815.747
5	5,351.88	0.8999	4,816.156
3	2,678.10	0.8998	2,409.754
5	5,350.77	0.8999	4,815.157
5	5,351.80	0.8998	4,815.549
5	5,352.35	0.8998	4,816.044
5	5,353.25	0.8998	4,816.854
5	5,352.70	0.8999	4,816.894
5	5,354.03		

		0.8999	4,818.091
5	5,352.12	0.8998	4,815.837
5	5,351.04	0.8999	4,815.400
5	5,354.75	0.8998	4,818.204
5	5,352.67	0.8998	4,816.332
5	5,351.20	0.8998	4,815.009
5	5,352.66	0.8998	4,816.323
5	5,352.95	0.8999	4,817.119
5	5,352.92	0.8998	4,816.557
5	5,352.27	0.8998	4,815.972
5	5,350.18	0.8999	4,814.626
5	5,354.04	0.8998	4,817.565
5	5,350.41	0.8998	4,814.298
5	5,353.80	0.8997	4,816.813
5	5,352.40	0.8999	4,816.624
5	5,355.81	0.8998	4,819.157
5	5,349.95	0.8998	4,813.885
5	5,352.27	0.8998	4,815.972
5	5,353.13	0.8998	4,816.746
5	5,354.66	0.8999	4,818.658
5	5,352.55	0.8998	4,816.224
5	5,353.50	0.8999	4,817.614
5	5,353.45		

		0.8999	4,817.569
5	5,353.88	0.8999	4,817.956
5	5,350.73	0.8999	4,815.121
5	5,372.17	0.9000	4,834.953
5	5,372.28	0.9000	4,835.052
5	5,371.20	0.9000	4,834.080
5	5,373.09	0.8999	4,835.243
5	5,370.10	0.8999	4,832.552
5	5,370.70	0.8999	4,833.092
5	5,369.38	0.8999	4,831.905
5	5,371.27	0.8999	4,833.605
5	5,371.74	0.8999	4,834.028
5	5,371.83	0.8999	4,834.109
5	5,374.05	0.9000	4,836.645
5	5,372.43	0.9000	4,835.187
5	5,373.15	0.9000	4,835.835
5	5,371.70	0.9000	4,834.530
5	5,371.13	0.8999	4,833.479
5	5,371.61	0.8999	4,833.911
5	5,370.49	0.8999	4,832.903
5	5,371.45	0.9000	4,834.305
5	5,371.73	0.8999	4,834.019
5	5,372.10		

		0.9000	4,834.890
5	5,372.34	0.8999	4,834.568
5	5,352.13	0.8999	4,816.381
5	5,372.55	0.8999	4,834.757
5	5,372.05	0.9000	4,834.845
5	5,349.96	0.8999	4,814.429
5	5,371.52	0.8999	4,833.830
5	5,352.76	0.8999	4,816.948
5	5,370.85	0.8999	4,833.227
5	5,352.60	0.8998	4,816.269
5	5,371.67	0.9000	4,834.503
5	5,354.10	0.8999	4,818.154
5	5,370.65	0.9000	4,833.585
5	5,353.55	0.9000	4,818.195
5	5,371.13	0.8999	4,833.479
5	5,351.94	0.8998	4,815.675
5	5,365.11	0.8999	4,828.062
5	5,352.00	0.8999	4,816.264
5	5,372.52	0.8999	4,834.730
5	5,355.30	0.8998	4,818.698
5	5,371.82	0.8999	4,834.100
5	5,351.50	0.8999	4,815.814
5	5,372.28		

		0.8999	4,834.514
5	5,351.88	0.9000	4,816.692
5	5,371.65	0.8999	4,833.947
5	5,350.57	0.8998	4,814.442
5	5,370.79	0.8999	4,833.173
5	5,351.82	0.8998	4,815.567
5	5,371.00	0.8999	4,833.362
5	5,353.38	0.8998	4,816.971
5	5,376.58	0.8999	4,838.384
5	5,352.62	0.8999	4,816.822
5	5,371.06	0.9000	4,833.954
5	5,351.45	0.8999	4,815.769
5	5,370.85	0.8999	4,833.227
5	5,354.90	0.8998	4,818.339
5	5,370.85	0.8999	4,833.227
5	5,352.18	0.9000	4,816.962
5	5,372.27	0.8999	4,834.505
5	5,351.32	0.8998	4,815.117
5	5,373.03	0.9000	4,835.727
5	5,371.53	0.9000	4,834.377
5	5,352.27	0.9000	4,817.043
5	5,373.34	0.9000	4,836.006
5	5,351.40		

		0.8998	4,815.189
5	5,372.32	0.8999	4,834.550
5	5,351.71	0.8999	4,816.003
5	5,373.01	0.8999	4,835.171
3	2,673.62	0.9000	2,406.258
5	5,369.98	0.8999	4,832.445
5	5,350.48	0.8999	4,814.896
5	5,371.28	0.8999	4,833.614
5	5,351.99	0.9000	4,816.791
5	5,371.18	0.8999	4,833.524
5	5,352.25	0.8999	4,816.489
5	5,370.78	0.8999	4,833.164
5	5,370.87	0.8998	4,832.708
5	5,352.69	0.8998	4,816.350
5	5,371.61	0.8999	4,833.911
3	2,673.52	0.8998	2,405.633
5	5,351.23	0.8999	4,815.571
5	5,371.73	0.8999	4,834.019
5	5,372.20	0.9000	4,834.980
5	5,354.05	0.8999	4,818.109
5	5,352.81	0.8999	4,816.993
5	5,370.31	0.8999	4,832.741
5	5,371.20		

		0.8999	4,833.542
5	5,351.15	0.9000	4,816.035
5	5,371.14	0.8999	4,833.488
5	5,352.49	0.8999	4,816.705
5	5,370.79	0.8999	4,833.173
5	5,351.83	0.8999	4,816.111
5	5,371.66	0.8999	4,833.956
5	5,351.09	0.9000	4,815.981
5	5,372.41	0.9000	4,835.169
5	5,352.10	0.8999	4,816.354
5	5,371.92	0.8999	4,834.190
5	5,351.90	0.8999	4,816.174
5	5,373.15	0.9000	4,835.835
5	5,350.95	0.8998	4,814.784
5	5,371.09	0.8999	4,833.443
5	5,353.60	0.8998	4,817.169
5	5,349.91	0.8999	4,814.384
5	5,353.35	0.8998	4,816.944
3	2,673.27	0.8999	2,405.675
5	5,353.35	0.9000	4,818.015
5	5,372.01	0.8999	4,834.271
3	2,672.52	0.9000	2,405.268
5	5,372.20		

		0.9000	4,834.980
5	5,352.98	0.8998	4,816.611
5	5,373.07	0.9000	4,835.763
5	5,353.17	0.8998	4,816.782
5	5,373.02	0.9000	4,835.718
5	5,351.44	0.8999	4,815.760
5	5,372.75	0.8999	4,834.937
5	5,352.98	0.8999	4,817.146
5	5,370.00	0.9000	4,833.000
5	5,350.62	0.8998	4,814.487
5	5,372.60	0.8999	4,834.802
5	5,371.40	0.9000	4,834.260
5	5,351.73	0.8999	4,816.021
5	5,371.12	0.8999	4,833.470
5	5,353.25	0.8998	4,816.854
5	5,369.77	0.8999	4,832.256
5	5,353.83	0.8998	4,817.376
5	5,352.89	0.8998	4,816.530
5	5,353.26	0.8998	4,816.863
5	5,351.66	0.9000	4,816.494
5	5,351.93	0.8999	4,816.201
5	5,351.85	0.8998	4,815.594
5	5,352.05		

		0.8999	4,816.309
5	5,351.14	0.8998	4,814.955
5	5,352.10	0.8998	4,815.819
5	5,352.52	0.8998	4,816.197
5	5,347.65	0.8998	4,811.815
5	5,370.31	0.9000	4,833.279
5	5,350.81	0.8999	4,815.193
5	5,370.51	0.9000	4,833.459
5	5,349.41	0.8998	4,813.399
5	5,370.90	0.8999	4,833.272
5	5,354.94	0.8998	4,818.375
5	5,369.45	0.8999	4,831.968
5	5,351.60	0.8998	4,815.369
5	5,369.58	0.8999	4,832.085
5	5,355.35	0.8998	4,818.743
5	5,371.81	0.8999	4,834.091
5	5,351.34	0.8999	4,815.670
5	5,373.27	0.8999	4,835.405
5	5,351.15	0.8999	4,815.499
5	5,372.20	0.8999	4,834.442
5	5,351.27	0.8999	4,815.607
5	5,372.38	0.8999	4,834.604
5	5,352.03		

		0.8998	4,815.756
5	5,371.87	0.8999	4,834.145
5	5,352.52	0.8999	4,816.732
5	5,371.60	0.8999	4,833.902
5	5,352.87	0.9000	4,817.583
5	5,371.67	0.8999	4,833.965
5	5,373.53	0.8999	4,835.639
5	5,352.89	0.8998	4,816.530
5	5,371.72	0.8999	4,834.010
5	5,353.57	0.8999	4,817.677
5	5,353.30	0.8998	4,816.899
5	5,373.48	0.8998	4,835.057
5	5,352.14	0.8999	4,816.390
5	5,351.88	0.8998	4,815.621
5	5,353.55	0.8999	4,817.659
5	5,351.69	0.8998	4,815.450
5	5,352.21	0.8998	4,815.918
5	5,350.80	0.8998	4,814.649
5	5,351.68	0.8998	4,815.441
5	5,371.13	0.8999	4,833.479
5	5,354.19	0.8998	4,817.700
5	5,370.53	0.9000	4,833.477
5	5,351.95		

		0.8998	4,815.684
5	5,350.35	0.8999	4,814.779
5	5,372.60	0.9000	4,835.340
5	5,351.83	0.8998	4,815.576
5	5,370.30	0.9000	4,833.270
5	5,352.00	0.8999	4,816.264
5	5,352.80	0.9000	4,817.520
5	5,370.05	0.9000	4,833.045
5	5,351.44	0.8999	4,815.760
5	5,371.30	0.9000	4,834.170
5	5,352.28	0.8999	4,816.516
5	5,372.00	0.8999	4,834.262
5	5,351.73	0.9000	4,816.557
5	5,371.30	0.9000	4,834.170
5	5,349.60	0.8999	4,814.105
5	5,351.35	0.8999	4,815.679
5	5,371.53	0.8999	4,833.839
5	5,352.43	0.8999	4,816.651
5	5,370.85	0.9000	4,833.765
5	5,351.38	0.8998	4,815.171
5	5,369.97	0.9000	4,832.973
5	5,353.38	0.8999	4,817.506
5	5,371.08		

		0.8999	4,833.434
5	5,369.85	0.8999	4,832.328
5	5,352.84	0.8999	4,817.020
5	5,372.00	0.8999	4,834.262
5	5,351.89	0.9000	4,816.701
5	5,371.27	0.8999	4,833.605
5	5,351.09	0.9000	4,815.981
5	5,371.68	0.8999	4,833.974
5	5,349.69	0.8998	4,813.651
5	5,367.26	0.8999	4,829.997
5	5,352.83	0.8999	4,817.011
5	5,369.78	0.8999	4,832.265
5	5,350.20	0.8999	4,814.644
5	5,370.42	0.8999	4,832.840
5	5,354.52	0.8998	4,817.997
5	5,371.47	0.9000	4,834.323
5	5,352.58	0.8999	4,816.786
5	5,373.77	0.8999	4,835.855
5	5,350.90	0.8999	4,815.274
5	5,371.15	0.8999	4,833.497
5	5,351.54	0.9000	4,816.386
5	5,371.90	0.8999	4,834.172
5	5,351.71		

		0.9000	4,816.539
5	5,371.58	0.8999	4,833.884
5	5,352.95	0.8999	4,817.119
5	5,371.11	0.8999	4,833.461
5	5,350.95	0.8998	4,814.784
5	5,371.23	0.9000	4,834.107
5	5,353.25	0.8999	4,817.389
3	2,674.49	0.9000	2,407.041
5	5,352.52	0.9000	4,817.268
5	5,351.89	0.8998	4,815.630
5	5,352.86	0.8998	4,816.503
5	5,351.38	0.8999	4,815.706
5	5,353.93	0.8999	4,818.001
5	5,353.24	0.8998	4,816.845
5	5,351.95	0.8999	4,816.219
5	5,351.93	0.8998	4,815.666
5	5,353.86	0.8998	4,817.403
5	5,351.43	0.8998	4,815.216
5	5,350.40	0.8999	4,814.824
5	5,351.28	0.8999	4,815.616
5	5,357.67	0.8999	4,821.367
5	5,351.10	0.8998	4,814.919
5	5,350.23		

		0.8998	4,814.136
5	5,352.22	0.8998	4,815.927
5	5,351.92	0.8999	4,816.192
5	5,351.22	0.8999	4,815.562
5	5,354.47	0.8999	4,818.487
5	5,353.37	0.8998	4,816.962
5	5,352.63	0.8999	4,816.831
5	5,350.07	0.8999	4,814.527
5	5,353.95	0.8999	4,818.019
5	5,351.00	0.8998	4,814.829
5	5,352.20	0.8999	4,816.444
5	5,351.55	0.8998	4,815.324
5	5,351.50	0.8999	4,815.814
5	5,351.28	0.9000	4,816.152
5	5,349.95	0.9000	4,814.955
3	2,673.66	0.8999	2,406.026
5	5,351.75	0.8999	4,816.039
5	5,352.05	0.8999	4,816.309
5	5,351.82	0.8998	4,815.567
5	5,351.14	0.9000	4,816.026
5	5,352.50	0.8999	4,816.714
5	5,352.32	0.9000	4,817.088
5	5,353.95		

		0.8999	4,818.019
5	5,352.90	0.8999	4,817.074
5	5,352.51	0.8999	4,816.723
5	5,352.73	0.8999	4,816.921
5	5,352.30	0.8999	4,816.534
5	5,350.33	0.9000	4,815.297
5	5,353.00	0.8999	4,817.164
5	5,353.43	0.9000	4,818.087
5	5,353.10	0.8999	4,817.254
5	5,353.21	0.9000	4,817.889
5	5,353.53	0.8999	4,817.641
5	5,353.73	0.8998	4,817.286
5	5,350.26	0.8999	4,814.698
5	5,351.75	0.8999	4,816.039
5	5,352.55	0.8998	4,816.224
5	5,351.50	0.8999	4,815.814
5	5,109.50	0.9000	4,598.550
5	5,352.50	0.8999	4,816.714
5	5,355.35	0.8999	4,819.279
5	5,353.32	0.8998	4,816.917
5	5,350.99	0.8998	4,814.820
5	5,351.27	0.8999	4,815.607
5	5,353.32		

		0.8998	4,816.917
5	5,355.18	0.8999	4,819.126
5	5,351.31	0.8998	4,815.108
5	5,352.30	0.8999	4,816.534
5	5,352.92	0.8998	4,816.557
5	5,350.93	0.8998	4,814.766
5	5,352.59	0.8998	4,816.260
5	5,351.45	0.8998	4,815.234
5	5,352.82	0.8999	4,817.002
5	5,352.00	0.8998	4,815.729
5	5,352.36	0.8998	4,816.053
3	2,674.04	0.8998	2,406.101
5	5,353.19	0.8998	4,816.800
5	5,352.88	0.8999	4,817.056
5	5,351.83	0.9000	4,816.647
5	5,351.45	0.8999	4,815.769
5	5,352.64	0.8999	4,816.840
5	5,349.95	0.9000	4,814.955
5	5,351.53	0.8999	4,815.841
5	5,351.65	0.8999	4,815.949
5	5,349.72	0.8999	4,814.213
5	5,355.37	0.8999	4,819.297
5	5,351.30		

			0.8999	4,815.634
	5	5,353.25	0.8999	4,817.389
	5	5,350.87	0.8999	4,815.247
	5	5,351.85	0.8999	4,816.129
	5	5,352.67	0.8999	4,816.867
	5	5,350.28	0.8998	4,814.181
	5	5,351.80	0.8999	4,816.084
	5	5,351.44	0.8998	4,815.225
	5	5,350.65	0.8999	4,815.049
	5	5,350.33	0.8999	4,814.761
	5	5,350.07	0.8999	4,814.527
	5	5,355.18	0.8998	4,818.590
	5	5,351.13	0.9000	4,816.017
	5	5,348.45	0.9000	4,813.605
20	25	8,809.75	0.8998	7,927.013
25	11	3,860.65	0.8998	3,473.812
22	25	8,798.10	0.8998	7,916.530
15	22	7,806.50	0.9005	7,029.753
17	25	8,739.00	0.8998	7,863.352
21	25	8,703.40	0.8997	7,830.448
19	25	8,740.95	0.8999	7,865.980
23	25	8,633.95	0.8999	7,769.691
18	25	8,736.50		

			0.8999	7,861.976
16	25	8,787.40	0.8997	7,906.023
24	25	8,682.32	0.8997	7,811.483
2328	8	6,806.61	0.9000	6,125.949
2288	8	6,636.40	0.9001	5,973.423
2313	8	6,573.15	0.9002	5,917.149
2304	8	6,873.90	0.9000	6,186.510
2334	8	6,732.67	0.9000	6,059.403
2336	8	6,498.53	0.9000	5,848.677
2299	8	6,718.16	0.8999	6,045.672
2303	7	5,806.56	0.9001	5,226.484
1572	8	6,893.41	0.9000	6,204.069
2232	8	6,775.02	0.9000	6,097.518
1569	8	6,719.34	0.9001	6,048.077
1571	8	6,704.17	0.9000	6,033.753
2247	8	6,888.24	0.9001	6,200.104
2249	8	5,817.27	0.9000	5,235.543
2245	8	6,680.18	0.9000	6,012.162
2248	8	6,496.71	0.9000	5,847.039
2344	8	6,704.56	0.9001	6,034.774
2256	8	6,650.03	0.9000	5,985.027
2345	8	6,738.90	0.9001	6,065.683
2287	8	6,705.27		

			0.9000	6,034.743
2765	8	6,710.94	0.8998	6,038.503
2752	8	6,988.79	0.8998	6,288.513
2763	8	6,784.77	0.8997	6,104.257
2769	8	6,805.67	0.8998	6,123.741
2346	8	6,600.79	0.9001	5,941.371
2286	8	6,739.57	0.9000	6,065.613
2293	8	6,885.86	0.9001	6,197.962
2348	8	6,595.09	0.9000	5,935.581
2330	8	6,744.02	0.9001	6,070.292
2368	8	7,007.04	0.9000	6,306.336
2377	8	6,840.70	0.8999	6,155.945
2369	8	6,698.52	0.9000	6,028.668
2329	8	6,982.07	0.9001	6,284.561
2310	8	6,486.10	0.9002	5,838.787
2307	8	6,709.40	0.9001	6,039.130
2318	8	6,759.13	0.9000	6,083.217
2374	8	6,926.97	0.8999	6,233.580
2361	8	6,833.81	0.9000	6,150.429
2366	8	6,666.62	0.9000	5,999.958
2376	8	6,752.94	0.9000	6,077.646
2350	8	7,018.39	0.9000	6,316.551
2439	8	6,797.02		

			0.8999	6,116.638
2360	8	6,812.44	0.9000	6,131.196
2432	8	6,685.05	0.9000	6,016.545
2743	8	6,953.44	0.9000	6,258.096
2740	8	6,593.20	0.8998	5,932.561
2741	8	6,441.43	0.8998	5,795.998
2733	8	6,635.55	0.8998	5,970.667
2351	8	6,881.24	0.9000	6,193.116
2236	8	6,735.59	0.9000	6,062.031
2391	8	6,825.60	0.9001	6,143.722
2239	8	6,417.24	0.9000	5,775.516
2426	8	6,868.20	0.9001	6,182.066
2437	8	6,578.19	0.8999	5,919.713
2255	8	6,846.59	0.9001	6,162.615
2237	8	6,672.39	0.9001	6,005.818
2322	8	7,163.04	0.9000	6,446.736
2325	8	6,753.12	0.9000	6,077.808
2327	8	6,913.55	0.9000	6,222.195
2320	8	6,208.49	0.9000	5,587.641
2424	8	6,693.79	0.9000	6,024.411
2422	8	6,833.72	0.8999	6,149.664
2434	8	6,518.27	0.9000	5,866.443
2423	8	6,821.47		

			0.9000	6,139.323
2276	8	6,745.55	0.9000	6,070.995
2275	8	6,977.13	0.8999	6,278.719
2260	8	6,920.44	0.9001	6,229.088
2274	8	6,979.39	0.8999	6,280.753
2714	8	6,651.14	0.8998	5,984.695
2721	8	6,768.43	0.8998	6,090.233
2715	8	6,648.74	0.8999	5,983.201
2708	8	6,845.68	0.8998	6,159.742
2704	8	7,049.83	0.8999	6,344.142
2710	7	5,957.68	0.8999	5,361.316
2711	6	5,293.92	0.8999	4,763.998
2705	8	6,923.56	0.9000	6,231.204
2677	8	6,679.39	0.9000	6,011.451
2696	8	6,815.84	0.9000	6,134.256
2649	8	6,872.53	0.9000	6,185.277
2687	8	6,901.03	0.9000	6,210.927
2620	8	6,865.11	0.9000	6,178.599
2624	8	6,832.79	0.9000	6,149.511
2626	8	6,849.61	0.9000	6,164.649
2627	8	6,888.86	0.9000	6,199.974
2566	8	6,834.06	0.9000	6,150.654
2572	8	6,801.75		

			0.8999	6,120.894
2535	8	6,722.82	0.8999	6,049.865
2564	8	6,868.96	0.9000	6,182.064
2555	8	6,760.09	0.9000	6,084.081
2545	8	6,899.16	0.9000	6,209.244
2550	8	6,825.19	0.9000	6,142.671
2551	8	6,701.48	0.8999	6,030.661
2637	8	7,102.56	0.8999	6,391.593
2639	8	6,273.57	0.8999	5,645.585
2634	8	6,633.02	0.9000	5,969.718
2635	8	6,795.04	0.8999	6,114.856
2534	8	6,773.14	0.9000	6,095.826
2536	8	6,762.30	0.9000	6,086.070
2530	8	6,800.18	0.9000	6,120.162
2515	8	6,755.76	0.9000	6,080.184
2510	8	6,581.06	0.9000	5,922.954
2511	8	6,756.47	0.9000	6,080.823
2518	8	6,775.79	0.9001	6,098.888
2514	8	6,606.21	0.9000	5,945.589
2440	8	7,350.43	0.8999	6,614.651
2452	8	6,653.84	0.9000	5,988.456
2457	8	6,757.54	0.8999	6,081.110
2442	8	6,706.35		

			0.9000	6,035.715
2482	8	7,016.74	0.9000	6,315.066
2483	8	6,833.04	0.8999	6,149.052
2471	8	6,719.73	0.8999	6,047.085
2340	8	6,648.27	0.9002	5,984.772
2656	8	6,635.57	0.9000	5,972.013
2662	8	6,671.52	0.8999	6,003.700
2658	8	6,646.52	0.8999	5,981.203
2643	8	6,759.68	0.8999	6,083.036
2672	8	7,211.31	0.9000	6,490.179
2669	8	7,061.67	0.9000	6,355.503
2682	8	6,669.62	0.8999	6,001.991
2663	8	7,218.35	0.9000	6,496.515
2363	8	6,461.64	0.8999	5,814.829
2387	8	6,951.11	0.9000	6,255.999
2380	8	6,871.29	0.9000	6,184.161
2384	8	6,755.89	0.9000	6,080.301
2508	8	6,773.31	0.9000	6,095.979
2506	8	6,936.25	0.8999	6,241.931
2497	8	6,770.76	0.8999	6,093.006
2487	8	6,696.66	0.9001	6,027.663
2607	8	6,779.23	0.8999	6,100.629
2610	8	6,379.72		

			0.8999	5,741.110
2611	8	6,871.77	0.8999	6,183.905
2608	8	6,825.68	0.8999	6,142.429
2494	8	7,029.73	0.9000	6,326.757
2486	8	6,596.37	0.9000	5,936.733
2492	8	6,874.98	0.9000	6,187.482
2470	8	6,621.29	0.9000	5,959.161
2399	8	6,730.15	0.8999	6,056.461
2403	8	6,654.19	0.9000	5,988.771
2404	8	6,809.08	0.9000	6,128.172
2397	8	6,831.20	0.8999	6,147.396
2615	8	6,790.06	0.8999	6,110.374
2621	8	6,923.49	0.9000	6,231.141
2613	8	6,876.25	0.8999	6,187.937
2617	8	6,665.87	0.9001	5,999.949
2632	8	6,709.82	0.9000	6,038.838
2628	8	6,366.14	0.9000	5,729.526
2633	8	6,662.76	0.9000	5,996.484
2631	8	6,703.10	0.9000	6,032.790
2455	8	6,759.26	0.9000	6,083.334
2454	8	6,611.60	0.8999	5,949.778
2463	8	6,704.69	0.9000	6,034.221
2449	8	6,714.15		

			0.9000	6,042.735
2589	8	6,777.27	0.8999	6,098.865
2587	8	6,515.51	0.9000	5,863.959
2586	8	6,649.99	0.8999	5,984.326
2585	8	6,790.67	0.9000	6,111.603
2578	8	6,528.34	0.9000	5,875.506
2579	8	6,790.22	0.8999	6,110.518
2573	8	6,844.43	0.9000	6,159.987
2580	8	6,634.99	0.9000	5,971.491
2418	8	6,614.50	0.9000	5,953.050
2410	8	6,861.52	0.9000	6,175.368
2407	8	6,967.52	0.9000	6,270.768
2420	8	6,593.92	0.9000	5,934.528
2759	8	6,802.04	0.8998	6,120.475
2764	8	6,763.12	0.8997	6,084.779
2774	7	5,567.74	0.8998	5,009.852
2466	8	6,720.14	0.9000	6,048.126
2465	8	6,694.25	0.9001	6,025.494
2473	8	6,602.11	0.9000	5,941.899
2474	8	6,575.88	0.9001	5,918.949
2701	8	6,968.35	0.9000	6,271.515
2698	8	6,812.91	0.8999	6,130.937
2706	8	6,763.91		

			0.8999	6,086.842
2703	8	6,764.54	0.9000	6,088.086
2751	8	6,726.07	0.8999	6,052.790
2758	8	7,064.72	0.8998	6,356.835
2742	8	6,558.53	0.8998	5,901.365
2757	8	6,787.43	0.8999	6,108.008
2770	8	6,561.53	0.8998	5,904.064
2771	8	6,741.08	0.8998	6,065.623
2773	8	7,035.60	0.8997	6,329.929
2772	8	6,764.72	0.8998	6,086.895
2766	8	6,806.02	0.8998	6,124.056
2767	8	6,709.62	0.8998	6,037.316
2768	8	6,730.85	0.8998	6,056.419
2760	8	6,598.25	0.8998	5,937.105
2761	8	6,862.62	0.8998	6,174.985
2762	8	6,629.89	0.8997	5,964.912
2755	8	6,498.43	0.8997	5,846.637
2756	8	6,910.81	0.8998	6,218.347
2732	8	6,914.97	0.8998	6,222.090
2754	8	6,506.72	0.8997	5,854.096
2749	8	6,704.70	0.8998	6,032.889
2750	8	6,954.11	0.8998	6,257.308
2730	8	6,870.73		

			0.8999	6,182.970
2731	8	6,674.49	0.8998	6,005.706
2744	8	6,688.90	0.8999	6,019.341
2745	8	6,791.19	0.8997	6,110.033
2746	8	6,831.13	0.8998	6,146.650
2747	8	6,710.26	0.8999	6,038.563
2739	8	6,438.85	0.8999	5,794.321
2738	7	5,888.03	0.8998	5,298.049
2737	8	7,021.42	0.8998	6,317.873
2728	8	6,713.48	0.8997	6,040.118
2716	8	6,704.28	0.8998	6,032.511
2734	8	6,843.78	0.8998	6,158.033
2735	8	6,680.28	0.8998	6,010.916
2736	8	6,896.20	0.8998	6,205.200
2729	7	5,910.38	0.8998	5,318.160
2727	8	6,674.94	0.8998	6,006.111
2726	8	6,873.60	0.8998	6,184.865
2725	8	6,889.50	0.8998	6,199.172
2722	8	6,862.80	0.8998	6,175.147
2723	8	6,792.42	0.8999	6,112.498
2724	8	6,719.94	0.8999	6,047.274
2718	8	6,745.94	0.8998	6,069.997
2702	8	6,747.98		

			0.8999	6,072.507
2720	8	6,723.12	0.8999	6,050.135
2713	8	6,798.96	0.8999	6,118.384
2717	8	6,710.96	0.8999	6,039.193
2719	8	7,013.33	0.8999	6,311.295
2709	8	6,560.91	0.8999	5,904.163
2712	8	6,656.10	0.8999	5,989.824
2707	8	6,737.57	0.8998	6,062.465
2700	8	6,720.70	0.9000	6,048.630
2697	8	6,583.12	0.8999	5,924.149
2691	8	6,750.79	0.8999	6,075.036
2699	8	6,506.00	0.9000	5,855.400
2690	8	6,844.44	0.9000	6,159.996
2692	8	6,779.44	0.8999	6,100.818
2693	8	7,134.50	0.9000	6,421.050
2694	8	6,550.39	0.9000	5,895.351
2689	8	6,867.66	0.9000	6,180.894
2688	8	6,865.90	0.8999	6,178.623
2686	8	7,025.27	0.8999	6,322.040
2680	8	6,802.70	0.9000	6,122.430
2679	8	6,619.93	0.9000	5,957.937
2678	8	6,604.14	0.8999	5,943.065
2665	8	6,664.89		

			0.9000	5,998.401
2647	8	6,830.35	0.9000	6,147.315
2685	8	6,782.83	0.9000	6,104.547
2681	9	6,676.17	0.8999	6,007.885
2675	7	5,500.59	0.9000	4,950.531
2667	8	7,329.32	0.8999	6,595.655
2683	8	6,728.35	0.8999	6,054.842
2684	8	6,746.74	0.8999	6,071.391
2655	8	6,776.52	0.8999	6,098.190
2664	8	7,166.15	0.8999	6,448.818
2676	8	6,727.45	0.8998	6,053.359
2674	7	6,117.13	0.9000	5,505.417
2673	8	6,730.97	0.9000	6,057.873
2666	8	6,994.17	0.8999	6,294.053
2668	8	6,333.54	0.9000	5,700.186
2671	8	6,268.62	0.9000	5,641.758
2661	8	6,584.51	0.8999	5,925.400
2660	8	6,826.29	0.8999	6,142.978
2659	8	6,481.84	0.9000	5,833.656
2670	8	7,048.24	0.9000	6,343.416
2654	8	6,778.49	0.9000	6,100.641
2645	8	7,078.85	0.9000	6,370.965
2657	7	5,778.83		

			0.9000	5,200.947
2648	8	6,933.49	0.8999	6,239.447
2653	8	6,657.09	0.9000	5,991.381
2652	8	6,786.99	0.9000	6,108.291
2651	8	6,812.70	0.8999	6,130.748
2650	8	6,720.50	0.9000	6,048.450
2641	8	6,885.20	0.8999	6,195.991
2640	8	6,429.23	0.8999	5,785.664
2638	8	6,599.65	0.8999	5,939.025
2646	8	6,826.73	0.9000	6,144.057
2644	8	6,747.60	0.8999	6,072.165
2636	8	6,923.39	0.9000	6,231.051
2625	8	6,845.86	0.8999	6,160.589
2630	7	5,771.01	0.9000	5,193.909
2629	8	6,747.23	0.8999	6,071.832
2623	8	6,707.44	0.9000	6,036.696
2619	8	6,961.14	0.8999	6,264.330
2618	8	6,649.13	0.9000	5,984.217
2622	8	6,615.77	0.9000	5,954.193
2616	8	6,804.75	0.8999	6,123.594
2614	8	6,666.63	0.8999	5,999.300
2612	6	5,289.63	0.9000	4,760.667
2600	8	6,853.15		

			0.9000	6,167.835
2604	8	6,755.75	0.9001	6,080.850
2606	8	6,903.09	0.8999	6,212.090
2609	8	6,811.52	0.8999	6,129.687
2602	8	6,944.79	0.9000	6,250.311
2603	8	6,971.53	0.9000	6,274.377
2605	8	6,823.29	0.9000	6,140.961
2598	8	6,765.12	0.9000	6,088.608
2593	8	6,617.80	0.8999	5,955.358
2599	8	6,804.00	0.9000	6,123.600
2601	8	6,988.03	0.8999	6,288.528
2594	7	5,808.46	0.9000	5,227.614
2596	8	6,630.09	0.8999	5,966.418
2597	8	6,769.18	0.9000	6,092.262
2592	8	6,625.04	0.8999	5,961.873
2591	8	6,879.94	0.9000	6,191.946
2590	8	6,711.10	0.8999	6,039.319
2570	8	6,694.46	0.8999	6,024.344
2588	8	7,052.26	0.9000	6,347.034
2584	8	6,842.40	0.9000	6,158.160
2583	8	6,588.15	0.9000	5,929.335
2582	9	7,517.41	0.8999	6,764.917
2581	8	6,677.61		

			0.9000	6,009.849
2576	7	5,378.61	0.8999	4,840.211
2577	8	6,824.11	0.9000	6,141.699
2575	8	6,576.22	0.9000	5,918.598
2574	8	6,885.16	0.8999	6,195.955
2571	8	6,722.71	0.9000	6,050.439
2568	8	6,819.31	0.9000	6,137.379
2565	8	6,739.25	0.9000	6,065.325
2567	8	6,862.66	0.9000	6,176.394
2560	8	6,742.22	0.9000	6,067.998
2561	8	6,725.59	0.9000	6,053.031
2562	8	6,762.55	0.8999	6,085.618
2563	8	6,942.23	0.9000	6,248.007
2559	8	6,809.66	0.9000	6,128.694
2558	6	5,318.89	0.9000	4,787.001
2548	8	6,970.94	0.8999	6,273.149
2547	8	6,858.49	0.8999	6,171.955
2538	8	6,938.49	0.9000	6,244.641
2540	7	6,015.85	0.8999	5,413.663
2541	8	6,860.35	0.9000	6,174.315
2532	8	6,797.62	0.8999	6,117.178
2525	8	6,642.54	0.9000	5,978.286
2524	8	6,602.16		

			0.8999	5,941.283
2557	8	6,544.09	0.8999	5,889.026
2544	8	6,862.34	0.9000	6,176.106
2554	8	6,912.80	0.8999	6,220.828
2556	8	6,662.26	0.8999	5,995.367
2549	8	6,851.85	0.9000	6,166.665
2552	8	6,540.69	0.9000	5,886.621
2546	8	6,979.36	0.9000	6,281.424
2543	8	6,745.69	0.9000	6,071.121
2542	8	6,844.13	0.9001	6,160.401
2537	8	6,808.52	0.9000	6,127.668
2539	8	6,891.90	0.9000	6,202.710
2529	8	6,597.01	0.9000	5,937.309
2531	7	5,446.50	0.9000	4,901.850
2533	8	6,727.15	0.8999	6,053.762
2523	8	6,760.10	0.8999	6,083.414
2526	8	6,713.44	0.9001	6,042.767
2527	8	6,719.85	0.9001	6,048.537
2528	8	6,767.69	0.9000	6,090.921
2522	8	6,974.79	0.8999	6,276.613
2521	8	6,797.97	0.8999	6,117.493
2520	8	6,861.82	0.9000	6,175.638
2519	8	6,772.12		

			0.9000	6,094.908
2516	8	6,753.11	0.9001	6,078.474
2517	8	6,528.88	0.9000	5,875.992
2500	8	6,630.04	0.9000	5,967.036
2507	9	7,284.06	0.9000	6,555.654
2513	7	5,318.67	0.8999	4,786.271
2512	8	6,739.78	0.8999	6,065.128
2505	8	6,789.62	0.8999	6,109.979
2509	8	6,610.56	0.8999	5,948.843
2504	8	6,829.89	0.9000	6,146.901
2503	8	6,756.00	0.9000	6,080.400
2502	8	6,912.70	0.8999	6,220.738
2501	8	6,896.92	0.9001	6,207.917
2499	8	6,770.04	0.9000	6,093.036
2498	8	6,741.53	0.8999	6,066.703
2496	8	6,743.73	0.8999	6,068.682
2493	8	6,730.00	0.9000	6,057.000
2491	8	6,953.78	0.9001	6,259.097
2460	7	5,859.15	0.8999	5,272.649
2489	8	6,745.93	0.9000	6,071.337
2490	8	6,925.31	0.9001	6,233.471
2484	8	6,749.65	0.9000	6,074.685
2485	8	6,916.58		

			0.9000	6,224.922
2488	8	7,032.65	0.9000	6,329.385
2481	8	6,626.87	0.8999	5,963.520
2480	8	6,665.64	0.9000	5,999.076
2479	8	6,579.41	0.9000	5,921.469
2478	8	6,644.27	0.9000	5,979.843
2477	8	6,198.54	0.9000	5,578.686
2476	8	6,651.17	0.8999	5,985.388
2475	8	7,228.67	0.9000	6,505.803
2450	8	6,760.10	0.9001	6,084.766
2468	9	7,549.10	0.9000	6,794.190
2472	8	6,693.44	0.9000	6,024.096
2467	8	6,899.56	0.9000	6,209.604
2469	8	6,780.12	0.9000	6,102.108
2459	8	6,681.34	0.8999	6,012.538
2448	8	6,799.67	0.9001	6,120.383
2447	8	6,696.91	0.9001	6,027.888
2458	8	6,740.46	0.8999	6,065.740
2462	8	7,024.57	0.9000	6,322.113
2464	8	6,736.61	0.9001	6,063.622
2456	8	6,765.69	0.8999	6,088.444
2453	8	6,623.77	0.9000	5,961.393
2446	8	6,798.87		

			0.9000	6,118.983
2415	8	6,699.24	0.8999	6,028.646
2342	8	6,627.48	0.9001	5,965.394
2445	8	6,780.51	0.9000	6,102.459
2444	8	6,527.65	0.9000	5,874.885
2443	8	6,704.60	0.9000	6,034.140
2441	8	6,081.34	0.8999	5,472.598
2431	8	6,693.34	0.9001	6,024.675
2430	8	6,452.34	0.9000	5,807.106
2429	8	6,792.40	0.9000	6,113.160
2438	8	6,632.85	0.8999	5,968.901
2406	8	6,783.90	0.9000	6,105.510
2428	8	6,757.58	0.9001	6,082.497
2436	8	6,641.02	0.8999	5,976.254
2435	8	6,676.71	0.8999	6,008.371
2417	8	6,690.80	0.9000	6,021.720
2433	8	6,631.41	0.8999	5,967.606
2427	8	7,004.14	0.9000	6,303.726
2425	8	6,619.80	0.9000	5,957.820
2421	8	6,896.04	0.9000	6,206.436
2419	8	6,038.86	0.9000	5,434.974
2416	8	6,707.35	0.8999	6,035.944
2409	8	6,930.83		

			0.9001	6,238.440
2414	8	6,666.47	0.8999	5,999.156
2408	8	6,692.69	0.9001	6,024.090
2412	8	6,617.34	0.9000	5,955.606
2413	8	6,649.63	0.9000	5,984.667
2411	8	6,796.53	0.9000	6,116.877
2405	8	6,863.34	0.9000	6,177.006
2402	8	6,702.94	0.9000	6,032.646
2400	8	6,249.31	0.9000	5,624.379
2401	8	6,284.25	0.9000	5,655.825
2398	8	6,741.34	0.9000	6,067.206
2379	8	6,892.21	0.8999	6,202.299
2390	8	6,731.99	0.9000	6,058.791
2396	8	6,747.10	0.8999	6,071.715
2394	8	6,668.21	0.9000	6,001.389
2395	8	6,764.26	0.9001	6,088.510
2388	8	6,880.73	0.9000	6,192.657
2393	8	6,772.17	0.9000	6,094.953
2386	8	6,684.11	0.9000	6,015.699
2385	8	6,973.23	0.8999	6,275.209
2383	7	5,555.66	0.9000	5,000.094
2382	7	5,693.16	0.8999	5,123.274
2381	8	6,719.08		

			0.9000	6,047.172
2392	8	6,925.34	0.9000	6,232.806
2378	8	6,732.62	0.9000	6,059.358
2375	8	6,723.90	0.9000	6,051.510
2372	8	6,857.81	0.9000	6,172.029
2373	8	6,996.85	0.9000	6,297.165
2362	8	6,737.40	0.8999	6,062.986
2364	8	6,658.57	0.8999	5,992.047
2343	8	6,597.95	0.9001	5,938.814
2371	8	7,061.33	0.9000	6,355.197
2370	8	6,821.93	0.9000	6,139.737
2367	8	7,035.65	0.9000	6,332.085
2365	7	5,350.10	0.9000	4,815.090
2359	9	7,392.88	0.9000	6,653.592
2358	8	6,731.07	0.9000	6,057.963
2355	8	6,950.45	0.8999	6,254.710
2352	8	6,741.93	0.9000	6,067.737
2353	8	7,096.23	0.9000	6,386.607
2331	8	6,743.21	0.9001	6,069.563
2341	8	6,878.01	0.9001	6,190.897
2356	8	6,876.15	0.9000	6,188.535
2357	8	6,674.17	0.8999	6,006.085
2332	8	6,604.09		

			0.9000	5,943.681
2349	7	6,143.50	0.9000	5,529.150
2347	8	6,812.08	0.9000	6,130.872
2339	8	6,712.04	0.9001	6,041.507
2337	8	6,751.00	0.9000	6,075.900
2338	6	5,207.74	0.9000	4,686.966
2335	8	6,706.53	0.9000	6,035.877
2333	8	6,809.99	0.9000	6,128.991
2326	8	6,877.74	0.9000	6,189.966
2324	8	6,831.56	0.9000	6,148.404
2323	8	7,019.20	0.9000	6,317.280
2321	8	6,656.41	0.9001	5,991.434
2312	8	6,864.23	0.9001	6,178.493
2308	8	6,804.47	0.9001	6,124.703
2306	8	6,827.14	0.9001	6,145.108
2295	8	7,010.17	0.9001	6,309.854
2296	8	6,610.72	0.9001	5,950.309
2319	8	6,515.18	0.8999	5,863.010
2289	8	6,615.98	0.9001	5,955.043
2317	8	7,011.77	0.9000	6,310.593
2316	8	6,791.13	0.9000	6,112.017
2315	8	7,113.02	0.9000	6,401.718
2314	8	6,659.57		

			0.9001	5,994.279
2311	8	6,986.57	0.9001	6,288.611
2305	7	5,900.59	0.9000	5,310.531
2309	8	6,928.76	0.9000	6,235.884
2301	8	6,744.91	0.9000	6,070.419
2300	8	6,816.95	0.9000	6,135.255
2291	8	6,799.86	0.9000	6,119.874
2298	8	6,903.56	0.9000	6,213.204
2290	8	6,828.61	0.9001	6,146.432
2294	8	7,004.30	0.9001	6,304.570
2206	8	6,799.84	0.9000	6,119.856
2292	8	6,840.96	0.9000	6,156.864
2285	8	6,238.06	0.9000	5,614.254
2284	8	6,484.97	0.9001	5,837.121
2283	8	6,711.20	0.9000	6,040.080
2270	8	6,731.36	0.9000	6,058.224
2265	8	6,638.72	0.9000	5,974.848
2267	7	6,026.14	0.9000	5,423.526
2252	8	6,848.93	0.9000	6,164.037
2281	8	6,529.16	0.9000	5,876.244
2282	8	6,742.18	0.9000	6,067.962
2279	8	6,768.25	0.8999	6,090.748
2280	8	6,681.48		

			0.8999	6,012.664
2278	8	6,693.83	0.9000	6,024.447
2277	8	6,715.49	0.9000	6,043.941
2273	8	6,836.26	0.8999	6,151.950
2272	8	7,030.79	0.8999	6,327.008
2271	8	6,655.66	0.9000	5,990.094
2269	8	6,721.96	0.9000	6,049.764
2268	8	6,570.18	0.9000	5,913.162
2264	8	6,832.54	0.9000	6,149.286
2266	7	5,735.65	0.9000	5,162.085
2262	8	6,848.91	0.9001	6,164.704
2263	8	6,846.16	0.9001	6,162.228
2261	8	6,894.18	0.9000	6,204.762
2246	8	6,866.16	0.9000	6,179.544
2257	8	6,757.34	0.9000	6,081.606
2258	8	6,850.73	0.9000	6,165.657
2259	8	6,567.46	0.9000	5,910.714
2254	8	7,032.93	0.9000	6,329.637
2251	8	6,914.55	0.9001	6,223.786
2253	8	6,679.81	0.9001	6,012.497
2244	8	7,048.83	0.9001	6,344.652
2243	8	7,025.16	0.8999	6,321.941
2218	8	6,549.10		

			0.9000	5,894.190
2242	8	6,925.74	0.9000	6,233.166
2241	8	6,668.13	0.8999	6,000.650
2302	8	6,342.70	0.9001	5,709.064
2240	8	6,635.51	0.9001	5,972.622
2238	8	6,672.72	0.9000	6,005.448
2235	8	6,869.18	0.8999	6,181.575
2234	8	6,720.09	0.9000	6,048.081
2233	8	6,632.98	0.9000	5,969.682
1568	8	6,663.38	0.9000	5,997.042
1573	7	5,900.46	0.9000	5,310.414
1570	8	6,835.23	0.9000	6,151.707
1514	8	5,934.17	0.9001	5,341.346
1574	7	5,999.08	0.8999	5,398.572

ATTACHMENT 4: PART 3
U.S. MINT'S SCHEDULE OF INVENTORY OF DEEP STORAGE
GOLD RESERVES (WEST POINT)

West Point

Official Joint Seals Total **182,186** **63,744,425.605** **54,067,331.379**

Difference: - 59.335 38.889

Bar Inventory Total : **182,186** **63,744,366.270** **54,067,292.490**

<i>Average Fineness:</i> 0.8821
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Melt	Bars	Gross Wt	Fineness	Gold FTO
45659	1	377.05	0.9999	377.012
45655	1	383.40	0.9999	383.362
45656	1	372.98	0.9999	372.938
45663	1	393.50	0.9999	393.461
45654	1	392.28	0.9999	392.236
45728	1	383.23	0.9999	383.187
45731	1	381.98	0.9999	381.937
45730	1	391.70	0.9999	391.661
45719	1	369.70	0.9999	369.663
45726	1	399.23	0.9999	399.185
45727	1	381.28	0.9999	381.237
45737	1	366.98	0.9999	366.938
45739	1	370.98	0.9999	370.938
45722	1	378.70	0.9999	378.662
45741	1	394.08	0.9999	394.036
45740	1			

		419.80	0.9999	419.758
45738	1	369.38	0.9999	369.338
45715	1	372.00	0.9999	371.963
45734	1	384.50	0.9999	384.462
45732	1	412.85	0.9999	412.809
45744	1	378.78	0.9999	378.737
45735	1	390.43	0.9999	390.386
45747	1	394.63	0.9999	394.586
45746	1	417.20	0.9999	417.158
45745	1	399.43	0.9999	399.385
90374	1	402.43	0.9999	402.385
90356	1	405.33	0.9999	405.284
90368	1	400.23	0.9999	400.185
45729	1	380.90	0.9999	380.862
45664	1	379.13	0.9999	379.087
45716	1	407.33	0.9999	407.284
45717	1	379.45	0.9999	379.412
45660	1	401.10	0.9999	401.060
45718	1	366.70	0.9999	366.663
45743	1	377.53	0.9999	377.487
45673	1	419.10	0.9999	419.058
45667	1	406.40	0.9999	406.359
45736	1			

		414.15	0.9999	414.109
45742	1	390.43	0.9999	390.386
45672	1	385.25	0.9999	385.211
45721	1	401.25	0.9999	401.210
45748	1	383.28	0.9999	383.237
1177	1	383.98	0.9999	383.937
1172	1	384.35	0.9999	384.312
1204	1	383.55	0.9999	383.512
1189	1	384.13	0.9999	384.087
1184	1	403.85	0.9999	403.810
1186	1	382.48	0.9999	382.437
1203	1	405.40	0.9999	405.359
1200	1	387.75	0.9999	387.711
93043	1	387.35	0.9999	387.311
92195	1	414.73	0.9999	414.684
92218	1	414.55	0.9999	414.509
92201	1	405.83	0.9999	405.784
92205	1	401.53	0.9999	401.485
92214	1	414.50	0.9999	414.459
92199	1	391.00	0.9999	390.961
92220	1	412.50	0.9999	412.459
92197	1	424.03	0.9999	423.983
92212	1			

		411.90	0.9999	411.859
92202	1	394.50	0.9999	394.461
92196	1	413.05	0.9999	413.009
92216	1	411.03	0.9999	410.984
92203	1	401.80	0.9999	401.760
92215	1	401.28	0.9999	401.235
92217	1	402.70	0.9999	402.660
92194	1	401.40	0.9999	401.360
92211	1	397.05	0.9999	397.010
92207	1	398.53	0.9999	398.485
92213	1	413.13	0.9999	413.084
92221	1	414.80	0.9999	414.759
92208	1	397.38	0.9999	397.335
92204	1	407.08	0.9999	407.034
92193	1	411.53	0.9999	411.484
92198	1	411.38	0.9999	411.334
45649	1	379.18	0.9999	379.137
90326	1	403.85	0.9999	403.810
90320	1	403.15	0.9999	403.110
90315	1	404.78	0.9999	404.735
90318	1	408.00	0.9999	407.959
90329	1	409.10	0.9999	409.059
90292	1			

		404.08	0.9999	404.035
45662	1	386.50	0.9999	386.461
45669	1	375.35	0.9999	375.312
45647	1	387.08	0.9999	387.036
45653	1	398.68	0.9999	398.635
45648	1	370.65	0.9999	370.613
45651	1	385.25	0.9999	385.211
45670	1	381.73	0.9999	381.687
45665	1	377.55	0.9999	377.512
45668	1	381.48	0.9999	381.437
90346	1	406.40	0.9999	406.359
90310	1	399.83	0.9999	399.785
90363	1	403.23	0.9999	403.185
45720	1	385.45	0.9999	385.411
45723	1	368.65	0.9999	368.613
45724	1	380.40	0.9999	380.362
45725	1	380.35	0.9999	380.312
45652	1	379.58	0.9999	379.537
45674	1	378.33	0.9999	378.287
92995	1	422.78	0.9999	422.733
92985	1	422.93	0.9999	422.883
93022	1	392.28	0.9999	392.236
93018	1			

		412.20	0.9999	412.159
93026	1	416.38	0.9999	416.333
93025	1	406.85	0.9999	406.809
93010	1	418.90	0.9999	418.858
93028	1	389.83	0.9999	389.786
45733	1	383.55	0.9999	383.512
93011	1	422.73	0.9999	422.683
93024	1	397.38	0.9999	397.335
93027	1	405.70	0.9999	405.659
93019	1	401.98	0.9999	401.935
93005	1	415.50	0.9999	415.458
93023	1	407.88	0.9999	407.834
92968	1	400.35	0.9999	400.310
92954	1	386.95	0.9999	386.911
92960	1	405.33	0.9999	405.284
92956	1	403.35	0.9999	403.310
92989	1	400.78	0.9999	400.735
93034	1	383.93	0.9999	383.887
92986	1	414.93	0.9999	414.884
92967	1	401.18	0.9999	401.135
92987	1	413.13	0.9999	413.084
92970	1	415.00	0.9999	414.959
92991	1			

		424.70	0.9999	424.658
92961	1	395.58	0.9999	395.535
92988	1	395.75	0.9999	395.710
92990	1	412.40	0.9999	412.359
92965	1	412.08	0.9999	412.034
92982	1	424.58	0.9999	424.533
92983	1	384.85	0.9999	384.812
92964	1	394.15	0.9999	394.111
93004	1	411.83	0.9999	411.784
93000	1	409.58	0.9999	409.534
93001	1	402.23	0.9999	402.185
92209	1	416.65	0.9999	416.608
92971	1	385.63	0.9999	385.586
92969	1	392.70	0.9999	392.661
93035	1	388.65	0.9999	388.611
93042	1	395.38	0.9999	395.335
93046	1	407.40	0.9999	407.359
93029	1	390.80	0.9999	390.761
93032	1	385.50	0.9999	385.461
93045	1	406.70	0.9999	406.659
93031	1	401.45	0.9999	401.410
93033	1	429.40	0.9999	429.357
93036	1			

		382.75	0.9999	382.712
93037	1	410.15	0.9999	410.109
93047	1	376.20	0.9999	376.162
92855	1	411.63	0.9999	411.584
92857	1	414.13	0.9999	414.084
92859	1	413.85	0.9999	413.809
92824	1	388.03	0.9999	387.986
92222	1	406.08	0.9999	406.034
92958	1	399.70	0.9999	399.660
92952	1	406.53	0.9999	406.484
92950	1	399.25	0.9999	399.210
92962	1	422.45	0.9999	422.408
92998	1	403.73	0.9999	403.685
92978	1	411.85	0.9999	411.809
92947	1	395.05	0.9999	395.010
92980	1	391.78	0.9999	391.736
93003	1	402.13	0.9999	402.085
93007	1	407.50	0.9999	407.459
93002	1	392.00	0.9999	391.961
92984	1	390.70	0.9999	390.661
92981	1	424.85	0.9999	424.808
92973	1	395.65	0.9999	395.610
92979	1			

		427.15	0.9999	427.107
92949	1	401.58	0.9999	401.535
92999	1	421.90	0.9999	421.858
92963	1	399.85	0.9999	399.810
92946	1	418.43	0.9999	418.383
92953	1	390.48	0.9999	390.436
92959	1	415.15	0.9999	415.108
93013	1	401.85	0.9999	401.810
93006	1	422.85	0.9999	422.808
93009	1	409.40	0.9999	409.359
93012	1	395.05	0.9999	395.010
93008	1	386.18	0.9999	386.136
92975	1	403.40	0.9999	403.360
93015	1	425.80	0.9999	425.757
92992	1	399.05	0.9999	399.010
92957	1	390.85	0.9999	390.811
93017	1	391.43	0.9999	391.386
93016	1	399.40	0.9999	399.360
93014	1	420.18	0.9999	420.133
92951	1	378.25	0.9999	378.212
92977	1	403.70	0.9999	403.660
92997	1	386.08	0.9999	386.036
92974	1			

		420.95	0.9999	420.908
92972	1	399.90	0.9999	399.860
93021	1	409.48	0.9999	409.434
93020	1	389.70	0.9999	389.661
92976	1	419.13	0.9999	419.083
92996	1	397.45	0.9999	397.410
92219	1	422.40	0.9999	422.358
92994	1	415.28	0.9999	415.233
92955	1	403.13	0.9999	403.085
46340	1	385.00	0.9999	384.962
46362	1	386.88	0.9999	386.836
46354	1	387.90	0.9999	387.861
46377	1	387.68	0.9999	387.636
92830	1	386.90	0.9999	386.861
46382	1	378.75	0.9999	378.712
46385	1	385.35	0.9999	385.311
46375	1	414.48	0.9999	414.434
46360	1	413.55	0.9999	413.509
92206	1	416.55	0.9999	416.508
93044	1	400.63	0.9999	400.585
93040	1	375.15	0.9999	375.112
93030	1	421.75	0.9999	421.708
93038	1			

		408.25	0.9999	408.209
93039	1	393.48	0.9999	393.436
92828	1	418.25	0.9999	418.208
92826	1	385.10	0.9999	385.061
92863	1	401.25	0.9999	401.210
92842	1	401.85	0.9999	401.810
92845	1	429.55	0.9999	429.507
92847	1	394.40	0.9999	394.361
92849	1	384.08	0.9999	384.037
92831	1	411.25	0.9999	411.209
92829	1	399.20	0.9999	399.160
92827	1	403.05	0.9999	403.010
92825	1	385.48	0.9999	385.436
92862	1	402.03	0.9999	401.985
92843	1	399.03	0.9999	398.985
92846	1	380.25	0.9999	380.212
92848	1	410.83	0.9999	410.784
92850	1	381.25	0.9999	381.212
92858	1	401.00	0.9999	400.960
92856	1	399.73	0.9999	399.685
92854	1	418.73	0.9999	418.683
92852	1	412.33	0.9999	412.284
92836	1			

		408.85	0.9999	408.809
92833	1	388.38	0.9999	388.336
92860	1	409.75	0.9999	409.709
92861	1	409.33	0.9999	409.284
92841	1	395.03	0.9999	394.985
92839	1	390.73	0.9999	390.686
92837	1	406.70	0.9999	406.659
92838	1	382.23	0.9999	382.187
92840	1	389.18	0.9999	389.136
92844	1	418.43	0.9999	418.383
92823	1	397.28	0.9999	397.235
92832	1	422.50	0.9999	422.458
92835	1	399.95	0.9999	399.910
92851	1	412.48	0.9999	412.434
92853	1	408.08	0.9999	408.034
86008	1	399.95	0.9999	399.910
86014	1	419.20	0.9999	419.158
85919	1	399.00	0.9999	398.960
85255	1	393.73	0.9999	393.686
85284	1	396.75	0.9999	396.710
86017	1	418.93	0.9999	418.883
85261	1	403.65	0.9999	403.610
85920	1			

		409.20	0.9999	409.159
85918	1	401.53	0.9999	401.485
85938	1	405.98	0.9999	405.934
85952	1	399.88	0.9999	399.835
86009	1	390.50	0.9999	390.461
85925	1	400.83	0.9999	400.785
86025	1	397.53	0.9999	397.485
85234	1	406.78	0.9999	406.734
85259	1	401.48	0.9999	401.435
85981	1	404.78	0.9999	404.735
85233	1	425.85	0.9999	425.807
85282	1	402.93	0.9999	402.885
85257	1	399.83	0.9999	399.785
85290	1	404.68	0.9999	404.635
85229	1	401.18	0.9999	401.135
85285	1	398.18	0.9999	398.135
85287	1	412.10	0.9999	412.059
85258	1	399.70	0.9999	399.660
44480	1	410.48	0.9999	410.434
44487	1	387.65	0.9999	387.611
44484	1	400.60	0.9999	400.560
44866	1	410.13	0.9999	410.084
85260	1			

		389.28	0.9999	389.236
85266	1	410.75	0.9999	410.709
85235	1	399.35	0.9999	399.310
85236	1	389.88	0.9999	389.836
89715	1	414.05	0.9999	414.009
895	1	400.85	0.9999	400.810
894	1	401.28	0.9999	401.235
893	1	401.53	0.9999	401.485
892	1	402.13	0.9999	402.085
891	1	402.20	0.9999	402.160
890	1	402.25	0.9999	402.210
46376	1	379.85	0.9999	379.812
46365	1	421.25	0.9999	421.208
46339	1	425.70	0.9999	425.657
46373	1	382.90	0.9999	382.862
46364	1	382.98	0.9999	382.937
46350	1	384.58	0.9999	384.537
46363	1	387.80	0.9999	387.761
46368	1	384.23	0.9999	384.187
46378	1	381.18	0.9999	381.137
46352	1	426.80	0.9999	426.757
85610	1	407.90	0.9999	407.859
85645	1			

		412.53	0.9999	412.484
85605	1	429.43	0.9999	429.382
85972	1	420.53	0.9999	420.483
85590	1	372.80	0.9999	372.763
85614	1	406.73	0.9999	406.684
85589	1	390.80	0.9999	390.761
85601	1	407.35	0.9999	407.309
86005	1	398.83	0.9999	398.785
86004	1	409.25	0.9999	409.209
86002	1	429.25	0.9999	429.207
86001	1	415.35	0.9999	415.308
86000	1	399.23	0.9999	399.185
86007	1	416.33	0.9999	416.283
44499	1	396.60	0.9999	396.560
86011	1	399.05	0.9999	399.010
86029	1	402.50	0.9999	402.460
86013	1	398.70	0.9999	398.660
85588	1	401.98	0.9999	401.935
85989	1	390.48	0.9999	390.436
44490	1	386.48	0.9999	386.436
85594	1	410.70	0.9999	410.659
85591	1	402.65	0.9999	402.610
86020	1			

		378.70	0.9999	378.662
85935	1	399.83	0.9999	399.785
86027	1	403.08	0.9999	403.035
85953	1	391.90	0.9999	391.861
85923	1	393.95	0.9999	393.911
85992	1	397.38	0.9999	397.335
85232	1	408.10	0.9999	408.059
85595	1	401.38	0.9999	401.335
85982	1	412.33	0.9999	412.284
85597	1	400.25	0.9999	400.210
85617	1	413.45	0.9999	413.409
85937	1	398.40	0.9999	398.360
86026	1	400.80	0.9999	400.760
85936	1	392.70	0.9999	392.661
86019	1	404.83	0.9999	404.785
86015	1	385.70	0.9999	385.661
85924	1	397.48	0.9999	397.435
86012	1	394.93	0.9999	394.886
85922	1	394.88	0.9999	394.836
86022	1	415.88	0.9999	415.833
86030	1	419.85	0.9999	419.808
86024	1	397.18	0.9999	397.135
85227	1			

		402.93	0.9999	402.885
44853	1	388.75	0.9999	388.711
85921	1	406.40	0.9999	406.359
86021	1	398.48	0.9999	398.435
86010	1	408.33	0.9999	408.284
90325	1	392.33	0.9999	392.286
90382	1	390.30	0.9999	390.261
90369	1	390.98	0.9999	390.936
90384	1	414.03	0.9999	413.984
90314	1	417.88	0.9999	417.833
85990	1	396.48	0.9999	396.435
48446	1	391.65	0.9999	391.611
85262	1	391.43	0.9999	391.386
85998	1	406.33	0.9999	406.284
85276	1	398.75	0.9999	398.710
85231	1	400.55	0.9999	400.510
85279	1	399.35	0.9999	399.310
85265	1	395.30	0.9999	395.260
86003	1	415.35	0.9999	415.308
48445	1	415.65	0.9999	415.608
44870	1	415.95	0.9999	415.908
44497	1	382.58	0.9999	382.537
44489	1			

		402.13	0.9999	402.085
44485	1	398.63	0.9999	398.585
44496	1	403.93	0.9999	403.885
44500	1	397.15	0.9999	397.110
44494	1	390.55	0.9999	390.511
44854	1	401.28	0.9999	401.235
44486	1	391.30	0.9999	391.261
44855	1	398.30	0.9999	398.260
44865	1	393.80	0.9999	393.761
44869	1	411.48	0.9999	411.434
44488	1	405.25	0.9999	405.209
44501	1	394.45	0.9999	394.411
44495	1	410.05	0.9999	410.009
44493	1	402.25	0.9999	402.210
48444	1	400.08	0.9999	400.035
44481	1	408.38	0.9999	408.334
44492	1	409.03	0.9999	408.984
44491	1	401.18	0.9999	401.135
44868	1	386.93	0.9999	386.886
85995	1	418.30	0.9999	418.258
85984	1	416.43	0.9999	416.383
85985	1	397.08	0.9999	397.035
85986	1			

		401.03	0.9999	400.985
85987	1	406.13	0.9999	406.084
85988	1	410.45	0.9999	410.409
85983	1	406.03	0.9999	405.984
85979	1	401.33	0.9999	401.285
85978	1	414.30	0.9999	414.259
85980	1	415.43	0.9999	415.383
85592	1	382.48	0.9999	382.437
85970	1	428.55	0.9999	428.507
85587	1	395.05	0.9999	395.010
85586	1	405.20	0.9999	405.159
88294	1	375.15	0.9999	375.112
45187	1	384.35	0.9999	384.312
45181	1	412.78	0.9999	412.734
45195	1	379.55	0.9999	379.512
90146	1	395.05	0.9999	395.010
90366	1	396.15	0.9999	396.110
90147	1	411.68	0.9999	411.638
90139	1	407.60	0.9999	407.559
90140	1	426.75	0.9999	426.707
90145	1	394.50	0.9999	394.460
90144	1	416.60	0.9999	416.558
90142	1			

		428.95	0.9999	428.907
90143	1	409.98	0.9999	409.939
90141	1	425.58	0.9999	425.537
90322	1	388.55	0.9999	388.511
90373	1	420.98	0.9999	420.933
90377	1	386.55	0.9999	386.511
90317	1	397.65	0.9999	397.610
90376	1	399.70	0.9999	399.660
90293	1	389.30	0.9999	389.261
90332	1	386.55	0.9999	386.511
90381	1	414.83	0.9999	414.784
90299	1	392.60	0.9999	392.561
90327	1	421.35	0.9999	421.308
90319	1	422.93	0.9999	422.883
90379	1	382.58	0.9999	382.537
90383	1	387.95	0.9999	387.911
90290	1	397.80	0.9999	397.760
90323	1	398.18	0.9999	398.135
90349	1	394.38	0.9999	394.336
90298	1	415.75	0.9999	415.708
90350	1	415.83	0.9999	415.783
90307	1	413.83	0.9999	413.784
90361	1			

		399.35	0.9999	399.310
90358	1	412.00	0.9999	411.959
90355	1	412.45	0.9999	412.409
90309	1	392.78	0.9999	392.736
90380	1	393.43	0.9999	393.386
90378	1	379.80	0.9999	379.762
90330	1	398.10	0.9999	398.060
90313	1	386.53	0.9999	386.486
90345	1	385.73	0.9999	385.686
90364	1	411.65	0.9999	411.609
90297	1	412.55	0.9999	412.509
90370	1	392.05	0.9999	392.011
90312	1	391.13	0.9999	391.086
90371	1	386.65	0.9999	386.611
90353	1	384.40	0.9999	384.362
90365	1	418.43	0.9999	418.383
90324	1	392.15	0.9999	392.111
39004	1	401.65	0.9999	401.610
39005	1	400.35	0.9999	400.310
39010	1	412.83	0.9999	412.784
39020	1	403.15	0.9999	403.110
40288	1	390.78	0.9999	390.736
39018	1			

		413.45	0.9999	413.409
39017	1	402.43	0.9999	402.385
39016	1	407.03	0.9999	406.984
39014	1	391.33	0.9999	391.286
40289	1	388.58	0.9999	388.536
40290	1	396.85	0.9999	396.810
40291	1	407.00	0.9999	406.959
44479	1	400.23	0.9999	400.185
44453	1	402.30	0.9999	402.260
44471	1	399.43	0.9999	399.385
44454	1	397.60	0.9999	397.560
39019	1	420.33	0.9999	420.283
39013	1	416.73	0.9999	416.683
48041	1	396.38	0.9999	396.335
44452	1	397.03	0.9999	396.985
44478	1	406.75	0.9999	406.709
44468	1	391.53	0.9999	391.486
44465	1	400.90	0.9999	400.860
44466	1	397.50	0.9999	397.460
44472	1	407.48	0.9999	407.434
44473	1	419.55	0.9999	419.508
44477	1	405.58	0.9999	405.534
44483	1			

		414.05	0.9999	414.009
44860	1	382.58	0.9999	382.537
40292	1	398.30	0.9999	398.260
44475	1	381.58	0.9999	381.537
44464	1	409.15	0.9999	409.109
44467	1	408.40	0.9999	408.359
44482	1	382.85	0.9999	382.812
44455	1	373.10	0.9999	373.063
44476	1	410.25	0.9999	410.209
44463	1	416.83	0.9999	416.783
44474	1	400.85	0.9999	400.810
45188	1	375.80	0.9999	375.762
45192	1	393.10	0.9999	393.061
45193	1	386.00	0.9999	385.961
45185	1	409.78	0.9999	409.734
45194	1	413.63	0.9999	413.584
45179	1	382.20	0.9999	382.162
45186	1	374.38	0.9999	374.338
45180	1	381.70	0.9999	381.662
45189	1	386.18	0.9999	386.136
45182	1	389.63	0.9999	389.586
45183	1	401.80	0.9999	401.760
45190	1			

		371.70	0.9999	371.663
16520	1	409.38	0.9999	409.334
16476	1	386.00	0.9999	385.961
16437	1	403.30	0.9999	403.260
16438	1	411.10	0.9999	411.059
16526	1	410.15	0.9999	410.109
16519	1	385.95	0.9999	385.911
16518	1	404.63	0.9999	404.585
16435	1	412.15	0.9999	412.109
16458	1	410.48	0.9999	410.434
42534	1	393.23	0.9999	393.185
42535	1	406.25	0.9999	406.209
42532	1	387.30	0.9999	387.261
42537	1	384.83	0.9999	384.786
42539	1	394.30	0.9999	394.260
42536	1	402.93	0.9999	402.884
42538	1	404.98	0.9999	404.934
42541	1	389.55	0.9999	389.511
42540	1	384.10	0.9999	384.061
16456	1	388.03	0.9999	387.986
16517	1	409.58	0.9999	409.534
16457	1	414.93	0.9999	414.884
16487	1			

		406.63	0.9999	406.584
16484	1	393.55	0.9999	393.511
16482	1	406.75	0.9999	406.709
16481	1	409.63	0.9999	409.584
16485	1	403.40	0.9999	403.360
16477	1	406.10	0.9999	406.059
16507	1	391.08	0.9999	391.036
16508	1	409.85	0.9999	409.809
16503	1	394.58	0.9999	394.536
16523	1	393.53	0.9999	393.486
16502	1	407.33	0.9999	407.284
16478	1	408.10	0.9999	408.059
16495	1	391.48	0.9999	391.436
16488	1	384.08	0.9999	384.037
16496	1	404.33	0.9999	404.285
16492	1	394.58	0.9999	394.536
16499	1	380.45	0.9999	380.412
16491	1	408.88	0.9999	408.834
16500	1	402.05	0.9999	402.010
16497	1	408.95	0.9999	408.909
16501	1	406.30	0.9999	406.259
39001	1	401.93	0.9999	401.885
39003	1			

		426.95	0.9999	426.907
39002	1	395.63	0.9999	395.585
39007	1	400.45	0.9999	400.410
39006	1	408.63	0.9999	408.584
39008	1	398.35	0.9999	398.310
39009	1	406.03	0.9999	405.984
39011	1	391.85	0.9999	391.811
44032	1	382.55	0.9999	382.512
43860	1	394.10	0.9999	394.061
84202	1	405.50	0.9999	405.459
89508	1	400.93	0.9999	400.885
89509	1	427.58	0.9999	427.532
89510	1	418.80	0.9999	418.758
89519	1	429.43	0.9999	429.382
89720	1	421.95	0.9999	421.908
89523	1	420.33	0.9999	420.283
89699	1	427.55	0.9999	427.507
89507	1	387.58	0.9999	387.536
89506	1	414.20	0.9999	414.159
89711	1	424.60	0.9999	424.558
89518	1	422.78	0.9999	422.733
89659	1	414.85	0.9999	414.809
89697	1			

		416.70	0.9999	416.658
89515	1	421.03	0.9999	420.983
89714	1	421.83	0.9999	421.783
89690	1	426.50	0.9999	426.457
89676	1	421.78	0.9999	421.733
89503	1	394.00	0.9999	393.961
89689	1	416.33	0.9999	416.283
89499	1	384.83	0.9999	384.787
89516	1	417.93	0.9999	417.883
89672	1	417.58	0.9999	417.533
89501	1	413.40	0.9999	413.359
89502	1	411.73	0.9999	411.684
89719	1	419.90	0.9999	419.858
89722	1	416.80	0.9999	416.758
89505	1	382.95	0.9999	382.912
88212	1	406.80	0.9999	406.759
89685	1	415.35	0.9999	415.308
89723	1	422.78	0.9999	422.733
44718	1	388.68	0.9999	388.636
44726	1	386.13	0.9999	386.086
44723	1	395.23	0.9999	395.185
44736	1	395.28	0.9999	395.235
44737	1			

		389.20	0.9999	389.161
44722	1	387.68	0.9999	387.636
44729	1	394.20	0.9999	394.161
44721	1	405.20	0.9999	405.159
44727	1	383.05	0.9999	383.012
44732	1	396.68	0.9999	396.635
44741	1	403.85	0.9999	403.810
88296	1	392.65	0.9999	392.610
87288	1	399.28	0.9999	399.235
16455	1	407.83	0.9999	407.784
16467	1	403.88	0.9999	403.835
16474	1	406.95	0.9999	406.909
16433	1	408.65	0.9999	408.609
84310	1	398.45	0.9999	398.410
84309	1	398.15	0.9999	398.110
84333	1	407.85	0.9999	407.809
84346	1	408.15	0.9999	408.109
84331	1	404.95	0.9999	404.910
84320	1	390.23	0.9999	390.186
84321	1	404.23	0.9999	404.185
84318	1	400.55	0.9999	400.510
84317	1	385.03	0.9999	384.986
84316	1			

		420.90	0.9999	420.858
84332	1	410.88	0.9999	410.834
84348	1	412.13	0.9999	412.084
84629	1	418.43	0.9999	418.383
84204	1	418.60	0.9999	418.558
84357	1	416.25	0.9999	416.208
84206	1	423.33	0.9999	423.282
84319	1	394.63	0.9999	394.586
89693	1	417.40	0.9999	417.358
84322	1	392.15	0.9999	392.111
84325	1	398.38	0.9999	398.335
84323	1	395.80	0.9999	395.760
84324	1	412.25	0.9999	412.209
84326	1	389.33	0.9999	389.286
84327	1	388.75	0.9999	388.711
84328	1	391.73	0.9999	391.686
84329	1	384.18	0.9999	384.137
84330	1	395.53	0.9999	395.485
84301	1	401.95	0.9999	401.910
84874	1	420.38	0.9999	420.333
84876	1	410.48	0.9999	410.434
89504	1	407.45	0.9999	407.409
84201	1			

		407.15	0.9999	407.109
84200	1	423.33	0.9999	423.282
42330	1	408.23	0.9999	408.184
42365	1	407.83	0.9999	407.784
42362	1	410.03	0.9999	409.984
42361	1	416.83	0.9999	416.783
42360	1	414.40	0.9999	414.359
42359	1	418.15	0.9999	418.108
42358	1	408.05	0.9999	408.009
42351	1	407.33	0.9999	407.284
42332	1	409.13	0.9999	409.084
42349	1	405.23	0.9999	405.184
42348	1	407.98	0.9999	407.934
42341	1	407.30	0.9999	407.259
42340	1	406.73	0.9999	406.684
42338	1	404.78	0.9999	404.735
42337	1	406.33	0.9999	406.284
42335	1	404.80	0.9999	404.760
44020	1	372.18	0.9999	372.138
44720	1	391.50	0.9999	391.461
89496	1	403.70	0.9999	403.660
89495	1	390.60	0.9999	390.561
89487	1			

		393.73	0.9999	393.686
89494	1	413.78	0.9999	413.734
89497	1	403.73	0.9999	403.685
89483	1	423.78	0.9999	423.733
89492	1	392.10	0.9999	392.061
89490	1	408.45	0.9999	408.409
89484	1	387.60	0.9999	387.561
89488	1	397.75	0.9999	397.710
89493	1	414.10	0.9999	414.059
89486	1	421.48	0.9999	421.433
89485	1	406.08	0.9999	406.034
89498	1	393.23	0.9999	393.186
89491	1	412.08	0.9999	412.034
89489	1	408.18	0.9999	408.134
44725	1	382.15	0.9999	382.112
44744	1	400.45	0.9999	400.410
44742	1	398.23	0.9999	398.185
44745	1	392.65	0.9999	392.611
44743	1	389.63	0.9999	389.586
44717	1	395.33	0.9999	395.285
44738	1	395.13	0.9999	395.085
44716	1	399.23	0.9999	399.185
44456	1			

		399.38	0.9999	399.335
16480	1	389.55	0.9999	389.511
39015	1	397.20	0.9999	397.160
44734	1	414.20	0.9999	414.159
44731	1	389.30	0.9999	389.261
44735	1	402.50	0.9999	402.460
44730	1	404.68	0.9999	404.635
44728	1	389.28	0.9999	389.236
44719	1	392.85	0.9999	392.811
130715	1	396.65	0.9999	396.610
130712	1	403.00	0.9999	402.959
130717	1	399.67	0.9999	399.630
130718	1	398.42	0.9999	398.380
130713	1	399.18	0.9999	399.140
130714	1	402.92	0.9999	402.879
84314	1	405.30	0.9999	405.259
84315	1	420.70	0.9999	420.658
84347	1	406.63	0.9999	406.584
84356	1	420.83	0.9999	420.783
84355	1	409.55	0.9999	409.509
84352	1	405.20	0.9999	405.159
88675	1	394.85	0.9999	394.811
84313	1			

		412.60	0.9999	412.559
84312	1	403.18	0.9999	403.135
84311	1	395.90	0.9999	395.860
88672	1	382.48	0.9999	382.437
88679	1	387.98	0.9999	387.936
88673	1	389.80	0.9999	389.761
88671	1	384.83	0.9999	384.787
88667	1	398.93	0.9999	398.885
88665	1	386.93	0.9999	386.886
88678	1	392.68	0.9999	392.636
88676	1	378.00	0.9999	377.962
88680	1	375.08	0.9999	375.037
88677	1	372.78	0.9999	372.738
88666	1	385.03	0.9999	384.986
88692	1	381.83	0.9999	381.787
88669	1	378.73	0.9999	378.687
88701	1	388.35	0.9999	388.311
88695	1	412.75	0.9999	412.709
88694	1	409.45	0.9999	409.409
88697	1	404.98	0.9999	404.935
88698	1	410.98	0.9999	410.934
88217	1	385.35	0.9999	385.311
88691	1			

		397.88	0.9999	397.835
88693	1	398.83	0.9999	398.785
88230	1	407.68	0.9999	407.634
88670	1	398.70	0.9999	398.660
88668	1	375.70	0.9999	375.662
88682	1	404.98	0.9999	404.935
88690	1	395.88	0.9999	395.835
88235	1	401.78	0.9999	401.735
88696	1	389.40	0.9999	389.361
88216	1	403.68	0.9999	403.635
88242	1	404.15	0.9999	404.110
88236	1	387.70	0.9999	387.661
88674	1	402.98	0.9999	402.935
88228	1	419.40	0.9999	419.358
44539	1	417.70	0.9999	417.658
87658	1	399.20	0.9999	399.160
87653	1	400.45	0.9999	400.410
88291	1	410.25	0.9999	410.209
88208	1	409.53	0.9999	409.484
88213	1	375.78	0.9999	375.737
88897	1	391.53	0.9999	391.490
88898	1	411.95	0.9999	411.908
88902	1			

		422.70	0.9999	422.657
88901	1	397.25	0.9999	397.210
88895	1	401.70	0.9999	401.659
88899	1	420.30	0.9999	420.257
88896	1	400.18	0.9999	400.139
88900	1	380.28	0.9999	380.241
88221	1	403.05	0.9999	403.010
88209	1	400.65	0.9999	400.610
44733	1	380.68	0.9999	380.637
570	1	385.60	0.9999	385.561
576	1	401.53	0.9999	401.485
571	1	412.38	0.9999	412.334
568	1	367.10	0.9999	367.063
639	1	406.13	0.9999	406.084
641	1	388.80	0.9999	388.761
640	1	381.78	0.9999	381.737
637	1	409.65	0.9999	409.609
567	1	376.43	0.9999	376.387
572	1	405.38	0.9999	405.334
575	1	411.20	0.9999	411.159
569	1	375.85	0.9999	375.812
579	1	389.70	0.9999	389.661
574	1			

		390.90	0.9999	390.861
583	1	375.10	0.9999	375.062
581	1	395.10	0.9999	395.060
577	1	402.25	0.9999	402.210
5145	1	426.95	0.9999	426.907
3130	1	412.70	0.9999	412.659
3120	1	389.55	0.9999	389.511
88000	1	386.33	0.9999	386.286
592	1	412.18	0.9999	412.134
591	1	395.20	0.9999	395.160
593	1	409.03	0.9999	408.984
594	1	391.70	0.9999	391.661
600	1	410.80	0.9999	410.759
599	1	381.00	0.9999	380.962
601	1	407.30	0.9999	407.259
602	1	400.35	0.9999	400.310
606	1	401.20	0.9999	401.160
607	1	406.15	0.9999	406.109
625	1	389.35	0.9999	389.311
587	1	393.85	0.9999	393.811
586	1	405.78	0.9999	405.734
588	1	400.80	0.9999	400.760
596	1			

		398.63	0.9999	398.585
595	1	380.05	0.9999	380.012
590	1	380.93	0.9999	380.887
598	1	398.73	0.9999	398.685
608	1	397.88	0.9999	397.835
605	1	393.83	0.9999	393.786
585	1	405.60	0.9999	405.559
603	1	411.03	0.9999	410.984
616	1	403.40	0.9999	403.360
615	1	389.18	0.9999	389.136
612	1	402.70	0.9999	402.660
613	1	397.15	0.9999	397.110
611	1	398.73	0.9999	398.685
604	1	415.65	0.9999	415.608
614	1	394.68	0.9999	394.636
538	1	375.08	0.9999	375.037
515	1	390.73	0.9999	390.686
88215	1	392.13	0.9999	392.086
88226	1	397.80	0.9999	397.760
89261	1	409.88	0.9999	409.834
88225	1	395.03	0.9999	394.985
88233	1	392.10	0.9999	392.061
88244	1			

		386.40	0.9999	386.361
88293	1	388.63	0.9999	388.586
88292	1	396.03	0.9999	395.985
88237	1	394.30	0.9999	394.261
88218	1	390.23	0.9999	390.186
88243	1	395.18	0.9999	395.135
88210	1	392.10	0.9999	392.061
88234	1	392.48	0.9999	392.436
88232	1	399.53	0.9999	399.485
88231	1	388.70	0.9999	388.661
537	1	409.28	0.9999	409.234
519	1	381.25	0.9999	381.212
520	1	409.88	0.9999	409.834
510	1	412.35	0.9999	412.309
626	1	398.83	0.9999	398.785
622	1	418.23	0.9999	418.183
621	1	418.85	0.9999	418.808
617	1	394.95	0.9999	394.911
610	1	397.55	0.9999	397.510
623	1	402.55	0.9999	402.510
618	1	393.13	0.9999	393.086
624	1	412.15	0.9999	412.109
609	1			

		391.95	0.9999	391.911
620	1	400.45	0.9999	400.410
638	1	378.75	0.9999	378.712
619	1	390.55	0.9999	390.511
635	1	396.70	0.9999	396.660
627	1	418.35	0.9999	418.308
633	1	383.75	0.9999	383.712
631	1	390.53	0.9999	390.486
630	1	396.28	0.9999	396.235
642	1	392.43	0.9999	392.386
636	1	379.78	0.9999	379.737
628	1	393.85	0.9999	393.811
634	1	391.68	0.9999	391.636
632	1	400.48	0.9999	400.435
629	1	372.20	0.9999	372.163
643	1	402.63	0.9999	402.585
582	1	393.38	0.9999	393.336
578	1	389.45	0.9999	389.411
584	1	382.23	0.9999	382.187
573	1	396.40	0.9999	396.360
580	1	407.95	0.9999	407.909
1238	1	404.53	0.9999	404.485
1242	1			

		405.03	0.9999	404.984
1181	1	409.08	0.9999	409.034
1182	1	409.35	0.9999	409.309
1179	1	410.90	0.9999	410.859
1175	1	414.25	0.9999	414.209
505	1	397.20	0.9999	397.160
545	1	395.38	0.9999	395.335
528	1	396.08	0.9999	396.035
513	1	419.98	0.9999	419.933
547	1	397.70	0.9999	397.660
552	1	404.53	0.9999	404.485
548	1	409.23	0.9999	409.184
534	1	418.15	0.9999	418.108
531	1	388.33	0.9999	388.286
544	1	413.73	0.9999	413.684
543	1	404.23	0.9999	404.185
506	1	391.00	0.9999	390.961
546	1	397.58	0.9999	397.535
527	1	388.38	0.9999	388.336
550	1	376.73	0.9999	376.687
551	1	396.30	0.9999	396.260
533	1	399.98	0.9999	399.935
521	1			

		385.50	0.9999	385.461
522	1	386.95	0.9999	386.911
523	1	399.83	0.9999	399.785
532	1	407.20	0.9999	407.159
514	1	413.93	0.9999	413.884
511	1	391.33	0.9999	391.286
536	1	402.78	0.9999	402.735
535	1	406.85	0.9999	406.809
512	1	380.73	0.9999	380.687
524	1	385.83	0.9999	385.786
525	1	410.98	0.9999	410.934
526	1	400.08	0.9999	400.035
549	1	389.55	0.9999	389.511
517	1	396.03	0.9999	395.985
541	1	367.20	0.9999	367.163
542	1	395.40	0.9999	395.360
509	1	385.53	0.9999	385.486
539	1	409.28	0.9999	409.234
540	1	374.40	0.9999	374.363
518	1	374.58	0.9999	374.538
516	1	407.65	0.9999	407.609
503	1	401.13	0.9999	401.085
504	1			

		392.93	0.9999	392.886
530	1	402.48	0.9999	402.435
529	1	412.63	0.9999	412.584
507	1	426.18	0.9999	426.132
508	1	397.78	0.9999	397.735
88941	1	416.68	0.9999	416.633
88945	1	422.68	0.9999	422.633
88917	1	418.63	0.9999	418.583
89289	1	410.43	0.9999	410.384
88925	1	395.60	0.9999	395.560
88912	1	398.13	0.9999	398.085
88944	1	395.48	0.9999	395.435
88926	1	405.95	0.9999	405.909
88928	1	404.63	0.9999	404.585
88929	1	403.58	0.9999	403.535
89256	1	406.90	0.9999	406.859
88927	1	404.65	0.9999	404.610
88922	1	402.05	0.9999	402.010
88948	1	395.15	0.9999	395.110
88940	1	416.33	0.9999	416.283
88920	1	404.68	0.9999	404.635
91181	1	420.73	0.9999	420.683
91218	1			

		428.83	0.9999	428.782
91222	1	418.55	0.9999	418.508
91232	1	421.90	0.9999	421.858
91198	1	427.35	0.9999	427.307
91226	1	428.75	0.9999	428.707
91175	1	425.35	0.9999	425.307
88924	1	416.50	0.9999	416.458
88916	1	415.65	0.9999	415.608
88936	1	417.35	0.9999	417.308
91191	1	417.45	0.9999	417.408
88921	1	428.85	0.9999	428.807
88919	1	406.25	0.9999	406.209
91194	1	410.15	0.9999	410.109
88913	1	400.68	0.9999	400.635
88935	1	406.85	0.9999	406.809
88933	1	410.18	0.9999	410.134
88947	1	402.23	0.9999	402.185
89257	1	412.65	0.9999	412.609
88937	1	404.18	0.9999	404.135
88943	1	406.23	0.9999	406.184
89267	1	410.10	0.9999	410.059
1239	1	404.28	0.9999	404.235
1231	1			

		390.18	0.9999	390.136
1217	1	404.10	0.9999	404.060
1214	1	402.73	0.9999	402.685
1234	1	402.33	0.9999	402.285
1209	1	399.63	0.9999	399.585
1237	1	403.53	0.9999	403.485
91204	1	414.43	0.9999	414.384
91209	1	413.63	0.9999	413.584
91213	1	413.03	0.9999	412.984
91253	1	415.25	0.9999	415.208
91215	1	412.08	0.9999	412.034
1232	1	400.00	0.9999	399.960
1233	1	399.83	0.9999	399.785
1252	1	399.95	0.9999	399.910
1256	1	399.90	0.9999	399.860
1250	1	399.88	0.9999	399.835
1228	1	399.83	0.9999	399.785
1259	1	399.98	0.9999	399.935
1251	1	399.95	0.9999	399.910
1241	1	400.00	0.9999	399.960
1247	1	400.00	0.9999	399.960
1261	1	399.88	0.9999	399.835
1273	1			

		400.73	0.9999	400.685
1237	1	399.95	0.9999	399.910
1235	1	400.00	0.9999	399.960
1238	1	399.88	0.9999	399.835
1242	1	399.95	0.9999	399.910
1243	1	400.00	0.9999	399.960
1240	1	399.90	0.9999	399.860
1239	1	399.98	0.9999	399.935
1236	1	399.98	0.9999	399.935
1244	1	399.98	0.9999	399.935
1246	1	399.98	0.9999	399.935
1245	1	399.93	0.9999	399.885
1249	1	399.95	0.9999	399.910
1260	1	399.98	0.9999	399.935
89277	1	419.68	0.9999	419.633
89258	1	414.90	0.9999	414.859
89276	1	410.95	0.9999	410.909
89274	1	417.68	0.9999	417.633
89254	1	415.28	0.9999	415.233
89271	1	410.85	0.9999	410.809
89283	1	420.75	0.9999	420.708
88931	1	389.18	0.9999	389.136
88910	1			

		391.38	0.9999	391.336
88938	1	423.20	0.9999	423.158
88939	1	386.90	0.9999	386.861
88934	1	408.60	0.9999	408.559
88918	1	410.73	0.9999	410.684
88911	1	404.93	0.9999	404.885
88923	1	388.25	0.9999	388.211
88914	1	398.55	0.9999	398.510
88942	1	421.33	0.9999	421.283
89278	1	416.38	0.9999	416.333
89286	1	417.25	0.9999	417.208
88915	1	418.20	0.9999	418.158
88946	1	406.33	0.9999	406.284
88949	1	411.20	0.9999	411.159
88930	1	421.53	0.9999	421.483
88932	1	419.48	0.9999	419.433
89669	1	400.60	0.9999	400.560
89517	1	405.85	0.9999	405.809
44809	1	406.43	0.9999	406.384
44810	1	412.50	0.9999	412.459
44814	1	404.70	0.9999	404.660
44820	1	409.05	0.9999	409.009
44808	1			

		417.83	0.9999	417.783
89712	1	399.90	0.9999	399.860
89692	1	401.08	0.9999	401.035
89686	1	403.85	0.9999	403.810
89698	1	393.58	0.9999	393.536
89713	1	411.28	0.9999	411.234
89710	1	411.10	0.9999	411.059
89678	1	410.85	0.9999	410.809
89721	1	411.95	0.9999	411.909
89681	1	410.60	0.9999	410.559
89707	1	411.50	0.9999	411.459
1221	1	399.93	0.9999	399.885
1219	1	399.95	0.9999	399.910
1223	1	399.88	0.9999	399.835
1220	1	399.88	0.9999	399.835
1218	1	399.98	0.9999	399.935
1217	1	399.98	0.9999	399.935
1222	1	399.90	0.9999	399.860
89521	1	406.95	0.9999	406.909
89664	1	408.35	0.9999	408.309
89687	1	389.90	0.9999	389.861
89675	1	408.65	0.9999	408.609
89691	1			

		409.90	0.9999	409.859
89674	1	389.20	0.9999	389.161
89520	1	409.98	0.9999	409.934
89718	1	410.28	0.9999	410.234
89694	1	409.20	0.9999	409.159
89522	1	406.55	0.9999	406.509
89704	1	406.53	0.9999	406.484
89684	1	386.38	0.9999	386.336
89679	1	407.78	0.9999	407.734
89667	1	409.73	0.9999	409.684
1226	1	399.90	0.9999	399.860
1255	1	399.88	0.9999	399.835
1257	1	399.85	0.9999	399.810
1258	1	399.83	0.9999	399.785
1253	1	399.90	0.9999	399.860
1225	1	399.90	0.9999	399.860
1227	1	399.88	0.9999	399.835
1229	1	399.85	0.9999	399.810
1230	1	399.88	0.9999	399.835
1231	1	399.75	0.9999	399.710
88747	1	386.68	0.9999	386.636
88660	1	394.50	0.9999	394.461
88661	1			

		410.50	0.9999	410.459
88639	1	409.08	0.9999	409.034
88715	1	385.63	0.9999	385.586
88650	1	398.28	0.9999	398.235
88652	1	399.93	0.9999	399.885
88641	1	405.83	0.9999	405.784
88662	1	393.05	0.9999	393.011
88758	1	387.13	0.9999	387.086
88657	1	387.58	0.9999	387.536
88750	1	381.00	0.9999	380.962
88640	1	389.58	0.9999	389.536
88742	1	385.28	0.9999	385.236
88723	1	386.45	0.9999	386.411
88651	1	418.30	0.9999	418.258
88642	1	406.50	0.9999	406.459
88649	1	399.75	0.9999	399.710
88663	1	409.13	0.9999	409.084
88653	1	393.40	0.9999	393.361
88664	1	397.23	0.9999	397.185
88645	1	398.03	0.9999	397.985
87628	1	422.23	0.9999	422.183
87659	1	378.28	0.9999	378.237
89708	1			

		412.88	0.9999	412.834
89701	1	405.15	0.9999	405.109
89695	1	392.73	0.9999	392.686
89668	1	402.03	0.9999	401.985
89680	1	390.08	0.9999	390.036
89661	1	391.43	0.9999	391.386
89702	1	397.03	0.9999	396.985
89703	1	392.80	0.9999	392.761
89660	1	414.55	0.9999	414.509
89706	1	399.95	0.9999	399.910
89673	1	404.80	0.9999	404.760
89683	1	401.73	0.9999	401.685
89716	1	396.48	0.9999	396.435
89513	1	402.28	0.9999	402.235
89665	1	412.88	0.9999	412.834
89709	1	412.70	0.9999	412.659
89666	1	402.83	0.9999	402.785
89662	1	412.63	0.9999	412.584
89670	1	390.90	0.9999	390.861
89705	1	397.50	0.9999	397.460
89512	1	397.20	0.9999	397.160
89700	1	380.58	0.9999	380.537
89514	1			

		401.03	0.9999	400.985
89511	1	390.50	0.9999	390.461
89677	1	393.40	0.9999	393.361
89696	1	398.68	0.9999	398.635
3456	1	412.65	0.9999	412.608
3450	1	398.35	0.9999	398.310
88656	1	401.93	0.9999	401.885
88659	1	380.55	0.9999	380.512
87673	1	391.05	0.9999	391.011
87674	1	391.30	0.9999	391.261
87632	1	411.50	0.9999	411.459
87610	1	392.30	0.9999	392.261
87625	1	396.18	0.9999	396.135
87611	1	404.30	0.9999	404.260
87620	1	396.43	0.9999	396.385
89251	1	407.88	0.9999	407.834
87629	1	392.48	0.9999	392.436
87627	1	400.33	0.9999	400.285
87656	1	388.63	0.9999	388.586
87660	1	384.88	0.9999	384.837
87682	1	370.75	0.9999	370.713
87664	1	390.58	0.9999	390.536
87667	1			

		383.95	0.9999	383.912
87652	1	393.10	0.9999	393.061
87662	1	379.43	0.9999	379.387
87670	1	390.13	0.9999	390.086
87618	1	415.40	0.9999	415.358
87655	1	407.80	0.9999	407.759
87679	1	426.13	0.9999	426.082
87681	1	382.80	0.9999	382.762
87685	1	384.85	0.9999	384.812
87661	1	412.90	0.9999	412.859
87669	1	411.48	0.9999	411.434
87615	1	384.95	0.9999	384.912
87677	1	386.13	0.9999	386.086
3452	1	399.73	0.9999	399.690
3458	1	404.40	0.9999	404.359
146	1	392.28	0.9999	392.240
148	1	394.18	0.9999	394.140
145	1	403.05	0.9999	403.009
147	1	398.28	0.9999	398.240
149	1	398.48	0.9999	398.440
87676	1	387.15	0.9999	387.111
87649	1	408.55	0.9999	408.509
87663	1			

		387.08	0.9999	387.036
87671	1	411.98	0.9999	411.934
88755	1	381.30	0.9999	381.262
88648	1	381.73	0.9999	381.687
88643	1	399.53	0.9999	399.485
88655	1	401.15	0.9999	401.110
88654	1	388.53	0.9999	388.486
88754	1	416.15	0.9999	416.108
88757	1	380.65	0.9999	380.612
88759	1	416.73	0.9999	416.683
48447	1	386.30	0.9999	386.261
43868	1	401.95	0.9999	401.910
85608	1	406.18	0.9999	406.134
85635	1	380.23	0.9999	380.187
85993	1	417.40	0.9999	417.358
85996	1	424.35	0.9999	424.308
85598	1	419.53	0.9999	419.483
85593	1	392.80	0.9999	392.761
85599	1	429.85	0.9999	429.807
86657	1	402.18	0.9999	402.135
87734	1	386.65	0.9999	386.611
87739	1	391.85	0.9999	391.810
87744	1			

		379.50	0.9999	379.462
87745	1	399.23	0.9999	399.190
87736	1	398.13	0.9999	398.090
87731	1	389.83	0.9999	389.791
87750	1	387.30	0.9999	387.261
87748	1	419.10	0.9999	419.058
87746	1	381.93	0.9999	381.891
87742	1	396.55	0.9999	396.510
87730	1	393.70	0.9999	393.660
87735	1	395.78	0.9999	395.740
87740	1	408.58	0.9999	408.539
87737	1	388.23	0.9999	388.191
87738	1	372.05	0.9999	372.012
87733	1	390.38	0.9999	390.340
87749	1	427.00	0.9999	426.957
87747	1	392.08	0.9999	392.040
87743	1	384.03	0.9999	383.991
87741	1	394.60	0.9999	394.560
87729	1	390.85	0.9999	390.810
3441	1	394.30	0.9999	394.260
3455	1	404.75	0.9999	404.709
3438	1	419.45	0.9999	419.408
3439	1			

		372.05	0.9999	372.012
3445	1	389.45	0.9999	389.411
3446	1	393.65	0.9999	393.610
3440	1	421.35	0.9999	421.307
3448	1	390.38	0.9999	390.340
3447	1	388.20	0.9999	388.161
3436	1	402.88	0.9999	402.839
3453	1	397.33	0.9999	397.290
3444	1	415.30	0.9999	415.258
3443	1	374.45	0.9999	374.412
3437	1	385.38	0.9999	385.341
3451	1	394.78	0.9999	394.740
3454	1	403.05	0.9999	403.009
3457	1	387.58	0.9999	387.541
3442	1	410.15	0.9999	410.108
3449	1	412.33	0.9999	412.288
86659	1	413.23	0.9999	413.184
86654	1	399.80	0.9999	399.760
86655	1	414.83	0.9999	414.784
43850	1	402.35	0.9999	402.310
86777	1	411.70	0.9999	411.659
86623	1	417.93	0.9999	417.883
86626	1			

		395.85	0.9999	395.810
86635	1	401.53	0.9999	401.485
86666	1	401.25	0.9999	401.210
86667	1	396.85	0.9999	396.810
86628	1	400.68	0.9999	400.635
86629	1	393.45	0.9999	393.411
86028	1	413.85	0.9999	413.809
86633	1	414.90	0.9999	414.859
86646	1	401.08	0.9999	401.035
86660	1	395.48	0.9999	395.435
86630	1	412.65	0.9999	412.609
86638	1	395.33	0.9999	395.285
86644	1	404.40	0.9999	404.360
86669	1	409.98	0.9999	409.934
86621	1	402.78	0.9999	402.735
86620	1	407.03	0.9999	406.984
86668	1	396.70	0.9999	396.660
86637	1	410.18	0.9999	410.134
86664	1	400.73	0.9999	400.685
86661	1	406.60	0.9999	406.559
86647	1	424.48	0.9999	424.433
86639	1	409.73	0.9999	409.684
86662	1			

		410.50	0.9999	410.459
86778	1	394.80	0.9999	394.761
86665	1	405.40	0.9999	405.359
86645	1	405.60	0.9999	405.559
86624	1	399.28	0.9999	399.235
86625	1	391.93	0.9999	391.886
86656	1	395.65	0.9999	395.610
86640	1	409.43	0.9999	409.384
43854	1	407.08	0.9999	407.034
43851	1	402.45	0.9999	402.410
43852	1	399.28	0.9999	399.235
43856	1	409.35	0.9999	409.309
43839	1	405.15	0.9999	405.109
43847	1	408.25	0.9999	408.209
43841	1	408.23	0.9999	408.184
43862	1	400.75	0.9999	400.710
43857	1	408.80	0.9999	408.759
43844	1	401.25	0.9999	401.210
43840	1	408.00	0.9999	407.959
43842	1	401.80	0.9999	401.760
43858	1	404.58	0.9999	404.535
43849	1	402.58	0.9999	402.535
86366	1			

		370.10	0.9999	370.062
43810	1	403.23	0.9999	403.185
43809	1	400.88	0.9999	400.835
43806	1	407.10	0.9999	407.059
43803	1	406.58	0.9999	406.534
43798	1	407.38	0.9999	407.334
86632	1	399.08	0.9999	399.035
43801	1	397.50	0.9999	397.460
43805	1	403.78	0.9999	403.735
43789	1	393.63	0.9999	393.586
43797	1	403.53	0.9999	403.485
43792	1	399.45	0.9999	399.410
43782	1	408.05	0.9999	408.009
43777	1	393.80	0.9999	393.761
43790	1	394.05	0.9999	394.011
43808	1	411.95	0.9999	411.909
43791	1	389.45	0.9999	389.411
43780	1	390.05	0.9999	390.011
43802	1	411.83	0.9999	411.784
43800	1	387.58	0.9999	387.536
43776	1	412.15	0.9999	412.109
43781	1	399.20	0.9999	399.160
43796	1			

		406.08	0.9999	406.034
43787	1	404.73	0.9999	404.685
43786	1	412.05	0.9999	412.009
43778	1	399.58	0.9999	399.535
43785	1	384.03	0.9999	383.987
43779	1	409.65	0.9999	409.609
43773	1	404.35	0.9999	404.310
43795	1	388.98	0.9999	388.936
43774	1	406.83	0.9999	406.784
43784	1	405.65	0.9999	405.609
43788	1	403.98	0.9999	403.935
43794	1	403.80	0.9999	403.760
43783	1	418.30	0.9999	418.258
43775	1	405.30	0.9999	405.259
43772	1	387.28	0.9999	387.236
86651	1	415.45	0.9999	415.408
86649	1	390.95	0.9999	390.911
86719	1	378.68	0.9999	378.637
86650	1	419.20	0.9999	419.158
86652	1	416.10	0.9999	416.058
86648	1	397.23	0.9999	397.185
86653	1	390.10	0.9999	390.061
86643	1			

		413.73	0.9999	413.684
86779	1	403.10	0.9999	403.060
86622	1	417.58	0.9999	417.533
86642	1	394.40	0.9999	394.361
86634	1	389.83	0.9999	389.786
86658	1	404.48	0.9999	404.435
87688	1	406.95	0.9999	406.909
87996	1	390.35	0.9999	390.311
87997	1	386.80	0.9999	386.761
88295	1	376.93	0.9999	376.887
88321	1	402.30	0.9999	402.260
88337	1	413.55	0.9999	413.509
88299	1	402.50	0.9999	402.460
88305	1	394.73	0.9999	394.686
88333	1	382.15	0.9999	382.112
88316	1	404.20	0.9999	404.160
88320	1	409.70	0.9999	409.659
88329	1	385.18	0.9999	385.136
88318	1	397.88	0.9999	397.835
88332	1	384.10	0.9999	384.062
88330	1	374.23	0.9999	374.188
88335	1	401.78	0.9999	401.735
87672	1			

		402.88	0.9999	402.835
88314	1	400.58	0.9999	400.535
88298	1	410.48	0.9999	410.434
88336	1	399.45	0.9999	399.410
88327	1	396.93	0.9999	396.885
88334	1	385.58	0.9999	385.536
88328	1	388.38	0.9999	388.336
88331	1	389.18	0.9999	389.136
86365	1	383.33	0.9999	383.291
86367	1	406.20	0.9999	406.159
88306	1	386.70	0.9999	386.661
88729	1	397.05	0.9999	397.010
88717	1	400.33	0.9999	400.285
88730	1	398.00	0.9999	397.960
88301	1	378.90	0.9999	378.862
88309	1	389.53	0.9999	389.486
88721	1	401.70	0.9999	401.660
88311	1	388.13	0.9999	388.086
88743	1	400.90	0.9999	400.860
88725	1	398.43	0.9999	398.385
88303	1	386.85	0.9999	386.811
88323	1	389.20	0.9999	389.161
88722	1			

		403.35	0.9999	403.310
88731	1	395.88	0.9999	395.835
88744	1	397.73	0.9999	397.685
88324	1	391.83	0.9999	391.786
88727	1	397.40	0.9999	397.360
88310	1	383.15	0.9999	383.112
88724	1	398.73	0.9999	398.685
43804	1	401.05	0.9999	401.010
88322	1	384.33	0.9999	384.287
86348	1	393.48	0.9999	393.440
86368	1	380.48	0.9999	380.441
86349	1	393.13	0.9999	393.090
410	1	404.35	0.9999	404.310
409	1	395.58	0.9999	395.535
398	1	407.93	0.9999	407.884
423	1	399.38	0.9999	399.335
424	1	401.33	0.9999	401.285
420	1	402.08	0.9999	402.035
419	1	403.85	0.9999	403.810
421	1	390.10	0.9999	390.061
422	1	404.58	0.9999	404.535
413	1	404.43	0.9999	404.385
414	1			

		406.33	0.9999	406.284
441	1	404.70	0.9999	404.660
442	1	408.43	0.9999	408.384
416	1	382.63	0.9999	382.587
415	1	368.38	0.9999	368.338
440	1	412.20	0.9999	412.159
439	1	404.15	0.9999	404.110
438	1	395.00	0.9999	394.961
397	1	407.85	0.9999	407.809
437	1	370.93	0.9999	370.888
451	1	408.58	0.9999	408.534
452	1	397.25	0.9999	397.210
406	1	409.55	0.9999	409.509
405	1	384.35	0.9999	384.312
425	1	404.93	0.9999	404.885
431	1	385.65	0.9999	385.611
426	1	375.45	0.9999	375.412
432	1	375.23	0.9999	375.187
433	1	417.63	0.9999	417.583
434	1	395.10	0.9999	395.060
428	1	409.43	0.9999	409.384
401	1	408.78	0.9999	408.734
395	1			

		406.20	0.9999	406.159
396	1	395.30	0.9999	395.260
411	1	404.65	0.9999	404.610
444	1	410.15	0.9999	410.109
443	1	403.53	0.9999	403.485
450	1	404.15	0.9999	404.110
449	1	411.78	0.9999	411.734
400	1	400.48	0.9999	400.435
399	1	384.90	0.9999	384.862
435	1	400.93	0.9999	400.885
436	1	403.10	0.9999	403.060
407	1	399.43	0.9999	399.385
408	1	376.98	0.9999	376.937
427	1	386.98	0.9999	386.936
88326	1	414.33	0.9999	414.284
87686	1	406.15	0.9999	406.109
87680	1	405.53	0.9999	405.484
87657	1	402.50	0.9999	402.460
248	1	402.80	0.9999	402.759
249	1	390.98	0.9999	390.936
279	1	397.45	0.9999	397.410
278	1	394.28	0.9999	394.235
303	1			

		417.90	0.9999	417.858
270	1	375.50	0.9999	375.462
330	1	400.20	0.9999	400.160
324	1	383.65	0.9999	383.611
325	1	399.50	0.9999	399.460
329	1	402.23	0.9999	402.184
328	1	402.88	0.9999	402.834
333	1	407.10	0.9999	407.059
332	1	391.18	0.9999	391.135
282	1	388.95	0.9999	388.911
319	1	400.18	0.9999	400.135
284	1	409.00	0.9999	408.959
331	1	376.50	0.9999	376.462
307	1	403.45	0.9999	403.409
276	1	405.33	0.9999	405.284
309	1	413.63	0.9999	413.583
263	1	402.65	0.9999	402.609
251	1	412.30	0.9999	412.258
253	1	379.00	0.9999	378.962
265	1	398.10	0.9999	398.060
323	1	405.93	0.9999	405.884
285	1	410.68	0.9999	410.634
5202	1			

		400.73	0.9999	400.685
5201	1	397.85	0.9999	397.810
5160	1	410.53	0.9999	410.484
5162	1	427.28	0.9999	427.232
5164	1	414.88	0.9999	414.834
5185	1	420.38	0.9999	420.333
1919	1	407.85	0.9999	407.809
1917	1	394.93	0.9999	394.886
4165	1	407.63	0.9999	407.584
4163	1	409.43	0.9999	409.384
402	1	409.20	0.9999	409.159
412	1	406.00	0.9999	405.959
417	1	386.03	0.9999	385.986
418	1	405.23	0.9999	405.184
404	1	386.00	0.9999	385.961
403	1	394.10	0.9999	394.061
429	1	404.65	0.9999	404.610
430	1	390.25	0.9999	390.211
447	1	406.55	0.9999	406.509
448	1	394.80	0.9999	394.761
393	1	372.40	0.9999	372.363
394	1	389.68	0.9999	389.636
445	1			

		400.90	0.9999	400.860
446	1	388.03	0.9999	387.986
261	1	386.80	0.9999	386.761
260	1	362.68	0.9999	362.638
239	1	396.50	0.9999	396.460
238	1	377.33	0.9999	377.287
269	1	396.83	0.9999	396.785
268	1	406.55	0.9999	406.509
241	1	378.93	0.9999	378.887
289	1	387.15	0.9999	387.111
290	1	404.30	0.9999	404.259
286	1	406.00	0.9999	405.959
291	1	385.35	0.9999	385.311
287	1	403.68	0.9999	403.634
242	1	404.98	0.9999	404.934
243	1	391.70	0.9999	391.660
257	1	405.25	0.9999	405.209
321	1	384.63	0.9999	384.586
311	1	408.58	0.9999	408.534
314	1	376.33	0.9999	376.287
315	1	409.65	0.9999	409.609
310	1	412.15	0.9999	412.108
296	1			

		388.75	0.9999	388.711
297	1	386.15	0.9999	386.111
292	1	385.48	0.9999	385.436
294	1	397.73	0.9999	397.685
271	1	408.33	0.9999	408.284
299	1	402.53	0.9999	402.484
288	1	402.65	0.9999	402.609
283	1	389.35	0.9999	389.311
300	1	381.25	0.9999	381.211
301	1	392.68	0.9999	392.635
304	1	379.13	0.9999	379.087
305	1	393.18	0.9999	393.135
308	1	405.18	0.9999	405.134
302	1	410.65	0.9999	410.609
306	1	402.83	0.9999	402.784
298	1	382.53	0.9999	382.486
322	1	407.00	0.9999	406.959
326	1	412.10	0.9999	412.058
327	1	399.13	0.9999	399.085
312	1	403.50	0.9999	403.459
313	1	375.25	0.9999	375.212
316	1	409.88	0.9999	409.834
317	1			

		388.05	0.9999	388.011
320	1	385.80	0.9999	385.761
262	1	405.10	0.9999	405.059
295	1	407.33	0.9999	407.284
274	1	385.75	0.9999	385.711
275	1	404.55	0.9999	404.509
237	1	402.63	0.9999	402.584
236	1	400.53	0.9999	400.485
43014	1	403.95	0.9999	403.910
42631	1	401.80	0.9999	401.760
43017	1	401.83	0.9999	401.785
43018	1	395.25	0.9999	395.210
43848	1	401.00	0.9999	400.960
43845	1	403.25	0.9999	403.210
43843	1	409.43	0.9999	409.384
43771	1	402.75	0.9999	402.710
43793	1	397.10	0.9999	397.060
43861	1	402.90	0.9999	402.860
43015	1	404.68	0.9999	404.635
42635	1	399.00	0.9999	398.960
42627	1	397.23	0.9999	397.185
42629	1	410.90	0.9999	410.859
42630	1			

		413.05	0.9999	413.009
42640	1	420.48	0.9999	420.433
42642	1	409.53	0.9999	409.484
2421	1	400.43	0.9999	400.389
2419	1	422.33	0.9999	422.287
2416	1	406.18	0.9999	406.139
88297	1	387.88	0.9999	387.836
88001	1	408.25	0.9999	408.209
42641	1	405.75	0.9999	405.709
5147	1	410.28	0.9999	410.234
5144	1	410.43	0.9999	410.384
5158	1	415.23	0.9999	415.183
5157	1	420.75	0.9999	420.708
5155	1	414.20	0.9999	414.159
252	1	403.73	0.9999	403.684
273	1	397.35	0.9999	397.310
272	1	396.53	0.9999	396.485
267	1	416.60	0.9999	416.558
266	1	402.75	0.9999	402.709
318	1	387.35	0.9999	387.311
234	1	391.13	0.9999	391.085
235	1	381.53	0.9999	381.486
255	1			

		394.28	0.9999	394.235
254	1	394.85	0.9999	394.810
264	1	404.85	0.9999	404.809
281	1	407.63	0.9999	407.584
246	1	410.78	0.9999	410.734
250	1	384.25	0.9999	384.211
247	1	401.60	0.9999	401.559
258	1	391.03	0.9999	390.985
259	1	386.35	0.9999	386.311
280	1	397.65	0.9999	397.610
240	1	373.80	0.9999	373.762
277	1	407.70	0.9999	407.659
244	1	390.95	0.9999	390.911
245	1	400.78	0.9999	400.735
85644	1	399.25	0.9999	399.210
85641	1	392.83	0.9999	392.786
85637	1	389.98	0.9999	389.936
85640	1	391.80	0.9999	391.761
85639	1	379.73	0.9999	379.687
85638	1	386.65	0.9999	386.611
85634	1	391.08	0.9999	391.036
85636	1	391.63	0.9999	391.586
85604	1			

		376.43	0.9999	376.387
85616	1	376.43	0.9999	376.387
85622	1	389.28	0.9999	389.236
85620	1	386.93	0.9999	386.886
85631	1	396.48	0.9999	396.435
85632	1	377.20	0.9999	377.162
43005	1	401.18	0.9999	401.135
43009	1	409.20	0.9999	409.159
43012	1	412.18	0.9999	412.134
43000	1	410.68	0.9999	410.634
43010	1	402.60	0.9999	402.560
43006	1	407.45	0.9999	407.409
43001	1	409.20	0.9999	409.159
84389	1	394.25	0.9999	394.210
84386	1	398.70	0.9999	398.660
84387	1	391.75	0.9999	391.710
84390	1	406.03	0.9999	405.989
84391	1	423.48	0.9999	423.437
2418	1	397.25	0.9999	397.210
2420	1	394.20	0.9999	394.160
2417	1	401.55	0.9999	401.509
42633	1	402.60	0.9999	402.560
43235	1			

		396.25	0.9999	396.210
43234	1	398.63	0.9999	398.590
43233	1	396.40	0.9999	396.360
43003	1	389.93	0.9999	389.886
43008	1	409.53	0.9999	409.484
43007	1	388.08	0.9999	388.036
43002	1	400.80	0.9999	400.760
42993	1	410.53	0.9999	410.484
42990	1	408.63	0.9999	408.584
42996	1	419.53	0.9999	419.483
42998	1	409.95	0.9999	409.909
42643	1	411.85	0.9999	411.809
42639	1	408.30	0.9999	408.259
42637	1	411.10	0.9999	411.059
42638	1	401.43	0.9999	401.385
42636	1	417.68	0.9999	417.633
42624	1	414.30	0.9999	414.259
42634	1	402.50	0.9999	402.460
43020	1	402.98	0.9999	402.935
43016	1	401.85	0.9999	401.810
3121	1	406.83	0.9999	406.784
3113	1	389.48	0.9999	389.436
3124	1			

		400.70	0.9999	400.660
3135	1	407.93	0.9999	407.884
3132	1	411.30	0.9999	411.259
3119	1	413.05	0.9999	413.009
3131	1	385.38	0.9999	385.336
3104	1	411.78	0.9999	411.734
3095	1	413.83	0.9999	413.784
3094	1	390.05	0.9999	390.011
3099	1	395.08	0.9999	395.035
3092	1	415.20	0.9999	415.158
3108	1	395.88	0.9999	395.835
3107	1	402.08	0.9999	402.035
3101	1	393.30	0.9999	393.261
3100	1	414.03	0.9999	413.984
3098	1	398.38	0.9999	398.335
41134	1	394.90	0.9999	394.861
41128	1	394.85	0.9999	394.811
41126	1	398.05	0.9999	398.010
260	1	397.18	0.9999	397.135
366	1	396.23	0.9999	396.185
1653	1	391.43	0.9999	391.386
3110	1	414.70	0.9999	414.659
361	1			

		400.28	0.9999	400.235
3118	1	388.45	0.9999	388.411
3125	1	393.50	0.9999	393.461
3128	1	395.08	0.9999	395.035
3122	1	414.18	0.9999	414.134
3134	1	383.55	0.9999	383.512
3133	1	408.95	0.9999	408.909
3126	1	400.03	0.9999	399.985
3111	1	402.23	0.9999	402.185
3117	1	396.65	0.9999	396.610
3123	1	389.73	0.9999	389.686
3114	1	412.48	0.9999	412.434
3112	1	421.45	0.9999	421.408
42999	1	403.78	0.9999	403.735
85628	1	391.13	0.9999	391.086
85619	1	394.88	0.9999	394.836
85606	1	386.73	0.9999	386.686
85618	1	388.35	0.9999	388.311
85623	1	386.58	0.9999	386.536
85633	1	399.05	0.9999	399.010
85596	1	401.48	0.9999	401.435
85621	1	382.48	0.9999	382.437
85630	1			

		396.10	0.9999	396.060
85626	1	406.45	0.9999	406.409
85600	1	387.18	0.9999	387.136
85625	1	385.88	0.9999	385.836
85609	1	388.15	0.9999	388.111
85615	1	383.93	0.9999	383.887
85629	1	399.45	0.9999	399.410
85627	1	374.35	0.9999	374.313
85613	1	390.00	0.9999	389.961
85611	1	384.75	0.9999	384.712
85602	1	388.40	0.9999	388.361
85607	1	396.50	0.9999	396.460
43865	1	394.95	0.9999	394.911
43866	1	392.48	0.9999	392.436
43859	1	397.98	0.9999	397.935
44043	1	395.00	0.9999	394.961
44047	1	381.03	0.9999	380.987
44046	1	402.78	0.9999	402.735
44022	1	393.80	0.9999	393.761
44031	1	396.83	0.9999	396.785
44040	1	407.40	0.9999	407.359
44030	1	391.60	0.9999	391.561
44021	1			

		379.88	0.9999	379.837
44039	1	372.08	0.9999	372.038
44044	1	388.25	0.9999	388.211
44034	1	373.48	0.9999	373.438
44023	1	371.85	0.9999	371.813
44029	1	393.55	0.9999	393.511
44038	1	395.55	0.9999	395.510
44028	1	390.35	0.9999	390.311
44045	1	389.33	0.9999	389.286
44019	1	383.95	0.9999	383.912
44024	1	404.35	0.9999	404.310
44018	1	395.78	0.9999	395.735
44017	1	392.40	0.9999	392.361
43855	1	384.50	0.9999	384.462
43853	1	398.70	0.9999	398.660
43836	1	384.08	0.9999	384.037
43867	1	395.53	0.9999	395.485
43838	1	391.63	0.9999	391.586
43837	1	393.85	0.9999	393.811
43846	1	396.15	0.9999	396.110
44016	1	399.85	0.9999	399.810
44026	1	395.00	0.9999	394.961
44015	1			

		386.53	0.9999	386.486
44033	1	387.00	0.9999	386.961
44037	1	393.83	0.9999	393.786
44035	1	402.98	0.9999	402.935
44027	1	393.28	0.9999	393.236
44036	1	398.38	0.9999	398.335
44041	1	368.95	0.9999	368.913
3106	1	422.68	0.9999	422.633
3127	1	411.15	0.9999	411.109
3102	1	403.13	0.9999	403.085
3103	1	383.50	0.9999	383.462
3105	1	409.80	0.9999	409.759
3093	1	416.13	0.9999	416.083
3091	1	399.30	0.9999	399.260
3129	1	407.38	0.9999	407.334
3109	1	399.70	0.9999	399.660
3116	1	427.75	0.9999	427.707
3115	1	401.93	0.9999	401.885
531	1	403.60	0.9999	403.560
533	1	403.20	0.9999	403.160
514	1	405.40	0.9999	405.359
522	1	402.85	0.9999	402.810
523	1			

		402.78	0.9999	402.735
539	1	400.93	0.9999	400.885
525	1	402.80	0.9999	402.760
524	1	402.75	0.9999	402.710
535	1	402.18	0.9999	402.135
919	1	404.90	0.9999	404.860
2307	1	403.90	0.9999	403.860
2311	1	403.00	0.9999	402.960
2310	1	403.08	0.9999	403.035
2308	1	403.90	0.9999	403.860
2309	1	403.85	0.9999	403.810
920	1	404.58	0.9999	404.535
371	1	403.78	0.9999	403.735
369	1	404.05	0.9999	404.010
368	1	404.18	0.9999	404.135
380	1	404.13	0.9999	404.085
382	1	403.80	0.9999	403.760
370	1	403.88	0.9999	403.835
365	1	405.23	0.9999	405.184
381	1	403.88	0.9999	403.835
372	1	403.75	0.9999	403.710
367	1	404.35	0.9999	404.310
921	1			

		404.28	0.9999	404.235
1502	1	402.60	0.9999	402.559
1503	1	402.35	0.9999	402.309
1498	1	403.75	0.9999	403.709
1501	1	402.88	0.9999	402.839
1488	1	400.20	0.9999	400.159
1485	1	400.83	0.9999	400.789
1489	1	398.45	0.9999	398.410
1487	1	400.58	0.9999	400.539
1486	1	400.65	0.9999	400.609
1499	1	403.40	0.9999	403.359
1504	1	402.13	0.9999	402.089
1223	1	405.70	0.9999	405.659
1174	1	411.13	0.9999	411.084
90328	1	387.50	0.9999	387.461
87626	1	391.38	0.9999	391.336
87630	1	423.48	0.9999	423.433
87621	1	392.20	0.9999	392.161
87631	1	414.35	0.9999	414.309
44014	1	372.18	0.9999	372.138
44025	1	388.08	0.9999	388.036
44048	1	394.45	0.9999	394.411
44042	1			

		385.43	0.9999	385.386
43864	1	393.95	0.9999	393.911
1207	1	411.18	0.9999	411.134
1233	1	375.43	0.9999	375.387
1244	1	398.33	0.9999	398.285
1241	1	413.50	0.9999	413.459
1222	1	408.10	0.9999	408.059
1212	1	411.28	0.9999	411.234
1228	1	377.93	0.9999	377.887
1235	1	418.75	0.9999	418.708
1243	1	407.80	0.9999	407.759
1220	1	406.80	0.9999	406.759
899	1	409.80	0.9999	409.759
394	1	407.20	0.9999	407.159
87651	1	393.03	0.9999	392.986
89682	1	416.08	0.9999	416.033
87678	1	414.20	0.9999	414.159
87609	1	387.95	0.9999	387.911
87675	1	423.60	0.9999	423.558
87619	1	425.88	0.9999	425.832
87623	1	410.85	0.9999	410.809
87514	1	401.88	0.9999	401.835
87622	1			

		403.58	0.9999	403.535
87612	1	408.43	0.9999	408.384
87654	1	400.23	0.9999	400.185
89264	1	407.45	0.9999	407.409
85253	1	400.23	0.9999	400.185
86031	1	413.43	0.9999	413.384
286	1	406.90	0.9999	406.859
277	1	404.20	0.9999	404.160
1500	1	403.23	0.9999	403.189
2306	1	404.00	0.9999	403.960
2305	1	404.05	0.9999	404.010
366	1	404.18	0.9999	404.135
373	1	403.68	0.9999	403.635
534	1	402.83	0.9999	402.785
527	1	401.98	0.9999	401.935
518	1	404.25	0.9999	404.210
521	1	402.95	0.9999	402.910
519	1	403.00	0.9999	402.960
515	1	404.83	0.9999	404.785
538	1	401.83	0.9999	401.785
537	1	401.98	0.9999	401.935
536	1	402.05	0.9999	402.010
517	1			

		404.35	0.9999	404.310
520	1	402.85	0.9999	402.810
526	1	402.58	0.9999	402.535
516	1	404.63	0.9999	404.585
532	1	403.28	0.9999	403.235
528	1	405.15	0.9999	405.109
529	1	403.83	0.9999	403.785
530	1	403.78	0.9999	403.735
91179	1	408.78	0.9999	408.734
91210	1	408.60	0.9999	408.559
91211	1	408.58	0.9999	408.534
91200	1	408.00	0.9999	407.959
90404	1	400.08	0.9999	400.035
90399	1	395.20	0.9999	395.160
90415	1	414.78	0.9999	414.734
90401	1	424.00	0.9999	423.958
90397	1	399.48	0.9999	399.435
90408	1	419.43	0.9999	419.383
90422	1	420.23	0.9999	420.183
90423	1	414.30	0.9999	414.259
90413	1	404.18	0.9999	404.135
90394	1	408.53	0.9999	408.484
90425	1			

		420.18	0.9999	420.133
90419	1	422.20	0.9999	422.158
90424	1	423.50	0.9999	423.458
90420	1	421.50	0.9999	421.458
91221	1	409.05	0.9999	409.009
1216	1	383.23	0.9999	383.187
1230	1	379.45	0.9999	379.412
1226	1	396.80	0.9999	396.760
1240	1	395.08	0.9999	395.035
1219	1	380.58	0.9999	380.537
1225	1	391.43	0.9999	391.386
91186	1	371.53	0.9999	371.488
91177	1	391.00	0.9999	390.961
91178	1	375.73	0.9999	375.687
91252	1	381.45	0.9999	381.412
91216	1	390.78	0.9999	390.736
91208	1	380.98	0.9999	380.937
91182	1	382.28	0.9999	382.237
91192	1	386.83	0.9999	386.786
91229	1	390.53	0.9999	390.486
91228	1	389.75	0.9999	389.711
91193	1	385.88	0.9999	385.836
91185	1			

		379.93	0.9999	379.887
91212	1	390.68	0.9999	390.636
1227	1	387.70	0.9999	387.661
1236	1	397.25	0.9999	397.210
1206	1	379.60	0.9999	379.562
1208	1	383.88	0.9999	383.837
1232	1	383.53	0.9999	383.487
1245	1	387.85	0.9999	387.811
1215	1	393.55	0.9999	393.511
1211	1	395.00	0.9999	394.961
1213	1	394.08	0.9999	394.036
1229	1	385.75	0.9999	385.711
1218	1	378.85	0.9999	378.812
1210	1	406.33	0.9999	406.284
1196	1	391.80	0.9999	391.761
1191	1	402.43	0.9999	402.385
1201	1	408.93	0.9999	408.884
1188	1	388.83	0.9999	388.786
88644	1	393.83	0.9999	393.786
87624	1	409.00	0.9999	408.959
86663	1	422.50	0.9999	422.458
85280	1	393.95	0.9999	393.911
91219	1			

		399.90	0.9999	399.860
91225	1	398.33	0.9999	398.285
91234	1	405.50	0.9999	405.459
91223	1	397.90	0.9999	397.860
91220	1	398.08	0.9999	398.035
91231	1	394.58	0.9999	394.536
91233	1	399.75	0.9999	399.710
91188	1	407.85	0.9999	407.809
91189	1	393.03	0.9999	392.986
91187	1	404.18	0.9999	404.135
91195	1	398.08	0.9999	398.035
91207	1	398.60	0.9999	398.560
91202	1	394.48	0.9999	394.436
91201	1	399.23	0.9999	399.185
91205	1	395.35	0.9999	395.310
91206	1	392.68	0.9999	392.636
91196	1	391.28	0.9999	391.236
91197	1	391.18	0.9999	391.136
91203	1	401.43	0.9999	401.385
91254	1	401.68	0.9999	401.635
90406	1	413.48	0.9999	413.434
90390	1	409.15	0.9999	409.109
90412	1			

		400.58	0.9999	400.535
90388	1	403.35	0.9999	403.310
90410	1	409.85	0.9999	409.809
90396	1	410.30	0.9999	410.259
90409	1	413.75	0.9999	413.709
90389	1	405.73	0.9999	405.684
90421	1	417.95	0.9999	417.908
90392	1	411.98	0.9999	411.934
90405	1	391.95	0.9999	391.911
90391	1	400.70	0.9999	400.660
90403	1	409.90	0.9999	409.859
90414	1	414.90	0.9999	414.859
91190	1	400.08	0.9999	400.035
91199	1	405.20	0.9999	405.159
91227	1	391.38	0.9999	391.336
91224	1	391.08	0.9999	391.036
91250	1	403.13	0.9999	403.085
91214	1	407.65	0.9999	407.609
91184	1	396.28	0.9999	396.235
91230	1	402.38	0.9999	402.335
92144	1	405.33	0.9999	405.284
92153	1	401.85	0.9999	401.810
90266	1			

		426.65	0.9999	426.607
90267	1	429.75	0.9999	429.707
90269	1	406.60	0.9999	406.559
90268	1	408.58	0.9999	408.534
90271	1	382.95	0.9999	382.912
90270	1	402.45	0.9999	402.410
90273	1	426.48	0.9999	426.432
90272	1	399.43	0.9999	399.385
90280	1	418.05	0.9999	418.008
90281	1	427.45	0.9999	427.407
90277	1	401.33	0.9999	401.285
90279	1	378.48	0.9999	378.437
90278	1	397.08	0.9999	397.035
90276	1	408.98	0.9999	408.934
90275	1	393.20	0.9999	393.161
90259	1	423.43	0.9999	423.383
90261	1	400.13	0.9999	400.085
90260	1	393.28	0.9999	393.236
90252	1	410.43	0.9999	410.384
90282	1	400.58	0.9999	400.535
90253	1	403.50	0.9999	403.460
90265	1	395.68	0.9999	395.635
90264	1			

		396.75	0.9999	396.710
90283	1	397.75	0.9999	397.710
90284	1	396.38	0.9999	396.335
90285	1	400.28	0.9999	400.235
90274	1	396.18	0.9999	396.135
90263	1	409.35	0.9999	409.309
90262	1	412.03	0.9999	411.984
90246	1	400.70	0.9999	400.660
90248	1	414.00	0.9999	413.959
90247	1	400.38	0.9999	400.335
90249	1	403.33	0.9999	403.285
90250	1	416.80	0.9999	416.758
90251	1	411.05	0.9999	411.009
90256	1	418.08	0.9999	418.033
90258	1	421.73	0.9999	421.683
90255	1	394.75	0.9999	394.711
90254	1	384.85	0.9999	384.812
1190	1	398.08	0.9999	398.035
1195	1	404.93	0.9999	404.885
1185	1	402.73	0.9999	402.685
1193	1	394.30	0.9999	394.261
1202	1	393.98	0.9999	393.936
1205	1			

		408.35	0.9999	408.309
1199	1	408.43	0.9999	408.384
1192	1	382.63	0.9999	382.587
1197	1	408.45	0.9999	408.409
12	1	406.62	0.9999	406.579
9	1	408.68	0.9999	408.639
11	1	408.22	0.9999	408.179
10	1	415.12	0.9999	415.078
17	1	391.32	0.9999	391.281
20	1	411.14	0.9999	411.099
8	1	420.32	0.9999	420.278
14	1	395.69	0.9999	395.650
15	1	406.62	0.9999	406.579
16	1	403.18	0.9999	403.140
13	1	402.41	0.9999	402.370
7	1	416.18	0.9999	416.138
19	1	409.94	0.9999	409.899
2	1	385.04	0.9999	385.001
87	1	385.11	0.9999	385.071
37	1	391.13	0.9999	391.090
37	1	392.04	0.9999	392.000
1171	1	373.90	0.9999	373.862
1171	1			

		383.39	0.9999	383.351
48	1	380.50	0.9999	380.462
87	1	378.46	0.9999	378.422
78	1	391.56	0.9999	391.520
50	1	390.55	0.9999	390.510
1	1	395.38	0.9999	395.340
25	1	169.68	0.9999	169.663
74	1	394.70	0.9999	394.661
37	1	389.21	0.9999	389.171
93	1	393.17	0.9999	393.130
104	1	384.47	0.9999	384.431
19	1	389.88	0.9999	389.841
100	1	387.18	0.9999	387.141
85	1	394.68	0.9999	394.640
100	1	393.65	0.9999	393.610
100	1	380.21	0.9999	380.172
59	1	390.22	0.9999	390.181
1171	1	389.59	0.9999	389.551
45	1	373.76	0.9999	373.722
21	1	394.90	0.9999	394.860
123	1	393.55	0.9999	393.510
92	1	387.52	0.9999	387.481
92154	1			

		395.75	0.9999	395.710
92141	1	417.20	0.9999	417.158
92136	1	405.98	0.9999	405.934
92146	1	406.88	0.9999	406.834
92139	1	402.40	0.9999	402.360
92156	1	417.98	0.9999	417.933
92150	1	411.03	0.9999	410.984
92147	1	398.18	0.9999	398.135
92138	1	405.55	0.9999	405.509
92157	1	414.55	0.9999	414.509
92143	1	419.55	0.9999	419.508
92149	1	418.80	0.9999	418.758
92140	1	418.53	0.9999	418.483
92145	1	410.33	0.9999	410.284
92151	1	387.00	0.9999	386.961
92200	1	419.18	0.9999	419.133
92155	1	416.50	0.9999	416.458
92137	1	407.40	0.9999	407.359
92152	1	408.03	0.9999	407.984
702	1	382.95	0.9999	382.912
695	1	393.28	0.9999	393.236
700	1	392.25	0.9999	392.211
693	1			

		383.90	0.9999	383.862
691	1	390.80	0.9999	390.761
690	1	405.90	0.9999	405.859
80807	1	403.50	0.9999	403.459
80276	1	386.70	0.9999	386.661
74234	1	410.10	0.9999	410.059
80270	1	396.45	0.9999	396.410
80282	1	405.68	0.9999	405.639
80273	1	411.08	0.9999	411.038
80274	1	397.20	0.9999	397.160
80269	1	408.95	0.9999	408.909
80280	1	391.75	0.9999	391.710
80278	1	396.15	0.9999	396.110
80272	1	403.13	0.9999	403.089
80797	1	409.13	0.9999	409.084
80799	1	421.25	0.9999	421.207
80796	1	391.75	0.9999	391.710
80804	1	395.83	0.9999	395.785
80805	1	399.90	0.9999	399.860
80806	1	404.85	0.9999	404.809
80271	1	405.53	0.9999	405.489
80275	1	402.60	0.9999	402.559
80279	1			

		382.78	0.9999	382.741
80277	1	419.60	0.9999	419.558
80803	1	411.25	0.9999	411.208
80812	1	407.35	0.9999	407.309
80813	1	408.70	0.9999	408.659
80800	1	405.23	0.9999	405.184
80801	1	388.38	0.9999	388.336
80810	1	415.43	0.9999	415.383
80802	1	390.15	0.9999	390.111
80811	1	415.48	0.9999	415.433
80808	1	408.80	0.9999	408.759
80798	1	407.75	0.9999	407.709
80809	1	380.53	0.9999	380.487
1622	1	417.25	0.9999	417.208
1621	1	411.55	0.9999	411.509
1596	1	410.08	0.9999	410.034
1585	1	412.88	0.9999	412.834
1617	1	408.43	0.9999	408.384
1613	1	407.25	0.9999	407.209
1615	1	407.30	0.9999	407.259
1604	1	405.25	0.9999	405.209
1623	1	406.05	0.9999	406.009
1602	1			

		403.30	0.9999	403.260
1612	1	408.30	0.9999	408.259
1588	1	412.85	0.9999	412.809
74466	1	390.55	0.9999	390.511
74240	1	408.38	0.9999	408.334
78254	1	407.63	0.9999	407.584
39874	1	421.45	0.9999	421.408
78261	1	413.25	0.9999	413.209
78259	1	420.68	0.9999	420.633
77945	1	406.75	0.9999	406.709
78267	1	398.03	0.9999	397.985
78260	1	426.85	0.9999	426.807
78258	1	423.80	0.9999	423.758
78263	1	404.08	0.9999	404.035
39871	1	408.98	0.9999	408.934
39882	1	428.80	0.9999	428.757
80258	1	401.40	0.9999	401.359
80250	1	402.75	0.9999	402.709
80252	1	399.13	0.9999	399.090
80281	1	386.00	0.9999	385.961
80253	1	400.88	0.9999	400.839
80254	1	402.65	0.9999	402.609
74255	1			

		409.13	0.9999	409.084
74250	1	397.45	0.9999	397.410
74465	1	394.05	0.9999	394.011
80256	1	399.58	0.9999	399.540
80257	1	420.00	0.9999	419.958
80251	1	400.08	0.9999	400.039
80255	1	397.55	0.9999	397.510
680	1	396.23	0.9999	396.185
682	1	388.13	0.9999	388.086
698	1	409.90	0.9999	409.859
696	1	404.73	0.9999	404.685
706	1	413.50	0.9999	413.459
701	1	407.53	0.9999	407.484
704	1	409.23	0.9999	409.184
686	1	406.33	0.9999	406.284
713	1	405.90	0.9999	405.859
681	1	404.35	0.9999	404.310
699	1	399.33	0.9999	399.285
707	1	399.78	0.9999	399.735
692	1	385.23	0.9999	385.186
688	1	399.95	0.9999	399.910
685	1	394.70	0.9999	394.661
684	1			

		399.70	0.9999	399.660
683	1	400.05	0.9999	400.010
710	1	402.38	0.9999	402.335
687	1	400.63	0.9999	400.585
716	1	407.03	0.9999	406.984
709	1	385.40	0.9999	385.361
697	1	393.55	0.9999	393.511
3074	1	405.28	0.9999	405.239
708	1	401.55	0.9999	401.510
2568	1	402.15	0.9999	402.109
1625	1	401.95	0.9999	401.910
1616	1	409.68	0.9999	409.634
1620	1	391.93	0.9999	391.886
2567	1	395.10	0.9999	395.060
3075	1	390.95	0.9999	390.910
1613	1	391.35	0.9999	391.311
1615	1	388.88	0.9999	388.836
1621	1	405.15	0.9999	405.109
1618	1	398.53	0.9999	398.485
1637	1	406.70	0.9999	406.659
1636	1	397.13	0.9999	397.085
1612	1	407.05	0.9999	407.009
1630	1			

		383.90	0.9999	383.862
1623	1	409.78	0.9999	409.734
1622	1	408.40	0.9999	408.359
1629	1	394.50	0.9999	394.461
1631	1	416.15	0.9999	416.108
1632	1	379.40	0.9999	379.362
1635	1	381.63	0.9999	381.587
1633	1	404.43	0.9999	404.385
1634	1	409.00	0.9999	408.959
3072	1	404.88	0.9999	404.839
3073	1	385.48	0.9999	385.441
74480	1	388.18	0.9999	388.136
75236	1	405.70	0.9999	405.659
74488	1	398.53	0.9999	398.485
75235	1	419.35	0.9999	419.308
74482	1	407.40	0.9999	407.359
74483	1	383.60	0.9999	383.562
74481	1	404.23	0.9999	404.185
74477	1	395.10	0.9999	395.060
74478	1	394.88	0.9999	394.836
74476	1	384.93	0.9999	384.887
74467	1	416.10	0.9999	416.058
74259	1			

		399.48	0.9999	399.435
74249	1	408.45	0.9999	408.409
74479	1	417.10	0.9999	417.058
74470	1	387.63	0.9999	387.586
74486	1	400.38	0.9999	400.335
75234	1	395.00	0.9999	394.961
75231	1	425.53	0.9999	425.482
74484	1	404.60	0.9999	404.560
74257	1	406.75	0.9999	406.709
74243	1	409.73	0.9999	409.684
74474	1	402.83	0.9999	402.785
74475	1	407.80	0.9999	407.759
74468	1	399.60	0.9999	399.560
74473	1	402.88	0.9999	402.835
74472	1	398.08	0.9999	398.035
79117	1	394.53	0.9999	394.485
79132	1	412.25	0.9999	412.209
79134	1	414.03	0.9999	413.984
79114	1	404.65	0.9999	404.609
77047	1	422.38	0.9999	422.337
39222	1	366.63	0.9999	366.588
39217	1	406.50	0.9999	406.459
39226	1			

		393.30	0.9999	393.260
39233	1	411.13	0.9999	411.083
39210	1	386.38	0.9999	386.336
39225	1	396.95	0.9999	396.910
39231	1	413.33	0.9999	413.283
39207	1	392.35	0.9999	392.310
39214	1	387.98	0.9999	387.936
39206	1	389.85	0.9999	389.811
39229	1	380.40	0.9999	380.362
3581	1	398.75	0.9999	398.710
3560	1	418.60	0.9999	418.558
3535	1	421.18	0.9999	421.133
3577	1	408.05	0.9999	408.009
3574	1	377.63	0.9999	377.587
3556	1	426.65	0.9999	426.607
3547	1	418.15	0.9999	418.108
39219	1	414.55	0.9999	414.508
39224	1	392.30	0.9999	392.260
39208	1	405.35	0.9999	405.309
39228	1	399.40	0.9999	399.360
39211	1	392.33	0.9999	392.285
39221	1	382.90	0.9999	382.861
39212	1			

		394.93	0.9999	394.885
39213	1	392.40	0.9999	392.360
39218	1	401.13	0.9999	401.084
39230	1	400.00	0.9999	399.960
39215	1	405.45	0.9999	405.409
39209	1	396.13	0.9999	396.085
74489	1	410.60	0.9999	410.559
74253	1	388.90	0.9999	388.861
37516	1	395.95	0.9999	395.910
37499	1	389.75	0.9999	389.711
37520	1	396.98	0.9999	396.935
37500	1	395.80	0.9999	395.760
37497	1	373.30	0.9999	373.263
37513	1	395.00	0.9999	394.961
74485	1	403.08	0.9999	403.035
74237	1	406.98	0.9999	406.934
1628	1	416.80	0.9999	416.758
1619	1	398.00	0.9999	397.960
1626	1	377.08	0.9999	377.037
1617	1	416.15	0.9999	416.108
1627	1	396.63	0.9999	396.585
3506	1	398.90	0.9999	398.860
3512	1			

		382.95	0.9999	382.911
3521	1	371.60	0.9999	371.562
3517	1	419.20	0.9999	419.158
3515	1	389.28	0.9999	389.241
40503	1	388.58	0.9999	388.536
40491	1	400.55	0.9999	400.510
40487	1	398.93	0.9999	398.885
40505	1	394.60	0.9999	394.561
40493	1	395.53	0.9999	395.485
40510	1	396.88	0.9999	396.835
40497	1	392.53	0.9999	392.486
40492	1	400.05	0.9999	400.010
40485	1	396.53	0.9999	396.485
40509	1	395.98	0.9999	395.935
40488	1	409.40	0.9999	409.359
40508	1	389.93	0.9999	389.886
40504	1	396.50	0.9999	396.460
40490	1	401.13	0.9999	401.085
40511	1	389.35	0.9999	389.311
40501	1	408.95	0.9999	408.909
40499	1	406.90	0.9999	406.859
40494	1	396.58	0.9999	396.535
40506	1			

		393.40	0.9999	393.361
561	1	401.25	0.9999	401.210
509	1	404.48	0.9999	404.435
511	1	381.65	0.9999	381.612
495	1	386.63	0.9999	386.586
512	1	385.43	0.9999	385.386
490	1	386.90	0.9999	386.861
502	1	401.28	0.9999	401.235
492	1	396.85	0.9999	396.810
493	1	407.13	0.9999	407.084
496	1	395.50	0.9999	395.460
563	1	400.15	0.9999	400.110
497	1	413.08	0.9999	413.034
515	1	408.95	0.9999	408.909
562	1	406.48	0.9999	406.434
505	1	417.33	0.9999	417.283
516	1	400.10	0.9999	400.060
513	1	377.50	0.9999	377.462
518	1	414.50	0.9999	414.459
501	1	407.43	0.9999	407.384
499	1	411.28	0.9999	411.234
579	1	422.53	0.9999	422.483
585	1			

		414.93	0.9999	414.884
583	1	415.65	0.9999	415.608
560	1	398.50	0.9999	398.460
79130	1	403.85	0.9999	403.810
79119	1	408.70	0.9999	408.659
3084	1	404.83	0.9999	404.789
3086	1	407.48	0.9999	407.439
3087	1	411.53	0.9999	411.488
3077	1	407.28	0.9999	407.239
3079	1	409.68	0.9999	409.639
3089	1	412.93	0.9999	412.888
77069	1	418.55	0.9999	418.508
77072	1	410.63	0.9999	410.588
77064	1	396.18	0.9999	396.140
77063	1	413.03	0.9999	412.988
77070	1	404.60	0.9999	404.559
39227	1	413.28	0.9999	413.233
39232	1	399.90	0.9999	399.860
39216	1	410.10	0.9999	410.059
39223	1	385.40	0.9999	385.361
77074	1	397.05	0.9999	397.010
77062	1	418.15	0.9999	418.108
77068	1			

		403.08	0.9999	403.039
77075	1	415.28	0.9999	415.238
77059	1	411.58	0.9999	411.538
77066	1	406.55	0.9999	406.509
77048	1	380.73	0.9999	380.691
77073	1	411.78	0.9999	411.738
77076	1	402.58	0.9999	402.539
77049	1	399.93	0.9999	399.890
77061	1	404.53	0.9999	404.489
77060	1	406.38	0.9999	406.339
77067	1	427.43	0.9999	427.387
77071	1	391.63	0.9999	391.590
40486	1	415.25	0.9999	415.208
40483	1	401.13	0.9999	401.085
3507	1	377.68	0.9999	377.642
3523	1	406.70	0.9999	406.659
3514	1	395.58	0.9999	395.540
3526	1	393.35	0.9999	393.310
3520	1	404.43	0.9999	404.389
3525	1	421.98	0.9999	421.937
3511	1	417.25	0.9999	417.208
3509	1	394.53	0.9999	394.490
3505	1			

		399.48	0.9999	399.440
3518	1	384.60	0.9999	384.561
3528	1	412.00	0.9999	411.958
3519	1	368.43	0.9999	368.393
3510	1	400.35	0.9999	400.309
3516	1	407.63	0.9999	407.589
3513	1	387.98	0.9999	387.941
3522	1	392.05	0.9999	392.010
3524	1	398.93	0.9999	398.890
3527	1	405.65	0.9999	405.609
863	1	400.78	0.9999	400.735
850	1	406.60	0.9999	406.559
853	1	404.23	0.9999	404.185
851	1	406.13	0.9999	406.084
854	1	404.20	0.9999	404.160
856	1	403.70	0.9999	403.660
860	1	402.05	0.9999	402.010
855	1	403.90	0.9999	403.860
2533	1	406.38	0.9999	406.339
2493	1	405.68	0.9999	405.634
2494	1	405.03	0.9999	404.984
2500	1	404.20	0.9999	404.159
2535	1			

		405.88	0.9999	405.839
2497	1	404.73	0.9999	404.684
2502	1	402.95	0.9999	402.909
2498	1	404.58	0.9999	404.534
2501	1	403.73	0.9999	403.684
2529	1	403.22	0.9999	403.179
2526	1	404.32	0.9999	404.279
2530	1	402.90	0.9999	402.859
2534	1	406.25	0.9999	406.209
2531	1	401.30	0.9999	401.259
2492	1	408.38	0.9999	408.334
2443	1	402.88	0.9999	402.834
2496	1	404.83	0.9999	404.784
2499	1	404.18	0.9999	404.134
2527	1	404.22	0.9999	404.179
2536	1	405.48	0.9999	405.439
2409	1	403.18	0.9999	403.139
2408	1	403.30	0.9999	403.259
2411	1	402.80	0.9999	402.759
2410	1	402.88	0.9999	402.839
2412	1	402.95	0.9999	402.909
900	1	402.98	0.9999	402.935
901	1			

		403.00	0.9999	402.960
902	1	402.95	0.9999	402.910
3088	1	403.08	0.9999	403.039
3121	1	405.08	0.9999	405.039
3083	1	397.60	0.9999	397.560
3122	1	405.05	0.9999	405.009
3116	1	409.55	0.9999	409.509
3117	1	388.18	0.9999	388.141
3085	1	394.80	0.9999	394.760
3115	1	407.88	0.9999	407.839
39080	1	420.15	0.9999	420.107
3119	1	396.55	0.9999	396.510
3118	1	413.45	0.9999	413.408
3120	1	416.30	0.9999	416.258
3124	1	394.38	0.9999	394.340
3123	1	415.38	0.9999	415.338
77065	1	400.75	0.9999	400.709
41000	1	414.83	0.9999	414.784
40999	1	399.03	0.9999	398.985
40997	1	415.13	0.9999	415.083
41001	1	411.80	0.9999	411.759
40998	1	388.28	0.9999	388.236
41399	1			

		402.00	0.9999	401.960
41398	1	398.88	0.9999	398.835
41393	1	386.90	0.9999	386.861
41401	1	398.50	0.9999	398.460
1614	1	398.95	0.9999	398.910
1620	1	389.40	0.9999	389.361
1605	1	389.58	0.9999	389.536
1586	1	392.60	0.9999	392.561
717	1	399.70	0.9999	399.660
742	1	382.98	0.9999	382.937
1599	1	405.93	0.9999	405.884
1587	1	383.38	0.9999	383.337
1597	1	405.23	0.9999	405.184
719	1	399.35	0.9999	399.310
1598	1	394.13	0.9999	394.086
741	1	396.95	0.9999	396.910
1595	1	397.10	0.9999	397.060
1619	1	397.43	0.9999	397.385
1593	1	394.70	0.9999	394.661
2219	1	407.78	0.9999	407.739
2214	1	387.73	0.9999	387.691
2215	1	403.83	0.9999	403.789
1541	1			

		403.53	0.9999	403.489
2225	1	402.90	0.9999	402.859
2212	1	407.25	0.9999	407.209
2213	1	409.48	0.9999	409.439
2231	1	394.58	0.9999	394.540
2228	1	388.18	0.9999	388.141
1616	1	398.75	0.9999	398.710
862	1	401.00	0.9999	400.960
1059	1	404.38	0.9999	404.335
1061	1	403.10	0.9999	403.060
1057	1	404.43	0.9999	404.385
1064	1	406.63	0.9999	406.584
1054	1	405.00	0.9999	404.960
857	1	403.45	0.9999	403.410
858	1	403.23	0.9999	403.185
1060	1	403.93	0.9999	403.885
1062	1	403.28	0.9999	403.235
1055	1	404.90	0.9999	404.860
1058	1	404.43	0.9999	404.385
1056	1	404.45	0.9999	404.410
1063	1	403.18	0.9999	403.135
859	1	403.05	0.9999	403.010
861	1			

		401.90	0.9999	401.860
9700296	1	400.10	0.9999	400.059
9700372	1	400.08	0.9999	400.039
9700374	1	400.08	0.9999	400.039
9700355	1	400.09	0.9999	400.049
9700361	1	400.10	0.9999	400.059
712	1	387.88	0.9999	387.836
714	1	387.18	0.9999	387.136
711	1	388.68	0.9999	388.636
1576	1	404.45	0.9999	404.410
1624	1	407.00	0.9999	406.959
1575	1	400.80	0.9999	400.760
1610	1	409.55	0.9999	409.509
1583	1	403.93	0.9999	403.885
1606	1	388.80	0.9999	388.761
715	1	388.90	0.9999	388.861
1608	1	388.18	0.9999	388.136
1594	1	417.25	0.9999	417.208
1584	1	417.95	0.9999	417.908
1618	1	410.23	0.9999	410.184
1611	1	380.85	0.9999	380.812
1577	1	406.70	0.9999	406.659
1581	1			

		404.80	0.9999	404.760
740	1	388.40	0.9999	388.361
1589	1	380.08	0.9999	380.037
1601	1	402.90	0.9999	402.860
1607	1	399.48	0.9999	399.435
1609	1	393.70	0.9999	393.661
1582	1	400.43	0.9999	400.385
1600	1	392.83	0.9999	392.786
1592	1	395.63	0.9999	395.585
739	1	395.23	0.9999	395.185
1579	1	399.45	0.9999	399.410
1590	1	402.50	0.9999	402.460
1603	1	400.08	0.9999	400.035
9700837	1	400.10	0.9999	400.059
80289	1	402.90	0.9999	402.859
80287	1	385.20	0.9999	385.161
80283	1	410.05	0.9999	410.008
41394	1	394.98	0.9999	394.936
41400	1	392.05	0.9999	392.011
41402	1	400.08	0.9999	400.035
80284	1	409.95	0.9999	409.909
80291	1	399.45	0.9999	399.410
80286	1			

		407.38	0.9999	407.339
80290	1	400.13	0.9999	400.089
80285	1	407.73	0.9999	407.689
80288	1	404.18	0.9999	404.139
40995	1	397.80	0.9999	397.760
41395	1	411.75	0.9999	411.709
78672	1	425.98	0.9999	425.937
78679	1	425.48	0.9999	425.437
78683	1	413.55	0.9999	413.508
78680	1	410.40	0.9999	410.358
78684	1	412.48	0.9999	412.438
78685	1	425.53	0.9999	425.487
78708	1	427.50	0.9999	427.457
78707	1	428.50	0.9999	428.457
78703	1	415.28	0.9999	415.238
78702	1	415.68	0.9999	415.638
78701	1	418.43	0.9999	418.388
78705	1	421.45	0.9999	421.407
78704	1	427.15	0.9999	427.107
78675	1	399.38	0.9999	399.340
78695	1	414.05	0.9999	414.008
78698	1	403.50	0.9999	403.459
78699	1			

		403.23	0.9999	403.189
78696	1	412.68	0.9999	412.638
78027	1	412.78	0.9999	412.738
78700	1	423.38	0.9999	423.337
78706	1	406.48	0.9999	406.439
78674	1	418.35	0.9999	418.308
9700351	1	400.10	0.9999	400.059
9700352	1	400.09	0.9999	400.049
314	1	413.05	0.9999	413.009
1058	1	397.43	0.9999	397.390
1061	1	399.83	0.9999	399.785
1057	1	399.75	0.9999	399.710
1060	1	399.78	0.9999	399.735
1059	1	399.65	0.9999	399.610
9700371	1	400.10	0.9999	400.059
9700356	1	400.10	0.9999	400.059
9700373	1	400.09	0.9999	400.049
9700353	1	400.09	0.9999	400.049
9700362	1	400.09	0.9999	400.049
9700364	1	400.10	0.9999	400.059
9700369	1	400.09	0.9999	400.049
9700354	1	400.09	0.9999	400.049
9700381	1			

		400.09	0.9999	400.049
9700363	1	400.10	0.9999	400.059
9700367	1	400.09	0.9999	400.049
9700375	1	400.09	0.9999	400.049
9700365	1	400.09	0.9999	400.049
9700358	1	400.09	0.9999	400.049
9700366	1	400.09	0.9999	400.049
1578	1	407.35	0.9999	407.309
9700357	1	400.09	0.9999	400.049
9700360	1	400.09	0.9999	400.049
9700370	1	400.09	0.9999	400.049
9700368	1	400.09	0.9999	400.049
9700298	1	400.09	0.9999	400.049
9700297	1	400.10	0.9999	400.059
311	1	409.23	0.9999	409.184
310	1	405.05	0.9999	405.009
309	1	401.13	0.9999	401.085
308	1	390.28	0.9999	390.236
319	1	392.88	0.9999	392.836
318	1	389.35	0.9999	389.311
39885	1	398.08	0.9999	398.035
39886	1	410.20	0.9999	410.159
39894	1			

		406.08	0.9999	406.034
39890	1	412.28	0.9999	412.234
39880	1	402.88	0.9999	402.835
39887	1	406.70	0.9999	406.659
39845	1	403.48	0.9999	403.439
39848	1	396.15	0.9999	396.110
39846	1	410.38	0.9999	410.338
39893	1	404.35	0.9999	404.310
39888	1	408.53	0.9999	408.484
39892	1	407.25	0.9999	407.209
39891	1	405.78	0.9999	405.734
39884	1	401.03	0.9999	400.985
39847	1	402.13	0.9999	402.089
39839	1	388.43	0.9999	388.391
39844	1	396.45	0.9999	396.410
39840	1	395.85	0.9999	395.810
39854	1	416.78	0.9999	416.738
39858	1	398.88	0.9999	398.840
39841	1	414.00	0.9999	413.958
39851	1	402.48	0.9999	402.439
39855	1	394.93	0.9999	394.890
39860	1	405.78	0.9999	405.739
39849	1			

		416.18	0.9999	416.138
39864	1	410.65	0.9999	410.608
39862	1	412.33	0.9999	412.288
39859	1	409.63	0.9999	409.589
39850	1	390.73	0.9999	390.690
39853	1	403.40	0.9999	403.359
39842	1	401.58	0.9999	401.539
39857	1	405.25	0.9999	405.209
39843	1	406.28	0.9999	406.239
39856	1	405.85	0.9999	405.809
39861	1	414.70	0.9999	414.658
39863	1	418.50	0.9999	418.458
78676	1	409.63	0.9999	409.589
78681	1	426.35	0.9999	426.307
78686	1	406.60	0.9999	406.559
78682	1	413.65	0.9999	413.608
78678	1	409.58	0.9999	409.539
2528	1	403.55	0.9999	403.509
9700060	1	400.09	0.9999	400.049
9700039	1	400.08	0.9999	400.039
9700237	1	400.09	0.9999	400.049
9700234	1	400.09	0.9999	400.049
9700235	1			

		400.09	0.9999	400.049
9700037	1	400.10	0.9999	400.059
9700041	1	400.09	0.9999	400.049
9700036	1	400.09	0.9999	400.049
9700040	1	400.09	0.9999	400.049
9700236	1	400.10	0.9999	400.059
9700239	1	400.09	0.9999	400.049
9700238	1	400.10	0.9999	400.059
74277	1	402.23	0.9999	402.185
80337	1	392.38	0.9999	392.335
79867	1	405.33	0.9999	405.284
79875	1	405.65	0.9999	405.609
79872	1	403.70	0.9999	403.659
79869	1	399.23	0.9999	399.185
79873	1	411.60	0.9999	411.558
79868	1	398.15	0.9999	398.110
79870	1	428.90	0.9999	428.857
40461	1	398.20	0.9999	398.160
80345	1	396.38	0.9999	396.335
80340	1	397.18	0.9999	397.135
80344	1	399.20	0.9999	399.160
80346	1	400.63	0.9999	400.585
745	1			

		391.90	0.9999	391.861
732	1	389.40	0.9999	389.361
720	1	409.13	0.9999	409.084
733	1	408.55	0.9999	408.509
734	1	399.50	0.9999	399.460
721	1	400.88	0.9999	400.835
727	1	411.40	0.9999	411.359
738	1	409.35	0.9999	409.309
750	1	386.95	0.9999	386.911
753	1	392.85	0.9999	392.811
749	1	401.03	0.9999	400.985
751	1	405.75	0.9999	405.709
756	1	397.25	0.9999	397.210
731	1	394.58	0.9999	394.536
728	1	391.55	0.9999	391.511
729	1	392.18	0.9999	392.136
754	1	380.58	0.9999	380.537
730	1	408.60	0.9999	408.559
722	1	375.33	0.9999	375.287
724	1	403.28	0.9999	403.235
755	1	403.65	0.9999	403.610
735	1	386.55	0.9999	386.511
759	1			

		405.63	0.9999	405.584
752	1	405.00	0.9999	404.960
42113	1	390.08	0.9999	390.036
42114	1	405.55	0.9999	405.509
42115	1	387.98	0.9999	387.936
42116	1	402.25	0.9999	402.210
42117	1	408.50	0.9999	408.459
42118	1	377.43	0.9999	377.387
42119	1	409.78	0.9999	409.734
42120	1	397.20	0.9999	397.160
42121	1	394.15	0.9999	394.111
42122	1	388.13	0.9999	388.086
42123	1	391.45	0.9999	391.411
42124	1	385.58	0.9999	385.536
42125	1	385.60	0.9999	385.561
42126	1	382.88	0.9999	382.837
42127	1	387.48	0.9999	387.436
42128	1	388.90	0.9999	388.861
42143	1	397.60	0.9999	397.560
42145	1	387.48	0.9999	387.436
42142	1	399.03	0.9999	398.985
42134	1	402.18	0.9999	402.135
9700240	1			

		400.10	0.9999	400.059
9700038	1	400.09	0.9999	400.049
3540	1	413.75	0.9999	413.709
3566	1	398.18	0.9999	398.135
3576	1	399.33	0.9999	399.285
3550	1	416.73	0.9999	416.683
3530	1	386.30	0.9999	386.261
3548	1	401.38	0.9999	401.335
3555	1	407.25	0.9999	407.209
3557	1	404.10	0.9999	404.060
3558	1	403.45	0.9999	403.410
3559	1	394.88	0.9999	394.836
3549	1	403.55	0.9999	403.510
3568	1	404.30	0.9999	404.260
3563	1	395.60	0.9999	395.560
3553	1	380.73	0.9999	380.687
3552	1	409.43	0.9999	409.384
3531	1	406.58	0.9999	406.534
3532	1	411.43	0.9999	411.384
79517	1	403.35	0.9999	403.309
78021	1	412.95	0.9999	412.908
78022	1	408.00	0.9999	407.959
78025	1			

		409.60	0.9999	409.559
78030	1	414.53	0.9999	414.488
78024	1	419.55	0.9999	419.508
78029	1	408.65	0.9999	408.609
78028	1	398.13	0.9999	398.090
78026	1	397.00	0.9999	396.960
9700059	1	400.10	0.9999	400.059
78023	1	414.83	0.9999	414.788
9700287	1	400.09	0.9999	400.049
9700279	1	400.09	0.9999	400.049
9700291	1	400.09	0.9999	400.049
9700282	1	400.08	0.9999	400.039
9700294	1	400.09	0.9999	400.049
9700243	1	400.10	0.9999	400.059
9700275	1	400.08	0.9999	400.039
9700277	1	400.09	0.9999	400.049
9700241	1	400.10	0.9999	400.059
9700273	1	400.09	0.9999	400.049
9700278	1	400.10	0.9999	400.059
9700292	1	400.09	0.9999	400.049
9700290	1	400.09	0.9999	400.049
9701280	1	400.09	0.9999	400.049
81673	1			

		403.78	0.9999	403.739
82853	1	391.45	0.9999	391.410
82854	1	417.23	0.9999	417.188
82849	1	395.50	0.9999	395.460
82847	1	399.08	0.9999	399.040
82844	1	399.40	0.9999	399.360
82856	1	411.53	0.9999	411.488
81670	1	388.90	0.9999	388.861
81671	1	392.50	0.9999	392.460
81672	1	425.13	0.9999	425.087
81674	1	405.90	0.9999	405.859
42135	1	399.40	0.9999	399.360
42112	1	378.65	0.9999	378.612
42111	1	400.38	0.9999	400.335
42110	1	401.10	0.9999	401.060
42109	1	394.13	0.9999	394.086
42146	1	405.55	0.9999	405.509
42136	1	404.90	0.9999	404.860
42144	1	408.28	0.9999	408.234
42141	1	383.30	0.9999	383.262
42139	1	391.53	0.9999	391.486
42138	1	383.98	0.9999	383.937
42137	1			

		370.10	0.9999	370.063
82852	1	393.98	0.9999	393.940
82846	1	395.60	0.9999	395.560
82850	1	429.48	0.9999	429.437
82851	1	398.50	0.9999	398.460
82848	1	405.88	0.9999	405.839
82845	1	402.73	0.9999	402.689
42129	1	387.10	0.9999	387.061
42130	1	383.35	0.9999	383.312
82855	1	403.65	0.9999	403.609
42132	1	384.83	0.9999	384.787
42131	1	384.68	0.9999	384.637
42107	1	392.03	0.9999	391.986
42108	1	398.55	0.9999	398.510
78255	1	415.15	0.9999	415.108
77943	1	396.23	0.9999	396.185
77948	1	382.63	0.9999	382.587
77944	1	400.65	0.9999	400.610
39879	1	393.05	0.9999	393.011
39889	1	391.53	0.9999	391.486
39875	1	391.78	0.9999	391.736
39873	1	409.83	0.9999	409.784
39872	1			

		396.40	0.9999	396.360
39878	1	422.63	0.9999	422.583
39868	1	400.23	0.9999	400.185
77947	1	396.53	0.9999	396.485
78269	1	424.70	0.9999	424.658
77953	1	416.65	0.9999	416.608
77954	1	406.53	0.9999	406.484
77952	1	422.45	0.9999	422.408
77955	1	401.00	0.9999	400.960
77951	1	408.98	0.9999	408.934
78270	1	424.03	0.9999	423.983
78265	1	416.93	0.9999	416.883
39876	1	401.80	0.9999	401.760
39867	1	406.83	0.9999	406.784
39865	1	403.65	0.9999	403.610
39883	1	416.53	0.9999	416.483
39881	1	413.53	0.9999	413.484
39866	1	403.50	0.9999	403.460
39877	1	413.18	0.9999	413.134
39870	1	406.63	0.9999	406.584
39869	1	394.10	0.9999	394.061
78272	1	420.73	0.9999	420.683
78257	1			

		409.35	0.9999	409.309
77946	1	408.10	0.9999	408.059
9700271	1	400.08	0.9999	400.039
9700286	1	400.07	0.9999	400.029
9700284	1	400.07	0.9999	400.029
9700276	1	400.10	0.9999	400.059
77949	1	415.60	0.9999	415.558
78264	1	415.28	0.9999	415.233
78256	1	409.53	0.9999	409.484
78266	1	424.78	0.9999	424.733
77942	1	397.73	0.9999	397.685
78268	1	405.40	0.9999	405.359
9700281	1	400.09	0.9999	400.049
9700280	1	400.09	0.9999	400.049
9700293	1	400.10	0.9999	400.059
9700288	1	400.09	0.9999	400.049
9700274	1	400.09	0.9999	400.049
9700244	1	400.10	0.9999	400.059
9700289	1	400.09	0.9999	400.049
9700242	1	400.10	0.9999	400.059
79113	1	411.30	0.9999	411.258
79112	1	395.60	0.9999	395.560
79116	1			

		410.10	0.9999	410.059
79135	1	396.95	0.9999	396.910
79164	1	388.55	0.9999	388.511
498	1	397.28	0.9999	397.235
489	1	382.50	0.9999	382.462
508	1	394.03	0.9999	393.986
510	1	380.70	0.9999	380.662
504	1	399.65	0.9999	399.610
517	1	406.28	0.9999	406.234
514	1	411.00	0.9999	410.959
506	1	410.05	0.9999	410.009
503	1	409.73	0.9999	409.684
494	1	392.10	0.9999	392.061
491	1	379.85	0.9999	379.812
507	1	396.10	0.9999	396.060
74275	1	421.45	0.9999	421.408
74271	1	424.50	0.9999	424.458
75238	1	398.18	0.9999	398.135
75239	1	401.15	0.9999	401.110
75232	1	392.90	0.9999	392.861
74260	1	415.68	0.9999	415.633
74235	1	392.05	0.9999	392.010
74245	1			

		389.65	0.9999	389.611
74241	1	398.50	0.9999	398.460
74242	1	403.05	0.9999	403.009
74246	1	405.05	0.9999	405.009
74248	1	395.33	0.9999	395.285
74254	1	397.88	0.9999	397.835
74272	1	398.25	0.9999	398.210
75237	1	383.75	0.9999	383.712
74269	1	398.88	0.9999	398.835
74273	1	408.50	0.9999	408.459
74247	1	407.10	0.9999	407.059
74238	1	397.78	0.9999	397.735
74266	1	392.15	0.9999	392.111
74265	1	397.30	0.9999	397.260
74256	1	397.85	0.9999	397.810
74239	1	410.18	0.9999	410.134
74274	1	416.88	0.9999	416.833
74258	1	428.08	0.9999	428.032
74244	1	401.95	0.9999	401.909
74268	1	395.40	0.9999	395.360
74270	1	417.63	0.9999	417.583
74469	1	388.68	0.9999	388.636
74487	1			

		407.00	0.9999	406.959
74264	1	409.55	0.9999	409.509
78273	1	414.70	0.9999	414.659
78271	1	420.95	0.9999	420.908
76375	1	410.50	0.9999	410.458
76369	1	390.65	0.9999	390.610
77011	1	410.90	0.9999	410.859
75240	1	387.03	0.9999	386.986
76380	1	403.35	0.9999	403.309
76368	1	405.28	0.9999	405.239
77008	1	400.05	0.9999	400.010
77016	1	407.70	0.9999	407.659
77013	1	409.98	0.9999	409.934
77017	1	384.80	0.9999	384.761
77009	1	391.20	0.9999	391.160
77012	1	393.43	0.9999	393.385
77010	1	381.65	0.9999	381.611
76382	1	405.78	0.9999	405.739
77014	1	394.78	0.9999	394.735
76371	1	402.48	0.9999	402.439
76379	1	389.35	0.9999	389.311
3579	1	379.58	0.9999	379.537
3578	1			

		407.30	0.9999	407.259
3126	1	418.70	0.9999	418.658
2403	1	410.70	0.9999	410.659
3561	1	384.65	0.9999	384.612
2435	1	419.10	0.9999	419.058
3125	1	392.45	0.9999	392.410
3080	1	412.63	0.9999	412.588
9700376	1	400.10	0.9999	400.059
9700377	1	400.09	0.9999	400.049
9700380	1	400.09	0.9999	400.049
9700378	1	400.09	0.9999	400.049
9700379	1	400.09	0.9999	400.049
9700385	1	400.10	0.9999	400.059
9700383	1	400.09	0.9999	400.049
78874	1	410.93	0.9999	410.884
78873	1	406.15	0.9999	406.109
78880	1	410.38	0.9999	410.334
40484	1	401.25	0.9999	401.210
40489	1	392.00	0.9999	391.961
40500	1	400.35	0.9999	400.310
40507	1	402.05	0.9999	402.010
79162	1	411.18	0.9999	411.134
40502	1			

		409.40	0.9999	409.359
78871	1	409.60	0.9999	409.559
78876	1	387.93	0.9999	387.886
78879	1	404.63	0.9999	404.584
78872	1	398.25	0.9999	398.210
78878	1	395.28	0.9999	395.235
79138	1	398.25	0.9999	398.210
78877	1	412.00	0.9999	411.958
79118	1	412.15	0.9999	412.108
79115	1	406.20	0.9999	406.159
74252	1	408.73	0.9999	408.684
703	1	417.43	0.9999	417.383
746	1	405.00	0.9999	404.960
748	1	411.30	0.9999	411.259
726	1	416.40	0.9999	416.358
757	1	413.10	0.9999	413.059
758	1	410.78	0.9999	410.734
744	1	389.25	0.9999	389.211
743	1	415.38	0.9999	415.333
747	1	404.38	0.9999	404.335
725	1	413.18	0.9999	413.134
723	1	417.55	0.9999	417.508
705	1			

		416.93	0.9999	416.883
736	1	396.45	0.9999	396.410
737	1	398.85	0.9999	398.810
1624	1	395.30	0.9999	395.260
3081	1	403.10	0.9999	403.059
3076	1	411.45	0.9999	411.408
903	1	402.90	0.9999	402.860
904	1	402.65	0.9999	402.610
918	1	402.93	0.9999	402.885
916	1	402.90	0.9999	402.860
917	1	402.68	0.9999	402.635
908	1	402.70	0.9999	402.660
919	1	402.85	0.9999	402.810
910	1	402.98	0.9999	402.935
913	1	402.93	0.9999	402.885
907	1	402.83	0.9999	402.785
906	1	402.85	0.9999	402.810
914	1	402.93	0.9999	402.885
915	1	403.93	0.9999	403.885
905	1	402.83	0.9999	402.785
912	1	402.98	0.9999	402.935
911	1	402.95	0.9999	402.910
909	1			

		402.65	0.9999	402.610
577	1	412.68	0.9999	412.634
3078	1	374.40	0.9999	374.362
3082	1	377.85	0.9999	377.812
3580	1	400.35	0.9999	400.310
39081	1	391.20	0.9999	391.160
76383	1	417.10	0.9999	417.058
7534	1	406.65	0.9999	406.609
75233	1	420.03	0.9999	419.983
76373	1	398.73	0.9999	398.690
76378	1	425.05	0.9999	425.007
76370	1	407.08	0.9999	407.039
76377	1	414.98	0.9999	414.938
76381	1	406.03	0.9999	405.989
77015	1	422.73	0.9999	422.682
77007	1	388.43	0.9999	388.386
1041	1	399.33	0.9999	399.285
1042	1	400.75	0.9999	400.709
1043	1	400.80	0.9999	400.759
1051	1	399.95	0.9999	399.910
1050	1	399.90	0.9999	399.860
1053	1	399.93	0.9999	399.885
1054	1			

		399.65	0.9999	399.610
79150	1	422.95	0.9999	422.908
79157	1	403.48	0.9999	403.435
79139	1	409.53	0.9999	409.484
79165	1	424.83	0.9999	424.783
79156	1	386.03	0.9999	385.986
79166	1	407.85	0.9999	407.809
79158	1	408.73	0.9999	408.684
79145	1	404.18	0.9999	404.135
79153	1	409.23	0.9999	409.184
79160	1	426.03	0.9999	425.982
79161	1	403.18	0.9999	403.135
79154	1	421.35	0.9999	421.308
79155	1	412.20	0.9999	412.159
40498	1	397.23	0.9999	397.185
40496	1	413.38	0.9999	413.334
40482	1	418.70	0.9999	418.658
40495	1	413.90	0.9999	413.859
57478	1	402.91	0.9999	402.869
79151	1	412.95	0.9999	412.909
79152	1	404.33	0.9999	404.285
79146	1	404.28	0.9999	404.235
79163	1			

		404.30	0.9999	404.260
79140	1	424.45	0.9999	424.408
79136	1	408.80	0.9999	408.759
79137	1	424.78	0.9999	424.733
79159	1	429.60	0.9999	429.557
79131	1	403.05	0.9999	403.010
79148	1	405.38	0.9999	405.334
79519	1	401.33	0.9999	401.284
79512	1	411.18	0.9999	411.133
79511	1	390.43	0.9999	390.386
79518	1	421.30	0.9999	421.257
79514	1	409.08	0.9999	409.034
79513	1	398.48	0.9999	398.435
79520	1	407.43	0.9999	407.384
79515	1	404.35	0.9999	404.309
79133	1	410.95	0.9999	410.909
79516	1	393.43	0.9999	393.385
80342	1	407.85	0.9999	407.809
80343	1	417.88	0.9999	417.833
80341	1	416.55	0.9999	416.508
80338	1	398.33	0.9999	398.285
80339	1	421.85	0.9999	421.807
2222	1			

		399.55	0.9999	399.510
2221	1	407.18	0.9999	407.139
2223	1	371.75	0.9999	371.712
2216	1	399.43	0.9999	399.390
1540	1	392.88	0.9999	392.840
2226	1	400.13	0.9999	400.089
2220	1	399.35	0.9999	399.310
2218	1	389.35	0.9999	389.311
2232	1	408.58	0.9999	408.539
2229	1	398.15	0.9999	398.110
9700826	1	400.09	0.9999	400.049
9701269	1	400.10	0.9999	400.059
9701279	1	400.09	0.9999	400.049
9701278	1	400.10	0.9999	400.059
9701277	1	400.09	0.9999	400.049
9701282	1	400.10	0.9999	400.059
9701281	1	400.09	0.9999	400.049
2253	1	394.48	0.9999	394.440
42140	1	399.23	0.9999	399.185
42133	1	400.08	0.9999	400.035
3539	1	381.95	0.9999	381.912
3529	1	404.00	0.9999	403.960
3536	1			

		384.13	0.9999	384.087
3570	1	406.13	0.9999	406.084
3546	1	384.20	0.9999	384.162
3573	1	403.98	0.9999	403.935
3565	1	401.05	0.9999	401.010
3564	1	405.15	0.9999	405.109
3543	1	418.80	0.9999	418.758
3572	1	395.93	0.9999	395.885
3534	1	407.53	0.9999	407.484
3567	1	414.90	0.9999	414.859
3569	1	414.15	0.9999	414.109
3545	1	412.20	0.9999	412.159
3537	1	411.05	0.9999	411.009
3554	1	388.48	0.9999	388.436
3551	1	397.43	0.9999	397.385
3544	1	390.25	0.9999	390.211
3541	1	397.80	0.9999	397.760
3562	1	391.55	0.9999	391.511
3575	1	422.90	0.9999	422.858
3571	1	420.45	0.9999	420.408
3533	1	409.40	0.9999	409.359
1047	1	400.88	0.9999	400.834
1048	1			

		400.95	0.9999	400.909
1052	1	399.95	0.9999	399.910
1049	1	400.78	0.9999	400.734
1045	1	400.85	0.9999	400.809
1046	1	400.83	0.9999	400.784
1044	1	400.95	0.9999	400.909
9701273	1	400.10	0.9999	400.059
9701265	1	400.08	0.9999	400.039
9701263	1	400.09	0.9999	400.049
9701275	1	400.09	0.9999	400.049
9701268	1	400.09	0.9999	400.049
9701264	1	400.09	0.9999	400.049
9701274	1	400.10	0.9999	400.059
9701271	1	400.09	0.9999	400.049
9701276	1	400.08	0.9999	400.039
852	1	405.10	0.9999	405.059
1072	1	403.65	0.9999	403.610
1067	1	404.75	0.9999	404.710
1066	1	405.20	0.9999	405.159
1065	1	405.60	0.9999	405.559
1068	1	404.80	0.9999	404.760
1073	1	403.43	0.9999	403.385
1076	1			

		402.35	0.9999	402.310
1074	1	403.15	0.9999	403.110
1075	1	402.95	0.9999	402.910
1069	1	404.73	0.9999	404.685
1070	1	404.65	0.9999	404.610
1071	1	404.03	0.9999	403.985
2242	1	390.90	0.9999	390.860
2250	1	411.10	0.9999	411.058
2248	1	377.40	0.9999	377.362
2257	1	391.50	0.9999	391.460
2258	1	419.15	0.9999	419.108
2252	1	412.43	0.9999	412.388
2247	1	408.65	0.9999	408.609
2260	1	389.85	0.9999	389.811
2241	1	377.88	0.9999	377.842
2243	1	399.58	0.9999	399.540
2244	1	405.85	0.9999	405.809
2251	1	410.53	0.9999	410.488
2237	1	397.18	0.9999	397.140
2234	1	401.25	0.9999	401.209
2235	1	396.58	0.9999	396.540
2236	1	406.58	0.9999	406.539
2230	1			

		380.73	0.9999	380.691
2256	1	425.70	0.9999	425.657
2233	1	407.20	0.9999	407.159
2259	1	408.05	0.9999	408.009
2255	1	428.23	0.9999	428.187
2246	1	380.40	0.9999	380.361
2254	1	409.25	0.9999	409.209
2249	1	418.95	0.9999	418.908
2245	1	412.23	0.9999	412.188
2224	1	398.60	0.9999	398.560
2217	1	388.30	0.9999	388.261
1538	1	407.18	0.9999	407.139
174	1	402.65	0.9999	402.609
569	1	369.65	0.9999	369.613
574	1	401.80	0.9999	401.760
589	1	407.00	0.9999	406.959
570	1	384.18	0.9999	384.137
571	1	403.58	0.9999	403.535
573	1	404.00	0.9999	403.960
576	1	402.70	0.9999	402.660
578	1	381.50	0.9999	381.462
577	1	410.40	0.9999	410.359
584	1			

		407.60	0.9999	407.559
586	1	412.75	0.9999	412.709
564	1	388.38	0.9999	388.336
565	1	393.23	0.9999	393.186
572	1	390.48	0.9999	390.436
581	1	420.18	0.9999	420.133
580	1	398.83	0.9999	398.785
582	1	384.38	0.9999	384.337
587	1	397.93	0.9999	397.885
588	1	408.10	0.9999	408.059
568	1	404.70	0.9999	404.660
566	1	398.40	0.9999	398.360
567	1	398.80	0.9999	398.760
575	1	396.35	0.9999	396.310
2252	1	407.10	0.9999	407.059
169	1	387.35	0.9999	387.311
9700246	1	400.10	0.9999	400.059
9700247	1	400.10	0.9999	400.059
9700263	1	400.09	0.9999	400.049
9700269	1	400.08	0.9999	400.039
9700265	1	400.09	0.9999	400.049
9700248	1	400.10	0.9999	400.059
9700261	1			

		400.09	0.9999	400.049
9700264	1	400.09	0.9999	400.049
9700270	1	400.08	0.9999	400.039
9700268	1	400.09	0.9999	400.049
9700267	1	400.10	0.9999	400.059
9700266	1	400.09	0.9999	400.049
9700262	1	400.10	0.9999	400.059
9701258	1	400.09	0.9999	400.049
9701260	1	400.09	0.9999	400.049
9701262	1	400.09	0.9999	400.049
9701255	1	400.09	0.9999	400.049
9701270	1	400.10	0.9999	400.059
9701259	1	400.09	0.9999	400.049
9701257	1	400.08	0.9999	400.039
9701253	1	400.09	0.9999	400.049
9701256	1	400.09	0.9999	400.049
9701266	1	400.09	0.9999	400.049
9701261	1	400.09	0.9999	400.049
9701535	1	400.09	0.9999	400.049
9701547	1	400.09	0.9999	400.049
9701532	1	400.08	0.9999	400.039
9701544	1	400.07	0.9999	400.029
9701543	1			

		400.08	0.9999	400.039
9701548	1	400.00	0.9999	399.960
9701549	1	400.08	0.9999	400.039
9701540	1	400.09	0.9999	400.049
9701529	1	400.08	0.9999	400.039
9701541	1	399.99	0.9999	399.950
9701538	1	400.10	0.9999	400.059
9701536	1	400.09	0.9999	400.049
9701526	1	400.09	0.9999	400.049
9701528	1	399.66	0.9999	399.620
9701531	1	400.09	0.9999	400.049
9701527	1	400.09	0.9999	400.049
9701533	1	400.09	0.9999	400.049
9701530	1	400.08	0.9999	400.039
9701539	1	400.08	0.9999	400.039
9701537	1	400.08	0.9999	400.039
9701542	1	400.07	0.9999	400.029
9701545	1	400.08	0.9999	400.039
9700836	1	400.09	0.9999	400.049
9700359	1	400.10	0.9999	400.059
2240	1	383.40	0.9999	383.361
2239	1	409.18	0.9999	409.139
2238	1			

		392.20	0.9999	392.160
9700384	1	400.09	0.9999	400.049
9700382	1	400.09	0.9999	400.049
76394	1	405.30	0.9999	405.259
718	1	417.50	0.9999	417.458
181	1	397.68	0.9999	397.640
180	1	387.18	0.9999	387.141
179	1	398.63	0.9999	398.590
167	1	411.78	0.9999	411.738
163	1	376.68	0.9999	376.642
165	1	399.15	0.9999	399.110
164	1	413.65	0.9999	413.608
166	1	403.63	0.9999	403.589
161	1	399.88	0.9999	399.840
168	1	396.13	0.9999	396.090
178	1	390.73	0.9999	390.690
172	1	386.25	0.9999	386.211
171	1	394.10	0.9999	394.060
170	1	409.08	0.9999	409.039
177	1	387.75	0.9999	387.711
176	1	387.78	0.9999	387.741
175	1	397.03	0.9999	396.990
173	1			

		398.10	0.9999	398.060
162	1	413.15	0.9999	413.108
129868	1	407.34	0.9999	407.299
129869	1	398.43	0.9999	398.390
130709	1	402.78	0.9999	402.739
130696	1	392.17	0.9999	392.130
130698	1	399.21	0.9999	399.170
130708	1	398.62	0.9999	398.580
130695	1	406.40	0.9999	406.359
130697	1	391.14	0.9999	391.100
79149	1	416.10	0.9999	416.058
78881	1	397.50	0.9999	397.460
129867	1	400.39	0.9999	400.349
129866	1	393.17	0.9999	393.130
130652	1	397.18	0.9999	397.140
130649	1	407.44	0.9999	407.399
129865	1	398.27	0.9999	398.230
130650	1	397.17	0.9999	397.130
129864	1	396.29	0.9999	396.250
130651	1	394.18	0.9999	394.140
130655	1	408.46	0.9999	408.419
130654	1	398.41	0.9999	398.370
130653	1			

		400.49	0.9999	400.449
9701534	1	400.09	0.9999	400.049
9701272	1	399.85	0.9999	399.810
9701267	1	399.98	0.9999	399.940
2227	1	406.45	0.9999	406.409
76376	1	389.67	0.9999	389.631
74471	1	413.05	0.9999	413.003
92993	1	400.51	0.9999	400.469
92948	1	392.96	0.9999	392.915
85954	1	402.85	0.9999	402.804
85917	1	403.41	0.9999	403.369
86006	1	398.45	0.9999	398.410
44498	1	398.62	0.9999	398.580
44867	1	411.19	0.9999	411.143
90375	1	388.52	0.9999	388.481
45184	1	407.56	0.9999	407.514
9701546	1	399.97	0.9999	399.930
9701254	1	399.99	0.9999	399.950
1077	1	402.09	0.9999	402.044
3542	1	415.96	0.9999	415.913
79147	1	412.79	0.9999	412.743
9700283	1	399.97	0.9999	399.930
9700285	1			

		399.94	0.9999	399.900
78673	1	408.68	0.9999	408.639
77950	1	403.58	0.9999	403.534
78262	1	415.17	0.9999	415.123
89671	1	400.01	0.9999	399.969
87617	1	396.25	0.9999	396.205
86631	1	407.33	0.9999	407.284
86636	1	405.44	0.9999	405.394
86627	1	403.45	0.9999	403.404
45191	1	424.72	0.9999	424.672
39012	1	411.63	0.9999	411.583
18	1	404.67	0.9999	404.629
71	1	389.71	0.9999	389.671
16490	1	406.77	0.9999	406.724
42533	1	389.61	0.9999	389.571
44724	1	401.34	0.9999	401.294
44739	1	422.07	0.9999	422.027
42357	1	408.17	0.9999	408.129
130716	1	395.72	0.9999	395.680
44740	1	407.13	0.9999	407.089
88223	1	375.62	0.9999	375.582
88214	1	370.57	0.9999	370.527
88211	1			

		399.07	0.9999	399.030
88681	1	383.40	0.9999	383.361
45658	1	373.81	0.9999	373.772
92210	1	403.96	0.9999	403.914
93041	1	411.45	0.9999	411.403
92966	1	417.06	0.9999	417.018
92148	1	411.87	0.9999	411.828
86641	1	404.51	0.9999	404.464
87668	1	406.52	0.9999	406.474
293	1	398.89	0.9999	398.845
42632	1	402.16	0.9999	402.114
84388	1	422.36	0.9999	422.317
85612	1	383.99	0.9999	383.946
589	1	379.90	0.9999	379.862
1234	1	399.44	0.9999	399.395
89688	1	391.04	0.9999	390.995
89717	1	398.90	0.9999	398.860
597	1	400.71	0.9999	400.664
43799	1	399.48	0.9999	399.435
43807	1	401.41	0.9999	401.369
256	1	404.17	0.9999	404.129
5146	1	411.33	0.9999	411.288
42997	1			

		417.55	0.9999	417.503
85603	1	375.63	0.9999	375.592
1194	1	414.04	0.9999	413.993
91217	1	414.19	0.9999	414.143
1254	1	399.76	0.9999	399.715
1248	1	399.91	0.9999	399.865
689	1	386.11	0.9999	386.071
74267	1	400.95	0.9999	400.904
39220	1	397.23	0.9999	397.190
500	1	386.30	0.9999	386.261
3508	1	411.00	0.9999	410.958
2495	1	404.86	0.9999	404.814
1591	1	402.79	0.9999	402.744
41396	1	399.73	0.9999	399.690
41397	1	399.04	0.9999	399.000
78697	1	418.37	0.9999	418.328
78677	1	417.36	0.9999	417.318
694	1	390.90	0.9999	390.855
43863	1	396.00	0.9999	395.955
87613	1	387.20	0.9999	387.156
87616	1	379.88	0.9999	379.837
1224	1	388.84	0.9999	388.796
1221	1			

		383.04	0.9999	382.996
91251	1	408.98	0.9999	408.939
91183	1	406.13	0.9999	406.089
91176	1	406.10	0.9999	406.059
1178	1	406.16	0.9999	406.114
90257	1	406.60	0.9999	406.554
67331	1	399.45	0.9999	399.410
67333	1	402.18	0.9999	402.135
67725	1	387.30	0.9999	387.261
67326	1	391.63	0.9999	391.586
67328	1	409.08	0.9999	409.034
66573	1	405.30	0.9999	405.259
67324	1	415.55	0.9999	415.508
67709	1	388.03	0.9999	387.986
66522	1	409.55	0.9999	409.509
67464	1	397.15	0.9999	397.110
67375	1	411.00	0.9999	410.959
67748	1	414.08	0.9999	414.034
67743	1	400.13	0.9999	400.085
66554	1	423.40	0.9999	423.358
66566	1	398.43	0.9999	398.385
66546	1	413.50	0.9999	413.459
66539	1			

		398.65	0.9999	398.610
66570	1	397.18	0.9999	397.135
67321	1	406.33	0.9999	406.284
67337	1	396.95	0.9999	396.910
67320	1	408.33	0.9999	408.284
66574	1	396.93	0.9999	396.885
67377	1	399.48	0.9999	399.435
6207	1	414.03	0.9996	413.864
6208	1	398.12	0.9996	397.960
6209	1	400.56	0.9996	400.399
6210	1	405.51	0.9996	405.347
59681	1	416.50	0.9999	416.458
59682	1	397.30	0.9999	397.260
59683	1	409.08	0.9999	409.039
59684	1	406.48	0.9999	406.439
59685	1	414.78	0.9999	414.738
59687	1	382.50	0.9999	382.461
59688	1	393.05	0.9999	393.010
67466	1	409.15	0.9999	409.109
67737	1	374.03	0.9999	373.988
67457	1	400.23	0.9999	400.185
66513	1	418.88	0.9999	418.833
67365	1			

		408.83	0.9999	408.784
67387	1	423.48	0.9999	423.432
67447	1	414.88	0.9999	414.833
67361	1	401.73	0.9999	401.684
67356	1	400.83	0.9999	400.785
67336	1	403.88	0.9999	403.835
66575	1	399.43	0.9999	399.385
67459	1	405.18	0.9999	405.134
67325	1	406.93	0.9999	406.884
67341	1	416.88	0.9999	416.833
67353	1	402.20	0.9999	402.160
67351	1	410.15	0.9999	410.109
67329	1	392.90	0.9999	392.861
67327	1	396.25	0.9999	396.210
67354	1	396.35	0.9999	396.310
67330	1	391.20	0.9999	391.161
66571	1	404.00	0.9999	403.960
67339	1	398.33	0.9999	398.285
66562	1	406.80	0.9999	406.759
66569	1	396.85	0.9999	396.810
67479	1	424.43	0.9999	424.382
67350	1	404.10	0.9999	404.060
6050	1			

		396.09	0.9996	395.932
6051	1	415.97	0.9996	415.804
6048	1	418.27	0.9996	418.103
6052	1	386.73	0.9996	386.575
6058	1	414.99	0.9996	414.824
6059	1	399.49	0.9996	399.330
5992	1	403.32	0.9996	403.158
5947	1	405.04	0.9996	404.878
6032	1	419.55	0.9996	419.382
6053	1	416.67	0.9996	416.503
6057	1	413.29	0.9996	413.125
6049	1	400.72	0.9996	400.560
5997	1	397.19	0.9996	397.031
59405	1	406.45	0.9999	406.409
59377	1	406.70	0.9999	406.659
59409	1	402.70	0.9999	402.660
32249	1	421.45	0.9999	421.407
32236	1	426.35	0.9999	426.307
32241	1	429.75	0.9999	429.707
32240	1	423.25	0.9999	423.207
32235	1	421.30	0.9999	421.257
32243	1	422.83	0.9999	422.782
6001	1			

		378.47	0.9996	378.318
5993	1	390.48	0.9996	390.323
6002	1	402.00	0.9996	401.839
6004	1	402.06	0.9996	401.899
6005	1	406.02	0.9996	405.857
6006	1	399.95	0.9996	399.790
5999	1	410.37	0.9996	410.205
5998	1	394.91	0.9996	394.752
5996	1	414.52	0.9996	414.354
5995	1	404.94	0.9996	404.778
5994	1	395.74	0.9996	395.581
59385	1	418.53	0.9999	418.483
5990	1	407.96	0.9996	407.797
2505	1	407.26	0.9996	407.097
5061	1	411.19	0.9996	411.025
5945	1	396.09	0.9996	395.931
5946	1	405.24	0.9996	405.078
5948	1	395.89	0.9996	395.731
5949	1	389.39	0.9996	389.234
5950	1	380.99	0.9996	380.837
6206	1	399.02	0.9996	398.860
6205	1	400.33	0.9996	400.169
6204	1			

		381.51	0.9996	381.357
6203	1	385.48	0.9996	385.325
6202	1	404.38	0.9996	404.218
6200	1	395.99	0.9996	395.831
6199	1	378.62	0.9996	378.468
6198	1	400.57	0.9996	400.409
6197	1	387.89	0.9996	387.734
6196	1	406.70	0.9996	406.537
67397	1	405.43	0.9999	405.384
6056	1	419.05	0.9996	418.882
6047	1	408.05	0.9996	407.887
6054	1	402.67	0.9996	402.509
6055	1	402.50	0.9996	402.339
6046	1	394.07	0.9996	393.912
6118	1	411.03	0.9996	410.865
6117	1	411.21	0.9996	411.045
6116	1	406.95	0.9996	406.787
6000	1	380.98	0.9996	380.827
5986	1	404.35	0.9996	404.188
5059	1	408.63	0.9996	408.466
5985	1	371.16	0.9996	371.012
5057	1	392.57	0.9996	392.412
5055	1			

		425.06	0.9996	424.889
5053	1	419.24	0.9996	419.072
5052	1	413.56	0.9996	413.394
5874	1	424.01	0.9996	423.840
5875	1	393.98	0.9996	393.822
5868	1	415.79	0.9996	415.624
5876	1	408.04	0.9996	407.877
5867	1	407.78	0.9996	407.617
5873	1	421.69	0.9996	421.521
5865	1	394.36	0.9996	394.202
5869	1	412.71	0.9996	412.545
5872	1	402.12	0.9996	401.959
5871	1	406.49	0.9996	406.327
5877	1	401.85	0.9996	401.689
5899	1	420.27	0.9996	420.101
5833	1	413.43	0.9996	413.264
5836	1	398.82	0.9996	398.660
5837	1	404.70	0.9996	404.538
5870	1	402.35	0.9996	402.189
5879	1	403.57	0.9996	403.408
5878	1	411.60	0.9996	411.435
5898	1	419.02	0.9996	418.852
5897	1			

		402.71	0.9996	402.548
59689	1	404.20	0.9999	404.159
59690	1	400.50	0.9999	400.459
59691	1	406.18	0.9999	406.139
59692	1	403.70	0.9999	403.659
59693	1	410.00	0.9999	409.959
59694	1	400.15	0.9999	400.109
59695	1	395.05	0.9999	395.010
59696	1	404.73	0.9999	404.689
59788	1	409.45	0.9999	409.409
59770	1	408.23	0.9999	408.184
59755	1	407.30	0.9999	407.259
59744	1	406.23	0.9999	406.184
59735	1	409.40	0.9999	409.359
59786	1	406.43	0.9999	406.384
59769	1	406.75	0.9999	406.709
59389	1	412.90	0.9999	412.859
59401	1	412.50	0.9999	412.459
59406	1	410.80	0.9999	410.759
59383	1	411.00	0.9999	410.959
59397	1	407.53	0.9999	407.484
59381	1	411.68	0.9999	411.634
59398	1			

		406.38	0.9999	406.334
59382	1	414.78	0.9999	414.734
6252	1	410.98	0.9996	410.815
59753	1	405.63	0.9999	405.584
59740	1	402.60	0.9999	402.560
59759	1	406.10	0.9999	406.059
59741	1	404.38	0.9999	404.335
59772	1	392.08	0.9999	392.036
59756	1	402.28	0.9999	402.235
59745	1	399.35	0.9999	399.310
59751	1	405.40	0.9999	405.359
59731	1	397.95	0.9999	397.910
59767	1	399.08	0.9999	399.035
59748	1	401.25	0.9999	401.210
59773	1	386.58	0.9999	386.536
5991	1	404.77	0.9996	404.608
6195	1	394.01	0.9996	393.852
59737	1	399.10	0.9999	399.060
59739	1	405.23	0.9999	405.184
59746	1	398.40	0.9999	398.360
59763	1	404.83	0.9999	404.785
59779	1	404.18	0.9999	404.135
59774	1			

		404.13	0.9999	404.085
59752	1	405.50	0.9999	405.459
59787	1	404.88	0.9999	404.835
59765	1	393.45	0.9999	393.411
59734	1	395.38	0.9999	395.335
67462	1	400.35	0.9999	400.310
67460	1	405.20	0.9999	405.159
67465	1	409.25	0.9999	409.209
67463	1	403.90	0.9999	403.859
67393	1	393.43	0.9999	393.385
34844	1	391.18	0.9999	391.136
67474	1	425.65	0.9999	425.607
66577	1	402.75	0.9999	402.710
67454	1	400.30	0.9999	400.260
67446	1	392.50	0.9999	392.460
5834	1	424.28	0.9996	424.110
5832	1	384.82	0.9996	384.666
5831	1	416.49	0.9996	416.323
5828	1	406.91	0.9996	406.747
5830	1	416.89	0.9996	416.723
5727	1	397.95	0.9996	397.790
5726	1	384.52	0.9996	384.366
5750	1			

		421.79	0.9996	421.621
5728	1	407.60	0.9996	407.436
5732	1	383.63	0.9996	383.476
67453	1	404.48	0.9999	404.434
67440	1	389.63	0.9999	389.586
67441	1	394.88	0.9999	394.835
5756	1	417.82	0.9996	417.652
5759	1	406.58	0.9996	406.417
5757	1	393.21	0.9996	393.052
5672	1	409.47	0.9996	409.306
5829	1	405.61	0.9996	405.447
5866	1	399.20	0.9996	399.040
5835	1	408.52	0.9996	408.356
5931	1	393.15	0.9996	392.993
5932	1	390.41	0.9996	390.254
32237	1	422.53	0.9999	422.482
6247	1	416.46	0.9996	416.293
6249	1	393.94	0.9996	393.782
6248	1	412.62	0.9996	412.454
6257	1	391.87	0.9996	391.713
6255	1	381.89	0.9996	381.737
6250	1	399.01	0.9996	398.850
6251	1			

		408.54	0.9996	408.376
5927	1	408.31	0.9996	408.147
5930	1	409.41	0.9996	409.246
5926	1	418.72	0.9996	418.553
5929	1	411.95	0.9996	411.785
5928	1	399.80	0.9996	399.640
5935	1	395.01	0.9996	394.852
5934	1	389.72	0.9996	389.564
5936	1	390.51	0.9996	390.354
5937	1	397.22	0.9996	397.061
5933	1	398.57	0.9996	398.411
5698	1	405.92	0.9996	405.757
5676	1	396.15	0.9996	395.991
5734	1	400.50	0.9996	400.339
5735	1	411.96	0.9996	411.795
5733	1	394.21	0.9996	394.052
5736	1	386.73	0.9996	386.575
5729	1	402.92	0.9996	402.758
5731	1	426.49	0.9996	426.319
5730	1	401.87	0.9996	401.709
5697	1	411.00	0.9996	410.835
59730	1	390.05	0.9999	390.011
59733	1			

		391.30	0.9999	391.261
59732	1	388.50	0.9999	388.461
59760	1	403.25	0.9999	403.210
6301	1	417.65	0.9996	417.483
6304	1	411.33	0.9996	411.165
6314	1	412.00	0.9996	411.835
6313	1	411.63	0.9996	411.465
6311	1	422.47	0.9996	422.301
32212A	1	398.35	0.9999	398.310
32212	1	425.93	0.9999	425.882
5626	1	397.41	0.9996	397.251
5623	1	396.27	0.9996	396.111
5621	1	403.74	0.9996	403.578
5624	1	398.31	0.9996	398.150
5622	1	405.85	0.9996	405.687
59390	1	412.65	0.9999	412.609
5646	1	392.22	0.9996	392.063
5674	1	419.05	0.9996	418.882
5670	1	405.20	0.9996	405.037
59742	1	396.50	0.9999	396.460
59757	1	388.63	0.9999	388.586
32220	1	411.05	0.9999	411.009
32234	1			

		422.60	0.9999	422.558
32211	1	422.43	0.9999	422.383
32218	1	408.85	0.9999	408.809
32214	1	407.88	0.9999	407.834
60970	1	406.95	0.9999	406.909
60969	1	391.63	0.9999	391.590
60971	1	390.15	0.9999	390.110
60973	1	394.25	0.9999	394.210
32238	1	416.95	0.9999	416.908
32219	1	406.73	0.9999	406.684
32209	1	390.38	0.9999	390.336
32173	1	381.48	0.9999	381.437
32210	1	400.75	0.9999	400.710
32213	1	408.90	0.9999	408.859
32216	1	396.88	0.9999	396.835
32215	1	397.35	0.9999	397.310
32217	1	407.25	0.9999	407.209
32232	1	408.13	0.9999	408.084
57489	1	409.40	0.9999	409.359
57500	1	405.45	0.9999	405.409
67442	1	410.78	0.9999	410.734
57439	1	402.60	0.9999	402.559
57494	1			

		407.88	0.9999	407.834
57471	1	383.93	0.9999	383.886
57488	1	391.18	0.9999	391.135
57490	1	398.75	0.9999	398.710
57442	1	402.88	0.9999	402.834
67385	1	403.68	0.9999	403.634
67379	1	410.38	0.9999	410.334
67373	1	395.20	0.9999	395.160
67363	1	413.05	0.9999	413.008
67392	1	402.50	0.9999	402.459
67376	1	410.23	0.9999	410.184
67352	1	413.33	0.9999	413.284
67368	1	419.38	0.9999	419.333
67396	1	425.48	0.9999	425.432
67378	1	396.18	0.9999	396.135
67444	1	397.18	0.9999	397.135
67443	1	405.15	0.9999	405.109
67471	1	422.75	0.9999	422.707
67469	1	396.55	0.9999	396.510
67470	1	401.55	0.9999	401.509
67475	1	408.08	0.9999	408.034
67467	1	395.95	0.9999	395.910
67724	1			

		409.28	0.9999	409.234
67720	1	404.48	0.9999	404.435
67346	1	389.83	0.9999	389.786
66393	1	404.20	0.9999	404.160
66394	1	423.05	0.9999	423.008
66537	1	386.33	0.9999	386.286
66533	1	414.13	0.9999	414.084
66517	1	391.95	0.9999	391.911
66508	1	409.08	0.9999	409.034
66497	1	420.15	0.9999	420.108
34991	1	415.00	0.9999	414.959
34869	1	401.43	0.9999	401.385
34867	1	401.23	0.9999	401.185
65636	1	394.93	0.9999	394.890
5738	1	398.08	0.9996	397.920
5737	1	394.06	0.9996	393.902
5700	1	408.75	0.9996	408.586
5989	1	413.69	0.9996	413.525
5699	1	389.77	0.9996	389.614
5696	1	403.12	0.9996	402.958
5677	1	401.95	0.9996	401.789
5675	1	421.16	0.9996	420.991
5673	1			

		425.68	0.9996	425.509
5671	1	424.64	0.9996	424.470
6134	1	401.09	0.9996	400.929
6131	1	401.50	0.9996	401.340
6130	1	418.26	0.9996	418.092
6129	1	399.71	0.9996	399.551
6126	1	414.28	0.9996	414.115
6154	1	407.27	0.9996	407.107
6155	1	412.46	0.9996	412.295
6128	1	424.77	0.9996	424.600
6123	1	420.15	0.9996	419.981
6124	1	398.58	0.9996	398.420
5647	1	372.55	0.9996	372.400
5642	1	398.14	0.9996	397.980
5625	1	420.05	0.9996	419.881
5638	1	386.51	0.9995	386.316
5644	1	388.53	0.9996	388.374
5639	1	396.73	0.9995	396.531
5641	1	379.67	0.9996	379.518
5645	1	407.29	0.9996	407.127
5643	1	376.61	0.9996	376.459
5640	1	386.89	0.9995	386.696
5668	1			

		403.37	0.9996	403.208
5669	1	411.13	0.9996	410.965
5987	1	407.32	0.9996	407.157
5988	1	402.64	0.9996	402.479
6309	1	406.71	0.9996	406.547
6302	1	406.54	0.9996	406.377
6308	1	408.12	0.9996	407.957
6303	1	421.78	0.9996	421.611
6331	1	420.73	0.9996	420.561
6330	1	415.39	0.9996	415.223
6329	1	408.15	0.9996	407.986
6028	1	403.04	0.9996	402.878
114923	1	405.10	0.9999	405.060
114988	1	389.79	0.9999	389.750
114981	1	433.65	0.9999	433.610
114984	1	395.84	0.9999	395.800
114985	1	402.15	0.9999	402.110
114920	1	405.75	0.9999	405.710
114982	1	391.99	0.9999	391.950
114983	1	394.33	0.9999	394.290
57440	1	391.98	0.9999	391.935
57499	1	408.38	0.9999	408.334
57429	1			

		403.23	0.9999	403.184
57482	1	406.80	0.9999	406.759
57481	1	403.65	0.9999	403.609
57428	1	400.53	0.9999	400.485
57493	1	411.40	0.9999	411.358
59736	1	388.38	0.9999	388.336
32239	1	417.15	0.9999	417.108
32188	1	386.75	0.9999	386.711
57474	1	404.80	0.9999	404.759
57425	1	406.05	0.9999	406.009
57423	1	393.23	0.9999	393.185
57449	1	395.58	0.9999	395.535
57473	1	407.95	0.9999	407.909
57444	1	402.65	0.9999	402.609
57456	1	400.05	0.9999	400.010
57447	1	414.48	0.9999	414.433
57427	1	403.63	0.9999	403.584
57426	1	404.20	0.9999	404.159
67347	1	402.00	0.9999	401.960
67343	1	402.45	0.9999	402.410
67721	1	409.25	0.9999	409.209
67738	1	387.28	0.9999	387.236
67383	1			

		404.40	0.9999	404.359
67382	1	402.23	0.9999	402.184
67386	1	391.85	0.9999	391.810
67362	1	398.20	0.9999	398.160
67388	1	404.38	0.9999	404.334
67381	1	388.43	0.9999	388.386
67367	1	408.45	0.9999	408.409
67395	1	406.73	0.9999	406.684
67374	1	406.55	0.9999	406.509
67358	1	398.55	0.9999	398.510
67360	1	401.63	0.9999	401.584
67439	1	406.75	0.9999	406.709
67468	1	387.50	0.9999	387.461
67455	1	408.88	0.9999	408.834
67461	1	408.23	0.9999	408.184
67445	1	402.28	0.9999	402.234
67345	1	398.90	0.9999	398.860
57451	1	403.28	0.9999	403.234
57420	1	416.18	0.9999	416.133
57452	1	407.28	0.9999	407.234
66567	1	398.80	0.9999	398.760
34845	1	405.48	0.9999	405.434
34849	1			

		402.40	0.9999	402.360
34863	1	408.70	0.9999	408.659
34861	1	398.70	0.9999	398.660
34864	1	410.20	0.9999	410.159
34858	1	407.28	0.9999	407.234
34871	1	389.60	0.9999	389.561
34491	1	413.53	0.9999	413.488
34848	1	403.25	0.9999	403.210
34847	1	402.68	0.9999	402.635
34855	1	401.08	0.9999	401.035
6132	1	413.23	0.9996	413.064
6125	1	410.67	0.9996	410.505
6122	1	392.00	0.9996	391.843
6086	1	389.30	0.9996	389.144
67722	1	395.10	0.9999	395.060
67741	1	378.48	0.9999	378.437
67713	1	424.00	0.9999	423.958
66507	1	396.53	0.9999	396.485
66518	1	399.58	0.9999	399.535
66519	1	402.65	0.9999	402.610
66511	1	406.95	0.9999	406.909
66503	1	403.63	0.9999	403.585
66558	1			

		393.93	0.9999	393.886
67711	1	393.98	0.9999	393.936
34880	1	389.93	0.9999	389.886
34883	1	414.38	0.9999	414.334
34889	1	394.35	0.9999	394.311
34882	1	401.93	0.9999	401.885
34886	1	402.68	0.9999	402.635
34896	1	402.00	0.9999	401.960
34888	1	385.98	0.9999	385.936
34885	1	394.38	0.9999	394.336
34838	1	399.05	0.9999	399.010
34892	1	396.78	0.9999	396.735
34895	1	411.45	0.9999	411.409
34887	1	401.55	0.9999	401.510
34894	1	405.90	0.9999	405.859
34893	1	410.80	0.9999	410.759
34890	1	412.53	0.9999	412.484
34891	1	410.20	0.9999	410.159
66501	1	397.13	0.9999	397.085
66506	1	401.70	0.9999	401.660
66512	1	400.88	0.9999	400.835
66509	1	397.90	0.9999	397.860
34866	1			

		392.48	0.9999	392.436
34859	1	409.43	0.9999	409.384
34868	1	390.05	0.9999	390.011
34857	1	403.53	0.9999	403.485
34865	1	398.65	0.9999	398.610
34860	1	411.80	0.9999	411.759
34872	1	397.30	0.9999	397.260
34873	1	392.80	0.9999	392.761
34874	1	389.15	0.9999	389.111
66548	1	387.85	0.9999	387.811
66549	1	401.53	0.9999	401.485
66550	1	400.50	0.9999	400.460
66553	1	392.13	0.9999	392.086
66551	1	388.53	0.9999	388.486
66564	1	409.15	0.9999	409.109
66563	1	400.90	0.9999	400.860
66568	1	399.20	0.9999	399.160
66560	1	413.70	0.9999	413.659
66561	1	403.68	0.9999	403.635
66547	1	393.73	0.9999	393.686
64604	1	402.10	0.9999	402.059
64600	1	421.43	0.9999	421.387
64602	1			

		408.58	0.9999	408.539
64601	1	401.58	0.9999	401.539
64603	1	414.70	0.9999	414.658
65262	1	403.65	0.9999	403.609
65261	1	389.15	0.9999	389.111
65257	1	408.88	0.9999	408.839
65255	1	413.68	0.9999	413.638
33480	1	397.25	0.9999	397.210
64591	1	398.63	0.9999	398.590
64586	1	396.70	0.9999	396.660
64579	1	406.10	0.9999	406.059
66502	1	419.98	0.9999	419.933
67450	1	405.33	0.9999	405.284
67391	1	407.08	0.9999	407.034
67384	1	407.88	0.9999	407.834
66530	1	420.28	0.9999	420.233
67710	1	401.10	0.9999	401.060
67344	1	395.40	0.9999	395.360
67342	1	404.65	0.9999	404.610
67349	1	395.28	0.9999	395.236
67451	1	403.38	0.9999	403.334
67338	1	411.65	0.9999	411.609
64751	1			

		418.20	0.9999	418.158
64752	1	418.15	0.9999	418.108
64754	1	425.33	0.9999	425.282
64748	1	394.10	0.9999	394.061
64722	1	391.03	0.9999	390.986
64703	1	394.65	0.9999	394.611
66552	1	399.53	0.9999	399.485
66559	1	408.30	0.9999	408.259
64750	1	398.40	0.9999	398.360
66514	1	401.45	0.9999	401.410
65256	1	413.45	0.9999	413.408
65267	1	395.50	0.9999	395.460
65258	1	404.58	0.9999	404.539
65260	1	393.20	0.9999	393.160
64582	1	391.00	0.9999	390.960
64585	1	399.78	0.9999	399.740
64581	1	405.95	0.9999	405.909
64590	1	402.98	0.9999	402.939
64583	1	395.20	0.9999	395.160
64584	1	427.40	0.9999	427.357
64580	1	403.95	0.9999	403.909
64592	1	415.85	0.9999	415.808
64594	1			

		380.00	0.9999	379.962
64589	1	403.25	0.9999	403.209
64593	1	404.58	0.9999	404.539
64587	1	402.13	0.9999	402.089
57497	1	405.78	0.9999	405.734
57498	1	408.33	0.9999	408.284
57462	1	407.28	0.9999	407.234
57465	1	409.98	0.9999	409.934
57469	1	387.40	0.9999	387.361
57467	1	405.15	0.9999	405.109
57468	1	396.63	0.9999	396.585
57455	1	411.40	0.9999	411.358
57443	1	401.40	0.9999	401.359
57450	1	411.65	0.9999	411.608
57496	1	392.73	0.9999	392.685
57436	1	411.40	0.9999	411.358
57435	1	405.25	0.9999	405.209
57421	1	410.18	0.9999	410.134
57441	1	397.80	0.9999	397.760
57445	1	390.70	0.9999	390.661
57424	1	393.38	0.9999	393.335
57422	1	404.98	0.9999	404.934
57431	1			

		392.93	0.9999	392.885
57470	1	411.90	0.9999	411.858
57446	1	404.35	0.9999	404.309
57463	1	402.08	0.9999	402.034
57464	1	394.98	0.9999	394.935
2450	1	398.08	0.9999	398.040
1079	1	406.78	0.9999	406.734
1073	1	404.40	0.9999	404.360
1075	1	406.45	0.9999	406.409
1076	1	405.10	0.9999	405.059
1077	1	404.70	0.9999	404.660
35006	1	398.18	0.9999	398.135
33514	1	396.05	0.9999	396.010
33518	1	393.48	0.9999	393.440
33517	1	402.93	0.9999	402.889
33512	1	393.18	0.9999	393.140
33488	1	391.83	0.9999	391.790
33481	1	397.15	0.9999	397.110
33479	1	402.25	0.9999	402.209
33482	1	419.13	0.9999	419.088
33515	1	412.25	0.9999	412.208
34267	1	394.75	0.9999	394.711
34884	1			

		388.38	0.9999	388.336
64749	1	396.33	0.9999	396.285
64753	1	417.78	0.9999	417.733
66498	1	401.28	0.9999	401.235
66500	1	397.78	0.9999	397.735
66515	1	395.90	0.9999	395.860
67334	1	396.35	0.9999	396.310
67335	1	403.88	0.9999	403.835
67359	1	411.88	0.9999	411.833
68296	1	407.85	0.9999	407.809
53560	1	409.18	0.9999	409.134
53552	1	393.18	0.9999	393.135
53649	1	409.10	0.9999	409.059
53566	1	403.93	0.9999	403.884
53673	1	406.95	0.9999	406.909
53568	1	422.93	0.9999	422.882
53658	1	413.80	0.9999	413.758
53668	1	419.93	0.9999	419.883
53586	1	412.50	0.9999	412.458
53604	1	408.93	0.9999	408.884
53665	1	396.95	0.9999	396.910
53605	1	390.28	0.9999	390.236
53654	1			

		403.43	0.9999	403.384
53631	1	403.20	0.9999	403.159
53640	1	403.78	0.9999	403.734
53645	1	405.75	0.9999	405.709
54088	1	392.93	0.9999	392.885
53647	1	387.15	0.9999	387.111
53617	1	414.20	0.9999	414.158
53634	1	405.93	0.9999	405.884
57475	1	402.15	0.9999	402.109
57476	1	394.88	0.9999	394.835
57472	1	400.20	0.9999	400.160
57478	1	399.88	0.9999	399.835
57477	1	395.75	0.9999	395.710
57483	1	412.93	0.9999	412.883
57484	1	401.13	0.9999	401.084
57487	1	395.23	0.9999	395.185
57491	1	415.55	0.9999	415.508
57492	1	396.65	0.9999	396.610
57437	1	401.15	0.9999	401.109
57438	1	402.43	0.9999	402.384
57453	1	400.98	0.9999	400.935
57461	1	399.60	0.9999	399.560
57460	1			

		392.78	0.9999	392.735
57466	1	406.83	0.9999	406.784
57458	1	399.45	0.9999	399.410
57459	1	399.05	0.9999	399.010
57454	1	406.35	0.9999	406.309
57457	1	397.13	0.9999	397.085
67380	1	404.48	0.9999	404.434
57430	1	411.38	0.9999	411.333
57495	1	398.55	0.9999	398.510
57448	1	392.10	0.9999	392.060
57480	1	390.33	0.9999	390.286
57479	1	397.83	0.9999	397.785
57486	1	419.30	0.9999	419.258
57485	1	413.73	0.9999	413.683
57433	1	404.50	0.9999	404.459
57432	1	391.13	0.9999	391.085
53608	1	409.23	0.9999	409.184
53657	1	404.13	0.9999	404.084
53627	1	405.70	0.9999	405.659
53656	1	403.15	0.9999	403.109
53636	1	415.65	0.9999	415.608
53556	1	402.15	0.9999	402.109
53555	1			

		411.40	0.9999	411.358
53637	1	412.88	0.9999	412.833
53580	1	410.83	0.9999	410.784
53579	1	408.03	0.9999	407.984
53620	1	416.13	0.9999	416.083
53571	1	419.00	0.9999	418.958
53666	1	396.93	0.9999	396.885
53667	1	409.85	0.9999	409.809
53598	1	414.78	0.9999	414.733
53599	1	414.25	0.9999	414.208
53615	1	420.03	0.9999	419.983
53600	1	397.13	0.9999	397.085
53601	1	403.10	0.9999	403.059
53602	1	411.38	0.9999	411.333
53603	1	414.20	0.9999	414.158
53670	1	398.33	0.9999	398.285
53565	1	402.58	0.9999	402.534
53650	1	394.00	0.9999	393.960
53653	1	413.33	0.9999	413.283
53648	1	406.23	0.9999	406.184
53550	1	405.33	0.9999	405.284
53609	1	404.90	0.9999	404.859
53594	1			

		408.20	0.9999	408.159
54089	1	412.70	0.9999	412.658
53554	1	399.18	0.9999	399.135
53607	1	409.80	0.9999	409.759
53553	1	394.85	0.9999	394.810
53606	1	404.70	0.9999	404.659
53592	1	413.90	0.9999	413.858
53593	1	414.23	0.9999	414.183
53582	1	417.63	0.9999	417.583
53557	1	402.58	0.9999	402.534
53559	1	411.15	0.9999	411.108
53573	1	394.68	0.9999	394.635
53558	1	395.25	0.9999	395.210
53672	1	406.70	0.9999	406.659
53567	1	404.53	0.9999	404.484
53655	1	402.93	0.9999	402.884
53652	1	414.70	0.9999	414.658
53632	1	402.05	0.9999	402.009
53638	1	406.80	0.9999	406.759
53639	1	398.43	0.9999	398.385
53612	1	421.48	0.9999	421.432
53597	1	409.43	0.9999	409.384
6021	1			

		411.84	0.9996	411.675
6020	1	412.39	0.9996	412.225
6019	1	399.37	0.9996	399.210
6024	1	395.10	0.9996	394.941
6161	1	385.18	0.9996	385.025
6159	1	388.86	0.9996	388.704
6160	1	404.06	0.9996	403.898
6156	1	397.19	0.9996	397.031
6014	1	413.39	0.9996	413.224
6119	1	373.15	0.9996	373.000
53570	1	399.43	0.9999	399.385
53569	1	397.38	0.9999	397.335
53618	1	400.50	0.9999	400.460
53671	1	417.18	0.9999	417.133
53619	1	419.53	0.9999	419.483
53614	1	407.33	0.9999	407.284
53651	1	415.83	0.9999	415.783
53660	1	412.83	0.9999	412.783
53661	1	393.90	0.9999	393.860
53562	1	387.08	0.9999	387.036
53551	1	408.80	0.9999	408.759
6158	1	387.06	0.9996	386.905
6027	1			

		411.42	0.9996	411.255
6026	1	396.55	0.9996	396.391
6025	1	394.62	0.9996	394.462
6127	1	420.52	0.9996	420.351
6120	1	400.71	0.9996	400.549
6016	1	402.98	0.9996	402.818
6013	1	406.74	0.9996	406.577
6023	1	406.91	0.9996	406.747
53642	1	406.33	0.9999	406.284
53643	1	404.28	0.9999	404.234
54087	1	391.60	0.9999	391.560
53669	1	402.95	0.9999	402.909
53595	1	411.98	0.9999	411.933
53572	1	397.95	0.9999	397.910
53622	1	409.00	0.9999	408.959
53613	1	407.15	0.9999	407.109
53611	1	410.70	0.9999	410.659
53610	1	401.80	0.9999	401.759
53623	1	408.70	0.9999	408.659
53629	1	399.65	0.9999	399.610
53662	1	402.83	0.9999	402.784
53663	1	404.30	0.9999	404.259
53596	1			

		421.83	0.9999	421.782
53633	1	400.55	0.9999	400.510
53628	1	420.10	0.9999	420.058
53626	1	419.30	0.9999	419.258
53583	1	410.38	0.9999	410.334
53584	1	387.78	0.9999	387.736
9402411	1	400.09	0.9999	400.049
9223	1	392.08	0.9998	392.001
6153	1	402.08	0.9996	401.919
6157	1	398.57	0.9996	398.411
9500082	1	400.10	0.9998	400.019
9500044	1	400.09	0.9998	400.009
9500049	1	400.08	0.9998	399.999
9500073	1	400.09	0.9998	400.009
9500077	1	400.09	0.9998	400.009
9402402	1	400.09	0.9999	400.049
9402400	1	400.09	0.9999	400.049
9500072	1	400.09	0.9998	400.009
9402399	1	400.08	0.9999	400.039
9402403	1	400.09	0.9999	400.049
9402401	1	400.08	0.9999	400.039
9402407	1	400.09	0.9999	400.049
9402408	1			

		400.09	0.9999	400.049
9402412	1	400.09	0.9999	400.049
9402410	1	400.09	0.9999	400.049
9402406	1	400.09	0.9999	400.049
9402396	1	400.09	0.9999	400.049
9402397	1	400.08	0.9999	400.039
9402395	1	400.09	0.9999	400.049
9402392	1	400.09	0.9999	400.049
9402394	1	400.08	0.9999	400.039
9402393	1	400.08	0.9999	400.039
9402391	1	400.10	0.9999	400.059
9402390	1	400.09	0.9999	400.049
9402398	1	400.09	0.9999	400.049
9402404	1	400.09	0.9999	400.049
6121	1	407.53	0.9996	407.366
6022	1	387.67	0.9996	387.514
6133	1	394.81	0.9996	394.652
6012	1	393.42	0.9996	393.262
6018	1	384.36	0.9996	384.206
6017	1	404.68	0.9996	404.518
6084	1	398.46	0.9996	398.300
6015	1	419.27	0.9996	419.102
6085	1			

		413.93	0.9996	413.764
56950	1	402.80	0.9999	402.760
56952	1	394.10	0.9999	394.061
56955	1	403.05	0.9999	403.010
56951	1	394.28	0.9999	394.236
56961	1	409.98	0.9999	409.934
56956	1	404.18	0.9999	404.135
56958	1	411.30	0.9999	411.259
114544	1	401.79	0.9999	401.749
114541	1	397.53	0.9999	397.490
114542	1	406.37	0.9999	406.329
114543	1	373.13	0.9999	373.092
9500095	1	400.09	0.9998	400.009
9500093	1	400.07	0.9998	399.989
9500092	1	400.10	0.9998	400.019
9500094	1	400.09	0.9998	400.009
9500091	1	400.09	0.9998	400.009
9500086	1	400.10	0.9998	400.019
9500087	1	400.09	0.9998	400.009
9500096	1	400.09	0.9998	400.009
31669	1	393.53	0.9999	393.490
31670	1	390.70	0.9999	390.660
31672	1			

		381.40	0.9999	381.361
31676	1	402.58	0.9999	402.539
31673	1	402.20	0.9999	402.159
31691	1	413.80	0.9999	413.758
31679	1	400.85	0.9999	400.809
31675	1	385.88	0.9999	385.841
31671	1	410.00	0.9999	409.959
31674	1	386.63	0.9999	386.591
31668	1	406.68	0.9999	406.639
31667	1	401.33	0.9999	401.289
31666	1	413.58	0.9999	413.538
31657	1	397.45	0.9999	397.410
31687	1	403.85	0.9999	403.809
56957	1	400.50	0.9999	400.460
48226	1	417.10	0.9999	417.058
56962	1	412.85	0.9999	412.809
48274	1	427.03	0.9999	426.982
56959	1	398.28	0.9999	398.235
56960	1	413.70	0.9999	413.659
56949	1	375.43	0.9999	375.387
48302	1	418.45	0.9999	418.408
48263	1	417.50	0.9999	417.458
56953	1			

		399.13	0.9999	399.085
56954	1	413.63	0.9999	413.584
6201	1	410.65	0.9999	410.608
6036	1	404.20	0.9999	404.159
114551	1	413.48	0.9998	413.397
114548	1	397.04	0.9998	396.960
114547	1	398.18	0.9998	398.100
114550	1	396.62	0.9998	396.540
114549	1	395.87	0.9998	395.790
114546	1	398.65	0.9998	398.570
9500081	1	400.10	0.9998	400.019
9500085	1	400.10	0.9998	400.019
9500083	1	400.10	0.9998	400.019
9500079	1	400.10	0.9998	400.019
9500042	1	400.09	0.9998	400.009
9500045	1	400.09	0.9998	400.009
9500048	1	400.08	0.9998	399.999
9500043	1	400.09	0.9998	400.009
66401	1	412.18	0.9999	412.134
65635	1	414.85	0.9999	414.808
67477	1	400.68	0.9999	400.635
66395	1	402.13	0.9999	402.085
67714	1			

		400.70	0.9999	400.660
31702	1	407.10	0.9999	407.059
31653	1	405.65	0.9999	405.609
31649	1	398.30	0.9999	398.260
31710	1	397.98	0.9999	397.940
31650	1	407.10	0.9999	407.059
31665	1	410.98	0.9999	410.938
31652	1	397.98	0.9999	397.940
31701	1	385.60	0.9999	385.561
31705	1	407.00	0.9999	406.959
31712	1	410.20	0.9999	410.158
31680	1	404.08	0.9999	404.039
31711	1	397.15	0.9999	397.110
31632	1	411.33	0.9999	411.288
31708	1	409.40	0.9999	409.359
31700	1	412.65	0.9999	412.608
31699	1	402.65	0.9999	402.609
31703	1	390.55	0.9999	390.510
31706	1	396.98	0.9999	396.940
31707	1	400.30	0.9999	400.259
31681	1	386.08	0.9999	386.041
31697	1	409.55	0.9999	409.509
31682	1			

		408.85	0.9999	408.809
31690	1	413.50	0.9999	413.458
31692	1	404.50	0.9999	404.459
31714	1	392.55	0.9999	392.510
31695	1	407.68	0.9999	407.639
31716	1	413.55	0.9999	413.508
31713	1	399.18	0.9999	399.140
31688	1	388.40	0.9999	388.361
31709	1	405.03	0.9999	404.989
31696	1	401.48	0.9999	401.439
31686	1	407.93	0.9999	407.889
31683	1	405.53	0.9999	405.489
9500084	1	400.10	0.9998	400.019
9500080	1	400.08	0.9998	399.999
9500076	1	400.10	0.9998	400.019
9500078	1	400.10	0.9998	400.019
9500074	1	400.10	0.9998	400.019
9500046	1	400.08	0.9998	399.999
9500047	1	400.08	0.9998	399.999
9500050	1	400.09	0.9998	400.009
9500071	1	400.09	0.9998	400.009
9500089	1	400.10	0.9998	400.019
9500088	1			

		400.09	0.9998	400.009
9500090	1	400.09	0.9998	400.009
66405	1	419.45	0.9999	419.408
67340	1	417.13	0.9999	417.083
65630	1	408.13	0.9999	408.089
67390	1	406.03	0.9999	405.984
34877	1	394.43	0.9999	394.386
34852	1	414.63	0.9999	414.584
67484	1	408.73	0.9999	408.684
67480	1	397.30	0.9999	397.260
67322	1	411.23	0.9999	411.184
66565	1	406.15	0.9999	406.109
34875	1	395.23	0.9999	395.185
34878	1	392.80	0.9999	392.761
67478	1	405.83	0.9999	405.784
67483	1	413.00	0.9999	412.958
66544	1	406.90	0.9999	406.859
66555	1	389.73	0.9999	389.686
67357	1	394.08	0.9999	394.036
65657	1	406.33	0.9999	406.289
67389	1	399.43	0.9999	399.385
67438	1	401.30	0.9999	401.259
66576	1			

		400.03	0.9999	399.985
34266	1	396.43	0.9999	396.385
34839	1	401.75	0.9999	401.710
34842	1	374.38	0.9999	374.338
65266	1	414.95	0.9999	414.908
34850	1	408.15	0.9999	408.109
34870	1	375.10	0.9999	375.062
67482	1	412.60	0.9999	412.558
67481	1	392.00	0.9999	391.960
66541	1	414.48	0.9999	414.434
66397	1	410.80	0.9999	410.759
34853	1	397.48	0.9999	397.435
34841	1	391.28	0.9999	391.236
67366	1	407.38	0.9999	407.334
65632	1	410.65	0.9999	410.608
66399	1	407.93	0.9999	407.884
66510	1	413.60	0.9999	413.559
34854	1	392.38	0.9999	392.336
34840	1	399.25	0.9999	399.210
34268	1	400.73	0.9999	400.685
65631	1	404.23	0.9999	404.189
66496	1	403.95	0.9999	403.910
34862	1			

		395.38	0.9999	395.335
34876	1	423.88	0.9999	423.833
34843	1	400.65	0.9999	400.610
34279	1	412.08	0.9999	412.033
68294	1	414.03	0.9999	413.988
65633	1	409.38	0.9999	409.339
65634	1	398.30	0.9999	398.260
65259	1	401.15	0.9999	401.109
67355	1	414.20	0.9999	414.159
535	1	404.45	0.9999	404.410
542	1	402.83	0.9999	402.785
538	1	403.48	0.9999	403.435
534	1	404.80	0.9999	404.760
533	1	405.98	0.9999	405.934
537	1	403.80	0.9999	403.760
532	1	406.65	0.9999	406.609
543	1	402.58	0.9999	402.535
525	1	404.03	0.9999	403.985
36067	1	402.23	0.9999	402.189
36069	1	399.90	0.9999	399.860
36062	1	416.68	0.9999	416.638
36056	1	414.90	0.9999	414.858
36055	1			

		407.45	0.9999	407.409
36054	1	396.78	0.9999	396.740
36061	1	387.53	0.9999	387.491
36060	1	399.85	0.9999	399.810
36058	1	410.68	0.9999	410.638
36057	1	396.58	0.9999	396.540
35009	1	409.38	0.9999	409.334
35004	1	408.03	0.9999	407.984
35005	1	407.33	0.9999	407.284
36064	1	385.85	0.9999	385.811
67394	1	386.55	0.9999	386.511
67332	1	415.28	0.9999	415.233
66556	1	387.55	0.9999	387.511
66542	1	401.70	0.9999	401.660
66572	1	400.08	0.9999	400.035
67348	1	407.23	0.9999	407.184
67452	1	414.30	0.9999	414.258
65629	1	410.73	0.9999	410.688
67372	1	409.35	0.9999	409.309
34846	1	414.15	0.9999	414.109
67371	1	415.25	0.9999	415.208
67370	1	392.00	0.9999	391.960
67476	1			

		396.30	0.9999	396.260
67369	1	404.83	0.9999	404.784
67449	1	398.90	0.9999	398.860
67473	1	402.25	0.9999	402.209
67458	1	411.90	0.9999	411.858
67456	1	399.23	0.9999	399.185
66540	1	391.40	0.9999	391.361
66557	1	401.95	0.9999	401.909
67323	1	392.50	0.9999	392.461
66543	1	412.33	0.9999	412.284
35002	1	412.18	0.9999	412.134
36070	1	395.18	0.9999	395.140
36063	1	405.40	0.9999	405.359
36065	1	394.80	0.9999	394.760
68898	1	400.83	0.9999	400.785
68890	1	412.98	0.9999	412.934
68895	1	401.60	0.9999	401.560
68891	1	400.50	0.9999	400.460
68894	1	401.85	0.9999	401.810
68889	1	412.08	0.9999	412.034
68885	1	408.20	0.9999	408.159
68886	1	422.45	0.9999	422.408
68896	1			

		401.98	0.9999	401.935
68318	1	398.25	0.9999	398.210
68353	1	389.35	0.9999	389.311
68892	1	392.58	0.9999	392.536
68888	1	397.85	0.9999	397.810
68897	1	398.00	0.9999	397.960
68347	1	427.10	0.9999	427.057
36071	1	402.35	0.9999	402.309
36072	1	417.98	0.9999	417.938
36068	1	411.20	0.9999	411.158
66520	1	412.13	0.9999	412.084
34981	1	408.25	0.9999	408.209
35001	1	406.70	0.9999	406.659
36059	1	390.98	0.9999	390.940
34977	1	424.53	0.9999	424.483
36066	1	418.08	0.9999	418.038
34979	1	409.28	0.9999	409.234
68348	1	406.23	0.9999	406.189
68349	1	410.43	0.9999	410.388
68350	1	403.65	0.9999	403.609
68346	1	391.05	0.9999	391.010
68379	1	415.75	0.9999	415.708
68377	1			

		407.75	0.9999	407.709
68345	1	379.08	0.9999	379.042
540	1	402.98	0.9999	402.935
529	1	401.93	0.9999	401.885
531	1	394.50	0.9999	394.461
530	1	401.95	0.9999	401.910
536	1	403.93	0.9999	403.885
539	1	403.45	0.9999	403.410
544	1	402.40	0.9999	402.360
68344	1	397.83	0.9999	397.790
68357	1	403.13	0.9999	403.089
68355	1	417.55	0.9999	417.508
68356	1	406.75	0.9999	406.709
68375	1	411.10	0.9999	411.058
68319	1	415.25	0.9999	415.208
68351	1	424.73	0.9999	424.687
68352	1	391.45	0.9999	391.410
68893	1	393.55	0.9999	393.511
68376	1	411.68	0.9999	411.638
1553	1	398.18	0.9999	398.140
1550	1	388.05	0.9999	388.011
1560	1	413.70	0.9999	413.658
1069	1			

		409.75	0.9999	409.709
1554	1	412.78	0.9999	412.738
1552	1	414.03	0.9999	413.988
1557	1	411.18	0.9999	411.138
1551	1	383.23	0.9999	383.191
1559	1	402.53	0.9999	402.489
119962	1	381.39	0.9999	381.352
119965	1	387.75	0.9999	387.711
121748	1	379.86	0.9999	379.822
121472	1	386.34	0.9999	386.301
121474	1	396.66	0.9999	396.620
121468	1	374.12	0.9999	374.083
121469	1	382.14	0.9999	382.102
121470	1	377.25	0.9999	377.212
119966	1	391.19	0.9999	391.151
119964	1	376.44	0.9999	376.402
119963	1	379.47	0.9999	379.432
121752	1	412.05	0.9999	412.009
121473	1	383.42	0.9999	383.382
121471	1	377.34	0.9999	377.302
119961	1	375.68	0.9999	375.642
34995	1	396.83	0.9999	396.785
35008	1			

		401.78	0.9999	401.735
35007	1	406.58	0.9999	406.534
34990	1	407.33	0.9999	407.284
34982	1	403.88	0.9999	403.835
34984	1	406.35	0.9999	406.309
34998	1	389.28	0.9999	389.236
34993	1	407.88	0.9999	407.834
34999	1	421.35	0.9999	421.308
34968	1	391.75	0.9999	391.711
34989	1	402.93	0.9999	402.885
68307	1	409.95	0.9999	409.909
68309	1	411.45	0.9999	411.408
68311	1	417.48	0.9999	417.438
68295	1	401.03	0.9999	400.989
68292	1	421.75	0.9999	421.707
68293	1	410.00	0.9999	409.959
68305	1	414.45	0.9999	414.408
68308	1	416.65	0.9999	416.608
35003	1	422.53	0.9999	422.483
35015	1	424.25	0.9999	424.208
35014	1	416.08	0.9999	416.033
35013	1	428.05	0.9999	428.007
34985	1			

		417.48	0.9999	417.433
34978	1	412.05	0.9999	412.009
34980	1	418.80	0.9999	418.758
34986	1	412.15	0.9999	412.109
34987	1	417.83	0.9999	417.783
34983	1	424.43	0.9999	424.383
34996	1	414.85	0.9999	414.809
68354	1	387.00	0.9999	386.961
68312	1	403.20	0.9999	403.159
68315	1	399.43	0.9999	399.390
68320	1	416.05	0.9999	416.008
68887	1	411.23	0.9999	411.184
68884	1	400.30	0.9999	400.260
2451	1	406.63	0.9999	406.589
1558	1	398.68	0.9999	398.640
2457	1	385.75	0.9999	385.711
121782	1	366.70	0.9999	366.663
121751	1	380.60	0.9999	380.562
121788	1	394.29	0.9999	394.251
121783	1	373.45	0.9999	373.413
121802	1	381.22	0.9999	381.182
121784	1	377.30	0.9999	377.262
121747	1			

		373.53	0.9999	373.493
66516	1	403.40	0.9999	403.360
121803	1	418.44	0.9999	418.398
121749	1	384.76	0.9999	384.722
121785	1	372.66	0.9999	372.623
121786	1	390.26	0.9999	390.221
121787	1	396.74	0.9999	396.700
121750	1	390.22	0.9999	390.181
33206	1	385.10	0.9999	385.061
33203	1	395.85	0.9999	395.810
33204	1	402.53	0.9999	402.489
33207	1	391.05	0.9999	391.010
1556	1	402.48	0.9999	402.439
1112	1	413.23	0.9999	413.184
2453	1	382.48	0.9999	382.441
2452	1	412.48	0.9999	412.438
1565	1	381.28	0.9999	381.241
1555	1	408.50	0.9999	408.459
1562	1	407.10	0.9999	407.059
1088	1	417.93	0.9999	417.883
1111	1	413.88	0.9999	413.834
1095	1	419.13	0.9999	419.083
1094	1			

		424.25	0.9999	424.207
1561	1	415.40	0.9999	415.358
2602	1	413.98	0.9999	413.938
1097	1	412.15	0.9999	412.109
2458	1	401.95	0.9999	401.909
2455	1	382.00	0.9999	381.961
2600	1	398.58	0.9999	398.540
2454	1	417.73	0.9999	417.688
2456	1	413.30	0.9999	413.258
2601	1	414.45	0.9999	414.408
68316	1	408.05	0.9999	408.009
68332	1	407.98	0.9999	407.939
68333	1	388.78	0.9999	388.741
68313	1	408.88	0.9999	408.839
34988	1	392.78	0.9999	392.736
66499	1	402.35	0.9999	402.310
68373	1	402.30	0.9999	402.259
67718	1	386.83	0.9999	386.786
35000	1	373.10	0.9999	373.063
66531	1	399.30	0.9999	399.260
68378	1	405.28	0.9999	405.239
35011	1	395.80	0.9999	395.760
35012	1			

		403.75	0.9999	403.710
36321	1	398.40	0.9999	398.360
36322	1	404.30	0.9999	404.260
36324	1	391.58	0.9999	391.536
36327	1	405.70	0.9999	405.659
36331	1	398.80	0.9999	398.760
34994	1	397.38	0.9999	397.335
68317	1	411.80	0.9999	411.758
67712	1	409.00	0.9999	408.959
68374	1	403.60	0.9999	403.559
68359	1	402.40	0.9999	402.359
68358	1	403.00	0.9999	402.959
70081	1	390.73	0.9999	390.690
70084	1	394.43	0.9999	394.390
36325	1	404.85	0.9999	404.810
36329	1	411.78	0.9999	411.734
36330	1	412.80	0.9999	412.759
34488	1	392.03	0.9999	391.990
34489	1	413.13	0.9999	413.088
34492	1	402.48	0.9999	402.439
34274	1	409.08	0.9999	409.034
34280	1	422.73	0.9999	422.682
34277	1			

		402.03	0.9999	401.984
65264	1	415.50	0.9999	415.458
65268	1	408.35	0.9999	408.309
65269	1	390.38	0.9999	390.340
65265	1	393.38	0.9999	393.340
65263	1	408.53	0.9999	408.489
33202	1	393.83	0.9999	393.790
33205	1	395.00	0.9999	394.960
33208	1	397.95	0.9999	397.910
34278	1	420.75	0.9999	420.708
34275	1	416.43	0.9999	416.383
34276	1	422.25	0.9999	422.207
34289	1	417.68	0.9999	417.633
34281	1	411.85	0.9999	411.808
34273	1	410.85	0.9999	410.809
34490	1	403.40	0.9999	403.359
70410	1	406.78	0.9999	406.734
70411	1	391.28	0.9999	391.236
70412	1	386.25	0.9999	386.211
70413	1	411.03	0.9999	410.984
70414	1	384.40	0.9999	384.362
36822	1	401.05	0.9999	401.010
36836	1			

		412.83	0.9999	412.784
36837	1	410.88	0.9999	410.834
36838	1	406.98	0.9999	406.934
36839	1	415.35	0.9999	415.308
70400	1	390.33	0.9999	390.286
70401	1	391.68	0.9999	391.636
70402	1	380.10	0.9999	380.062
70403	1	394.10	0.9999	394.061
70404	1	387.48	0.9999	387.436
70405	1	385.63	0.9999	385.586
70406	1	398.48	0.9999	398.435
70407	1	402.35	0.9999	402.310
70408	1	392.05	0.9999	392.011
70409	1	381.23	0.9999	381.187
70399	1	399.78	0.9999	399.735
70398	1	380.40	0.9999	380.362
70397	1	392.48	0.9999	392.436
70396	1	394.83	0.9999	394.786
70395	1	401.45	0.9999	401.410
70394	1	390.28	0.9999	390.236
70393	1	387.90	0.9999	387.861
70382	1	402.78	0.9999	402.735
70383	1			

		399.85	0.9999	399.810
70384	1	404.00	0.9999	403.960
70385	1	385.75	0.9999	385.711
70386	1	384.55	0.9999	384.512
70388	1	393.20	0.9999	393.161
70390	1	374.88	0.9999	374.838
70391	1	380.40	0.9999	380.362
70392	1	400.23	0.9999	400.185
70381	1	412.95	0.9999	412.909
70380	1	406.00	0.9999	405.959
66521	1	400.63	0.9999	400.585
66526	1	396.53	0.9999	396.485
66534	1	401.55	0.9999	401.510
66528	1	393.55	0.9999	393.511
66529	1	396.38	0.9999	396.335
66525	1	398.75	0.9999	398.710
66536	1	395.88	0.9999	395.835
66532	1	396.50	0.9999	396.460
66535	1	407.88	0.9999	407.834
66523	1	405.05	0.9999	405.009
66524	1	385.68	0.9999	385.636
66504	1	398.58	0.9999	398.535
6871	1			

		407.69	0.9996	407.527
6938	1	397.38	0.9996	397.221
6875	1	386.37	0.9996	386.215
6937	1	421.28	0.9996	421.111
5017	1	393.90	0.9996	393.742
6935	1	391.67	0.9996	391.513
6936	1	396.94	0.9996	396.781
981	1	402.38	0.9999	402.335
977	1	403.30	0.9999	403.260
968	1	402.73	0.9999	402.685
969	1	402.78	0.9999	402.735
970	1	402.33	0.9999	402.285
971	1	402.25	0.9999	402.210
972	1	401.93	0.9999	401.885
973	1	401.18	0.9999	401.135
978	1	402.80	0.9999	402.760
979	1	402.53	0.9999	402.485
980	1	402.53	0.9999	402.485
967	1	402.93	0.9999	402.885
966	1	403.25	0.9999	403.210
965	1	403.10	0.9999	403.060
976	1	403.43	0.9999	403.385
975	1			

		403.63	0.9999	403.585
974	1	404.18	0.9999	404.135
986	1	399.73	0.9999	399.685
985	1	401.55	0.9999	401.510
984	1	401.75	0.9999	401.710
983	1	401.85	0.9999	401.810
36956	1	410.40	0.9999	410.359
36944	1	411.33	0.9999	411.289
36979	1	399.85	0.9999	399.810
36938	1	409.70	0.9999	409.659
36301	1	401.33	0.9999	401.289
36935	1	409.53	0.9999	409.489
36850	1	391.90	0.9999	391.861
36849	1	396.50	0.9999	396.460
36828	1	398.63	0.9999	398.585
36848	1	403.40	0.9999	403.360
36854	1	402.65	0.9999	402.610
36853	1	414.93	0.9999	414.884
36851	1	401.85	0.9999	401.810
36847	1	416.38	0.9999	416.333
36846	1	424.28	0.9999	424.233
36840	1	418.88	0.9999	418.833
36820	1			

		400.58	0.9999	400.535
36817	1	400.93	0.9999	400.885
36305	1	410.50	0.9999	410.458
37000	1	399.65	0.9999	399.610
71356	1	393.43	0.9999	393.390
602	1	401.93	0.9999	401.884
603	1	386.08	0.9999	386.036
604	1	386.13	0.9999	386.086
440	1	384.90	0.9999	384.861
6559	1	398.96	0.9996	398.800
6553	1	391.27	0.9996	391.113
6470	1	420.49	0.9996	420.322
6558	1	401.75	0.9996	401.589
6473	1	406.58	0.9996	406.417
6444	1	411.03	0.9996	410.866
6728	1	408.37	0.9996	408.206
6774	1	386.94	0.9996	386.785
6666	1	417.29	0.9996	417.123
6784	1	374.91	0.9996	374.760
6780	1	400.99	0.9996	400.829
6782	1	411.51	0.9996	411.345
6729	1	423.23	0.9996	423.060
6564	1			

		413.80	0.9996	413.634
6563	1	405.37	0.9996	405.207
6562	1	405.97	0.9996	405.807
6566	1	391.78	0.9996	391.623
6565	1	389.55	0.9996	389.394
6560	1	399.63	0.9996	399.470
6297	1	410.69	0.9996	410.525
6299	1	414.61	0.9996	414.444
6440	1	389.48	0.9996	389.324
6296	1	403.84	0.9996	403.678
6492	1	388.26	0.9996	388.105
6298	1	396.46	0.9996	396.301
6295	1	396.82	0.9996	396.661
6877	1	414.06	0.9996	413.894
6874	1	414.41	0.9996	414.244
6869	1	398.95	0.9996	398.790
6870	1	412.95	0.9996	412.785
6868	1	401.89	0.9996	401.729
6867	1	397.08	0.9996	396.921
6731	1	421.99	0.9996	421.821
6733	1	379.24	0.9996	379.088
6779	1	421.86	0.9996	421.691
6300	1			

		397.31	0.9996	397.151
6764	1	378.83	0.9996	378.678
6775	1	412.15	0.9996	411.985
6763	1	382.51	0.9996	382.357
6777	1	414.57	0.9996	414.404
6776	1	409.22	0.9996	409.056
6730	1	402.35	0.9996	402.189
6732	1	403.26	0.9996	403.098
6781	1	401.67	0.9996	401.509
6783	1	393.52	0.9996	393.362
6778	1	405.19	0.9996	405.027
112841	1	415.75	0.9999	415.708
112827	1	418.73	0.9999	418.688
895	1	396.68	0.9999	396.640
893	1	393.18	0.9999	393.140
907	1	410.88	0.9999	410.838
885	1	401.45	0.9999	401.409
889	1	409.08	0.9999	409.039
888	1	409.25	0.9999	409.209
892	1	401.98	0.9999	401.939
890	1	427.10	0.9999	427.057
891	1	371.15	0.9999	371.112
894	1			

		403.10	0.9999	403.059
1471	1	400.83	0.9999	400.789
1479	1	390.85	0.9999	390.810
1475	1	409.10	0.9999	409.059
1474	1	412.33	0.9999	412.288
1472	1	403.50	0.9999	403.459
1473	1	402.25	0.9999	402.209
1469	1	399.65	0.9999	399.610
1477	1	381.93	0.9999	381.891
1476	1	402.93	0.9999	402.889
1478	1	417.80	0.9999	417.758
53577	1	408.68	0.9999	408.634
53625	1	416.98	0.9999	416.933
53616	1	408.03	0.9999	407.984
53574	1	408.48	0.9999	408.434
53564	1	403.45	0.9999	403.409
53578	1	411.78	0.9999	411.733
53585	1	405.43	0.9999	405.384
29824	1	427.53	0.9999	427.487
29822	1	416.60	0.9999	416.558
29820	1	413.50	0.9999	413.458
29833	1	407.73	0.9999	407.689
29945	1			

		400.53	0.9999	400.485
29799	1	378.50	0.9999	378.462
29944	1	426.78	0.9999	426.732
29943	1	408.15	0.9999	408.109
53624	1	403.68	0.9999	403.634
53635	1	396.98	0.9999	396.935
53563	1	406.55	0.9999	406.509
36852	1	409.40	0.9999	409.359
53575	1	407.13	0.9999	407.084
53630	1	399.45	0.9999	399.410
53644	1	412.93	0.9999	412.883
29795	1	367.48	0.9999	367.443
29832	1	421.35	0.9999	421.307
29794	1	376.20	0.9999	376.162
29798	1	374.50	0.9999	374.462
29942	1	405.80	0.9999	405.759
438	1	382.45	0.9999	382.411
441	1	382.43	0.9999	382.391
17595	1	412.53	0.9999	412.488
56289	1	389.25	0.9999	389.211
56318	1	394.30	0.9999	394.260
56302	1	404.93	0.9999	404.889
30742	1			

		416.93	0.9999	416.888
1468	1	401.10	0.9999	401.059
1470	1	384.48	0.9999	384.441
1321	1	415.20	0.9999	415.158
1322	1	414.23	0.9999	414.188
1320	1	400.20	0.9999	400.159
1317	1	410.50	0.9999	410.458
1319	1	402.03	0.9999	401.989
1316	1	397.05	0.9999	397.010
1318	1	401.13	0.9999	401.089
1346	1	406.90	0.9999	406.859
1347	1	400.38	0.9999	400.339
436	1	382.43	0.9999	382.391
435	1	382.45	0.9999	382.411
437	1	382.45	0.9999	382.411
687	1	402.83	0.9999	402.784
639	1	373.23	0.9999	373.187
637	1	373.28	0.9999	373.237
638	1	373.10	0.9999	373.062
636	1	373.25	0.9999	373.212
688	1	402.88	0.9999	402.834
635	1	373.23	0.9999	373.187
686	1			

		402.88	0.9999	402.834
2986	1	401.25	0.9999	401.209
2980	1	378.10	0.9999	378.062
2989	1	411.15	0.9999	411.108
2983	1	401.60	0.9999	401.559
2977	1	395.73	0.9999	395.690
2984	1	394.90	0.9999	394.860
1335	1	402.73	0.9999	402.689
1343	1	400.20	0.9999	400.159
1336	1	402.53	0.9999	402.489
1342	1	400.45	0.9999	400.409
1340	1	401.25	0.9999	401.209
1341	1	400.48	0.9999	400.439
600	1	400.83	0.9999	400.784
599	1	400.85	0.9999	400.809
598	1	400.85	0.9999	400.809
597	1	400.85	0.9999	400.809
601	1	400.83	0.9999	400.784
444	1	374.28	0.9999	374.242
443	1	374.28	0.9999	374.242
442	1	374.05	0.9999	374.012
685	1	404.38	0.9999	404.334
684	1			

		402.75	0.9999	402.709
112826	1	418.30	0.9999	418.258
56301	1	405.53	0.9999	405.489
56294	1	404.93	0.9999	404.889
56295	1	402.85	0.9999	402.809
56299	1	401.43	0.9999	401.389
56320	1	405.98	0.9999	405.939
56315	1	390.80	0.9999	390.760
56298	1	403.65	0.9999	403.609
56303	1	400.20	0.9999	400.159
3661	1	391.28	0.9999	391.240
3658	1	388.20	0.9999	388.161
3306	1	396.88	0.9999	396.840
3303	1	403.20	0.9999	403.159
3307	1	373.65	0.9999	373.612
3656	1	401.10	0.9999	401.059
3659	1	402.63	0.9999	402.589
3660	1	398.40	0.9999	398.360
3301	1	411.75	0.9999	411.708
3300	1	380.18	0.9999	380.141
3305	1	413.10	0.9999	413.058
3304	1	389.43	0.9999	389.391
3299	1			

		376.88	0.9999	376.842
3298	1	412.93	0.9999	412.888
3302	1	391.55	0.9999	391.510
1338	1	402.13	0.9999	402.089
1337	1	402.13	0.9999	402.089
1339	1	401.33	0.9999	401.289
1333	1	400.25	0.9999	400.209
1332	1	400.38	0.9999	400.339
1334	1	399.58	0.9999	399.540
53664	1	401.40	0.9999	401.359
53549	1	396.13	0.9999	396.085
53646	1	409.20	0.9999	409.159
53581	1	401.68	0.9999	401.634
30747	1	402.50	0.9999	402.459
30748	1	412.35	0.9999	412.308
30750	1	413.08	0.9999	413.038
30749	1	410.63	0.9999	410.588
30735	1	413.50	0.9999	413.458
10747	1	408.95	0.9999	408.909
48489	1	415.00	0.9999	414.959
48454	1	414.30	0.9999	414.259
48467	1	412.45	0.9999	412.409
48054	1			

		413.58	0.9999	413.534
7538	1	428.73	0.9999	428.687
6198	1	406.18	0.9999	406.139
12070	1	394.33	0.9999	394.290
12069	1	377.98	0.9999	377.942
10751	1	393.88	0.9999	393.840
10752	1	402.43	0.9999	402.389
7520	1	427.25	0.9999	427.207
1774	1	386.25	0.9999	386.211
1776	1	391.50	0.9999	391.460
1773	1	392.93	0.9999	392.890
112837	1	405.52	0.9999	405.479
112838	1	406.81	0.9999	406.769
112844	1	403.83	0.9999	403.790
112762	1	406.39	0.9999	406.349
56322	1	378.83	0.9999	378.792
56323	1	399.43	0.9999	399.390
56304	1	395.00	0.9999	394.960
56314	1	381.60	0.9999	381.561
56313	1	413.95	0.9999	413.908
56324	1	392.43	0.9999	392.390
56321	1	395.48	0.9999	395.440
56305	1			

		408.03	0.9999	407.989
56292	1	402.75	0.9999	402.709
56293	1	399.18	0.9999	399.140
56283	1	426.45	0.9999	426.407
56281	1	391.25	0.9999	391.210
56316	1	398.65	0.9999	398.610
56290	1	391.28	0.9999	391.240
56291	1	415.18	0.9999	415.138
56296	1	411.08	0.9999	411.038
56284	1	400.18	0.9999	400.139
56285	1	404.80	0.9999	404.759
56288	1	405.95	0.9999	405.909
3915	1	419.10	0.9999	419.058
3910	1	388.95	0.9999	388.911
1458	1	413.18	0.9999	413.138
1457	1	416.60	0.9999	416.558
1459	1	419.35	0.9999	419.308
1343	1	408.43	0.9999	408.389
1336	1	395.48	0.9999	395.440
1335	1	414.28	0.9999	414.238
1339	1	393.68	0.9999	393.640
1340	1	407.18	0.9999	407.139
1344	1			

		406.05	0.9999	406.009
1338	1	372.05	0.9999	372.012
1341	1	417.85	0.9999	417.808
30739	1	416.60	0.9999	416.558
30737	1	412.10	0.9999	412.058
30744	1	408.65	0.9999	408.609
30740	1	412.05	0.9999	412.008
30738	1	410.28	0.9999	410.238
30741	1	422.78	0.9999	422.737
30736	1	422.13	0.9999	422.087
56282	1	404.55	0.9999	404.509
56317	1	401.38	0.9999	401.339
56319	1	387.45	0.9999	387.411
56286	1	397.73	0.9999	397.690
31662	1	398.28	0.9999	398.240
31658	1	405.33	0.9999	405.289
31664	1	389.93	0.9999	389.891
31689	1	396.95	0.9999	396.910
31630	1	409.15	0.9999	409.109
31633	1	411.33	0.9999	411.288
31693	1	411.00	0.9999	410.958
31659	1	402.20	0.9999	402.159
31645	1			

		418.75	0.9999	418.708
31656	1	398.40	0.9999	398.360
31629	1	401.63	0.9999	401.589
31646	1	394.83	0.9999	394.790
31677	1	398.68	0.9999	398.640
31655	1	397.08	0.9999	397.040
31663	1	401.88	0.9999	401.839
31694	1	396.43	0.9999	396.390
31661	1	390.78	0.9999	390.740
56963	1	389.88	0.9999	389.836
56948	1	386.18	0.9999	386.136
115933	1	390.29	0.9999	390.251
115932	1	391.03	0.9999	390.991
115902	1	400.05	0.9999	400.010
115900	1	414.77	0.9999	414.729
115903	1	403.77	0.9999	403.730
115898	1	406.33	0.9999	406.289
1772	1	384.65	0.9999	384.611
1467	1	408.73	0.9999	408.689
1778	1	399.53	0.9999	399.490
1463	1	402.68	0.9999	402.639
1465	1	397.70	0.9999	397.660
1345	1			

		412.75	0.9999	412.708
1334	1	403.55	0.9999	403.509
1456	1	398.55	0.9999	398.510
1464	1	405.53	0.9999	405.489
1466	1	403.70	0.9999	403.659
1462	1	413.50	0.9999	413.458
1460	1	407.88	0.9999	407.839
1461	1	399.75	0.9999	399.710
1777	1	403.70	0.9999	403.659
1775	1	413.25	0.9999	413.208
1342	1	396.13	0.9999	396.090
1337	1	423.18	0.9999	423.137
56287	1	397.38	0.9999	397.340
29831	1	403.43	0.9999	403.389
29823	1	398.63	0.9999	398.590
29829	1	412.63	0.9999	412.588
29826	1	410.38	0.9999	410.338
29828	1	419.45	0.9999	419.408
29830	1	414.48	0.9999	414.438
29825	1	413.93	0.9999	413.888
714	1	374.53	0.9999	374.495
719	1	380.83	0.9999	380.788
727	1			

		380.84	0.9999	380.804
725	1	380.86	0.9999	380.823
722	1	380.86	0.9999	380.822
713	1	374.49	0.9999	374.453
717	1	374.52	0.9999	374.484
726	1	380.85	0.9999	380.815
115904	1	397.23	0.9999	397.190
115934	1	396.97	0.9999	396.930
115899	1	400.52	0.9999	400.480
438	1	392.63	0.9999	392.585
448	1	393.65	0.9999	393.610
452	1	402.78	0.9999	402.734
444	1	379.30	0.9999	379.262
485	1	404.95	0.9999	404.909
476	1	414.33	0.9999	414.288
477	1	407.38	0.9999	407.339
488	1	390.10	0.9999	390.060
486	1	390.95	0.9999	390.910
481	1	410.15	0.9999	410.108
484	1	401.28	0.9999	401.239
483	1	419.63	0.9999	419.588
478	1	401.65	0.9999	401.609
480	1			

		385.68	0.9999	385.641
479	1	412.83	0.9999	412.788
59479	1	398.45	0.9999	398.410
59038	1	413.30	0.9999	413.258
59039	1	423.80	0.9999	423.757
59040	1	409.13	0.9999	409.089
59041	1	393.55	0.9999	393.510
59482	1	411.53	0.9999	411.488
59481	1	398.90	0.9999	398.860
59043	1	405.58	0.9999	405.539
59484	1	388.80	0.9999	388.761
59483	1	402.83	0.9999	402.789
59480	1	402.55	0.9999	402.509
59023	1	419.55	0.9999	419.508
59024	1	402.48	0.9999	402.435
59030	1	407.65	0.9999	407.609
59027	1	406.10	0.9999	406.059
31698	1	404.95	0.9999	404.909
31660	1	394.45	0.9999	394.410
31651	1	397.68	0.9999	397.640
31631	1	412.70	0.9999	412.658
31715	1	401.35	0.9999	401.309
31654	1			

		406.53	0.9999	406.489
31648	1	402.80	0.9999	402.759
31647	1	407.80	0.9999	407.759
31634	1	415.58	0.9999	415.538
59026	1	417.00	0.9999	416.958
59028	1	410.55	0.9999	410.509
59029	1	400.45	0.9999	400.410
58924	1	396.68	0.9999	396.635
58933	1	396.45	0.9999	396.410
58918	1	408.48	0.9999	408.434
58917	1	422.88	0.9999	422.832
58953	1	405.25	0.9999	405.209
58916	1	402.48	0.9999	402.434
58950	1	398.55	0.9999	398.510
58930	1	409.00	0.9999	408.959
58948	1	414.35	0.9999	414.308
58949	1	393.30	0.9999	393.260
58921	1	413.58	0.9999	413.533
58915	1	403.48	0.9999	403.434
58919	1	406.70	0.9999	406.659
58922	1	412.28	0.9999	412.233
58928	1	402.63	0.9999	402.584
58920	1			

		413.30	0.9999	413.258
58927	1	403.65	0.9999	403.609
58926	1	409.18	0.9999	409.134
58932	1	393.93	0.9999	393.885
58934	1	401.60	0.9999	401.559
58938	1	411.40	0.9999	411.358
58925	1	407.08	0.9999	407.034
446	1	400.88	0.9999	400.835
431	1	378.20	0.9999	378.162
437	1	405.68	0.9999	405.634
440	1	396.35	0.9999	396.310
439	1	418.93	0.9999	418.883
433	1	406.85	0.9999	406.809
435	1	403.40	0.9999	403.359
434	1	394.78	0.9999	394.735
465	1	388.90	0.9999	388.861
466	1	406.90	0.9999	406.859
468	1	384.23	0.9999	384.186
469	1	415.70	0.9999	415.658
467	1	406.05	0.9999	406.009
473	1	386.00	0.9999	385.961
447	1	390.55	0.9999	390.511
472	1			

		420.60	0.9999	420.558
441	1	383.65	0.9999	383.611
450	1	393.43	0.9999	393.385
436	1	385.55	0.9999	385.511
451	1	394.25	0.9999	394.210
442	1	381.83	0.9999	381.786
449	1	402.23	0.9999	402.184
443	1	396.90	0.9999	396.860
445	1	404.80	0.9999	404.759
706	1	382.44	0.9999	382.406
59768	1	412.15	0.9999	412.109
59747	1	415.33	0.9999	415.283
59775	1	411.85	0.9999	411.809
59762	1	412.53	0.9999	412.484
59743	1	420.35	0.9999	420.308
59777	1	411.10	0.9999	411.059
59630	1	406.73	0.9999	406.684
59664	1	395.68	0.9999	395.635
59782	1	398.28	0.9999	398.235
59647	1	378.83	0.9999	378.787
58944	1	402.13	0.9999	402.084
58941	1	418.03	0.9999	417.983
58939	1			

		408.35	0.9999	408.309
58936	1	411.08	0.9999	411.033
58929	1	400.03	0.9999	399.985
58914	1	408.25	0.9999	408.209
58947	1	394.95	0.9999	394.910
58923	1	401.13	0.9999	401.084
58946	1	395.00	0.9999	394.960
58935	1	424.38	0.9999	424.332
58945	1	407.63	0.9999	407.584
58952	1	410.63	0.9999	410.584
58951	1	399.40	0.9999	399.360
59009	1	387.35	0.9999	387.311
58998	1	406.95	0.9999	406.909
59007	1	403.33	0.9999	403.284
59002	1	400.45	0.9999	400.410
59015	1	406.80	0.9999	406.759
59013	1	401.70	0.9999	401.659
58997	1	408.43	0.9999	408.384
59025	1	405.03	0.9999	404.984
712	1	374.53	0.9999	374.495
716	1	374.51	0.9999	374.469
682	1	402.86	0.9999	402.816
680	1			

		401.65	0.9999	401.613
723	1	380.86	0.9999	380.820
681	1	402.88	0.9999	402.835
58943	1	403.08	0.9999	403.034
58942	1	416.75	0.9999	416.708
59000	1	419.70	0.9999	419.658
59022	1	417.50	0.9999	417.458
59019	1	421.15	0.9999	421.107
59018	1	412.08	0.9999	412.033
59011	1	404.98	0.9999	404.934
59005	1	393.30	0.9999	393.260
59012	1	414.35	0.9999	414.308
58940	1	405.88	0.9999	405.834
59016	1	401.53	0.9999	401.484
58955	1	406.78	0.9999	406.734
59021	1	408.80	0.9999	408.759
59637	1	400.20	0.9999	400.160
59638	1	400.40	0.9999	400.360
59720	1	399.83	0.9999	399.785
59658	1	403.10	0.9999	403.059
59656	1	392.13	0.9999	392.085
59780	1	401.58	0.9999	401.534
59728	1			

		410.25	0.9999	410.209
59621	1	405.50	0.9999	405.459
59645	1	396.15	0.9999	396.110
59648	1	392.20	0.9999	392.160
59725	1	402.38	0.9999	402.334
59624	1	378.68	0.9999	378.637
59783	1	404.90	0.9999	404.859
59661	1	419.65	0.9999	419.608
59653	1	394.60	0.9999	394.560
59625	1	404.80	0.9999	404.759
59626	1	413.60	0.9999	413.558
59623	1	387.50	0.9999	387.461
59660	1	397.75	0.9999	397.710
59655	1	394.18	0.9999	394.135
59646	1	400.70	0.9999	400.660
59784	1	410.68	0.9999	410.634
59723	1	407.83	0.9999	407.784
59640	1	396.18	0.9999	396.135
59631	1	394.65	0.9999	394.610
59642	1	402.83	0.9999	402.784
59644	1	385.00	0.9999	384.961
59721	1	398.95	0.9999	398.910
59634	1			

		397.55	0.9999	397.510
59014	1	397.60	0.9999	397.560
59003	1	404.63	0.9999	404.584
59010	1	403.00	0.9999	402.959
59006	1	396.68	0.9999	396.635
59008	1	402.25	0.9999	402.209
59004	1	400.38	0.9999	400.335
59017	1	393.58	0.9999	393.535
59020	1	413.95	0.9999	413.908
59414	1	403.90	0.9999	403.859
59413	1	400.85	0.9999	400.810
59412	1	403.93	0.9999	403.884
59411	1	411.48	0.9999	411.433
59410	1	402.78	0.9999	402.734
59651	1	400.83	0.9999	400.785
59652	1	384.58	0.9999	384.536
59654	1	398.48	0.9999	398.435
59781	1	402.55	0.9999	402.509
59650	1	392.43	0.9999	392.385
59785	1	414.23	0.9999	414.183
59632	1	401.38	0.9999	401.334
59659	1	392.38	0.9999	392.335
67734	1			

		414.55	0.9999	414.509
67732	1	396.15	0.9999	396.110
67747	1	393.75	0.9999	393.711
67742	1	371.10	0.9999	371.063
67744	1	394.53	0.9999	394.486
67745	1	391.23	0.9999	391.186
67715	1	405.15	0.9999	405.109
67726	1	376.20	0.9999	376.162
67719	1	397.08	0.9999	397.035
67318	1	403.90	0.9999	403.860
67319	1	393.43	0.9999	393.386
67735	1	422.58	0.9999	422.533
67740	1	399.45	0.9999	399.410
67730	1	408.20	0.9999	408.159
67728	1	397.20	0.9999	397.160
59719	1	392.25	0.9999	392.210
59635	1	395.08	0.9999	395.035
59722	1	395.55	0.9999	395.510
59629	1	406.73	0.9999	406.684
59627	1	396.15	0.9999	396.110
59639	1	395.28	0.9999	395.235
59724	1	400.15	0.9999	400.110
59622	1			

		401.93	0.9999	401.884
59729	1	392.43	0.9999	392.385
59641	1	407.55	0.9999	407.509
59643	1	384.98	0.9999	384.936
470	1	384.55	0.9999	384.511
463	1	383.08	0.9999	383.036
654	1	397.78	0.9999	397.735
652	1	386.43	0.9999	386.386
653	1	388.18	0.9999	388.136
655	1	404.03	0.9999	403.984
651	1	387.15	0.9999	387.111
59404	1	401.03	0.9999	400.984
59202	1	406.38	0.9999	406.334
59379	1	397.90	0.9999	397.860
59200	1	410.98	0.9999	410.934
59204	1	410.15	0.9999	410.109
59203	1	414.00	0.9999	413.958
59229	1	414.75	0.9999	414.708
59223	1	419.53	0.9999	419.483
59222	1	414.35	0.9999	414.308
59221	1	401.03	0.9999	400.984
59231	1	410.78	0.9999	410.734
59227	1			

		410.95	0.9999	410.909
59220	1	405.88	0.9999	405.834
59219	1	401.35	0.9999	401.309
59218	1	409.55	0.9999	409.509
59649	1	406.18	0.9999	406.134
59628	1	397.45	0.9999	397.410
6610	1	409.00	0.9996	408.836
6625	1	393.99	0.9996	393.832
6609	1	402.22	0.9996	402.059
6620	1	402.78	0.9996	402.618
6618	1	414.92	0.9996	414.754
6624	1	407.98	0.9996	407.816
6615	1	421.64	0.9996	421.471
6635	1	401.89	0.9996	401.729
6634	1	421.67	0.9996	421.501
6626	1	420.86	0.9996	420.691
6371	1	417.24	0.9996	417.073
6369	1	389.99	0.9996	389.834
6368	1	398.74	0.9996	398.581
6362	1	415.16	0.9996	414.994
6307	1	391.15	0.9996	390.994
6365	1	406.70	0.9996	406.537
6363	1			

		418.59	0.9996	418.423
6366	1	399.48	0.9996	399.320
6364	1	422.14	0.9996	421.971
6373	1	408.34	0.9996	408.177
6561	1	382.90	0.9996	382.746
6466	1	410.70	0.9996	410.536
6474	1	406.33	0.9996	406.167
6472	1	412.23	0.9996	412.065
6490	1	392.02	0.9996	391.863
6491	1	397.44	0.9996	397.281
6439	1	399.93	0.9996	399.770
6469	1	396.83	0.9996	396.671
6471	1	417.58	0.9996	417.413
6467	1	413.52	0.9996	413.355
6445	1	418.53	0.9996	418.363
6441	1	414.81	0.9996	414.644
6475	1	393.91	0.9996	393.752
6468	1	405.62	0.9996	405.458
6551	1	397.99	0.9996	397.831
6552	1	397.97	0.9996	397.811
6554	1	402.95	0.9996	402.789
6555	1	408.00	0.9996	407.837
6556	1			

		412.44	0.9996	412.275
6557	1	408.39	0.9996	408.227
66505	1	416.80	0.9999	416.758
35010	1	393.78	0.9999	393.736
67733	1	398.05	0.9999	398.010
67717	1	407.45	0.9999	407.409
67723	1	397.10	0.9999	397.060
67727	1	396.70	0.9999	396.660
67731	1	386.43	0.9999	386.386
67736	1	400.08	0.9999	400.035
67746	1	394.13	0.9999	394.086
67716	1	401.45	0.9999	401.410
112843	1	400.42	0.9999	400.380
112821	1	398.77	0.9999	398.730
112828	1	393.30	0.9999	393.261
112824	1	396.28	0.9999	396.240
112765	1	398.92	0.9999	398.880
112755	1	405.68	0.9999	405.639
112870	1	400.14	0.9999	400.100
112875	1	399.58	0.9999	399.540
112874	1	395.93	0.9999	395.890
48259	1	423.85	0.9999	423.808
112842	1			

		398.09	0.9999	398.050
112846	1	400.15	0.9999	400.110
112833	1	397.51	0.9999	397.470
112770	1	409.85	0.9999	409.809
112840	1	413.91	0.9999	413.869
112822	1	408.28	0.9999	408.239
112763	1	414.17	0.9999	414.129
112823	1	407.20	0.9999	407.159
112817	1	413.80	0.9999	413.759
112819	1	397.39	0.9999	397.350
112839	1	401.58	0.9999	401.540
112830	1	404.82	0.9999	404.780
112753	1	408.49	0.9999	408.449
112772	1	410.35	0.9999	410.309
112766	1	404.41	0.9999	404.370
112873	1	404.26	0.9999	404.220
112757	1	403.65	0.9999	403.610
112756	1	405.20	0.9999	405.159
112771	1	406.03	0.9999	405.989
112761	1	412.85	0.9999	412.809
112869	1	409.49	0.9999	409.449
112872	1	407.17	0.9999	407.129
112758	1			

		415.08	0.9999	415.038
112835	1	400.64	0.9999	400.600
112836	1	410.47	0.9999	410.429
112759	1	414.29	0.9999	414.249
112829	1	403.28	0.9999	403.240
112871	1	405.90	0.9999	405.859
112845	1	402.44	0.9999	402.400
112768	1	402.18	0.9999	402.140
6438	1	395.58	0.9995	395.382
6619	1	390.09	0.9996	389.933
6611	1	410.49	0.9996	410.325
6616	1	414.75	0.9996	414.584
6617	1	399.19	0.9996	399.030
6621	1	390.35	0.9996	390.193
6622	1	419.08	0.9996	418.912
6612	1	398.19	0.9996	398.030
6614	1	395.12	0.9996	394.961
6613	1	396.33	0.9996	396.171
59400	1	404.30	0.9999	404.259
59403	1	400.28	0.9999	400.235
59380	1	403.30	0.9999	403.259
59384	1	397.63	0.9999	397.585
59395	1			

		397.05	0.9999	397.010
59386	1	400.43	0.9999	400.385
59387	1	399.88	0.9999	399.835
59388	1	398.58	0.9999	398.535
59375	1	384.85	0.9999	384.811
59378	1	404.35	0.9999	404.309
59408	1	400.93	0.9999	400.885
59392	1	399.28	0.9999	399.235
59391	1	401.55	0.9999	401.509
59758	1	410.15	0.9999	410.109
59216	1	412.70	0.9999	412.658
59771	1	411.10	0.9999	411.059
59754	1	409.83	0.9999	409.784
59217	1	410.00	0.9999	409.959
59750	1	411.25	0.9999	411.209
59738	1	410.43	0.9999	410.384
59776	1	409.60	0.9999	409.559
9402414	1	400.09	0.9999	400.049
9402413	1	400.09	0.9999	400.049
9402409	1	400.09	0.9999	400.049
9402405	1	400.09	0.9999	400.049
3918	1	386.93	0.9999	386.891
3917	1			

		381.50	0.9999	381.461
3914	1	404.48	0.9999	404.439
3913	1	421.13	0.9999	421.087
3922	1	413.48	0.9999	413.438
3921	1	411.03	0.9999	410.988
3920	1	392.28	0.9999	392.240
3919	1	407.43	0.9999	407.389
3911	1	398.55	0.9999	398.510
3912	1	410.78	0.9999	410.738
3909	1	417.80	0.9999	417.758
3916	1	398.50	0.9999	398.460
2978	1	382.85	0.9999	382.811
2991	1	402.08	0.9999	402.039
2988	1	406.23	0.9999	406.189
2979	1	405.25	0.9999	405.209
2985	1	403.23	0.9999	403.189
2990	1	405.08	0.9999	405.039
2982	1	409.33	0.9999	409.289
2981	1	410.08	0.9999	410.038
2987	1	416.28	0.9999	416.238
48271	1	419.08	0.9999	419.033
48272	1	420.10	0.9999	420.058
29827	1			

		412.58	0.9999	412.538
439	1	382.45	0.9999	382.411
5585	1	382.37	0.9996	382.217
5592	1	415.20	0.9996	415.033
5588	1	390.79	0.9996	390.633
5593	1	405.48	0.9996	405.317
5590	1	411.46	0.9996	411.295
5570	1	396.88	0.9996	396.721
27855	1	395.75	0.9999	395.710
27853	1	402.58	0.9999	402.539
6188	1	394.51	0.9996	394.352
6189	1	388.94	0.9996	388.784
6190	1	389.56	0.9996	389.404
6191	1	405.14	0.9996	404.977
6192	1	415.33	0.9996	415.163
6193	1	389.14	0.9996	388.984
6194	1	401.74	0.9996	401.579
59478	1	407.10	0.9999	407.059
31685	1	402.55	0.9999	402.509
31684	1	389.50	0.9999	389.461
31678	1	393.08	0.9999	393.040
59393	1	424.53	0.9999	424.482
59195	1			

		415.18	0.9999	415.133
59194	1	398.75	0.9999	398.710
59193	1	400.28	0.9999	400.235
59192	1	407.18	0.9999	407.134
59215	1	403.53	0.9999	403.484
59224	1	418.53	0.9999	418.483
59228	1	397.33	0.9999	397.285
59210	1	401.20	0.9999	401.159
59209	1	398.35	0.9999	398.310
59208	1	411.00	0.9999	410.959
59396	1	404.18	0.9999	404.134
59407	1	386.65	0.9999	386.611
59214	1	406.05	0.9999	406.009
59211	1	418.48	0.9999	418.433
59230	1	407.38	0.9999	407.334
59197	1	403.50	0.9999	403.459
59198	1	395.73	0.9999	395.685
59199	1	413.33	0.9999	413.283
59205	1	408.15	0.9999	408.109
59213	1	413.18	0.9999	413.133
59196	1	407.38	0.9999	407.334
59226	1	414.20	0.9999	414.158
59212	1			

		404.98	0.9999	404.934
59206	1	406.03	0.9999	405.984
59207	1	413.70	0.9999	413.658
59225	1	407.80	0.9999	407.759
59201	1	408.90	0.9999	408.859
59376	1	390.68	0.9999	390.636
59399	1	394.35	0.9999	394.310
59402	1	398.73	0.9999	398.685
27857	1	392.40	0.9999	392.360
27861	1	383.25	0.9999	383.211
27895	1	388.68	0.9999	388.641
27856	1	417.28	0.9999	417.238
27858	1	389.53	0.9999	389.491
27852	1	390.13	0.9999	390.090
5605	1	387.75	0.9996	387.594
5604	1	399.79	0.9996	399.630
5606	1	399.24	0.9996	399.080
5618	1	394.69	0.9996	394.532
5617	1	405.88	0.9996	405.717
5610	1	372.42	0.9996	372.271
5608	1	405.58	0.9996	405.417
27850	1	400.18	0.9999	400.139
5571	1			

		409.52	0.9996	409.356
5586	1	409.95	0.9996	409.786
5487	1	394.06	0.9996	393.902
5488	1	396.57	0.9996	396.411
5484	1	398.82	0.9996	398.660
5506	1	390.86	0.9996	390.703
5616	1	380.45	0.9996	380.297
5619	1	397.52	0.9996	397.360
5620	1	402.35	0.9996	402.189
5609	1	406.59	0.9996	406.427
5613	1	402.60	0.9996	402.438
5611	1	392.79	0.9996	392.632
5614	1	399.93	0.9996	399.770
5612	1	413.75	0.9996	413.584
5615	1	408.32	0.9996	408.156
5607	1	405.47	0.9996	405.307
5552	1	405.78	0.9996	405.618
5544	1	394.04	0.9996	393.882
5549	1	402.72	0.9996	402.559
5550	1	394.47	0.9996	394.312
5546	1	393.10	0.9996	392.943
5542	1	379.87	0.9996	379.718
5591	1			

		408.67	0.9996	408.506
5587	1	412.33	0.9996	412.165
5569	1	400.25	0.9996	400.089
5568	1	411.81	0.9996	411.645
5503	1	399.53	0.9996	399.370
5486	1	392.79	0.9996	392.632
5551	1	402.67	0.9996	402.509
5545	1	401.93	0.9996	401.769
5584	1	423.38	0.9996	423.210
5589	1	417.10	0.9996	416.933
5541	1	398.75	0.9996	398.591
5547	1	397.63	0.9996	397.471
5543	1	402.54	0.9996	402.379
5548	1	413.62	0.9996	413.455
517	1	392.08	0.9999	392.035
524	1	392.00	0.9999	391.960
296	1	398.65	0.9999	398.610
294	1	398.70	0.9999	398.660
292	1	398.65	0.9999	398.610
300	1	388.75	0.9999	388.711
290	1	382.65	0.9999	382.611
297	1	399.70	0.9999	399.660
314	1			

		412.23	0.9999	412.183
298	1	388.40	0.9999	388.361
587	1	419.60	0.9999	419.558
586	1	419.65	0.9999	419.608
316	1	412.20	0.9999	412.158
307	1	409.80	0.9999	409.759
308	1	409.93	0.9999	409.884
309	1	419.65	0.9999	419.608
310	1	420.13	0.9999	420.082
311	1	419.65	0.9999	419.608
312	1	419.68	0.9999	419.633
288	1	382.68	0.9999	382.636
289	1	383.65	0.9999	383.611
530	1	413.05	0.9999	413.008
527	1	413.08	0.9999	413.033
521	1	392.68	0.9999	392.635
331	1	419.83	0.9999	419.783
329	1	419.85	0.9999	419.808
328	1	419.83	0.9999	419.783
327	1	419.78	0.9999	419.733
330	1	419.83	0.9999	419.783
284	1	383.13	0.9999	383.086
243	1			

		392.70	0.9999	392.660
291	1	398.50	0.9999	398.460
295	1	398.70	0.9999	398.660
871	1	395.73	0.9999	395.690
872	1	415.38	0.9999	415.338
873	1	408.95	0.9999	408.909
874	1	388.45	0.9999	388.411
875	1	387.08	0.9999	387.041
876	1	415.80	0.9999	415.758
877	1	413.80	0.9999	413.758
878	1	399.23	0.9999	399.190
879	1	399.15	0.9999	399.110
880	1	391.35	0.9999	391.310
881	1	406.90	0.9999	406.859
882	1	394.85	0.9999	394.810
883	1	397.03	0.9999	396.990
884	1	396.00	0.9999	395.960
886	1	390.10	0.9999	390.060
27859	1	392.60	0.9999	392.560
27891	1	398.15	0.9999	398.110
27924	1	377.98	0.9999	377.942
27890	1	367.58	0.9999	367.543
27886	1			

		403.13	0.9999	403.089
27879	1	384.80	0.9999	384.761
27885	1	390.55	0.9999	390.510
27849	1	385.83	0.9999	385.786
27889	1	390.10	0.9999	390.060
27894	1	401.10	0.9999	401.059
27882	1	399.23	0.9999	399.190
501	1	419.45	0.9999	419.408
500	1	419.75	0.9999	419.708
499	1	419.80	0.9999	419.758
496	1	419.65	0.9999	419.608
495	1	419.80	0.9999	419.758
494	1	419.65	0.9999	419.608
493	1	419.80	0.9999	419.758
498	1	419.80	0.9999	419.758
497	1	419.78	0.9999	419.733
391	1	387.75	0.9999	387.711
393	1	387.73	0.9999	387.686
245	1	391.70	0.9999	391.660
244	1	391.70	0.9999	391.660
321	1	424.18	0.9999	424.132
325	1	424.80	0.9999	424.757
326	1			

		423.85	0.9999	423.807
323	1	424.18	0.9999	424.132
324	1	424.20	0.9999	424.157
322	1	424.18	0.9999	424.132
320	1	424.15	0.9999	424.107
588	1	419.60	0.9999	419.558
590	1	419.60	0.9999	419.558
589	1	419.63	0.9999	419.583
317	1	415.68	0.9999	415.633
375	1	396.25	0.9999	396.210
399	1	387.98	0.9999	387.936
397	1	387.90	0.9999	387.861
398	1	387.95	0.9999	387.911
396	1	387.95	0.9999	387.911
395	1	387.73	0.9999	387.686
394	1	387.70	0.9999	387.661
519	1	392.13	0.9999	392.085
522	1	392.08	0.9999	392.035
529	1	412.95	0.9999	412.908
523	1	392.08	0.9999	392.035
520	1	392.08	0.9999	392.035
518	1	392.10	0.9999	392.060
528	1			

		413.05	0.9999	413.008
526	1	413.03	0.9999	412.983
525	1	413.80	0.9999	413.758
392	1	388.85	0.9999	388.811
44415	1	396.18	0.9999	396.135
44417	1	399.83	0.9999	399.785
44419	1	401.03	0.9999	400.985
48462	1	402.28	0.9999	402.235
48457	1	400.90	0.9999	400.860
44856	1	397.13	0.9999	397.085
48060	1	406.63	0.9999	406.584
48061	1	408.65	0.9999	408.609
48068	1	417.83	0.9999	417.783
48064	1	409.85	0.9999	409.809
44864	1	387.98	0.9999	387.936
44852	1	406.05	0.9999	406.009
48452	1	406.13	0.9999	406.084
48490	1	395.00	0.9999	394.961
48450	1	394.05	0.9999	394.011
48484	1	401.38	0.9999	401.335
48455	1	400.75	0.9999	400.710
48451	1	409.28	0.9999	409.234
48464	1			

		405.43	0.9999	405.384
48485	1	402.70	0.9999	402.660
44834	1	401.45	0.9999	401.410
44793	1	402.03	0.9999	401.985
44791	1	407.95	0.9999	407.909
44835	1	396.95	0.9999	396.910
44792	1	391.23	0.9999	391.186
44842	1	399.35	0.9999	399.310
44836	1	403.18	0.9999	403.135
44849	1	395.58	0.9999	395.535
44838	1	400.13	0.9999	400.085
44846	1	398.78	0.9999	398.735
48487	1	379.58	0.9999	379.537
48460	1	389.48	0.9999	389.436
48483	1	407.73	0.9999	407.684
48466	1	404.93	0.9999	404.885
48491	1	401.35	0.9999	401.310
48453	1	405.55	0.9999	405.509
48482	1	392.05	0.9999	392.011
48486	1	395.18	0.9999	395.135
48488	1	400.23	0.9999	400.185
48492	1	411.80	0.9999	411.759
48459	1			

		399.78	0.9999	399.735
48463	1	407.90	0.9999	407.859
48456	1	400.75	0.9999	400.710
27881	1	400.05	0.9999	400.009
27892	1	394.55	0.9999	394.510
27880	1	394.30	0.9999	394.260
27883	1	375.93	0.9999	375.892
27888	1	382.03	0.9999	381.991
27884	1	394.65	0.9999	394.610
27887	1	403.95	0.9999	403.909
44442	1	408.65	0.9999	408.609
44444	1	396.20	0.9999	396.160
44436	1	401.55	0.9999	401.510
44451	1	406.53	0.9999	406.484
44555	1	397.83	0.9999	397.785
44421	1	411.53	0.9999	411.484
108858	1	409.35	0.9999	409.309
108857	1	422.73	0.9999	422.688
108866	1	412.17	0.9999	412.129
108443	1	422.71	0.9999	422.668
108444	1	411.58	0.9999	411.539
108706	1	397.02	0.9999	396.980
108708	1			

		400.78	0.9999	400.740
108439	1	402.90	0.9999	402.860
108868	1	414.67	0.9999	414.629
108850	1	396.69	0.9999	396.650
108441	1	398.40	0.9999	398.360
108856	1	401.17	0.9999	401.130
108865	1	400.52	0.9999	400.480
108852	1	401.59	0.9999	401.550
108860	1	396.66	0.9999	396.620
108864	1	401.34	0.9999	401.300
108440	1	403.76	0.9999	403.720
108851	1	393.34	0.9999	393.301
108442	1	397.00	0.9999	396.960
108861	1	411.24	0.9999	411.199
108859	1	395.49	0.9999	395.450
108863	1	404.25	0.9999	404.210
108862	1	401.50	0.9999	401.460
26493	1	369.98	0.9999	369.943
26484	1	373.33	0.9999	373.292
46984	1	408.60	0.9999	408.559
46983	1	396.93	0.9999	396.885
46988	1	382.03	0.9999	381.987
46986	1			

		394.70	0.9999	394.661
46992	1	391.18	0.9999	391.135
46985	1	403.80	0.9999	403.760
46990	1	389.18	0.9999	389.136
46991	1	407.10	0.9999	407.059
46989	1	400.98	0.9999	400.935
44414	1	405.78	0.9999	405.734
48077	1	413.28	0.9999	413.234
44437	1	390.48	0.9999	390.436
44435	1	388.85	0.9999	388.811
44445	1	402.75	0.9999	402.710
44552	1	396.45	0.9999	396.410
44553	1	396.08	0.9999	396.035
44551	1	396.15	0.9999	396.110
44416	1	403.95	0.9999	403.910
44418	1	420.50	0.9999	420.458
44426	1	400.10	0.9999	400.060
44425	1	410.25	0.9999	410.209
44424	1	405.28	0.9999	405.234
44423	1	382.43	0.9999	382.387
47006	1	393.95	0.9999	393.911
47003	1	398.00	0.9999	397.960
44502	1			

		405.78	0.9999	405.734
44510	1	404.18	0.9999	404.135
44503	1	406.43	0.9999	406.384
44505	1	395.20	0.9999	395.160
44506	1	407.68	0.9999	407.634
44508	1	398.40	0.9999	398.360
26495	1	366.63	0.9999	366.593
26505	1	371.63	0.9999	371.592
26487	1	380.93	0.9999	380.891
26502	1	372.23	0.9999	372.192
26485	1	394.13	0.9999	394.090
26486	1	380.58	0.9999	380.541
46982	1	398.85	0.9999	398.810
46987	1	406.90	0.9999	406.859
44514	1	398.38	0.9999	398.335
44554	1	402.48	0.9999	402.435
44513	1	404.70	0.9999	404.660
44556	1	398.70	0.9999	398.660
26497	1	407.85	0.9999	407.809
44446	1	399.88	0.9999	399.835
44450	1	406.40	0.9999	406.359
44447	1	400.20	0.9999	400.160
44448	1			

		408.10	0.9999	408.059
44443	1	405.98	0.9999	405.934
59663	1	405.70	0.9999	405.659
6633	1	419.87	0.9996	419.702
27893	1	394.32	0.9999	394.280
464	1	388.90	0.9999	388.856
44420	1	396.93	0.9999	396.890
293	1	398.38	0.9999	398.340
48458	1	399.11	0.9999	399.065
48465	1	399.88	0.9999	399.840
48063	1	403.38	0.9999	403.339
48062	1	402.79	0.9999	402.749
44857	1	394.33	0.9999	394.285
44422	1	398.62	0.9999	398.580
29821	1	411.05	0.9999	411.008
34992	1	405.88	0.9999	405.834
1074	1	404.47	0.9999	404.429
656	1	401.08	0.9999	401.039
31704	1	405.30	0.9999	405.259
27854	1	389.55	0.9999	389.511
108867	1	404.54	0.9999	404.499
46981	1	404.57	0.9999	404.529
26483	1			

		384.39	0.9999	384.351
44438	1	403.16	0.9999	403.119
6623	1	397.88	0.9996	397.720
6608	1	393.48	0.9996	393.322
59394	1	398.74	0.9999	398.700
112825	1	403.26	0.9999	403.219
27860	1	367.36	0.9999	367.323
27851	1	397.81	0.9999	397.770
430	1	402.39	0.9999	402.349
58937	1	407.98	0.9999	407.934
67739	1	396.28	0.9999	396.240
541	1	402.63	0.9999	402.584
53641	1	405.97	0.9999	405.924
678	1	401.42	0.9999	401.377
59686	1	410.48	0.9999	410.438
68314	1	398.26	0.9999	398.220
59778	1	400.99	0.9999	400.944
689	1	402.48	0.9999	402.434
982	1	401.90	0.9999	401.854
59001	1	399.02	0.9999	398.975
59726	1	406.14	0.9999	406.099
6201	1	403.68	0.9996	403.518
6435	1			

		420.65	0.9996	420.481
1771	1	382.48	0.9999	382.441
299	1	388.36	0.9999	388.316
67448	1	403.21	0.9999	403.169
34997	1	405.76	0.9999	405.719
70387	1	408.34	0.9999	408.294
66545	1	401.12	0.9999	401.074
34879	1	393.72	0.9999	393.680
53576	1	396.38	0.9999	396.340
68310	1	416.37	0.9999	416.328
48227	1	418.08	0.9999	418.038
60972	1	404.97	0.9999	404.929
58999	1	412.74	0.9999	412.693
59042	1	419.43	0.9999	419.388
6876	1	396.75	0.9996	396.591
53659	1	411.15	0.9999	411.103
53621	1	402.19	0.9999	402.144
67472	1	402.86	0.9999	402.814
3655	1	399.54	0.9999	399.500
53561	1	395.70	0.9999	395.655
56325	1	399.52	0.9999	399.480
56297	1	390.47	0.9999	390.430
115901	1			

		397.53	0.9999	397.490
9500075	1	399.81	0.9998	399.730
67364	1	408.01	0.9999	407.969
6003	1	407.37	0.9996	407.207
33516	1	408.43	0.9999	408.389
887	1	404.55	0.9999	404.509
67729	1	371.49	0.9999	371.452
34851	1	405.46	0.9999	405.419
5526	1	393.00	0.9996	392.842
5514	1	406.07	0.9996	405.907
5406	1	418.96	0.9996	418.792
46904	1	395.60	0.9999	395.560
46907	1	400.90	0.9999	400.859
46912	1	401.95	0.9999	401.909
46906	1	390.50	0.9999	390.460
46905	1	412.63	0.9999	412.588
46924	1	402.73	0.9999	402.689
46917	1	407.38	0.9999	407.339
48071	1	398.73	0.9999	398.685
48070	1	393.83	0.9999	393.786
48069	1	391.33	0.9999	391.286
48066	1	407.88	0.9999	407.834
5395	1			

		387.12	0.9996	386.965
5396	1	392.53	0.9996	392.372
5393	1	381.00	0.9996	380.847
5049	1	405.27	0.9996	405.107
5048	1	421.05	0.9996	420.881
44507	1	415.00	0.9999	414.959
46913	1	402.23	0.9999	402.189
5483	1	405.29	0.9996	405.127
46915	1	403.40	0.9999	403.359
46914	1	391.88	0.9999	391.840
44512	1	393.70	0.9999	393.661
47009	1	396.23	0.9999	396.185
46908	1	408.68	0.9999	408.639
47002	1	393.88	0.9999	393.836
48065	1	414.93	0.9999	414.884
48059	1	399.93	0.9999	399.885
48075	1	391.88	0.9999	391.836
48074	1	398.28	0.9999	398.235
48067	1	389.35	0.9999	389.311
48076	1	397.75	0.9999	397.710
44504	1	388.98	0.9999	388.936
44509	1	392.05	0.9999	392.011
44511	1			

		403.58	0.9999	403.535
48072	1	408.35	0.9999	408.309
47004	1	401.00	0.9999	400.960
46998	1	392.65	0.9999	392.611
46995	1	409.08	0.9999	409.034
46996	1	401.83	0.9999	401.785
46925	1	413.18	0.9999	413.138
47001	1	402.63	0.9999	402.585
46994	1	401.48	0.9999	401.435
46993	1	404.33	0.9999	404.285
44516	1	395.88	0.9999	395.835
47007	1	406.25	0.9999	406.209
5417	1	417.22	0.9996	417.053
5442	1	389.95	0.9996	389.794
5448	1	397.78	0.9996	397.620
5444	1	403.25	0.9996	403.088
5443	1	403.19	0.9996	403.028
5449	1	407.40	0.9996	407.237
5450	1	408.79	0.9996	408.626
5412	1	385.93	0.9996	385.775
5410	1	390.96	0.9996	390.803
5409	1	388.71	0.9996	388.554
5408	1			

		392.43	0.9996	392.273
5415	1	387.18	0.9996	387.025
5413	1	402.44	0.9996	402.279
5414	1	400.28	0.9996	400.119
5421	1	412.39	0.9996	412.225
5446	1	400.96	0.9996	400.799
5441	1	410.93	0.9996	410.765
5447	1	402.78	0.9996	402.618
5394	1	412.83	0.9996	412.664
5407	1	395.62	0.9996	395.461
5508	1	411.55	0.9996	411.385
5517	1	398.23	0.9996	398.070
5518	1	411.30	0.9996	411.135
5505	1	422.83	0.9996	422.660
5511	1	413.82	0.9996	413.654
5512	1	376.26	0.9996	376.109
5445	1	388.78	0.9996	388.624
5440	1	408.62	0.9996	408.456
5096	1	417.56	0.9996	417.393
5025	1	418.26	0.9996	418.092
5519	1	413.13	0.9996	412.964
5485	1	402.15	0.9996	401.989
5504	1			

		400.34	0.9996	400.179
5520	1	398.77	0.9996	398.610
5522	1	406.12	0.9996	405.957
5521	1	410.97	0.9996	410.805
5524	1	408.85	0.9996	408.686
5525	1	385.00	0.9996	384.846
5101	1	417.12	0.9996	416.953
5100	1	419.98	0.9996	419.812
5026	1	416.08	0.9996	415.913
5024	1	396.15	0.9996	395.991
5027	1	409.88	0.9996	409.716
5424	1	380.34	0.9996	380.187
5422	1	394.02	0.9996	393.862
5515	1	402.47	0.9996	402.309
5392	1	405.20	0.9996	405.037
5397	1	387.37	0.9996	387.215
12691	1	398.88	0.9999	398.835
12690	1	399.05	0.9999	399.010
12685	1	406.80	0.9999	406.759
12693	1	398.73	0.9999	398.685
12694	1	398.80	0.9999	398.760
12686	1	407.93	0.9999	407.884
12689	1			

		398.83	0.9999	398.785
12692	1	398.73	0.9999	398.685
12687	1	398.70	0.9999	398.660
12684	1	406.55	0.9999	406.509
12688	1	398.70	0.9999	398.660
5252	1	424.55	0.9996	424.380
5250	1	407.33	0.9996	407.167
5277	1	411.03	0.9996	410.865
5253	1	409.49	0.9996	409.326
5249	1	403.78	0.9996	403.618
5260	1	417.59	0.9996	417.422
5204	1	413.84	0.9996	413.674
5216	1	403.83	0.9996	403.668
5369	1	407.13	0.9996	406.967
5405	1	407.29	0.9996	407.127
5399	1	407.02	0.9996	406.857
5362	1	404.06	0.9996	403.898
5276	1	418.57	0.9996	418.402
5280	1	411.75	0.9996	411.585
5275	1	412.17	0.9996	412.005
5254	1	407.20	0.9996	407.037
5273	1	411.88	0.9996	411.715
5360	1			

		402.72	0.9996	402.558
5364	1	403.31	0.9996	403.148
5365	1	418.72	0.9996	418.552
5317	1	424.23	0.9996	424.060
5215	1	413.10	0.9996	412.934
5335	1	407.67	0.9996	407.506
5340	1	413.51	0.9996	413.344
5334	1	411.65	0.9996	411.485
5338	1	414.19	0.9996	414.024
5278	1	414.20	0.9996	414.034
5279	1	412.41	0.9996	412.245
5416	1	388.80	0.9996	388.644
5411	1	406.49	0.9996	406.327
5345	1	423.43	0.9996	423.260
5358	1	416.53	0.9996	416.363
5357	1	416.42	0.9996	416.253
5351	1	410.36	0.9996	410.195
5352	1	414.62	0.9996	414.454
5355	1	424.51	0.9996	424.340
5274	1	405.21	0.9996	405.047
5120	1	407.63	0.9996	407.466
12480	1	401.18	0.9999	401.135
12465	1			

		401.33	0.9999	401.285
12460	1	401.35	0.9999	401.310
12457	1	401.35	0.9999	401.310
12479	1	401.18	0.9999	401.135
12469	1	401.30	0.9999	401.260
12458	1	401.25	0.9999	401.210
12470	1	401.30	0.9999	401.260
12473	1	401.90	0.9999	401.860
12462	1	401.35	0.9999	401.310
12363	1	403.88	0.9999	403.834
12362	1	403.88	0.9999	403.834
12327	1	393.90	0.9999	393.860
12481	1	401.20	0.9999	401.160
12477	1	401.30	0.9999	401.260
12484	1	408.03	0.9999	407.984
12486	1	408.03	0.9999	407.984
12488	1	408.00	0.9999	407.959
12483	1	407.90	0.9999	407.859
12485	1	407.98	0.9999	407.934
12464	1	401.30	0.9999	401.260
12472	1	401.35	0.9999	401.310
12478	1	401.25	0.9999	401.210
12482	1			

		401.18	0.9999	401.135
12474	1	401.20	0.9999	401.160
12476	1	401.20	0.9999	401.160
12463	1	401.30	0.9999	401.260
12459	1	401.30	0.9999	401.260
12461	1	401.18	0.9999	401.135
12492	1	399.85	0.9999	399.810
12679	1	406.60	0.9999	406.559
12673	1	406.50	0.9999	406.459
12676	1	406.60	0.9999	406.559
12683	1	406.60	0.9999	406.559
12678	1	406.58	0.9999	406.534
12680	1	406.58	0.9999	406.534
12675	1	406.60	0.9999	406.559
12677	1	406.50	0.9999	406.459
12695	1	399.20	0.9999	399.160
12487	1	407.93	0.9999	407.884
12681	1	406.55	0.9999	406.509
12682	1	406.58	0.9999	406.534
12490	1	399.83	0.9999	399.785
12495	1	399.85	0.9999	399.810
44544	1	399.83	0.9999	399.785
12491	1			

		399.80	0.9999	399.760
12489	1	407.98	0.9999	407.934
12496	1	399.83	0.9999	399.785
12494	1	399.73	0.9999	399.685
12493	1	399.80	0.9999	399.760
44541	1	401.60	0.9999	401.560
44538	1	415.65	0.9999	415.608
44542	1	406.55	0.9999	406.509
44527	1	401.63	0.9999	401.585
44525	1	404.40	0.9999	404.360
44526	1	397.30	0.9999	397.260
44530	1	409.05	0.9999	409.009
44409	1	396.43	0.9999	396.385
44413	1	396.25	0.9999	396.210
44523	1	414.48	0.9999	414.434
12399	1	408.68	0.9999	408.634
12358	1	403.85	0.9999	403.809
12355	1	403.90	0.9999	403.859
12309	1	400.28	0.9999	400.234
12354	1	403.93	0.9999	403.884
44536	1	390.83	0.9999	390.786
12356	1	404.45	0.9999	404.409
44537	1			

		403.80	0.9999	403.760
44532	1	412.60	0.9999	412.559
44533	1	402.80	0.9999	402.760
44535	1	398.55	0.9999	398.510
44540	1	398.10	0.9999	398.060
44531	1	384.60	0.9999	384.562
44546	1	399.93	0.9999	399.885
44543	1	394.63	0.9999	394.586
44539	1	387.18	0.9999	387.136
44545	1	407.40	0.9999	407.359
44534	1	395.25	0.9999	395.210
12361	1	403.90	0.9999	403.859
12359	1	403.95	0.9999	403.909
12357	1	403.90	0.9999	403.859
12360	1	403.95	0.9999	403.909
12326	1	393.83	0.9999	393.785
12325	1	394.00	0.9999	393.960
12330	1	399.63	0.9999	399.585
12329	1	394.20	0.9999	394.160
12331	1	398.60	0.9999	398.560
12393	1	408.23	0.9999	408.184
12466	1	401.33	0.9999	401.285
12467	1			

		401.10	0.9999	401.060
12468	1	401.33	0.9999	401.285
12471	1	401.20	0.9999	401.160
12475	1	401.33	0.9999	401.285
12394	1	405.95	0.9999	405.909
12396	1	407.73	0.9999	407.684
12398	1	407.88	0.9999	407.834
12395	1	408.00	0.9999	407.959
12397	1	407.93	0.9999	407.884
43318	1	398.18	0.9999	398.135
43319	1	391.83	0.9999	391.786
43320	1	423.05	0.9999	423.008
43411	1	394.85	0.9999	394.810
43373	1	393.38	0.9999	393.336
43371	1	411.88	0.9999	411.834
43329	1	394.53	0.9999	394.486
43322	1	396.50	0.9999	396.460
43325	1	401.20	0.9999	401.160
43323	1	396.55	0.9999	396.510
43328	1	400.70	0.9999	400.660
43321	1	398.95	0.9999	398.910
43326	1	390.53	0.9999	390.486
43327	1			

		392.83	0.9999	392.786
43368	1	389.58	0.9999	389.536
43394	1	401.65	0.9999	401.610
43392	1	406.28	0.9999	406.234
43383	1	414.03	0.9999	413.984
43391	1	397.80	0.9999	397.760
43370	1	396.23	0.9999	396.185
43393	1	402.08	0.9999	402.035
43369	1	406.10	0.9999	406.059
43382	1	405.30	0.9999	405.259
43386	1	395.43	0.9999	395.385
43388	1	413.30	0.9999	413.259
43374	1	412.95	0.9999	412.909
43375	1	407.58	0.9999	407.534
43389	1	394.30	0.9999	394.261
43390	1	393.85	0.9999	393.811
43372	1	410.10	0.9999	410.059
43377	1	403.38	0.9999	403.335
43380	1	397.70	0.9999	397.660
43378	1	392.83	0.9999	392.786
43385	1	396.23	0.9999	396.185
43396	1	400.08	0.9999	400.035
44522	1			

		383.30	0.9999	383.262
44521	1	397.55	0.9999	397.510
44524	1	390.15	0.9999	390.111
44412	1	408.65	0.9999	408.609
44411	1	409.63	0.9999	409.584
44518	1	405.20	0.9999	405.159
44517	1	394.18	0.9999	394.136
44520	1	393.78	0.9999	393.736
44519	1	410.33	0.9999	410.284
43381	1	403.73	0.9999	403.685
44529	1	406.23	0.9999	406.184
44528	1	398.33	0.9999	398.285
9308002	1	400.10	0.9999	400.060
9307995	1	400.09	0.9999	400.045
9307998	1	400.09	0.9999	400.045
9307994	1	400.09	0.9999	400.045
9307682	1	400.09	0.9999	400.049
9307677	1	400.08	0.9999	400.039
9307676	1	400.09	0.9999	400.049
9307683	1	400.09	0.9999	400.049
9307681	1	400.09	0.9999	400.049
9307678	1	400.09	0.9999	400.049
9307684	1			

		400.09	0.9999	400.049
9307680	1	400.09	0.9999	400.049
9307679	1	400.09	0.9999	400.049
9307983	1	400.10	0.9999	400.055
9307982	1	400.10	0.9999	400.055
9307986	1	400.11	0.9999	400.070
9307980	1	400.10	0.9999	400.055
9307981	1	400.11	0.9999	400.065
9307985	1	400.11	0.9999	400.065
9307984	1	400.09	0.9999	400.045
9307976	1	400.00	0.9999	399.955
42501	1	395.40	0.9999	395.360
42502	1	397.30	0.9999	397.260
42497	1	404.08	0.9999	404.039
42431	1	403.00	0.9999	402.959
43412	1	396.25	0.9999	396.210
43408	1	407.25	0.9999	407.209
42500	1	402.78	0.9999	402.739
43486	1	400.53	0.9999	400.485
43488	1	400.10	0.9999	400.060
43409	1	408.50	0.9999	408.459
43379	1	402.80	0.9999	402.760
43367	1			

		400.85	0.9999	400.810
43384	1	409.15	0.9999	409.109
43395	1	400.53	0.9999	400.485
43387	1	399.03	0.9999	398.985
43376	1	392.63	0.9999	392.586
43317	1	393.00	0.9999	392.961
43410	1	400.63	0.9999	400.589
42498	1	404.15	0.9999	404.109
42371	1	399.23	0.9999	399.185
42341	1	401.65	0.9999	401.610
42345	1	399.90	0.9999	399.860
43485	1	396.98	0.9999	396.935
43419	1	403.93	0.9999	403.884
43416	1	399.38	0.9999	399.335
43414	1	399.55	0.9999	399.510
43415	1	403.23	0.9999	403.184
41608	1	404.60	0.9999	404.560
41598	1	408.60	0.9999	408.559
41619	1	392.10	0.9999	392.061
41620	1	403.80	0.9999	403.760
41621	1	407.30	0.9999	407.259
41625	1	396.33	0.9999	396.285
41638	1			

		388.50	0.9999	388.461
41637	1	401.38	0.9999	401.335
41635	1	395.83	0.9999	395.785
41639	1	399.95	0.9999	399.910
41640	1	397.55	0.9999	397.510
41643	1	389.45	0.9999	389.411
41684	1	379.23	0.9999	379.187
41938	1	388.68	0.9999	388.636
41947	1	396.70	0.9999	396.660
41948	1	395.53	0.9999	395.485
41950	1	409.08	0.9999	409.034
41976	1	403.75	0.9999	403.710
41977	1	394.35	0.9999	394.311
41979	1	401.65	0.9999	401.610
44550	1	403.90	0.9999	403.860
44549	1	395.73	0.9999	395.685
44548	1	402.65	0.9999	402.610
44547	1	391.15	0.9999	391.111
9307989	1	400.10	0.9999	400.055
9307990	1	400.10	0.9999	400.060
9307977	1	400.10	0.9999	400.060
9307991	1	400.11	0.9999	400.070
9307987	1			

		400.09	0.9999	400.050
9307978	1	400.10	0.9999	400.055
9307979	1	400.11	0.9999	400.065
9307992	1	400.09	0.9999	400.045
9307993	1	400.08	0.9999	400.040
9307988	1	400.10	0.9999	400.055
9308008	1	400.10	0.9999	400.055
9308007	1	400.10	0.9999	400.055
9308009	1	400.10	0.9999	400.060
9307997	1	400.09	0.9999	400.045
9307996	1	400.09	0.9999	400.050
9308001	1	400.09	0.9999	400.050
9308005	1	400.08	0.9999	400.040
9308006	1	400.09	0.9999	400.050
9308003	1	400.10	0.9999	400.055
9308000	1	400.09	0.9999	400.045
9307999	1	400.10	0.9999	400.055
9308004	1	400.09	0.9999	400.050
9308010	1	400.11	0.9999	400.065
41690	1	390.05	0.9999	390.011
41691	1	404.00	0.9999	403.960
41685	1	403.73	0.9999	403.685
41681	1			

		393.35	0.9999	393.311
41689	1	404.53	0.9999	404.485
41682	1	405.55	0.9999	405.509
41696	1	420.55	0.9999	420.508
41697	1	396.63	0.9999	396.585
41671	1	400.05	0.9999	400.010
41675	1	402.08	0.9999	402.035
41672	1	399.58	0.9999	399.535
41669	1	404.38	0.9999	404.335
41687	1	389.13	0.9999	389.086
41693	1	398.20	0.9999	398.160
41677	1	401.95	0.9999	401.910
41707	1	392.73	0.9999	392.686
41706	1	400.00	0.9999	399.960
41705	1	397.93	0.9999	397.885
41704	1	400.93	0.9999	400.885
41703	1	396.60	0.9999	396.560
41702	1	403.75	0.9999	403.710
41701	1	391.75	0.9999	391.711
41700	1	391.93	0.9999	391.886
41618	1	402.55	0.9999	402.510
41613	1	408.80	0.9999	408.759
41617	1			

		401.68	0.9999	401.635
41610	1	408.60	0.9999	408.559
41606	1	414.78	0.9999	414.734
41611	1	400.23	0.9999	400.185
41614	1	398.40	0.9999	398.360
41612	1	403.38	0.9999	403.335
41622	1	409.00	0.9999	408.959
41623	1	408.08	0.9999	408.034
41631	1	408.88	0.9999	408.834
41633	1	398.95	0.9999	398.910
41634	1	407.50	0.9999	407.459
41636	1	398.35	0.9999	398.310
41641	1	412.78	0.9999	412.734
41642	1	393.83	0.9999	393.786
41616	1	405.93	0.9999	405.884
41601	1	403.30	0.9999	403.260
41603	1	402.38	0.9999	402.335
41602	1	403.55	0.9999	403.510
41624	1	398.98	0.9999	398.935
41626	1	403.38	0.9999	403.335
41627	1	421.13	0.9999	421.083
41628	1	401.03	0.9999	400.985
41629	1			

		389.23	0.9999	389.186
41630	1	403.70	0.9999	403.660
42114	1	404.90	0.9999	404.859
42117	1	402.58	0.9999	402.539
42113	1	403.68	0.9999	403.639
42108	1	408.80	0.9999	408.759
42107	1	401.90	0.9999	401.859
42109	1	412.53	0.9999	412.488
42103	1	408.68	0.9999	408.639
41594	1	407.05	0.9999	407.009
41699	1	396.40	0.9999	396.360
41695	1	382.00	0.9999	381.962
41679	1	395.60	0.9999	395.560
41673	1	386.73	0.9999	386.686
41676	1	399.53	0.9999	399.485
41678	1	399.60	0.9999	399.560
41688	1	389.40	0.9999	389.361
41670	1	396.85	0.9999	396.810
41692	1	408.70	0.9999	408.659
5009	1	405.27	0.9996	405.107
5012	1	408.89	0.9996	408.726
5010	1	406.98	0.9996	406.817
5011	1			

		390.15	0.9996	389.993
25014	1	386.78	0.9999	386.741
25011	1	400.33	0.9999	400.289
42104	1	405.95	0.9999	405.909
42115	1	401.40	0.9999	401.359
42102	1	406.10	0.9999	406.059
42112	1	399.40	0.9999	399.360
42111	1	407.93	0.9999	407.889
42110	1	403.25	0.9999	403.209
41708	1	391.13	0.9999	391.086
24804	1	392.33	0.9999	392.286
24802	1	392.05	0.9999	392.011
24806	1	391.70	0.9999	391.661
24878	1	386.90	0.9999	386.861
24848	1	375.55	0.9999	375.512
24885	1	386.95	0.9999	386.911
24882	1	385.23	0.9999	385.186
24870	1	384.88	0.9999	384.837
24793	1	376.63	0.9999	376.587
41683	1	401.03	0.9999	400.985
41674	1	396.70	0.9999	396.660
41680	1	401.58	0.9999	401.535
41686	1			

		380.43	0.9999	380.387
41698	1	394.75	0.9999	394.711
41694	1	391.33	0.9999	391.286
24795	1	370.83	0.9999	370.788
24798	1	355.20	0.9999	355.164
24792	1	388.78	0.9999	388.736
41969	1	389.15	0.9999	389.111
41951	1	403.60	0.9999	403.560
41659	1	397.90	0.9999	397.860
41650	1	405.98	0.9999	405.934
41649	1	399.05	0.9999	399.010
41668	1	395.45	0.9999	395.410
41651	1	400.00	0.9999	399.960
41652	1	399.70	0.9999	399.660
41595	1	413.75	0.9999	413.709
41596	1	415.28	0.9999	415.233
41585	1	406.60	0.9999	406.559
41586	1	401.35	0.9999	401.310
41583	1	405.55	0.9999	405.509
41584	1	413.93	0.9999	413.884
41587	1	401.30	0.9999	401.260
41597	1	408.00	0.9999	407.959
41588	1			

		400.98	0.9999	400.935
41589	1	405.50	0.9999	405.459
41965	1	408.75	0.9999	408.709
41964	1	406.50	0.9999	406.459
41646	1	389.43	0.9999	389.386
41972	1	404.68	0.9999	404.635
41975	1	409.13	0.9999	409.084
41954	1	399.88	0.9999	399.835
41953	1	396.28	0.9999	396.235
41952	1	403.28	0.9999	403.235
41939	1	404.60	0.9999	404.560
41644	1	392.88	0.9999	392.836
41667	1	396.30	0.9999	396.260
41665	1	395.10	0.9999	395.060
41666	1	396.55	0.9999	396.510
41663	1	397.15	0.9999	397.110
41664	1	404.15	0.9999	404.110
41662	1	387.35	0.9999	387.311
41661	1	403.00	0.9999	402.960
41660	1	396.08	0.9999	396.035
41654	1	406.88	0.9999	406.834
41655	1	397.30	0.9999	397.260
41656	1			

		392.73	0.9999	392.686
41653	1	393.83	0.9999	393.786
41657	1	415.00	0.9999	414.959
41658	1	403.05	0.9999	403.010
41647	1	409.48	0.9999	409.434
41648	1	390.08	0.9999	390.036
41590	1	412.43	0.9999	412.384
41591	1	404.25	0.9999	404.210
41592	1	412.00	0.9999	411.959
41593	1	417.38	0.9999	417.333
42145	1	389.40	0.9999	389.361
42144	1	389.48	0.9999	389.441
42149	1	396.73	0.9999	396.690
42157	1	400.83	0.9999	400.789
42148	1	395.38	0.9999	395.340
42150	1	405.45	0.9999	405.409
42073	1	392.08	0.9999	392.040
42143	1	397.88	0.9999	397.840
42088	1	396.30	0.9999	396.260
42086	1	399.08	0.9999	399.040
42089	1	414.15	0.9999	414.108
42092	1	395.05	0.9999	395.010
42071	1			

		395.63	0.9999	395.590
42072	1	396.28	0.9999	396.240
42074	1	398.13	0.9999	398.090
42075	1	399.85	0.9999	399.810
42151	1	396.28	0.9999	396.240
42152	1	393.73	0.9999	393.690
42153	1	393.68	0.9999	393.640
42154	1	387.58	0.9999	387.541
42155	1	412.70	0.9999	412.658
42156	1	405.05	0.9999	405.009
42158	1	396.20	0.9999	396.160
42159	1	395.25	0.9999	395.210
42160	1	407.73	0.9999	407.689
42161	1	404.93	0.9999	404.889
42162	1	404.90	0.9999	404.859
42147	1	399.38	0.9999	399.340
41973	1	413.13	0.9999	413.084
41974	1	400.83	0.9999	400.785
41970	1	395.10	0.9999	395.060
41971	1	397.15	0.9999	397.110
41978	1	398.08	0.9999	398.035
41980	1	402.90	0.9999	402.860
41981	1			

		403.83	0.9999	403.785
41940	1	400.85	0.9999	400.810
41941	1	400.58	0.9999	400.535
41949	1	386.85	0.9999	386.811
41956	1	401.85	0.9999	401.810
41957	1	405.08	0.9999	405.034
41958	1	398.50	0.9999	398.460
41959	1	404.13	0.9999	404.085
41960	1	410.38	0.9999	410.334
41961	1	399.13	0.9999	399.085
41962	1	392.38	0.9999	392.336
41963	1	400.18	0.9999	400.135
41967	1	406.70	0.9999	406.659
41966	1	413.05	0.9999	413.009
41946	1	403.55	0.9999	403.510
42095	1	400.10	0.9999	400.059
42094	1	397.75	0.9999	397.710
42093	1	403.95	0.9999	403.909
42100	1	392.40	0.9999	392.360
42106	1	392.23	0.9999	392.190
42105	1	396.98	0.9999	396.940
42090	1	406.48	0.9999	406.439
42091	1			

		405.60	0.9999	405.559
42099	1	405.03	0.9999	404.989
42097	1	399.38	0.9999	399.340
42101	1	411.90	0.9999	411.858
42098	1	402.83	0.9999	402.789
42134	1	397.53	0.9999	397.490
42136	1	410.35	0.9999	410.308
42128	1	398.78	0.9999	398.740
42142	1	401.08	0.9999	401.039
41558	1	418.10	0.9999	418.058
42126	1	392.68	0.9999	392.640
42122	1	419.88	0.9999	419.838
42140	1	397.05	0.9999	397.010
42066	1	391.88	0.9999	391.840
42141	1	407.95	0.9999	407.909
42129	1	392.98	0.9999	392.940
41557	1	409.88	0.9999	409.839
42119	1	396.65	0.9999	396.610
42131	1	406.63	0.9999	406.589
42067	1	397.90	0.9999	397.860
42064	1	405.05	0.9999	405.009
42069	1	399.93	0.9999	399.890
42070	1			

		395.28	0.9999	395.240
42125	1	387.88	0.9999	387.841
42139	1	416.60	0.9999	416.558
42137	1	401.20	0.9999	401.159
42138	1	409.33	0.9999	409.289
42130	1	398.03	0.9999	397.990
42065	1	403.73	0.9999	403.689
25008	1	387.75	0.9999	387.711
25009	1	381.90	0.9999	381.861
42146	1	404.95	0.9999	404.909
42133	1	402.53	0.9999	402.489
42127	1	408.68	0.9999	408.639
41534	1	417.53	0.9999	417.488
42132	1	409.85	0.9999	409.809
42124	1	399.60	0.9999	399.560
42120	1	400.13	0.9999	400.089
42068	1	397.43	0.9999	397.390
42118	1	405.05	0.9999	405.009
42123	1	407.23	0.9999	407.189
42121	1	400.48	0.9999	400.439
12369	1	419.78	0.9999	419.733
12370	1	419.90	0.9999	419.858
M2417-CB09	1			

		415.03	0.9997	414.905
M2420-CB19	1	412.00	0.9997	411.876
M2420-CB11	1	416.54	0.9997	416.415
M2451CB20	1	412.11	0.9998	412.027
M2451CB18	1	402.20	0.9998	402.119
M2451CB17	1	419.99	0.9998	419.906
M2451CB16	1	394.48	0.9998	394.401
M2844CB-20	1	408.56	0.9998	408.478
M2844CB-10	1	403.81	0.9998	403.729
M2844CB-18	1	394.03	0.9998	393.951
M2844CB-19	1	405.17	0.9998	405.088
M2844CB-12	1	406.79	0.9998	406.708
M2844CB-14	1	399.04	0.9998	398.960
M2844CB-07	1	405.62	0.9998	405.538
M2844CB-03	1	407.62	0.9998	407.538
M2844CB-05	1	416.42	0.9998	416.336
M2844CB-17	1	400.55	0.9998	400.469
M2844CB-01	1	405.28	0.9998	405.198
M2844CB-09	1	391.74	0.9998	391.661
M2844CB-11	1	407.84	0.9998	407.758
M2844CB-08	1	395.01	0.9998	394.930
M2844CB-15	1	396.57	0.9998	396.490
M2844CB-02	1			

		395.34	0.9998	395.260
M2844CB-13	1	395.73	0.9998	395.650
M2844CB-06	1	404.12	0.9998	404.039
M2853CB01	1	407.50	0.9998	407.418
M2853CB05	1	388.28	0.9998	388.202
M2853CB03	1	396.96	0.9998	396.880
M2853CB07	1	417.40	0.9998	417.316
M2853CB-12	1	409.35	0.9998	409.268
M2853CB-15	1	418.18	0.9998	418.096
M2853CB02	1	408.36	0.9998	408.278
M2853CB-11	1	389.89	0.9998	389.812
M2853CB06	1	431.55	0.9998	431.463
M2853CB08	1	396.31	0.9998	396.230
M2853CB09	1	403.08	0.9998	402.999
M2853CB04	1	404.98	0.9998	404.899
M2853CB-13	1	395.05	0.9998	394.970
M2421-CB14	1	417.54	0.9997	417.414
M2421-CB04	1	413.47	0.9997	413.345
M2421-CB17	1	412.79	0.9997	412.666
M2853CB-14	1	386.54	0.9998	386.462
M2844CB-16	1	393.79	0.9998	393.711
M2451CB15	1	402.65	0.9998	402.569
M2451CB19	1			

		405.21	0.9998	405.128
M2853CB10	1	403.30	0.9998	403.219
42096	1	404.45	0.9999	404.409
101399	1	394.97	0.9999	394.930
101498	1	398.16	0.9999	398.120
101876	1	399.43	0.9999	399.390
101878	1	377.03	0.9999	376.992
101387	1	394.12	0.9999	394.080
101421	1	400.00	0.9999	399.960
101417	1	401.07	0.9999	401.029
101864	1	396.44	0.9999	396.400
101395	1	398.81	0.9999	398.770
104727	1	406.10	0.9999	406.059
104728	1	403.91	0.9999	403.869
104742	1	407.34	0.9999	407.299
104729	1	410.36	0.9999	410.318
104734	1	414.53	0.9999	414.488
104764	1	407.95	0.9999	407.909
101426	1	405.31	0.9999	405.269
101489	1	402.93	0.9999	402.889
101381	1	409.12	0.9999	409.079
101495	1	399.57	0.9999	399.530
101388	1			

		394.17	0.9999	394.130
101865	1	398.67	0.9999	398.630
101494	1	424.81	0.9999	424.767
101425	1	402.33	0.9999	402.289
101386	1	415.82	0.9999	415.778
101875	1	407.77	0.9999	407.729
101877	1	402.61	0.9999	402.569
101881	1	400.36	0.9999	400.319
101868	1	389.86	0.9999	389.821
101880	1	396.91	0.9999	396.870
104726	1	405.93	0.9999	405.889
104748	1	402.87	0.9999	402.829
104747	1	407.41	0.9999	407.369
104746	1	400.25	0.9999	400.209
104745	1	406.75	0.9999	406.709
104749	1	425.16	0.9999	425.117
104732	1	402.88	0.9999	402.839
104761	1	408.56	0.9999	408.519
104750	1	403.00	0.9999	402.959
104766	1	436.09	0.9999	436.046
12372	1	419.78	0.9999	419.733
12371	1	419.80	0.9999	419.758
12352	1			

		403.93	0.9999	403.884
12365	1	419.73	0.9999	419.683
12351	1	403.85	0.9999	403.809
12353	1	403.75	0.9999	403.709
12367	1	419.80	0.9999	419.758
12366	1	419.75	0.9999	419.708
12364	1	419.78	0.9999	419.733
12368	1	419.78	0.9999	419.733
37468	1	406.98	0.9999	406.939
23409	1	401.18	0.9999	401.135
102041	1	410.17	0.9999	410.128
102040	1	398.87	0.9999	398.830
102039	1	415.45	0.9999	415.408
102038	1	406.83	0.9999	406.789
101396	1	400.89	0.9999	400.849
101497	1	404.07	0.9999	404.029
101866	1	415.97	0.9999	415.928
101418	1	397.30	0.9999	397.260
101419	1	416.46	0.9999	416.418
101863	1	405.27	0.9999	405.229
101492	1	403.46	0.9999	403.419
101520	1	396.94	0.9999	396.900
101380	1			

		403.71	0.9999	403.669
101398	1	391.55	0.9999	391.510
101499	1	399.64	0.9999	399.600
101422	1	407.69	0.9999	407.649
101521	1	393.85	0.9999	393.810
101518	1	400.98	0.9999	400.939
101523	1	405.77	0.9999	405.729
101524	1	398.25	0.9999	398.210
101519	1	409.00	0.9999	408.959
101504	1	409.45	0.9999	409.409
101522	1	402.69	0.9999	402.649
101505	1	398.98	0.9999	398.940
101383	1	411.30	0.9999	411.258
101379	1	399.10	0.9999	399.060
101389	1	391.64	0.9999	391.600
101879	1	396.71	0.9999	396.670
101867	1	410.98	0.9999	410.938
101873	1	395.76	0.9999	395.720
101874	1	398.88	0.9999	398.840
101882	1	393.63	0.9999	393.590
101423	1	400.08	0.9999	400.039
101503	1	412.25	0.9999	412.208
37480	1			

		406.93	0.9999	406.889
101502	1	408.22	0.9999	408.179
37472	1	393.63	0.9999	393.590
101500	1	401.02	0.9999	400.979
101496	1	419.57	0.9999	419.528
101382	1	411.93	0.9999	411.888
101493	1	397.02	0.9999	396.980
101397	1	396.60	0.9999	396.560
101424	1	401.60	0.9999	401.559
101491	1	409.30	0.9999	409.259
101490	1	401.42	0.9999	401.379
101883	1	429.63	0.9999	429.587
101420	1	415.26	0.9999	415.218
101501	1	401.93	0.9999	401.889
101906	1	398.71	0.9999	398.670
37476	1	408.65	0.9999	408.609
37451	1	407.60	0.9999	407.559
37460	1	418.88	0.9999	418.838
37452	1	413.55	0.9999	413.508
37477	1	400.80	0.9999	400.759
37463	1	394.53	0.9999	394.490
38992	1	417.45	0.9999	417.408
22600	1			

		381.68	0.9999	381.641
37467	1	396.38	0.9999	396.340
35042	1	392.64	0.9999	392.600
37469	1	404.88	0.9999	404.839
37470	1	403.98	0.9999	403.939
37489	1	397.78	0.9999	397.740
37475	1	411.58	0.9999	411.538
37458	1	398.75	0.9999	398.710
37450	1	399.25	0.9999	399.210
37474	1	399.25	0.9999	399.210
37447	1	407.50	0.9999	407.459
37441	1	396.35	0.9999	396.310
37455	1	394.43	0.9999	394.390
37478	1	415.65	0.9999	415.608
35316	1	371.29	0.9999	371.252
35049	1	398.24	0.9999	398.200
35046	1	414.63	0.9999	414.588
37487	1	398.63	0.9999	398.590
37486	1	400.58	0.9999	400.539
37483	1	394.30	0.9999	394.260
37484	1	393.60	0.9999	393.560
23422	1	399.33	0.9999	399.285
23416	1			

		386.20	0.9999	386.161
23390	1	394.98	0.9999	394.936
23396	1	382.45	0.9999	382.412
23413	1	375.75	0.9999	375.712
23412	1	386.13	0.9999	386.086
23369	1	392.18	0.9999	392.136
35031	1	392.67	0.9999	392.630
37488	1	393.35	0.9999	393.310
37485	1	409.60	0.9999	409.559
35334	1	379.92	0.9999	379.882
23368	1	404.88	0.9999	404.835
35332	1	410.96	0.9999	410.918
23370	1	380.20	0.9999	380.162
23421	1	382.93	0.9999	382.887
23406	1	403.15	0.9999	403.110
35018	1	407.11	0.9999	407.069
23426	1	364.13	0.9999	364.089
23410	1	377.48	0.9999	377.437
23391	1	391.93	0.9999	391.886
31916	1	423.23	0.9999	423.183
23405	1	383.28	0.9999	383.237
37461	1	414.10	0.9999	414.058
38994	1			

		389.98	0.9999	389.941
23394	1	384.78	0.9999	384.737
23411	1	376.93	0.9999	376.887
22913	1	409.00	0.9999	408.959
23408	1	376.55	0.9999	376.512
39242	1	405.78	0.9999	405.739
38981	1	396.05	0.9999	396.010
38985	1	397.83	0.9999	397.790
22892	1	376.08	0.9999	376.037
35329	1	400.72	0.9999	400.679
35320	1	404.37	0.9999	404.329
24124	1	388.70	0.9999	388.661
24119	1	387.03	0.9999	386.991
39256	1	404.60	0.9999	404.559
39233	1	404.85	0.9999	404.809
22904	1	410.38	0.9999	410.334
37454	1	407.00	0.9999	406.959
39240	1	402.33	0.9999	402.289
39230	1	399.28	0.9999	399.240
37446	1	416.33	0.9999	416.288
37462	1	402.70	0.9999	402.659
38995	1	407.20	0.9999	407.159
37436	1			

		408.90	0.9999	408.859
37437	1	412.88	0.9999	412.838
22854	1	372.48	0.9999	372.438
38991	1	409.03	0.9999	408.989
38984	1	390.33	0.9999	390.290
35051	1	398.75	0.9999	398.710
37481	1	395.20	0.9999	395.160
35043	1	399.60	0.9999	399.560
37457	1	400.95	0.9999	400.909
35014	1	404.12	0.9999	404.079
35019	1	419.65	0.9999	419.608
37456	1	398.48	0.9999	398.440
37466	1	409.80	0.9999	409.759
23395	1	408.23	0.9999	408.184
38993	1	414.70	0.9999	414.658
23392	1	418.25	0.9999	418.208
38988	1	394.83	0.9999	394.790
35328	1	411.99	0.9999	411.948
38987	1	400.78	0.9999	400.739
35311	1	400.97	0.9999	400.929
37482	1	410.73	0.9999	410.688
35331	1	389.42	0.9999	389.381
37479	1			

		413.35	0.9999	413.308
22376A	1	381.63	0.9999	381.587
22378A	1	372.73	0.9999	372.688
23402	1	413.63	0.9999	413.584
23427	1	381.10	0.9999	381.062
23431	1	389.73	0.9999	389.686
23397	1	417.58	0.9999	417.533
23389	1	413.90	0.9999	413.859
22375A	1	398.23	0.9999	398.185
22371	1	416.80	0.9999	416.758
23407	1	383.55	0.9999	383.512
23418	1	368.03	0.9999	367.988
35041	1	397.32	0.9999	397.280
35044	1	402.94	0.9999	402.899
35038	1	400.71	0.9999	400.669
22898	1	397.85	0.9999	397.810
35270	1	400.68	0.9999	400.639
35039	1	399.63	0.9999	399.590
35040	1	388.72	0.9999	388.681
35025	1	411.89	0.9999	411.848
35050	1	386.02	0.9999	385.981
35313	1	395.14	0.9999	395.100
35314	1			

		417.13	0.9999	417.088
22903	1	377.48	0.9999	377.437
22915	1	402.75	0.9999	402.710
23415	1	397.05	0.9999	397.010
23420	1	391.05	0.9999	391.011
35268	1	394.38	0.9999	394.340
35269	1	401.38	0.9999	401.339
35021	1	400.20	0.9999	400.159
35053	1	389.36	0.9999	389.321
35013	1	398.39	0.9999	398.350
35011	1	399.41	0.9999	399.370
35322	1	389.01	0.9999	388.971
22901	1	408.78	0.9999	408.734
22863	1	373.95	0.9999	373.913
22890	1	397.05	0.9999	397.010
22860	1	375.10	0.9999	375.062
22896	1	375.80	0.9999	375.762
22888	1	386.88	0.9999	386.836
35052	1	401.74	0.9999	401.699
35020	1	402.59	0.9999	402.549
31850	1	398.53	0.9999	398.485
32017	1	382.08	0.9999	382.037
35001	1			

		397.86	0.9999	397.820
39231	1	396.63	0.9999	396.590
39243	1	387.70	0.9999	387.661
39248	1	404.70	0.9999	404.659
39255	1	404.15	0.9999	404.109
24361	1	379.70	0.9999	379.662
39811	1	397.33	0.9999	397.285
32001	1	384.00	0.9999	383.962
32008	1	426.18	0.9999	426.132
38982	1	398.55	0.9999	398.510
24121	1	391.60	0.9999	391.560
39244	1	403.58	0.9999	403.539
22902	1	397.40	0.9999	397.360
37471	1	404.20	0.9999	404.159
37443	1	412.10	0.9999	412.058
37444	1	419.98	0.9999	419.938
39232	1	400.80	0.9999	400.759
37442	1	395.30	0.9999	395.260
37445	1	413.45	0.9999	413.408
39239	1	395.30	0.9999	395.260
37453	1	421.33	0.9999	421.287
39245	1	406.03	0.9999	405.989
39224	1			

		402.53	0.9999	402.489
39237	1	376.40	0.9999	376.362
39225	1	397.15	0.9999	397.110
39830	1	398.70	0.9999	398.660
24139	1	375.55	0.9999	375.512
24132	1	384.83	0.9999	384.791
24359	1	365.15	0.9999	365.113
39238	1	401.25	0.9999	401.209
22381A	1	377.00	0.9999	376.962
37464	1	392.95	0.9999	392.910
37459	1	404.28	0.9999	404.239
35335	1	410.04	0.9999	409.998
35333	1	397.77	0.9999	397.730
35029	1	407.69	0.9999	407.649
35024	1	411.42	0.9999	411.378
35047	1	403.91	0.9999	403.869
23387	1	377.65	0.9999	377.612
23423	1	399.40	0.9999	399.360
23430	1	393.25	0.9999	393.211
23425	1	388.98	0.9999	388.936
23386	1	377.85	0.9999	377.812
23398	1	409.00	0.9999	408.959
23388	1			

		385.65	0.9999	385.611
23432	1	389.48	0.9999	389.436
23403	1	392.10	0.9999	392.061
22380A	1	402.10	0.9999	402.060
22379A	1	391.30	0.9999	391.261
22374A	1	402.60	0.9999	402.560
22377A	1	386.55	0.9999	386.511
39252	1	414.63	0.9999	414.588
24357	1	387.10	0.9999	387.061
39228	1	393.33	0.9999	393.290
39251	1	395.50	0.9999	395.460
24140	1	372.68	0.9999	372.642
37448	1	411.95	0.9999	411.908
39804	1	400.23	0.9999	400.185
24125	1	401.05	0.9999	401.009
24138	1	359.78	0.9999	359.744
39236	1	408.35	0.9999	408.309
39805	1	398.28	0.9999	398.235
39822	1	395.63	0.9999	395.585
39838	1	397.78	0.9999	397.735
39821	1	402.90	0.9999	402.859
35034	1	395.92	0.9999	395.880
38990	1			

		411.40	0.9999	411.358
37435	1	402.88	0.9999	402.839
37473	1	398.45	0.9999	398.410
24128	1	372.43	0.9999	372.392
39234	1	405.15	0.9999	405.109
24117	1	384.40	0.9999	384.361
24130	1	379.95	0.9999	379.912
39235	1	394.28	0.9999	394.240
24363	1	397.30	0.9999	397.260
39816	1	398.20	0.9999	398.160
39226	1	403.73	0.9999	403.689
39249	1	409.43	0.9999	409.389
24364	1	383.35	0.9999	383.311
39796	1	397.30	0.9999	397.260
39229	1	403.73	0.9999	403.689
39849	1	399.85	0.9999	399.810
39813	1	400.78	0.9999	400.735
39241	1	403.68	0.9999	403.639
24120	1	383.73	0.9999	383.691
38986	1	393.15	0.9999	393.110
37438	1	397.85	0.9999	397.810
22900	1	396.15	0.9999	396.110
22895	1			

		392.80	0.9999	392.761
24362	1	382.68	0.9999	382.641
37439	1	401.95	0.9999	401.909
39817	1	399.08	0.9999	399.035
24126	1	379.78	0.9999	379.742
24118	1	375.23	0.9999	375.192
24131	1	401.65	0.9999	401.609
24129	1	366.53	0.9999	366.493
39814	1	395.63	0.9999	395.585
39254	1	401.53	0.9999	401.489
39227	1	411.58	0.9999	411.538
41182	1	402.85	0.9999	402.809
41188	1	399.88	0.9999	399.835
41138	1	403.58	0.9999	403.534
41133	1	395.78	0.9999	395.735
41125	1	399.03	0.9999	398.985
41129	1	404.60	0.9999	404.559
41132	1	400.48	0.9999	400.435
41118	1	396.23	0.9999	396.185
41115	1	400.13	0.9999	400.085
39950	1	400.78	0.9999	400.735
39954	1	402.48	0.9999	402.434
39960	1			

		399.65	0.9999	399.610
39961	1	401.43	0.9999	401.384
39965	1	400.55	0.9999	400.510
39957	1	403.30	0.9999	403.259
39959	1	399.95	0.9999	399.910
39962	1	396.33	0.9999	396.285
39964	1	397.15	0.9999	397.110
39949	1	398.08	0.9999	398.035
39948	1	396.68	0.9999	396.635
39966	1	404.50	0.9999	404.459
39968	1	398.40	0.9999	398.360
41109	1	400.53	0.9999	400.485
41092	1	402.78	0.9999	402.734
41110	1	404.40	0.9999	404.359
41113	1	401.25	0.9999	401.209
41128	1	396.05	0.9999	396.010
41131	1	401.13	0.9999	401.084
41137	1	404.83	0.9999	404.784
41126	1	399.08	0.9999	399.035
41124	1	404.88	0.9999	404.834
39810	1	397.38	0.9999	397.335
39851	1	397.10	0.9999	397.060
39815	1			

		402.00	0.9999	401.959
39250	1	401.45	0.9999	401.409
39246	1	409.10	0.9999	409.059
39253	1	397.33	0.9999	397.290
39247	1	405.13	0.9999	405.089
24113	1	388.73	0.9999	388.691
24115	1	384.45	0.9999	384.411
24358	1	412.80	0.9999	412.758
24116	1	373.55	0.9999	373.512
24360	1	382.68	0.9999	382.641
24122	1	390.00	0.9999	389.961
24127	1	375.15	0.9999	375.112
39836	1	397.63	0.9999	397.585
24123	1	390.83	0.9999	390.790
24114	1	411.45	0.9999	411.408
41141	1	399.70	0.9999	399.660
41144	1	402.28	0.9999	402.239
41148	1	407.55	0.9999	407.509
41146	1	405.65	0.9999	405.609
41150	1	404.48	0.9999	404.439
41145	1	405.33	0.9999	405.289
40977	1	405.55	0.9999	405.509
41151	1			

		391.35	0.9999	391.310
41153	1	400.15	0.9999	400.109
41166	1	397.98	0.9999	397.940
41152	1	392.18	0.9999	392.140
41174	1	396.73	0.9999	396.690
22885	1	392.93	0.9999	392.886
41162	1	413.73	0.9999	413.688
41155	1	400.15	0.9999	400.109
24668	1	392.60	0.9999	392.560
41165	1	406.15	0.9999	406.109
24667	1	406.10	0.9999	406.059
41154	1	413.25	0.9999	413.208
41163	1	403.30	0.9999	403.259
40976	1	413.05	0.9999	413.008
24669	1	371.78	0.9999	371.742
41149	1	410.63	0.9999	410.588
41064	1	394.23	0.9999	394.190
41061	1	397.08	0.9999	397.040
41063	1	400.83	0.9999	400.789
41065	1	400.75	0.9999	400.709
41060	1	400.33	0.9999	400.289
41066	1	404.33	0.9999	404.289
41062	1			

		397.23	0.9999	397.190
41071	1	412.30	0.9999	412.258
41072	1	385.58	0.9999	385.541
41070	1	406.63	0.9999	406.589
41193	1	404.10	0.9999	404.059
41068	1	398.15	0.9999	398.110
24666	1	383.93	0.9999	383.891
41069	1	396.03	0.9999	395.990
41161	1	399.43	0.9999	399.390
41156	1	401.50	0.9999	401.459
41160	1	399.43	0.9999	399.390
41147	1	418.98	0.9999	418.938
41067	1	405.33	0.9999	405.289
41164	1	397.23	0.9999	397.190
41157	1	406.15	0.9999	406.109
41181	1	401.73	0.9999	401.684
41180	1	396.60	0.9999	396.560
41179	1	402.83	0.9999	402.784
41189	1	401.33	0.9999	401.284
41175	1	397.98	0.9999	397.935
3131	1	412.85	0.9999	412.808
2681	1	397.40	0.9999	397.360
2684	1			

		401.40	0.9999	401.359
2677	1	415.80	0.9999	415.758
2688	1	385.38	0.9999	385.341
2847	1	415.23	0.9999	415.188
2848	1	410.05	0.9999	410.009
2843	1	377.33	0.9999	377.292
2844	1	422.70	0.9999	422.657
2683	1	401.08	0.9999	401.039
2680	1	391.83	0.9999	391.790
2694	1	396.78	0.9999	396.740
2687	1	387.13	0.9999	387.091
2710	1	395.23	0.9999	395.190
2715	1	400.25	0.9999	400.209
3134	1	410.18	0.9999	410.133
2842	1	410.63	0.9999	410.588
2674	1	389.43	0.9999	389.391
2689	1	413.08	0.9999	413.038
2691	1	398.50	0.9999	398.460
2693	1	397.90	0.9999	397.860
2673	1	392.75	0.9999	392.710
272	1	386.85	0.9999	386.811
266	1	393.23	0.9999	393.190
269	1			

		394.93	0.9999	394.890
279	1	399.55	0.9999	399.510
274	1	406.95	0.9999	406.909
271	1	403.55	0.9999	403.509
00991	1	396.35	0.9999	396.310
00993	1	376.13	0.9999	376.092
00992	1	415.95	0.9999	415.908
00615	1	383.10	0.9999	383.061
001001	1	390.93	0.9999	390.890
00990	1	397.13	0.9999	397.090
00995	1	422.38	0.9999	422.337
001002	1	402.63	0.9999	402.589
00999	1	406.53	0.9999	406.489
00614	1	405.83	0.9999	405.789
00616	1	402.43	0.9999	402.389
00612	1	400.95	0.9999	400.909
00613	1	397.20	0.9999	397.160
001003	1	402.48	0.9999	402.439
00997	1	413.93	0.9999	413.888
00882	1	410.68	0.9999	410.638
00988	1	412.53	0.9999	412.488
001005	1	412.85	0.9999	412.808
00998	1			

		411.10	0.9999	411.058
00989	1	420.93	0.9999	420.887
41142	1	409.93	0.9999	409.889
41143	1	381.40	0.9999	381.361
00387	1	391.70	0.9999	391.660
00389	1	399.15	0.9999	399.110
00406	1	391.50	0.9999	391.460
00705	1	394.45	0.9999	394.410
00413	1	409.08	0.9999	409.039
00703	1	399.75	0.9999	399.710
00398	1	387.25	0.9999	387.211
00416	1	388.83	0.9999	388.791
00407	1	387.53	0.9999	387.491
00364	1	395.25	0.9999	395.210
00694	1	415.50	0.9999	415.458
00409	1	422.45	0.9999	422.407
00692	1	418.68	0.9999	418.638
00870	1	411.48	0.9999	411.438
00392	1	411.20	0.9999	411.158
00381	1	407.35	0.9999	407.309
00384	1	389.18	0.9999	389.141
00414	1	390.03	0.9999	389.990
00399	1			

		406.15	0.9999	406.109
00397	1	405.40	0.9999	405.359
00873	1	414.60	0.9999	414.558
00888	1	404.60	0.9999	404.559
00868	1	424.40	0.9999	424.357
00404	1	400.28	0.9999	400.239
00876	1	404.03	0.9999	403.989
00396	1	400.48	0.9999	400.439
2851	1	407.25	0.9999	407.209
00395	1	387.08	0.9999	387.040
695	1	391.90	0.9999	391.860
00699	1	410.28	0.9999	410.238
00885	1	412.88	0.9999	412.838
00704	1	392.83	0.9999	392.790
00875	1	405.70	0.9999	405.659
00856	1	398.00	0.9999	397.960
00394	1	417.40	0.9999	417.358
00713	1	382.18	0.9999	382.141
00402	1	410.50	0.9999	410.458
00871	1	402.83	0.9999	402.789
00869	1	417.75	0.9999	417.708
00403	1	402.20	0.9999	402.159
00401	1			

		396.05	0.9999	396.010
00430	1	400.95	0.9999	400.909
00405	1	392.18	0.9999	392.140
00400	1	399.55	0.9999	399.510
00889	1	395.80	0.9999	395.760
00715	1	393.28	0.9999	393.240
3129	1	416.75	0.9999	416.708
2669	1	401.48	0.9999	401.439
1006	1	420.48	0.9999	420.437
884	1	417.93	0.9999	417.888
2713	1	395.83	0.9999	395.790
887	1	412.53	0.9999	412.488
2849	1	405.60	0.9999	405.559
2711	1	397.23	0.9999	397.190
2709	1	403.50	0.9999	403.459
2850	1	423.55	0.9999	423.507
2845	1	388.93	0.9999	388.891
2678	1	422.48	0.9999	422.437
881	1	414.73	0.9999	414.688
880	1	414.68	0.9999	414.638
886	1	411.20	0.9999	411.158
267	1	379.85	0.9999	379.812
2852	1			

		426.78	0.9999	426.737
2712	1	400.25	0.9999	400.209
2714	1	398.13	0.9999	398.090
2846	1	386.55	0.9999	386.511
2686	1	399.40	0.9999	399.360
2682	1	390.53	0.9999	390.490
3128	1	403.18	0.9999	403.134
2672	1	395.10	0.9999	395.060
00883	1	409.98	0.9999	409.939
001004	1	418.80	0.9999	418.758
00877	1	407.50	0.9999	407.459
00994	1	402.90	0.9999	402.859
00996	1	418.03	0.9999	417.988
001000	1	395.78	0.9999	395.740
00388	1	388.30	0.9999	388.261
00380	1	398.18	0.9999	398.140
00393	1	381.95	0.9999	381.911
00385	1	403.33	0.9999	403.289
00424	1	414.15	0.9999	414.108
00427	1	382.98	0.9999	382.941
00426	1	394.13	0.9999	394.090
00408	1	398.05	0.9999	398.010
00872	1			

		404.78	0.9999	404.739
00429	1	411.65	0.9999	411.608
00428	1	390.05	0.9999	390.010
00711	1	402.30	0.9999	402.259
00415	1	392.73	0.9999	392.690
00410	1	406.45	0.9999	406.409
00386	1	399.48	0.9999	399.440
00411	1	393.40	0.9999	393.360
00693	1	413.80	0.9999	413.758
00412	1	388.48	0.9999	388.441
00425	1	399.10	0.9999	399.060
00363	1	393.40	0.9999	393.360
00382	1	409.40	0.9999	409.359
00390	1	400.28	0.9999	400.239
276	1	393.20	0.9999	393.160
2676	1	403.63	0.9999	403.589
2668	1	389.85	0.9999	389.811
261	1	403.88	0.9999	403.839
3130	1	416.13	0.9999	416.083
3120	1	395.98	0.9999	395.935
3125	1	410.55	0.9999	410.508
3113	1	407.18	0.9999	407.134
709	1			

		399.38	0.9999	399.340
691	1	397.38	0.9999	397.340
697	1	389.83	0.9999	389.791
698	1	393.83	0.9999	393.790
383	1	400.53	0.9999	400.489
2670	1	397.88	0.9999	397.840
702	1	393.90	0.9999	393.860
270	1	390.90	0.9999	390.860
263	1	410.55	0.9999	410.508
3135	1	421.08	0.9999	421.032
3124	1	401.55	0.9999	401.509
3123	1	392.28	0.9999	392.235
278	1	418.95	0.9999	418.908
277	1	404.83	0.9999	404.789
265	1	396.18	0.9999	396.140
2692	1	396.48	0.9999	396.440
2690	1	394.95	0.9999	394.910
273	1	424.15	0.9999	424.107
2685	1	406.83	0.9999	406.789
264	1	391.93	0.9999	391.890
262	1	391.23	0.9999	391.190
2671	1	406.10	0.9999	406.059
3127	1			

		423.85	0.9999	423.807
275	1	389.85	0.9999	389.811
2675	1	385.03	0.9999	384.991
2707	1	398.40	0.9999	398.360
3114	1	404.70	0.9999	404.659
3132	1	413.40	0.9999	413.358
3117	1	391.43	0.9999	391.385
3119	1	408.90	0.9999	408.859
3122	1	405.88	0.9999	405.834
2708	1	412.63	0.9999	412.588
2679	1	423.28	0.9999	423.237
268	1	414.13	0.9999	414.088
3101	1	408.65	0.9999	408.609
3115	1	399.03	0.9999	398.985
3116	1	399.53	0.9999	399.485
3121	1	416.85	0.9999	416.808
3126	1	389.23	0.9999	389.186
3118	1	412.90	0.9999	412.858
3112	1	404.88	0.9999	404.834
3133	1	408.50	0.9999	408.459
12256	1	400.20	0.9999	400.159
12259	1	401.60	0.9999	401.559
12258	1			

		385.43	0.9999	385.386
11885	1	374.65	0.9999	374.612
11902	1	410.53	0.9999	410.483
11890	1	377.05	0.9999	377.012
11905	1	410.28	0.9999	410.233
12052	1	399.23	0.9999	399.185
11914	1	404.18	0.9999	404.134
12204	1	406.50	0.9999	406.459
12055	1	398.18	0.9999	398.135
12252	1	399.98	0.9999	399.935
12255	1	399.95	0.9999	399.910
12253	1	399.98	0.9999	399.935
12260	1	401.90	0.9999	401.859
12254	1	399.98	0.9999	399.935
9206877	1	400.08	0.9999	400.039
9206894	1	400.09	0.9999	400.049
9206876	1	400.09	0.9999	400.049
9206884	1	400.11	0.9999	400.069
9206886	1	400.10	0.9999	400.059
9206887	1	400.10	0.9999	400.059
9206796	1	400.09	0.9999	400.049
9206880	1	400.09	0.9999	400.049
9206898	1			

		400.08	0.9999	400.039
9206881	1	400.10	0.9999	400.059
9206902	1	400.09	0.9999	400.049
9206904	1	400.09	0.9999	400.049
9206879	1	400.09	0.9999	400.049
9206888	1	400.10	0.9999	400.059
9206891	1	400.09	0.9999	400.049
9206900	1	400.08	0.9999	400.039
9206901	1	400.09	0.9999	400.049
9206806	1	400.06	0.9999	400.019
9206895	1	400.09	0.9999	400.049
9206899	1	400.08	0.9999	400.039
9206893	1	400.08	0.9999	400.039
9206892	1	400.09	0.9999	400.049
9206906	1	400.10	0.9999	400.059
9206897	1	400.09	0.9999	400.049
9206896	1	400.09	0.9999	400.049
9206903	1	400.10	0.9999	400.059
9206882	1	400.09	0.9999	400.049
9206883	1	400.09	0.9999	400.049
9206889	1	400.09	0.9999	400.049
9206905	1	400.09	0.9999	400.049
9206878	1			

		400.10	0.9999	400.059
9206885	1	400.09	0.9999	400.049
9206890	1	400.08	0.9999	400.039
11893	1	377.03	0.9999	376.987
11882	1	374.65	0.9999	374.612
11918	1	401.38	0.9999	401.334
12187	1	406.68	0.9999	406.634
12122	1	405.38	0.9999	405.334
12184	1	406.68	0.9999	406.634
12131	1	405.28	0.9999	405.234
12183	1	406.73	0.9999	406.684
12130	1	407.23	0.9999	407.184
12121	1	405.30	0.9999	405.259
11903	1	410.50	0.9999	410.458
11927	1	397.68	0.9999	397.635
11883	1	374.65	0.9999	374.612
11895	1	377.03	0.9999	376.987
11888	1	377.03	0.9999	376.987
11886	1	374.43	0.9999	374.387
11891	1	377.03	0.9999	376.987
11881	1	374.65	0.9999	374.612
11934	1	382.30	0.9999	382.261
11925	1			

		401.35	0.9999	401.309
11897	1	410.50	0.9999	410.458
11887	1	374.68	0.9999	374.637
11884	1	374.68	0.9999	374.637
11930	1	397.80	0.9999	397.760
11932	1	397.75	0.9999	397.710
11915	1	401.25	0.9999	401.209
11929	1	397.73	0.9999	397.685
11928	1	397.65	0.9999	397.610
11899	1	410.50	0.9999	410.458
11896	1	410.58	0.9999	410.533
11912	1	404.50	0.9999	404.459
12012	1	400.48	0.9999	400.434
12054	1	398.05	0.9999	398.010
12056	1	397.98	0.9999	397.935
11937	1	381.40	0.9999	381.361
12050	1	399.20	0.9999	399.160
12011	1	400.48	0.9999	400.434
11913	1	404.43	0.9999	404.384
11943	1	391.45	0.9999	391.410
11923	1	401.20	0.9999	401.159
11892	1	377.35	0.9999	377.312
11933	1			

		381.85	0.9999	381.811
11931	1	397.83	0.9999	397.785
12053	1	399.25	0.9999	399.210
12051	1	399.20	0.9999	399.160
12057	1	398.10	0.9999	398.060
12013	1	399.43	0.9999	399.385
12010	1	400.43	0.9999	400.384
11926	1	401.38	0.9999	401.334
11880	1	372.58	0.9999	372.537
41074	1	398.68	0.9999	398.640
24887	1	388.68	0.9999	388.636
24843	1	374.35	0.9999	374.313
24854	1	385.05	0.9999	385.011
24823	1	376.73	0.9999	376.687
24825	1	376.35	0.9999	376.312
24815	1	381.20	0.9999	381.162
24774	1	374.70	0.9999	374.663
41082	1	404.73	0.9999	404.689
41084	1	414.68	0.9999	414.638
12123	1	405.48	0.9999	405.434
12134	1	405.45	0.9999	405.409
12133	1	405.40	0.9999	405.359
12186	1			

		406.73	0.9999	406.684
12015	1	400.55	0.9999	400.509
12058	1	398.15	0.9999	398.110
11901	1	410.45	0.9999	410.408
11924	1	401.28	0.9999	401.234
11920	1	401.48	0.9999	401.434
11917	1	402.45	0.9999	402.409
11921	1	401.10	0.9999	401.059
12129	1	405.43	0.9999	405.384
12171	1	380.53	0.9999	380.486
12126	1	405.38	0.9999	405.334
12138	1	395.33	0.9999	395.285
12120	1	405.43	0.9999	405.384
12014	1	400.55	0.9999	400.509
11935	1	381.78	0.9999	381.736
11922	1	401.23	0.9999	401.184
11911	1	404.10	0.9999	404.059
11916	1	401.93	0.9999	401.884
11936	1	381.75	0.9999	381.711
11900	1	411.38	0.9999	411.333
11904	1	410.50	0.9999	410.458
12167	1	380.95	0.9999	380.911
12165	1			

		381.03	0.9999	380.986
12132	1	405.43	0.9999	405.384
12169	1	380.88	0.9999	380.836
12166	1	380.95	0.9999	380.911
12170	1	380.95	0.9999	380.911
12124	1	405.48	0.9999	405.434
12168	1	380.95	0.9999	380.911
12125	1	405.48	0.9999	405.434
12188	1	406.75	0.9999	406.709
11919	1	401.10	0.9999	401.059
11898	1	410.53	0.9999	410.483
11894	1	377.05	0.9999	377.012
11889	1	377.05	0.9999	377.012
12185	1	407.63	0.9999	407.584
24824	1	375.58	0.9999	375.537
24877	1	406.55	0.9999	406.509
24842	1	389.68	0.9999	389.636
24880	1	403.18	0.9999	403.135
41076	1	398.98	0.9999	398.940
24855	1	383.73	0.9999	383.687
24849	1	389.95	0.9999	389.911
24886	1	401.43	0.9999	401.385
41080	1			

		398.83	0.9999	398.790
24844	1	384.78	0.9999	384.737
41078	1	385.33	0.9999	385.291
24860	1	366.53	0.9999	366.488
24871	1	391.43	0.9999	391.386
24851	1	379.95	0.9999	379.912
24818	1	379.30	0.9999	379.262
24872	1	403.68	0.9999	403.635
24850	1	377.98	0.9999	377.937
24838	1	377.08	0.9999	377.037
24836	1	387.40	0.9999	387.361
24846	1	384.58	0.9999	384.537
24822	1	390.58	0.9999	390.536
24868	1	391.10	0.9999	391.061
24883	1	388.50	0.9999	388.461
24837	1	379.80	0.9999	379.762
24867	1	367.93	0.9999	367.888
24862	1	376.58	0.9999	376.537
41079	1	386.08	0.9999	386.041
41075	1	404.30	0.9999	404.259
24890	1	405.10	0.9999	405.059
24853	1	412.85	0.9999	412.809
24840	1			

		393.15	0.9999	393.111
24821	1	391.08	0.9999	391.036
24857	1	391.23	0.9999	391.186
24891	1	412.83	0.9999	412.788
24889	1	396.83	0.9999	396.790
24858	1	395.05	0.9999	395.010
24841	1	368.58	0.9999	368.538
24873	1	387.38	0.9999	387.336
41077	1	401.10	0.9999	401.059
41081	1	396.75	0.9999	396.710
41083	1	399.53	0.9999	399.490
41073	1	403.45	0.9999	403.409
24879	1	413.00	0.9999	412.959
24852	1	394.20	0.9999	394.161
24907	1	387.03	0.9999	386.991
24906	1	395.60	0.9999	395.560
24778	1	389.40	0.9999	389.361
24775	1	370.53	0.9999	370.488
24776	1	386.90	0.9999	386.861
57	24	9,444.64	0.9999	9,443.695
M1680	20	8,289.51	0.9999	8,288.681
M1341	20	8,175.80	0.9999	8,174.982
51	24			

		10,040.80	0.9999	10,039.795
53	24	9,830.61	0.9999	9,829.626
22	24	9,928.18	0.9999	9,927.187
47	24	9,489.77	0.9999	9,488.821
46	24	9,338.27	0.9999	9,337.336
52	24	9,412.21	0.9999	9,411.268
M1684	20	8,280.60	0.9999	8,279.771
30	24	9,963.14	0.9999	9,962.143
M1677	20	8,192.45	0.9999	8,191.630
DC503	9	3,596.81	0.9999	3,596.450
DC560	4	1,535.03	0.9999	1,534.876
DC530	14	5,513.66	0.9999	5,513.108
DC527	9	3,454.09	0.9999	3,453.744
53	24	9,400.56	0.9999	9,399.619
21	24	9,871.96	0.9999	9,870.973
50	24	9,396.05	0.9999	9,395.111
30203	1	10.00	0.9999	9.999
35197	1	5.00	0.9999	5.000
46777	1	1.00	0.9999	1.000
46775	1	1.00	0.9999	1.000
46776	1	1.00	0.9999	1.000
G548734	1	32.15	0.9999	32.147
G180198	1			

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		32.15	0.9999	32.147
G180193	1	32.15	0.9999	32.147
G180191	1	32.15	0.9999	32.147
G180195	1	32.15	0.9999	32.147
G545301	1	32.15	0.9999	32.147
G545449	1	32.15	0.9999	32.147
G180199	1	32.15	0.9999	32.147
G548737	1	32.15	0.9999	32.147
G545268	1	32.15	0.9999	32.147
G545295	1	32.15	0.9999	32.147
G180192	1	32.15	0.9999	32.147
656	1	396.90	0.9999	396.860
652	1	391.83	0.9999	391.790
678	1	403.18	0.9999	403.139
650	1	404.93	0.9999	404.889
648	1	409.88	0.9999	409.839
642	1	386.13	0.9999	386.091
621	1	392.25	0.9999	392.210
665	1	376.68	0.9999	376.642
637	1	396.80	0.9999	396.760
663	1	397.33	0.9999	397.290
1752	1	395.43	0.9999	395.385
1756	1			

		397.43	0.9999	397.385
1757	1	397.05	0.9999	397.010
1754	1	399.40	0.9999	399.360
1759	1	395.83	0.9999	395.785
1758	1	396.30	0.9999	396.260
1755	1	398.38	0.9999	398.335
18541	1	371.53	0.9999	371.488
12885	1	414.08	0.9999	414.034
20303	1	389.73	0.9999	389.686
20296	1	387.55	0.9999	387.511
20297	1	420.48	0.9999	420.433
20298	1	415.10	0.9999	415.058
20299	1	396.00	0.9999	395.960
20300	1	380.63	0.9999	380.587
20301	1	390.03	0.9999	389.986
20302	1	388.73	0.9999	388.686
20304	1	407.83	0.9999	407.784
20305	1	395.00	0.9999	394.960
24881	1	403.35	0.9999	403.310
24839	1	389.75	0.9999	389.711
24820	1	387.23	0.9999	387.186
41085	1	412.23	0.9999	412.188
24884	1			

		403.08	0.9999	403.035
24859	1	393.50	0.9999	393.461
24847	1	388.05	0.9999	388.011
24876	1	393.00	0.9999	392.961
24888	1	405.30	0.9999	405.259
9429	1	417.53	0.9999	417.483
9158	1	396.48	0.9999	396.435
9116	1	408.53	0.9999	408.484
9117	1	408.55	0.9999	408.509
9057	1	399.83	0.9998	399.745
9157	1	396.53	0.9999	396.485
9029	1	399.90	0.9999	399.820
9039	1	383.03	0.9999	382.987
9044	1	399.93	0.9998	399.845
9030	1	399.88	0.9998	399.795
9038	1	383.15	0.9999	383.112
9432	1	417.55	0.9999	417.508
9589	1	416.15	0.9999	416.108
AO86406	1	390.59	0.9999	390.551
12505	1	409.50	0.9999	409.459
AO86134	1	402.93	0.9999	402.890
12492	1	395.28	0.9999	395.235
AO86133	1			

		383.86	0.9999	383.822
12499	1	404.55	0.9999	404.510
12494	1	396.88	0.9999	396.835
12533	1	391.78	0.9999	391.736
12582	1	400.40	0.9999	400.360
12530	1	394.40	0.9999	394.361
24296	1	401.70	0.9999	401.660
24281	1	386.88	0.9999	386.836
24265	1	410.40	0.9999	410.359
24266	1	403.18	0.9999	403.135
24268	1	385.63	0.9999	385.586
24271	1	392.90	0.9999	392.861
24290	1	392.83	0.9999	392.786
24298	1	393.05	0.9999	393.011
24282	1	402.10	0.9999	402.060
24294	1	399.45	0.9999	399.410
24267	1	390.23	0.9999	390.186
12491	1	394.93	0.9999	394.886
68567	1	401.00	0.9998	400.920
68569	1	398.61	0.9998	398.530
68566	1	405.89	0.9998	405.809
68564	1	403.10	0.9998	403.019
68562	1			

		401.45	0.9998	401.370
68565	1	401.17	0.9998	401.090
68568	1	400.19	0.9998	400.110
68563	1	402.72	0.9998	402.639
24295	1	402.40	0.9999	402.360
24274	1	394.43	0.9999	394.386
24289	1	403.28	0.9999	403.235
24264	1	393.85	0.9999	393.811
24283	1	408.28	0.9999	408.234
24276	1	399.70	0.9999	399.660
24269	1	401.68	0.9999	401.635
24260	1	399.98	0.9999	399.935
651	1	405.08	0.9999	405.039
635	1	384.40	0.9999	384.361
654	1	410.58	0.9999	410.538
628	1	406.38	0.9999	406.339
673	1	409.55	0.9999	409.509
624	1	401.33	0.9999	401.289
664	1	417.13	0.9999	417.088
670	1	382.85	0.9999	382.811
647	1	399.88	0.9999	399.840
622	1	399.13	0.9999	399.090
658	1			

		411.73	0.9999	411.688
643	1	389.58	0.9999	389.541
12528	1	381.90	0.9999	381.862
12554	1	386.45	0.9999	386.411
12541	1	389.13	0.9999	389.086
12524	1	382.83	0.9999	382.787
3740	1	417.47	0.9996	417.303
3742	1	403.67	0.9996	403.509
3748	1	408.91	0.9996	408.746
3708	1	402.66	0.9996	402.499
3741	1	422.55	0.9996	422.381
3743	1	395.52	0.9996	395.362
3729	1	397.44	0.9996	397.281
9804	1	398.38	0.9999	398.335
9814	1	398.40	0.9999	398.360
9448	1	392.08	0.9999	392.035
9452	1	402.80	0.9999	402.759
9808	1	397.98	0.9999	397.935
9806	1	398.43	0.9999	398.385
9807	1	398.40	0.9999	398.360
9815	1	398.40	0.9999	398.360
9449	1	391.90	0.9999	391.860
9454	1			

		402.48	0.9999	402.434
9444	1	391.88	0.9999	391.835
9455	1	402.78	0.9999	402.734
9445	1	392.03	0.9999	391.985
9810	1	398.33	0.9999	398.285
9456	1	403.95	0.9999	403.909
9811	1	398.43	0.9999	398.385
9805	1	398.45	0.9999	398.410
9450	1	391.98	0.9999	391.935
9813	1	398.40	0.9999	398.360
9809	1	398.43	0.9999	398.385
9447	1	391.80	0.9999	391.760
9435	1	417.43	0.9999	417.383
9438	1	417.35	0.9999	417.308
9436	1	417.45	0.9999	417.408
9453	1	402.83	0.9999	402.784
9451	1	402.63	0.9999	402.584
9437	1	417.45	0.9999	417.408
9592	1	416.15	0.9999	416.108
9431	1	417.45	0.9999	417.408
9433	1	417.48	0.9999	417.433
9590	1	416.15	0.9999	416.108
9430	1			

		417.60	0.9999	417.558
9593	1	416.13	0.9999	416.083
9588	1	416.15	0.9999	416.108
9594	1	416.15	0.9999	416.108
9434	1	417.50	0.9999	417.458
68930	1	399.21	0.9999	399.170
68896	1	403.58	0.9999	403.540
68895	1	403.37	0.9999	403.330
68931	1	400.07	0.9999	400.030
68894	1	404.46	0.9999	404.420
68898	1	399.37	0.9999	399.330
68897	1	399.98	0.9999	399.940
68975	1	399.32	0.9999	399.280
68973	1	405.01	0.9999	404.969
68971	1	401.26	0.9999	401.220
68974	1	401.03	0.9999	400.990
68934	1	398.99	0.9995	398.791
68815	1	401.62	0.9999	401.580
68874	1	399.46	0.9997	399.340
68872	1	398.19	0.9997	398.071
68839	1	402.84	0.9999	402.800
68838	1	403.27	0.9999	403.230
68818	1			

		398.99	0.9999	398.950
68817	1	399.61	0.9999	399.570
68837	1	402.30	0.9999	402.260
68873	1	400.84	0.9997	400.720
68875	1	397.89	0.9997	397.771
6380	1	392.53	0.9999	392.486
6375	1	371.80	0.9999	371.763
6373	1	371.75	0.9999	371.713
6381	1	390.55	0.9999	390.511
6394	1	393.45	0.9999	393.411
6393	1	375.30	0.9999	375.262
6387	1	395.08	0.9999	395.035
68816	1	400.36	0.9999	400.320
68871	1	404.98	0.9997	404.859
68972	1	402.18	0.9999	402.140
68819	1	397.17	0.9999	397.130
68976	1	398.47	0.9999	398.430
6411	1	388.80	0.9999	388.761
6397	1	379.75	0.9999	379.712
6392	1	382.70	0.9999	382.662
6386	1	381.53	0.9999	381.487
6376	1	384.78	0.9999	384.737
6377	1			

		382.08	0.9999	382.037
6382	1	385.43	0.9999	385.386
6410	1	388.08	0.9999	388.036
6402	1	383.43	0.9999	383.387
6400	1	386.23	0.9999	386.186
6412	1	387.95	0.9999	387.911
6408	1	383.73	0.9999	383.687
12561	1	392.68	0.9999	392.636
12526	1	393.00	0.9999	392.961
12525	1	385.30	0.9999	385.261
12447	1	391.68	0.9999	391.636
12585	1	410.18	0.9999	410.134
12496	1	386.50	0.9999	386.461
12671	1	396.75	0.9999	396.710
12500	1	390.45	0.9999	390.411
12537	1	390.63	0.9999	390.586
12669	1	395.78	0.9999	395.735
12587	1	412.53	0.9999	412.484
12684	1	407.30	0.9999	407.259
12685	1	414.58	0.9999	414.534
12664	1	411.58	0.9999	411.534
12538	1	411.05	0.9999	411.009
12498	1			

		389.98	0.9999	389.936
12678	1	402.60	0.9999	402.560
3578	1	382.50	0.9996	382.347
9591	1	416.13	0.9999	416.083
90355	1	408.75	0.9999	408.709
90431	1	408.20	0.9999	408.159
90338	1	403.23	0.9999	403.185
68932	1	394.38	0.9999	394.341
6453	1	378.63	0.9999	378.587
6457	1	369.88	0.9999	369.838
6467	1	379.50	0.9999	379.462
6427	1	398.33	0.9999	398.285
6450	1	422.00	0.9999	421.958
6441	1	394.08	0.9999	394.036
6444	1	371.38	0.9999	371.338
6445	1	400.05	0.9999	400.010
6434	1	397.00	0.9999	396.960
6432	1	395.50	0.9999	395.460
6436	1	397.53	0.9999	397.485
6443	1	408.15	0.9999	408.109
6414	1	395.20	0.9999	395.160
6416	1	393.85	0.9999	393.811
92794	1			

		428.63	0.9995	428.416
92797	1	445.07	0.9995	444.847
92798	1	391.92	0.9995	391.724
92793	1	408.45	0.9995	408.246
92735	1	398.43	0.9999	398.390
92799	1	396.59	0.9995	396.392
92823	1	418.56	0.9998	418.476
92734	1	402.94	0.9999	402.900
92822	1	363.38	0.9998	363.307
92795	1	438.80	0.9995	438.581
92824	1	403.34	0.9998	403.259
90455	1	395.43	0.9999	395.385
92796	1	403.96	0.9995	403.758
68709	1	400.12	0.9999	400.080
68710	1	400.13	0.9999	400.090
68639	1	398.80	0.9999	398.760
68663	1	400.42	0.9999	400.380
68660	1	399.46	0.9999	399.420
68661	1	398.44	0.9999	398.400
68705	1	402.58	0.9999	402.540
68665	1	401.15	0.9999	401.110
68659	1	398.94	0.9999	398.900
68708	1			

		401.29	0.9999	401.250
68706	1	402.40	0.9999	402.360
68664	1	404.21	0.9999	404.170
68670	1	401.69	0.9999	401.650
68640	1	399.69	0.9999	399.650
90343	1	401.33	0.9999	401.285
90435	1	403.10	0.9999	403.060
90342	1	402.78	0.9999	402.735
90352	1	400.60	0.9999	400.560
90434	1	406.20	0.9999	406.159
90432	1	402.93	0.9999	402.885
90347	1	403.68	0.9999	403.635
90340	1	415.40	0.9999	415.358
90336	1	405.28	0.9999	405.234
90351	1	404.35	0.9999	404.310
90356	1	408.60	0.9999	408.559
90348	1	404.00	0.9999	403.960
12516	1	391.45	0.9999	391.411
12523	1	395.38	0.9999	395.335
12513	1	394.73	0.9999	394.686
12518	1	391.83	0.9999	391.786
12522	1	387.35	0.9999	387.311
12670	1			

		405.25	0.9999	405.209
12668	1	410.20	0.9999	410.159
12677	1	390.93	0.9999	390.886
12680	1	386.18	0.9999	386.136
12536	1	411.15	0.9999	411.109
12667	1	399.48	0.9999	399.435
12676	1	397.55	0.9999	397.510
12661	1	405.73	0.9999	405.684
12673	1	396.88	0.9999	396.835
12535	1	391.63	0.9999	391.586
12665	1	403.98	0.9999	403.935
12675	1	404.30	0.9999	404.260
12683	1	400.18	0.9999	400.135
12588	1	391.08	0.9999	391.036
12663	1	402.18	0.9999	402.135
12666	1	414.25	0.9999	414.209
12674	1	394.53	0.9999	394.486
10079	1	405.15	0.9999	405.109
10080	1	405.15	0.9999	405.109
10162	1	406.83	0.9999	406.784
10155	1	400.50	0.9999	400.459
10165	1	407.18	0.9999	407.134
10164	1			

		406.83	0.9999	406.784
10160	1	406.83	0.9999	406.784
10167	1	384.53	0.9999	384.486
10163	1	406.83	0.9999	406.784
10161	1	406.83	0.9999	406.784
10157	1	400.48	0.9999	400.434
12545	1	409.68	0.9999	409.634
12555	1	408.83	0.9999	408.784
12569	1	414.03	0.9999	413.984
12550	1	405.50	0.9999	405.459
12519	1	408.08	0.9999	408.034
12514	1	406.40	0.9999	406.359
12544	1	406.48	0.9999	406.434
12551	1	406.05	0.9999	406.009
12552	1	404.83	0.9999	404.785
6439	1	420.35	0.9999	420.308
6442	1	403.23	0.9999	403.185
6465	1	389.60	0.9999	389.561
6489	1	373.53	0.9999	373.488
6488	1	363.65	0.9999	363.614
6487	1	388.43	0.9999	388.386
6486	1	388.40	0.9999	388.361
6484	1			

		378.30	0.9999	378.262
6483	1	370.73	0.9999	370.688
6482	1	382.78	0.9999	382.737
6481	1	369.73	0.9999	369.688
6479	1	386.98	0.9999	386.936
6477	1	383.65	0.9999	383.612
6473	1	383.73	0.9999	383.687
6475	1	386.68	0.9999	386.636
6470	1	383.63	0.9999	383.587
90344	1	401.73	0.9999	401.685
90440	1	401.48	0.9999	401.435
90442	1	402.93	0.9999	402.885
90428	1	402.00	0.9999	401.960
90335	1	407.50	0.9999	407.459
90334	1	408.00	0.9999	407.959
90339	1	401.40	0.9999	401.360
90337	1	408.68	0.9999	408.634
90430	1	405.78	0.9999	405.734
90345	1	406.30	0.9999	406.259
90865	1	399.01	0.9999	398.970
90864	1	403.87	0.9999	403.830
90863	1	400.09	0.9999	400.050
11739	1			

		393.53	0.9999	393.485
22909	1	388.10	0.9999	388.061
24384	1	409.85	0.9999	409.809
24386	1	401.75	0.9999	401.709
24388	1	392.90	0.9999	392.860
24387	1	391.48	0.9999	391.435
24389	1	393.23	0.9999	393.185
24404	1	413.40	0.9999	413.358
24403	1	390.53	0.9999	390.486
24400	1	413.43	0.9999	413.383
24399	1	419.08	0.9999	419.033
24391	1	402.40	0.9999	402.359
24392	1	400.10	0.9999	400.060
24393	1	389.25	0.9999	389.211
24411	1	408.75	0.9999	408.709
24408	1	381.88	0.9999	381.836
24398	1	397.65	0.9999	397.610
24396	1	417.48	0.9999	417.433
24402	1	411.65	0.9999	411.608
24401	1	413.95	0.9999	413.908
24405	1	396.63	0.9999	396.585
24407	1	396.98	0.9999	396.935
10082	1			

		399.05	0.9999	399.010
10081	1	405.13	0.9999	405.084
10166	1	406.83	0.9999	406.784
10268	1	419.93	0.9999	419.883
10266	1	419.93	0.9999	419.883
10265	1	413.68	0.9999	413.633
10264	1	414.03	0.9999	413.983
10260	1	414.03	0.9999	413.983
10263	1	414.45	0.9999	414.408
10252	1	393.33	0.9999	393.285
10253	1	392.70	0.9999	392.660
10258	1	414.03	0.9999	413.983
10259	1	413.98	0.9999	413.933
10261	1	413.98	0.9999	413.933
10255	1	392.83	0.9999	392.785
10256	1	392.85	0.9999	392.810
10254	1	392.70	0.9999	392.660
10267	1	419.93	0.9999	419.883
10257	1	413.95	0.9999	413.908
10251	1	373.65	0.9999	373.612
10156	1	400.50	0.9999	400.459
10085	1	400.85	0.9999	400.809
10086	1			

		400.88	0.9999	400.834
10084	1	400.80	0.9999	400.759
10083	1	400.80	0.9999	400.759
630	1	407.25	0.9999	407.209
623	1	383.65	0.9999	383.611
655	1	406.10	0.9999	406.059
640	1	409.20	0.9999	409.159
638	1	402.60	0.9999	402.559
627	1	403.18	0.9999	403.139
625	1	411.20	0.9999	411.158
646	1	401.75	0.9999	401.709
666	1	402.88	0.9999	402.839
644	1	410.80	0.9999	410.758
11630	1	391.95	0.9999	391.910
11633	1	391.95	0.9999	391.910
11637	1	391.98	0.9999	391.935
11636	1	391.98	0.9999	391.935
11631	1	391.98	0.9999	391.935
11639	1	391.65	0.9999	391.610
11635	1	391.98	0.9999	391.935
11629	1	391.95	0.9999	391.910
24263	1	396.70	0.9999	396.660
11641	1			

		391.95	0.9999	391.910
11493	1	411.35	0.9999	411.308
11588	1	374.38	0.9999	374.337
11591	1	374.35	0.9999	374.312
11589	1	374.38	0.9999	374.337
11494	1	411.30	0.9999	411.258
11497	1	411.38	0.9999	411.333
11643	1	391.93	0.9999	391.885
11492	1	411.15	0.9999	411.108
11644	1	392.00	0.9999	391.960
22875	1	410.10	0.9999	410.059
22897	1	404.88	0.9999	404.834
22829	1	407.65	0.9999	407.609
22871	1	401.68	0.9999	401.634
22882	1	402.70	0.9999	402.659
22876	1	400.68	0.9999	400.635
22864	1	380.23	0.9999	380.187
22822	1	417.93	0.9999	417.883
22826	1	417.30	0.9999	417.258
22887	1	400.98	0.9999	400.935
22883	1	414.30	0.9999	414.258
22828	1	406.13	0.9999	406.084
22889	1			

		411.70	0.9999	411.658
22834	1	408.90	0.9999	408.859
22833	1	408.58	0.9999	408.534
22880	1	406.90	0.9999	406.859
11496	1	411.35	0.9999	411.308
11741	1	393.50	0.9999	393.460
11738	1	395.78	0.9999	395.735
11740	1	393.53	0.9999	393.485
836	1	422.90	0.9999	422.857
807	1	400.95	0.9999	400.910
877	1	406.88	0.9999	406.834
893	1	395.45	0.9999	395.410
886	1	408.50	0.9999	408.459
880	1	381.70	0.9999	381.661
845	1	389.98	0.9999	389.936
795	1	418.30	0.9999	418.258
804	1	420.35	0.9999	420.308
805	1	421.90	0.9999	421.857
837	1	412.98	0.9999	412.933
833	1	423.78	0.9999	423.732
824	1	399.40	0.9999	399.360
819	1	419.40	0.9999	419.358
832	1			

		412.58	0.9999	412.533
829	1	427.83	0.9999	427.782
834	1	411.28	0.9999	411.233
9206662	1	400.20	0.9995	399.999
70627	1	400.86	0.9998	400.779
70626	1	401.04	0.9998	400.959
70625	1	399.13	0.9998	399.050
11632	1	391.98	0.9999	391.935
11642	1	391.98	0.9999	391.935
11640	1	391.55	0.9999	391.510
4470	1	405.56	0.9996	405.397
4469	1	410.09	0.9996	409.925
4468	1	410.60	0.9996	410.435
4467	1	393.10	0.9996	392.942
661	1	406.05	0.9999	406.009
659	1	390.90	0.9999	390.860
633	1	426.08	0.9999	426.037
634	1	423.00	0.9999	422.957
660	1	398.05	0.9999	398.010
662	1	396.13	0.9999	396.090
645	1	405.28	0.9999	405.239
629	1	406.65	0.9999	406.609
667	1			

		390.45	0.9999	390.410
653	1	396.15	0.9999	396.110
632	1	412.83	0.9999	412.788
669	1	414.10	0.9999	414.058
674	1	406.48	0.9999	406.439
639	1	418.48	0.9999	418.438
626	1	411.93	0.9999	411.888
631	1	406.88	0.9999	406.839
649	1	390.28	0.9999	390.240
668	1	412.43	0.9999	412.388
657	1	394.03	0.9999	393.990
636	1	382.75	0.9999	382.711
641	1	406.30	0.9999	406.259
888	1	413.25	0.9999	413.208
813	1	404.68	0.9999	404.634
861	1	398.30	0.9999	398.260
871	1	405.35	0.9999	405.309
803	1	406.33	0.9999	406.284
853	1	398.30	0.9999	398.260
801	1	368.30	0.9999	368.263
792	1	412.75	0.9999	412.708
892	1	387.20	0.9999	387.161
875	1			

		400.33	0.9999	400.285
878	1	409.03	0.9999	408.984
883	1	413.70	0.9999	413.658
816	1	416.70	0.9999	416.658
812	1	405.55	0.9999	405.509
869	1	396.50	0.9999	396.460
814	1	409.15	0.9999	409.109
846	1	409.95	0.9999	409.909
890	1	397.20	0.9999	397.160
852	1	413.20	0.9999	413.158
862	1	366.55	0.9999	366.513
885	1	396.10	0.9999	396.060
851	1	408.88	0.9999	408.834
839	1	420.23	0.9999	420.183
873	1	374.68	0.9999	374.637
863	1	406.18	0.9999	406.134
843	1	415.33	0.9999	415.283
879	1	402.75	0.9999	402.709
848	1	396.25	0.9999	396.210
884	1	413.70	0.9999	413.658
870	1	413.30	0.9999	413.258
887	1	409.90	0.9999	409.859
802	1			

		408.55	0.9999	408.509
881	1	409.78	0.9999	409.734
865	1	411.88	0.9999	411.833
794	1	405.38	0.9999	405.334
809	1	416.68	0.9999	416.633
800	1	418.83	0.9999	418.783
820	1	412.93	0.9999	412.883
799	1	419.23	0.9999	419.183
825	1	411.95	0.9999	411.908
793	1	410.98	0.9999	410.934
828	1	417.38	0.9999	417.333
808	1	427.60	0.9999	427.557
844	1	382.58	0.9999	382.536
827	1	388.30	0.9999	388.261
872	1	383.45	0.9999	383.411
874	1	403.75	0.9999	403.709
856	1	414.18	0.9999	414.133
10981	1	411.70	0.9998	411.617
10985	1	411.73	0.9998	411.642
10984	1	411.73	0.9998	411.642
11151	1	415.98	0.9999	415.933
11161	1	405.33	0.9999	405.284
11156	1			

		405.33	0.9999	405.284
11160	1	403.85	0.9999	403.809
11159	1	405.33	0.9999	405.284
11149	1	415.20	0.9999	415.158
11150	1	415.15	0.9999	415.108
11152	1	415.08	0.9999	415.033
11154	1	415.15	0.9999	415.108
11155	1	405.35	0.9999	405.309
11157	1	405.33	0.9999	405.284
11153	1	415.20	0.9999	415.158
817	1	410.78	0.9999	410.734
826	1	409.60	0.9999	409.559
859	1	391.30	0.9999	391.260
842	1	384.50	0.9999	384.461
811	1	427.68	0.9999	427.632
882	1	416.13	0.9999	416.083
894	1	411.30	0.9999	411.258
838	1	407.35	0.9999	407.309
835	1	405.90	0.9999	405.859
806	1	406.83	0.9999	406.784
854	1	382.08	0.9999	382.036
815	1	428.05	0.9999	428.007
867	1			

		397.18	0.9999	397.135
847	1	411.35	0.9999	411.308
797	1	402.85	0.9999	402.809
866	1	382.35	0.9999	382.311
858	1	379.63	0.9999	379.587
891	1	409.70	0.9999	409.659
855	1	384.85	0.9999	384.811
876	1	387.70	0.9999	387.661
818	1	398.48	0.9999	398.435
850	1	407.65	0.9999	407.609
822	1	396.78	0.9999	396.735
889	1	401.83	0.9999	401.784
860	1	409.95	0.9999	409.909
857	1	403.18	0.9999	403.134
849	1	393.05	0.9999	393.010
864	1	406.50	0.9999	406.459
840	1	425.40	0.9999	425.357
841	1	392.10	0.9999	392.060
7321	1	416.63	0.9999	416.583
7336	1	420.10	0.9999	420.058
7317	1	405.93	0.9999	405.884
7312	1	415.35	0.9999	415.308
7339	1			

		406.23	0.9999	406.184
96617	1	398.78	0.9999	398.740
96622	1	407.67	0.9999	407.629
96643	1	400.92	0.9999	400.880
96647	1	403.55	0.9999	403.510
96646	1	407.52	0.9999	407.479
96642	1	404.92	0.9999	404.880
96616	1	399.28	0.9999	399.240
96619	1	403.95	0.9999	403.910
96645	1	408.76	0.9999	408.719
96644	1	401.81	0.9999	401.770
96575	1	416.72	0.9999	416.678
96620	1	418.31	0.9999	418.268
96624	1	402.78	0.9999	402.740
11028	1	414.05	0.9998	413.967
11036	1	413.88	0.9998	413.792
11030	1	414.05	0.9998	413.967
11031	1	414.05	0.9998	413.967
11026	1	414.00	0.9998	413.917
11033	1	414.03	0.9998	413.942
11035	1	413.98	0.9998	413.892
10982	1	411.73	0.9998	411.642
11034	1			

		413.98	0.9998	413.892
11190	1	405.00	0.9999	404.959
11037	1	413.45	0.9999	413.408
11193	1	404.98	0.9999	404.934
11186	1	404.95	0.9999	404.909
11191	1	405.00	0.9999	404.959
11192	1	405.03	0.9999	404.984
11196	1	405.10	0.9999	405.059
11195	1	405.80	0.9999	405.759
11185	1	404.90	0.9999	404.859
11188	1	405.03	0.9999	404.984
11187	1	405.05	0.9999	405.009
11027	1	413.33	0.9999	413.242
11189	1	405.03	0.9999	404.984
11194	1	405.05	0.9999	405.009
10905	1	406.20	0.9999	406.159
10907	1	406.40	0.9999	406.359
10906	1	405.68	0.9999	405.634
11014	1	399.78	0.9997	399.655
11015	1	399.83	0.9997	399.705
11013	1	399.73	0.9997	399.605
11012	1	399.53	0.9997	399.405
11029	1			

		413.90	0.9998	413.817
3936	1	402.54	0.9996	402.379
3791	1	411.62	0.9996	411.455
3888	1	389.18	0.9996	389.024
3881	1	390.81	0.9996	390.654
10828	1	406.35	0.9999	406.309
10836	1	409.20	0.9999	409.159
10835	1	406.35	0.9999	406.309
10830	1	406.35	0.9999	406.309
10833	1	406.33	0.9999	406.284
10840	1	406.35	0.9999	406.309
10827	1	406.40	0.9999	406.359
10829	1	406.23	0.9999	406.184
10832	1	406.25	0.9999	406.209
10841	1	406.40	0.9999	406.359
10919	1	399.45	0.9998	399.370
10920	1	399.65	0.9998	399.570
10918	1	399.70	0.9998	399.620
10922	1	399.43	0.9998	399.345
7338	1	423.70	0.9999	423.658
7313	1	426.30	0.9999	426.257
7311	1	412.48	0.9999	412.434
7329	1			

		410.33	0.9999	410.284
7330	1	402.93	0.9999	402.885
7327	1	402.90	0.9999	402.860
7335	1	396.90	0.9999	396.860
7334	1	407.10	0.9999	407.059
7340	1	396.60	0.9999	396.560
7333	1	413.03	0.9999	412.984
7303	1	423.55	0.9999	423.508
7316	1	412.50	0.9999	412.459
7332	1	426.43	0.9999	426.382
7309	1	410.55	0.9999	410.509
7306	1	408.35	0.9999	408.309
7200	1	412.38	0.9999	412.334
7320	1	412.70	0.9999	412.659
7314	1	401.93	0.9999	401.885
7305	1	399.58	0.9999	399.535
7301	1	411.48	0.9999	411.434
7308	1	407.18	0.9999	407.134
7331	1	423.90	0.9999	423.858
7302	1	419.08	0.9999	419.033
7325	1	414.95	0.9999	414.909
7202	1	427.78	0.9999	427.732
7326	1			

		410.30	0.9999	410.259
7323	1	427.85	0.9999	427.807
7307	1	392.88	0.9999	392.836
7304	1	405.68	0.9999	405.634
7207	1	421.18	0.9999	421.133
7310	1	400.00	0.9999	399.960
3092	1	408.60	0.9999	408.559
3086	1	407.88	0.9999	407.834
3093	1	385.08	0.9999	385.036
3097	1	408.05	0.9999	408.009
3104	1	400.15	0.9999	400.110
3108	1	406.08	0.9999	406.034
3110	1	410.38	0.9999	410.334
3076	1	414.80	0.9999	414.758
3065	1	369.80	0.9999	369.763
3107	1	384.18	0.9999	384.136
3089	1	394.50	0.9999	394.460
3096	1	404.33	0.9999	404.284
3112	1	404.78	0.9999	404.734
3109	1	409.18	0.9999	409.134
3117	1	405.43	0.9999	405.384
3115	1	401.45	0.9999	401.409
3100	1			

		376.55	0.9999	376.512
3094	1	408.45	0.9999	408.409
3079	1	416.13	0.9999	416.083
3081	1	411.38	0.9999	411.333
3073	1	407.18	0.9999	407.134
3084	1	396.68	0.9999	396.635
3066	1	411.43	0.9999	411.383
20587	1	396.88	0.9999	396.835
20595	1	386.35	0.9999	386.311
20604	1	384.60	0.9999	384.562
20597	1	378.23	0.9999	378.187
20594	1	378.78	0.9999	378.737
20586	1	388.43	0.9999	388.386
20592	1	384.53	0.9999	384.487
20599	1	386.75	0.9999	386.711
20615	1	381.45	0.9999	381.412
20593	1	368.13	0.9999	368.088
20583	1	374.80	0.9999	374.763
20609	1	396.93	0.9999	396.885
20588	1	393.55	0.9999	393.511
20582	1	398.73	0.9999	398.685
3184	1	401.10	0.9999	401.059
3187	1			

		392.25	0.9999	392.210
3186	1	402.05	0.9999	402.009
3183	1	404.08	0.9999	404.034
3188	1	408.00	0.9999	407.959
3189	1	417.50	0.9999	417.458
3935	1	409.53	0.9996	409.366
3879	1	415.94	0.9996	415.774
3941	1	393.69	0.9996	393.533
3795	1	406.28	0.9996	406.117
3880	1	398.06	0.9996	397.901
3932	1	391.04	0.9996	390.884
3673	1	416.75	0.9999	416.708
3722	1	426.05	0.9999	426.007
3723	1	419.43	0.9999	419.383
3693	1	411.00	0.9999	410.959
3721	1	409.25	0.9999	409.209
3707	1	412.55	0.9999	412.509
3682	1	412.15	0.9999	412.109
3680	1	418.95	0.9999	418.908
4364	1	396.27	0.9999	396.230
4362	1	399.59	0.9999	399.550
4360	1	408.92	0.9999	408.879
4361	1			

		406.42	0.9999	406.379
4363	1	400.39	0.9999	400.350
4368	1	389.43	0.9999	389.391
4369	1	399.24	0.9999	399.200
70372	1	399.52	0.9998	399.440
70373	1	403.53	0.9998	403.449
70374	1	398.37	0.9998	398.290
70375	1	400.56	0.9998	400.480
3082	1	369.38	0.9999	369.338
3080	1	414.50	0.9999	414.458
3070	1	402.75	0.9999	402.709
3121	1	398.33	0.9999	398.285
3087	1	405.75	0.9999	405.709
3116	1	413.25	0.9999	413.208
3105	1	404.83	0.9999	404.784
3106	1	399.00	0.9999	398.960
3098	1	400.30	0.9999	400.260
3085	1	385.28	0.9999	385.236
3099	1	406.43	0.9999	406.384
3071	1	421.50	0.9999	421.457
3078	1	382.38	0.9999	382.336
3114	1	379.48	0.9999	379.437
3095	1			

		403.70	0.9999	403.659
3113	1	396.80	0.9999	396.760
3102	1	405.15	0.9999	405.109
3119	1	377.00	0.9999	376.962
3088	1	395.75	0.9999	395.710
3111	1	388.53	0.9999	388.486
3074	1	405.15	0.9999	405.109
3077	1	399.40	0.9999	399.360
3069	1	404.98	0.9999	404.934
3072	1	391.68	0.9999	391.635
3083	1	402.48	0.9999	402.434
3101	1	418.45	0.9999	418.408
3091	1	381.45	0.9999	381.411
3068	1	389.80	0.9999	389.761
3067	1	409.98	0.9999	409.934
20153	1	412.93	0.9999	412.883
20151	1	401.88	0.9999	401.834
20145	1	390.15	0.9999	390.111
20147	1	405.43	0.9999	405.384
18915	1	414.58	0.9999	414.533
19010	1	410.68	0.9999	410.634
20150	1	397.40	0.9999	397.360
20148	1			

		399.53	0.9999	399.485
20152	1	392.88	0.9999	392.835
18628	1	419.38	0.9999	419.333
18901	1	414.55	0.9999	414.508
18912	1	413.50	0.9999	413.458
18464	1	423.45	0.9999	423.407
18902	1	416.43	0.9999	416.383
18635	1	422.73	0.9999	422.682
19165	1	409.30	0.9999	409.259
19202	1	412.03	0.9999	411.983
18637	1	420.08	0.9999	420.033
20149	1	388.70	0.9999	388.661
18632	1	392.60	0.9999	392.560
18634	1	427.23	0.9999	427.182
18490	1	424.98	0.9999	424.932
19702	1	385.63	0.9999	385.586
19697	1	395.38	0.9999	395.335
19698	1	396.28	0.9999	396.235
19106	1	423.80	0.9999	423.757
19164	1	425.20	0.9999	425.157
20626	1	380.80	0.9999	380.762
20631	1	368.80	0.9999	368.763
20648	1			

		388.33	0.9999	388.286
20620	1	363.18	0.9999	363.138
20639	1	382.20	0.9999	382.161
10983	1	405.95	0.9998	405.868
3710	1	406.43	0.9999	406.384
3708	1	392.40	0.9999	392.361
3717	1	406.58	0.9999	406.534
3713	1	407.43	0.9999	407.384
3703	1	408.05	0.9999	408.009
3700	1	416.03	0.9999	415.983
3695	1	407.68	0.9999	407.634
3685	1	408.30	0.9999	408.259
3684	1	408.75	0.9999	408.709
3683	1	407.45	0.9999	407.409
3679	1	408.33	0.9999	408.284
3702	1	407.65	0.9999	407.609
3715	1	408.73	0.9999	408.684
3711	1	413.10	0.9999	413.059
3688	1	419.10	0.9999	419.058
19173	1	387.20	0.9999	387.161
18631	1	424.90	0.9999	424.857
19157	1	404.75	0.9999	404.709
20032	1			

		414.13	0.9999	414.083
20029	1	410.23	0.9999	410.184
20030	1	380.20	0.9999	380.162
20031	1	416.30	0.9999	416.258
19203	1	390.25	0.9999	390.211
18462	1	420.85	0.9999	420.808
18443	1	422.78	0.9999	422.732
18611	1	400.53	0.9999	400.485
18629	1	391.85	0.9999	391.810
18606	1	393.00	0.9999	392.960
18610	1	400.68	0.9999	400.635
18627	1	418.95	0.9999	418.908
18487	1	393.53	0.9999	393.485
18607	1	397.35	0.9999	397.310
18605	1	404.93	0.9999	404.885
18461	1	418.43	0.9999	418.383
18488	1	419.70	0.9999	419.658
18491	1	389.25	0.9999	389.211
18609	1	402.38	0.9999	402.334
20142	1	381.20	0.9999	381.161
18489	1	416.03	0.9999	415.983
18630	1	416.93	0.9999	416.883
AO87192	1			

		386.95	0.9999	386.911
AO87191	1	385.63	0.9999	385.591
AO87406	1	369.42	0.9999	369.383
3616	1	414.47	0.9996	414.304
3547	1	400.33	0.9996	400.170
3549	1	428.48	0.9996	428.309
3615	1	395.08	0.9996	394.922
3548	1	424.00	0.9996	423.830
9554	1	402.33	0.9998	402.245
9546	1	401.63	0.9998	401.545
9570	1	384.88	0.9997	384.760
9571	1	385.80	0.9997	385.684
9483	1	396.50	0.9998	396.421
9584	1	416.13	0.9999	416.083
9558	1	401.60	0.9998	401.520
9479	1	395.70	0.9998	395.621
9480	1	395.65	0.9998	395.571
9481	1	395.68	0.9998	395.596
20146	1	392.40	0.9999	392.360
20144	1	372.93	0.9999	372.887
20143	1	403.05	0.9999	403.009
9318	1	381.78	0.9999	381.737
9316	1			

		382.03	0.9999	381.987
9247	1	376.68	0.9999	376.637
9263	1	399.60	0.9999	399.560
9250	1	376.58	0.9999	376.537
9246	1	376.58	0.9999	376.537
9312	1	407.50	0.9999	407.459
AO83413	1	404.24	0.9999	404.196
AO83900	1	400.22	0.9999	400.180
8869	1	400.03	0.9999	399.988
9357	1	414.90	0.9997	414.775
9363	1	399.95	0.9999	399.910
9321	1	395.83	0.9999	395.785
9364	1	399.93	0.9999	399.885
9261	1	399.65	0.9999	399.610
8870	1	400.16	0.9999	400.121
8868	1	400.07	0.9999	400.029
9323	1	395.83	0.9999	395.785
9306	1	394.10	0.9999	394.061
8872	1	399.93	0.9999	399.885
8877	1	399.88	0.9999	399.835
9315	1	381.78	0.9999	381.737
9298	1	394.20	0.9999	394.161
8905	1			

		399.97	0.9999	399.931
9301	1	394.13	0.9999	394.086
9320	1	381.78	0.9999	381.737
9314	1	407.95	0.9999	407.909
9319	1	381.78	0.9999	381.737
9317	1	381.70	0.9999	381.662
8867	1	400.07	0.9999	400.025
9322	1	395.75	0.9999	395.710
8862	1	400.06	0.9999	400.021
9273	1	400.55	0.9999	400.510
9151	1	405.45	0.9999	405.409
9267	1	399.55	0.9999	399.510
9300	1	394.13	0.9999	394.086
9274	1	400.50	0.9999	400.460
9248	1	376.65	0.9999	376.612
8854	1	400.00	0.9999	399.955
9555	1	402.45	0.9998	402.370
9547	1	401.63	0.9998	401.545
9559	1	401.60	0.9998	401.520
9506	1	387.65	0.9997	387.534
19700	1	390.63	0.9999	390.586
18447	1	412.53	0.9999	412.484
18633	1			

		418.25	0.9999	418.208
18640	1	395.90	0.9999	395.860
19170	1	384.08	0.9999	384.036
18636	1	391.63	0.9999	391.585
19292	1	400.03	0.9999	399.985
19293	1	390.38	0.9999	390.336
19299	1	390.70	0.9999	390.661
19289	1	403.13	0.9999	403.084
19298	1	406.60	0.9999	406.559
19302	1	407.23	0.9999	407.184
19285	1	393.80	0.9999	393.760
19301	1	408.88	0.9999	408.834
19303	1	393.58	0.9999	393.535
19297	1	404.23	0.9999	404.184
AO83337	1	407.82	0.9999	407.776
AO83665	1	391.52	0.9999	391.478
AO83663	1	406.19	0.9999	406.152
AO83434	1	390.88	0.9999	390.843
AO83880	1	402.08	0.9999	402.042
AO83431	1	390.69	0.9999	390.647
AO83662	1	399.32	0.9999	399.277
AO83433	1	396.66	0.9999	396.621
AO83879	1			

		385.10	0.9999	385.064
AO83670	1	392.31	0.9999	392.269
AO83342	1	384.22	0.9999	384.177
AO83868	1	400.45	0.9999	400.406
AO83867	1	389.64	0.9999	389.596
AO83904	1	389.01	0.9999	388.966
AO83869	1	379.14	0.9999	379.101
AO83015	1	402.98	0.9999	402.941
AO83912	1	412.36	0.9999	412.320
AO83877	1	402.42	0.9999	402.383
AO83340	1	380.38	0.9999	380.343
AO83410	1	390.23	0.9999	390.194
AO83016	1	412.77	0.9999	412.733
AO83688	1	396.06	0.9999	396.015
AO83730	1	407.63	0.9999	407.593
AO83694	1	397.19	0.9999	397.145
AO83965	1	386.12	0.9999	386.083
AO83726	1	401.95	0.9999	401.906
AO83962	1	399.88	0.9999	399.842
AO83719	1	399.45	0.9999	399.409
AO83432	1	397.85	0.9999	397.807
AO83718	1	399.46	0.9999	399.418
AO83669	1			

		412.72	0.9999	412.678
AO83717	1	399.83	0.9999	399.792
AO83409	1	393.22	0.9999	393.177
AO83918	1	393.48	0.9999	393.439
AO83878	1	392.70	0.9999	392.664
AO83901	1	402.03	0.9999	401.986
AO83435	1	407.06	0.9999	407.014
AO83964	1	386.44	0.9999	386.399
AO83905	1	381.62	0.9999	381.582
A086392	1	383.10	0.9999	383.062
A086402	1	410.69	0.9999	410.649
A086401	1	396.33	0.9999	396.290
A086399	1	411.14	0.9999	411.099
AO86405	1	399.97	0.9999	399.930
AO86404	1	407.06	0.9999	407.019
AO86117	1	403.31	0.9999	403.270
A086396	1	406.08	0.9999	406.039
A086424	1	428.29	0.9999	428.247
A086423	1	401.98	0.9999	401.940
A086400	1	393.57	0.9999	393.531
A086397	1	400.28	0.9999	400.240
A086393	1	396.66	0.9999	396.620
A086398	1			

		387.82	0.9999	387.781
9052	1	399.90	0.9998	399.820
18924	1	404.14	0.9999	404.101
18907	1	395.29	0.9999	395.251
18933	1	410.29	0.9999	410.244
18942	1	396.64	0.9999	396.601
18919	1	410.40	0.9999	410.355
18917	1	392.74	0.9999	392.698
18921	1	393.74	0.9999	393.700
18903	1	410.35	0.9999	410.307
18932	1	401.33	0.9999	401.287
18920	1	405.20	0.9999	405.154
18929	1	399.07	0.9999	399.031
18905	1	411.08	0.9999	411.037
18904	1	404.79	0.9999	404.752
18941	1	399.30	0.9999	399.258
18899	1	400.19	0.9999	400.145
18913	1	403.67	0.9999	403.634
18918	1	407.16	0.9999	407.123
18911	1	406.43	0.9999	406.391
18939	1	400.83	0.9999	400.789
AO83978	1	375.74	0.9999	375.697
AO84253	1			

		373.95	0.9999	373.917
AO83317	1	371.13	0.9999	371.093
AO83920	1	413.80	0.9999	413.760
AO83876	1	368.32	0.9999	368.286
AO83313	1	365.10	0.9999	365.061
AO83318	1	376.58	0.9999	376.537
AO84713	1	357.81	0.9999	357.775
AO84742	1	413.68	0.9999	413.636
AO84709	1	415.46	0.9999	415.415
AO83902	1	375.59	0.9999	375.550
AO84729	1	421.35	0.9999	421.310
AO83919	1	361.00	0.9999	360.962
14511	1	389.50	0.9999	389.461
14727	1	416.45	0.9999	416.408
14728	1	410.20	0.9999	410.159
14716	1	410.15	0.9999	410.109
14717	1	409.38	0.9999	409.334
14721	1	406.78	0.9999	406.734
14696	1	409.83	0.9999	409.784
14869	1	404.70	0.9999	404.660
14517	1	396.88	0.9999	396.835
14514	1	419.90	0.9999	419.858
14510	1			

		410.85	0.9999	410.809
14513	1	408.40	0.9999	408.359
14507	1	411.23	0.9999	411.184
14530	1	415.03	0.9999	414.983
14522	1	408.63	0.9999	408.584
14531	1	420.65	0.9999	420.608
14508	1	408.85	0.9999	408.809
14506	1	408.50	0.9999	408.459
14516	1	419.63	0.9999	419.583
14524	1	405.98	0.9999	405.934
14512	1	405.18	0.9999	405.134
2333	1	408.60	0.9996	408.437
2334	1	379.81	0.9996	379.658
2338	1	382.01	0.9996	381.857
2339	1	401.39	0.9996	401.229
19573	1	390.60	0.9999	390.561
19571	1	372.98	0.9999	372.937
19587	1	397.80	0.9999	397.760
19586	1	395.58	0.9999	395.535
AO81450	1	374.16	0.9998	374.085
AO81461	1	387.00	0.9998	386.923
AO81448	1	367.32	0.9998	367.247
AO81460	1			

		394.12	0.9998	394.041
AO81449	1	364.97	0.9998	364.897
AO86116	1	387.01	0.9999	386.971
AO86131	1	399.40	0.9999	399.360
AO86378	1	392.16	0.9999	392.121
AO86135	1	402.88	0.9999	402.840
AO86403	1	393.82	0.9999	393.781
AO86132	1	384.23	0.9999	384.192
AO86379	1	388.89	0.9999	388.851
AO86118	1	407.26	0.9999	407.219
AO86115	1	379.07	0.9999	379.032
AO86136	1	399.03	0.9999	398.990
19575	1	370.03	0.9999	369.988
15482	1	408.08	0.9999	408.034
15453	1	387.88	0.9999	387.836
15454	1	423.83	0.9999	423.783
15455	1	399.30	0.9999	399.260
15464	1	405.60	0.9999	405.559
15465	1	382.93	0.9999	382.887
15456	1	419.10	0.9999	419.058
15466	1	392.85	0.9999	392.811
15275	1	401.60	0.9999	401.560
17703	1			

		412.38	0.9999	412.334
17693	1	417.53	0.9999	417.483
A078206	1	365.96	0.9998	365.887
A078198	1	367.31	0.9998	367.237
E65684	1	397.93	0.9998	397.850
E65686	1	400.08	0.9998	400.000
E65685	1	399.09	0.9998	399.010
E65636	1	403.22	0.9999	403.180
7681	1	402.85	0.9997	402.729
7702	1	380.63	0.9998	380.549
14726	1	419.80	0.9999	419.758
14872	1	406.00	0.9999	405.959
14868	1	405.90	0.9999	405.859
14864	1	415.83	0.9999	415.783
14870	1	405.90	0.9999	405.859
9297	1	405.95	0.9999	405.869
9296	1	405.95	0.9999	405.869
9307	1	407.50	0.9999	407.459
9308	1	407.55	0.9999	407.509
9309	1	407.50	0.9999	407.459
9310	1	407.53	0.9999	407.484
9143	1	412.08	0.9999	412.034
9141	1			

		412.15	0.9999	412.109
9148	1	405.45	0.9999	405.409
9142	1	411.80	0.9999	411.759
9140	1	411.93	0.9999	411.884
9119	1	408.45	0.9999	408.409
9146	1	412.00	0.9999	411.959
9144	1	412.10	0.9999	412.059
9149	1	405.30	0.9999	405.259
9147	1	412.10	0.9999	412.059
9118	1	408.53	0.9999	408.484
9145	1	412.15	0.9999	412.109
9276	1	400.58	0.9999	400.535
9281	1	400.55	0.9999	400.510
9283	1	400.58	0.9999	400.535
9277	1	400.55	0.9999	400.510
9278	1	400.58	0.9999	400.535
9287	1	399.88	0.9999	399.835
9285	1	400.53	0.9999	400.485
9284	1	400.60	0.9999	400.560
9282	1	400.50	0.9999	400.460
9280	1	400.55	0.9999	400.510
18463	1	414.45	0.9999	414.409
15486	1			

		399.55	0.9999	399.510
15487	1	411.88	0.9999	411.834
15450	1	414.68	0.9999	414.634
15471	1	402.93	0.9999	402.885
15470	1	376.05	0.9999	376.012
15452	1	406.13	0.9999	406.084
15475	1	383.33	0.9999	383.287
15474	1	374.85	0.9999	374.813
18444	1	420.75	0.9999	420.708
18486	1	419.03	0.9999	418.983
9313	1	407.45	0.9999	407.409
9299	1	394.18	0.9999	394.136
9279	1	400.58	0.9999	400.535
9264	1	399.45	0.9999	399.410
9249	1	376.65	0.9999	376.612
9302	1	394.13	0.9999	394.086
9265	1	399.65	0.9999	399.610
9303	1	394.13	0.9999	394.086
9251	1	376.55	0.9999	376.512
AO87231	1	391.87	0.9999	391.831
7952	1	405.28	0.9999	405.234
7958	1	405.48	0.9999	405.434
15459	1			

		408.78	0.9999	408.734
7979	1	374.40	0.9999	374.363
15472	1	382.85	0.9999	382.812
15467	1	376.45	0.9999	376.412
15485	1	391.98	0.9999	391.936
15451	1	403.03	0.9999	402.985
15484	1	410.55	0.9999	410.509
15488	1	377.68	0.9999	377.637
15476	1	389.43	0.9999	389.386
15447	1	412.13	0.9999	412.084
15477	1	408.18	0.9999	408.134
E66929	1	400.67	0.9999	400.630
15224A	1	377.23	0.9999	377.187
E66928	1	401.36	0.9999	401.320
15225	1	393.60	0.9999	393.561
E66940	1	400.46	0.9999	400.420
15449	1	390.73	0.9999	390.686
E66938	1	401.49	0.9999	401.450
15473	1	372.13	0.9999	372.088
E66939	1	400.51	0.9999	400.470
15463	1	401.63	0.9999	401.585
E66937	1	401.49	0.9999	401.450
15469	1			

		389.73	0.9999	389.686
E66941	1	395.80	0.9999	395.760
15457	1	390.23	0.9999	390.186
E66930	1	400.85	0.9999	400.810
15460	1	390.85	0.9999	390.811
E66931	1	401.82	0.9999	401.780
15481	1	406.65	0.9999	406.609
A083925	1	383.49	0.9999	383.452
15458	1	416.65	0.9999	416.608
A083944	1	398.47	0.9999	398.430
15224	1	373.53	0.9999	373.488
A083734	1	388.60	0.9999	388.561
15226	1	383.48	0.9999	383.437
A083930	1	386.02	0.9999	385.943
15227	1	375.40	0.9999	375.362
15223	1	376.38	0.9999	376.337
A083732	1	421.95	0.9999	421.908
15461	1	410.25	0.9999	410.209
A083737	1	417.68	0.9999	417.638
15480	1	397.55	0.9999	397.510
A083943	1	397.67	0.9999	397.630
15468	1	393.60	0.9999	393.561
A083735	1			

		400.17	0.9999	400.130
15479	1	380.50	0.9999	380.462
A083941	1	399.93	0.9999	399.890
15483	1	381.43	0.9999	381.387
A083922	1	401.08	0.9999	401.040
A083926	1	395.88	0.9999	395.840
A083863	1	392.76	0.9999	392.721
A083862	1	400.39	0.9999	400.350
A083929	1	389.80	0.9999	389.722
A083923	1	401.29	0.9999	401.250
A083931	1	414.64	0.9999	414.557
A083928	1	410.91	0.9999	410.828
A083942	1	377.49	0.9999	377.452
A083927	1	397.69	0.9999	397.650
A083921	1	395.59	0.9999	395.550
A083736	1	392.67	0.9999	392.631
A083940	1	404.14	0.9999	404.100
A083945	1	385.25	0.9999	385.211
A083924	1	381.84	0.9999	381.802
A083733	1	405.45	0.9999	405.409
A087231	1	375.88	0.9999	375.842
E66883	1	399.12	0.9999	399.080
E66886	1			

		399.19	0.9999	399.110
E57291	1	399.93	0.9999	399.890
E66881	1	401.71	0.9999	401.670
E66882	1	399.32	0.9999	399.280
E66880	1	401.02	0.9999	400.980
E66887	1	402.75	0.9999	402.669
A078873	1	376.19	0.9999	376.040
A078885	1	384.52	0.9999	384.405
A078890	1	365.51	0.9999	365.400
A078892	1	374.45	0.9999	374.338
A078875	1	360.73	0.9999	360.586
17699	1	399.85	0.9999	399.810
17709	1	382.63	0.9999	382.587
17697	1	381.13	0.9999	381.087
17707	1	370.18	0.9999	370.138
17698	1	406.70	0.9999	406.659
17710	1	393.70	0.9999	393.661
17719	1	410.30	0.9999	410.259
17718	1	397.73	0.9999	397.685
17691	1	382.38	0.9999	382.337
17692	1	393.23	0.9999	393.186
17717	1	396.95	0.9999	396.910
7981	1			

		374.40	0.9999	374.363
7969	1	410.05	0.9999	410.009
7957	1	405.48	0.9999	405.434
7943	1	389.98	0.9999	389.936
7978	1	374.35	0.9999	374.313
7956	1	405.85	0.9999	405.809
7947	1	389.88	0.9999	389.836
7968	1	410.00	0.9999	409.959
7986	1	420.08	0.9999	420.033
7939	1	376.93	0.9999	376.887
7938	1	389.73	0.9999	389.686
7953	1	407.78	0.9999	407.734
7964	1	377.03	0.9999	376.987
7965	1	377.18	0.9999	377.137
7980	1	374.43	0.9999	374.388
7987	1	419.93	0.9999	419.883
7959	1	376.73	0.9999	376.687
7988	1	409.98	0.9999	409.934
7948	1	389.93	0.9999	389.886
7970	1	410.03	0.9999	409.984
7976	1	374.48	0.9999	374.438
7966	1	376.98	0.9999	376.937
7945	1			

		398.10	0.9999	398.060
7977	1	374.40	0.9999	374.363
7962	1	377.35	0.9999	377.312
7973	1	374.38	0.9999	374.338
7960	1	377.20	0.9999	377.162
7990	1	420.23	0.9999	420.183
7989	1	420.00	0.9999	419.958
7974	1	374.48	0.9999	374.438
7967	1	377.05	0.9999	377.012
7946	1	397.53	0.9999	397.485
19530	1	411.35	0.9999	411.308
19528	1	398.35	0.9999	398.310
19564	1	399.30	0.9999	399.260
19579	1	393.18	0.9999	393.135
19525	1	384.75	0.9999	384.711
19526	1	394.85	0.9999	394.810
19524	1	373.23	0.9999	373.187
19566	1	397.40	0.9999	397.360
19584	1	397.38	0.9999	397.335
19585	1	391.80	0.9999	391.760
19532	1	413.83	0.9999	413.783
19574	1	392.00	0.9999	391.960
19582	1			

		387.30	0.9999	387.261
19563	1	394.53	0.9999	394.485
19581	1	397.48	0.9999	397.435
19588	1	389.63	0.9999	389.586
19580	1	392.55	0.9999	392.510
19562	1	395.08	0.9999	395.035
19572	1	399.45	0.9999	399.410
19583	1	397.78	0.9999	397.735
19531	1	414.20	0.9999	414.158
19565	1	399.00	0.9999	398.960
19529	1	414.60	0.9999	414.558
19578	1	406.33	0.9999	406.284
15427	1	397.30	0.9999	397.260
15430	1	401.60	0.9999	401.560
15432	1	413.75	0.9999	413.709
A078359	1	386.77	0.9999	386.731
A078400	1	363.93	0.9999	363.894
A078357	1	376.88	0.9999	376.842
A078352	1	372.62	0.9999	372.583
A078401	1	364.57	0.9999	364.534
A078353	1	375.80	0.9999	375.762
A078350	1	385.00	0.9999	384.962
A078361	1			

		377.23	0.9999	377.192
A078363	1	381.52	0.9999	381.482
A078356	1	368.42	0.9999	368.383
A078360	1	370.28	0.9999	370.243
A078346	1	374.78	0.9999	374.743
A078355	1	365.88	0.9999	365.843
A078358	1	379.97	0.9999	379.932
A078362	1	379.93	0.9999	379.892
A078364	1	375.19	0.9999	375.152
A078880	1	373.51	0.9997	373.398
A078891	1	360.74	0.9997	360.632
A078871	1	369.17	0.9996	369.022
A078886	1	376.33	0.9997	376.217
A078872	1	372.46	0.9996	372.311
A078883	1	370.01	0.9997	369.899
A078888	1	360.34	0.9997	360.232
24261	1	403.68	0.9999	403.635
24292	1	398.50	0.9999	398.460
24259	1	410.95	0.9999	410.909
24280	1	407.03	0.9999	406.984
3153	1	416.88	0.9999	416.833
3168	1	418.53	0.9999	418.483
3170	1			

		409.25	0.9999	409.209
3157	1	406.50	0.9999	406.459
3164	1	408.13	0.9999	408.084
3154	1	407.68	0.9999	407.634
3155	1	371.88	0.9999	371.838
3162	1	410.15	0.9999	410.109
3149	1	391.98	0.9999	391.936
3147	1	401.68	0.9999	401.635
3173	1	395.33	0.9999	395.285
3156	1	413.15	0.9999	413.109
3148	1	392.43	0.9999	392.386
3146	1	421.73	0.9999	421.683
3174	1	412.05	0.9999	412.009
3151	1	411.05	0.9999	411.009
3150	1	425.85	0.9999	425.807
3163	1	406.43	0.9999	406.384
3165	1	425.23	0.9999	425.182
3145	1	394.38	0.9999	394.336
3161	1	404.78	0.9999	404.735
3172	1	415.38	0.9999	415.333
3169	1	405.03	0.9999	404.984
3152	1	419.30	0.9999	419.258
3171	1			

		412.88	0.9999	412.834
3160	1	410.55	0.9999	410.509
3159	1	403.55	0.9999	403.510
3075	1	408.53	0.9999	408.484
18927	1	424.23	0.9999	424.192
18940	1	416.41	0.9999	416.370
18910	1	419.17	0.9999	419.127
18909	1	423.30	0.9999	423.254
18906	1	423.80	0.9999	423.761
3457	1	416.72	0.9995	416.512
3452	1	396.43	0.9996	396.271
3451	1	403.25	0.9996	403.089
3453	1	393.70	0.9996	393.543
3455	1	393.74	0.9996	393.583
3429	1	399.88	0.9996	399.720
3450	1	388.76	0.9996	388.604
3428	1	376.77	0.9996	376.619
3454	1	384.35	0.9996	384.196
3456	1	398.31	0.9995	398.111
3427	1	388.86	0.9996	388.704
19569	1	391.60	0.9999	391.560
19527	1	390.13	0.9999	390.086
17714	1			

		388.08	0.9999	388.036
17688	1	392.98	0.9999	392.936
17706	1	408.63	0.9999	408.584
17689	1	393.98	0.9999	393.936
17711	1	390.83	0.9999	390.786
17700	1	377.33	0.9999	377.287
17713	1	397.60	0.9999	397.560
17720	1	403.03	0.9999	402.985
17708	1	382.58	0.9999	382.537
17702	1	406.48	0.9999	406.434
KK2483	1	386.65	0.9999	386.611
KK2491	1	427.53	0.9999	427.482
KK2480	1	395.65	0.9999	395.610
KK2478	1	379.98	0.9999	379.937
KK2477	1	393.88	0.9999	393.836
KK2481	1	397.85	0.9999	397.810
KK2486	1	418.20	0.9999	418.158
KK2485	1	407.90	0.9999	407.859
KK2474	1	396.30	0.9999	396.260
15108	1	392.56	0.9999	392.518
15122	1	419.69	0.9999	419.645
15117	1	391.44	0.9999	391.404
15110	1			

		395.07	0.9999	395.030
15127	1	394.35	0.9999	394.308
15126	1	413.72	0.9999	413.683
15094	1	411.15	0.9999	411.104
15133	1	414.21	0.9999	414.167
15124	1	413.13	0.9999	413.089
15096	1	421.12	0.9999	421.082
15098	1	415.82	0.9999	415.777
15107	1	417.59	0.9999	417.552
15123	1	413.13	0.9999	413.086
15101	1	414.26	0.9999	414.220
15106	1	417.58	0.9999	417.541
15116	1	417.56	0.9999	417.513
15132	1	413.39	0.9999	413.345
15317	1	385.88	0.9999	385.836
15327	1	396.08	0.9999	396.035
15321	1	404.03	0.9999	403.985
15296	1	410.08	0.9999	410.034
15326	1	378.05	0.9999	378.012
15318	1	401.88	0.9999	401.835
15316	1	419.88	0.9999	419.833
15297	1	381.55	0.9999	381.512
15150	1			

		397.80	0.9999	397.760
15295	1	387.23	0.9999	387.186
15149	1	404.45	0.9999	404.410
15320	1	376.35	0.9999	376.312
15319	1	418.00	0.9999	417.958
15294	1	403.38	0.9999	403.335
24262	1	408.50	0.9999	408.459
24270	1	401.80	0.9999	401.760
24297	1	410.90	0.9999	410.859
24277	1	399.68	0.9999	399.635
24273	1	408.88	0.9999	408.834
24279	1	408.73	0.9999	408.684
24291	1	390.75	0.9999	390.711
24275	1	391.30	0.9999	391.261
24293	1	394.80	0.9999	394.761
2417	1	419.54	0.9996	419.372
2418	1	384.72	0.9996	384.566
118	24	9,795.62	0.9999	9,794.640
M1366	20	8,141.55	0.9999	8,140.735
MCD561	5	1,963.04	0.9999	1,962.843
15	22	9,067.76	0.9999	9,066.853
44	24	9,346.40	0.9999	9,345.465
5513	1			

		412.42	0.9996	412.255
5516	1	387.98	0.9996	387.824
5523	1	386.83	0.9996	386.675
5439	1	411.07	0.9996	410.905
5418	1	405.52	0.9996	405.357
12674	1	406.35	0.9999	406.304
12328	1	393.80	0.9999	393.755
44410	1	415.85	0.9999	415.803
43397	1	403.43	0.9999	403.384
43324	1	413.50	0.9999	413.453
41968	1	394.34	0.9999	394.295
41645	1	397.56	0.9999	397.515
42116	1	405.03	0.9999	404.989
25010	1	401.12	0.9999	401.079
41600	1	418.50	0.9999	418.453
41632	1	407.11	0.9999	407.064
41159	1	404.72	0.9999	404.679
9308011	1	399.98	0.9999	399.935
42369	1	398.43	0.9999	398.390
42343	1	399.58	0.9999	399.540
00708	1	392.22	0.9999	392.180
00391	1	393.47	0.9999	393.430
41120	1			

		400.70	0.9999	400.659
41088	1	397.56	0.9999	397.520
38989	1	397.57	0.9999	397.530
22899	1	369.58	0.9999	369.543
39803	1	398.94	0.9999	398.900
23372	1	380.72	0.9999	380.681
23419	1	379.39	0.9999	379.352
35330	1	396.56	0.9999	396.520
22910	1	397.16	0.9999	397.120
22870	1	373.26	0.9999	373.222
38983	1	389.98	0.9999	389.941
37465	1	403.81	0.9999	403.769
101378	1	394.52	0.9999	394.480
101416	1	390.50	0.9999	390.460
M2844CB-04	1	401.55	0.9998	401.469
42135	1	405.77	0.9999	405.729
42087	1	393.97	0.9999	393.930
12257	1	399.62	0.9999	399.580
12016	1	413.28	0.9999	413.238
24861	1	367.51	0.9999	367.473
90346	1	401.15	0.9999	401.109
90341	1	405.11	0.9999	405.064
10262	1			

		413.83	0.9999	413.788
24394	1	405.13	0.9999	405.089
24395	1	415.48	0.9999	415.438
11495	1	411.22	0.9999	411.173
11590	1	375.38	0.9999	375.337
90354	1	404.55	0.9999	404.504
12679	1	400.56	0.9999	400.514
6466	1	387.12	0.9999	387.081
6431	1	404.13	0.9999	404.089
6398	1	386.46	0.9999	386.421
9446	1	391.70	0.9999	391.655
9812	1	398.30	0.9999	398.255
24272	1	377.08	0.9999	377.042
9031	1	399.73	0.9998	399.650
9186	1	380.07	0.9997	379.955
9358	1	414.75	0.9997	414.620
18676	1	402.77	0.9999	402.729
18638	1	419.60	0.9999	419.553
3614	1	411.75	0.9996	411.585
A086395	1	399.90	0.9999	399.860
A086394	1	400.68	0.9999	400.639
9053	1	399.80	0.9998	399.720
A083716	1			

		410.60	0.9999	410.555
18930	1	413.72	0.9999	413.673
3118	1	411.43	0.9999	411.388
7328	1	404.15	0.9999	404.109
3720	1	418.66	0.9999	418.613
11032	1	413.87	0.9998	413.782
7972	1	409.86	0.9999	409.814
7941	1	390.31	0.9999	390.265
9286	1	399.82	0.9999	399.775
9343	1	407.32	0.9999	407.279
3681	1	422.66	0.9999	422.612
AO81459	1	392.17	0.9998	392.091
2336	1	381.96	0.9996	381.807
3103	1	378.52	0.9999	378.477
823	1	392.03	0.9999	391.985
868	1	412.06	0.9999	412.018
821	1	414.95	0.9999	414.903
810	1	420.44	0.9999	420.397
15448	1	401.55	0.9999	401.509
15478	1	406.50	0.9999	406.459
41955	1	405.09	0.9999	405.049
15531	1	420.78	0.9999	420.733
15534	1			

		405.58	0.9999	405.534
15516	1	397.33	0.9999	397.285
15520	1	412.83	0.9999	412.784
15513	1	404.45	0.9999	404.410
15512	1	397.33	0.9999	397.285
15540	1	406.23	0.9999	406.184
17686	1	395.63	0.9999	395.585
17712	1	383.58	0.9999	383.537
17687	1	409.15	0.9999	409.109
17694	1	402.73	0.9999	402.685
17715	1	410.33	0.9999	410.284
17704	1	379.38	0.9999	379.337
15532	1	409.05	0.9999	409.009
15529	1	388.63	0.9999	388.586
15535	1	396.18	0.9999	396.135
15527	1	409.35	0.9999	409.309
15518	1	403.98	0.9999	403.935
15514	1	398.75	0.9999	398.710
15523	1	405.95	0.9999	405.909
15524	1	406.28	0.9999	406.234
15511	1	374.18	0.9999	374.138
15521	1	387.23	0.9999	387.186
15517	1			

		400.13	0.9999	400.085
15522	1	411.53	0.9999	411.484
15515	1	395.13	0.9999	395.085
17701	1	400.30	0.9999	400.260
17690	1	392.75	0.9999	392.711
17721	1	392.33	0.9999	392.286
17705	1	393.83	0.9999	393.786
W87714	1	393.75	0.9999	393.711
W87360	1	404.50	0.9999	404.460
W87713	1	388.73	0.9999	388.686
W87236	1	381.25	0.9999	381.212
W87715	1	396.43	0.9999	396.385
W87368	1	410.90	0.9999	410.859
W87366	1	399.95	0.9999	399.910
W87372	1	402.80	0.9999	402.760
W87374	1	382.13	0.9999	382.087
W87367	1	401.28	0.9999	401.235
W87373	1	400.00	0.9999	399.960
W87365	1	395.78	0.9999	395.735
W87710	1	383.05	0.9999	383.012
W87375	1	372.78	0.9999	372.738
W87717	1	391.02	0.9999	390.986
W87235	1			

		374.45	0.9999	374.413
W87364	1	408.78	0.9999	408.734
W87705	1	403.18	0.9999	403.135
W87716	1	396.90	0.9999	396.860
W87233	1	382.83	0.9999	382.787
KK1877	1	418.20	0.9999	418.158
KK1873	1	392.43	0.9999	392.386
KK1902	1	389.05	0.9999	389.011
KK1882	1	408.43	0.9999	408.384
KK1896	1	395.13	0.9999	395.085
KK1895	1	392.10	0.9999	392.061
KK1894	1	409.63	0.9999	409.584
KK1903	1	385.65	0.9999	385.611
KK1887	1	401.80	0.9999	401.760
KK1914	1	416.00	0.9999	415.958
15428	1	408.23	0.9999	408.184
15426	1	412.45	0.9999	412.409
15435	1	402.80	0.9999	402.760
15437	1	380.20	0.9999	380.162
15429	1	421.05	0.9999	421.008
15433	1	382.70	0.9999	382.662
15436	1	410.58	0.9999	410.534
15431	1			

		398.25	0.9999	398.210
15530	1	413.00	0.9999	412.959
15525	1	405.80	0.9999	405.759
15528	1	392.63	0.9999	392.586
15526	1	399.65	0.9999	399.610
15705	1	426.50	0.9999	426.457
15698	1	402.73	0.9999	402.685
15702	1	403.78	0.9999	403.735
15706	1	405.23	0.9999	405.184
15700	1	421.18	0.9999	421.133
15701	1	376.63	0.9999	376.587
15703	1	392.10	0.9999	392.061
15699	1	408.50	0.9999	408.459
15704	1	392.25	0.9999	392.211
15707	1	380.88	0.9999	380.837
15697	1	405.43	0.9999	405.384
15708	1	412.78	0.9999	412.734
A073856	1	360.04	0.9999	360.004
A073857	1	369.39	0.9999	369.353
A074699	1	384.30	0.9999	384.262
A074698	1	376.68	0.9999	376.637
A074692	1	366.68	0.9999	366.638
15434	1			

		410.78	0.9999	410.734
W87390	1	388.50	0.9999	388.461
W87231	1	396.35	0.9999	396.310
W87394	1	418.55	0.9999	418.508
W87379	1	404.23	0.9999	404.184
W87234	1	389.48	0.9999	389.436
W87386	1	387.65	0.9999	387.611
W87230	1	396.68	0.9999	396.635
W87232	1	393.83	0.9999	393.785
W87243	1	405.55	0.9999	405.509
W87382	1	400.53	0.9999	400.484
W87246	1	406.43	0.9999	406.384
W87709	1	380.35	0.9999	380.311
W87701	1	385.35	0.9999	385.311
W87362	1	362.23	0.9999	362.188
W87703	1	391.43	0.9999	391.385
W87698	1	376.78	0.9999	376.737
W87699	1	386.48	0.9999	386.436
W87384	1	400.50	0.9999	400.459
W87237	1	406.70	0.9999	406.659
W87395	1	395.23	0.9999	395.185
W87247	1	402.33	0.9999	402.284
W87240	1			

		399.30	0.9999	399.260
W87381	1	389.48	0.9999	389.436
W87229	1	392.55	0.9999	392.510
W87248	1	395.60	0.9999	395.560
W87238	1	402.58	0.9999	402.534
W87380	1	404.05	0.9999	404.009
KK1875	1	405.28	0.9999	405.234
W87244	1	408.08	0.9999	408.034
KK1897	1	377.15	0.9999	377.112
A074547	1	375.89	0.9998	375.814
A074551	1	377.25	0.9998	377.174
A074569	1	384.89	0.9998	384.813
W87700	1	383.75	0.9999	383.711
W87707	1	389.15	0.9999	389.111
W87371	1	400.18	0.9999	400.134
W87704	1	398.70	0.9999	398.660
W87708	1	381.70	0.9999	381.661
W87706	1	395.08	0.9999	395.035
KK1881	1	384.33	0.9999	384.287
KK1905	1	403.18	0.9999	403.135
KK1870	1	401.93	0.9999	401.885
KK1898	1	395.30	0.9999	395.260
KK1871	1			

		380.53	0.9999	380.487
KK1876	1	400.38	0.9999	400.335
KK1904	1	399.85	0.9999	399.810
KK1885	1	385.23	0.9999	385.186
KK1889	1	386.95	0.9999	386.911
KK1872	1	404.25	0.9999	404.210
KK1891	1	397.90	0.9999	397.860
16171	1	417.03	0.9999	416.983
KK1907	1	398.88	0.9999	398.835
16176	1	417.63	0.9999	417.583
KK1878	1	375.78	0.9999	375.737
16172	1	420.73	0.9999	420.683
KK1888	1	421.23	0.9999	421.183
16160	1	418.73	0.9999	418.683
KK1874	1	392.73	0.9999	392.686
16165	1	417.53	0.9999	417.483
KK1884	1	384.30	0.9999	384.262
16200	1	423.15	0.9999	423.108
KK1890	1	392.00	0.9999	391.961
E67289	1	398.78	0.9999	398.740
E67334	1	400.34	0.9999	400.300
E67338	1	402.89	0.9999	402.850
E67333	1			

		401.97	0.9999	401.930
E67288	1	399.70	0.9999	399.660
E67287	1	402.37	0.9999	402.330
E67335	1	400.96	0.9999	400.920
E67290	1	400.16	0.9999	400.120
KK1869	1	410.95	0.9999	410.909
KK1899	1	411.08	0.9999	411.034
KK1886	1	418.65	0.9999	418.608
KK1901	1	409.30	0.9999	409.259
E67332	1	401.57	0.9999	401.530
E67286	1	400.99	0.9999	400.950
E67340	1	399.50	0.9999	399.460
E67336	1	403.18	0.9999	403.140
E67331	1	403.57	0.9999	403.530
E67339	1	399.00	0.9999	398.960
E67341	1	398.37	0.9999	398.330
3008	1	396.29	0.9999	396.250
3012	1	418.41	0.9999	418.368
3013	1	424.07	0.9999	424.028
3007	1	416.89	0.9999	416.848
E67069	1	399.14	0.9999	399.100
11305A	1	417.13	0.9999	417.083
E67068	1			

		398.50	0.9999	398.460
11586	1	427.83	0.9999	427.782
E67071	1	398.73	0.9999	398.690
11507	1	412.15	0.9999	412.108
11440	1	411.83	0.9999	411.783
E67070	1	399.54	0.9999	399.500
11439	1	417.65	0.9999	417.608
11436	1	427.55	0.9999	427.507
E67066	1	399.94	0.9999	399.900
11302A	1	407.55	0.9999	407.509
E67072	1	401.38	0.9999	401.340
11437	1	406.38	0.9999	406.334
3005	1	405.94	0.9999	405.899
11452	1	427.20	0.9999	427.157
A083616	1	409.53	0.9998	409.451
11304A	1	412.48	0.9999	412.433
A083613	1	417.33	0.9998	417.250
11303A	1	410.03	0.9999	409.983
A083654	1	395.78	0.9998	395.696
09726	1	394.68	0.9999	394.635
A083615	1	387.31	0.9998	387.236
10213	1	410.55	0.9999	410.508
A083612	1			

		388.04	0.9998	387.959
E67067	1	399.25	0.9999	399.210
09724	1	391.88	0.9999	391.835
A083648	1	396.10	0.9998	396.017
A080660	1	370.08	0.9997	369.969
A083618	1	405.07	0.9998	404.987
E67074	1	399.95	0.9999	399.910
A080657	1	386.33	0.9997	386.214
A083646	1	391.98	0.9998	391.898
A080673	1	401.97	0.9996	401.809
A083617	1	401.42	0.9998	401.338
A080674	1	401.58	0.9996	401.419
A074121	1	388.94	0.9998	388.862
16159	1	381.40	0.9999	381.362
W87383	1	405.80	0.9999	405.759
8267	1	385.18	0.9999	385.136
W87385	1	399.35	0.9999	399.310
8268	1	384.95	0.9999	384.912
W87389	1	396.43	0.9999	396.385
8265	1	382.53	0.9999	382.487
16164	1	402.63	0.9999	402.585
16157	1	402.45	0.9999	402.410
16166	1			

		405.90	0.9999	405.859
16178	1	413.95	0.9999	413.909
16181	1	409.13	0.9999	409.084
16175	1	395.55	0.9999	395.510
16161	1	418.45	0.9999	418.408
16173	1	420.15	0.9999	420.108
16158	1	418.73	0.9999	418.683
16170	1	417.00	0.9999	416.958
16168	1	420.23	0.9999	420.183
16169	1	421.83	0.9999	421.783
16152	1	405.30	0.9999	405.259
8264	1	382.60	0.9999	382.562
EE858C	1	403.50	0.9999	403.460
E57295	1	399.86	0.9999	399.820
16156	1	409.73	0.9999	409.684
16180	1	404.28	0.9999	404.235
16174	1	413.40	0.9999	413.359
16177	1	415.60	0.9999	415.558
16167	1	391.65	0.9999	391.611
16154	1	411.13	0.9999	411.084
16162	1	412.95	0.9999	412.909
16155	1	394.50	0.9999	394.461
16163	1			

		383.58	0.9999	383.537
16153	1	418.13	0.9999	418.083
16179	1	383.40	0.9999	383.362
8266	1	385.18	0.9999	385.136
JJ2995	1	380.53	0.9999	380.486
JJ2993	1	393.10	0.9999	393.060
JJ3135	1	393.50	0.9999	393.460
JJ3136	1	394.38	0.9999	394.335
JJ3137	1	383.13	0.9999	383.086
JJ2984	1	397.05	0.9999	397.010
JJ2983	1	383.35	0.9999	383.311
JJ2986	1	383.08	0.9999	383.036
JJ3132	1	394.43	0.9999	394.385
JJ2994	1	394.60	0.9999	394.560
JJ3127	1	396.03	0.9999	395.985
JJ3005	1	390.58	0.9999	390.535
JJ2982	1	387.03	0.9999	386.986
JJ3001	1	392.43	0.9999	392.385
12899	1	413.35	0.9999	413.308
12903	1	409.80	0.9999	409.759
12911	1	417.55	0.9999	417.508
12919	1	409.58	0.9999	409.534
12918	1			

		411.63	0.9999	411.583
12902	1	422.43	0.9999	422.382
12810	1	405.13	0.9999	405.084
12702	1	416.30	0.9999	416.258
12912	1	420.15	0.9999	420.107
12898	1	404.63	0.9999	404.584
12904	1	407.63	0.9999	407.584
12900	1	414.35	0.9999	414.308
11443	1	415.20	0.9999	415.158
1181	1	420.21	0.9996	420.041
11585	1	422.03	0.9999	421.982
10507	1	390.35	0.9999	390.310
10545	1	392.98	0.9999	392.935
10550	1	386.78	0.9999	386.736
10546	1	387.10	0.9999	387.061
10547	1	383.70	0.9999	383.661
10514	1	388.43	0.9999	388.386
E67337	1	403.31	0.9999	403.270
10542	1	387.75	0.9999	387.711
E67086	1	402.14	0.9999	402.100
10552	1	392.65	0.9999	392.610
E67073	1	400.51	0.9999	400.470
10549	1			

		389.83	0.9999	389.786
10516	1	391.23	0.9999	391.185
10508	1	386.98	0.9999	386.936
10544	1	390.95	0.9999	390.910
A071357	1	376.66	0.9998	376.584
A071366	1	376.35	0.9998	376.274
A071362	1	369.59	0.9998	369.516
A071368	1	374.00	0.9998	373.925
A071367	1	378.99	0.9998	378.914
A071356	1	375.35	0.9998	375.274
A071369	1	371.95	0.9998	371.875
A071364	1	378.80	0.9998	378.724
11429	1	404.35	0.9999	404.309
AO84648	1	393.88	0.9999	393.838
AO84747	1	409.18	0.9999	409.135
AO84748	1	397.73	0.9999	397.690
AO84733	1	408.02	0.9999	407.978
AO84647	1	409.11	0.9999	409.072
AO83980	1	388.96	0.9999	388.921
AO83310	1	401.85	0.9999	401.809
AO84650	1	384.98	0.9999	384.941
AO84209	1	391.73	0.9999	391.695
AO84252	1			

		386.83	0.9999	386.795
AO84208	1	399.12	0.9999	399.083
AO83969	1	388.77	0.9999	388.733
AO84207	1	390.50	0.9999	390.462
AO84809	1	386.91	0.9999	386.871
AO83311	1	395.76	0.9999	395.716
AO83309	1	395.96	0.9999	395.921
AO83968	1	388.62	0.9999	388.585
AO83982	1	387.67	0.9999	387.635
AO84708	1	391.25	0.9999	391.208
AO84710	1	384.30	0.9999	384.260
AO83981	1	390.88	0.9999	390.839
AO83983	1	385.79	0.9999	385.755
AO84707	1	391.59	0.9999	391.550
AO84734	1	388.22	0.9999	388.185
AO84731	1	383.25	0.9999	383.208
13018	1	391.45	0.9999	391.410
13016	1	403.65	0.9999	403.609
13011	1	407.95	0.9999	407.909
13015	1	415.45	0.9999	415.408
13023	1	406.10	0.9999	406.059
13019	1	410.18	0.9999	410.133
13020	1			

		411.58	0.9999	411.533
13017	1	384.35	0.9999	384.311
JJ2996	1	389.75	0.9999	389.711
JJ2988	1	393.83	0.9999	393.785
JJ3126	1	407.05	0.9999	407.009
JJ3133	1	397.93	0.9999	397.885
JJ3130	1	394.53	0.9999	394.485
JJ3128	1	397.18	0.9999	397.135
JJ2981	1	391.38	0.9999	391.335
JJ3134	1	402.25	0.9999	402.209
JJ3002	1	398.50	0.9999	398.460
JJ3129	1	397.15	0.9999	397.110
E7825	1	380.18	0.9999	380.137
E7824	1	380.33	0.9999	380.287
E7806	1	397.95	0.9999	397.910
E7805	1	398.10	0.9999	398.060
E7804	1	396.18	0.9999	396.135
10004	1	411.63	0.9999	411.583
14865	1	397.45	0.9999	397.410
14720	1	385.05	0.9999	385.011
15023	1	383.63	0.9999	383.587
14722	1	399.83	0.9999	399.785
E7828	1			

		380.20	0.9999	380.162
E7827	1	380.13	0.9999	380.087
E7822	1	380.08	0.9999	380.037
E7807	1	398.13	0.9999	398.085
E7820	1	380.20	0.9999	380.162
E7821	1	380.18	0.9999	380.137
E7826	1	380.18	0.9999	380.137
14697	1	396.90	0.9999	396.860
14861	1	393.78	0.9999	393.735
14863	1	399.13	0.9999	399.085
14724	1	377.08	0.9999	377.037
14718	1	404.33	0.9999	404.284
14871	1	379.45	0.9999	379.412
AO84813	1	397.38	0.9999	397.338
14867	1	386.70	0.9999	386.661
AO84744	1	386.33	0.9999	386.294
14866	1	392.80	0.9999	392.760
AO84746	1	384.14	0.9999	384.098
14719	1	398.68	0.9999	398.635
AO84812	1	400.63	0.9999	400.588
14715	1	398.65	0.9999	398.610
AO84712	1	385.71	0.9999	385.675
14729	1			

		402.13	0.9999	402.084
AO84743	1	378.91	0.9999	378.876
14723	1	404.20	0.9999	404.159
AO84732	1	390.21	0.9999	390.175
14862	1	402.88	0.9999	402.834
14860	1	402.63	0.9999	402.584
14725	1	392.63	0.9999	392.585
14981	1	402.83	0.9999	402.784
15063	1	403.10	0.9999	403.059
15028	1	399.78	0.9999	399.735
15024	1	396.50	0.9999	396.460
15020	1	394.70	0.9999	394.660
15018	1	395.35	0.9999	395.310
15019	1	395.45	0.9999	395.410
15027	1	393.10	0.9999	393.060
15026	1	379.40	0.9999	379.362
15021	1	387.80	0.9999	387.761
AO84389	1	404.39	0.9999	404.352
AO84255	1	403.74	0.9999	403.704
AO84254	1	380.69	0.9999	380.654
AO84649	1	388.76	0.9999	388.717
AO84386	1	402.17	0.9999	402.132
AO84387	1			

		391.32	0.9999	391.285
AO84203	1	387.48	0.9999	387.441
AO84646	1	398.56	0.9999	398.519
JJ3486	1	412.73	0.9999	412.683
JJ3488	1	400.83	0.9999	400.784
JJ3490	1	404.95	0.9999	404.909
JJ3498	1	425.15	0.9999	425.107
JJ3479	1	396.03	0.9999	395.985
JJ3482	1	395.58	0.9999	395.535
JJ3472	1	389.75	0.9999	389.711
JJ3475	1	393.55	0.9999	393.510
JJ3460	1	404.65	0.9999	404.609
JJ1819	1	391.88	0.9999	391.835
JJ3462	1	386.83	0.9999	386.786
JJ3467	1	409.73	0.9999	409.684
11991	1	416.20	0.9999	416.158
11655	1	410.38	0.9999	410.333
11647	1	420.73	0.9999	420.682
11594	1	406.98	0.9999	406.934
11202	1	405.80	0.9999	405.759
11942	1	416.90	0.9999	416.858
11944	1	409.73	0.9999	409.684
11945	1			

		407.30	0.9999	407.259
11947	1	419.80	0.9999	419.758
11968	1	416.10	0.9999	416.058
11970	1	407.05	0.9999	407.009
11943	1	425.63	0.9999	425.582
11974	1	408.25	0.9999	408.209
11976	1	420.65	0.9999	420.607
11975	1	418.68	0.9999	418.633
10510	1	391.75	0.9999	391.710
10511	1	392.85	0.9999	392.810
10513	1	394.95	0.9999	394.910
09944	1	408.48	0.9999	408.434
10543	1	383.53	0.9999	383.486
10002	1	387.38	0.9999	387.336
10512	1	391.95	0.9999	391.910
10515	1	392.13	0.9999	392.085
A071766	1	365.84	0.9998	365.766
A071801	1	368.00	0.9998	367.926
A071809	1	360.22	0.9998	360.147
A071806	1	360.39	0.9998	360.317
09936	1	416.08	0.9999	416.033
09933	1	411.00	0.9999	410.958
09934	1			

		413.08	0.9999	413.033
09926	1	414.05	0.9999	414.008
09938	1	410.63	0.9999	410.583
09946	1	410.08	0.9999	410.033
10003	1	410.63	0.9999	410.583
09995	1	415.88	0.9999	415.833
10005	1	413.00	0.9999	412.958
09925	1	412.65	0.9999	412.608
09932	1	414.10	0.9999	414.058
JJ1829	1	398.33	0.9999	398.285
JJ1820	1	412.58	0.9999	412.533
JJ1817	1	406.00	0.9999	405.959
JJ1822	1	395.60	0.9999	395.560
JJ1818	1	407.13	0.9999	407.084
JJ1816	1	397.03	0.9999	396.985
JJ3294	1	399.00	0.9999	398.960
JJ3292	1	420.28	0.9999	420.232
JJ3290	1	404.73	0.9999	404.684
JJ3287	1	394.03	0.9999	393.985
JJ3302	1	388.13	0.9999	388.086
JJ3293	1	402.73	0.9999	402.684
JJ3298	1	398.35	0.9999	398.310
JJ3289	1			

		415.90	0.9999	415.858
JJ3288	1	407.38	0.9999	407.334
JJ3291	1	399.18	0.9999	399.135
JJ3300	1	407.93	0.9999	407.884
JJ3483	1	399.30	0.9999	399.260
JJ3495	1	386.60	0.9999	386.561
JJ3500	1	397.98	0.9999	397.935
JJ3501	1	384.38	0.9999	384.336
JJ3481	1	384.18	0.9999	384.136
JJ3297	1	378.40	0.9999	378.362
JJ3296	1	386.25	0.9999	386.211
JJ3295	1	415.73	0.9999	415.683
JJ3299	1	407.13	0.9999	407.084
JJ3286	1	421.18	0.9999	421.132
JJ3301	1	389.50	0.9999	389.461
JJ3506	1	397.30	0.9999	397.260
JJ3502	1	400.88	0.9999	400.834
JJ3492	1	401.15	0.9999	401.109
JJ3484	1	397.10	0.9999	397.060
JJ3491	1	389.40	0.9999	389.361
JJ3505	1	407.80	0.9999	407.759
JJ3499	1	405.10	0.9999	405.059
JJ3487	1			

		385.48	0.9999	385.436
JJ3478	1	389.13	0.9999	389.086
JJ3504	1	421.25	0.9999	421.207
JJ3480	1	411.13	0.9999	411.083
JJ3508	1	401.45	0.9999	401.409
JJ3485	1	410.88	0.9999	410.833
JJ3497	1	420.00	0.9999	419.958
JJ3493	1	413.30	0.9999	413.258
JJ3503	1	393.85	0.9999	393.810
JJ3494	1	396.00	0.9999	395.960
JJ3507	1	404.85	0.9999	404.809
JJ3476	1	395.23	0.9999	395.185
JJ3489	1	398.73	0.9999	398.685
JJ3477	1	394.75	0.9999	394.710
JJ3496	1	398.38	0.9999	398.335
E7773	1	370.88	0.9999	370.838
E7799	1	398.35	0.9999	398.310
E7798	1	394.88	0.9999	394.835
E7803	1	398.00	0.9999	397.960
E7796	1	395.15	0.9999	395.110
E7790	1	419.98	0.9999	419.933
E7788	1	408.03	0.9999	407.984
E7787	1			

		407.95	0.9999	407.909
E7786	1	408.33	0.9999	408.284
E7800	1	398.18	0.9999	398.135
E7801	1	398.30	0.9999	398.260
E7802	1	397.98	0.9999	397.935
E7797	1	399.35	0.9999	399.310
E7785	1	407.90	0.9999	407.859
E7791	1	420.08	0.9999	420.033
E7792	1	420.15	0.9999	420.108
E7793	1	395.10	0.9999	395.060
E7823	1	380.15	0.9999	380.112
E7774	1	372.05	0.9999	372.012
E7775	1	370.93	0.9999	370.888
E7776	1	370.83	0.9999	370.788
E7777	1	370.25	0.9999	370.213
E7778	1	371.13	0.9999	371.087
E7783	1	408.20	0.9999	408.159
E7782	1	408.53	0.9999	408.484
E7781	1	411.40	0.9999	411.358
E7795	1	395.08	0.9999	395.035
E7794	1	395.18	0.9999	395.135
E63800	1	397.10	0.9999	397.060
E63721	1			

		399.10	0.9999	399.060
E63795	1	400.93	0.9998	400.849
E63722	1	400.17	0.9999	400.129
E63633	1	398.11	0.9998	398.030
E63724	1	404.61	0.9999	404.569
E63797	1	403.49	0.9998	403.409
E63794	1	403.26	0.9998	403.179
E63719	1	399.72	0.9999	399.680
E63632	1	397.94	0.9998	397.860
JJ1832	1	400.53	0.9999	400.484
E63798	1	397.58	0.9998	397.500
E63796	1	402.14	0.9998	402.059
E63723	1	404.84	0.9999	404.799
E63720	1	397.43	0.9999	397.390
E63718	1	400.65	0.9999	400.609
E63799	1	398.16	0.9998	398.080
E63793	1	400.82	0.9998	400.739
E63631	1	398.09	0.9998	398.010
10201	1	394.75	0.9999	394.710
10200	1	394.13	0.9999	394.085
09725	1	403.03	0.9999	402.984
13056	1	390.38	0.9999	390.335
13051	1			

		405.68	0.9999	405.634
13065	1	403.90	0.9999	403.859
13087	1	409.38	0.9999	409.334
13097	1	409.58	0.9999	409.534
13067	1	409.28	0.9999	409.234
13050	1	404.03	0.9999	403.984
13094	1	414.15	0.9999	414.108
13095	1	424.95	0.9999	424.907
13070	1	390.83	0.9999	390.785
13089	1	406.65	0.9999	406.609
13068	1	407.35	0.9999	407.309
13092	1	412.38	0.9999	412.333
13049	1	403.70	0.9999	403.659
13054	1	402.53	0.9999	402.484
13062	1	414.05	0.9999	414.008
13060	1	393.40	0.9999	393.360
13090	1	404.78	0.9999	404.734
13058	1	415.35	0.9999	415.308
13048	1	385.38	0.9999	385.336
13059	1	388.28	0.9999	388.236
13098	1	399.93	0.9999	399.885
13053	1	380.18	0.9999	380.136
13052	1			

		401.05	0.9999	401.009
13032	1	402.08	0.9999	402.034
13034	1	394.83	0.9999	394.785
13031	1	392.03	0.9999	391.985
13035	1	395.08	0.9999	395.035
11284	1	416.03	0.9999	415.983
13072	1	401.40	0.9999	401.359
11992	1	415.50	0.9999	415.458
11657	1	425.13	0.9999	425.082
11650	1	404.70	0.9999	404.659
11995	1	424.20	0.9999	424.157
11957	1	407.45	0.9999	407.409
11301A	1	405.63	0.9999	405.584
15497	1	403.18	0.9999	403.135
15489	1	402.35	0.9999	402.310
15490	1	407.58	0.9999	407.534
15491	1	412.60	0.9999	412.559
15492	1	388.13	0.9999	388.086
15493	1	402.45	0.9999	402.410
15494	1	391.25	0.9999	391.211
15495	1	399.03	0.9999	398.985
15496	1	379.03	0.9999	378.987
E7789	1			

		407.40	0.9999	407.359
E7779	1	371.08	0.9999	371.037
E7780	1	408.03	0.9999	407.984
E7784	1	407.60	0.9999	407.559
E7772	1	419.40	0.9999	419.358
13033	1	389.20	0.9999	389.161
12910	1	394.28	0.9999	394.235
12747	1	398.88	0.9999	398.835
12915	1	387.78	0.9999	387.736
12712	1	394.73	0.9999	394.685
12922	1	420.50	0.9999	420.457
13013	1	382.63	0.9999	382.586
12709	1	398.60	0.9999	398.560
12711	1	393.63	0.9999	393.585
12908	1	405.73	0.9999	405.684
12700	1	404.10	0.9999	404.059
12811	1	399.33	0.9999	399.285
13025	1	379.63	0.9999	379.587
12926	1	391.48	0.9999	391.435
12718	1	404.45	0.9999	404.409
13030	1	415.35	0.9999	415.308
13024	1	393.25	0.9999	393.210
12909	1			

		391.63	0.9999	391.585
12717	1	398.85	0.9999	398.810
12716	1	391.95	0.9999	391.910
13026	1	397.18	0.9999	397.135
12850	1	395.95	0.9999	395.910
13028	1	395.50	0.9999	395.460
12924	1	386.05	0.9999	386.011
12901	1	383.33	0.9999	383.286
13027	1	403.35	0.9999	403.309
12914	1	397.80	0.9999	397.760
12706	1	397.48	0.9999	397.435
12708	1	393.43	0.9999	393.385
13066	1	409.90	0.9999	409.859
13063	1	397.85	0.9999	397.810
13061	1	397.95	0.9999	397.910
13071	1	411.15	0.9999	411.108
13069	1	416.35	0.9999	416.308
13064	1	399.45	0.9999	399.410
13088	1	403.80	0.9999	403.759
13091	1	412.70	0.9999	412.658
13093	1	394.10	0.9999	394.060
13057	1	415.60	0.9999	415.558
12905	1			

		400.65	0.9999	400.609
12923	1	399.58	0.9999	399.535
12812	1	391.63	0.9999	391.585
12707	1	396.28	0.9999	396.235
12704	1	397.88	0.9999	397.835
12714	1	391.30	0.9999	391.260
12921	1	394.68	0.9999	394.635
12715	1	389.05	0.9999	389.011
12703	1	392.23	0.9999	392.185
12920	1	392.78	0.9999	392.735
12916	1	407.73	0.9999	407.684
JJ3601	1	382.28	0.9999	382.236
JJ3598	1	379.55	0.9999	379.512
JJ3595	1	390.58	0.9999	390.535
JJ3600	1	405.25	0.9999	405.209
1542	1	393.58	0.9996	393.422
1526	1	391.49	0.9996	391.333
JJ3596	1	400.63	0.9999	400.584
JJ3597	1	373.23	0.9999	373.187
JJ3599	1	398.68	0.9999	398.635
13928	1	423.63	0.9999	423.582
13918	1	422.40	0.9999	422.357
13938	1			

		419.75	0.9999	419.708
13955	1	418.13	0.9999	418.083
13932	1	418.30	0.9999	418.258
13914	1	417.18	0.9999	417.133
13935	1	422.10	0.9999	422.057
13951	1	417.18	0.9999	417.133
13931	1	409.25	0.9999	409.209
13924	1	406.55	0.9999	406.509
13956	1	414.88	0.9999	414.833
13927	1	407.53	0.9999	407.484
13952	1	414.33	0.9999	414.283
13958	1	415.45	0.9999	415.408
13912	1	413.55	0.9999	413.508
13925	1	407.88	0.9999	407.834
13937	1	410.50	0.9999	410.458
13959	1	409.33	0.9999	409.284
13950	1	413.78	0.9999	413.733
12713	1	395.83	0.9999	395.785
12906	1	391.05	0.9999	391.010
12917	1	405.33	0.9999	405.284
12701	1	403.68	0.9999	403.634
12710	1	394.28	0.9999	394.235
12925	1			

		403.20	0.9999	403.159
12907	1	393.75	0.9999	393.710
12913	1	399.73	0.9999	399.685
13029	1	378.93	0.9999	378.887
E64521	1	399.36	0.9999	399.320
E64522	1	398.47	0.9999	398.430
E64523	1	397.52	0.9999	397.480
E64553	1	397.75	0.9999	397.710
E64552	1	399.80	0.9999	399.760
E64551	1	402.21	0.9999	402.169
E64520	1	398.17	0.9999	398.130
E64549	1	402.69	0.9999	402.649
E64550	1	402.14	0.9999	402.099
E64524	1	398.85	0.9999	398.810
E64547	1	400.71	0.9999	400.669
E64548	1	400.25	0.9999	400.209
13919	1	413.73	0.9999	413.683
JJ3514	1	416.38	0.9999	416.333
JJ3518	1	383.93	0.9999	383.886
JJ3575	1	409.05	0.9999	409.009
JJ3573	1	402.03	0.9999	401.984
JJ3591	1	400.05	0.9999	400.009
JJ3570	1			

		404.10	0.9999	404.059
JJ3517	1	396.03	0.9999	395.985
JJ3590	1	406.80	0.9999	406.759
JJ3533	1	427.40	0.9999	427.357
JJ3522	1	401.70	0.9999	401.659
JJ3509	1	396.85	0.9999	396.810
JJ3526	1	374.43	0.9999	374.387
JJ3581	1	401.15	0.9999	401.109
JJ3520	1	401.25	0.9999	401.209
JJ3516	1	395.95	0.9999	395.910
JJ3588	1	400.28	0.9999	400.234
JJ3531	1	405.40	0.9999	405.359
JJ3521	1	397.15	0.9999	397.110
JJ3587	1	395.78	0.9999	395.735
JJ3572	1	405.45	0.9999	405.409
JJ3515	1	409.20	0.9999	409.159
JJ3592	1	404.60	0.9999	404.559
JJ3586	1	410.78	0.9999	410.733
JJ3593	1	405.43	0.9999	405.384
JJ3584	1	413.38	0.9999	413.333
JJ3579	1	387.78	0.9999	387.736
JJ3534	1	418.78	0.9999	418.733
JJ3527	1			

		413.88	0.9999	413.833
JJ3512	1	384.75	0.9999	384.711
JJ3532	1	407.83	0.9999	407.784
JJ3594	1	406.40	0.9999	406.359
JJ3530	1	404.65	0.9999	404.609
JJ3513	1	394.18	0.9999	394.135
JJ3585	1	409.73	0.9999	409.684
JJ3525	1	408.83	0.9999	408.784
12978	1	420.25	0.9999	420.207
12737	1	379.85	0.9999	379.812
12982	1	397.20	0.9999	397.160
12980	1	397.18	0.9999	397.135
12981	1	408.58	0.9999	408.534
12979	1	403.18	0.9999	403.134
1539	1	421.29	0.9996	421.121
1541	1	407.27	0.9996	407.107
1517	1	403.72	0.9996	403.558
1676	1	389.58	0.9996	389.424
1506	1	393.42	0.9996	393.262
1540	1	417.39	0.9996	417.223
1372	1	400.89	0.9996	400.729
1678	1	390.15	0.9996	389.993
1499	1			

		396.71	0.9996	396.551
1516	1	402.29	0.9996	402.129
W87388	1	412.08	0.9999	412.033
W87387	1	413.48	0.9999	413.433
W87393	1	429.70	0.9999	429.657
W87391	1	416.25	0.9999	416.208
W87245	1	412.70	0.9999	412.658
W87241	1	412.53	0.9999	412.483
W87398	1	413.70	0.9999	413.658
W87242	1	410.45	0.9999	410.408
W87239	1	415.55	0.9999	415.508
W87397	1	427.50	0.9999	427.457
W87396	1	423.93	0.9999	423.882
W87392	1	424.75	0.9999	424.707
17676	1	407.45	0.9999	407.409
17656	1	387.40	0.9999	387.361
17654	1	388.53	0.9999	388.486
17667	1	399.68	0.9999	399.635
17675	1	411.05	0.9999	411.008
17668	1	408.45	0.9999	408.409
17683	1	414.63	0.9999	414.583
17666	1	410.30	0.9999	410.258
17662	1			

		378.35	0.9999	378.312
17665	1	402.50	0.9999	402.459
17670	1	408.55	0.9999	408.509
17653	1	405.45	0.9999	405.409
17681	1	411.18	0.9999	411.133
17679	1	410.08	0.9999	410.033
17669	1	406.38	0.9999	406.334
17663	1	401.58	0.9999	401.534
17684	1	413.88	0.9999	413.833
JJ3580	1	394.40	0.9999	394.360
JJ3582	1	394.75	0.9999	394.710
JJ3510	1	410.85	0.9999	410.808
JJ3511	1	386.78	0.9999	386.736
11956	1	390.50	0.9999	390.460
JJ3563	1	406.88	0.9999	406.834
JJ3561	1	388.58	0.9999	388.536
JJ3558	1	391.13	0.9999	391.085
JJ3562	1	397.50	0.9999	397.460
JJ3567	1	410.58	0.9999	410.533
JJ3564	1	409.60	0.9999	409.559
JJ3529	1	408.05	0.9999	408.009
JJ3577	1	400.90	0.9999	400.859
JJ3535	1			

		398.80	0.9999	398.760
JJ3578	1	387.13	0.9999	387.086
JJ3569	1	397.88	0.9999	397.835
JJ3574	1	399.23	0.9999	399.185
JJ3571	1	413.45	0.9999	413.408
JJ3576	1	394.13	0.9999	394.085
JJ3583	1	393.23	0.9999	393.185
JJ3589	1	416.23	0.9999	416.183
JJ3568	1	398.18	0.9999	398.135
17661	1	395.98	0.9999	395.935
17664	1	417.30	0.9999	417.258
17695	1	357.83	0.9999	357.789
17655	1	378.55	0.9999	378.512
KK183	1	389.70	0.9999	389.661
KK184	1	395.73	0.9999	395.685
KK186	1	382.70	0.9999	382.661
KK177	1	382.30	0.9999	382.261
KK179	1	391.23	0.9999	391.185
KK190	1	399.65	0.9999	399.610
KK192	1	397.73	0.9999	397.685
KK195	1	380.93	0.9999	380.886
KK196	1	399.23	0.9999	399.185
KK197	1			

		390.03	0.9999	389.985
KK180	1	395.83	0.9999	395.785
KK181	1	390.95	0.9999	390.910
KK198	1	390.95	0.9999	390.910
KK175	1	388.95	0.9999	388.911
KK307	1	409.60	0.9999	409.559
KK182	1	399.85	0.9999	399.810
KK302	1	414.73	0.9999	414.683
KK214	1	398.75	0.9999	398.710
KK310	1	406.35	0.9999	406.309
KK213	1	390.10	0.9999	390.060
KK308	1	422.75	0.9999	422.707
KK211	1	399.95	0.9999	399.910
KK306	1	420.50	0.9999	420.457
KK210	1	395.85	0.9999	395.810
KK208	1	414.43	0.9999	414.383
KK207	1	415.80	0.9999	415.758
KK206	1	402.48	0.9999	402.434
KK203	1	398.85	0.9999	398.810
KK200	1	397.95	0.9999	397.910
KK173	1	397.08	0.9999	397.035
KK172	1	385.08	0.9999	385.036
KK212	1			

		385.40	0.9999	385.361
JJ5238	1	395.50	0.9999	395.460
JJ5224	1	386.65	0.9999	386.611
JJ5218	1	402.85	0.9999	402.809
JJ5216	1	415.53	0.9999	415.483
JJ5233	1	415.05	0.9999	415.008
JJ5220	1	407.50	0.9999	407.459
JJ5231	1	417.85	0.9999	417.808
2173	1	412.12	0.9996	411.955
2177	1	401.74	0.9996	401.579
2176	1	396.31	0.9996	396.151
2175	1	421.28	0.9996	421.111
2180	1	420.02	0.9996	419.851
2174	1	421.47	0.9996	421.301
2172	1	404.28	0.9996	404.118
KK134	1	406.80	0.9999	406.759
KK124	1	391.48	0.9999	391.435
KK146	1	399.90	0.9999	399.860
KK119	1	381.98	0.9999	381.936
KK152	1	416.18	0.9999	416.133
KK151	1	410.38	0.9999	410.333
JJ5226	1	381.40	0.9999	381.361
JJ5225	1			

		407.93	0.9999	407.884
JJ5232	1	410.28	0.9999	410.233
JJ5239	1	403.53	0.9999	403.484
JJ5222	1	391.20	0.9999	391.160
JJ5214	1	411.23	0.9999	411.183
JJ5235	1	405.83	0.9999	405.784
JJ5221	1	403.70	0.9999	403.659
JJ5234	1	390.68	0.9999	390.635
JJ5219	1	385.53	0.9999	385.486
JJ5236	1	402.85	0.9999	402.809
JJ5223	1	396.78	0.9999	396.735
JJ5217	1	386.95	0.9999	386.911
JJ5227	1	401.18	0.9999	401.134
JJ5230	1	393.95	0.9999	393.910
JJ5229	1	402.63	0.9999	402.584
JJ5237	1	424.48	0.9999	424.432
14358	1	392.38	0.9999	392.335
14360	1	406.90	0.9999	406.859
14361	1	416.55	0.9999	416.508
14357	1	407.90	0.9999	407.859
14356	1	410.28	0.9999	410.233
14354	1	387.43	0.9999	387.386
14364	1			

		400.40	0.9999	400.359
14363	1	403.93	0.9999	403.884
14362	1	385.40	0.9999	385.361
14365	1	403.88	0.9999	403.834
14367	1	393.50	0.9999	393.460
14366	1	403.60	0.9999	403.559
14359	1	400.30	0.9999	400.259
14355	1	404.48	0.9999	404.434
14353	1	403.83	0.9999	403.784
14352	1	410.58	0.9999	410.533
14350	1	393.28	0.9999	393.235
14349	1	404.73	0.9999	404.684
14345	1	405.63	0.9999	405.584
14351	1	406.00	0.9999	405.959
14368	1	401.40	0.9999	401.359
KK136	1	403.43	0.9999	403.384
KK139	1	395.08	0.9999	395.035
KK111	1	383.13	0.9999	383.086
17680	1	399.45	0.9999	399.410
17678	1	388.40	0.9999	388.361
17677	1	409.95	0.9999	409.909
A074026	1	381.53	0.9997	381.415
A074024	1			

		382.13	0.9997	382.015
A074021	1	383.96	0.9997	383.844
A074040	1	390.73	0.9998	390.651
A074042	1	372.76	0.9998	372.685
A074046	1	376.88	0.9998	376.804
KK120	1	403.10	0.9999	403.059
KK133	1	403.75	0.9999	403.709
KK140	1	398.25	0.9999	398.210
KK128	1	400.48	0.9999	400.434
KK141	1	393.53	0.9999	393.485
KK149	1	415.45	0.9999	415.408
KK113	1	401.00	0.9999	400.959
KK132	1	391.03	0.9999	390.985
KK153	1	406.18	0.9999	406.134
KK156	1	411.30	0.9999	411.258
KK121	1	399.63	0.9999	399.585
KK143	1	407.98	0.9999	407.934
KK155	1	390.65	0.9999	390.610
14030	1	404.33	0.9999	404.284
14131	1	403.63	0.9999	403.584
14129	1	391.28	0.9999	391.235
14124	1	403.53	0.9999	403.484
A074041	1			

		368.18	0.9998	368.106
A074035	1	387.49	0.9998	387.412
A074038	1	387.48	0.9998	387.402
A074036	1	388.47	0.9998	388.392
A074023	1	382.46	0.9997	382.345
KK157	1	391.75	0.9999	391.710
KK135	1	399.43	0.9999	399.385
KK116	1	421.50	0.9999	421.457
KK123	1	402.50	0.9999	402.459
KK159	1	397.30	0.9999	397.260
KK154	1	397.15	0.9999	397.110
KK131	1	415.10	0.9999	415.058
KK127	1	394.05	0.9999	394.010
KK148	1	383.75	0.9999	383.711
KK147	1	386.78	0.9999	386.736
KK158	1	411.90	0.9999	411.858
KK114	1	404.53	0.9999	404.484
KK117	1	395.48	0.9999	395.435
KK115	1	403.88	0.9999	403.834
KK110	1	394.85	0.9999	394.810
KK144	1	403.53	0.9999	403.484
KK118	1	395.58	0.9999	395.535
KK145	1			

		392.75	0.9999	392.710
KK138	1	421.08	0.9999	421.032
KK126	1	398.83	0.9999	398.785
KK150	1	396.33	0.9999	396.285
KK122	1	402.63	0.9999	402.584
A073851	1	383.71	0.9997	383.594
A073850	1	395.64	0.9997	395.521
A073849	1	370.17	0.9997	370.058
73814	1	350.40	0.9998	350.329
73825	1	372.60	0.9998	372.525
73816	1	356.37	0.9998	356.298
A073852	1	378.66	0.9997	378.546
2098	1	396.64	0.9996	396.481
2100	1	391.52	0.9996	391.363
2097	1	399.40	0.9996	399.240
2095	1	404.48	0.9996	404.318
2087	1	402.15	0.9996	401.989
2086	1	418.99	0.9996	418.822
2089	1	410.60	0.9996	410.435
2094	1	396.75	0.9996	396.591
2104	1	401.54	0.9996	401.379
2091	1	385.62	0.9996	385.465
2106	1			

		390.86	0.9996	390.703
2090	1	373.92	0.9996	373.770
2102	1	410.72	0.9996	410.555
2101	1	405.26	0.9996	405.097
2103	1	411.60	0.9996	411.435
2092	1	391.62	0.9996	391.463
2105	1	374.26	0.9996	374.110
2096	1	373.62	0.9996	373.470
2093	1	417.08	0.9996	416.913
KK130	1	384.60	0.9999	384.561
KK142	1	381.88	0.9999	381.836
KK125	1	389.90	0.9999	389.861
KK137	1	398.43	0.9999	398.385
KK129	1	387.98	0.9999	387.936
1955	1	418.94	0.9996	418.772
1956	1	388.38	0.9996	388.224
1957	1	404.10	0.9996	403.938
1958	1	401.81	0.9996	401.649
1954	1	380.85	0.9996	380.697
1953	1	408.05	0.9996	407.886
1949	1	400.79	0.9996	400.629
1950	1	417.25	0.9996	417.083
1959	1			

		419.60	0.9996	419.432
1951	1	403.31	0.9996	403.148
A074045	1	367.34	0.9998	367.266
A073844	1	361.00	0.9997	360.891
A073811	1	366.36	0.9996	366.213
A074013	1	378.44	0.9997	378.326
A074025	1	390.75	0.9997	390.632
A074037	1	372.64	0.9998	372.565
A074027	1	372.52	0.9997	372.408
A074044	1	382.94	0.9998	382.863
A074039	1	401.84	0.9998	401.759
A074047	1	386.64	0.9998	386.562
A073859	1	380.71	0.9999	380.671
A073873	1	372.71	0.9999	372.672
A073842	1	365.26	0.9997	365.150
A073870	1	379.83	0.9999	379.792
A073869	1	369.02	0.9999	368.983
A073871	1	363.95	0.9999	363.913
A073872	1	360.83	0.9999	360.793
A073866	1	368.52	0.9999	368.483
A073837	1	395.92	0.9997	395.801
A073847	1	382.70	0.9997	382.585
A073863	1			

		366.31	0.9999	366.273
A073874	1	363.01	0.9999	362.973
A073875	1	363.08	0.9999	363.043
A073865	1	383.18	0.9999	383.141
A073867	1	372.41	0.9999	372.372
13169	1	401.00	0.9999	400.959
13565	1	403.08	0.9999	403.034
13569	1	403.13	0.9999	403.084
13930	1	399.03	0.9999	398.985
13159	1	401.45	0.9999	401.409
13922	1	401.23	0.9999	401.184
13929	1	388.90	0.9999	388.861
13926	1	392.93	0.9999	392.885
13577	1	380.45	0.9999	380.411
13575	1	396.10	0.9999	396.060
13154	1	393.30	0.9999	393.260
13153	1	396.73	0.9999	396.685
13573	1	388.20	0.9999	388.161
13960	1	387.48	0.9999	387.436
13936	1	393.53	0.9999	393.485
13933	1	385.90	0.9999	385.861
13954	1	405.75	0.9999	405.709
13913	1			

		399.40	0.9999	399.360
14134	1	396.75	0.9999	396.710
14031	1	387.70	0.9999	387.661
14027	1	383.73	0.9999	383.686
14125	1	401.00	0.9999	400.959
14128	1	386.00	0.9999	385.961
14126	1	402.20	0.9999	402.159
73791	1	390.61	0.9998	390.531
73790	1	379.16	0.9998	379.084
73827	1	353.99	0.9998	353.919
73828	1	365.24	0.9998	365.166
73789	1	362.58	0.9998	362.507
73826	1	370.55	0.9998	370.475
73815	1	350.43	0.9998	350.359
73792	1	366.92	0.9998	366.846
73813	1	369.72	0.9998	369.646
73824	1	364.67	0.9998	364.597
2454 CB5	1	408.34	0.9997	408.217
2454 CB6	1	409.52	0.9997	409.397
2454 CB4	1	414.55	0.9997	414.425
2454 CB3	1	399.00	0.9997	398.880
2454 CB1	1	411.56	0.9997	411.436
13158	1			

		395.63	0.9999	395.585
2454 CB2	1	414.40	0.9997	414.275
13578	1	402.63	0.9999	402.584
13167	1	394.95	0.9999	394.910
13571	1	380.93	0.9999	380.886
13920	1	400.20	0.9999	400.159
13934	1	387.63	0.9999	387.586
2002	1	392.56	0.9996	392.402
2007	1	382.92	0.9996	382.766
1907	1	390.10	0.9996	389.943
2008	1	388.19	0.9996	388.034
2009	1	399.94	0.9996	399.780
2010	1	387.92	0.9996	387.764
1909	1	413.69	0.9996	413.524
2004	1	424.29	0.9996	424.120
13168	1	397.38	0.9999	397.335
13163	1	398.88	0.9999	398.835
13213	1	399.03	0.9999	398.985
13157	1	395.55	0.9999	395.510
13916	1	401.15	0.9999	401.109
13921	1	390.43	0.9999	390.385
13949	1	386.78	0.9999	386.736
13166	1			

		401.40	0.9999	401.359
13923	1	401.73	0.9999	401.684
13574	1	403.68	0.9999	403.634
13568	1	395.68	0.9999	395.635
A073868	1	371.15	0.9999	371.112
A073876	1	371.62	0.9999	371.582
13957	1	405.88	0.9999	405.834
13570	1	406.88	0.9999	406.834
A073846	1	368.31	0.9997	368.199
2088	1	407.63	0.9996	407.466
2099	1	394.57	0.9996	394.412
2005	1	401.49	0.9996	401.329
2018	1	407.86	0.9996	407.696
2019	1	406.17	0.9996	406.007
2003	1	402.07	0.9996	401.909
2000	1	412.52	0.9996	412.354
2006	1	419.16	0.9996	418.992
2013	1	414.40	0.9996	414.234
2014	1	412.65	0.9996	412.484
2011	1	403.25	0.9996	403.088
2012	1	410.01	0.9996	409.845
1908	1	404.92	0.9996	404.758
2015	1			

		397.53	0.9996	397.370
2016	1	407.92	0.9996	407.756
2020	1	414.41	0.9996	414.244
1910	1	411.04	0.9996	410.875
A073946	1	388.53	0.9998	388.448
A074073	1	378.91	0.9997	378.800
A073945	1	390.43	0.9998	390.350
A073931	1	375.58	0.9998	375.502
A074061	1	381.64	0.9996	381.490
A074067	1	390.37	0.9996	390.217
A073940	1	380.42	0.9998	380.339
A073930	1	374.09	0.9998	374.019
A074072	1	375.90	0.9997	375.784
A074062	1	383.75	0.9996	383.591
A073941	1	383.68	0.9998	383.604
A073929	1	371.25	0.9998	371.171
A073942	1	373.69	0.9998	373.611
A073928	1	372.13	0.9998	372.055
A074074	1	375.67	0.9997	375.555
A073932	1	376.07	0.9998	375.991
A074017	1	383.10	0.9997	382.985
A074014	1	389.31	0.9997	389.193
A074018	1			

		388.44	0.9997	388.323
A074019	1	374.28	0.9997	374.167
A074015	1	396.23	0.9997	396.111
A069591	1	376.89	0.9999	376.852
A074016	1	368.54	0.9997	368.429
14376	1	407.00	0.9999	406.959
14378	1	386.60	0.9999	386.561
14371	1	410.75	0.9999	410.708
14370	1	388.13	0.9999	388.086
14375	1	398.15	0.9999	398.110
14369	1	407.53	0.9999	407.484
14372	1	405.50	0.9999	405.459
14373	1	413.60	0.9999	413.558
14377	1	401.55	0.9999	401.509
14374	1	395.08	0.9999	395.035
KK171	1	428.10	0.9999	428.057
KK170	1	414.73	0.9999	414.683
KK174	1	417.78	0.9999	417.733
KK185	1	413.80	0.9999	413.758
KK188	1	409.15	0.9999	409.109
KK187	1	379.83	0.9999	379.787
KK169	1	411.70	0.9999	411.658
KK176	1			

		411.60	0.9999	411.558
KK215	1	379.33	0.9999	379.287
KK205	1	407.03	0.9999	406.984
KK191	1	406.90	0.9999	406.859
KK193	1	411.65	0.9999	411.608
KK194	1	402.08	0.9999	402.034
KK189	1	409.80	0.9999	409.759
KK201	1	415.15	0.9999	415.108
KK202	1	420.43	0.9999	420.382
14436	1	417.95	0.9999	417.908
13404	1	410.30	0.9999	410.258
13385	1	408.50	0.9999	408.459
13413	1	412.40	0.9999	412.358
13564	1	409.30	0.9999	409.259
13536	1	412.03	0.9999	411.983
13555	1	410.03	0.9999	409.983
13396	1	408.45	0.9999	408.409
13547	1	411.35	0.9999	411.308
13562	1	413.08	0.9999	413.033
13561	1	411.00	0.9999	410.958
13540	1	410.55	0.9999	410.508
13384	1	408.28	0.9999	408.234
13552	1			

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		408.25	0.9999	408.209
13543	1	408.78	0.9999	408.734
13364	1	407.20	0.9999	407.159
A073605	1	370.12	0.9997	370.008
A073601	1	363.08	0.9997	362.971
14435	1	424.25	0.9999	424.207
14438	1	419.83	0.9999	419.783
14437	1	388.63	0.9999	388.586
A073599	1	384.12	0.9998	384.043
A073600	1	375.55	0.9998	375.474
A073628	1	368.79	0.9998	368.716
A073597	1	388.11	0.9998	388.032
A073627	1	377.85	0.9998	377.774
A073604	1	374.22	0.9997	374.107
A073603	1	375.66	0.9997	375.547
A073524	1	378.32	0.9998	378.244
A074082	1	391.35	0.9998	391.266
A074083	1	386.91	0.9998	386.833
A074089	1	387.31	0.9998	387.232
A074092	1	386.76	0.9998	386.681
A074091	1	390.42	0.9998	390.340
14439	1	423.78	0.9999	423.732
14434	1			

		410.28	0.9999	410.233
14440	1	389.05	0.9999	389.011
14441	1	409.70	0.9999	409.659
14443	1	398.30	0.9999	398.260
14442	1	412.35	0.9999	412.308
A074069	1	379.24	0.9997	379.126
A074066	1	385.37	0.9996	385.219
A074065	1	372.94	0.9996	372.787
A073933	1	380.04	0.9998	379.961
A073934	1	379.57	0.9998	379.494
A073944	1	368.45	0.9998	368.374
A074063	1	375.90	0.9996	375.753
A073943	1	380.60	0.9998	380.523
A074070	1	384.11	0.9997	383.990
A074001	1	393.07	0.9998	392.989
A073984	1	388.15	0.9998	388.072
A073552	1	372.79	0.9998	372.715
A073547	1	371.67	0.9998	371.595
A073553	1	367.11	0.9998	367.036
A073559	1	376.43	0.9998	376.354
A073556	1	374.90	0.9998	374.825
A073549	1	368.98	0.9998	368.906
A073555	1			

		374.96	0.9998	374.885
A073558	1	377.91	0.9998	377.834
A072213	1	387.15	0.9996	386.995
A072237	1	383.66	0.9997	383.544
A072216	1	386.12	0.9996	385.965
A072220	1	384.00	0.9997	383.884
A072211	1	383.04	0.9996	382.886
A072223	1	385.80	0.9997	385.684
A072224	1	384.81	0.9997	384.694
A072219	1	380.64	0.9997	380.525
A072235	1	375.28	0.9997	375.167
A072236	1	389.61	0.9997	389.493
A072232	1	377.24	0.9997	377.126
A072233	1	382.99	0.9997	382.875
A072215	1	387.51	0.9996	387.354
A072575	1	384.89	0.9997	384.774
A072578	1	374.98	0.9997	374.867
A072569	1	373.49	0.9997	373.377
A072544	1	384.68	0.9997	384.564
A072543	1	370.18	0.9997	370.068
A072576	1	394.09	0.9997	393.971
A072571	1	387.75	0.9997	387.633
A072573	1			

		386.05	0.9997	385.934
A072570	1	383.69	0.9997	383.574
A072637	1	392.40	0.9997	392.282
A072541	1	387.17	0.9997	387.053
A072572	1	372.15	0.9997	372.038
A072542	1	380.23	0.9997	380.115
A074071	1	390.68	0.9997	390.559
KK167	1	393.55	0.9999	393.510
KK204	1	419.68	0.9999	419.633
KK168	1	389.78	0.9999	389.736
KK166	1	393.43	0.9999	393.385
1965	1	417.99	0.9996	417.822
1963	1	423.74	0.9996	423.570
1961	1	406.06	0.9996	405.897
1964	1	417.88	0.9996	417.712
1976	1	425.38	0.9996	425.209
1971	1	407.46	0.9996	407.297
1973	1	417.61	0.9996	417.442
1975	1	417.09	0.9996	416.923
1970	1	409.03	0.9996	408.866
1967	1	414.63	0.9996	414.464
A073625	1	365.20	0.9998	365.126
A072639	1			

		385.46	0.9997	385.344
A072638	1	389.33	0.9997	389.213
A072545	1	379.37	0.9997	379.256
A072633	1	401.60	0.9997	401.479
A072631	1	369.73	0.9997	369.619
13358	1	407.10	0.9999	407.059
A072540	1	382.55	0.9997	382.435
A072888	1	376.09	0.9997	375.977
A072893	1	377.23	0.9997	377.116
A072894	1	383.22	0.9997	383.105
A072889	1	380.60	0.9997	380.485
A072892	1	383.12	0.9997	383.005
A072890	1	375.25	0.9997	375.137
A072901	1	386.42	0.9997	386.304
A072895	1	379.76	0.9997	379.646
A072900	1	380.88	0.9997	380.765
A072891	1	380.67	0.9997	380.555
A072897	1	373.42	0.9997	373.307
A072896	1	377.97	0.9997	377.856
A072899	1	369.03	0.9997	368.919
A072898	1	378.58	0.9997	378.466
A072574	1	394.16	0.9997	394.041
A072629	1			

		384.70	0.9997	384.584
A072635	1	389.19	0.9997	389.073
A072630	1	387.88	0.9997	387.763
A072577	1	384.41	0.9997	384.294
A072632	1	371.48	0.9997	371.368
A072636	1	383.34	0.9997	383.224
A073548	1	363.98	0.9998	363.907
A073554	1	380.97	0.9998	380.893
A073550	1	381.21	0.9998	381.133
A073551	1	390.42	0.9998	390.341
A073557	1	383.57	0.9998	383.493
A073598	1	373.33	0.9998	373.255
A073626	1	366.21	0.9998	366.136
A073602	1	370.92	0.9997	370.808
A072906	1	369.81	0.9997	369.699
A072887	1	369.70	0.9997	369.589
A070159	1	383.68	0.9997	383.564
A072536	1	367.79	0.9997	367.679
A072538	1	375.92	0.9997	375.807
A070151	1	390.07	0.9997	389.952
A072537	1	375.19	0.9997	375.077
A069613	1	366.78	0.9998	366.706
A072501	1			

		372.46	0.9998	372.385
A070150	1	389.80	0.9997	389.683
A072539	1	372.79	0.9997	372.678
A070212	1	394.29	0.9996	394.132
A070158	1	380.71	0.9997	380.595
A069801	1	381.71	0.9995	381.519
A070082	1	374.72	0.9996	374.570
A070155	1	374.47	0.9997	374.357
A069631	1	371.58	0.9998	371.505
A070201	1	373.69	0.9998	373.615
A069583	1	365.69	0.9997	365.580
A070085	1	363.89	0.9996	363.744
A069611	1	367.14	0.9998	367.066
A069607	1	366.68	0.9998	366.606
A070148	1	365.15	0.9997	365.040
A072395	1	372.13	0.9997	372.018
A072402	1	376.69	0.9997	376.576
A072904	1	376.73	0.9997	376.616
A072903	1	366.88	0.9997	366.769
A072396	1	375.01	0.9997	374.897
07839	1	401.43	0.9999	401.384
07878	1	403.18	0.9999	403.134
07884	1			

		397.83	0.9999	397.785
07885	1	428.35	0.9999	428.307
07835	1	407.05	0.9999	407.009
08086	1	390.65	0.9999	390.610
07387	1	408.33	0.9999	408.284
07832	1	407.28	0.9999	407.234
07113	1	410.55	0.9999	410.508
07838	1	419.33	0.9999	419.283
07889	1	406.20	0.9999	406.159
07831	1	402.05	0.9999	402.009
07883	1	400.53	0.9999	400.484
07834	1	402.25	0.9999	402.209
08088	1	408.58	0.9999	408.534
08085	1	397.00	0.9999	396.960
07816	1	413.13	0.9999	413.083
13256	1	416.78	0.9999	416.733
13259	1	421.63	0.9999	421.582
13160	1	384.45	0.9999	384.411
13211	1	388.30	0.9999	388.261
13355	1	395.68	0.9999	395.635
13138	1	379.28	0.9999	379.237
13162	1	381.48	0.9999	381.436
13161	1			

		389.95	0.9999	389.911
A069582	1	375.67	0.9997	375.557
13141	1	379.53	0.9999	379.487
13144	1	388.63	0.9999	388.586
13139	1	394.60	0.9999	394.560
13170	1	394.30	0.9999	394.260
13140	1	403.28	0.9999	403.234
13145	1	383.93	0.9999	383.886
13212	1	386.45	0.9999	386.411
13386	1	418.95	0.9999	418.908
13171	1	426.35	0.9999	426.307
13391	1	422.08	0.9999	422.032
13383	1	422.40	0.9999	422.357
A070084	1	369.90	0.9996	369.752
A070156	1	375.82	0.9997	375.707
A069584	1	367.68	0.9997	367.569
A070088	1	378.26	0.9996	378.108
A070093	1	381.87	0.9997	381.755
A069569	1	360.54	0.9998	360.467
A069585	1	375.38	0.9997	375.267
A073133	1	369.81	0.9996	369.662
A073131	1	367.26	0.9996	367.113
A073134	1			

		368.67	0.9996	368.522
A073137	1	376.95	0.9997	376.836
A073150	1	383.19	0.9998	383.113
A073149	1	380.88	0.9998	380.803
A073129	1	365.91	0.9996	365.763
A073128	1	373.68	0.9996	373.530
A073130	1	369.73	0.9996	369.582
A073139	1	377.64	0.9997	377.526
13356	1	409.50	0.9999	409.459
13390	1	415.60	0.9999	415.558
13388	1	414.35	0.9999	414.308
13392	1	422.58	0.9999	422.532
13411	1	412.63	0.9999	412.583
13374	1	415.18	0.9999	415.133
13394	1	413.75	0.9999	413.708
1745	1	398.95	0.9996	398.790
1753	1	385.96	0.9996	385.805
1748	1	399.74	0.9996	399.580
1751	1	408.27	0.9996	408.106
1752	1	402.73	0.9996	402.568
1754	1	396.54	0.9996	396.381
1749	1	390.45	0.9996	390.293
1747	1			

		409.65	0.9996	409.486
1755	1	381.58	0.9996	381.427
1750	1	383.53	0.9996	383.376
1746	1	394.70	0.9996	394.542
E64483	1	402.72	0.9999	402.679
A069601	1	368.66	0.9997	368.549
A069630	1	371.55	0.9998	371.475
A069799	1	376.04	0.9995	375.851
A070178	1	377.67	0.9998	377.594
A070173	1	365.01	0.9998	364.936
A069600	1	369.85	0.9997	369.739
A070089	1	366.82	0.9996	366.673
A070176	1	379.63	0.9998	379.554
A069802	1	368.26	0.9995	368.075
A069603	1	381.02	0.9997	380.905
A069658	1	370.00	0.9995	369.815
A070091	1	377.43	0.9997	377.316
A069627	1	370.23	0.9998	370.155
A070179	1	369.93	0.9998	369.856
A073157	1	379.31	0.9999	379.272
AO73581	1	379.72	0.9999	379.685
AO73900	1	388.01	0.9996	387.851
A073036	1			

		369.52	0.9999	369.483
A073155	1	379.96	0.9999	379.922
A072587	1	393.16	0.9999	393.120
A073881	1	372.51	0.9998	372.432
A073023	1	365.09	0.9999	365.053
A072589	1	379.81	0.9999	379.772
A073582	1	371.46	0.9999	371.417
A073904	1	371.72	0.9996	371.568
A073903	1	377.45	0.9996	377.302
A073880	1	353.49	0.9998	353.423
A073032	1	370.72	0.9999	370.682
A070090	1	369.00	0.9997	368.889
A070083	1	374.91	0.9996	374.760
A073583	1	384.55	0.9999	384.515
A073158	1	367.38	0.9999	367.343
A073019	1	388.93	0.9999	388.891
A072592	1	378.06	0.9999	378.022
A073143	1	376.52	0.9999	376.482
A073899	1	374.57	0.9996	374.424
A073580	1	376.01	0.9999	375.974
A073035	1	365.19	0.9999	365.153
A073145	1	370.35	0.9999	370.312
A072590	1			

		380.83	0.9999	380.791
A073901	1	379.47	0.9996	379.319
13164	1	384.53	0.9999	384.486
A073021	1	372.00	0.9999	371.962
13399	1	382.73	0.9999	382.686
13380	1	380.25	0.9999	380.211
13152	1	390.93	0.9999	390.885
13371	1	392.18	0.9999	392.135
13147	1	398.83	0.9999	398.785
13143	1	401.68	0.9999	401.634
13077	1	398.30	0.9999	398.260
13150	1	407.50	0.9999	407.459
13146	1	396.05	0.9999	396.010
A069610	1	367.55	0.9998	367.476
A069661	1	365.16	0.9995	364.977
A069803	1	368.68	0.9995	368.495
13405	1	391.75	0.9999	391.710
13148	1	390.75	0.9999	390.710
13151	1	380.35	0.9999	380.311
13165	1	386.40	0.9999	386.361
13149	1	380.63	0.9999	380.586
13156	1	374.10	0.9999	374.062
13142	1			

		392.43	0.9999	392.385
A072588	1	372.13	0.9999	372.092
A073020	1	386.76	0.9999	386.721
A073161	1	367.05	0.9999	367.013
A072591	1	387.69	0.9999	387.651
13376	1	387.33	0.9999	387.286
AO73612	1	371.98	0.9999	371.941
AO73615	1	367.02	0.9999	366.986
A073148	1	395.56	0.9999	395.520
07881	1	403.68	0.9999	403.634
07836	1	405.50	0.9999	405.459
07880	1	403.28	0.9999	403.234
07886	1	411.48	0.9999	411.433
07012	1	408.55	0.9999	408.509
07879	1	411.78	0.9999	411.733
07818	1	410.18	0.9999	410.133
DD5200	1	397.58	0.9999	397.535
DD5197	1	395.75	0.9999	395.710
DD5196	1	393.15	0.9999	393.110
12468	1	406.70	0.9999	406.659
12458	1	410.98	0.9999	410.933
12449	1	425.88	0.9999	425.832
12470	1			

		425.18	0.9999	425.132
12465	1	405.88	0.9999	405.834
A073610	1	363.37	0.9999	363.329
A073607	1	365.12	0.9999	365.087
A073613	1	365.32	0.9999	365.285
A073608	1	366.17	0.9999	366.132
A073861	1	370.51	0.9999	370.473
A073579	1	370.24	0.9999	370.204
A073609	1	375.09	0.9999	375.048
A073132	1	363.81	0.9996	363.664
A073138	1	371.57	0.9997	371.458
E63952	1	401.43	0.9999	401.389
E63876	1	399.26	0.9999	399.220
E64008	1	400.02	0.9998	399.939
E64000	1	400.68	0.9999	400.639
E63875	1	397.11	0.9999	397.070
E63951	1	399.15	0.9999	399.110
12466	1	417.35	0.9999	417.308
12477	1	413.55	0.9999	413.508
A073902	1	367.98	0.9996	367.833
A073611	1	374.64	0.9999	374.600
A073024	1	380.07	0.9999	380.031
A073142	1			

		372.61	0.9999	372.572
A073144	1	367.19	0.9999	367.153
A073905	1	396.32	0.9996	396.165
A073578	1	371.96	0.9999	371.918
A073147	1	378.04	0.9999	378.002
A073156	1	364.86	0.9999	364.823
A073159	1	366.85	0.9999	366.813
A073906	1	388.04	0.9996	387.880
JJ1959	1	413.35	0.9999	413.308
JJ1965	1	419.13	0.9999	419.083
JJ1960	1	420.25	0.9999	420.207
JJ1961	1	398.60	0.9999	398.560
JJ1969	1	415.03	0.9999	414.983
JJ1964	1	395.83	0.9999	395.785
11994	1	406.23	0.9999	406.184
12001	1	419.48	0.9999	419.433
11982	1	409.43	0.9999	409.384
11981	1	410.63	0.9999	410.583
11993	1	406.58	0.9999	406.534
11983	1	403.75	0.9999	403.709
11998	1	386.70	0.9999	386.661
11990	1	400.00	0.9999	399.960
12000	1			

		403.15	0.9999	403.109
11984	1	401.58	0.9999	401.534
E64011	1	403.82	0.9998	403.739
12002	1	396.28	0.9999	396.235
11997	1	388.93	0.9999	388.886
E63963	1	402.51	0.9999	402.469
E64007	1	398.95	0.9998	398.870
E63964	1	401.93	0.9999	401.889
E63874	1	401.56	0.9999	401.519
E63998	1	405.39	0.9999	405.349
E63953	1	404.51	0.9999	404.469
E63974	1	399.92	0.9999	399.880
E63999	1	401.92	0.9999	401.879
E63973	1	400.45	0.9999	400.409
E64010	1	401.01	0.9998	400.929
E64009	1	399.60	0.9998	399.520
1268	1	409.47	0.9996	409.306
1366	1	400.54	0.9996	400.379
1362	1	386.72	0.9996	386.565
1264	1	386.74	0.9996	386.585
1368	1	403.87	0.9996	403.708
1262	1	388.46	0.9996	388.304
1134	1			

		415.22	0.9997	415.095
1364	1	416.98	0.9996	416.813
1361	1	384.91	0.9996	384.756
1267	1	414.09	0.9996	413.924
1370	1	407.62	0.9996	407.456
1265	1	396.88	0.9996	396.721
1126	1	414.26	0.9997	414.135
1266	1	412.80	0.9996	412.634
A073034	1	375.68	0.9999	375.642
A073022	1	374.57	0.9999	374.532
A073160	1	371.93	0.9999	371.892
1363	1	403.76	0.9996	403.598
A073033	1	359.65	0.9999	359.614
A073146	1	387.19	0.9999	387.151
JJ1974	1	417.73	0.9999	417.683
JJ1975	1	399.95	0.9999	399.910
FF1230-C	1	392.95	0.9999	392.910
JJ1973	1	395.05	0.9999	395.010
JJ1972	1	381.35	0.9999	381.311
FF574-C	1	405.05	0.9999	405.009
JJ1971	1	395.23	0.9999	395.185
EE6360-C	1	392.30	0.9999	392.260
FF1229-C	1			

		391.08	0.9999	391.035
EE3842	1	406.15	0.9999	406.109
EE4462	1	405.13	0.9999	405.084
FF1676	1	411.40	0.9999	411.358
A071455	1	377.93	0.9998	377.854
A071468	1	366.58	0.9998	366.506
1371	1	397.59	0.9996	397.430
1367	1	396.69	0.9996	396.531
1349	1	405.88	0.9995	405.677
1261	1	404.86	0.9996	404.698
1365	1	410.47	0.9996	410.305
1263	1	422.86	0.9996	422.690
1369	1	391.52	0.9996	391.363
12634	1	401.48	0.9999	401.434
12620	1	405.33	0.9999	405.284
12628	1	410.75	0.9999	410.708
12636	1	403.55	0.9999	403.509
12627	1	388.53	0.9999	388.486
12621	1	400.33	0.9999	400.284
12626	1	406.73	0.9999	406.684
12622	1	416.65	0.9999	416.608
12631	1	408.93	0.9999	408.884
12637	1			

		415.35	0.9999	415.308
12605	1	417.55	0.9999	417.508
12629	1	398.33	0.9999	398.285
12633	1	403.33	0.9999	403.284
12619	1	412.10	0.9999	412.058
12639	1	391.98	0.9999	391.935
12630	1	408.10	0.9999	408.059
12638	1	410.35	0.9999	410.308
12640	1	395.70	0.9999	395.660
12623	1	405.75	0.9999	405.709
12624	1	400.10	0.9999	400.059
12625	1	395.48	0.9999	395.435
12632	1	386.40	0.9999	386.361
12635	1	390.28	0.9999	390.235
JJ1968	1	390.50	0.9999	390.460
JJ1967	1	387.63	0.9999	387.586
JJ1966	1	389.08	0.9999	389.036
JJ1970	1	412.83	0.9999	412.783
JJ1963	1	409.58	0.9999	409.534
JJ1962	1	424.53	0.9999	424.482
E63872	1	402.02	0.9999	401.979
E63713	1	399.71	0.9999	399.670
A071478	1			

		382.57	0.9998	382.493
11985	1	410.93	0.9999	410.883
11986	1	424.60	0.9999	424.557
11988	1	415.78	0.9999	415.733
11987	1	423.68	0.9999	423.632
1030	1	403.90	0.9997	403.778
1029	1	395.47	0.9997	395.351
1037	1	402.31	0.9997	402.189
1032	1	399.88	0.9997	399.760
09917	1	402.03	0.9999	401.984
10253	1	404.13	0.9999	404.084
10252	1	411.50	0.9999	411.458
10250	1	407.08	0.9999	407.034
09922	1	402.50	0.9999	402.459
09919	1	402.00	0.9999	401.959
12250	1	401.40	0.9999	401.359
12249	1	395.75	0.9999	395.710
12258	1	392.40	0.9999	392.360
12246	1	377.85	0.9999	377.812
09937	1	395.60	0.9999	395.560
09923	1	404.28	0.9999	404.234
09935	1	401.45	0.9999	401.409
10509	1			

		409.90	0.9999	409.859
09941	1	403.65	0.9999	403.609
10251	1	402.63	0.9999	402.584
12260	1	379.20	0.9999	379.162
12261	1	389.00	0.9999	388.961
12256	1	398.63	0.9999	398.585
12248	1	405.98	0.9999	405.934
12257	1	411.55	0.9999	411.508
12247	1	383.95	0.9999	383.911
E64026	1	403.18	0.9998	403.099
E64028	1	401.17	0.9998	401.089
E64027	1	400.39	0.9998	400.309
A072089	1	381.55	0.9997	381.435
A072086	1	385.13	0.9997	385.014
A072085	1	385.34	0.9997	385.224
A072084	1	380.21	0.9997	380.095
A072082	1	400.01	0.9997	399.889
A072088	1	395.40	0.9997	395.281
A072083	1	376.20	0.9997	376.087
1677	1	411.63	0.9999	411.583
2658-C	1	414.75	0.9999	414.708
A072087	1	388.43	0.9997	388.313
EE2663-C	1			

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		393.85	0.9999	393.810
FF1238-C	1	387.63	0.9999	387.586
EE2666-C	1	396.48	0.9999	396.435
EE6361-C	1	392.60	0.9999	392.560
1834	1	401.38	0.9996	401.219
1826	1	401.37	0.9996	401.209
1838	1	418.87	0.9996	418.702
1831	1	413.78	0.9996	413.614
1843	1	407.03	0.9996	406.867
1837	1	418.10	0.9996	417.932
1835	1	409.08	0.9996	408.916
1840	1	418.86	0.9996	418.692
1830	1	407.43	0.9996	407.267
1827	1	403.54	0.9996	403.378
1833	1	385.34	0.9996	385.185
1850	1	398.87	0.9996	398.710
1853	1	398.32	0.9996	398.160
1836	1	382.43	0.9996	382.277
1844	1	398.56	0.9996	398.400
1846	1	401.44	0.9996	401.279
1832	1	400.82	0.9996	400.659
1855	1	397.17	0.9996	397.011
1841	1			

		395.80	0.9996	395.641
1839	1	392.83	0.9996	392.672
13401	1	428.43	0.9999	428.382
13416	1	419.10	0.9999	419.058
1828	1	376.02	0.9996	375.869
13415	1	413.80	0.9999	413.758
13524	1	415.05	0.9999	415.008
13403	1	429.50	0.9999	429.457
13521	1	429.58	0.9999	429.532
13559	1	419.28	0.9999	419.233
13572	1	415.80	0.9999	415.758
13418	1	417.78	0.9999	417.733
13576	1	419.18	0.9999	419.133
A071454	1	366.71	0.9998	366.636
A071469	1	368.75	0.9998	368.676
A071470	1	376.43	0.9998	376.354
A071453	1	387.83	0.9998	387.752
A071471	1	369.17	0.9998	369.096
A071451	1	372.49	0.9998	372.415
A071447	1	384.07	0.9998	383.993
A071446	1	380.03	0.9998	379.953
A071474	1	382.15	0.9998	382.073
A071472	1			

		377.63	0.9998	377.554
A071475	1	389.58	0.9998	389.502
A071292	1	376.96	0.9998	376.884
A071291	1	371.19	0.9998	371.115
A071477	1	388.83	0.9998	388.752
A071450	1	391.71	0.9998	391.631
A071452	1	378.87	0.9998	378.794
A071353	1	387.68	0.9998	387.602
A071449	1	396.05	0.9998	395.970
E63873	1	401.14	0.9999	401.099
13533	1	419.63	0.9999	419.583
13548	1	405.43	0.9999	405.384
13546	1	384.98	0.9999	384.936
A073380	1	387.00	0.9998	386.922
A073384	1	375.03	0.9997	374.917
A073315	1	374.09	0.9997	373.977
A073314	1	375.53	0.9997	375.417
A073313	1	373.26	0.9997	373.148
A073379	1	376.53	0.9998	376.454
A073373	1	377.35	0.9998	377.274
A073377	1	373.90	0.9998	373.825
A073371	1	388.29	0.9998	388.212
A073363	1			

		394.83	0.9998	394.751
A073367	1	381.24	0.9998	381.163
A073372	1	388.29	0.9998	388.212
A073370	1	371.29	0.9998	371.215
A073383	1	389.43	0.9997	389.313
A073386	1	369.36	0.9997	369.249
A073382	1	389.26	0.9997	389.143
13545	1	389.50	0.9999	389.461
13511	1	391.80	0.9999	391.760
A073366	1	377.80	0.9998	377.724
A073385	1	385.33	0.9997	385.214
13538	1	401.43	0.9999	401.384
A073364	1	386.20	0.9998	386.122
A073376	1	380.25	0.9998	380.173
13541	1	389.55	0.9999	389.511
13525	1	388.95	0.9999	388.911
A073369	1	387.02	0.9998	386.942
A073381	1	385.74	0.9997	385.624
13534	1	382.68	0.9999	382.636
13549	1	380.05	0.9999	380.011
A073378	1	367.04	0.9998	366.966
A073375	1	375.04	0.9998	374.964
A073368	1			

		380.04	0.9998	379.963
A073365	1	382.67	0.9998	382.593
13557	1	387.78	0.9999	387.736
13532	1	380.63	0.9999	380.586
13530	1	383.70	0.9999	383.661
13560	1	380.05	0.9999	380.011
10249	1	400.03	0.9999	399.984
09915	1	403.80	0.9999	403.759
09921	1	405.58	0.9999	405.534
09996	1	407.53	0.9999	407.484
09939	1	405.08	0.9999	405.034
09943	1	400.95	0.9999	400.909
10551	1	399.53	0.9999	399.485
10548	1	410.95	0.9999	410.908
09997	1	410.58	0.9999	410.533
1842	1	404.92	0.9996	404.758
1549	1	418.51	0.9996	418.342
1572	1	413.14	0.9996	412.974
1690	1	398.55	0.9996	398.390
1553	1	416.68	0.9997	416.554
1559	1	405.20	0.9996	405.037
1570	1	401.64	0.9997	401.519
1557	1			

		400.96	0.9996	400.799
1700	1	417.13	0.9996	416.963
961	1	398.35	0.9996	398.190
12725	1	390.58	0.9999	390.538
12726	1	390.23	0.9999	390.189
12722	1	393.47	0.9999	393.429
12727	1	401.74	0.9999	401.695
12721	1	400.72	0.9999	400.683
12723	1	403.68	0.9999	403.634
12728	1	398.51	0.9999	398.469
12720	1	403.46	0.9999	403.414
12724	1	394.44	0.9999	394.400
A072221	1	390.39	0.9997	390.272
A072218	1	389.12	0.9997	389.003
A072214	1	391.14	0.9996	390.983
A072234	1	398.26	0.9997	398.140
A072222	1	389.50	0.9997	389.383
A072212	1	389.77	0.9996	389.614
JJ1821	1	425.03	0.9999	424.982
JJ1744	1	419.68	0.9999	419.633
JJ1826	1	421.33	0.9999	421.282
JJ2990	1	424.25	0.9999	424.207
JJ2998	1			

		402.35	0.9999	402.309
JJ2992	1	394.15	0.9999	394.110
JJ2989	1	404.93	0.9999	404.884
JJ3003	1	414.53	0.9999	414.483
JJ2991	1	400.03	0.9999	399.984
JJ3004	1	411.38	0.9999	411.333
JJ2999	1	406.55	0.9999	406.509
JJ3000	1	425.13	0.9999	425.082
JJ2997	1	406.53	0.9999	406.484
JJ2987	1	410.55	0.9999	410.508
JJ2985	1	413.20	0.9999	413.158
12681	1	412.73	0.9999	412.683
12659	1	410.15	0.9999	410.108
12699	1	401.23	0.9999	401.184
12658	1	417.83	0.9999	417.783
A072422	1	363.93	0.9998	363.857
A072421	1	365.13	0.9998	365.056
A072419	1	370.12	0.9998	370.045
A072423	1	389.79	0.9998	389.712
A072418	1	369.27	0.9998	369.196
13523	1	421.33	0.9999	421.282
13558	1	416.18	0.9999	416.133
1442	1			

		401.25	0.9997	401.129
1552	1	414.36	0.9997	414.235
1564	1	417.20	0.9997	417.074
1343	1	388.54	0.9996	388.384
1681	1	396.59	0.9996	396.431
1687	1	387.90	0.9997	387.783
1556	1	408.11	0.9997	407.987
1561	1	424.72	0.9997	424.592
1689	1	403.37	0.9996	403.208
1699	1	409.91	0.9996	409.746
1684	1	394.88	0.9996	394.722
1682	1	387.46	0.9996	387.305
1688	1	393.89	0.9997	393.771
JJ3565	1	411.85	0.9999	411.808
JJ3557	1	405.90	0.9999	405.859
JJ3556	1	409.13	0.9999	409.084
JJ3566	1	420.73	0.9999	420.682
JJ3559	1	395.30	0.9999	395.260
JJ3560	1	391.18	0.9999	391.135
A072420	1	377.99	0.9998	377.914
A072417	1	368.28	0.9998	368.206
1276	1	401.39	0.9996	401.229
1275	1			

		400.08	0.9996	399.919
1692	1	397.45	0.9996	397.291
1339	1	402.77	0.9996	402.608
1334	1	402.52	0.9997	402.399
1277	1	401.82	0.9996	401.659
1336	1	403.00	0.9996	402.838
1694	1	391.68	0.9996	391.523
1338	1	393.76	0.9996	393.602
1269	1	397.60	0.9996	397.440
1041	1	396.55	0.9996	396.391
1280	1	387.55	0.9996	387.394
1337	1	411.87	0.9996	411.705
1182	1	396.31	0.9996	396.151
1278	1	397.63	0.9996	397.470
1691	1	394.52	0.9996	394.362
1342	1	400.11	0.9996	399.949
1341	1	405.81	0.9996	405.647
1693	1	413.41	0.9996	413.244
1335	1	394.18	0.9996	394.022
1283	1	386.21	0.9996	386.055
JJ3552	1	404.03	0.9999	403.984
JJ3554	1	391.98	0.9999	391.935
JJ3555	1			

		402.23	0.9999	402.184
JJ3553	1	401.95	0.9999	401.909
906	1	406.52	0.9996	406.357
1555	1	407.02	0.9997	406.897
1563	1	401.18	0.9997	401.059
1697	1	395.91	0.9996	395.751
E64487	1	399.77	0.9999	399.730
E64517	1	397.55	0.9999	397.510
E64485	1	399.88	0.9999	399.840
E64489	1	399.80	0.9999	399.760
E64518	1	399.51	0.9999	399.470
E64484	1	400.87	0.9999	400.829
E64516	1	401.08	0.9999	401.039
A073696	1	387.07	0.9998	386.992
A073693	1	377.60	0.9997	377.486
A073692	1	371.01	0.9997	370.898
A073695	1	390.97	0.9997	390.852
A073660	1	367.46	0.9995	367.276
A073701	1	388.85	0.9998	388.772
A073694	1	372.83	0.9997	372.718
A073659	1	382.53	0.9995	382.338
A073690	1	395.53	0.9997	395.411
A073661	1			

		380.83	0.9995	380.639
A073662	1	382.93	0.9995	382.738
A073697	1	392.57	0.9998	392.491
A073691	1	396.28	0.9997	396.161
A073699	1	384.67	0.9998	384.593
E64798	1	400.54	0.9999	400.499
E64796	1	398.02	0.9999	397.980
E64765	1	398.29	0.9999	398.250
E64797	1	398.51	0.9999	398.470
E64767	1	403.68	0.9999	403.639
E64766	1	399.55	0.9999	399.510
1686	1	401.69	0.9997	401.569
1573	1	389.28	0.9996	389.124
1695	1	410.69	0.9996	410.525
1443	1	390.16	0.9997	390.042
1551	1	411.23	0.9996	411.065
1560	1	404.47	0.9996	404.308
1685	1	401.47	0.9997	401.349
1701	1	377.03	0.9996	376.879
1683	1	406.06	0.9996	405.897
957	1	403.23	0.9996	403.068
1567	1	416.82	0.9997	416.694
1562	1			

		409.38	0.9997	409.257
1554	1	407.01	0.9997	406.887
1568	1	392.15	0.9997	392.032
1565	1	409.41	0.9997	409.287
1558	1	396.59	0.9996	396.431
1569	1	398.48	0.9997	398.360
1550	1	401.21	0.9996	401.049
1441	1	400.14	0.9997	400.019
1696	1	396.56	0.9996	396.401
1698	1	409.27	0.9996	409.106
1344	1	395.89	0.9996	395.731
1566	1	398.16	0.9997	398.040
12729	1	395.08	0.9999	395.035
12732	1	392.65	0.9999	392.610
12730	1	386.70	0.9999	386.661
12733	1	414.95	0.9999	414.908
12741	1	390.45	0.9999	390.410
JJ3131	1	410.20	0.9999	410.158
13022	1	410.85	0.9999	410.808
13012	1	404.43	0.9999	404.384
13014	1	391.63	0.9999	391.585
13021	1	398.13	0.9999	398.085
13915	1			

		424.88	0.9999	424.832
1972	1	396.27	0.9996	396.111
1966	1	396.90	0.9996	396.741
1974	1	394.97	0.9996	394.812
1968	1	393.67	0.9996	393.512
1977	1	400.93	0.9996	400.769
1960	1	398.99	0.9996	398.830
1981	1	390.19	0.9996	390.033
1969	1	402.65	0.9996	402.488
1962	1	377.95	0.9996	377.798
E64488	1	398.94	0.9999	398.900
E64486	1	399.02	0.9999	398.980
E64514	1	402.40	0.9999	402.359
E64515	1	403.58	0.9999	403.539
E64519	1	398.68	0.9999	398.640
A071753	1	375.53	0.9998	375.454
A071770	1	388.08	0.9998	388.002
A071771	1	372.62	0.9998	372.545
A071756	1	375.58	0.9998	375.504
A071767	1	381.74	0.9998	381.663
A071755	1	379.08	0.9998	379.004
JJ1758	1	417.20	0.9999	417.158
JJ1812	1			

		403.95	0.9999	403.909
JJ1764	1	392.80	0.9999	392.760
JJ1811	1	400.03	0.9999	399.984
JJ1815	1	413.53	0.9999	413.483
JJ1813	1	410.00	0.9999	409.959
JJ1814	1	410.03	0.9999	409.983
JJ1756	1	413.40	0.9999	413.358
JJ1810	1	398.08	0.9999	398.035
JJ1809	1	392.50	0.9999	392.460
JJ1749	1	414.18	0.9999	414.133
JJ1740	1	401.25	0.9999	401.209
12740	1	396.23	0.9999	396.185
12739	1	378.60	0.9999	378.562
12736	1	386.80	0.9999	386.761
12734	1	402.30	0.9999	402.259
12738	1	396.40	0.9999	396.360
12731	1	385.85	0.9999	385.811
12735	1	405.30	0.9999	405.259
2217	1	395.10	0.9996	394.941
2218	1	392.52	0.9996	392.362
2215	1	411.35	0.9996	411.185
2158	1	417.24	0.9995	417.031
2160	1			

		390.02	0.9995	389.824
2159	1	412.55	0.9995	412.343
2219	1	409.89	0.9996	409.726
2220	1	393.36	0.9996	393.202
JJ3470	1	416.15	0.9999	416.108
JJ3463	1	396.95	0.9999	396.910
JJ3461	1	403.35	0.9999	403.309
JJ3469	1	404.25	0.9999	404.209
JJ3471	1	398.13	0.9999	398.085
JJ3466	1	409.90	0.9999	409.859
JJ3465	1	402.80	0.9999	402.759
JJ3474	1	420.98	0.9999	420.932
JJ3473	1	400.23	0.9999	400.184
JJ3468	1	403.58	0.9999	403.534
JJ3464	1	399.53	0.9999	399.485
A074117	1	380.54	0.9998	380.463
A074124	1	386.87	0.9998	386.792
A074208	1	374.06	0.9997	373.947
A074202	1	376.55	0.9997	376.437
A074123	1	378.85	0.9998	378.774
A074203	1	371.09	0.9997	370.978
A074207	1	384.87	0.9997	384.754
A074206	1			

		376.03	0.9997	375.917
A074116	1	373.91	0.9998	373.835
A074114	1	384.26	0.9998	384.183
A073977	1	382.56	0.9998	382.483
A074205	1	382.45	0.9997	382.335
A074118	1	403.68	0.9998	403.599
A074126	1	384.91	0.9998	384.833
A073979	1	383.36	0.9998	383.283
A074122	1	380.55	0.9998	380.473
A074125	1	383.14	0.9998	383.063
A073978	1	363.96	0.9998	363.887
A074119	1	383.36	0.9998	383.283
A074204	1	389.72	0.9997	389.603
A073976	1	381.92	0.9998	381.843
A074209	1	395.00	0.9997	394.881
A074120	1	373.02	0.9998	372.945
A073975	1	396.39	0.9998	396.310
A074115	1	381.44	0.9998	381.363
A071804	1	370.51	0.9998	370.435
A071752	1	371.90	0.9998	371.825
A071754	1	372.94	0.9998	372.865
A071810	1	373.29	0.9998	373.215
A071800	1			

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		369.42	0.9998	369.346
A071802	1	376.74	0.9998	376.664
7669	1	419.28	0.9998	419.191
7671	1	418.25	0.9998	418.166
2259	1	393.05	0.9997	392.932
2249	1	385.44	0.9996	385.285
2257	1	383.55	0.9996	383.396
2255	1	389.64	0.9996	389.484
A074623	1	385.38	0.9998	385.302
A074553	1	379.23	0.9998	379.154
A074570	1	376.14	0.9998	376.064
A074475	1	378.80	0.9998	378.724
A074557	1	380.26	0.9998	380.183
A074558	1	387.88	0.9998	387.802
A074476	1	392.34	0.9998	392.261
A074550	1	377.00	0.9998	376.924
A074478	1	380.91	0.9998	380.833
A074560	1	372.08	0.9998	372.005
A074548	1	371.35	0.9998	371.275
KK300	1	401.10	0.9999	401.059
KK309	1	396.30	0.9999	396.260
KK301	1	398.30	0.9999	398.260
KK303	1			

		402.35	0.9999	402.309
KK1906	1	400.55	0.9999	400.510
KK1880	1	420.25	0.9999	420.208
KK1892	1	395.95	0.9999	395.910
KK1893	1	401.58	0.9999	401.535
KK1900	1	417.25	0.9999	417.208
KK1879	1	408.48	0.9999	408.434
A074568	1	380.86	0.9998	380.783
2171	1	391.39	0.9996	391.233
2179	1	406.15	0.9996	405.987
2184	1	400.87	0.9996	400.709
2185	1	408.70	0.9996	408.536
2181	1	413.33	0.9996	413.164
2178	1	394.42	0.9996	394.262
2186	1	393.77	0.9996	393.612
2188	1	390.42	0.9996	390.263
2183	1	416.92	0.9996	416.753
2187	1	414.02	0.9996	413.854
2182	1	391.81	0.9996	391.653
A074552	1	367.72	0.9998	367.646
A074555	1	371.96	0.9998	371.885
A074573	1	371.42	0.9998	371.345
A074546	1			

		361.76	0.9998	361.687
A074571	1	365.08	0.9998	365.006
A074572	1	375.06	0.9998	374.984
A074477	1	374.61	0.9998	374.535
A074559	1	360.82	0.9998	360.747
A074554	1	367.52	0.9998	367.446
A074473	1	375.13	0.9998	375.054
A074556	1	362.02	0.9998	361.947
2296	1	400.75	0.9996	400.590
2311	1	403.50	0.9996	403.340
7678	1	416.34	0.9998	416.260
7639	1	419.88	0.9998	419.793
7674	1	416.64	0.9998	416.552
7640	1	419.91	0.9998	419.829
2520	1	422.61	0.9996	422.441
A073854	1	382.81	0.9999	382.772
A074691	1	380.35	0.9999	380.312
A074693	1	360.58	0.9999	360.539
A073853	1	383.27	0.9999	383.232
A073855	1	363.46	0.9999	363.424
A074697	1	380.75	0.9999	380.712
A074696	1	365.55	0.9999	365.513
A074695	1			

		378.88	0.9999	378.837
2210	1	412.23	0.9995	412.023
2213	1	408.02	0.9995	407.815
7638	1	419.68	0.9998	419.597
7676	1	416.48	0.9998	416.392
7637	1	419.98	0.9998	419.891
7677	1	416.35	0.9998	416.265
7675	1	416.41	0.9998	416.323
17696	1	404.58	0.9999	404.535
2519	1	415.05	0.9996	414.884
2515	1	387.21	0.9996	387.055
2517	1	422.00	0.9996	421.831
2516	1	381.28	0.9996	381.127
2518	1	422.66	0.9996	422.491
2214	1	399.63	0.9996	399.470
2212	1	384.53	0.9995	384.337
2209	1	419.59	0.9997	419.464
2211	1	406.23	0.9995	406.026
2216	1	378.54	0.9996	378.388
7667	1	419.08	0.9998	418.991
7666	1	419.25	0.9998	419.166
2261	1	400.84	0.9997	400.719
2256	1			

		403.18	0.9996	403.018
2250	1	424.82	0.9996	424.650
2264	1	400.98	0.9996	400.819
2252	1	396.69	0.9996	396.531
2251	1	419.02	0.9996	418.852
2253	1	403.50	0.9996	403.338
2262	1	407.27	0.9996	407.107
2258	1	403.98	0.9997	403.858
2260	1	414.93	0.9997	414.805
2254	1	418.64	0.9996	418.472
2263	1	404.25	0.9996	404.088
E1076-2	1	389.75	0.9996	389.594
7668	1	419.15	0.9998	419.066
7670	1	419.10	0.9998	419.016
A078470	1	372.64	0.9997	372.528
A078974	1	388.55	0.9998	388.472
A078349	1	369.32	0.9999	369.283
A078971	1	376.87	0.9998	376.795
A078407	1	378.74	0.9999	378.702
A078405	1	382.37	0.9999	382.332
A078947	1	375.50	0.9998	375.425
A078968	1	371.45	0.9998	371.376
A078948	1			

		375.29	0.9998	375.215
A078950	1	374.11	0.9998	374.035
A078973	1	373.81	0.9998	373.735
KK2489	1	404.33	0.9999	404.285
KK2487	1	421.08	0.9999	421.033
KK2476	1	393.63	0.9999	393.586
KK2475	1	395.33	0.9999	395.285
KK2490	1	404.18	0.9999	404.135
KK2473	1	404.80	0.9999	404.760
A078951	1	375.55	0.9998	375.475
A078972	1	377.95	0.9998	377.874
A078956	1	384.14	0.9998	384.063
A078967	1	384.02	0.9998	383.943
A078955	1	381.11	0.9998	381.034
A078949	1	390.02	0.9998	389.942
A078953	1	377.49	0.9998	377.415
A078970	1	383.00	0.9998	382.923
A078975	1	365.33	0.9998	365.257
A078954	1	370.71	0.9998	370.636
A078952	1	367.40	0.9998	367.327
W87361	1	391.75	0.9999	391.711
W87363	1	385.08	0.9999	385.036
W87711	1			

		391.83	0.9999	391.786
2295	1	394.53	0.9996	394.374
2314	1	398.69	0.9996	398.526
2294	1	386.35	0.9996	386.197
2315	1	383.94	0.9996	383.790
2293	1	399.00	0.9996	398.838
2313	1	372.39	0.9996	372.243
2291	1	371.97	0.9996	371.817
2292	1	419.68	0.9996	419.508
KK2472	1	404.35	0.9999	404.310
KK2484	1	409.10	0.9999	409.059
KK2479	1	392.45	0.9999	392.411
KK2488	1	387.33	0.9999	387.286
KK2482	1	401.40	0.9999	401.360
KK2492	1	411.80	0.9999	411.759
W87359	1	401.30	0.9999	401.260
W87370	1	389.85	0.9999	389.811
W87369	1	408.23	0.9999	408.184
W87712	1	388.68	0.9999	388.636
W87376	1	408.28	0.9999	408.234
15539	1	394.93	0.9999	394.886
15538	1	426.13	0.9999	426.082
A078403	1			

		360.18	0.9999	360.144
A078402	1	364.13	0.9999	364.094
A078471	1	367.25	0.9997	367.140
A078406	1	365.74	0.9999	365.703
15278	1	401.08	0.9999	401.035
15269	1	402.50	0.9999	402.460
2422	1	379.10	0.9996	378.948
2419	1	378.13	0.9996	377.979
2414	1	394.86	0.9996	394.702
2413	1	400.54	0.9996	400.380
2420	1	385.15	0.9996	384.996
2421	1	383.47	0.9996	383.317
2415	1	388.16	0.9996	388.005
2411	1	397.37	0.9996	397.211
2416	1	404.42	0.9996	404.258
2424	1	396.62	0.9996	396.461
2426	1	405.91	0.9996	405.748
2425	1	374.15	0.9996	374.000
2423	1	410.48	0.9996	410.316
A075152	1	416.49	0.9998	416.407
A075155	1	380.04	0.9998	379.964
A075154	1	381.86	0.9998	381.784
A075153	1			

		389.60	0.9998	389.522
A069575	1	362.19	0.9999	362.154
E65575	1	398.19	0.9998	398.110
E65573	1	404.06	0.9998	403.979
E65576	1	399.53	0.9998	399.450
E65574	1	400.00	0.9998	399.920
E65635	1	401.38	0.9999	401.339
15102	1	421.54	0.9999	421.497
15121	1	407.68	0.9999	407.641
15129	1	400.19	0.9999	400.154
15125	1	407.39	0.9999	407.348
15095	1	383.07	0.9999	383.032
15104	1	424.14	0.9999	424.097
15105	1	425.14	0.9999	425.097
15541	1	418.08	0.9999	418.033
15115	1	395.18	0.9999	395.137
15100	1	396.93	0.9999	396.894
15111	1	406.75	0.9999	406.707
15119	1	395.14	0.9999	395.102
15109	1	401.55	0.9999	401.512
15103	1	400.02	0.9999	399.980
15112	1	407.07	0.9999	407.030
15118	1			

		398.58	0.9999	398.539
15099	1	407.85	0.9999	407.811
15120	1	411.34	0.9999	411.297
15114	1	405.20	0.9999	405.157
A074944	1	381.75	0.9997	381.635
A074939	1	363.49	0.9997	363.381
A074926	1	399.86	0.9998	399.780
A074946	1	360.20	0.9997	360.092
A074930	1	385.48	0.9998	385.403
A074942	1	382.03	0.9997	381.915
A074943	1	380.01	0.9997	379.896
A074941	1	370.28	0.9997	370.169
A074947	1	379.03	0.9997	378.916
15130	1	418.44	0.9999	418.399
15128	1	418.69	0.9999	418.648
15113	1	417.70	0.9999	417.658
15131	1	422.53	0.9999	422.484
15097	1	416.55	0.9999	416.510
15273	1	404.88	0.9999	404.835
15276	1	410.18	0.9999	410.134
15279	1	396.40	0.9999	396.360
15272	1	409.13	0.9999	409.084
15274	1			

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		390.58	0.9999	390.536
15277	1	406.80	0.9999	406.759
15271	1	400.78	0.9999	400.735
15280	1	409.40	0.9999	409.359
A074689	1	391.23	0.9999	391.186
A074690	1	385.90	0.9999	385.861
A078205	1	380.76	0.9998	380.684
A078203	1	371.09	0.9998	371.016
A078204	1	379.06	0.9998	378.984
A078208	1	385.10	0.9998	385.023
A078210	1	374.05	0.9998	373.975
A078195	1	372.89	0.9998	372.815
A078209	1	380.06	0.9998	379.984
11999	1	407.45	0.9999	407.409
A078196	1	376.81	0.9998	376.735
A078202	1	373.96	0.9998	373.885
A078200	1	370.60	0.9998	370.526
A078199	1	370.35	0.9998	370.276
A078207	1	383.66	0.9998	383.583
A078201	1	375.69	0.9998	375.615
A078197	1	369.67	0.9998	369.596
7692	1	413.63	0.9999	413.584
7696	1			

		399.83	0.9999	399.785
7695	1	400.08	0.9999	400.035
7690	1	374.85	0.9999	374.813
7687	1	374.60	0.9999	374.563
7688	1	374.95	0.9999	374.913
7689	1	375.13	0.9999	375.087
7683	1	375.30	0.9999	375.262
7697	1	399.90	0.9999	399.860
15281	1	402.28	0.9999	402.235
15270	1	403.00	0.9999	402.960
A074784	1	372.48	0.9996	372.331
A074783	1	363.78	0.9996	363.634
A074797	1	366.40	0.9997	366.290
A074800	1	376.76	0.9997	376.647
A074796	1	375.03	0.9997	374.917
7950	1	389.70	0.9999	389.661
7955	1	405.20	0.9999	405.159
7954	1	405.85	0.9999	405.809
7961	1	377.10	0.9999	377.062
7975	1	375.03	0.9999	374.987
7971	1	409.98	0.9999	409.934
7942	1	389.98	0.9999	389.936
7951	1			

		405.73	0.9999	405.684
7949	1	390.18	0.9999	390.136
7944	1	388.90	0.9999	388.861
7985	1	420.15	0.9999	420.108
7940	1	388.90	0.9999	388.861
2337	1	386.19	0.9996	386.036
2345	1	425.69	0.9996	425.520
2335	1	399.37	0.9996	399.210
2344	1	409.74	0.9996	409.576
2332	1	384.82	0.9996	384.666
A074929	1	360.71	0.9998	360.638
14519	1	394.93	0.9999	394.886
2342	1	385.64	0.9996	385.486
2341	1	398.85	0.9996	398.690
2340	1	382.24	0.9996	382.087
2328	1	375.06	0.9996	374.910
2329	1	383.81	0.9996	383.656
2327	1	383.08	0.9996	382.927
2330	1	381.82	0.9996	381.667
2331	1	377.29	0.9996	377.139
2320	1	378.11	0.9996	377.959
2319	1	374.18	0.9996	374.030
2163	1			

		408.91	0.9995	408.706
2162	1	401.92	0.9995	401.719
2161	1	409.59	0.9995	409.385
E64932	1	401.02	0.9999	400.980
E64968	1	397.82	0.9999	397.780
E64966	1	399.09	0.9999	399.050
E64965	1	399.67	0.9999	399.630
E64933	1	401.66	0.9999	401.620
E64935	1	404.12	0.9999	404.079
E64967	1	399.30	0.9999	399.260
14608	1	421.63	0.9999	421.583
14231	1	422.73	0.9999	422.683
14226	1	421.30	0.9999	421.258
14496	1	418.63	0.9999	418.583
14216	1	424.60	0.9999	424.558
A074927	1	361.15	0.9998	361.078
14695	1	383.00	0.9999	382.961
14698	1	392.75	0.9999	392.710
14978	1	409.53	0.9999	409.484
14509	1	376.13	0.9999	376.087
14982	1	375.68	0.9999	375.637
A075156	1	380.97	0.9998	380.894
A075127	1			

		389.86	0.9998	389.782
A075125	1	383.99	0.9998	383.913
A075116	1	361.69	0.9998	361.618
A075124	1	391.02	0.9998	390.942
A075129	1	383.49	0.9998	383.413
A075117	1	368.85	0.9998	368.776
A075128	1	377.55	0.9998	377.474
A075115	1	382.90	0.9998	382.823
A075158	1	362.72	0.9998	362.647
A075126	1	362.93	0.9998	362.857
A075157	1	387.73	0.9998	387.652
A074825	1	359.93	0.9997	359.822
A074835	1	365.61	0.9998	365.536
A074823	1	363.99	0.9997	363.880
A074822	1	357.72	0.9997	357.612
A074827	1	363.47	0.9997	363.360
A074829	1	370.71	0.9997	370.598
A074894	1	374.85	0.9998	374.775
A074893	1	378.20	0.9998	378.124
A074786	1	384.08	0.9997	383.964
A074931	1	361.77	0.9998	361.698
A074928	1	361.96	0.9998	361.888
A074938	1			

		381.57	0.9997	381.456
A027665	1	377.53	0.9998	377.454
A073215	1	367.54	0.9998	367.466
A073223	1	366.69	0.9998	366.617
A073217	1	378.03	0.9998	377.954
A028846	1	376.56	0.9996	376.409
6718	1	390.69	0.9996	390.534
6155	1	424.17	0.9997	424.043
6491	1	393.49	0.9996	393.333
6107	1	426.46	0.9998	426.374
6111	1	389.56	0.9998	389.482
6154	1	416.46	0.9997	416.335
6762	1	408.75	0.9996	408.587
6493	1	408.35	0.9996	408.187
A074798	1	372.33	0.9997	372.218
A074799	1	373.47	0.9997	373.358
A074794	1	381.42	0.9997	381.306
A074795	1	366.68	0.9997	366.570
A074793	1	366.22	0.9997	366.110
A074778	1	364.84	0.9996	364.694
A074781	1	366.55	0.9996	366.403
A074785	1	381.76	0.9996	381.607
A074910	1			

		352.35	0.9998	352.279
A074837	1	363.75	0.9998	363.677
A074824	1	367.85	0.9997	367.739
A074836	1	376.25	0.9998	376.174
A074839	1	369.53	0.9998	369.456
A074838	1	359.58	0.9998	359.508
A074871	1	378.06	0.9998	377.984
A074807	1	376.68	0.9996	376.529
A074828	1	358.51	0.9997	358.402
A074842	1	363.99	0.9998	363.917
A074843	1	352.68	0.9998	352.609
A074790	1	334.18	0.9997	334.079
A074891	1	360.41	0.9998	360.337
A074789	1	329.55	0.9997	329.451
A074820	1	359.05	0.9997	358.942
A074821	1	368.72	0.9997	368.609
A074886	1	369.81	0.9995	369.625
A074887	1	376.13	0.9995	375.941
A074844	1	361.38	0.9998	361.307
A074892	1	378.07	0.9998	377.994
A074845	1	355.54	0.9998	355.468
A074801	1	354.42	0.9996	354.278
A074804	1			

		384.71	0.9996	384.556
A074889	1	360.36	0.9998	360.287
A074803	1	378.61	0.9996	378.458
A074802	1	387.74	0.9996	387.584
A074890	1	364.14	0.9998	364.067
A074909	1	358.80	0.9998	358.728
14980	1	410.53	0.9999	410.484
14983	1	398.78	0.9999	398.735
14523	1	394.93	0.9999	394.885
14521	1	393.98	0.9999	393.935
14520	1	394.90	0.9999	394.860
14979	1	393.00	0.9999	392.960
15064	1	386.55	0.9999	386.511
15025	1	401.05	0.9999	401.009
15012	1	387.85	0.9999	387.811
15013	1	397.50	0.9999	397.460
15014	1	391.70	0.9999	391.660
15015	1	399.83	0.9999	399.785
15016	1	394.70	0.9999	394.660
15017	1	384.13	0.9999	384.086
15022	1	403.25	0.9999	403.209
A074864	1	392.54	0.9997	392.422
A074883	1			

		350.64	0.9995	350.464
A074882	1	364.74	0.9995	364.557
A074868	1	386.29	0.9998	386.212
A074869	1	392.73	0.9998	392.651
A074870	1	383.46	0.9998	383.383
A074865	1	380.93	0.9997	380.815
2390	1	399.76	0.9996	399.600
2387	1	406.35	0.9996	406.187
2381	1	387.48	0.9996	387.325
2388	1	382.10	0.9996	381.947
2383	1	424.43	0.9996	424.260
2236	1	398.72	0.9996	398.560
2384	1	389.82	0.9996	389.664
2237	1	413.35	0.9996	413.184
2386	1	419.97	0.9996	419.802
2389	1	396.02	0.9996	395.861
2385	1	407.81	0.9996	407.646
2309	1	385.86	0.9997	385.744
2310	1	377.82	0.9997	377.706
2308	1	392.46	0.9997	392.342
7706	1	384.70	0.9998	384.623
7725	1	398.75	0.9998	398.670
7717	1			

		400.83	0.9998	400.744
7711	1	384.60	0.9998	384.523
7726	1	389.68	0.9998	389.597
7708	1	384.88	0.9998	384.798
7722	1	400.30	0.9997	400.179
7721	1	400.55	0.9997	400.429
7709	1	384.70	0.9998	384.623
7718	1	400.50	0.9997	400.379
7727	1	404.50	0.9998	404.419
7713	1	400.63	0.9998	400.544
A074788	1	366.25	0.9997	366.140
A074791	1	362.16	0.9997	362.051
A074792	1	380.20	0.9997	380.085
A074888	1	381.04	0.9995	380.849
A074912	1	361.55	0.9998	361.477
A074885	1	375.84	0.9995	375.652
A074884	1	354.35	0.9995	354.172
14760	1	412.35	0.9999	412.308
14767	1	411.45	0.9999	411.408
A074863	1	374.57	0.9997	374.457
A074862	1	366.11	0.9997	366.000
A074861	1	375.66	0.9997	375.547
A074866	1			

		380.26	0.9997	380.145
A074846	1	372.30	0.9998	372.225
A074867	1	377.10	0.9997	376.986
A074859	1	373.16	0.9997	373.048
A074872	1	377.61	0.9998	377.534
A074860	1	360.85	0.9997	360.741
A074805	1	381.03	0.9996	380.877
A074806	1	373.27	0.9996	373.120
A074874	1	358.32	0.9998	358.248
A074873	1	383.35	0.9998	383.273
A074875	1	384.80	0.9998	384.723
2658	1	391.73	0.9996	391.573
KK1915	1	405.65	0.9999	405.609
KK1910	1	391.45	0.9999	391.411
KK305	1	395.63	0.9999	395.585
KK1918	1	398.95	0.9999	398.910
KK1913	1	398.38	0.9999	398.335
JJ2904	1	396.35	0.9999	396.310
KK1740	1	392.18	0.9999	392.136
JJ2899	1	399.38	0.9999	399.335
JJ2900	1	384.75	0.9999	384.712
KK1756	1	384.88	0.9999	384.837
KK1738	1			

		388.13	0.9999	388.086
KK1745	1	388.05	0.9999	388.011
KK1751	1	378.33	0.9999	378.287
2661	1	414.23	0.9996	414.064
2660	1	393.23	0.9996	393.073
2665	1	399.57	0.9996	399.410
8038	1	371.35	0.9998	371.276
8050	1	402.03	0.9998	401.945
8044	1	400.03	0.9998	399.945
8045	1	400.18	0.9998	400.095
8041	1	371.30	0.9998	371.226
8042	1	400.03	0.9998	399.945
JJ2898	1	398.08	0.9999	398.035
JJ2905	1	382.35	0.9999	382.312
JJ2901	1	387.45	0.9999	387.411
JJ2903	1	384.65	0.9999	384.612
JJ2906	1	382.60	0.9999	382.562
8043	1	400.03	0.9998	399.945
8040	1	371.33	0.9998	371.251
8039	1	371.35	0.9998	371.276
8046	1	400.00	0.9998	399.920
8047	1	400.03	0.9998	399.945
8048	1			

		402.05	0.9998	401.970
7710	1	385.08	0.9998	384.997
7728	1	398.38	0.9998	398.295
7730	1	397.48	0.9998	397.395
7705	1	383.83	0.9998	383.748
7719	1	400.53	0.9997	400.404
7716	1	400.43	0.9998	400.344
7729	1	398.35	0.9998	398.270
7731	1	398.18	0.9998	398.095
7723	1	400.63	0.9997	400.504
7712	1	400.60	0.9998	400.519
7714	1	400.70	0.9998	400.619
7715	1	400.58	0.9998	400.494
7724	1	402.03	0.9998	401.944
7703	1	384.88	0.9998	384.798
7704	1	384.85	0.9998	384.773
14759	1	417.20	0.9999	417.158
16269	1	424.85	0.9999	424.808
16257	1	381.08	0.9999	381.037
16265	1	390.23	0.9999	390.186
16268	1	420.08	0.9999	420.033
16252	1	425.18	0.9999	425.132
80797	1			

		409.26	0.9998	409.178
80671	1	364.19	0.9997	364.081
80781	1	371.73	0.9997	371.618
80784	1	378.30	0.9997	378.187
80783	1	398.56	0.9997	398.440
80782	1	365.82	0.9997	365.710
80779	1	374.47	0.9997	374.358
80670	1	369.33	0.9997	369.219
80668	1	363.81	0.9997	363.701
80667	1	366.59	0.9997	366.480
80669	1	369.97	0.9997	369.859
80780	1	366.22	0.9997	366.110
2662	1	419.80	0.9996	419.632
80804	1	409.37	0.9998	409.288
8049	1	402.10	0.9998	402.020
8051	1	401.30	0.9998	401.220
JJ2896	1	408.20	0.9999	408.159
8060	1	402.13	0.9998	402.045
8057	1	402.08	0.9998	401.995
8053	1	402.18	0.9998	402.095
8052	1	402.13	0.9998	402.045
8065	1	399.35	0.9998	399.270
8056	1			

		402.08	0.9998	401.995
8055	1	402.35	0.9998	402.270
8059	1	401.98	0.9998	401.895
8062	1	401.93	0.9998	401.845
8061	1	402.18	0.9998	402.095
8058	1	402.25	0.9998	402.170
15825	1	415.55	0.9999	415.508
15826	1	414.48	0.9999	414.434
15829	1	413.48	0.9999	413.434
15833	1	376.93	0.9999	376.887
15827	1	409.75	0.9999	409.709
15823	1	397.05	0.9999	397.010
15832	1	424.68	0.9999	424.633
15830	1	413.70	0.9999	413.659
15824	1	393.30	0.9999	393.261
8109	1	395.60	0.9999	395.560
KK1911	1	404.80	0.9999	404.760
KK1917	1	388.48	0.9999	388.436
KK1912	1	405.40	0.9999	405.359
KK1916	1	403.38	0.9999	403.335
KK1908	1	403.60	0.9999	403.560
KK1921	1	386.88	0.9999	386.836
KK1922	1			

		398.33	0.9999	398.285
2659	1	412.83	0.9996	412.665
2668	1	392.20	0.9996	392.043
2664	1	413.67	0.9996	413.505
2667	1	401.97	0.9996	401.809
2657	1	387.43	0.9996	387.275
2666	1	394.73	0.9996	394.572
15795	1	400.58	0.9999	400.535
15742	1	402.65	0.9999	402.610
15744	1	403.33	0.9999	403.285
8027	1	394.05	0.9998	393.971
8164	1	381.93	0.9998	381.849
8159	1	382.05	0.9998	381.974
8161	1	382.00	0.9998	381.924
8160	1	382.03	0.9998	381.949
8175	1	377.95	0.9998	377.874
8174	1	378.23	0.9998	378.149
8173	1	378.23	0.9998	378.149
8037	1	371.20	0.9998	371.126
8165	1	381.83	0.9998	381.749
8162	1	381.88	0.9998	381.799
8163	1	381.98	0.9998	381.899
8166	1			

		377.73	0.9999	377.687
8176	1	377.90	0.9998	377.824
8084	1	411.03	0.9999	410.984
8085	1	401.50	0.9999	401.460
8089	1	401.50	0.9999	401.460
8142	1	371.45	0.9999	371.413
8087	1	401.38	0.9999	401.335
8093	1	401.35	0.9999	401.310
8083	1	411.03	0.9999	410.984
8090	1	401.50	0.9999	401.460
8086	1	401.48	0.9999	401.435
8088	1	401.18	0.9999	401.135
8091	1	401.35	0.9999	401.310
80664	1	369.57	0.9997	369.459
80663	1	374.06	0.9997	373.948
80679	1	385.39	0.9995	385.197
80662	1	390.57	0.9997	390.453
80676	1	378.35	0.9996	378.199
80661	1	365.81	0.9997	365.700
80672	1	395.54	0.9996	395.382
80677	1	366.57	0.9996	366.423
80678	1	371.93	0.9996	371.781
16242	1			

		422.35	0.9999	422.308
16240	1	420.60	0.9999	420.558
16241	1	427.65	0.9999	427.607
16246	1	423.70	0.9999	423.658
16247	1	419.93	0.9999	419.883
16254	1	419.43	0.9999	419.383
16245	1	425.80	0.9999	425.757
9022	1	399.90	0.9998	399.820
9192	1	407.18	0.9998	407.094
9023	1	399.90	0.9998	399.820
9167	1	399.75	0.9998	399.670
9024	1	399.90	0.9998	399.820
9178	1	399.90	0.9998	399.820
9176	1	399.88	0.9998	399.795
9175	1	399.83	0.9998	399.745
9174	1	399.90	0.9998	399.820
9173	1	399.90	0.9998	399.820
9169	1	399.90	0.9998	399.820
9171	1	399.90	0.9998	399.820
9170	1	399.90	0.9998	399.820
9172	1	399.90	0.9998	399.820
8092	1	401.53	0.9999	401.485
8145	1			

		371.38	0.9999	371.338
8144	1	371.28	0.9999	371.238
8207	1	401.20	0.9998	401.120
8208	1	401.15	0.9998	401.070
8206	1	401.15	0.9998	401.070
8204	1	401.20	0.9998	401.120
8148	1	371.40	0.9999	371.363
8143	1	371.45	0.9999	371.413
8147	1	371.40	0.9999	371.363
8203	1	400.65	0.9998	400.570
8146	1	371.45	0.9999	371.413
8205	1	401.23	0.9998	401.145
8202	1	401.20	0.9998	401.120
2663	1	401.64	0.9996	401.479
KK3741	1	420.05	0.9999	420.008
KK3746	1	427.15	0.9999	427.107
KK3744	1	419.30	0.9999	419.258
KK3745	1	405.05	0.9999	405.009
KK3749	1	412.25	0.9999	412.209
A079344	1	363.49	0.9998	363.417
A079342	1	381.87	0.9998	381.794
A079332	1	361.30	0.9998	361.228
A079334	1			

		369.21	0.9998	369.136
A079832	1	363.43	0.9998	363.357
A079835	1	375.81	0.9998	375.735
A079836	1	373.98	0.9998	373.905
A079824	1	377.17	0.9998	377.095
A079330	1	364.16	0.9998	364.087
A079821	1	370.29	0.9998	370.216
A079348	1	379.49	0.9998	379.414
A079328	1	370.96	0.9998	370.886
A079326	1	372.14	0.9998	372.066
A079331	1	366.26	0.9998	366.187
A079823	1	376.80	0.9998	376.725
A079828	1	371.45	0.9998	371.376
9161	1	396.50	0.9999	396.460
9160	1	396.45	0.9999	396.410
9183	1	380.13	0.9997	380.011
9154	1	405.48	0.9999	405.434
9156	1	405.43	0.9999	405.384
9159	1	396.48	0.9999	396.435
9187	1	380.18	0.9997	380.061
9184	1	380.20	0.9997	380.086
9153	1	405.28	0.9999	405.234
9181	1			

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		380.18	0.9997	380.061
9182	1	380.18	0.9997	380.061
9163	1	396.25	0.9999	396.210
9180	1	379.90	0.9997	379.786
9155	1	405.43	0.9999	405.384
9028	1	399.88	0.9998	399.795
9164	1	399.90	0.9998	399.820
9165	1	399.90	0.9998	399.820
9166	1	399.90	0.9998	399.820
9185	1	380.40	0.9997	380.286
18936	1	416.73	0.9999	416.689
18937	1	422.55	0.9999	422.509
18914	1	415.53	0.9999	415.488
18923	1	415.14	0.9999	415.094
19147A	1	421.10	0.9999	421.060
19169	1	413.92	0.9999	413.883
19008	1	412.41	0.9999	412.365
19149A	1	416.72	0.9999	416.677
19143A	1	415.09	0.9999	415.048
19171	1	417.75	0.9999	417.708
19172	1	411.68	0.9999	411.635
19167	1	415.92	0.9999	415.881
19101	1			

		420.19	0.9999	420.143
KK3747	1	419.60	0.9999	419.558
KK3750	1	414.15	0.9999	414.109
KK3748	1	412.78	0.9999	412.734
KK3743	1	395.78	0.9999	395.735
15709	1	406.20	0.9999	406.159
15794	1	415.28	0.9999	415.233
15748	1	408.95	0.9999	408.909
15710	1	378.95	0.9999	378.912
15747	1	409.15	0.9999	409.109
15745	1	420.50	0.9999	420.458
15743	1	401.35	0.9999	401.310
15746	1	378.93	0.9999	378.887
15741	1	416.13	0.9999	416.083
15740	1	415.98	0.9999	415.933
9025	1	399.90	0.9998	399.820
9026	1	399.48	0.9998	399.395
9191	1	407.15	0.9998	407.069
9027	1	399.88	0.9998	399.795
9019	1	400.10	0.9997	399.979
9017	1	399.93	0.9997	399.805
9018	1	399.90	0.9997	399.780
9021	1			

		399.83	0.9997	399.705
9020	1	399.83	0.9997	399.705
9049	1	399.85	0.9998	399.770
9048	1	399.90	0.9998	399.820
9047	1	410.80	0.9996	410.635
9045	1	410.65	0.9996	410.485
9050	1	399.90	0.9998	399.820
9046	1	410.78	0.9996	410.610
9051	1	399.88	0.9998	399.795
9055	1	399.90	0.9998	399.820
9056	1	399.35	0.9998	399.270
9054	1	399.83	0.9998	399.745
19146A	1	418.83	0.9999	418.785
19104	1	419.11	0.9999	419.064
19009	1	416.87	0.9999	416.825
AO83686	1	424.43	0.9999	424.391
AO83014	1	373.21	0.9999	373.171
AO83412	1	423.88	0.9999	423.841
AO83666	1	416.33	0.9999	416.291
AO83715	1	418.96	0.9999	418.913
AO83414	1	425.23	0.9999	425.186
AO83695	1	428.94	0.9999	428.899
AO83727	1			

		374.12	0.9999	374.087
AO83312	1	367.71	0.9999	367.668
AO83411	1	416.65	0.9999	416.608
AO83673	1	416.49	0.9999	416.444
9138	1	419.85	0.9998	419.766
9139	1	419.98	0.9998	419.891
9043	1	399.90	0.9998	399.820
9079	1	399.85	0.9998	399.770
9078	1	399.85	0.9998	399.770
9042	1	399.83	0.9998	399.745
9041	1	399.93	0.9998	399.845
9000	1	396.65	0.9998	396.570
9040	1	399.90	0.9998	399.820
8998	1	396.88	0.9998	396.795
9001	1	396.78	0.9998	396.695
8997	1	396.53	0.9998	396.445
9190	1	407.18	0.9998	407.094
18925	1	388.90	0.9999	388.861
18928	1	407.72	0.9999	407.680
18935	1	401.26	0.9999	401.218
18922	1	404.58	0.9999	404.539
18938	1	400.92	0.9999	400.880
9168	1			

		399.98	0.9998	399.895
9179	1	399.93	0.9998	399.845
9162	1	396.43	0.9999	396.385
18957	1	393.73	0.9999	393.689
18953	1	388.63	0.9999	388.586
18949	1	389.35	0.9999	389.309
18946	1	405.63	0.9999	405.590
18947	1	407.59	0.9999	407.550
18952	1	402.20	0.9999	402.155
3349	1	401.70	0.9996	401.539
3355	1	388.36	0.9996	388.205
3357	1	389.11	0.9996	388.954
3356	1	392.98	0.9996	392.823
A085813	1	407.75	0.9998	407.668
A085806	1	404.00	0.9998	403.919
A085805	1	391.20	0.9998	391.122
A085809	1	399.68	0.9998	399.600
A085812	1	412.48	0.9998	412.398
A085814	1	393.37	0.9998	393.291
A085811	1	381.74	0.9998	381.664
3347	1	400.80	0.9996	400.640
3350	1	410.99	0.9996	410.826
3351	1			

		420.28	0.9996	420.112
3346	1	401.06	0.9996	400.900
3345	1	417.73	0.9996	417.563
3353	1	398.01	0.9996	397.851
3344	1	409.86	0.9996	409.696
3359	1	385.63	0.9996	385.476
3352	1	389.06	0.9996	388.904
3354	1	388.15	0.9996	387.995
18948	1	404.97	0.9999	404.928
8958	1	379.93	0.9999	379.887
8971	1	378.68	0.9999	378.637
8964	1	379.85	0.9999	379.812
9006	1	376.30	0.9998	376.224
9014	1	399.88	0.9997	399.755
9016	1	399.75	0.9997	399.630
9005	1	376.30	0.9998	376.224
9002	1	376.25	0.9998	376.174
9004	1	376.55	0.9998	376.474
9003	1	376.30	0.9998	376.224
9015	1	399.88	0.9997	399.755
18931	1	405.67	0.9999	405.625
8969	1	379.73	0.9999	379.687
8973	1			

		379.63	0.9999	379.587
8968	1	379.95	0.9999	379.912
8972	1	379.80	0.9999	379.762
8970	1	380.00	0.9999	379.962
9007	1	376.33	0.9998	376.249
9009	1	376.23	0.9998	376.149
9008	1	376.25	0.9998	376.174
8975	1	399.75	0.9997	399.630
8974	1	379.88	0.9999	379.837
A085807	1	399.06	0.9998	398.980
A085810	1	396.33	0.9998	396.251
A085798	1	395.23	0.9998	395.151
A085235	1	398.94	0.9998	398.860
A085245	1	406.49	0.9998	406.410
A085230	1	405.02	0.9998	404.940
A085231	1	396.54	0.9998	396.460
A085242	1	401.16	0.9998	401.080
A085233	1	398.69	0.9998	398.610
A085240	1	392.24	0.9998	392.160
A085117	1	391.58	0.9998	391.497
A085115	1	386.32	0.9998	386.245
A085011	1	393.85	0.9998	393.772
A085169	1			

		378.53	0.9998	378.449
A085004	1	392.30	0.9998	392.225
A085232	1	403.73	0.9998	403.650
A085244	1	403.26	0.9998	403.180
A085088	1	382.72	0.9998	382.644
A085247	1	395.15	0.9998	395.070
A085073	1	377.43	0.9998	377.356
A085071	1	384.92	0.9998	384.839
A085361	1	408.36	0.9996	408.200
A085364	1	394.89	0.9996	394.730
A085084	1	394.10	0.9998	394.021
A085363	1	405.43	0.9996	405.270
A085249	1	403.61	0.9998	403.530
A085246	1	397.91	0.9998	397.830
A085362	1	419.93	0.9996	419.760
A085359	1	400.44	0.9996	400.280
A085360	1	392.03	0.9996	391.870
A085366	1	376.06	0.9996	375.910
A085016	1	384.13	0.9998	384.051
A085365	1	401.89	0.9996	401.730
A085013	1	385.48	0.9998	385.399
A085078	1	393.36	0.9998	393.285
A085079	1			

		389.53	0.9998	389.448
8892	1	399.98	0.9999	399.935
8918	1	399.93	0.9999	399.885
19284	1	397.18	0.9999	397.135
19286	1	398.38	0.9999	398.335
19295	1	394.83	0.9999	394.785
19300	1	391.30	0.9999	391.260
19296	1	393.25	0.9999	393.210
19287	1	401.33	0.9999	401.284
19288	1	393.80	0.9999	393.760
19294	1	414.18	0.9999	414.133
19291	1	396.73	0.9999	396.685
19290	1	391.78	0.9999	391.735
18950	1	399.56	0.9999	399.519
18951	1	405.96	0.9999	405.914
AO83884	1	408.63	0.9998	408.551
AO81543	1	353.83	0.9998	353.754
AO83948	1	398.50	0.9998	398.416
AO83947	1	408.57	0.9998	408.485
A081512	1	366.10	0.9998	366.030
AO83883	1	395.19	0.9998	395.115
A085815	1	401.88	0.9997	401.759
A085818	1			

		398.37	0.9997	398.250
E67620	1	400.73	0.9997	400.610
E67622	1	405.19	0.9997	405.068
E67619	1	399.94	0.9997	399.820
E67618	1	398.02	0.9997	397.901
E67621	1	400.01	0.9997	399.890
8908	1	399.95	0.9999	399.910
8915	1	399.93	0.9999	399.885
8895	1	399.98	0.9999	399.935
8911	1	399.90	0.9999	399.860
8914	1	399.90	0.9999	399.860
8894	1	399.93	0.9999	399.885
8893	1	399.95	0.9999	399.910
8912	1	400.08	0.9999	400.034
8913	1	400.05	0.9999	400.009
8916	1	399.95	0.9999	399.910
8917	1	399.93	0.9999	399.885
8888	1	399.93	0.9998	399.845
8889	1	399.95	0.9999	399.910
8890	1	399.70	0.9999	399.660
8891	1	399.95	0.9999	399.910
A085796	1	408.14	0.9998	408.058
A085808	1			

		399.15	0.9998	399.070
A085797	1	401.78	0.9998	401.700
A083664	1	391.96	0.9999	391.920
A083430	1	391.64	0.9999	391.602
A083338	1	407.05	0.9999	407.004
A083864	1	407.12	0.9999	407.078
A083870	1	404.85	0.9999	404.809
A083372	1	408.06	0.9999	408.015
A083866	1	396.94	0.9999	396.900
A083874	1	400.48	0.9999	400.439
A083013	1	382.06	0.9999	382.025
A085817	1	396.89	0.9997	396.771
A085819	1	390.48	0.9997	390.363
A085822	1	414.20	0.9997	414.076
A085816	1	399.08	0.9997	398.960
A085804	1	402.66	0.9998	402.579
A083873	1	408.82	0.9999	408.778
A083667	1	393.37	0.9999	393.333
A083872	1	389.64	0.9999	389.598
A083668	1	385.59	0.9999	385.550
A083871	1	406.73	0.9999	406.693
A081524	1	362.59	0.9998	362.514
A081525	1			

		407.13	0.9998	407.052
AO81513	1	405.11	0.9998	405.028
AO84079	1	414.21	0.9998	414.130
AO81534	1	362.53	0.9998	362.461
AO84078	1	389.03	0.9998	388.953
AO83672	1	405.15	0.9999	405.112
AO83984	1	405.41	0.9999	405.365
AO83917	1	401.12	0.9999	401.082
AO83967	1	379.73	0.9999	379.688
AO83899	1	395.31	0.9999	395.266
AO83692	1	407.96	0.9999	407.917
AO83693	1	385.09	0.9999	385.047
AO83691	1	406.38	0.9999	406.340
AO83728	1	398.20	0.9999	398.156
AO83966	1	386.95	0.9999	386.910
AO83689	1	392.71	0.9999	392.670
AO81519	1	409.64	0.9998	409.553
AO83977	1	410.67	0.9999	410.625
AO83316	1	400.39	0.9999	400.354
AO84651	1	390.97	0.9999	390.926
AO83314	1	386.78	0.9999	386.742
AO84206	1	396.66	0.9999	396.624
AO84204	1			

		394.99	0.9999	394.954
AO84202	1	403.29	0.9999	403.245
AO83687	1	386.07	0.9999	386.034
AO83690	1	409.29	0.9999	409.245
AO83729	1	411.20	0.9999	411.161
AO83857	1	382.60	0.9998	382.522
AO83488	1	425.42	0.9998	425.335
AO83490	1	393.93	0.9998	393.851
AO83491	1	402.17	0.9998	402.094
AO83952	1	397.48	0.9998	397.400
AO83953	1	382.08	0.9998	382.000
AO83959	1	387.65	0.9998	387.570
8503	1	377.32	0.9998	377.243
8502	1	377.62	0.9998	377.543
8506	1	377.30	0.9998	377.226
8665	1	399.95	0.9999	399.909
8664	1	400.00	0.9999	399.963
8510	1	391.26	0.9998	391.177
AO83671	1	386.97	0.9999	386.928
AO83674	1	392.64	0.9999	392.598
AO83915	1	398.17	0.9999	398.125
AO83916	1	401.21	0.9999	401.171
AO83731	1			

		404.34	0.9999	404.297
AO83963	1	394.64	0.9999	394.599
AO83675	1	389.70	0.9999	389.663
AO83914	1	398.61	0.9999	398.573
AO83903	1	390.24	0.9999	390.198
AO83850	1	389.97	0.9998	389.887
AO84077	1	393.24	0.9998	393.165
AO83851	1	374.09	0.9998	374.014
AO84076	1	387.16	0.9998	387.082
AO81509	1	366.08	0.9998	366.002
AO81516	1	367.68	0.9998	367.603
AO85374	1	397.92	0.9998	397.840
AO85303	1	386.92	0.9998	386.843
AO85299	1	387.39	0.9998	387.313
AO85367	1	406.52	0.9998	406.439
AO85372	1	388.45	0.9998	388.372
AO85100	1	407.66	0.9995	407.456
AO84947	1	391.19	0.9998	391.112
AO84950	1	422.85	0.9998	422.765
AO84985	1	401.94	0.9998	401.860
AO83315	1	392.33	0.9999	392.294
AO84652	1	396.76	0.9999	396.718
AO83979	1			

		394.54	0.9999	394.500
AO84706	1	399.76	0.9999	399.719
AO84075	1	401.27	0.9998	401.193
AO83852	1	412.21	0.9998	412.123
AO83853	1	394.31	0.9998	394.230
AO83855	1	390.54	0.9998	390.463
AO84074	1	422.40	0.9998	422.318
AO83961	1	403.02	0.9998	402.939
AO83960	1	379.31	0.9998	379.230
AO83881	1	403.77	0.9998	403.693
AO83949	1	395.12	0.9998	395.042
AO81536	1	357.29	0.9998	357.220
AO83950	1	396.11	0.9998	396.026
AO81508	1	417.98	0.9998	417.897
AO81528	1	367.20	0.9998	367.128
AO83951	1	380.24	0.9998	380.163
AO83886	1	387.60	0.9998	387.522
AO83885	1	386.97	0.9998	386.893
AO83489	1	403.63	0.9998	403.552
AO83946	1	407.70	0.9998	407.618
AO84949	1	407.97	0.9998	407.888
AO84978	1	405.78	0.9998	405.699
AO85380	1			

		408.92	0.9998	408.838
AO84945	1	384.52	0.9998	384.443
AO85369	1	418.77	0.9998	418.686
AO84946	1	405.64	0.9998	405.559
AO84951	1	407.11	0.9998	407.029
AO84980	1	396.68	0.9998	396.601
AO85378	1	388.60	0.9998	388.522
AO85377	1	407.52	0.9998	407.438
AO84981	1	418.15	0.9998	418.066
AO85306	1	389.75	0.9998	389.672
AO85300	1	409.91	0.9998	409.828
AO85307	1	392.39	0.9998	392.312
AO85302	1	397.03	0.9998	396.951
AO85103	1	399.15	0.9995	398.950
8734	1	400.10	0.9999	400.060
8733	1	399.93	0.9999	399.885
8732	1	400.13	0.9999	400.085
8819	1	400.05	0.9998	399.970
8790	1	399.98	0.9998	399.895
AO84948	1	410.85	0.9998	410.768
AO85373	1	404.06	0.9998	403.979
AO85297	1	395.54	0.9998	395.461
AO84984	1			

		421.25	0.9998	421.166
AO85106	1	408.76	0.9995	408.556
AO84983	1	403.64	0.9998	403.559
AO85368	1	393.17	0.9998	393.091
AO85376	1	388.39	0.9998	388.312
AO85295	1	398.85	0.9998	398.770
AO85298	1	404.85	0.9998	404.769
AO85304	1	389.00	0.9998	388.922
AO85301	1	387.20	0.9998	387.123
AO85370	1	387.30	0.9998	387.223
AO85102	1	382.05	0.9995	381.859
AO85305	1	401.55	0.9998	401.470
AO85104	1	404.72	0.9995	404.518
AO85296	1	403.76	0.9998	403.679
AO84979	1	413.01	0.9998	412.927
AO84982	1	395.39	0.9998	395.311
8836	1	399.88	0.9998	399.795
8803	1	399.95	0.9999	399.910
8802	1	399.90	0.9999	399.860
8801	1	399.93	0.9999	399.885
8799	1	399.98	0.9999	399.935
8804	1	399.83	0.9999	399.785
8798	1			

		399.98	0.9999	399.935
8796	1	399.95	0.9999	399.910
8795	1	399.90	0.9999	399.860
8696	1	400.08	0.9999	400.034
8694	1	400.08	0.9999	400.034
8743	1	399.93	0.9998	399.845
8823	1	399.90	0.9998	399.820
AO84730	1	394.38	0.9999	394.341
AO84735	1	400.28	0.9999	400.242
AO84810	1	397.34	0.9999	397.303
AO84811	1	400.82	0.9999	400.776
AO84745	1	395.39	0.9999	395.351
AO84815	1	411.50	0.9999	411.458
AO85371	1	401.38	0.9998	401.300
AO85105	1	389.80	0.9995	389.605
AO85101	1	395.43	0.9995	395.232
A085379	1	407.15	0.9998	407.069
8808	1	399.93	0.9998	399.845
8805	1	400.23	0.9998	400.144
8822	1	399.85	0.9998	399.770
8844	1	399.95	0.9998	399.870
8821	1	399.98	0.9998	399.895
8791	1			

		399.95	0.9998	399.870
8728	1	400.10	0.9999	400.060
8834	1	399.90	0.9998	399.820
8794	1	399.85	0.9999	399.810
8817	1	400.03	0.9998	399.945
8837	1	399.93	0.9998	399.845
8820	1	400.00	0.9998	399.920
8793	1	399.95	0.9998	399.870
8842	1	399.85	0.9998	399.770
8843	1	400.03	0.9998	399.945
8845	1	400.00	0.9998	399.920
8838	1	399.88	0.9998	399.795
8827	1	400.08	0.9998	399.995
8775	1	399.93	0.9998	399.845
8746	1	399.93	0.9998	399.845
8818	1	400.10	0.9998	400.020
8835	1	399.93	0.9998	399.845
8833	1	399.93	0.9998	399.845
8730	1	399.88	0.9999	399.835
8739	1	399.93	0.9998	399.845
8740	1	399.90	0.9998	399.820
8741	1	399.95	0.9998	399.870
8742	1			

		400.05	0.9998	399.970
8727	1	400.10	0.9999	400.060
8729	1	399.70	0.9999	399.660
8738	1	399.90	0.9998	399.820
8747	1	399.90	0.9998	399.820
8832	1	399.93	0.9998	399.845
8824	1	399.93	0.9998	399.845
8825	1	399.95	0.9998	399.870
8826	1	399.90	0.9998	399.820
8830	1	399.93	0.9998	399.845
8831	1	399.85	0.9998	399.770
8731	1	399.88	0.9999	399.835
8846	1	399.93	0.9998	399.845
3310	1	411.88	0.9996	411.715
3308	1	389.68	0.9996	389.524
3315	1	396.97	0.9996	396.811
3316	1	395.43	0.9996	395.272
3314	1	389.38	0.9996	389.224
3311	1	400.80	0.9996	400.640
3309	1	422.52	0.9996	422.351
3313	1	392.61	0.9996	392.453
3312	1	392.89	0.9996	392.733
8745	1			

		400.70	0.9998	400.620
8500	1	398.55	0.9996	398.387
8499	1	398.55	0.9996	398.390
8496	1	398.55	0.9996	398.388
8613	1	414.54	0.9998	414.455
8511	1	390.83	0.9998	390.753
8616	1	414.46	0.9998	414.376
8725	1	399.93	0.9998	399.845
8726	1	399.80	0.9998	399.720
8720	1	399.93	0.9998	399.845
8718	1	400.35	0.9998	400.269
8714	1	399.85	0.9998	399.770
8723	1	399.98	0.9998	399.895
8719	1	400.08	0.9998	399.994
8715	1	399.88	0.9998	399.795
8717	1	399.78	0.9998	399.695
8716	1	399.93	0.9998	399.845
8762	1	399.90	0.9998	399.820
8620	1	419.98	0.9998	419.895
8617	1	414.93	0.9998	414.844
8495	1	398.52	0.9996	398.360
8498	1	398.53	0.9996	398.374
8493	1			

		398.54	0.9996	398.378
8494	1	399.17	0.9996	399.010
8515	1	390.99	0.9998	390.911
8612	1	390.68	0.9998	390.601
8611	1	390.65	0.9998	390.575
8492	1	398.46	0.9996	398.300
8809	1	399.93	0.9998	399.845
8810	1	399.93	0.9998	399.845
8807	1	399.95	0.9998	399.870
8813	1	400.00	0.9998	399.920
8815	1	400.13	0.9998	400.044
8814	1	399.93	0.9998	399.845
8812	1	399.93	0.9998	399.845
8816	1	400.08	0.9998	399.994
8811	1	399.93	0.9998	399.845
8770	1	400.00	0.9998	399.920
8771	1	399.95	0.9998	399.870
8765	1	399.93	0.9998	399.845
8766	1	399.95	0.9998	399.870
8767	1	399.95	0.9998	399.870
8763	1	400.00	0.9998	399.920
8768	1	399.98	0.9998	399.895
8764	1			

		399.98	0.9998	399.895
8769	1	399.95	0.9998	399.870
8772	1	399.95	0.9998	399.870
8773	1	399.95	0.9998	399.870
8774	1	399.88	0.9998	399.795
8721	1	399.88	0.9998	399.795
AO84752	1	395.80	0.9999	395.761
3009	1	412.64	0.9999	412.599
8829	1	399.88	0.9998	399.795
8792	1	399.95	0.9998	399.870
8744	1	399.83	0.9998	399.745
8839	1	398.98	0.9998	398.895
8840	1	399.95	0.9998	399.870
8806	1	399.93	0.9998	399.845
8513	1	390.95	0.9998	390.874
8610	1	390.65	0.9998	390.567
8509	1	390.98	0.9998	390.899
8618	1	412.20	0.9998	412.114
8615	1	414.64	0.9998	414.556
8614	1	414.91	0.9998	414.825
8608	1	390.72	0.9998	390.642
8514	1	390.99	0.9998	390.913
AO84753	1			

		394.01	0.9999	393.971
AO84854	1	407.90	0.9999	407.859
AO84749	1	404.54	0.9999	404.500
8609	1	390.82	0.9998	390.745
8704	1	399.93	0.9998	399.845
8700	1	399.85	0.9998	399.770
8705	1	399.83	0.9998	399.745
8703	1	399.93	0.9998	399.845
8707	1	399.90	0.9998	399.820
8702	1	399.88	0.9998	399.795
17249	1	391.55	0.9999	391.511
17897	1	405.70	0.9999	405.659
17905	1	408.68	0.9999	408.634
8761	1	399.95	0.9998	399.870
8701	1	399.75	0.9998	399.670
8708	1	399.68	0.9998	399.595
E67064	1	400.45	0.9999	400.410
E67207	1	399.75	0.9999	399.710
16204	1	415.08	0.9999	415.033
16208	1	410.53	0.9999	410.484
17253	1	394.75	0.9999	394.711
17261	1	394.73	0.9999	394.686
17260	1			

		420.80	0.9999	420.758
17038	1	424.00	0.9999	423.958
17035	1	416.43	0.9999	416.383
17029	1	401.63	0.9999	401.585
17031	1	421.05	0.9999	421.008
A084442	1	392.63	0.9998	392.551
A084432	1	386.76	0.9997	386.644
3166	1	409.98	0.9996	409.819
A083640	1	404.13	0.9998	404.044
A083847	1	391.91	0.9998	391.835
A083644	1	426.76	0.9998	426.674
A083846	1	397.61	0.9998	397.528
A083496	1	426.71	0.9998	426.624
A083645	1	384.74	0.9998	384.667
A083848	1	389.28	0.9998	389.201
A083614	1	382.84	0.9998	382.761
A083653	1	390.72	0.9998	390.642
A083650	1	411.17	0.9998	411.087
A083651	1	383.14	0.9998	383.067
A083649	1	403.27	0.9998	403.188
A083647	1	421.80	0.9998	421.716
A083652	1	419.87	0.9998	419.785
A083641	1			

		395.12	0.9998	395.042
A083642	1	408.00	0.9998	407.914
E67032	1	403.68	0.9999	403.640
8667	1	399.90	0.9997	399.780
8676	1	383.58	0.9996	383.421
8673	1	400.68	0.9997	400.554
8674	1	400.58	0.9997	400.454
8675	1	383.58	0.9996	383.421
8669	1	400.60	0.9997	400.479
8666	1	399.83	0.9997	399.705
8672	1	400.65	0.9997	400.529
8671	1	400.58	0.9997	400.454
8670	1	400.68	0.9997	400.554
E67028	1	401.89	0.9999	401.850
E67027	1	403.06	0.9999	403.020
E67029	1	403.75	0.9999	403.710
8624	1	420.25	0.9998	420.162
8699	1	399.98	0.9998	399.895
8706	1	399.90	0.9998	399.820
84435	1	391.13	0.9998	391.052
84447	1	380.74	0.9998	380.664
84437	1	426.30	0.9998	426.215
84430	1			

		389.85	0.9997	389.733
84443	1	390.61	0.9998	390.532
84448	1	390.83	0.9998	390.752
84414	1	428.48	0.9998	428.394
84436	1	401.90	0.9998	401.820
84444	1	420.55	0.9998	420.466
84413	1	390.42	0.9998	390.342
84464	1	385.34	0.9998	385.263
E67065	1	403.13	0.9999	403.090
E67031	1	401.02	0.9999	400.980
E67034	1	399.47	0.9999	399.430
E67024	1	399.28	0.9999	399.240
E67030	1	401.02	0.9999	400.980
E67026	1	401.75	0.9999	401.710
E67025	1	401.49	0.9999	401.450
E67035	1	399.91	0.9999	399.870
8668	1	400.68	0.9997	400.554
8677	1	383.60	0.9996	383.446
E67209	1	400.76	0.9999	400.720
E67210	1	400.73	0.9999	400.690
E67208	1	399.02	0.9999	398.980
E67251	1	398.44	0.9999	398.400
E67213	1			

		400.75	0.9998	400.670
E67250	1	399.03	0.9999	398.990
E67215	1	399.04	0.9998	398.960
E67214	1	400.30	0.9998	400.220
E67211	1	403.16	0.9998	403.079
E67212	1	400.93	0.9998	400.850
E67216	1	399.22	0.9998	399.140
17899	1	411.53	0.9999	411.484
17906	1	406.43	0.9999	406.384
17257	1	391.98	0.9999	391.936
17901	1	406.53	0.9999	406.484
17250	1	414.83	0.9999	414.784
17904	1	418.58	0.9999	418.533
17900	1	413.38	0.9999	413.334
17258	1	406.55	0.9999	406.509
17259	1	420.63	0.9999	420.583
17898	1	408.30	0.9999	408.259
17252	1	415.65	0.9999	415.608
17254	1	413.13	0.9999	413.084
17902	1	400.48	0.9999	400.435
17255	1	416.40	0.9999	416.358
17256	1	420.78	0.9999	420.733
17895	1			

		416.40	0.9999	416.358
3167	1	394.64	0.9996	394.485
3162	1	392.86	0.9996	392.706
17251	1	420.58	0.9999	420.533
3164	1	403.06	0.9996	402.898
3163	1	406.76	0.9996	406.596
3165	1	406.59	0.9996	406.430
84440	1	387.66	0.9998	387.582
84441	1	384.34	0.9998	384.263
84431	1	402.77	0.9997	402.649
84438	1	406.67	0.9998	406.589
84463	1	393.49	0.9998	393.411
84428	1	426.02	0.9997	425.892
84429	1	389.80	0.9997	389.683
84439	1	391.17	0.9998	391.092
84462	1	393.41	0.9998	393.331
3132	1	395.79	0.9996	395.632
3134	1	408.16	0.9996	407.997
3172	1	412.07	0.9996	411.905
3136	1	413.69	0.9996	413.525
3173	1	391.05	0.9996	390.894
3135	1	388.63	0.9996	388.475
3138	1			

		371.96	0.9996	371.811
3139	1	390.27	0.9996	390.114
3137	1	402.33	0.9996	402.169
E66110	1	404.55	0.9999	404.510
2946	1	387.51	0.9996	387.355
2955	1	399.21	0.9996	399.050
2954	1	394.81	0.9996	394.652
2952	1	414.48	0.9996	414.314
84128	1	396.96	0.9998	396.881
84216	1	414.85	0.9998	414.767
84124	1	398.17	0.9998	398.090
84126	1	395.45	0.9998	395.371
16203	1	419.35	0.9999	419.308
16202	1	411.90	0.9999	411.859
E66936	1	402.70	0.9999	402.660
E67033	1	398.50	0.9999	398.460
3140	1	405.56	0.9996	405.398
3171	1	402.44	0.9996	402.279
3133	1	397.25	0.9996	397.091
84213	1	389.82	0.9998	389.742
84214	1	396.16	0.9998	396.081
84215	1	390.20	0.9998	390.122
84210	1			

1900 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		386.88	0.9998	386.803
84149	1	393.11	0.9998	393.031
84211	1	405.61	0.9998	405.529
84147	1	414.95	0.9998	414.867
84129	1	400.63	0.9998	400.550
84152	1	389.69	0.9998	389.612
84151	1	392.30	0.9998	392.222
84150	1	386.51	0.9998	386.433
84148	1	398.48	0.9998	398.400
84145	1	388.92	0.9998	388.842
84146	1	385.97	0.9998	385.893
84114	1	404.16	0.9998	404.079
84115	1	385.70	0.9998	385.623
84212	1	389.90	0.9998	389.822
84117	1	385.39	0.9998	385.313
84116	1	392.86	0.9998	392.781
84130	1	403.35	0.9998	403.269
84125	1	417.62	0.9998	417.536
84127	1	389.85	0.9998	389.772
17037	1	391.75	0.9999	391.711
17033	1	405.78	0.9999	405.734
16927	1	392.33	0.9999	392.286
17313	1			

		392.80	0.9999	392.761
17309	1	395.90	0.9999	395.860
17042	1	418.15	0.9999	418.108
17036	1	420.33	0.9999	420.283
17041	1	399.43	0.9999	399.385
17030	1	413.88	0.9999	413.834
17032	1	412.58	0.9999	412.534
17040	1	413.18	0.9999	413.134
17034	1	424.28	0.9999	424.233
17039	1	415.85	0.9999	415.808
3011	1	388.34	0.9999	388.301
E66109	1	400.08	0.9999	400.040
2953	1	416.56	0.9996	416.393
2948	1	385.13	0.9996	384.976
2949	1	410.41	0.9996	410.246
2951	1	393.37	0.9996	393.213
2947	1	407.43	0.9996	407.267
2950	1	398.27	0.9996	398.111
16521	1	417.48	0.9999	417.433
83423	1	400.40	0.9999	400.360
83425	1	403.68	0.9999	403.640
83473	1	388.92	0.9999	388.881
83379	1			

1902 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		401.35	0.9999	401.310
83383	1	397.66	0.9999	397.620
3014	1	391.93	0.9999	391.891
3010	1	382.72	0.9999	382.682
3004	1	383.17	0.9999	383.132
3001	1	386.03	0.9999	385.991
83373	1	394.54	0.9999	394.501
83426	1	395.96	0.9999	395.920
83621	1	407.90	0.9998	407.818
83620	1	401.19	0.9998	401.110
83677	1	402.35	0.9998	402.270
83676	1	402.90	0.9998	402.819
83708	1	405.23	0.9998	405.149
E66884	1	399.05	0.9999	399.010
E66888	1	402.89	0.9998	402.809
E66851	1	399.22	0.9999	399.180
E57290	1	399.91	0.9999	399.870
E66885	1	399.81	0.9999	399.770
2902	1	385.83	0.9996	385.676
83377	1	401.91	0.9999	401.870
16790	1	410.88	0.9999	410.834
16791	1	392.95	0.9999	392.911
16789	1			

		409.85	0.9999	409.809
83680	1	400.18	0.9998	400.100
83683	1	405.93	0.9998	405.849
83684	1	414.28	0.9998	414.197
83706	1	414.85	0.9998	414.767
83679	1	405.71	0.9998	405.629
83619	1	406.11	0.9998	406.029
83623	1	422.97	0.9998	422.885
2904	1	386.39	0.9996	386.235
2903	1	421.54	0.9996	421.371
2907	1	393.55	0.9996	393.393
2901	1	401.06	0.9996	400.900
2900	1	388.06	0.9996	387.905
2908	1	401.47	0.9996	401.309
81487	1	364.83	0.9998	364.757
2798	1	397.44	0.9995	397.241
2800	1	428.86	0.9995	428.646
2799	1	418.45	0.9995	418.241
2778	1	396.19	0.9996	396.032
2804	1	421.85	0.9995	421.639
2806	1	392.27	0.9995	392.074
2803	1	415.57	0.9995	415.362
8327	1			

		394.85	0.9999	394.810
8331	1	394.85	0.9999	394.810
8396	1	392.68	0.9998	392.596
8385	1	419.80	0.9999	419.758
8383	1	399.78	0.9999	399.735
8388	1	420.05	0.9999	420.007
8387	1	420.13	0.9999	420.082
8398	1	392.78	0.9998	392.696
8382	1	399.75	0.9999	399.710
8377	1	399.80	0.9999	399.760
8332	1	394.75	0.9999	394.710
8390	1	392.60	0.9998	392.521
8392	1	392.73	0.9998	392.646
8376	1	399.78	0.9999	399.735
81486	1	360.14	0.9998	360.068
83376	1	406.63	0.9999	406.589
83382	1	410.74	0.9999	410.699
83381	1	408.14	0.9999	408.099
83374	1	408.49	0.9999	408.449
83375	1	417.39	0.9999	417.348
83474	1	427.85	0.9999	427.807
83422	1	405.04	0.9999	404.999
83380	1			

		425.32	0.9999	425.277
83378	1	417.40	0.9999	417.358
83428	1	427.33	0.9999	427.287
83427	1	416.26	0.9999	416.218
83424	1	408.40	0.9999	408.359
AO85113	1	406.99	0.9995	406.787
17132	1	393.03	0.9999	392.986
16802	1	391.80	0.9999	391.761
16794	1	386.43	0.9999	386.386
16798	1	388.28	0.9999	388.236
8172	1	377.73	0.9999	377.687
8171	1	377.88	0.9999	377.837
83685	1	397.87	0.9998	397.790
83625	1	393.37	0.9998	393.291
83682	1	398.25	0.9998	398.170
83622	1	394.42	0.9998	394.341
83705	1	397.27	0.9998	397.191
83678	1	396.54	0.9998	396.461
83624	1	387.03	0.9998	386.953
83707	1	396.44	0.9998	396.361
83681	1	360.26	0.9998	360.188
8384	1	399.88	0.9999	399.835
8386	1			

1906 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		419.95	0.9999	419.908
8329	1	394.88	0.9999	394.835
8397	1	392.60	0.9998	392.521
8391	1	392.65	0.9998	392.571
8393	1	392.70	0.9998	392.621
8330	1	394.85	0.9999	394.810
9293	1	405.93	0.9998	405.844
9290	1	406.73	0.9998	406.644
9295	1	405.93	0.9998	405.844
9294	1	405.95	0.9998	405.869
9292	1	405.95	0.9998	405.869
9289	1	405.98	0.9998	405.894
9291	1	405.93	0.9998	405.844
E66438	1	402.12	0.9999	402.079
E66436	1	403.49	0.9999	403.449
E68118	1	399.36	0.9999	399.320
E66437	1	397.17	0.9999	397.130
E68124	1	403.38	0.9999	403.340
KK5141	1	416.65	0.9999	416.608
KK5140	1	386.95	0.9999	386.911
E68125	1	401.29	0.9999	401.250
E68126	1	404.93	0.9999	404.890
E68127	1			

		401.23	0.9999	401.190
E68121	1	401.63	0.9999	401.590
E68119	1	401.35	0.9999	401.310
E68122	1	400.02	0.9999	399.980
E68120	1	401.30	0.9999	401.260
E68123	1	403.26	0.9999	403.220
9311	1	407.53	0.9999	407.484
2899	1	405.16	0.9996	404.998
2905	1	403.87	0.9996	403.708
16504	1	418.53	0.9999	418.483
16434	1	419.28	0.9999	419.233
16525	1	419.50	0.9999	419.458
KK5156	1	394.65	0.9999	394.611
KK5161	1	386.88	0.9999	386.836
KK5166	1	401.00	0.9999	400.960
KK5165	1	402.78	0.9999	402.735
KK5171	1	403.58	0.9999	403.535
KK5163	1	388.75	0.9999	388.711
KK5187	1	379.80	0.9999	379.762
KK5148	1	399.63	0.9999	399.585
KK5159	1	389.65	0.9999	389.611
KK5170	1	405.60	0.9999	405.559
2779	1			

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		399.08	0.9996	398.920
2781	1	380.31	0.9996	380.158
2805	1	422.35	0.9995	422.139
2801	1	419.20	0.9995	418.990
2802	1	418.94	0.9995	418.731
9542	1	371.50	0.9999	371.463
9549	1	401.63	0.9998	401.545
9344	1	406.68	0.9999	406.634
9552	1	401.63	0.9998	401.545
9361	1	399.90	0.9999	399.860
9305	1	394.15	0.9999	394.111
9245	1	376.60	0.9999	376.562
9535	1	414.58	0.9999	414.534
9567	1	384.88	0.9997	384.760
9568	1	384.83	0.9997	384.710
9560	1	401.60	0.9998	401.520
9482	1	395.68	0.9998	395.596
9557	1	402.18	0.9998	402.095
9565	1	401.58	0.9998	401.495
9566	1	384.88	0.9997	384.760
9548	1	401.63	0.9998	401.545
9556	1	401.60	0.9998	401.520
9152	1			

		405.45	0.9999	405.409
9266	1	399.65	0.9999	399.610
9275	1	400.50	0.9999	400.460
9271	1	400.60	0.9999	400.560
9272	1	400.60	0.9999	400.560
8858	1	400.00	0.9999	399.963
9356	1	414.93	0.9997	414.800
8863	1	400.09	0.9999	400.047
9270	1	399.55	0.9999	399.510
9268	1	399.63	0.9999	399.585
9269	1	399.45	0.9999	399.410
8864	1	400.07	0.9999	400.028
8866	1	400.12	0.9999	400.078
8865	1	400.11	0.9999	400.068
8871	1	400.15	0.9999	400.107
9360	1	399.90	0.9999	399.860
9354	1	414.85	0.9997	414.725
9260	1	399.60	0.9999	399.560
9359	1	399.93	0.9999	399.885
9355	1	415.23	0.9997	415.100
9362	1	399.93	0.9999	399.885
9304	1	395.78	0.9999	395.735
8395	1			

		393.68	0.9998	393.596
8323	1	394.83	0.9999	394.785
8325	1	394.85	0.9999	394.810
8400	1	392.65	0.9998	392.571
8401	1	392.63	0.9998	392.546
8378	1	399.85	0.9999	399.810
8394	1	392.60	0.9998	392.521
8399	1	392.70	0.9998	392.621
8328	1	394.80	0.9999	394.760
8324	1	394.83	0.9999	394.785
8322	1	394.85	0.9999	394.810
24371	1	400.58	0.9999	400.535
24370	1	420.33	0.9999	420.283
24369	1	405.25	0.9999	405.209
24368	1	396.30	0.9999	396.260
24367	1	395.35	0.9999	395.310
24366	1	391.45	0.9999	391.410
24365	1	391.33	0.9999	391.285
9578	1	384.48	0.9999	384.436
9586	1	416.13	0.9999	416.083
9484	1	395.68	0.9998	395.596
9564	1	401.58	0.9998	401.495
9346	1			

		406.58	0.9999	406.534
9536	1	414.55	0.9999	414.509
9574	1	384.45	0.9999	384.411
9258	1	399.65	0.9999	399.610
3550	1	408.59	0.9996	408.427
9488	1	375.20	0.9997	375.087
9495	1	380.30	0.9997	380.186
9492	1	375.43	0.9997	375.312
9576	1	384.45	0.9999	384.411
9496	1	379.38	0.9997	379.261
9563	1	401.60	0.9998	401.520
9579	1	384.48	0.9999	384.436
9504	1	387.33	0.9997	387.209
9582	1	416.05	0.9999	416.008
9503	1	387.45	0.9997	387.334
9497	1	379.35	0.9997	379.236
9494	1	376.15	0.9997	376.037
9499	1	379.40	0.9997	379.286
9490	1	374.65	0.9997	374.538
9478	1	395.68	0.9998	395.596
9577	1	385.40	0.9999	385.361
9262	1	399.65	0.9999	399.610
8860	1			

		399.80	0.9999	399.760
8861	1	399.88	0.9999	399.835
9477	1	395.68	0.9998	395.596
9493	1	375.28	0.9997	375.162
9259	1	399.60	0.9999	399.560
9257	1	399.60	0.9999	399.560
9569	1	384.85	0.9997	384.735
9561	1	402.98	0.9998	402.894
9562	1	401.60	0.9998	401.520
9553	1	401.60	0.9998	401.520
9498	1	379.40	0.9997	379.286
9585	1	416.13	0.9999	416.083
9575	1	384.48	0.9999	384.436
9551	1	401.63	0.9998	401.545
9580	1	384.48	0.9999	384.436
9550	1	401.58	0.9998	401.495
9345	1	406.63	0.9999	406.584
9847	1	412.73	0.9998	412.642
9848	1	392.48	0.9999	392.436
9828	1	394.03	0.9999	393.986
9927	1	383.15	0.9998	383.073
9925	1	383.15	0.9998	383.073
9846	1			

		413.03	0.9998	412.942
9581	1	419.35	0.9999	419.308
8875	1	399.90	0.9999	399.860
9573	1	384.88	0.9997	384.760
9572	1	384.85	0.9997	384.735
9347	1	406.65	0.9999	406.609
9489	1	375.35	0.9997	375.237
9583	1	416.15	0.9999	416.108
9500	1	379.33	0.9997	379.211
9505	1	387.43	0.9997	387.309
9491	1	375.28	0.9997	375.162
9501	1	379.40	0.9997	379.286
9502	1	379.40	0.9997	379.286
6396 C	1	403.95	0.9999	403.910
6403 C	1	394.80	0.9999	394.761
6406 C	1	377.78	0.9999	377.737
6384 C	1	380.03	0.9999	379.987
6378 C	1	393.48	0.9999	393.436
6385 C	1	375.50	0.9999	375.462
6374 C	1	388.83	0.9999	388.786
9724	1	403.30	0.9999	403.260
9723	1	403.03	0.9999	402.985
9421	1			

		419.63	0.9999	419.583
24374	1	399.03	0.9999	398.985
24375	1	395.35	0.9999	395.310
24376	1	388.78	0.9999	388.736
24377	1	409.15	0.9999	409.109
24378	1	389.10	0.9999	389.061
24379	1	414.03	0.9999	413.983
24380	1	399.13	0.9999	399.085
24381	1	400.35	0.9999	400.310
24382	1	404.33	0.9999	404.284
24383	1	401.48	0.9999	401.434
24372	1	406.13	0.9999	406.084
E69458	1	399.97	0.9998	399.890
E69457	1	404.95	0.9998	404.869
E69584	1	401.14	0.9998	401.060
E69583	1	400.38	0.9998	400.300
E69582	1	399.25	0.9998	399.170
E69581	1	399.13	0.9998	399.050
E69580	1	400.08	0.9998	400.000
E69579	1	399.73	0.9998	399.650
E69578	1	398.83	0.9998	398.750
E69577	1	401.08	0.9998	401.000
E69576	1			

		402.40	0.9998	402.320
E68662	1	400.06	0.9999	400.020
E68641	1	398.17	0.9999	398.130
E68704	1	402.35	0.9999	402.310
E68667	1	400.60	0.9999	400.560
AO91174	1	399.63	0.9998	399.550
AO91143	1	393.36	0.9998	393.281
9838	1	412.83	0.9998	412.742
9845	1	412.78	0.9998	412.692
9840	1	412.85	0.9998	412.767
9843	1	412.85	0.9998	412.767
9439	1	391.85	0.9999	391.811
9442	1	391.95	0.9999	391.911
9441	1	392.08	0.9999	392.036
9587	1	416.13	0.9999	416.083
9443	1	392.08	0.9999	392.036
9440	1	392.05	0.9999	392.011
9595	1	416.05	0.9999	416.008
E68669	1	402.52	0.9999	402.480
E68672	1	400.43	0.9999	400.390
E68707	1	402.95	0.9999	402.910
E68673	1	399.49	0.9999	399.450
E68671	1			

		402.59	0.9999	402.550
12662	1	395.78	0.9999	395.735
91155	1	398.19	0.9998	398.110
91175	1	398.56	0.9998	398.480
91153	1	403.89	0.9998	403.809
3576	1	395.75	0.9996	395.592
3579	1	399.58	0.9996	399.415
9930	1	382.98	0.9998	382.898
9923	1	398.98	0.9997	398.855
9924	1	383.10	0.9998	383.023
9919	1	398.43	0.9997	398.305
9920	1	398.45	0.9997	398.330
9921	1	398.33	0.9997	398.205
9922	1	398.35	0.9997	398.230
9928	1	383.15	0.9998	383.073
9931	1	383.10	0.9998	383.023
9932	1	383.15	0.9998	383.073
9837	1	412.88	0.9998	412.792
9416	1	373.53	0.9999	373.488
9415	1	373.55	0.9999	373.513
9412	1	373.53	0.9999	373.488
9413	1	373.58	0.9999	373.538
9414	1			

		373.53	0.9999	373.488
9841	1	412.83	0.9998	412.742
9844	1	412.85	0.9998	412.767
9929	1	383.13	0.9998	383.048
9926	1	383.13	0.9998	383.048
9842	1	412.88	0.9998	412.792
9839	1	412.78	0.9998	412.692
12497	1	413.18	0.9999	413.134
12448	1	410.43	0.9999	410.384
12502	1	404.68	0.9999	404.635
12584	1	408.15	0.9999	408.109
91156	1	393.10	0.9998	393.021
68933	1	398.48	0.9995	398.281
12485	1	392.45	0.9999	392.411
12482	1	398.33	0.9999	398.285
12488	1	391.85	0.9999	391.811
12489	1	392.40	0.9999	392.361
91150	1	387.21	0.9998	387.133
91137	1	401.78	0.9998	401.700
12484	1	396.08	0.9999	396.035
12495	1	404.28	0.9999	404.235
12493	1	394.38	0.9999	394.336
12583	1			

		408.83	0.9999	408.784
12586	1	394.40	0.9999	394.361
12539	1	400.45	0.9999	400.410
12504	1	399.50	0.9999	399.460
12503	1	396.03	0.9999	395.985
12501	1	407.93	0.9999	407.884
90433	1	396.20	0.9999	396.160
90443	1	400.10	0.9999	400.060
90441	1	401.23	0.9999	401.185
90453	1	397.55	0.9999	397.510
90439	1	399.65	0.9999	399.610
90353	1	399.23	0.9999	399.185
90429	1	401.23	0.9999	401.185
90448	1	401.73	0.9999	401.685
90444	1	401.20	0.9999	401.160
90438	1	400.93	0.9999	400.885
90464	1	397.55	0.9999	397.510
90447	1	398.75	0.9999	398.710
91135	1	393.96	0.9998	393.881
91151	1	400.34	0.9998	400.260
91152	1	396.30	0.9998	396.221
91140	1	401.62	0.9998	401.540
91134	1			

		409.74	0.9998	409.658
91141	1	410.27	0.9998	410.188
91138	1	413.97	0.9998	413.887
91139	1	408.79	0.9998	408.708
91149	1	395.68	0.9998	395.601
91154	1	397.99	0.9998	397.910
91173	1	400.17	0.9998	400.090
91176	1	395.68	0.9998	395.601
90867	1	399.51	0.9999	399.470
91177	1	402.90	0.9998	402.819
91179	1	397.76	0.9998	397.680
91178	1	401.18	0.9998	401.100
90866	1	393.04	0.9999	393.001
69091	1	405.01	0.9997	404.888
69093	1	404.13	0.9997	404.009
69094	1	401.06	0.9997	400.940
69089	1	399.51	0.9997	399.390
69090	1	403.35	0.9997	403.229
69028	1	398.36	0.9997	398.240
69031	1	404.81	0.9997	404.689
69086	1	400.53	0.9997	400.410
68725	1	404.75	0.9999	404.710
22351	1			

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		389.95	0.9999	389.911
22350	1	398.28	0.9999	398.235
22360	1	392.15	0.9999	392.110
22358	1	401.18	0.9999	401.134
3660	1	421.90	0.9996	421.731
9821	1	414.90	0.9998	414.817
9822	1	414.90	0.9998	414.817
9823	1	415.60	0.9998	415.516
9824	1	414.90	0.9998	414.817
9825	1	414.93	0.9998	414.842
9826	1	414.83	0.9998	414.742
9827	1	414.75	0.9998	414.667
90451	1	401.70	0.9999	401.660
90452	1	406.30	0.9999	406.259
90449	1	405.45	0.9999	405.409
90463	1	403.95	0.9999	403.910
90460	1	404.15	0.9999	404.110
90462	1	396.88	0.9999	396.835
90469	1	401.30	0.9999	401.260
90446	1	395.85	0.9999	395.810
90465	1	408.98	0.9999	408.934
3553	1	402.05	0.9996	401.889
3654	1			

		416.40	0.9996	416.233
3661	1	416.25	0.9996	416.084
3575	1	408.25	0.9996	408.087
3577	1	399.73	0.9996	399.565
3656	1	406.48	0.9996	406.312
69092	1	399.95	0.9997	399.830
69087	1	404.55	0.9997	404.429
69088	1	402.30	0.9997	402.179
69095	1	399.55	0.9997	399.430
68713	1	399.90	0.9999	399.860
68784	1	403.02	0.9999	402.980
68722	1	398.64	0.9999	398.600
68723	1	404.22	0.9999	404.180
68726	1	400.76	0.9999	400.720
9818	1	414.93	0.9998	414.842
9817	1	414.95	0.9998	414.867
9816	1	414.73	0.9998	414.642
9819	1	414.90	0.9998	414.817
9820	1	414.80	0.9998	414.717
9507	1	404.75	0.9999	404.710
9540	1	371.45	0.9999	371.413
9538	1	371.43	0.9999	371.388
9544	1			

		371.43	0.9999	371.388
9541	1	371.45	0.9999	371.413
9537	1	371.78	0.9999	371.738
9350	1	406.65	0.9999	406.609
9545	1	399.43	0.9997	399.305
9543	1	371.45	0.9999	371.413
9351	1	406.68	0.9999	406.634
9349	1	406.68	0.9999	406.634
3709	1	403.28	0.9996	403.119
3691	1	403.48	0.9996	403.319
3680	1	412.16	0.9996	411.995
3679	1	391.75	0.9996	391.593
3689	1	396.20	0.9996	396.042
3684	1	424.47	0.9996	424.300
3681	1	401.15	0.9996	400.990
3683	1	415.09	0.9996	414.924
3687	1	393.35	0.9996	393.193
3706	1	397.91	0.9996	397.751
22353	1	395.08	0.9999	395.035
22335	1	401.38	0.9999	401.334
22352	1	399.48	0.9999	399.435
22359	1	397.30	0.9999	397.260
22336	1			

		400.13	0.9999	400.085
22357	1	397.68	0.9999	397.635
22425	1	391.55	0.9999	391.510
22354	1	393.58	0.9999	393.535
22424	1	402.18	0.9999	402.134
22329	1	402.40	0.9999	402.359
22328	1	401.65	0.9999	401.609
3759	1	411.48	0.9996	411.315
3757	1	408.90	0.9996	408.736
3758	1	406.30	0.9996	406.137
3760	1	410.12	0.9996	409.956
3761	1	409.89	0.9996	409.726
3658	1	427.35	0.9996	427.179
3657	1	403.20	0.9996	403.039
3659	1	409.88	0.9996	409.711
3653	1	410.25	0.9996	410.086
3574	1	419.85	0.9996	419.682
68712	1	398.75	0.9999	398.710
68711	1	401.02	0.9999	400.980
68785	1	401.63	0.9999	401.590
68727	1	401.07	0.9999	401.030
68746	1	399.85	0.9998	399.770
68745	1			

		403.03	0.9998	402.949
68750	1	398.55	0.9998	398.470
68739	1	401.65	0.9998	401.570
3746	1	401.89	0.9996	401.729
68631	1	400.84	0.9999	400.800
68636	1	401.32	0.9999	401.280
68603	1	400.75	0.9999	400.710
68602	1	402.14	0.9999	402.100
68632	1	400.38	0.9999	400.340
68600	1	399.31	0.9999	399.270
68637	1	399.81	0.9999	399.770
68633	1	402.28	0.9999	402.240
68634	1	403.39	0.9999	403.350
68731	1	398.87	0.9999	398.830
68783	1	403.79	0.9999	403.749
68714	1	397.63	0.9999	397.590
68782	1	398.37	0.9999	398.330
3686	1	402.77	0.9996	402.609
3682	1	393.24	0.9996	393.083
3690	1	405.20	0.9996	405.038
3704	1	403.38	0.9996	403.219
3744	1	396.63	0.9996	396.471
3747	1			

		422.89	0.9996	422.721
3745	1	407.77	0.9996	407.607
3707	1	382.04	0.9996	381.887
3666	1	410.68	0.9996	410.516
3665	1	411.59	0.9996	411.425
3667	1	394.81	0.9996	394.652
3645	1	407.89	0.9996	407.727
3703	1	403.57	0.9996	403.409
3688	1	393.23	0.9996	393.073
90856	1	402.07	0.9999	402.030
90857	1	410.76	0.9999	410.719
90854	1	396.57	0.9999	396.530
90761	1	395.35	0.9999	395.310
90763	1	406.69	0.9999	406.649
90755	1	406.35	0.9999	406.309
90762	1	409.07	0.9999	409.029
68630	1	401.13	0.9999	401.090
68635	1	401.26	0.9999	401.220
68629	1	399.05	0.9999	399.010
68601	1	398.41	0.9999	398.370
90858	1	404.39	0.9999	404.350
90764	1	402.69	0.9999	402.650
90859	1			

		407.61	0.9999	407.569
90765	1	404.81	0.9999	404.770
90759	1	404.07	0.9999	404.030
90853	1	399.88	0.9999	399.840
90754	1	398.51	0.9999	398.470
90760	1	399.48	0.9999	399.440
9352	1	406.68	0.9999	406.634
9539	1	371.50	0.9999	371.463
3705	1	399.49	0.9996	399.330
3908	1	397.27	0.9996	397.111
3940	1	401.14	0.9996	400.980
3934	1	395.51	0.9996	395.352
3889	1	422.57	0.9996	422.401
3793	1	409.01	0.9996	408.846
69294	1	395.36	0.9999	395.320
69291	1	400.55	0.9999	400.510
69287	1	397.48	0.9999	397.440
69032	1	404.16	0.9997	404.039
69290	1	401.07	0.9999	401.030
69030	1	399.48	0.9997	399.360
69289	1	403.56	0.9999	403.520
69037	1	400.10	0.9997	399.980
69036	1			

		398.29	0.9997	398.171
69033	1	403.08	0.9997	402.959
69292	1	399.54	0.9999	399.500
3938	1	416.78	0.9996	416.613
3910	1	397.24	0.9995	397.041
3939	1	403.04	0.9996	402.879
3886	1	405.31	0.9996	405.148
3890	1	398.79	0.9996	398.630
3937	1	399.21	0.9996	399.050
3792	1	393.96	0.9996	393.802
3887	1	402.20	0.9996	402.039
3882	1	380.72	0.9996	380.568
3909	1	392.00	0.9995	391.804
3794	1	377.42	0.9996	377.269
3933	1	415.15	0.9996	414.984
69035	1	399.69	0.9997	399.570
20640	1	383.75	0.9999	383.711
20630	1	389.55	0.9999	389.511
20644	1	385.83	0.9999	385.786
20638	1	398.28	0.9999	398.235
20624	1	387.63	0.9999	387.586
20632	1	392.08	0.9999	392.035
20623	1			

1928 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		385.70	0.9999	385.661
69286	1	395.23	0.9999	395.190
69034	1	400.19	0.9997	400.070
69285	1	396.43	0.9999	396.390
68729	1	400.04	0.9999	400.000
68724	1	398.89	0.9999	398.850
68730	1	400.54	0.9999	400.500
68786	1	402.73	0.9999	402.690
68728	1	401.03	0.9999	400.990
3663	1	414.36	0.9996	414.194
3646	1	396.38	0.9995	396.182
3664	1	412.53	0.9996	412.365
3644	1	406.84	0.9996	406.677
3692	1	403.62	0.9996	403.459
69288	1	400.61	0.9999	400.570
70148	1	400.03	0.9998	399.950
70232	1	399.19	0.9998	399.110
70076	1	403.62	0.9998	403.539
70074	1	399.91	0.9998	399.830
70075	1	401.25	0.9998	401.170
30212	1	404.10	0.9999	404.059
30209	1	418.50	0.9999	418.458
4319	1			

		393.46	0.9996	393.303
4283	1	408.71	0.9996	408.547
4285	1	405.08	0.9996	404.918
4287	1	409.38	0.9996	409.216
4288	1	413.77	0.9996	413.604
4284	1	374.84	0.9996	374.690
4286	1	407.00	0.9996	406.837
70077	1	401.13	0.9998	401.050
11011	1	399.65	0.9997	399.530
11010	1	399.85	0.9997	399.730
10974	1	411.85	0.9998	411.768
10973	1	411.75	0.9998	411.668
10980	1	411.10	0.9998	411.018
10978	1	411.78	0.9998	411.693
10976	1	411.78	0.9998	411.693
10979	1	411.45	0.9998	411.368
10977	1	411.83	0.9998	411.743
10975	1	411.78	0.9998	411.693
69293	1	394.72	0.9999	394.681
30217	1	410.50	0.9999	410.459
30208	1	412.43	0.9999	412.383
30210	1	399.48	0.9999	399.435
30204	1			

1930 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		400.23	0.9999	400.185
30207	1	415.30	0.9999	415.258
30216	1	395.95	0.9999	395.910
30215	1	407.13	0.9999	407.084
30214	1	417.30	0.9999	417.258
30211	1	406.35	0.9999	406.309
30213	1	413.05	0.9999	413.008
10831	1	406.18	0.9999	406.134
10834	1	406.35	0.9999	406.309
10837	1	406.30	0.9999	406.259
10921	1	399.85	0.9998	399.770
4210	1	397.25	0.9999	397.210
4236	1	396.42	0.9999	396.380
70234	1	401.46	0.9998	401.380
70233	1	400.31	0.9998	400.230
70147	1	400.84	0.9998	400.760
70090	1	395.05	0.9997	394.931
70235	1	405.10	0.9998	405.019
70146	1	402.32	0.9998	402.240
70371	1	404.67	0.9998	404.589
10838	1	406.33	0.9999	406.284
10658	1	416.45	0.9999	416.408
10657	1			

		373.30	0.9999	373.263
10659	1	416.53	0.9999	416.483
70622	1	397.81	0.9998	397.730
70699	1	400.17	0.9998	400.089
70623	1	399.08	0.9998	399.000
4380	1	378.15	0.9996	377.999
4377	1	390.86	0.9996	390.704
4378	1	389.06	0.9996	388.904
4379	1	405.87	0.9996	405.708
4382	1	402.32	0.9996	402.159
4397	1	411.84	0.9996	411.675
4396	1	402.92	0.9996	402.759
4398	1	421.73	0.9996	421.561
4395	1	404.68	0.9996	404.518
10839	1	406.35	0.9999	406.309
NN169C	1	418.78	0.9999	418.733
10666	1	416.40	0.9999	416.358
10665	1	416.50	0.9999	416.458
10655	1	373.50	0.9999	373.463
10662	1	416.58	0.9999	416.533
10664	1	416.48	0.9999	416.433
10663	1	416.43	0.9999	416.383
10656	1			

1932 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		373.50	0.9999	373.463
10667	1	416.83	0.9999	416.783
10660	1	416.40	0.9999	416.358
NN172C	1	412.28	0.9999	412.234
NN171C	1	394.58	0.9999	394.536
4237	1	395.81	0.9999	395.770
4030	1	403.52	0.9996	403.359
4206	1	392.54	0.9996	392.383
4376	1	425.04	0.9996	424.870
4375	1	421.05	0.9996	420.882
4381	1	397.02	0.9996	396.861
4367	1	381.29	0.9999	381.252
4366	1	386.73	0.9999	386.691
4365	1	402.13	0.9999	402.090
4357	1	404.80	0.9996	404.638
4358	1	408.67	0.9996	408.507
NN170C	1	372.15	0.9999	372.113
MM7319C	1	429.38	0.9999	429.332
MM7194C	1	415.53	0.9999	415.483
MM7337C	1	425.75	0.9999	425.707
4212	1	412.08	0.9999	412.039
4029	1	387.62	0.9996	387.465
4207	1			

		404.63	0.9996	404.468
4240	1	397.63	0.9996	397.471
4031	1	399.36	0.9996	399.200
4032	1	416.22	0.9996	416.054
4211	1	395.28	0.9999	395.240
69976	1	399.34	0.9997	399.220
69941	1	401.10	0.9998	401.020
69975	1	399.30	0.9997	399.180
69974	1	399.74	0.9997	399.620
69970	1	397.30	0.9998	397.221
69983	1	400.09	0.9998	400.010
11520	1	419.73	0.9999	419.683
11513	1	411.25	0.9999	411.208
NN791C	1	405.68	0.9999	405.634
NN796C	1	427.55	0.9999	427.507
NN798C	1	406.85	0.9999	406.809
69979	1	399.70	0.9998	399.620
69940	1	399.51	0.9998	399.430
69972	1	403.62	0.9997	403.499
69971	1	399.27	0.9997	399.150
69978	1	401.98	0.9998	401.900
69926	1	400.73	0.9998	400.650
69939	1			

		399.48	0.9998	399.401
69935	1	400.38	0.9998	400.300
69938	1	401.68	0.9998	401.600
69933	1	402.82	0.9998	402.739
69936	1	399.32	0.9998	399.240
69984	1	400.61	0.9998	400.530
69981	1	398.23	0.9998	398.150
69980	1	402.80	0.9998	402.719
69989	1	404.32	0.9998	404.239
69924	1	400.00	0.9998	399.920
69925	1	404.27	0.9998	404.189
70650	1	401.81	0.9998	401.729
11487	1	411.38	0.9999	411.333
11519	1	411.23	0.9999	411.183
11517	1	411.23	0.9999	411.183
11481	1	415.55	0.9999	415.508
11514	1	411.30	0.9999	411.258
11518	1	411.30	0.9999	411.258
11515	1	411.20	0.9999	411.158
10661	1	416.45	0.9999	416.408
70628	1	403.59	0.9998	403.509
70703	1	400.78	0.9998	400.699
70698	1			

		405.54	0.9998	405.458
70701	1	399.55	0.9998	399.470
70696	1	401.73	0.9998	401.649
70697	1	399.62	0.9998	399.540
70702	1	398.60	0.9998	398.520
70704	1	401.71	0.9998	401.629
70624	1	398.36	0.9998	398.280
70700	1	401.46	0.9998	401.379
11522	1	419.55	0.9999	419.508
11521	1	419.78	0.9999	419.733
11516	1	411.23	0.9999	411.183
4127	1	410.65	0.9996	410.486
4216	1	401.06	0.9999	401.020
4217	1	384.65	0.9999	384.612
4231	1	424.30	0.9999	424.258
69963	1	399.69	0.9998	399.610
69985	1	400.22	0.9998	400.140
69942	1	400.12	0.9998	400.040
69977	1	402.41	0.9998	402.330
69973	1	399.27	0.9997	399.150
69988	1	399.52	0.9998	399.440
69986	1	401.02	0.9998	400.940
69982	1			

		400.97	0.9998	400.890
69987	1	403.00	0.9998	402.919
25240	1	391.65	0.9999	391.611
25235	1	419.98	0.9999	419.933
25258	1	416.30	0.9999	416.258
25219A	1	391.53	0.9999	391.486
25253	1	384.45	0.9999	384.412
25239	1	389.68	0.9999	389.636
25250	1	416.05	0.9999	416.008
25228	1	390.48	0.9999	390.436
25225	1	389.90	0.9999	389.861
25232	1	416.93	0.9999	416.883
4083	1	406.69	0.9996	406.527
4126	1	402.11	0.9996	401.949
4135	1	392.78	0.9996	392.623
10969	1	400.88	0.9999	400.834
10671	1	416.48	0.9999	416.433
10672	1	416.35	0.9999	416.308
10670	1	416.40	0.9999	416.358
10955	1	406.78	0.9999	406.734
10956	1	406.78	0.9999	406.734
4213	1	423.25	0.9999	423.208
4215	1			

		382.04	0.9999	382.002
69743	1	397.76	0.9998	397.680
69747	1	400.45	0.9998	400.370
69744	1	400.57	0.9998	400.490
69460	1	402.57	0.9998	402.489
69745	1	400.44	0.9998	400.360
25252	1	390.43	0.9999	390.386
25257	1	388.05	0.9999	388.011
21073	1	403.60	0.9999	403.560
10957	1	406.78	0.9999	406.734
10972	1	400.93	0.9999	400.884
10971	1	401.20	0.9999	401.159
10950	1	406.78	0.9999	406.734
10952	1	406.68	0.9999	406.634
10953	1	406.65	0.9999	406.609
10954	1	407.25	0.9999	407.209
10951	1	406.73	0.9999	406.684
70771	1	400.94	0.9998	400.859
70936	1	404.02	0.9998	403.939
70899	1	401.28	0.9998	401.199
70896	1	395.48	0.9998	395.400
70898	1	404.16	0.9998	404.079
70900	1			

1938 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		405.73	0.9998	405.648
70825	1	402.50	0.9998	402.419
4134	1	387.81	0.9996	387.655
4214	1	397.98	0.9999	397.940
912 C	1	383.83	0.9999	383.786
914 C	1	408.28	0.9999	408.234
909 C	1	411.08	0.9999	411.033
907 C	1	396.88	0.9999	396.835
9206764	1	400.08	0.9998	399.994
9206765	1	400.08	0.9998	399.999
9206769	1	400.08	0.9998	399.999
9206766	1	400.08	0.9998	399.994
9206767	1	400.09	0.9998	400.004
9206770	1	400.09	0.9998	400.009
9206771	1	400.09	0.9998	400.009
905 C	1	396.53	0.9999	396.485
913 C	1	393.43	0.9999	393.385
908 C	1	400.95	0.9999	400.909
911 C	1	409.75	0.9999	409.709
910 C	1	385.73	0.9999	385.686
906 C	1	385.70	0.9999	385.661
70895	1	401.64	0.9998	401.559
70827	1			

		399.79	0.9998	399.710
70894	1	399.11	0.9998	399.030
70893	1	398.02	0.9998	397.940
9206762	1	400.09	0.9998	400.004
9206763	1	400.08	0.9998	399.994
9206809	1	400.09	0.9998	400.009
9206811	1	400.08	0.9998	399.999
9206808	1	400.00	0.9998	399.920
9206814	1	400.08	0.9998	399.999
9206810	1	400.08	0.9998	399.999
9206812	1	400.09	0.9998	400.009
9206815	1	400.08	0.9998	399.994
9206807	1	400.07	0.9998	399.989
69937	1	402.04	0.9998	401.960
69934	1	402.14	0.9998	402.060
69966	1	404.95	0.9998	404.869
69967	1	404.12	0.9998	404.039
69965	1	398.75	0.9998	398.670
69964	1	398.33	0.9998	398.250
69968	1	402.06	0.9998	401.980
69969	1	398.66	0.9998	398.580
69746	1	401.78	0.9998	401.700
10970	1			

1940 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		400.75	0.9999	400.709
9206667	1	400.20	0.9995	399.999
9206668	1	400.19	0.9995	399.989
70770	1	399.43	0.9998	399.350
70932	1	402.82	0.9998	402.739
70769	1	401.53	0.9998	401.449
70933	1	406.78	0.9998	406.698
9206802	1	400.10	0.9999	400.059
9206801	1	400.10	0.9999	400.059
9206800	1	400.09	0.9999	400.049
9206803	1	400.08	0.9999	400.039
9206805	1	400.08	0.9999	400.039
9206799	1	400.08	0.9999	400.039
9206804	1	400.07	0.9999	400.029
11634	1	391.95	0.9999	391.910
11638	1	393.35	0.9999	393.310
9206789	1	400.10	0.9999	400.059
9206816	1	400.08	0.9998	399.999
4566	1	409.54	0.9996	409.376
4563	1	406.29	0.9996	406.127
4571	1	399.59	0.9996	399.430
4572	1	416.50	0.9996	416.333
4567	1			

		413.53	0.9996	413.364
4564	1	419.54	0.9996	419.372
4569	1	388.62	0.9996	388.464
4568	1	396.61	0.9996	396.451
4570	1	398.85	0.9996	398.690
70826	1	401.20	0.9998	401.119
70772	1	402.22	0.9998	402.139
9206838	1	400.08	0.9996	399.919
4565	1	409.93	0.9996	409.766
4626	1	392.44	0.9996	392.283
9206823	1	400.09	0.9998	400.009
9206819	1	400.08	0.9998	399.999
9206817	1	400.08	0.9998	399.999
9206818	1	400.08	0.9998	399.999
9206821	1	400.08	0.9998	399.999
9206840	1	400.07	0.9996	399.909
9206841	1	400.08	0.9996	399.919
70897	1	401.24	0.9998	401.159
9206795	1	400.10	0.9999	400.059
9206785	1	400.06	0.9999	400.019
9206794	1	400.10	0.9999	400.059
9206813	1	400.08	0.9998	399.999
9206797	1			

1942 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		400.09	0.9999	400.049
9206822	1	400.06	0.9998	399.979
9206824	1	400.08	0.9998	399.999
9206828	1	400.08	0.9998	399.999
9206825	1	400.09	0.9998	400.009
9206837	1	400.08	0.9996	399.919
9206839	1	400.07	0.9996	399.909
22873	1	378.30	0.9999	378.262
22859	1	384.73	0.9999	384.687
22857	1	376.30	0.9999	376.262
22868	1	386.33	0.9999	386.286
22862	1	387.60	0.9999	387.561
22841	1	389.95	0.9999	389.911
22827	1	384.28	0.9999	384.237
22823	1	379.83	0.9999	379.787
22893	1	387.93	0.9999	387.886
22908	1	381.00	0.9999	380.962
22884	1	381.70	0.9999	381.662
22907	1	370.35	0.9999	370.313
22858	1	386.88	0.9999	386.836
22865	1	383.13	0.9999	383.087
22879	1	389.45	0.9999	389.411
22850	1			

		382.98	0.9999	382.937
70937	1	401.33	0.9998	401.249
70773	1	403.91	0.9998	403.829
70934	1	396.65	0.9998	396.570
70824	1	404.39	0.9998	404.309
70935	1	401.95	0.9998	401.869
22906	1	374.83	0.9999	374.788
22905	1	391.43	0.9999	391.386
22881	1	376.90	0.9999	376.862
22894	1	386.88	0.9999	386.836
22891	1	387.80	0.9999	387.761
22886	1	391.63	0.9999	391.586
22912	1	386.93	0.9999	386.886
22914	1	384.78	0.9999	384.737
9206663	1	400.19	0.9995	399.989
9206664	1	400.19	0.9995	399.989
9206665	1	399.92	0.9995	399.720
9206666	1	400.19	0.9995	399.989
JK562	1	404.87	0.9997	404.743
JK251	1	404.06	0.9996	403.893
JK252	1	404.23	0.9997	404.108
JK567	1	404.79	0.9997	404.668
JK563	1			

1944 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		404.15	0.9997	404.029
JK565	1	404.90	0.9997	404.779
JK255	1	403.83	0.9997	403.704
JK561	1	404.08	0.9996	403.913
3348	1	409.44	0.9996	409.276
14133	1	386.99	0.9999	386.951
KK112C	1	420.06	0.9999	420.012
JJ5228	1	399.35	0.9999	399.305
KK209C	1	394.16	0.9999	394.115
17682	1	414.29	0.9999	414.248
12705	1	389.56	0.9999	389.516
11946	1	410.21	0.9999	410.163
11971	1	403.43	0.9999	403.389
10553	1	394.80	0.9999	394.760
7829	1	379.91	0.9999	379.867
AO84388	1	412.90	0.9999	412.853
AO84711	1	380.85	0.9999	380.815
A071358	1	391.20	0.9998	391.121
A071361	1	368.22	0.9998	368.146
3006	1	405.55	0.9999	405.509
A083643	1	401.60	0.9998	401.514
11996	1	372.19	0.9999	372.152
11980	1			

		394.02	0.9999	393.975
E64012	1	400.77	0.9998	400.689
1829	1	422.56	0.9996	422.390
A072424	1	381.09	0.9998	381.013
12660	1	390.74	0.9999	390.700
12719	1	399.46	0.9999	399.416
W87377	1	405.57	0.9999	405.524
W87378	1	407.96	0.9999	407.914
15533	1	393.67	0.9999	393.630
W87702	1	395.02	0.9999	394.975
1952	1	395.39	0.9996	395.231
A074022	1	400.30	0.9997	400.179
A078969	1	380.30	0.9998	380.223
7665	1	419.08	0.9998	418.991
KK1883	1	397.65	0.9999	397.610
A071768	1	371.11	0.9998	371.035
1340	1	390.25	0.9996	390.093
1571	1	401.95	0.9996	401.789
KK3742	1	401.57	0.9999	401.524
9188	1	407.18	0.9998	407.098
9177	1	399.78	0.9998	399.700
13917	1	399.28	0.9999	399.235
13566	1			

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		397.00	0.9999	396.955
13953	1	394.23	0.9999	394.185
KK199	1	400.62	0.9999	400.574
KK178	1	380.34	0.9999	380.301
A074085	1	389.49	0.9998	389.416
1978	1	405.65	0.9996	405.487
A072634	1	389.26	0.9997	389.143
A073140	1	378.88	0.9997	378.766
A072593	1	369.58	0.9999	369.543
A073862	1	375.42	0.9999	375.384
8800	1	399.82	0.9999	399.775
AO85375	1	395.17	0.9998	395.090
8841	1	399.82	0.9998	399.735
3317	1	404.83	0.9996	404.668
2412	1	410.32	0.9996	410.155
7963	1	377.08	0.9999	377.037
A074834	1	374.03	0.9998	373.955
7720	1	400.76	0.9997	400.634
7707	1	384.61	0.9998	384.528
15828	1	399.09	0.9999	399.050
8054	1	402.17	0.9998	402.089
AO83875	1	403.85	0.9999	403.808
A085080	1			

		388.71	0.9998	388.632
3358	1	401.09	0.9996	400.929
AO83429	1	416.77	0.9999	416.725
9189	1	407.01	0.9998	406.928
9534	1	414.39	0.9999	414.343
9150	1	405.32	0.9999	405.279
9288	1	405.74	0.9998	405.653
8326	1	394.71	0.9999	394.665
2906	1	413.40	0.9996	413.234
84434	1	389.78	0.9997	389.663
84446	1	392.15	0.9998	392.071
84433	1	392.36	0.9997	392.242
8828	1	399.77	0.9998	399.690
8722	1	399.73	0.9998	399.650
90855	1	404.91	0.9999	404.869
3685	1	406.95	0.9996	406.787
68744	1	405.53	0.9998	405.448
90459	1	410.16	0.9999	410.113
68721	1	398.85	0.9999	398.810
91136	1	405.00	0.9998	404.919
68666	1	402.22	0.9999	402.179
8797	1	399.95	0.9999	399.910
A073616	1			

		375.53	0.9999	375.492
9508	1	404.72	0.9999	404.674
69029	1	398.72	0.9997	398.600
4136	1	393.07	0.9996	392.912
9206768	1	399.96	0.9998	399.880
9206820	1	399.95	0.9998	399.870
22872	1	380.53	0.9999	380.486
69585	1	401.28	0.9998	401.199
3655	1	390.89	0.9996	390.733
9428	1	417.23	0.9999	417.188
16272	23	9,431.99	0.9969	9,402.750
6025	20	8,270.36	0.9967	8,243.067
3129	1	389.57	0.9964	388.167
R 36	20	8,297.34	0.9997	8,294.850
6108	21	8,803.62	0.9997	8,800.978
6379	22	8,723.79	0.9963	8,691.511
9918	19	7,421.24	0.9966	7,396.007
6419	22	8,681.67	0.9962	8,648.679
R 427	20	8,033.47	0.9998	8,031.863
R 453	20	8,402.78	0.9998	8,401.099
R 465	20	8,564.82	0.9997	8,562.250
R 297	20	8,230.85	0.9996	8,227.557
R 190	1			

		422.75	0.9994	422.496
R 190	1	448.96	0.9994	448.690
R 190	1	439.42	0.9994	439.156
DC572	3	1,196.56	0.9972	1,193.209
R 264	1	427.95	0.9998	427.864
R 264	1	418.34	0.9998	418.256
DC518	2	763.03	0.9989	762.190
8133	1	217.75	0.9975	217.205
M 191	1	341.02	0.9966	339.860
DC528	3	1,178.71	0.9979	1,176.234
25292	1	312.18	0.9965	311.087
12701	1	445.41	0.9964	443.806
14538	1	335.57	0.9961	334.261
21414	1	448.69	0.9966	447.164
R 175	20	7,932.11	0.9996	7,928.937
R 180	20	7,911.08	0.9997	7,908.706
R 390	20	8,212.49	0.9997	8,210.026
R 361	18	7,315.72	0.9996	7,312.793
R 304	20	8,229.71	0.9996	8,226.418
R 343	16	6,570.58	0.9997	6,568.608
DC651	10	3,987.87	0.9963	3,973.114
DC644	8	3,137.49	0.9963	3,125.881
DC583	14			

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		5,530.88	0.9979	5,519.265
DC578	10	3,894.10	0.9978	3,885.532
DC612	8	3,119.34	0.9969	3,109.670
DC638	6	2,328.91	0.9981	2,324.485
DC554	9	3,492.75	0.9966	3,480.874
DC628	7	2,740.24	0.9976	2,733.663
DC603	6	2,298.16	0.9973	2,291.954
M3664	20	8,063.52	0.9994	8,058.681
5613	21	8,640.11	0.9996	8,636.653
R 94	20	8,170.27	0.9996	8,167.001
M 376	20	8,078.44	0.9961	8,046.934
R 10	20	8,088.88	0.9998	8,087.262
R 54	20	8,019.14	0.9998	8,017.536
R 47	20	8,049.69	0.9998	8,048.080
R 73	20	8,186.61	0.9997	8,184.154
17072	25	10,101.38	0.9969	10,070.065
723	20	8,160.94	0.9962	8,129.928
M1387	21	8,344.17	0.9995	8,339.997
16230	23	9,237.08	0.9979	9,217.682
7204	18	7,182.86	0.9961	7,154.846
727	20	7,693.05	0.9959	7,661.508
4849	20	7,727.26	0.9964	7,699.441
R 154	20			

		7,964.09	0.9998	7,962.497
M1337	20	8,010.87	0.9998	8,009.267
2441	21	8,703.10	0.9963	8,670.898
3312	20	8,345.00	0.9961	8,312.454
9410	22	8,872.04	0.9964	8,840.100
46634	22	8,927.29	0.9977	8,906.757
2555	21	8,604.66	0.9997	8,602.078
34130	20	8,320.85	0.9976	8,300.879
45564	21	8,774.90	0.9978	8,755.595
R 113	20	8,295.97	0.9998	8,294.310
R 59	20	8,076.72	0.9997	8,074.296
M 559	20	7,962.90	0.9955	7,927.066
M 546	20	7,814.03	0.9957	7,780.429
9754	21	8,576.06	0.9963	8,544.328
14538	19	7,428.53	0.9998	7,427.044
R 123	20	8,107.01	0.9998	8,105.388
R 121	19	7,757.28	0.9998	7,755.728
R 118	20	8,153.22	0.9997	8,150.774
R 116	19	7,745.26	0.9997	7,742.936
R 115	20	8,121.61	0.9997	8,119.173
R 111	17	7,222.11	0.9997	7,219.943
R 110	20	8,296.55	0.9997	8,294.061
R 114	20			

		8,246.62	0.9998	8,244.970
R 108	20	8,243.81	0.9998	8,242.161
R 109	20	8,288.91	0.9998	8,287.252
R 112	20	8,199.33	0.9997	8,196.870
R 105	20	8,062.19	0.9996	8,058.965
R 106	20	8,062.75	0.9997	8,060.331
R 107	20	8,190.75	0.9997	8,188.292
R 101	20	8,026.10	0.9998	8,024.494
R 102	20	8,287.92	0.9997	8,285.433
R 103	20	8,035.12	0.9997	8,032.709
R 100	19	8,014.90	0.9997	8,012.495
R 99	20	7,923.34	0.9997	7,920.962
R 96	20	8,044.23	0.9996	8,041.012
R 89	18	7,386.06	0.9996	7,383.105
R 93	20	8,314.31	0.9995	8,310.152
R 95	20	8,341.34	0.9996	8,338.003
R 87	20	8,161.50	0.9996	8,158.235
R 92	20	8,037.31	0.9995	8,033.291
R 90	20	8,308.95	0.9996	8,305.626
R 83	20	8,467.65	0.9997	8,465.109
R 85	20	8,425.54	0.9997	8,423.012
R 86	20	8,001.07	0.9996	7,997.869
R 82	20			

		8,155.84	0.9997	8,153.393
R 81	20	8,236.33	0.9997	8,233.859
R 78	20	8,279.12	0.9997	8,276.636
R 75	20	8,208.71	0.9997	8,206.247
R 76	20	8,212.27	0.9997	8,209.806
R 77	20	8,202.62	0.9997	8,200.159
R 74	18	7,474.60	0.9997	7,472.357
R 68	19	7,799.71	0.9997	7,797.370
R 69	19	7,766.40	0.9997	7,764.070
R 71	19	7,785.48	0.9997	7,783.144
R 72	19	7,768.51	0.9997	7,766.179
R 67	20	8,048.45	0.9997	8,046.035
R 46	20	8,250.32	0.9997	8,247.844
R 64	20	8,191.38	0.9998	8,189.741
R 65	20	8,003.38	0.9997	8,000.978
R 50	20	8,123.69	0.9998	8,122.065
R 45	20	8,024.29	0.9996	8,021.080
R 48	20	8,026.36	0.9997	8,023.952
R 55	20	8,194.36	0.9998	8,192.721
R 51	20	7,914.51	0.9997	7,912.135
R 52	20	7,911.68	0.9998	7,910.097
R 172	20	8,441.00	0.9997	8,438.467
R 173	20			

		7,966.45	0.9996	7,963.263
R 174	20	8,383.06	0.9996	8,379.706
R 150	20	8,358.65	0.9997	8,356.142
R 168	19	7,837.48	0.9996	7,834.345
R 167	20	8,001.97	0.9997	7,999.569
R 164	20	7,965.71	0.9998	7,964.116
R 162	20	8,017.57	0.9997	8,015.164
R 161	20	7,911.23	0.9998	7,909.647
R 157	20	7,897.43	0.9998	7,895.850
R 158	20	8,159.31	0.9997	8,156.862
R 160	20	8,208.72	0.9998	8,207.078
R 148	20	8,237.73	0.9995	8,233.611
R 149	20	8,151.98	0.9996	8,148.719
R 156	20	8,019.77	0.9997	8,017.364
R 146	20	8,174.87	0.9996	8,171.600
R 145	20	8,432.53	0.9997	8,430.000
R 143	20	7,885.24	0.9997	7,882.874
R 142	20	8,288.58	0.9996	8,285.264
R 141	20	7,964.20	0.9996	7,961.014
R 139	20	8,121.55	0.9997	8,119.113
R 57	20	8,171.63	0.9998	8,169.995
R 58	20	7,970.94	0.9998	7,969.345
R 140	20			

		8,329.26	0.9997	8,326.761
R 56	20	7,977.13	0.9998	7,975.534
R 241	20	8,283.18	0.9998	8,281.523
R 271	19	8,130.68	0.9997	8,128.240
R 62	20	8,092.78	0.9997	8,090.352
R 236	19	7,936.95	0.9997	7,934.568
R 71	20	8,190.59	0.9997	8,188.132
R 60	20	8,110.74	0.9997	8,108.306
R 66	20	8,242.25	0.9997	8,239.777
R 69	20	8,224.16	0.9998	8,222.515
R 237	20	8,341.02	0.9997	8,338.517
R 70	20	8,157.72	0.9998	8,156.088
R 239	20	8,268.05	0.9998	8,266.396
M 561	20	7,861.70	0.9966	7,834.970
R 68	20	8,201.03	0.9997	8,198.569
R 238	20	8,210.50	0.9996	8,207.215
M 557	20	7,839.23	0.9965	7,811.792
R 265	20	8,142.35	0.9997	8,139.907
R 57	20	8,152.38	0.9997	8,149.934
M 560	20	7,851.21	0.9966	7,824.515
R 188	20	8,744.83	0.9995	8,740.457
R 189	20	8,514.82	0.9995	8,510.562
133	20			

		8,037.34	0.9967	8,010.816
131	21	8,567.48	0.9961	8,534.066
132	21	8,603.80	0.9963	8,571.965
114	18	7,416.66	0.9960	7,386.993
102	20	8,161.50	0.9958	8,127.221
115	18	7,363.87	0.9961	7,335.150
R 155	20	7,960.76	0.9997	7,958.371
R 191	17	7,275.39	0.9993	7,270.297
128	20	8,229.17	0.9960	8,196.253
R 153	20	7,847.40	0.9998	7,845.830
R 169	20	7,741.63	0.9996	7,738.533
R 170	20	8,082.53	0.9996	8,079.296
R 171	20	7,834.85	0.9996	7,831.716
M 562	20	7,789.23	0.9954	7,753.399
R 67	20	8,130.55	0.9997	8,128.110
R 239	20	8,011.09	0.9998	8,009.487
R 295	20	7,985.52	0.9997	7,983.124
R 181	20	7,798.84	0.9995	7,794.940
R 104	19	7,654.64	0.9998	7,653.109
R 125	20	8,254.16	0.9998	8,252.509
M 543	20	8,081.40	0.9960	8,049.074
M 544	20	7,834.95	0.9993	7,829.465
M 492	20			

		7,982.75	0.9993	7,977.162
M 493	20	7,824.16	0.9993	7,818.683
M 494	20	8,001.07	0.9993	7,995.469
M 495	20	8,006.18	0.9993	8,000.575
M 483	20	7,796.07	0.9994	7,791.392
M 486	20	7,842.79	0.9994	7,838.084
M 487	20	7,851.25	0.9993	7,845.754
9208	20	7,948.34	0.9967	7,922.110
9370	22	8,955.68	0.9964	8,923.439
9371	22	8,967.35	0.9963	8,934.170
M 478	20	7,917.10	0.9993	7,911.558
9369	22	8,842.03	0.9963	8,809.314
9368	22	8,831.60	0.9964	8,799.806
9411	21	8,369.73	0.9964	8,339.598
9409	22	8,889.78	0.9964	8,857.776
9391	22	8,905.14	0.9965	8,873.972
M 533	20	7,847.83	0.9979	7,831.349
M 482	20	7,853.23	0.9994	7,848.518
M 491	20	7,913.62	0.9993	7,908.080
M 496	20	8,068.86	0.9993	8,063.211
M 490	20	7,898.40	0.9993	7,892.871
M 488	20	8,100.71	0.9993	8,095.039
9352	18			

		7,321.72	0.9962	7,293.897
M 541	20	8,013.25	0.9992	8,006.839
M 545	20	7,864.84	0.9993	7,859.334
M 497	20	8,040.58	0.9994	8,035.755
9358	22	8,769.70	0.9965	8,739.006
9361	21	8,494.80	0.9965	8,465.068
M 489	20	8,047.95	0.9993	8,042.316
9388	22	8,801.68	0.9965	8,770.874
6093	18	6,931.91	0.9973	6,913.193
M 479	20	7,939.38	0.9993	7,933.822
M 480	20	8,109.59	0.9993	8,103.913
9362	22	8,696.15	0.9965	8,665.713
20	24	9,765.58	0.9998	9,763.626
9760	20	7,947.60	0.9961	7,916.604
308	24	9,854.88	0.9998	9,852.909
306	24	9,850.90	0.9998	9,848.929
9781	22	8,702.97	0.9961	8,669.028
34912	21	8,734.32	0.9969	8,707.243
9427	21	8,486.87	0.9977	8,467.350
9389	22	8,813.68	0.9965	8,782.832
9424	15	5,661.04	0.9965	5,641.226
9425	21	8,441.08	0.9972	8,417.444
9412	23			

		9,179.60	0.9965	9,147.471
M 499	20	7,979.12	0.9994	7,974.332
9372	20	7,931.45	0.9965	7,903.689
9428	20	7,837.80	0.9978	7,820.556
9366	21	8,474.73	0.9966	8,445.915
9367	22	8,723.17	0.9967	8,694.383
394	22	8,491.34	0.9957	8,454.827
M 524	20	7,869.60	0.9993	7,864.091
14822	19	7,482.26	0.9998	7,480.763
2494	16	6,827.62	0.9964	6,803.040
5737	20	8,324.18	0.9957	8,288.386
5773	18	7,467.65	0.9959	7,437.032
3305	20	8,179.00	0.9973	8,156.916
3283	20	8,373.48	0.9962	8,341.660
305	23	9,450.88	0.9998	9,448.989
2246	20	8,314.75	0.9962	8,283.153
5198	21	8,778.21	0.9959	8,742.219
3306	20	8,268.27	0.9978	8,250.079
2551	20	8,122.70	0.9994	8,117.826
5206	21	8,658.47	0.9959	8,622.970
2244	20	8,563.42	0.9982	8,548.005
5201	20	8,255.05	0.9960	8,222.029
2552	20			

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		8,113.00	0.9982	8,098.396
5191	20	8,298.29	0.9957	8,262.607
5200	21	8,674.15	0.9957	8,636.851
5205	20	8,335.60	0.9960	8,302.257
M 175	23	9,619.79	0.9998	9,617.866
9588	21	8,640.71	0.9959	8,605.283
1793	20	8,315.33	0.9960	8,282.068
9621	18	7,730.96	0.9961	7,700.809
2491	17	7,269.03	0.9980	7,254.491
2554	21	8,520.95	0.9997	8,518.393
2556	22	9,006.19	0.9978	8,986.376
266	20	8,480.00	0.9991	8,472.368
1696	20	8,212.00	0.9962	8,180.794
1700	20	8,264.70	0.9961	8,232.467
M1681	20	8,247.75	0.9998	8,246.100
M 177	23	9,527.35	0.9998	9,525.444
4431	21	8,590.24	0.9962	8,557.597
2444	19	7,747.81	0.9962	7,718.368
2443	20	8,307.65	0.9963	8,276.911
2442	21	8,530.55	0.9963	8,498.986
1294	21	8,413.35	0.9962	8,381.379
7864	21	8,703.73	0.9963	8,671.526
M 529	20			

		7,841.93	0.9969	7,817.620
M 532	20	7,931.21	0.9979	7,914.554
46636	20	8,089.70	0.9977	8,071.093
3302	21	8,684.45	0.9963	8,652.317
7853	21	8,673.70	0.9962	8,640.739
46632	23	9,446.05	0.9970	9,417.711
5208	21	8,655.42	0.9959	8,619.932
5194	20	8,270.90	0.9960	8,237.816
3303	21	8,571.75	0.9970	8,546.034
47659	22	9,271.82	0.9977	9,250.494
5202	21	8,679.95	0.9959	8,644.362
5204	20	8,460.78	0.9961	8,427.782
3307	20	8,210.65	0.9973	8,188.481
5197	21	8,532.05	0.9961	8,498.775
2259	20	8,237.10	0.9961	8,204.975
2560	16	6,709.63	0.9992	6,704.262
2493	16	6,758.10	0.9968	6,736.474
2559	20	8,340.15	0.9972	8,316.797
2495	17	7,163.07	0.9972	7,143.013
5193	21	8,703.50	0.9959	8,667.815
1695	20	8,436.50	0.9963	8,405.284
1701	20	8,270.13	0.9960	8,237.049
2558	22			

		9,075.15	0.9975	9,052.462
2557	20	8,279.60	0.9995	8,275.460
927	21	8,409.05	0.9978	8,390.550
2488	20	8,161.12	0.9970	8,136.636
144	24	9,847.77	0.9997	9,844.815
33	24	9,944.76	0.9986	9,930.837
M1327	20	8,260.83	0.9998	8,259.177
725	18	7,345.08	0.9958	7,314.230
930	21	8,381.75	0.9980	8,364.986
5451	21	8,748.15	0.9960	8,713.157
M1343	20	8,119.63	0.9998	8,118.006
M1325	20	8,160.60	0.9998	8,158.967
5684	20	8,411.57	0.9958	8,376.241
45525	18	7,461.48	0.9972	7,440.587
23326	21	8,479.15	0.9965	8,449.472
45583	20	8,349.09	0.9966	8,320.703
726	20	7,745.83	0.9954	7,710.199
5676	21	8,843.82	0.9960	8,808.444
15723	20	8,144.36	0.9976	8,124.813
9591	21	8,622.81	0.9988	8,612.462
729	20	7,783.25	0.9960	7,752.117
728	20	7,731.51	0.9961	7,701.357
M1331	20			

		8,197.04	0.9998	8,195.400
720	20	8,100.63	0.9968	8,074.707
1217	19	7,682.68	0.9972	7,661.168
M1333	20	8,149.68	0.9998	8,148.050
M1350	20	8,126.55	0.9998	8,124.924
M1339	20	8,185.01	0.9998	8,183.372
M1354	20	8,126.95	0.9998	8,125.324
M1346	20	8,127.89	0.9998	8,126.264
M1349	20	8,187.24	0.9998	8,185.602
M1353	20	8,134.17	0.9998	8,132.543
M1352	20	8,127.05	0.9998	8,125.424
M1351	20	8,085.74	0.9998	8,084.122
M1358	20	8,162.81	0.9998	8,161.177
M1357	20	8,256.00	0.9998	8,254.348
M1356	20	8,166.44	0.9998	8,164.806
M1355	20	8,280.82	0.9998	8,279.163
M 224	23	9,349.61	0.9998	9,347.740
DC503	7	2,656.13	0.9997	2,655.333
M1586	20	8,094.52	0.9998	8,092.901
M1587	20	7,976.78	0.9998	7,975.184
M1359	20	8,230.41	0.9998	8,228.763
M1361	20	8,229.73	0.9998	8,228.084
M1365	20			

		8,168.05	0.9998	8,166.416
52	24	9,936.98	0.9998	9,934.992
50	24	10,028.86	0.9998	10,026.854
48	24	9,975.89	0.9997	9,972.897
46	24	9,990.37	0.9998	9,988.371
24	24	9,892.28	0.9998	9,890.301
27	24	10,005.68	0.9998	10,003.678
45	24	10,038.79	0.9998	10,036.782
7197	22	9,065.64	0.9964	9,033.003
13746	20	7,851.45	0.9971	7,828.680
1312	21	8,688.29	0.9959	8,652.668
9033	22	8,660.15	0.9968	8,632.437
7390	22	9,093.64	0.9969	9,065.449
16607	21	8,479.25	0.9969	8,452.964
1297	22	8,679.00	0.9964	8,647.755
1788	21	8,612.80	0.9963	8,580.932
16684	23	9,155.12	0.9970	9,127.654
16273	23	9,333.43	0.9962	9,297.962
16271	23	9,226.88	0.9963	9,192.740
1291	21	8,408.70	0.9964	8,378.428
47159	20	8,237.79	0.9957	8,202.367
10	22	9,010.56	0.9973	8,986.231
16281	23			

		9,525.56	0.9969	9,496.030
16287	21	8,417.36	0.9959	8,382.848
16234	23	9,177.47	0.9972	9,151.773
16283	23	9,577.58	0.9965	9,544.058
16598	23	9,309.11	0.9972	9,283.044
16599	22	8,948.48	0.9972	8,923.424
26476	19	7,826.50	0.9968	7,801.455
7351	20	8,000.42	0.9988	7,990.819
16609	22	9,015.32	0.9958	8,977.455
34793	22	8,807.42	0.9955	8,767.786
16289	22	8,937.82	0.9965	8,906.537
16879	21	8,363.90	0.9968	8,337.135
M3675	20	7,996.75	0.9964	7,967.961
7347	19	7,438.18	0.9968	7,414.377
16690	21	8,562.00	0.9964	8,531.176
M3674	20	8,170.94	0.9994	8,166.037
M3676	20	7,857.97	0.9964	7,829.681
7206	20	8,115.01	0.9966	8,087.418
M3673	20	8,138.42	0.9993	8,132.723
M3669	20	7,909.04	0.9981	7,894.012
M3677	20	8,149.40	0.9994	8,144.510
3184	21	8,286.17	0.9958	8,251.368
M3679	20			

		8,137.46	0.9986	8,126.067
M3678	20	8,102.33	0.9994	8,097.468
M3665	20	7,956.74	0.9975	7,936.848
M3666	20	7,985.31	0.9974	7,964.548
M3663	20	8,011.69	0.9994	8,006.882
517	20	7,811.30	0.9968	7,786.303
14235	20	8,265.40	0.9981	8,249.695
14239	20	8,688.05	0.9974	8,665.461
619	21	8,551.35	0.9961	8,517.999
M1308	20	8,063.21	0.9990	8,055.146
M3670	20	7,989.68	0.9976	7,970.504
M1310	20	7,989.27	0.9997	7,986.873
11762	20	8,084.55	0.9970	8,060.296
686	20	8,397.10	0.9966	8,368.549
5450	21	8,878.50	0.9963	8,845.649
63	24	9,665.49	0.9970	9,636.493
610	20	8,302.67	0.9957	8,266.968
M1328	20	8,098.78	0.9998	8,097.160
M 172	23	9,615.45	0.9998	9,613.526
10194	20	8,333.85	0.9972	8,310.515
689	19	7,534.98	0.9960	7,504.840
730	21	8,254.75	0.9959	8,220.905
731	21			

		8,235.95	0.9958	8,201.359
45582	17	6,825.42	0.9965	6,801.531
45577	22	8,951.10	0.9959	8,914.400
45578	21	8,515.20	0.9963	8,483.693
732	20	8,128.70	0.9961	8,096.998
735	20	8,203.25	0.9959	8,169.616
45521	21	8,647.40	0.9977	8,627.510
5209	21	8,634.10	0.9958	8,597.836
M1329	20	8,161.75	0.9998	8,160.117
724	19	7,688.13	0.9957	7,655.071
34128	20	8,436.00	0.9974	8,414.066
23	24	9,913.84	0.9994	9,907.891
57	24	9,930.28	0.9961	9,891.551
36	24	9,892.07	0.9970	9,862.393
M 168	23	9,546.00	0.9998	9,544.090
34127	20	8,381.95	0.9974	8,360.156
13749	20	7,786.60	0.9966	7,760.125
12884	21	8,561.28	0.9965	8,531.315
10020	19	7,975.05	0.9998	7,973.454
5643	21	8,695.89	0.9959	8,660.236
M 167	23	9,393.43	0.9998	9,391.551
1703	21	8,744.40	0.9960	8,709.422
23207	22			

1968 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,783.65	0.9976	8,762.569
M3858	20	8,034.31	0.9998	8,032.703
M3857	20	8,142.56	0.9998	8,140.931
45520	20	8,270.18	0.9983	8,256.120
262	21	8,256.09	0.9958	8,221.414
9617	19	8,097.25	0.9964	8,068.099
16279	23	9,821.52	0.9973	9,795.001
16606	21	8,589.50	0.9970	8,563.731
16596	23	9,365.13	0.9960	9,327.669
16226	24	9,666.82	0.9980	9,647.486
16224	23	9,286.22	0.9977	9,264.861
16233	24	9,722.70	0.9971	9,694.504
M1385	20	8,119.03	0.9990	8,110.910
R 430	20	7,928.59	0.9998	7,927.004
16231	23	9,232.25	0.9979	9,212.862
405	20	8,011.29	0.9959	7,978.443
5349	20	8,264.27	0.9952	8,224.601
M1314	20	8,251.28	0.9997	8,248.804
M 181	20	8,116.16	0.9980	8,099.927
M 148	20	7,928.25	0.9994	7,923.493
M3903	20	8,047.33	0.9996	8,044.111
M1313	20	8,038.37	0.9975	8,018.274
6336	10			

		4,053.93	0.9966	4,040.146
213	22	9,090.16	0.9998	9,088.341
R 410	20	8,103.76	0.9997	8,101.328
R 37	20	8,233.43	0.9997	8,230.959
R 12	20	8,152.92	0.9998	8,151.289
R 362	20	7,981.50	0.9997	7,979.105
R 363	20	8,222.79	0.9997	8,220.323
5241	21	8,661.35	0.9957	8,624.106
5182	20	8,193.18	0.9968	8,166.961
5263	21	8,853.55	0.9960	8,818.135
5264	21	8,880.85	0.9959	8,844.438
5265	21	8,923.85	0.9957	8,885.477
5267	21	8,627.63	0.9960	8,593.119
5178	21	8,359.46	0.9969	8,333.545
6427	22	8,741.78	0.9962	8,708.561
5176	21	8,718.67	0.9968	8,690.770
5179	21	8,452.90	0.9969	8,426.696
6429	22	8,647.82	0.9964	8,616.687
6423	22	8,830.13	0.9965	8,799.224
7047	20	7,754.18	0.9979	7,737.896
7046	21	8,144.50	0.9978	8,126.582
2263	21	8,499.84	0.9975	8,478.590
2269	22			

1970 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,617.50	0.9973	8,594.232
357	17	6,983.36	0.9971	6,963.108
6378	22	8,737.05	0.9963	8,704.722
6422	22	8,763.20	0.9962	8,729.899
6421	22	8,738.97	0.9961	8,704.888
6420	22	8,715.80	0.9963	8,683.551
6377	22	8,844.20	0.9964	8,812.360
6376	21	8,346.87	0.9965	8,317.655
6375	23	9,157.57	0.9970	9,130.097
7020	18	7,155.81	0.9985	7,145.076
7031	21	8,336.32	0.9978	8,317.980
7032	21	8,475.30	0.9980	8,458.349
2077	20	8,093.76	0.9965	8,065.431
4561	22	8,894.75	0.9964	8,862.728
4564	22	8,673.78	0.9967	8,645.156
6374	23	9,281.78	0.9970	9,253.934
8610	22	8,867.93	0.9963	8,835.118
6409	20	7,989.52	0.9967	7,963.154
4557	22	8,787.19	0.9969	8,759.949
8190	19	7,993.82	0.9967	7,967.440
905	20	7,999.03	0.9958	7,965.434
15856	21	8,976.94	0.9957	8,938.339
2945	21			

		8,489.80	0.9975	8,468.575
2519	21	8,591.52	0.9958	8,555.435
15855	20	8,424.31	0.9960	8,390.612
8672	22	8,699.06	0.9963	8,666.873
2968	21	8,333.12	0.9960	8,299.787
2967	21	8,434.93	0.9961	8,402.033
M 126	1	407.10	0.9996	406.937
M2730	20	8,003.27	0.9997	8,000.869
M2729	20	8,130.41	0.9998	8,128.783
6115	22	9,226.40	0.9997	9,223.632
D 44	22	9,114.64	0.9998	9,112.817
M2732	20	8,065.22	0.9997	8,062.800
D 21	22	9,097.12	0.9997	9,094.390
10079	21	8,580.15	0.9995	8,575.859
D 59	21	8,721.37	0.9997	8,718.753
10146	20	8,424.42	0.9998	8,422.735
10148	19	7,958.35	0.9998	7,956.758
14997	18	7,414.90	0.9998	7,413.417
5511	20	7,993.35	0.9996	7,990.152
D 20	22	9,044.69	0.9996	9,041.072
10149	20	8,322.25	0.9998	8,320.585
95	16	6,573.60	0.9997	6,571.627
10078	21			

1972 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,641.94	0.9995	8,637.619
6116	19	7,903.35	0.9997	7,900.978
96	14	5,640.35	0.9998	5,639.221
M2725	20	8,084.21	0.9996	8,080.976
1021	24	10,085.03	0.9985	10,069.902
5614	23	9,291.69	0.9996	9,287.973
5615	22	8,735.71	0.9997	8,733.089
5620	20	7,815.73	0.9997	7,813.385
R 13	20	8,172.43	0.9997	8,169.978
R 19	20	7,933.28	0.9997	7,930.900
R 11	20	8,219.23	0.9998	8,217.586
M 383	20	8,144.54	0.9984	8,131.508
1211	20	8,076.75	0.9976	8,057.365
842	24	10,085.11	0.9987	10,071.999
10533	22	8,822.92	0.9971	8,797.333
9045	22	8,480.57	0.9964	8,450.039
19841	18	7,323.17	0.9964	7,296.806
412	21	8,492.69	0.9959	8,457.869
8319	19	7,503.04	0.9959	7,472.277
8932	20	8,416.23	0.9988	8,406.130
8935	20	8,439.25	0.9957	8,402.961
8805	20	8,677.36	0.9975	8,655.666
9426	21			

		8,327.29	0.9971	8,303.140
M 498	20	7,989.46	0.9994	7,984.666
2638	20	8,396.05	0.9964	8,365.824
55	24	9,850.08	0.9959	9,809.694
16286	20	8,115.18	0.9960	8,082.719
209	22	9,037.52	0.9998	9,035.712
5192	21	8,718.47	0.9957	8,680.980
R 257	20	8,068.62	0.9996	8,065.392
R 203	15	6,208.55	0.9997	6,206.687
6329	21	8,224.09	0.9964	8,194.483
R 259	20	8,175.40	0.9996	8,172.129
R 263	20	8,230.26	0.9997	8,227.790
R 262	20	8,107.62	0.9997	8,105.187
R 267	20	8,231.69	0.9996	8,228.397
R 264	20	8,130.22	0.9996	8,126.967
R 265	20	8,126.42	0.9997	8,123.982
R 266	20	8,132.48	0.9997	8,130.040
R 281	20	8,097.68	0.9996	8,094.440
R 269	20	8,269.92	0.9997	8,267.439
R 284	20	8,133.15	0.9997	8,130.710
R 282	20	8,130.34	0.9996	8,127.087
R 289	20	8,261.12	0.9996	8,257.815
R 288	20			

1974 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,193.60	0.9997	8,191.141
R 292	20	8,260.92	0.9996	8,257.615
R 293	20	7,965.96	0.9996	7,962.773
R 286	20	8,279.06	0.9996	8,275.748
R 290	20	8,015.35	0.9996	8,012.143
R 296	19	7,848.04	0.9996	7,844.900
R 295	20	8,281.33	0.9997	8,278.845
R 299	20	8,228.04	0.9996	8,224.748
R 303	20	8,169.60	0.9996	8,166.332
R 294	20	8,236.73	0.9996	8,233.435
R 298	20	8,217.92	0.9996	8,214.632
R 313	20	8,129.79	0.9996	8,126.538
R 310	20	8,503.83	0.9996	8,500.428
R 314	20	8,188.76	0.9996	8,185.484
R 305	20	8,564.34	0.9996	8,560.914
R 307	19	7,961.52	0.9996	7,958.335
R 321	20	8,327.02	0.9997	8,324.521
R 316	20	8,238.55	0.9996	8,235.254
R 315	20	8,248.50	0.9997	8,246.025
R 318	20	8,059.75	0.9996	8,056.526
R 319	20	8,205.45	0.9996	8,202.167
R 320	19	7,678.56	0.9996	7,675.488
R 328	15			

		5,884.04	0.9997	5,882.274
R 323	20	8,063.90	0.9997	8,061.480
R 325	20	8,094.52	0.9997	8,092.091
R 326	19	7,612.65	0.9997	7,610.366
R 327	20	8,126.04	0.9997	8,123.602
R 329	20	8,148.79	0.9997	8,146.345
R 337	20	8,046.80	0.9997	8,044.385
R 331	20	7,964.04	0.9997	7,961.650
R 333	20	8,083.54	0.9997	8,081.114
R 443	16	6,515.19	0.9997	6,513.235
R 335	20	7,984.85	0.9997	7,982.454
R 336	20	8,159.69	0.9997	8,157.242
R 444	20	8,368.82	0.9998	8,367.146
R 446	20	8,516.86	0.9998	8,515.156
R 439	20	8,219.03	0.9998	8,217.386
R 440	20	8,114.03	0.9998	8,112.407
R 441	20	8,200.29	0.9998	8,198.649
R 442	20	8,636.93	0.9998	8,635.202
R 338	20	8,057.05	0.9998	8,055.438
R 466	20	8,556.56	0.9996	8,553.137
R 464	18	7,559.02	0.9998	7,557.508
R 438	20	8,372.35	0.9998	8,370.675
R 436	20			

1976 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,262.40	0.9998	8,260.747
R 435	20	8,168.53	0.9998	8,166.896
R 462	20	8,497.96	0.9997	8,495.410
R 461	20	8,510.06	0.9997	8,507.506
R 460	20	8,514.05	0.9998	8,512.347
R 434	20	8,962.76	0.9998	8,960.967
R 433	20	8,796.67	0.9998	8,794.910
R 431	20	8,526.15	0.9997	8,523.592
R 458	20	8,524.96	0.9998	8,523.255
R 456	20	8,384.98	0.9998	8,383.303
R 455	20	8,057.60	0.9998	8,055.988
R 451	20	7,929.08	0.9997	7,926.701
R 429	20	8,555.87	0.9998	8,554.158
R 459	20	8,506.27	0.9997	8,503.718
R 423	20	8,244.53	0.9998	8,242.881
R 454	16	6,272.56	0.9997	6,270.678
R 452	20	8,387.71	0.9997	8,385.193
R 447	20	8,094.71	0.9997	8,092.281
R 426	20	8,066.57	0.9998	8,064.956
R 425	20	8,147.69	0.9997	8,145.245
R 450	20	8,329.34	0.9997	8,326.841
R 449	20	7,977.72	0.9998	7,976.124
R 448	20			

		8,300.98	0.9998	8,299.319
R 421	20	8,107.53	0.9998	8,105.908
R 420	20	8,410.75	0.9998	8,409.067
R 419	20	8,250.91	0.9997	8,248.434
R 417	17	7,163.07	0.9996	7,160.204
R 416	20	8,173.00	0.9997	8,170.548
R 415	20	8,078.70	0.9997	8,076.276
R 411	20	8,541.86	0.9997	8,539.297
R 412	20	8,250.18	0.9997	8,247.704
R 413	20	8,466.21	0.9998	8,464.516
R 409	20	8,255.80	0.9997	8,253.323
R 408	20	8,478.01	0.9997	8,475.466
R 407	20	8,324.11	0.9996	8,320.780
R 399	20	8,212.93	0.9996	8,209.644
R 360	20	7,687.77	0.9997	7,685.463
R 359	20	7,963.03	0.9998	7,961.437
R 400	20	8,237.17	0.9996	8,233.875
R 401	20	8,206.53	0.9996	8,203.247
R 354	20	7,907.39	0.9997	7,905.017
R 357	20	7,983.27	0.9996	7,980.076
R 356	20	8,385.86	0.9997	8,383.344
R 355	20	7,622.20	0.9998	7,620.675
R 395	19			

1978 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		7,856.69	0.9997	7,854.332
R 396	20	8,429.59	0.9997	8,427.061
R 398	20	8,323.42	0.9996	8,320.090
R 349	20	8,288.04	0.9998	8,286.382
R 350	21	8,385.00	0.9998	8,383.323
R 352	20	7,799.55	0.9997	7,797.210
R 386	20	8,260.95	0.9997	8,258.471
R 387	20	8,168.35	0.9997	8,165.899
R 388	20	8,147.53	0.9996	8,144.270
R 347	20	8,412.08	0.9998	8,410.397
R 346	20	8,053.55	0.9997	8,051.133
R 345	20	8,390.82	0.9998	8,389.141
R 348	20	8,142.85	0.9997	8,140.407
R 378	20	8,029.27	0.9996	8,026.058
R 379	20	8,054.68	0.9997	8,052.263
M1320	20	8,087.11	0.9974	8,066.083
M1308	20	8,181.38	0.9974	8,160.108
M1305	20	8,181.91	0.9980	8,165.546
8678	22	8,770.54	0.9961	8,736.334
6124	22	8,772.67	0.9960	8,737.579
R 384	20	8,124.92	0.9997	8,122.482
R 380	20	8,236.76	0.9997	8,234.288
R 342	20			

		8,199.29	0.9997	8,196.830
R 344	20	8,053.35	0.9998	8,051.739
R 375	20	8,105.28	0.9998	8,103.658
R 374	20	7,945.45	0.9997	7,943.066
R 376	20	8,051.58	0.9996	8,048.359
R 377	20	8,053.22	0.9996	8,049.998
R 383	20	8,132.48	0.9997	8,130.040
R 457	20	8,469.30	0.9998	8,467.606
R 366	20	8,118.11	0.9997	8,115.674
R 370	19	7,601.70	0.9997	7,599.419
R 372	20	8,187.80	0.9997	8,185.343
R 176	20	8,092.10	0.9996	8,088.863
R 369	20	8,183.06	0.9996	8,179.786
R 368	20	7,956.91	0.9997	7,954.522
R 178	20	8,235.43	0.9995	8,231.312
R 179	20	7,723.85	0.9997	7,721.532
R 21	20	8,084.54	0.9997	8,082.114
R 39	20	8,275.32	0.9998	8,273.664
R 45	20	8,328.75	0.9998	8,327.084
R 20	20	7,741.10	0.9997	7,738.777
R 38	20	8,304.58	0.9997	8,302.088
R 132	19	7,585.87	0.9997	7,583.594
DC505	5			

1980 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		1,898.05	0.9985	1,895.202
R 131	20	8,478.64	0.9997	8,476.096
24700	1	343.50	0.9964	342.263
25285	1	333.09	0.9966	331.957
15085	1	343.12	0.9974	342.227
1943	1	289.17	0.9979	288.562
25643	1	204.21	0.9975	203.699
24698	1	225.46	0.9966	224.693
26411	1	263.74	0.9977	263.133
26411	1	219.64	0.9977	219.134
25292	1	336.51	0.9965	335.332
24623	1	288.24	0.9965	287.231
8836	1	453.77	0.9966	452.227
8133	1	193.75	0.9975	193.265
23674	1	261.55	0.9973	260.843
23674	1	260.90	0.9973	260.195
25711	1	253.30	0.9970	252.540
25711	1	271.66	0.9970	270.845
658	1	294.04	0.9961	292.893
8921	1	335.24	0.9956	333.764
9131	1	234.24	0.9975	233.654
9131	1	235.34	0.9975	234.751
12605	1			

		444.29	0.9958	442.423
12605	1	446.06	0.9958	444.186
101	1	412.37	0.9962	410.802
101	1	409.12	0.9962	407.565
14633	1	447.80	0.9961	446.053
14633	1	448.78	0.9961	447.029
14633	1	449.59	0.9961	447.836
5131	1	265.02	0.9971	264.251
5131	1	281.92	0.9971	281.102
25906	1	312.23	0.9961	311.012
25906	1	294.64	0.9961	293.490
657	1	301.50	0.9961	300.324
657	1	279.90	0.9961	278.808
8908	1	449.70	0.9987	449.115
661	1	322.63	0.9962	321.404
5779	1	444.55	0.9969	443.171
R 124	20	8,468.63	0.9998	8,466.936
M 556	1	385.83	0.9965	384.479
M 556	1	383.97	0.9965	382.626
M 556	1	378.19	0.9965	376.866
M 556	1	398.53	0.9965	397.135
14636	1	448.96	0.9960	447.164
14636	1			

1982 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		443.30	0.9960	441.526
14636	1	444.53	0.9960	442.751
R 264	1	433.38	0.9998	433.293
R 264	1	410.16	0.9998	410.077
R 264	1	437.47	0.9998	437.382
R 264	1	413.91	0.9998	413.827
R 264	1	431.97	0.9998	431.883
R 264	1	425.16	0.9998	425.074
R 264	1	425.91	0.9998	425.824
R 264	1	440.16	0.9998	440.071
R 264	1	430.13	0.9998	430.043
R 127	20	8,387.69	0.9998	8,386.012
R 128	20	8,106.43	0.9997	8,103.998
R 190	1	436.40	0.9994	436.138
R 190	1	422.33	0.9994	422.076
R 190	1	447.16	0.9994	446.891
R 190	1	410.87	0.9994	410.623
R 190	1	428.40	0.9994	428.142
R 190	1	425.74	0.9994	425.484
R 190	1	416.28	0.9994	416.030
R 190	1	422.13	0.9994	421.876
R 190	1	407.87	0.9994	407.625
R 190	1			

		443.22	0.9994	442.954
R 190	1	443.66	0.9994	443.393
R 190	1	422.45	0.9994	422.196
R 190	1	400.10	0.9994	399.859
8827	1	444.63	0.9984	443.918
8827	1	445.44	0.9984	444.727
8827	1	450.57	0.9984	449.849
8827	1	446.32	0.9984	445.605
M 556	1	401.00	0.9965	399.596
M 556	1	397.57	0.9965	396.178
M 556	1	390.00	0.9965	388.635
25291	1	273.53	0.9968	272.654
25905	1	284.94	0.9977	284.284
25905	1	262.08	0.9977	261.477
14581	1	444.34	0.9970	443.006
25249	1	201.62	0.9965	200.914
25249	1	225.73	0.9965	224.939
8917	1	444.57	0.9968	443.147
8917	1	446.72	0.9968	445.290
26164	1	314.84	0.9953	313.360
25932	1	272.06	0.9983	271.597
25932	1	225.33	0.9983	224.946
9359	1			

		337.09	0.9964	335.876
9359	1	290.40	0.9964	289.354
12695	1	444.13	0.9957	442.220
12695	1	451.04	0.9957	449.100
M 346	1	346.63	0.9954	345.035
19505	1	284.04	0.9976	283.358
19505	1	246.34	0.9976	245.748
16309	1	297.16	0.9971	296.298
R 190	1	425.13	0.9994	424.874
DC647	8	3,161.58	0.9973	3,153.043
DC555	3	1,140.74	0.9985	1,139.028
DC637	8	3,136.64	0.9968	3,126.602
DC531	7	2,789.10	0.9980	2,783.521
DC530	9	3,596.45	0.9980	3,589.257
DC558	3	1,194.08	0.9983	1,192.050
DC660	2	769.57	0.9987	768.569
DC632	2	768.76	0.9982	767.376
DC616	2	787.88	0.9976	785.989
DC654	3	1,186.38	0.9986	1,184.719
DC545	2	788.75	0.9989	787.882
DC656	3	1,183.78	0.9980	1,181.412
DC573	3	1,198.79	0.9986	1,197.111
DC641	2			

		778.25	0.9986	777.160
DC606	3	1,152.41	0.9977	1,149.759
DC666	2	790.01	0.9981	788.508
DC594	2	770.20	0.9980	768.659
DC536	2	782.67	0.9981	781.182
DC637	3	1,179.17	0.9981	1,176.929
DC643	3	1,198.76	0.9977	1,196.002
DC608	3	1,119.82	0.9981	1,117.692
DC639	3	1,176.76	0.9971	1,173.347
DC526	3	1,158.06	0.9981	1,155.859
DC589	2	771.30	0.9987	770.297
DC611	19	7,535.95	0.9967	7,511.081
DC630	7	2,819.50	0.9969	2,810.759
DC619	7	2,738.28	0.9970	2,730.065
DC547	8	3,067.03	0.9979	3,060.589
DC617	8	3,123.74	0.9962	3,111.869
DC614	4	1,574.21	0.9966	1,568.857
DC555	12	4,668.83	0.9982	4,660.426
DC566	9	3,545.03	0.9980	3,537.939
DC576	7	2,808.62	0.9981	2,803.283
DC528	5	1,936.48	0.9988	1,934.156
DC642	7	2,749.89	0.9969	2,741.365
DC649	6			

1986 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		2,362.70	0.9968	2,355.139
DC661	7	2,718.98	0.9967	2,710.007
DC658	4	1,556.84	0.9962	1,550.924
DC657	5	1,945.97	0.9973	1,940.715
DC656	4	1,542.46	0.9966	1,537.215
DC663	8	3,166.84	0.9972	3,157.972
DC621	7	2,770.00	0.9965	2,760.305
DC629	8	3,115.12	0.9973	3,106.709
DC616	6	2,363.07	0.9969	2,355.744
DC648	10	3,908.60	0.9960	3,892.965
R 364	17	6,905.70	0.9997	6,903.628
R 403	20	8,424.00	0.9995	8,419.788
R 405	20	8,306.65	0.9996	8,303.327
R 406	20	8,158.60	0.9996	8,155.336
DC653	8	3,169.47	0.9977	3,162.180
DC667	8	3,153.11	0.9975	3,145.227
DC672	7	2,741.35	0.9974	2,734.222
DC633	7	2,770.88	0.9974	2,763.675
DC668	7	2,744.65	0.9976	2,738.062
DC669	5	1,964.73	0.9971	1,959.032
DC627	8	3,143.68	0.9973	3,135.192
6921	3	1,210.03	0.9967	1,206.036
DC624	8			

		3,137.82	0.9970	3,128.406
DC622	7	2,784.04	0.9976	2,777.358
DC620	7	2,791.12	0.9969	2,782.467
DC553	8	3,134.02	0.9979	3,127.438
DC544	7	2,790.81	0.9979	2,784.949
DC634	7	2,728.41	0.9978	2,722.407
DC655	17	6,729.85	0.9968	6,708.314
DC600	2	759.42	0.9989	758.584
DC606	5	1,922.46	0.9966	1,915.923
DC660	7	2,807.48	0.9965	2,797.653
DC664	9	3,577.44	0.9971	3,567.065
DC608	8	3,128.18	0.9976	3,120.672
DC666	8	3,139.38	0.9957	3,125.880
DC662	7	2,765.32	0.9969	2,756.747
DC665	8	3,162.08	0.9971	3,152.909
DC577	10	3,837.88	0.9975	3,828.285
DC574	6	2,328.95	0.9980	2,324.292
DC570	7	2,752.92	0.9983	2,748.240
DC580	7	2,753.28	0.9971	2,745.295
DC595	8	3,089.88	0.9976	3,082.464
DC609	7	2,791.74	0.9971	2,783.643
DC607	5	1,960.66	0.9974	1,955.562
DC599	6			

		2,315.67	0.9963	2,307.102
DC594	8	3,195.04	0.9968	3,184.815
DC618	8	3,179.69	0.9978	3,172.694
DC625	7	2,702.37	0.9980	2,696.965
DC626	6	2,369.79	0.9969	2,362.443
DC501	7	2,801.38	0.9982	2,796.337
DC689	3	1,212.03	0.9982	1,209.848
DC631	7	2,785.70	0.9977	2,779.292
DC639	8	3,168.80	0.9959	3,155.807
DC593	6	2,311.73	0.9979	2,306.875
DC597	3	1,180.02	0.9976	1,177.187
DC598	3	1,163.98	0.9984	1,162.117
DC602	9	3,528.53	0.9968	3,517.238
DC708	6	2,398.05	0.9972	2,391.335
DC690	4	1,603.63	0.9996	1,602.988
DC525	9	3,559.41	0.9987	3,554.782
DC529	9	3,517.95	0.9983	3,511.969
DC500	8	3,143.88	0.9980	3,137.592
DC676	7	2,811.38	0.9981	2,806.038
DC606	6	2,390.34	0.9983	2,386.276
DC712	5	1,951.55	0.9978	1,947.256
DC604	7	2,694.02	0.9974	2,687.015
DC596	6			

		2,292.28	0.9974	2,286.320
DC532	11	4,390.07	0.9977	4,379.972
DC523	11	4,336.55	0.9982	4,328.744
DC524	8	3,134.39	0.9982	3,128.748
DC539	6	2,303.13	0.9990	2,300.826
DC528	8	3,202.63	0.9971	3,193.342
5898	12	4,962.94	0.9998	4,961.948
5621	20	8,202.02	0.9997	8,199.560
5624	19	7,662.22	0.9995	7,658.388
R 99	20	7,948.88	0.9996	7,945.701
413	21	8,524.90	0.9960	8,490.801
415	21	8,428.92	0.9959	8,394.361
R 202	15	6,225.44	0.9997	6,223.573
R 258	20	7,897.32	0.9997	7,894.950
9770	22	8,743.15	0.9957	8,705.554
8660	22	8,800.10	0.9959	8,764.020
M3641	20	8,110.20	0.9991	8,102.900
16277	23	9,244.87	0.9969	9,216.210
R 49	20	8,068.65	0.9998	8,067.037
R 166	20	8,085.21	0.9996	8,081.975
R 163	20	7,982.40	0.9998	7,980.804
R 159	20	7,838.17	0.9998	7,836.603
R 122	20			

1990 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,164.21	0.9998	8,162.578
R 117	20	8,220.59	0.9998	8,218.945
R 88	20	8,060.45	0.9996	8,057.225
R 84	20	8,182.44	0.9997	8,179.986
R 414	20	8,130.30	0.9997	8,127.860
R 418	20	8,360.05	0.9998	8,358.377
R 422	20	8,546.23	0.9997	8,543.667
R 424	20	8,374.55	0.9998	8,372.876
46630	23	9,629.48	0.9973	9,603.481
3298	21	8,079.80	0.9960	8,047.480
5195	21	8,677.12	0.9959	8,641.543
1808	20	7,945.82	0.9960	7,914.036
M 378	20	7,914.44	0.9970	7,890.697
10536	21	8,461.10	0.9971	8,436.562
M 380	20	8,077.36	0.9968	8,051.513
R 18	20	7,953.33	0.9997	7,950.945
R 397	15	6,236.33	0.9996	6,233.836
R 358	20	7,926.23	0.9998	7,924.645
DC605	10	3,923.45	0.9975	3,913.642
DC556	4	1,556.62	0.9983	1,553.973
DC526	10	3,998.04	0.9976	3,988.444
DC540	7	2,743.17	0.9982	2,738.233
R 428	20			

		8,044.93	0.9998	8,043.322
R 432	20	7,848.25	0.9998	7,846.681
R 463	20	8,451.18	0.9997	8,448.645
R 437	20	8,193.55	0.9998	8,191.912
R 177	20	7,847.04	0.9996	7,843.902
R 371	20	8,204.01	0.9997	8,201.548
R 373	20	8,104.23	0.9997	8,101.799
R 367	20	8,143.53	0.9997	8,141.086
R 322	20	8,064.45	0.9997	8,062.031
R 324	20	7,997.87	0.9997	7,995.471
R 317	20	8,103.20	0.9996	8,099.959
R 300	20	8,187.05	0.9996	8,183.776
R 341	20	8,428.49	0.9998	8,426.805
6328	21	8,165.92	0.9968	8,139.790
3144	19	7,268.58	0.9954	7,235.145
R 353	20	7,997.68	0.9997	7,995.281
10185	21	8,739.17	0.9960	8,704.214
10183	21	8,671.09	0.9958	8,634.672
2486	20	8,070.38	0.9978	8,052.626
14365	21	8,575.62	0.9971	8,550.750
R 130	19	7,838.06	0.9997	7,835.709
R 129	20	8,436.58	0.9998	8,434.893
M 379	20			

1992 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,035.21	0.9968	8,009.498
R 44	20	8,278.49	0.9997	8,276.007
6418	23	9,154.88	0.9966	9,123.753
6380	22	8,821.63	0.9967	8,792.519
6416	22	8,743.67	0.9966	8,713.942
5177	21	8,731.40	0.9965	8,700.841
6426	23	9,039.10	0.9964	9,006.560
16229	23	9,170.99	0.9980	9,152.649
16915	21	8,582.78	0.9970	8,557.032
3179	20	8,086.54	0.9957	8,051.767
54	24	9,891.13	0.9996	9,887.174
32	24	9,913.29	0.9998	9,911.308
44	24	9,927.66	0.9998	9,925.675
37	22	9,098.01	0.9997	9,095.281
R 210	22	9,266.81	0.9996	9,263.104
R 261	20	8,140.31	0.9996	8,137.053
R 260	20	7,699.25	0.9996	7,696.171
R 268	20	8,177.89	0.9997	8,175.437
R 126	20	8,098.72	0.9998	8,097.101
DC615	9	3,551.13	0.9964	3,538.345
DC650	7	2,739.00	0.9971	2,731.056
R 365	20	8,111.03	0.9997	8,108.597
R 404	20			

		8,275.53	0.9996	8,272.219
R 332	20	8,150.19	0.9997	8,147.744
R 330	20	8,014.36	0.9998	8,012.758
R 334	20	8,099.25	0.9997	8,096.821
R 445	20	8,070.43	0.9997	8,068.008
45563	20	8,332.84	0.9971	8,308.674
45568	20	8,389.36	0.9967	8,361.676
737	20	7,984.53	0.9963	7,954.987
5681	21	8,694.69	0.9956	8,656.433
5180	21	8,477.77	0.9965	8,448.097
5348	22	9,105.12	0.9952	9,061.415
5266	21	8,937.03	0.9960	8,901.281
R 280	20	8,124.24	0.9997	8,121.803
D 19	22	8,983.77	0.9997	8,981.074
M3672	20	8,118.26	0.9979	8,101.211
2483	20	8,037.59	0.9960	8,005.440
45527	18	7,118.51	0.9972	7,098.579
M1323	20	8,205.53	0.9998	8,203.889
M1332	20	8,182.82	0.9998	8,181.184
M1340	20	8,166.55	0.9998	8,164.917
M3668	20	8,025.19	0.9981	8,009.943
M1345	20	8,110.52	0.9997	8,108.087
M 481	20			

1994 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,006.67	0.9994	8,001.865
R 43	20	7,972.61	0.9997	7,970.219
R 44	19	7,738.39	0.9997	7,736.069
R 66	20	8,199.64	0.9998	8,198.001
R 80	20	8,098.13	0.9997	8,095.701
RM293	21	8,749.98	0.9965	8,719.356
16603	20	8,214.92	0.9967	8,187.810
16610	22	8,979.97	0.9958	8,942.255
16601	20	8,057.29	0.9966	8,029.896
2263	20	8,446.52	0.9965	8,416.957
722	20	8,100.86	0.9959	8,067.646
23502	21	8,627.66	0.9970	8,601.778
23197	21	8,674.73	0.9975	8,653.044
5140	21	8,670.19	0.9960	8,635.510
6576	18	7,129.75	0.9979	7,114.777
2245	19	8,109.71	0.9988	8,099.979
5199	20	8,401.46	0.9956	8,364.493
5181	21	8,505.64	0.9966	8,476.720
518	20	7,900.76	0.9968	7,875.477
7684	21	8,132.17	0.9970	8,107.773
214	22	9,099.94	0.9998	9,098.121
M1344	20	8,087.87	0.9998	8,086.253
M1347	20			

		8,096.02	0.9998	8,094.401
M1360	20	8,190.12	0.9998	8,188.481
938	22	8,630.38	0.9998	8,628.653
M 169	23	9,571.49	0.9998	9,569.576
R 340	20	8,094.19	0.9997	8,091.761
R 402	20	8,189.03	0.9996	8,185.755
9046	21	8,187.29	0.9974	8,166.004
5045	20	8,493.55	0.9966	8,464.671
6107	22	9,146.27	0.9996	9,142.612
DC575	5	1,917.94	0.9967	1,911.610
M2704	20	8,240.04	0.9997	8,237.567
10144	20	8,619.84	0.9998	8,618.117
1699	20	8,279.04	0.9961	8,246.751
2490	19	7,637.83	0.9967	7,612.626
2489	20	7,956.73	0.9975	7,936.839
2549	20	8,098.46	0.9996	8,095.220
13748	21	7,855.29	0.9969	7,830.938
7358	22	8,990.40	0.9969	8,962.529
7956	22	8,696.25	0.9963	8,664.073
16605	21	8,534.39	0.9969	8,507.934
M3667	20	8,056.12	0.9994	8,051.287
4203	21	8,855.04	0.9969	8,827.590
10080	19			

1996 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		7,667.22	0.9994	7,662.620
2485	20	7,996.44	0.9958	7,962.854
R 59	20	8,187.31	0.9996	8,184.036
M 558	20	7,872.51	0.9955	7,837.083
320	20	8,458.43	0.9973	8,435.593
R 60	20	8,259.01	0.9996	8,255.707
16	22	9,039.99	0.9998	9,038.183
9360	22	8,921.51	0.9965	8,890.284
M 477	20	8,026.86	0.9993	8,021.242
M 531	20	7,802.68	0.9965	7,775.370
M 530	20	7,848.67	0.9965	7,821.200
46633	22	8,953.18	0.9970	8,926.321
R 61	20	8,073.86	0.9997	8,070.631
R 63	20	7,894.87	0.9997	7,892.502
R 144	20	8,311.48	0.9997	8,308.987
R 147	20	8,387.00	0.9996	8,383.646
130	20	8,220.90	0.9962	8,189.660
R 27	20	8,078.08	0.9996	8,074.848
M 485	20	7,867.57	0.9994	7,862.850
M 476	20	8,210.65	0.9993	8,204.903
R 291	20	7,978.34	0.9996	7,975.149
R 287	20	8,224.43	0.9997	8,221.963
R 283	20			

		8,046.15	0.9997	8,043.737
R 285	20	8,055.69	0.9997	8,053.274
5217	21	8,376.91	0.9959	8,342.565
45522	21	8,747.67	0.9976	8,726.676
10495	21	8,749.57	0.9969	8,722.447
35	24	9,953.25	0.9976	9,929.363
1311	21	8,636.58	0.9964	8,605.489
267	20	8,413.36	0.9980	8,396.534
R 61	20	8,157.09	0.9996	8,154.643
9390	22	8,913.18	0.9964	8,881.093
	5	5,373.58	0.9000	4,836.222
	5	5,370.26	0.9000	4,833.234
	5	5,372.51	0.8999	4,834.721
	5	5,372.82	0.9000	4,835.538
	5	5,372.76	0.8999	4,834.946
	5	5,372.55	0.9000	4,835.295
	5	5,372.15	0.9000	4,834.935
	5	5,371.85	0.9000	4,834.665
	5	5,372.50	0.9000	4,835.250
	5	5,374.00	0.9000	4,836.600
	5	5,371.77	0.9000	4,834.593
	5	5,372.25	0.9001	4,835.562
	5			

	5,368.78	0.9001	4,832.438
5	5,370.92	0.8999	4,833.290
5	5,370.35	0.9000	4,833.315
5	5,373.91	0.8999	4,835.981
5	5,372.68	0.9000	4,835.412
5	5,367.32	0.9000	4,830.588
5	5,372.26	0.9000	4,835.034
5	5,371.60	0.9000	4,834.440
5	5,370.53	0.9000	4,833.477
5	5,370.70	0.9000	4,833.630
5	5,369.43	0.9001	4,833.023
5	5,370.82	0.9001	4,834.275
5	5,371.08	0.9000	4,833.972
5	5,372.33	0.8999	4,834.559
5	5,372.38	0.9000	4,835.142
5	5,371.17	0.9000	4,834.053
5	5,371.38	0.8999	4,833.704
5	5,373.95	0.9000	4,836.555
5	5,377.90	0.9000	4,840.110
5	5,370.65	0.8999	4,833.047
5	5,373.44	0.9000	4,836.096
5	5,368.08	0.9000	4,831.272
5			

	5,369.91	0.9000	4,832.919
5	5,372.54	0.9000	4,835.286
5	5,370.25	0.8999	4,832.687
5	5,369.36	0.8999	4,831.887
5	5,368.89	0.8999	4,831.464
5	5,371.87	0.9000	4,834.683
5	5,372.39	0.9000	4,835.151
5	5,370.78	0.9000	4,833.702
5	5,372.11	0.8999	4,834.361
5	5,368.97	0.8999	4,831.536
5	5,371.06	0.8999	4,833.416
5	5,368.57	0.9000	4,831.713
5	5,369.63	0.9000	4,832.667
5	5,370.31	0.9000	4,833.279
5	5,369.57	0.9001	4,833.149
5	5,371.79	0.9001	4,835.148
5	5,370.23	0.8999	4,832.669
5	5,369.94	0.9000	4,832.946
5	5,369.69	0.8999	4,832.184
5	5,369.22	0.8999	4,831.761
5	5,370.41	0.8999	4,832.831
5	5,365.78	0.9000	4,829.202
8			

2000 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		8,822.36	0.8999	7,939.241
742	6	6,414.27	0.9167	5,879.961
	5	5,371.23	0.8999	4,833.569
	5	5,365.88	0.8999	4,828.755
743	6	6,414.79	0.9166	5,879.796
830	4	4,404.60	0.8999	3,963.699
	5	5,370.43	0.8999	4,832.849
	5	5,370.78	0.9000	4,833.702
	5	5,371.39	0.9000	4,834.251
	5	5,371.43	0.9000	4,834.287
	5	5,370.60	0.9000	4,833.540
	5	5,377.49	0.9000	4,839.741
	5	5,387.06	0.9001	4,848.892
	5	5,371.90	0.9000	4,834.710
	5	5,370.58	0.9000	4,833.522
	5	5,368.47	0.8999	4,831.086
	5	5,372.19	0.9000	4,834.971
	5	5,372.54	0.9000	4,835.286
	5	5,374.33	0.9000	4,836.897
	5	5,370.85	0.9000	4,833.765
	5	5,369.08	0.9000	4,832.172
	5	5,368.19	0.8999	4,830.834
	5			

	5,366.37	0.9000	4,829.733
5	5,371.20	0.9000	4,834.080
5	5,370.74	0.9000	4,833.666
5	5,369.22	0.9000	4,832.298
5	5,368.11	0.9000	4,831.299
5	5,369.32	0.9000	4,832.388
5	5,371.07	0.9000	4,833.963
5	5,367.54	0.8999	4,830.249
5	5,368.85	0.9000	4,831.965
5	5,373.48	0.9000	4,836.132
5	5,371.81	0.9000	4,834.629
5	5,370.21	0.9000	4,833.189
5	5,370.30	0.9000	4,833.270
5	5,370.44	0.9000	4,833.396
5	5,371.67	0.9000	4,834.503
5	5,371.75	0.8999	4,834.037
5	5,370.85	0.9001	4,834.302
5	5,371.49	0.9000	4,834.341
5	5,370.20	0.9000	4,833.180
5	5,373.20	0.8999	4,835.342
5	5,375.38	0.8999	4,837.304
5	5,368.85	0.8999	4,831.428
5			

	5,371.05	0.8999	4,833.407
5	5,369.42	0.9000	4,832.478
5	5,372.03	0.9000	4,834.827
5	5,370.54	0.9000	4,833.486
5	5,370.91	0.8999	4,833.281
5	5,369.85	0.9000	4,832.865
5	5,368.75	0.9000	4,831.875
5	5,372.59	0.8999	4,834.793
5	5,368.60	0.8999	4,831.203
5	5,367.75	0.9000	4,830.975
5	5,369.70	0.9000	4,832.730
5	5,372.65	0.9001	4,835.922
5	5,370.73	0.9000	4,833.657
5	5,370.97	0.9000	4,833.873
5	5,368.88	0.9000	4,831.992
5	5,370.94	0.8999	4,833.308
5	5,370.67	0.8999	4,833.065
5	5,371.08	0.9000	4,833.972
5	5,375.30	0.8999	4,837.232
5	5,372.17	0.9000	4,834.953
5	5,372.50	0.9000	4,835.250
5	5,371.04	0.9000	4,833.936
5			

		5,369.74	0.9000	4,832.766
	5	5,373.75	0.9000	4,836.375
	5	5,375.19	0.8999	4,837.133
410	5	5,354.76	0.8999	4,818.748
411	5	5,353.42	0.8999	4,817.542
517	1	1,043.70	0.9000	939.330
519	3	2,953.40	0.8999	2,657.764
419	5	5,353.73	0.9000	4,818.357
408	5	5,355.02	0.8999	4,818.982
412	5	5,356.52	0.8999	4,820.332
409	5	5,355.25	0.9000	4,819.725
401	5	5,354.32	0.9000	4,818.888
400	5	5,351.53	0.9000	4,816.377
404	5	5,352.50	0.8999	4,816.714
403	5	5,355.75	0.8999	4,819.639
402	5	5,354.67	0.8999	4,818.667
405	5	5,353.18	0.9000	4,817.862
406	5	5,354.73	0.8999	4,818.721
407	5	5,354.05	0.9000	4,818.645
	5	5,373.23	0.9001	4,836.444
	5	5,371.24	0.8999	4,833.578
	5	5,371.62	0.9000	4,834.458
	5			

		5,370.44	0.9001	4,833.933
	5	5,372.63	0.8999	4,834.829
	5	5,372.69	0.8999	4,834.883
350	5	5,353.35	0.8999	4,817.479
348	5	5,353.18	0.8999	4,817.326
	5	5,370.72	0.9000	4,833.648
	5	5,370.71	0.9000	4,833.639
351	5	5,354.05	0.8999	4,818.109
352	5	5,354.31	0.8999	4,818.343
349	5	5,352.52	0.8999	4,816.732
	5	5,371.86	0.9000	4,834.674
300	5	5,356.02	0.8999	4,819.882
361	5	5,353.45	0.9000	4,818.105
362	5	5,353.50	0.9000	4,818.150
354	5	5,347.95	0.8998	4,812.085
299	5	5,354.60	0.8999	4,818.604
00298	5	5,356.10	0.8999	4,819.954
358	5	5,352.67	0.8999	4,816.867
357	5	5,355.67	0.8999	4,819.567
363	5	5,355.71	0.8999	4,819.603
355	5	5,354.15	0.8999	4,818.199
	5	5,344.93	0.8998	4,809.368
	5			

		5,373.80	0.9000	4,836.420
	5	5,328.29	0.8999	4,794.928
360	5	5,355.07	0.8999	4,819.027
359	5	5,352.77	0.9000	4,817.493
356	5	5,354.77	0.8999	4,818.757
	5	5,346.80	0.8999	4,811.585
	5	5,354.40	0.8998	4,817.889
	5	5,322.25	0.8998	4,788.960
	5	5,373.33	0.9000	4,835.997
	5	5,369.64	0.8998	4,831.602
	5	5,350.05	0.8998	4,813.974
522	6	6,283.46	0.9166	5,759.419
513	6	6,415.37	0.9166	5,880.328
510	3	3,019.57	0.9166	2,767.737
509	4	3,848.73	0.9166	3,527.745
516	1	1,028.63	0.9167	942.945
518	1	1,045.65	0.9000	941.085
515	7	7,702.20	0.9167	7,060.606
514	6	6,416.64	0.9167	5,882.133
622	8	9,238.06	0.9168	8,469.453
551	8	8,493.35	0.9000	7,644.015
511	5	5,386.90	0.9167	4,938.171
623	8			

		9,238.18	0.9168	8,469.563
	5	5,371.93	0.9000	4,834.737
	5	5,373.03	0.9000	4,835.727
	5	5,370.79	0.9000	4,833.711
	5	5,372.05	0.9000	4,834.845
	5	5,375.75	0.9000	4,838.175
	5	5,371.50	0.8999	4,833.812
	5	5,372.73	0.9001	4,835.994
	5	5,333.60	0.8998	4,799.173
499	6	6,415.89	0.9166	5,880.804
498	6	6,416.09	0.9166	5,880.988
491	6	6,204.66	0.8999	5,583.573
	5	5,333.20	0.8998	4,798.813
	5	5,332.77	0.8996	4,797.359
	5	5,333.63	0.8998	4,799.200
500	6	6,416.09	0.9166	5,880.988
496	6	6,414.39	0.9166	5,879.429
497	6	6,415.19	0.9166	5,880.163
	5	5,333.52	0.8997	4,798.567
	5	5,331.69	0.8998	4,797.454
	5	5,334.62	0.8996	4,799.024
	5	5,334.27	0.8998	4,799.776
	5			

		5,586.93	0.8999	5,027.678
	5	5,341.37	0.8999	4,806.698
523	6	6,416.79	0.9166	5,881.629
	3	3,204.61	0.8999	2,883.828
	2	1,984.00	0.8998	1,785.203
	5	5,559.53	0.9000	5,003.577
	5	5,340.56	0.8999	4,805.969
	5	5,343.43	0.8999	4,808.552
	5	5,344.18	0.8998	4,808.693
	5	5,342.37	0.8999	4,807.598
	1	1,120.34	0.9001	1,008.418
	5	5,505.43	0.8999	4,954.336
	5	5,341.23	0.8998	4,806.038
554	8	9,219.49	0.9167	8,451.506
524	6	6,547.83	0.9166	6,001.740
429	5	5,355.45	0.8999	4,819.369
428	5	5,353.47	0.8999	4,817.587
432	5	5,354.80	0.9000	4,819.320
426	5	5,354.87	0.8999	4,818.847
425	5	5,354.60	0.9000	4,819.140
427	5	5,354.15	0.8999	4,818.199
430	5	5,352.25	0.8999	4,816.489
418	5			

		5,353.20	0.9000	4,817.880
417	5	5,354.64	0.8999	4,818.640
420	5	5,352.10	0.9000	4,816.890
431	5	5,353.67	0.8999	4,817.767
416	5	5,355.90	0.9000	4,820.310
415	5	5,352.30	0.9000	4,817.070
424	5	5,354.18	0.8999	4,818.226
423	3	2,676.55	0.9000	2,408.895
422	5	5,355.20	0.9000	4,819.680
421	5	5,353.57	0.8999	4,817.677
	5	5,352.44	0.8999	4,816.660
	5	5,352.54	0.8999	4,816.750
	5	5,351.45	0.8999	4,815.769
	5	5,353.75	0.8999	4,817.839
	5	5,352.08	0.8999	4,816.336
	5	5,351.79	0.8999	4,816.075
414	5	5,350.10	0.9000	4,815.090
413	5	5,355.48	0.8999	4,819.396
	5	5,352.78	0.8999	4,816.966
	5	5,352.21	0.8999	4,816.453
	5	5,353.73	0.8999	4,817.821
	5	5,371.85	0.9001	4,835.202
	5			

		5,373.48	0.9000	4,836.132
	5	5,370.70	0.8999	4,833.092
	5	5,372.85	0.8999	4,835.027
	5	5,370.25	0.9000	4,833.225
	5	5,370.49	0.9001	4,833.978
	5	5,368.15	0.9000	4,831.335
	5	5,370.17	0.9000	4,833.153
	5	5,370.74	0.9000	4,833.666
	5	5,372.15	0.8999	4,834.397
	5	5,371.17	0.9000	4,834.053
	5	5,369.45	0.9000	4,832.505
	5	5,371.55	0.9000	4,834.395
	5	5,370.11	0.8999	4,832.561
	5	5,369.95	0.9000	4,832.955
	5	5,372.57	0.9000	4,835.313
	5	5,371.27	0.9000	4,834.143
	5	5,371.04	0.9000	4,833.936
	5	5,372.50	0.9000	4,835.250
	5	5,374.09	0.9000	4,836.681
	5	5,372.95	0.9000	4,835.655
200	5	5,354.72	0.9000	4,819.248
201	5	5,354.79	0.9000	4,819.311
205	5			

2010 | RON PAUL'S MONETARY POLICY ANTHOLOGY

		5,355.80	0.8999	4,819.684
203	5	5,354.95	0.9000	4,819.455
206	5	5,355.94	0.8999	4,819.810
207	5	5,356.06	0.9000	4,820.454
199	5	5,355.05	0.8999	4,819.009
	4	4,013.31	0.9000	3,611.979
	5	5,351.91	0.8999	4,816.183
	5	5,353.49	0.9000	4,818.141
	5	5,354.19	0.9000	4,818.771
	5	5,352.95	0.9000	4,817.655
	5	5,352.87	0.8999	4,817.047
	3	2,675.83	0.9000	2,408.247
197	5	5,354.29	0.8999	4,818.325
	5	5,353.25	0.9000	4,817.925
	5	5,353.34	0.8999	4,817.470
194	5	5,355.80	0.9000	4,820.220
195	5	5,352.50	0.8999	4,816.714
196	5	5,355.42	0.8999	4,819.342
	5	5,353.68	0.8998	4,817.241
	5	5,353.72	0.8999	4,817.812
530	8	8,974.92	0.9166	8,226.411
	5	5,353.57	0.8999	4,817.677
555	8			

		9,227.28	0.9166	8,457.724
479	4	4,406.05	0.9000	3,965.445
528	6	6,413.39	0.9166	5,878.513
529	6	6,405.04	0.9167	5,871.500
535	4	4,611.75	0.9167	4,227.591
537	8	9,223.46	0.9167	8,455.145
527	7	7,695.52	0.9167	7,054.483
596	3	3,046.79	0.9166	2,792.687
525	6	6,416.32	0.9166	5,881.198
	5	5,351.82	0.8999	4,816.102
	5	5,352.32	0.8999	4,816.552
204	3	2,677.02	0.9000	2,409.318
	5	5,360.93	0.8999	4,824.300
	5	5,342.16	0.8998	4,806.875
	5	5,319.80	0.8999	4,787.288
	5	5,351.60	0.8998	4,815.369
198	5	5,354.79	0.9000	4,819.311
202	5	5,355.55	0.8999	4,819.459
378	5	5,130.00	0.9166	4,702.158
374	5	5,129.65	0.9166	4,701.837
375	5	5,130.16	0.9166	4,702.304
373	5	5,129.10	0.9167	4,701.845
	5			

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		5,358.20	0.9000	4,822.380
	5	5,370.52	0.9000	4,833.468
	5	5,372.97	0.8999	4,835.135
390	5	5,352.88	0.9000	4,817.592
384	5	5,354.15	0.8999	4,818.199
382	5	5,125.47	0.9166	4,698.005
	5	5,371.49	0.9000	4,834.341
	5	5,369.15	0.9000	4,832.235
	5	5,374.89	0.9000	4,837.401
	6	6,531.71	0.8998	5,877.232
501	6	6,416.19	0.9166	5,881.079
507	6	6,412.79	0.9166	5,877.963
506	6	6,409.64	0.9166	5,875.076
505	6	6,416.29	0.9166	5,881.171
503	6	6,416.63	0.9166	5,881.483
508	6	6,415.83	0.9166	5,880.749
759	6	6,413.97	0.9167	5,879.686
513	6	6,416.19	0.9166	5,881.079
757	6	6,414.95	0.9167	5,880.584
750	8	9,216.88	0.9167	8,449.113
502	6	6,416.66	0.9166	5,881.510
754	6	6,414.66	0.9166	5,879.677
752	8			

		9,233.31	0.9166	8,463.251
753	4	4,404.59	0.8999	3,963.690
751	8	9,233.23	0.9166	8,463.178
504	6	6,389.18	0.9166	5,856.322
	5	5,372.87	0.9000	4,835.583
	5	5,372.55	0.8999	4,834.757
	5	5,413.90	0.9000	4,872.510
	5	5,423.84	0.8999	4,880.913
	5	5,405.38	0.9000	4,864.842
	5	5,378.75	0.9000	4,840.875
	5	5,372.80	0.8999	4,834.982
	5	5,372.67	0.9000	4,835.403
	5	5,370.86	0.9000	4,833.774
277	5	5,353.31	0.8999	4,817.443
276	5	5,354.11	0.8999	4,818.163
278	5	5,354.35	0.9000	4,818.915
	5	5,370.70	0.8999	4,833.092
	5	5,371.09	0.9000	4,833.981
279	5	5,355.59	0.9000	4,820.031
275	5	5,354.59	0.9000	4,819.131
274	5	5,355.83	0.8999	4,819.711
273	5	5,355.28	0.9000	4,819.752
272	5			

		5,354.25	0.8999	4,818.289
271	5	5,354.48	0.9000	4,819.032
	5	5,370.70	0.8999	4,833.092
	5	5,371.42	0.9000	4,834.278
	5	5,368.80	0.8999	4,831.383
	5	5,374.19	0.8999	4,836.233
	5	5,367.17	0.9000	4,830.453
	5	5,373.18	0.8999	4,835.324
	5	5,374.14	0.9000	4,836.726
	5	5,373.38	0.8999	4,835.504
	5	5,368.85	0.9000	4,831.965
	5	5,371.35	0.9000	4,834.215
729	1	1,281.24	0.9166	1,174.384
777	2	2,386.98	0.9167	2,188.144
394	5	5,354.57	0.8999	4,818.577
393	5	5,353.87	0.8999	4,817.947
396	5	5,354.77	0.9000	4,819.293
387	5	5,351.43	0.9000	4,816.287
386	5	5,353.90	0.9000	4,818.510
385	5	5,354.03	0.8999	4,818.091
731	6	6,412.87	0.9166	5,878.036
730	6	6,414.86	0.9167	5,880.502
762	6			

		6,415.08	0.9166	5,880.062
732	6	6,414.51	0.9167	5,880.181
737	4	4,396.86	0.8999	3,956.734
738	4	4,401.73	0.9000	3,961.557
733	6	6,415.40	0.9167	5,880.997
805	4	4,591.40	0.9167	4,208.936
776	4	4,615.83	0.9166	4,230.869
782	6	6,416.02	0.9167	5,881.565
807	4	4,624.21	0.9166	4,238.550
804	4	4,596.25	0.9166	4,212.922
806	4	4,621.80	0.9168	4,237.266
815	6	6,783.45	0.9000	6,105.105
784	5	5,130.58	0.9166	4,702.689
781	6	6,414.00	0.9166	5,879.072
809	8	9,251.52	0.9167	8,480.868
783	6	6,415.86	0.9166	5,880.777
734	4	3,846.58	0.9167	3,526.159
679	4	4,616.90	0.9167	4,232.312
681	6	6,410.99	0.9166	5,876.313
399	5	5,354.64	0.8999	4,818.640
392	5	5,354.00	0.8999	4,818.064
395	5	5,355.92	0.8999	4,819.792
379	5			

		5,128.87	0.9166	4,701.122
376	5	5,129.52	0.9166	4,701.718
377	5	5,129.58	0.9165	4,701.260
	5	5,092.68	0.9000	4,583.412
	5	4,982.60	0.9000	4,484.340
	5	5,403.84	0.8999	4,862.915
364	5	5,355.25	0.8999	4,819.189
365	5	5,354.22	0.9000	4,818.798
371	5	5,129.70	0.9167	4,702.395
397	5	5,356.14	0.9000	4,820.526
398	5	5,354.51	0.9000	4,819.059
391	5	5,354.45	0.8999	4,818.469
368	5	5,128.75	0.9166	4,701.012
369	5	5,128.17	0.9166	4,700.480
370	5	5,128.38	0.9167	4,701.185
	5	5,280.45	0.8999	4,751.876
	5	5,347.73	0.8999	4,812.422
	5	5,380.27	0.8999	4,841.704
367	5	5,129.66	0.9168	4,702.872
	5	5,320.15	0.8998	4,787.070
	5	5,017.35	0.8998	4,514.611
389	5	5,355.42	0.9000	4,819.878
366	5			

		5,129.43	0.9167	4,702.148
372	5	5,129.80	0.9167	4,702.487
	5	5,335.83	0.8999	4,801.713
388	5	5,353.32	0.8999	4,817.452
383	5	5,127.10	0.9166	4,699.499
	5	5,371.48	0.9000	4,834.332
	5	5,385.90	0.9000	4,847.310
	5	5,372.63	0.9000	4,835.367
380	5	5,126.32	0.9167	4,699.297
381	5	5,125.83	0.9167	4,698.848
545	8	9,234.63	0.9168	8,466.308
767	6	6,414.69	0.9167	5,880.346
764	6	6,414.14	0.9167	5,879.842
770	6	6,415.57	0.9166	5,880.511
768	6	6,414.93	0.9168	5,881.207
772	6	6,414.93	0.9167	5,880.566
769	6	6,415.64	0.9167	5,881.217
660	6	6,707.58	0.8999	6,036.151
	5	5,371.51	0.8999	4,833.821
	5	5,372.35	0.9000	4,835.115
662	8	8,868.06	0.9001	7,982.140
661	6	6,571.48	0.8999	5,913.674
	5			

		5,370.96	0.9000	4,833.864
	5	5,371.96	0.9000	4,834.764
	5	5,371.80	0.9000	4,834.620
307	5	5,354.66	0.9000	4,819.194
	5	5,370.99	0.9000	4,833.891
	5	5,370.60	0.9001	4,834.077
	5	5,370.67	0.9000	4,833.603
302	5	5,353.56	0.9000	4,818.204
309	5	5,351.10	0.8999	4,815.454
308	5	5,355.57	0.8999	4,819.477
305	5	5,354.87	0.9000	4,819.383
310	5	5,354.93	0.8999	4,818.901
301	5	5,354.90	0.8999	4,818.874
306	5	5,350.32	0.9000	4,815.288
292	5	5,354.48	0.9000	4,819.032
289	5	5,355.85	0.8999	4,819.729
294	5	5,353.35	0.8999	4,817.479
295	5	5,354.34	0.8999	4,818.370
303	5	5,355.45	0.8999	4,819.369
304	5	5,354.88	0.9000	4,819.392
290	5	5,353.75	0.8999	4,817.839
291	5	5,354.43	0.9000	4,818.987
293	5			

		5,352.04	0.8999	4,816.300
297	5	5,355.72	0.8999	4,819.612
296	5	5,356.40	0.9000	4,820.760
667	4	4,455.88	0.8999	4,009.846
671	4	4,413.29	0.9000	3,971.961
663	4	4,414.53	0.9000	3,973.077
549	4	4,205.64	0.9000	3,785.076
627	4	4,103.28	0.9167	3,761.476
669	4	4,413.66	0.8999	3,971.852
550	4	4,573.75	0.8999	4,115.917
665	4	4,402.89	0.9000	3,962.601
664	4	4,411.52	0.8999	3,969.926
668	8	8,818.96	0.9000	7,937.064
544	8	9,237.11	0.9169	8,469.506
680	6	6,410.71	0.9166	5,876.056
761	2	2,563.08	0.9167	2,349.575
755	6	6,414.43	0.9166	5,879.466
760	6	6,413.86	0.9167	5,879.585
670	8	8,829.81	0.8999	7,945.946
666	8	8,872.76	0.8998	7,983.709
780	6	6,414.65	0.9167	5,880.309
765	6	6,414.91	0.9166	5,879.906
766	6			

		6,413.37	0.9167	5,879.136
756	6	6,414.29	0.9167	5,879.979
758	6	6,413.56	0.9167	5,879.310
763	6	6,414.10	0.9167	5,879.805
	5	5,371.40	0.9000	4,834.260
	5	5,370.53	0.8999	4,832.939
	5	5,371.80	0.8999	4,834.082
	5	5,368.15	0.8999	4,830.798
	5	5,371.27	0.8999	4,833.605
	5	5,371.52	0.8999	4,833.830
	5	5,367.87	0.8999	4,830.546
	5	5,370.51	0.8999	4,832.921
	5	5,374.86	0.8999	4,836.836
	5	5,369.20	0.9000	4,832.280
	5	5,370.23	0.8999	4,832.669
	5	5,369.57	0.8999	4,832.076
	5	5,368.55	0.9000	4,831.695
	5	5,369.33	0.9000	4,832.397
	5	5,368.90	0.9000	4,832.010
	5	5,370.03	0.9001	4,833.564
	5	5,365.59	0.9000	4,829.031
	5	5,373.73	0.9000	4,836.357
	5			

	5,371.39	0.9000	4,834.251
5	5,370.50	0.8999	4,832.912
5	5,370.14	0.8999	4,832.588
5	5,372.54	0.8999	4,834.748
5	5,371.33	0.9000	4,834.197
5	5,371.31	0.9000	4,834.179
5	5,369.58	0.9000	4,832.622
5	5,369.97	0.8999	4,832.436
5	5,371.22	0.8999	4,833.560
5	5,372.73	0.8999	4,834.919
5	5,370.55	0.9000	4,833.495
5	5,371.68	0.9000	4,834.512
5	5,367.28	0.9000	4,830.552
5	5,369.36	0.9000	4,832.424
5	5,369.32	0.9000	4,832.388
5	5,369.25	0.9000	4,832.325
5	5,372.88	0.8999	4,835.054
5	5,371.35	0.8999	4,833.677
5	5,371.04	0.9000	4,833.936
5	5,369.05	0.9001	4,832.681
5	5,375.93	0.9000	4,838.337
5	5,369.95	0.9000	4,832.955
5			

	5,374.33	0.9000	4,836.897
5	5,369.70	0.9000	4,832.730
5	5,370.65	0.9000	4,833.585
5	5,372.37	0.9000	4,835.133
5	5,371.29	0.8999	4,833.623
5	5,372.21	0.9000	4,834.989
5	5,371.59	0.8999	4,833.893
5	5,371.00	0.8999	4,833.362
5	5,370.20	0.9000	4,833.180
5	5,371.49	0.8999	4,833.803
5	5,369.79	0.9000	4,832.811
5	5,371.22	0.8999	4,833.560
5	5,371.92	0.8999	4,834.190
5	5,370.37	0.9000	4,833.333
5	5,372.68	0.8999	4,834.874
5	5,369.48	0.9000	4,832.532
5	5,369.06	0.8999	4,831.617
5	5,372.29	0.9000	4,835.061
5	5,371.88	0.8999	4,834.154
5	5,371.93	0.9000	4,834.737
5	5,371.37	0.8999	4,833.695
5	5,371.85	0.8999	4,834.127
5			

		5,371.45	0.9000	4,834.305
	5	5,369.21	0.8999	4,831.752
	5	5,369.28	0.9001	4,832.888
	5	5,373.88	0.8999	4,835.954
	5	5,371.33	0.8999	4,833.659
687	6	6,414.17	0.9167	5,879.869
697	4	4,617.83	0.9168	4,233.626
686	5	5,510.12	0.9000	4,959.108
684	5	5,527.84	0.8992	4,970.633
689	1	1,281.83	0.9166	1,174.925
683	1	1,280.38	0.9166	1,173.596
682	6	6,414.53	0.9167	5,880.199
688	6	6,415.01	0.9167	5,880.639
693	6	6,415.71	0.9166	5,880.639
	5	5,370.07	0.9000	4,833.063
553	4	4,647.20	0.9166	4,259.623
685	5	5,567.59	0.8999	5,010.274
	5	5,369.25	0.9000	4,832.325
	5	5,370.67	0.9000	4,833.603
	5	5,370.02	0.9000	4,833.018
	5	5,371.79	0.8999	4,834.073
	5	5,370.24	0.9000	4,833.216
	5			

	5,364.69	0.9000	4,828.221
5	5,368.62	0.9000	4,831.758
5	5,369.91	0.8999	4,832.382
5	5,369.30	0.9000	4,832.370
5	5,370.03	0.9000	4,833.027
5	5,371.89	0.9001	4,835.238
5	5,366.70	0.9000	4,830.030
5	5,369.99	0.9000	4,832.991
5	5,386.10	0.9000	4,847.490
5	5,374.95	0.9000	4,837.455
5	5,373.58	0.8999	4,835.684
5	5,368.40	0.9000	4,831.560
5	5,371.03	0.9001	4,834.464
5	5,371.04	0.8998	4,832.861
5	5,372.72	0.8999	4,834.910
5	5,367.64	0.8999	4,830.339
5	5,353.62	0.8999	4,817.722
5	5,371.13	0.8999	4,833.479
5	5,369.91	0.9000	4,832.919
5	5,369.53	0.9000	4,832.577
5	5,373.97	0.8999	4,836.035
5	5,372.89	0.9000	4,835.601
5			

	5,370.63	0.9000	4,833.567
5	5,371.45	0.9000	4,834.305
5	5,371.68	0.9000	4,834.512
5	5,371.97	0.9000	4,834.773
5	5,371.10	0.9000	4,833.990
5	5,370.36	0.9000	4,833.324
5	5,370.47	0.9000	4,833.423
5	5,371.21	0.9001	4,834.626
5	5,371.93	0.9000	4,834.737
5	5,369.94	0.8999	4,832.409
5	5,373.25	0.8999	4,835.387
5	5,375.02	0.9000	4,837.518
5	5,369.49	0.9000	4,832.541
5	5,371.18	0.9001	4,834.599
5	5,369.95	0.9001	4,833.491
5	5,370.02	0.9000	4,833.018
5	5,370.67	0.9000	4,833.603
5	5,351.63	0.8999	4,815.931
5	5,351.97	0.9001	4,817.308
5	5,352.06	0.9001	4,817.389
5	5,351.39	0.8999	4,815.715
5	5,353.32	0.9000	4,817.988
5			

		5,353.49	0.9000	4,818.141
	5	5,353.40	0.9000	4,818.060
315	5	5,359.20	0.9000	4,823.280
313	5	5,357.20	0.8998	4,820.408
312	5	5,354.23	0.8998	4,817.736
320	5	5,353.80	0.8999	4,817.884
319	5	5,353.73	0.9000	4,818.357
316	5	5,354.64	0.8999	4,818.640
318	5	5,353.49	0.9000	4,818.141
	5	5,371.73	0.9000	4,834.557
	5	5,369.65	0.9000	4,832.685
	5	5,372.94	0.9000	4,835.646
	5	5,371.10	0.9000	4,833.990
	5	5,378.97	0.9000	4,841.073
	5	5,372.92	0.9000	4,835.628
	5	5,372.76	0.9000	4,835.484
	5	5,372.90	0.9000	4,835.610
	5	5,372.46	0.9000	4,835.214
262	5	5,354.13	0.8999	4,818.181
263	5	5,354.48	0.8999	4,818.496
264	5	5,356.20	0.8999	4,820.044
314	5	5,355.42	0.8999	4,819.342
	5			

		5,354.03	0.8999	4,818.091
	5	5,353.65	0.9000	4,818.285
265	5	5,353.18	0.8999	4,817.326
266	5	5,355.95	0.8999	4,819.819
267	5	5,354.69	0.8999	4,818.685
270	5	5,354.98	0.9000	4,819.482
269	5	5,356.35	0.9000	4,820.715
268	5	5,354.08	0.9000	4,818.672
317	5	5,353.93	0.9000	4,818.537
	5	5,370.15	0.8999	4,832.597
311	3	2,676.37	0.9000	2,408.733
	3	2,675.80	0.8998	2,407.684
	5	5,371.16	0.8999	4,833.506
	5	5,370.47	0.8999	4,832.885
	5	5,368.94	0.8999	4,831.509
	5	5,370.05	0.8999	4,832.507
	5	5,372.80	0.8999	4,834.982
	5	5,370.60	0.8999	4,833.002
	5	5,372.37	0.9000	4,835.133
	5	5,370.32	0.9000	4,833.288
	5	5,369.92	0.8999	4,832.391
	5	5,369.47	0.9000	4,832.523
	5			

	5,371.45	0.9000	4,834.305
5	5,370.02	0.8999	4,832.480
5	5,368.57	0.8999	4,831.176
5	5,369.85	0.9000	4,832.865
5	5,369.38	0.8999	4,831.905
5	5,372.70	0.8999	4,834.892
5	5,372.90	0.9000	4,835.610
5	5,370.37	0.9000	4,833.333
5	5,367.73	0.9000	4,830.957
5	5,373.10	0.8999	4,835.252
5	5,368.90	0.9000	4,832.010
5	5,340.42	0.8998	4,805.309
5	5,388.09	0.8998	4,848.203
5	5,359.73	0.8998	4,822.685
5	5,342.60	0.8998	4,807.271
5	5,325.92	0.8999	4,792.795
5	5,342.73	0.9000	4,808.457
3	3,430.05	0.9000	3,087.045
4	3,736.16	0.9000	3,362.544
1	1,060.52	0.8999	954.361
3	2,939.05	0.9000	2,645.145
5	5,771.36	0.8998	5,193.069
4			

		4,542.13	0.9000	4,087.917
	5	5,373.13	0.8999	4,835.279
	5	5,358.85	0.8999	4,822.429
	5	5,405.05	0.9000	4,864.545
	5	5,361.33	0.8999	4,824.660
	5	5,352.20	0.8999	4,816.444
253	5	5,353.97	0.9000	4,818.573
254	5	5,354.32	0.9000	4,818.888
255	5	5,354.42	0.9000	4,818.978
258	5	5,354.47	0.8999	4,818.487
257	5	5,354.60	0.8999	4,818.604
256	5	5,352.40	0.8999	4,816.624
259	5	5,354.83	0.9000	4,819.347
261	5	5,354.15	0.8999	4,818.199
260	5	5,354.86	0.8999	4,818.838
321	5	5,354.73	0.8999	4,818.721
322	5	5,354.77	0.9000	4,819.293
326	5	5,355.75	0.8999	4,819.639
328	5	5,354.93	0.8999	4,818.901
327	5	5,354.95	0.8999	4,818.919
325	5	5,355.91	0.8999	4,819.783
329	5	5,354.09	0.8999	4,818.145
324	5			

		5,355.25	0.9000	4,819.725
323	5	5,354.99	0.9000	4,819.491
	5	5,371.01	0.9000	4,833.909
	5	5,369.09	0.9000	4,832.181
	5	5,371.89	0.9000	4,834.701
	5	5,372.14	0.8999	4,834.388
	5	5,373.90	0.9000	4,836.510
	5	5,371.15	0.9000	4,834.035
	5	5,371.73	0.9000	4,834.557
	5	5,371.45	0.8999	4,833.767
	5	5,373.68	0.9000	4,836.312
331	5	5,355.43	0.9000	4,819.887
333	5	5,354.92	0.9000	4,819.428
334	5	5,355.45	0.8999	4,819.369
336	5	5,354.92	0.9000	4,819.428
338	5	5,356.00	0.9000	4,820.400
332	5	5,356.02	0.8999	4,819.882
337	5	5,358.40	0.9000	4,822.560
335	5	5,355.07	0.9000	4,819.563
330	5	5,354.96	0.8999	4,818.928
	5	5,386.44	0.9000	4,847.796
	5	5,371.37	0.9000	4,834.233
	5			

		5,370.85	0.9000	4,833.765
242	5	5,355.25	0.9000	4,819.725
243	5	5,353.25	0.8999	4,817.389
238	5	5,355.00	0.8999	4,818.964
241	5	5,354.73	0.9000	4,819.257
239	5	5,353.95	0.9000	4,818.555
240	5	5,358.55	0.8999	4,822.159
235	5	5,356.43	0.9000	4,820.787
236	5	5,356.53	0.9000	4,820.877
237	5	5,354.83	0.8999	4,818.811
	5	5,368.05	0.9000	4,831.245
	1	734.95	0.8999	661.381
	3	2,877.12	0.8999	2,589.120
	5	5,371.33	0.9000	4,834.197
	5	5,370.98	0.9000	4,833.882
	5	5,371.10	0.9000	4,833.990
	5	5,368.99	0.8999	4,831.554
	5	5,370.00	0.9000	4,833.000
	5	5,369.50	0.9000	4,832.550
	5	5,371.23	0.8999	4,833.569
	5	5,371.53	0.9000	4,834.377
	5	5,369.80	0.8999	4,832.283
	5			

		5,371.72	0.8999	4,834.010
	5	5,369.80	0.8999	4,832.283
	5	5,372.27	0.9000	4,835.043
	5	5,371.69	0.8999	4,833.983
	5	5,373.39	0.9000	4,836.051
	5	5,372.97	0.8999	4,835.135
	5	5,370.02	0.8999	4,832.480
	5	5,368.64	0.9000	4,831.776
	5	5,371.30	0.9000	4,834.170
	5	5,360.60	0.9000	4,824.540
	5	5,369.35	0.9000	4,832.415
	5	5,372.45	0.9000	4,835.205
	5	5,373.12	0.8999	4,835.270
	5	5,371.15	0.9001	4,834.572
	5	5,369.39	0.9000	4,832.451
	5	5,369.97	0.9000	4,832.973
	5	5,371.10	0.8999	4,833.452
	5	5,368.61	0.8999	4,831.212
	5	5,373.87	0.8999	4,835.945
225	5	5,355.94	0.8999	4,819.810
219	5	5,353.21	0.9000	4,817.889
220	5	5,353.87	0.9000	4,818.483
221	5			

		5,355.23	0.9000	4,819.707
217	5	5,353.43	0.9000	4,818.087
218	5	5,354.55	0.9000	4,819.095
222	5	5,354.08	0.9000	4,818.672
343	5	5,354.32	0.8999	4,818.352
344	5	5,354.67	0.8999	4,818.667
347	5	5,355.80	0.8999	4,819.684
223	5	5,356.20	0.8999	4,820.044
224	5	5,354.25	0.8999	4,818.289
341	5	5,352.73	0.8999	4,816.921
345	5	5,354.73	0.8999	4,818.721
340	5	5,354.52	0.9000	4,819.068
339	5	5,752.88	0.8999	5,177.016
342	5	5,353.46	0.8999	4,817.578
353	3	2,676.30	0.8999	2,408.402
346	5	4,956.42	0.8999	4,460.282
	5	5,365.72	0.9000	4,829.148
	5	4,996.00	0.8999	4,495.900
	5	4,995.55	0.8998	4,494.995
	5	5,369.95	0.8999	4,832.418
	5	5,359.84	0.9000	4,823.856
	5	5,354.70	0.9000	4,819.230
	5			

	4,995.70	0.8999	4,495.630
5	4,996.03	0.8999	4,495.927
4	4,336.87	0.8999	3,902.749
5	5,141.25	0.8999	4,626.610
5	4,951.75	0.8999	4,456.079
5	5,419.40	0.8999	4,876.918
5	4,995.62	0.8999	4,495.558
5	4,996.64	0.8999	4,496.476
5	5,008.64	0.8998	4,506.774
5	4,996.15	0.8999	4,496.035
5	4,976.45	0.8998	4,477.809
5	4,996.75	0.8998	4,496.075
5	4,995.22	0.8998	4,494.698
5	5,015.67	0.8998	4,513.099
5	4,995.83	0.8999	4,495.747
5	5,372.95	0.8999	4,835.117
5	5,371.54	0.8999	4,833.848
5	5,371.89	0.9000	4,834.701
5	5,370.02	0.9000	4,833.018
5	5,370.10	0.9000	4,833.090
5	5,368.35	0.9000	4,831.515
5	5,370.90	0.8999	4,833.272
5			

	5,371.11	0.9000	4,833.999
5	5,373.30	0.9000	4,835.970
5	5,370.28	0.9000	4,833.252
5	5,370.60	0.8999	4,833.002
5	5,370.50	0.8999	4,832.912
5	5,372.15	0.9000	4,834.935
5	5,371.62	0.8999	4,833.920
5	5,371.67	0.9000	4,834.503
5	5,372.50	0.9000	4,835.250
5	5,372.82	0.9000	4,835.538
5	5,371.60	0.9000	4,834.440
5	5,368.86	0.9000	4,831.974
5	5,379.95	0.8999	4,841.417
5	5,370.48	0.8999	4,832.894
5	5,369.80	0.9000	4,832.820
2	1,968.38	0.8998	1,771.148
5	4,995.09	0.8998	4,494.581
5	4,995.43	0.8998	4,494.887
5	4,994.83	0.8998	4,494.348
5	4,996.98	0.8998	4,496.282
5	4,998.30	0.8998	4,497.470
5	4,995.24	0.8998	4,494.716
5			

	5,350.30	0.9000	4,815.270
5	5,359.55	0.9000	4,823.595
5	5,356.90	0.9000	4,821.210
5	4,995.56	0.8999	4,495.504
5	5,358.71	0.9000	4,822.839
1	819.56	0.9000	737.604
2	1,503.02	0.8999	1,352.567
5	5,138.45	0.8999	4,624.091
5	4,995.49	0.9000	4,495.941
5	5,371.57	0.9000	4,834.413
5	5,373.17	0.9000	4,835.853
5	5,368.52	0.9000	4,831.668
5	5,374.65	0.8999	4,836.647
5	5,368.24	0.8999	4,830.879
5	5,369.30	0.8999	4,831.833
5	5,373.07	0.9000	4,835.763
5	5,359.69	0.8999	4,823.185
5	5,362.80	0.8999	4,825.983
5	5,364.88	0.8999	4,827.855
5	5,381.43	0.9000	4,843.287
5	5,361.25	0.9000	4,825.125
5	5,359.07	0.9000	4,823.163
5			

	5,350.52	0.8999	4,814.932
5	5,357.73	0.8999	4,821.421
5	5,353.44	0.8999	4,817.560
5	5,347.45	0.8999	4,812.170
5	5,357.52	0.8999	4,821.232
5	5,357.43	0.9000	4,821.687
5	5,360.28	0.9000	4,824.252
5	5,362.27	0.9000	4,826.043
5	5,356.00	0.8999	4,819.864
5	5,360.58	0.8999	4,823.985
5	5,360.25	0.8999	4,823.688
5	5,360.97	0.9000	4,824.873
5	5,367.35	0.9000	4,830.615
5	5,360.59	0.8999	4,823.994
5	5,358.98	0.8999	4,822.546
5	5,357.47	0.9000	4,821.723
5	5,357.75	0.8999	4,821.439
5	5,352.19	0.9000	4,816.971
5	5,367.07	0.9000	4,830.363
5	5,369.17	0.8999	4,831.716
5	5,370.24	0.9000	4,833.216
5	5,369.35	0.9000	4,832.415
5			

	5,371.57	0.9000	4,834.413
5	5,371.69	0.8999	4,833.983
5	5,370.13	0.9000	4,833.117
5	5,370.87	0.8999	4,833.245
5	5,370.80	0.9000	4,833.720
5	5,372.50	0.9000	4,835.250
5	5,372.48	0.8999	4,834.694
5	5,371.90	0.9000	4,834.710
5	5,372.00	0.8999	4,834.262
5	5,370.42	0.9000	4,833.378
5	5,371.84	0.8999	4,834.118
5	5,363.54	0.8999	4,826.649
5	5,370.32	0.9001	4,833.825
5	5,368.54	0.8999	4,831.149
5	5,370.47	0.9000	4,833.423
5	5,370.63	0.9000	4,833.567
5	5,371.62	0.8999	4,833.920
5	5,370.39	0.8999	4,832.813
5	5,370.21	0.8999	4,832.651
5	5,371.13	0.8999	4,833.479
5	5,371.68	0.8999	4,833.974
5	5,370.90	0.9000	4,833.810
5			

	5,372.97	0.8999	4,835.135
5	5,371.27	0.8999	4,833.605
5	5,372.79	0.8999	4,834.973
5	5,372.67	0.9000	4,835.403
5	5,374.63	0.8999	4,836.629
5	5,370.04	0.9000	4,833.036
5	5,371.65	0.9000	4,834.485
5	5,371.21	0.9000	4,834.089
5	5,368.99	0.9000	4,832.091
5	5,369.75	0.9000	4,832.775
5	5,367.41	0.8998	4,829.595
5	5,371.02	0.9000	4,833.918
5	5,371.93	0.9000	4,834.737
5	5,368.07	0.8999	4,830.726
5	5,370.65	0.8999	4,833.047
5	5,370.03	0.8999	4,832.489
5	5,373.04	0.8999	4,835.198
5	5,373.10	0.8999	4,835.252
5	5,371.84	0.9000	4,834.656
5	5,371.59	0.8999	4,833.893
5	5,370.90	0.9000	4,833.810
5	5,371.05	0.9000	4,833.945
5			

		5,368.88	0.8999	4,831.455
	5	5,370.92	0.9000	4,833.828
	5	5,371.80	0.9000	4,834.620
	5	5,371.79	0.9000	4,834.611
	5	5,370.00	0.9000	4,833.000
	5	5,369.67	0.9000	4,832.703
	5	5,367.90	0.8999	4,830.573
	5	5,371.34	0.8999	4,833.668
	5	5,369.20	0.8999	4,831.743
232	5	5,354.90	0.8999	4,818.874
233	5	5,355.25	0.8999	4,819.189
232	5	5,355.82	0.8999	4,819.702
231	5	5,355.08	0.9000	4,819.572
230	5	5,355.45	0.9000	4,819.905
229	5	5,355.39	0.8999	4,819.315
228	5	5,355.28	0.9000	4,819.752
	5	5,373.13	0.8999	4,835.279
	5	5,372.48	0.8999	4,834.694
	5	5,371.62	0.9000	4,834.458
	5	5,371.53	0.9000	4,834.377
	5	5,372.75	0.9000	4,835.475
	5	5,372.04	0.9000	4,834.836
	5			

	5,369.85	0.9000	4,832.865
5	5,371.30	0.9000	4,834.170
5	5,369.23	0.8999	4,831.770
5	5,369.18	0.8999	4,831.725
5	5,373.84	0.9000	4,836.456
5	5,370.72	0.9000	4,833.648
5	5,372.28	0.9000	4,835.052
5	5,370.17	0.9000	4,833.153
5	5,369.18	0.9000	4,832.262
5	5,369.88	0.9000	4,832.892
5	5,388.63	0.9000	4,849.767
5	5,369.28	0.9000	4,832.352
5	5,373.40	0.9000	4,836.060
5	5,372.05	0.9000	4,834.845
5	5,371.83	0.9000	4,834.647
5	5,348.30	0.8999	4,812.935
5	5,374.10	0.8998	4,835.615
5	5,367.00	0.8999	4,829.763
5	5,370.55	0.9000	4,833.495
5	5,371.58	0.8998	4,833.347
5	5,370.90	0.8999	4,833.272
5	5,367.67	0.9000	4,830.903
5			

	5,366.21	0.8999	4,829.052
5	5,372.13	0.8999	4,834.379
5	5,371.80	0.9000	4,834.620
5	5,373.10	0.8999	4,835.252
5	5,372.86	0.9000	4,835.574
5	5,372.55	0.8999	4,834.757
5	5,369.63	0.9000	4,832.667
5	5,368.78	0.8999	4,831.365
5	5,367.73	0.9000	4,830.957
5	5,372.53	0.8999	4,834.739
5	5,367.75	0.9000	4,830.975
5	5,371.32	0.9000	4,834.188
5	5,372.82	0.8999	4,835.000
5	5,371.33	0.9001	4,834.734
5	5,370.15	0.8999	4,832.597
5	5,371.42	0.9000	4,834.278
5	5,371.84	0.9000	4,834.656
5	5,372.80	0.8999	4,834.982
5	5,371.12	0.9000	4,834.008
5	5,372.00	0.9000	4,834.800
5	5,369.75	0.8999	4,832.238
5	5,367.99	0.9000	4,831.191
5			

	5,368.80	0.8999	4,831.383
5	5,370.60	0.9000	4,833.540
5	5,371.82	0.8999	4,834.100
5	5,372.32	0.9000	4,835.088
5	5,372.38	0.9000	4,835.142
5	5,370.31	0.8999	4,832.741
5	5,369.19	0.9000	4,832.271
5	5,368.25	0.8999	4,830.888
5	5,372.05	0.9000	4,834.845
5	5,370.83	0.9000	4,833.747
5	5,370.14	0.8999	4,832.588
5	5,371.09	0.8999	4,833.443
5	5,371.50	0.8999	4,833.812
5	5,367.93	0.8999	4,830.600
5	5,369.83	0.9000	4,832.847
5	5,370.98	0.9000	4,833.882
5	5,362.60	0.9000	4,826.340
5	5,364.53	0.8999	4,827.540
5	5,364.85	0.8998	4,827.292
5	5,370.55	0.8999	4,832.957
5	5,370.50	0.8999	4,832.912
5	5,370.70	0.8999	4,833.092
5			

	5,370.15	0.9000	4,833.135
5	5,372.28	0.8999	4,834.514
5	5,364.30	0.8999	4,827.333
5	5,369.46	0.9000	4,832.514
5	5,371.92	0.8999	4,834.190
5	5,370.00	0.8999	4,832.463
5	5,371.30	0.8999	4,833.632
5	5,373.25	0.8999	4,835.387
5	5,372.65	0.8999	4,834.847
5	5,372.27	0.8999	4,834.505
5	5,380.10	0.8999	4,841.551
5	5,369.50	0.8999	4,832.013
5	5,364.07	0.8999	4,827.126
5	5,096.05	0.8999	4,585.935
5	5,368.47	0.8999	4,831.086
5	5,370.54	0.8999	4,832.948
5	5,361.86	0.8999	4,825.137
5	5,359.37	0.8999	4,822.897
5	5,362.60	0.8999	4,825.803
5	5,367.62	0.9000	4,830.858
5	5,364.79	0.8999	4,827.774
5	5,360.90	0.8999	4,824.273
5			

	5,365.40	0.9000	4,828.860
5	5,369.26	0.9000	4,832.334
5	5,368.49	0.9000	4,831.641
5	5,362.77	0.8999	4,825.956
5	5,370.57	0.9000	4,833.513
5	5,631.69	0.8999	5,067.957
5	5,461.92	0.8999	4,915.181
5	5,364.67	0.8999	4,827.666
5	5,367.58	0.8999	4,830.285
5	5,372.60	0.9000	4,835.340
5	5,371.92	0.9000	4,834.728
5	5,371.10	0.9000	4,833.990
5	5,371.84	0.8999	4,834.118
5	5,370.55	0.8999	4,832.957
5	5,366.62	0.8999	4,829.421
5	5,370.13	0.8999	4,832.579
5	5,371.65	0.8999	4,833.947
5	5,370.58	0.8999	4,832.984
5	5,365.00	0.9000	4,828.500
5	5,365.45	0.8999	4,828.368
5	5,369.30	0.9001	4,832.906
5	5,372.54	0.8999	4,834.748
5			

	5,370.52	0.9000	4,833.468
5	5,368.67	0.8999	4,831.266
5	5,365.55	0.8999	4,828.458
5	5,363.03	0.9000	4,826.727
5	5,362.36	0.8999	4,825.587
5	5,360.95	0.9000	4,824.855
5	5,360.79	0.9000	4,824.711
5	5,365.02	0.8999	4,827.981
5	5,365.53	0.8999	4,828.440
5	5,367.68	0.9000	4,830.912
5	5,372.34	0.8999	4,834.568
5	5,371.50	0.8999	4,833.812
5	5,370.83	0.8999	4,833.209
5	5,372.23	0.8999	4,834.469
5	5,365.48	0.8999	4,828.395
5	5,372.78	0.8999	4,834.964
5	5,368.38	0.9000	4,831.542
5	5,365.93	0.8999	4,828.800
5	5,370.20	0.8999	4,832.642
5	5,370.88	0.8998	4,832.717
5	5,368.08	0.8999	4,830.735
5	5,372.19	0.8998	4,833.896
5			

		5,371.13	0.9000	4,834.017
	5	5,371.08	0.8999	4,833.434
	5	5,372.25	0.8999	4,834.487
716	8	8,812.36	0.9001	7,932.005
489	8	8,841.99	0.8999	7,956.906
715	4	4,400.16	0.9000	3,960.144
690	4	4,616.65	0.9167	4,232.083
521	6	6,416.53	0.9166	5,881.391
698	8	9,234.59	0.9168	8,466.272
	5	5,363.94	0.8999	4,827.009
	5	5,362.49	0.8999	4,825.704
692	1	1,340.65	0.9000	1,206.585
552	2	2,385.63	0.8998	2,146.589
695	8	9,232.81	0.9168	8,464.640
481	8	8,815.68	0.9000	7,934.112
494	1	1,164.68	0.9166	1,067.545
691	1	987.87	0.8999	888.984
492	6	6,225.11	0.9158	5,700.955
626	8	9,236.31	0.9168	8,467.849
612	8	9,238.13	0.9167	8,468.593
624	8	9,238.03	0.9168	8,469.425
658	6	6,718.83	0.8999	6,046.275
659	6			

		6,523.31	0.8999	5,870.326
713	3	3,457.59	0.9001	3,112.176
625	4	4,617.70	0.9168	4,233.507
611	8	9,239.41	0.9167	8,469.767
694	8	9,233.74	0.9168	8,465.492
696	4	4,618.30	0.9169	4,234.519
493	3	3,545.56	0.8998	3,190.294
594	8	9,243.53	0.9168	8,474.468
526	4	4,523.73	0.9169	4,147.808
593	4	4,618.84	0.9168	4,234.552
488	8	8,831.46	0.8999	7,947.430
495	6	6,413.80	0.9166	5,878.889
520	4	4,007.93	0.9167	3,674.069
215	5	5,355.10	0.8999	4,819.054
595	6	6,668.50	0.9167	6,113.013
480	4	4,413.69	0.8999	3,971.879
214	5	5,356.25	0.9000	4,820.625
210	5	5,355.17	0.8999	4,819.117
216	5	5,353.80	0.9000	4,818.420
211	5	5,354.63	0.9000	4,819.167
212	5	5,355.39	0.9000	4,819.851
213	5	5,354.20	0.9000	4,818.780
0478	4			

		4,429.71	0.8998	3,985.853
227	5	5,354.95	0.9000	4,819.455
226	5	5,355.22	0.9000	4,819.698
208	5	5,355.19	0.9000	4,819.671
209	5	5,353.95	0.8999	4,818.019
	5	5,372.00	0.8999	4,834.262
	5	5,371.15	0.8999	4,833.497
	5	5,371.24	0.8999	4,833.578
	5	5,369.65	0.9000	4,832.685
	5	5,372.96	0.9000	4,835.664
	5	5,372.35	0.9000	4,835.115
	5	5,372.79	0.8999	4,834.973
	5	5,371.60	0.9000	4,834.440
	5	5,370.67	0.8999	4,833.065
	5	5,369.14	0.9000	4,832.226
	5	5,369.94	0.9000	4,832.946
	5	5,369.81	0.9000	4,832.829
	5	5,368.07	0.9000	4,831.263
	5	5,370.43	0.9000	4,833.387
	5	5,371.44	0.9000	4,834.296
	5	5,370.03	0.9000	4,833.027
	5	5,371.34	0.9000	4,834.206
	5			

	5,369.74	0.9000	4,832.766
5	5,371.90	0.8999	4,834.172
5	5,368.45	0.8999	4,831.068
5	5,372.37	0.8999	4,834.595
5	5,370.85	0.8999	4,833.227
5	5,370.12	0.8999	4,832.570
5	5,372.43	0.9000	4,835.187
5	5,371.99	0.8999	4,834.253
5	5,371.62	0.8998	4,833.383
5	5,371.53	0.8999	4,833.839
5	5,372.28	0.8999	4,834.514
5	5,371.65	0.8999	4,833.947
5	5,369.97	0.8999	4,832.436
5	5,371.40	0.9000	4,834.260
5	5,372.05	0.8999	4,834.307
5	5,370.75	0.8999	4,833.137
5	5,372.00	0.9000	4,834.800
5	5,371.40	0.9000	4,834.260
5	5,371.45	0.8999	4,833.767
5	5,377.40	0.9000	4,839.660
5	5,375.95	0.9000	4,838.355
5	5,372.53	0.9000	4,835.277
5			

	5,368.89	0.9000	4,832.001
5	5,370.62	0.9000	4,833.558
5	5,370.67	0.8999	4,833.065
5	5,368.41	0.9000	4,831.569
5	5,370.45	0.8999	4,832.867
5	5,371.85	0.8999	4,834.127
5	5,372.68	0.8999	4,834.874
5	5,371.45	0.8999	4,833.767
5	5,371.14	0.8999	4,833.488
5	5,370.72	0.8999	4,833.110
5	5,370.70	0.8999	4,833.092
5	5,371.55	0.8999	4,833.857
5	5,371.42	0.8999	4,833.740
5	5,373.71	0.8999	4,835.801
5	5,370.15	0.8999	4,832.597
5	5,372.90	0.8999	4,835.072
5	5,371.44	0.9000	4,834.296
5	5,370.87	0.9000	4,833.783
5	5,370.24	0.8999	4,832.678
5	5,369.58	0.9000	4,832.622
5	5,369.90	0.9000	4,832.910
5	5,370.30	0.9000	4,833.270
5			

	5,369.70	0.8999	4,832.193
5	5,372.05	0.8999	4,834.307
5	5,373.23	0.8999	4,835.369
5	5,352.42	0.8999	4,816.642
5	5,353.70	0.8999	4,817.794
5	5,372.48	0.8999	4,834.694
5	5,353.30	0.8999	4,817.434
5	5,373.00	0.9000	4,835.700
5	5,373.00	0.8999	4,835.162
5	5,372.36	0.8999	4,834.586
5	5,369.34	0.8999	4,831.869
5	5,371.95	0.8999	4,834.217
5	5,372.20	0.9000	4,834.980
3	2,675.05	0.8999	2,407.277
5	5,352.43	0.9000	4,817.187
5	5,372.15	0.8998	4,833.860
5	5,371.85	0.8999	4,834.127
5	5,372.63	0.8999	4,834.829
5	5,371.38	0.8999	4,833.704
5	5,372.10	0.8999	4,834.352
5	5,354.57	0.9000	4,819.113
5	5,368.75	0.9000	4,831.875
5			

	5,370.70	0.9000	4,833.630
5	5,349.97	0.8999	4,814.438
5	5,367.77	0.8999	4,830.456
5	5,369.37	0.9000	4,832.433
5	5,366.94	0.9000	4,830.246
5	5,369.98	0.9000	4,832.982
5	5,369.42	0.8999	4,831.941
5	5,370.38	0.8999	4,832.804
5	5,369.10	0.8999	4,831.653
5	5,369.65	0.8999	4,832.148
5	5,371.88	0.9000	4,834.692
5	5,369.45	0.9000	4,832.505
5	5,373.85	0.8999	4,835.927
5	5,370.98	0.9000	4,833.882
5	5,370.53	0.8999	4,832.939
5	5,369.60	0.9000	4,832.640
5	5,371.90	0.9000	4,834.710
5	5,371.56	0.9000	4,834.404
5	5,372.21	0.8999	4,834.451
5	5,371.23	0.9000	4,834.107
5	5,370.62	0.8999	4,833.020
5	5,367.63	0.8999	4,830.330
5			

		5,374.80	0.8999	4,836.782
	5	5,371.56	0.8999	4,833.866
	5	5,363.90	0.9000	4,827.510
	5	5,369.69	0.8999	4,832.184
	5	5,370.69	0.8999	4,833.083
	5	5,369.80	0.8999	4,832.283
	5	5,371.75	0.8999	4,834.037
	5	5,370.12	0.8999	4,832.570
437	5	5,353.77	0.8999	4,817.857
439	5	5,353.74	0.9000	4,818.366
461	5	5,353.78	0.8999	4,817.866
462	5	5,353.52	0.9000	4,818.168
457	5	5,351.33	0.9000	4,816.197
458	5	5,353.03	0.8999	4,817.191
447	5	5,354.90	0.8999	4,818.874
448	5	5,354.08	0.9000	4,818.672
438	5	5,352.52	0.8999	4,816.732
436	5	5,354.25	0.8999	4,818.289
434	5	5,354.72	0.8999	4,818.712
435	5	5,353.10	0.8999	4,817.254
	5	5,371.14	0.8999	4,833.488
452	5	5,353.57	0.8999	4,817.677
451	5			

		5,355.97	0.9000	4,820.373
	5	5,371.87	0.9000	4,834.683
449	5	5,353.73	0.9000	4,818.357
433	5	5,353.62	0.9000	4,818.258
	5	5,372.73	0.9000	4,835.457
	5	5,366.87	0.8999	4,829.646
	5	5,371.98	0.9000	4,834.782
	5	5,370.56	0.8999	4,832.966
	5	5,370.05	0.9000	4,833.045
	5	5,375.00	0.8999	4,836.962
	5	5,369.64	0.9000	4,832.676
	5	5,368.92	0.9000	4,832.028
	5	5,369.47	0.9000	4,832.523
	5	5,367.27	0.9000	4,830.543
	5	5,368.87	0.8999	4,831.446
	5	5,371.15	0.8999	4,833.497
	5	5,364.03	0.8999	4,827.090
	5	5,367.46	0.9000	4,830.714
	5	5,368.41	0.9000	4,831.569
	5	5,366.53	0.8999	4,829.340
	5	5,368.93	0.9001	4,832.573
	5	5,367.66	0.9000	4,830.894
	5			

		5,270.50	0.9000	4,743.450
	5	5,372.20	0.8999	4,834.442
	5	5,375.35	0.8999	4,837.277
	5	5,365.15	0.9000	4,828.635
	5	5,362.22	0.8999	4,825.461
	5	5,367.08	0.8999	4,829.835
	5	5,365.42	0.9000	4,828.878
	5	5,361.33	0.8999	4,824.660
	5	5,366.42	0.9000	4,829.778
	5	5,364.50	0.8999	4,827.513
	5	5,365.28	0.8999	4,828.215
	5	5,365.85	0.9000	4,829.265
460	5	5,354.85	0.8999	4,818.829
454	5	5,354.45	0.9000	4,819.005
456	5	5,351.48	0.8999	4,815.796
459	5	5,353.98	0.9000	4,818.582
	5	5,373.72	0.9000	4,836.348
455	5	5,353.70	0.9000	4,818.330
453	5	5,353.95	0.9000	4,818.555
450	5	5,353.35	0.8999	4,817.479
	5	5,367.00	0.9000	4,830.300
	5	5,370.77	0.9000	4,833.693
	5			

	5,372.75	0.9000	4,835.475
5	5,370.00	0.9000	4,833.000
5	5,369.72	0.9000	4,832.748
5	5,375.46	0.8999	4,837.376
5	5,371.34	0.9000	4,834.206
5	5,365.91	0.9000	4,829.319
5	5,369.85	0.9000	4,832.865
5	5,371.95	0.8999	4,834.217
5	5,367.82	0.9000	4,831.038
5	5,370.50	0.9000	4,833.450
5	5,371.40	0.9000	4,834.260
5	5,375.05	0.9000	4,837.545
5	5,382.82	0.9000	4,844.538
5	5,372.14	0.9000	4,834.926
5	5,371.21	0.9000	4,834.089
5	5,369.48	0.9000	4,832.532
5	5,368.11	0.8999	4,830.762
5	5,371.14	0.8999	4,833.488
5	5,369.17	0.9000	4,832.253
5	5,372.43	0.8999	4,834.649
5	5,374.12	0.8999	4,836.170
5	5,370.15	0.9000	4,833.135
5			

	5,370.92	0.8999	4,833.290
5	5,371.27	0.9000	4,834.143
5	5,372.93	0.8999	4,835.099
5	5,369.35	0.8999	4,831.878
5	5,370.30	0.9000	4,833.270
5	5,367.88	0.9000	4,831.092
5	5,368.11	0.9000	4,831.299
5	5,370.23	0.9000	4,833.207
5	5,369.36	0.9000	4,832.424
5	5,372.53	0.8999	4,834.739
5	5,372.57	0.9000	4,835.313
5	5,371.55	0.8999	4,833.857
5	5,372.45	0.8999	4,834.667
5	5,371.70	0.8999	4,833.992
5	5,371.40	0.8999	4,833.722
5	5,368.85	0.8999	4,831.428
5	5,379.25	0.8999	4,840.787
5	5,377.77	0.8999	4,839.455
5	5,374.76	0.9000	4,837.284
5	5,366.82	0.8999	4,829.601
5	5,369.85	0.9000	4,832.865
5	5,371.17	0.8999	4,833.515
5			

	5,373.14	0.8999	4,835.288
5	5,373.69	0.8999	4,835.783
5	5,373.12	0.9000	4,835.808
5	5,370.75	0.9000	4,833.675
5	5,371.36	0.8999	4,833.686
5	5,371.40	0.8999	4,833.722
5	5,369.80	0.9000	4,832.820
5	5,368.82	0.8999	4,831.401
5	5,370.25	0.8999	4,832.687
5	5,371.23	0.8999	4,833.569
5	5,370.88	0.9000	4,833.792
5	5,368.86	0.9000	4,831.974
5	5,372.22	0.9000	4,834.998
5	5,372.57	0.8999	4,834.775
5	5,371.83	0.9001	4,835.184
5	5,371.28	0.8999	4,833.614
5	5,371.15	0.9000	4,834.035
5	5,371.98	0.8999	4,834.244
5	5,351.25	0.8999	4,815.589
5	5,353.52	0.8999	4,817.632
5	5,353.43	0.8999	4,817.551
5	5,353.23	0.8999	4,817.371
5			

		5,354.35	0.8999	4,818.379
	5	5,370.14	0.9000	4,833.126
	5	5,356.78	0.8999	4,820.566
	5	5,373.40	0.8999	4,835.522
	5	5,352.39	0.8999	4,816.615
	5	5,354.29	0.8999	4,818.325
	5	5,371.35	0.8999	4,833.677
	5	5,370.49	0.8999	4,832.903
	5	5,370.38	0.8999	4,832.804
	5	5,369.62	0.8999	4,832.121
	5	5,372.12	0.9000	4,834.908
	5	5,369.11	0.8999	4,831.662
	5	5,373.05	0.9000	4,835.745
	5	5,370.60	0.8999	4,833.002
	5	5,372.94	0.8999	4,835.108
	5	5,372.92	0.8999	4,835.090
510	5	5,352.27	0.8999	4,816.507
509	5	5,354.24	0.8998	4,817.745
508	5	5,354.33	0.9000	4,818.897
513	5	5,354.65	0.9000	4,819.185
512	5	5,356.36	0.9000	4,820.724
511	5	5,354.61	0.8999	4,818.613
446	5			

		5,353.25	0.8999	4,817.389
445	5	5,354.51	0.9000	4,819.059
444	5	5,354.30	0.9000	4,818.870
	5	5,372.25	0.8999	4,834.487
524	5	5,354.35	0.9000	4,818.915
442	5	5,354.35	0.8999	4,818.379
441	5	5,352.80	0.8999	4,816.984
	5	5,369.90	0.8999	4,832.373
	5	5,370.80	0.9000	4,833.720
	5	5,377.53	0.8999	4,839.239
	5	5,373.40	0.8999	4,835.522
522	5	5,354.05	0.8999	4,818.109
501	5	5,353.88	0.8999	4,817.956
502	5	5,353.61	0.9000	4,818.249
506	5	5,354.68	0.9000	4,819.212
443	5	5,352.00	0.8999	4,816.264
507	5	5,356.25	0.8999	4,820.089
440	5	5,354.56	0.8999	4,818.568
499	5	5,354.50	0.9000	4,819.050
505	5	5,354.55	0.9000	4,819.095
504	5	5,355.02	0.9000	4,819.518
503	5	5,351.12	0.9000	4,816.008
498	5			

		5,353.92	0.9000	4,818.528
500	5	5,354.97	0.8999	4,818.937
	5	5,371.20	0.8999	4,833.542
519	5	5,354.50	0.9000	4,819.050
517	5	5,355.90	0.9000	4,820.310
523	5	5,355.29	0.8999	4,819.225
	5	5,370.50	0.8999	4,832.912
520	5	5,354.23	0.8999	4,818.271
491	5	5,354.27	0.9000	4,818.843
493	5	5,354.10	0.9000	4,818.690
497	5	5,354.03	0.9000	4,818.627
494	5	5,353.20	0.9000	4,817.880
495	5	5,356.38	0.8999	4,820.206
496	5	5,353.90	0.8999	4,817.974
515	5	5,353.95	0.8999	4,818.019
514	5	5,351.61	0.9000	4,816.449
516	5	5,355.32	0.9000	4,819.788
492	5	5,354.30	0.9000	4,818.870
521	5	5,354.50	0.8999	4,818.514
518	5	5,353.28	0.9000	4,817.952
473	5	5,354.10	0.9000	4,818.690
474	5	5,352.60	0.9000	4,817.340
476	5			

		5,353.74	0.9000	4,818.366
490	5	5,355.27	0.8999	4,819.207
475	5	5,352.97	0.8999	4,817.137
472	5	5,350.75	0.9000	4,815.675
478	6	6,409.52	0.9167	5,875.606
	5	5,359.97	0.8998	4,822.901
	5	5,362.02	0.8999	4,825.281
471	5	5,354.58	0.8999	4,818.586
	5	5,358.60	0.8999	4,822.204
479	6	6,400.64	0.9166	5,866.826
	5	5,366.53	0.8999	4,829.340
	5	4,804.51	0.9166	4,403.813
	5	5,370.52	0.9000	4,833.468
	5	5,359.90	0.8999	4,823.374
	5	5,368.25	0.9000	4,831.425
	5	5,369.67	0.8999	4,832.166
	5	4,122.89	0.9166	3,779.040
	5	5,370.08	0.8999	4,832.534
	5	5,370.38	0.9000	4,833.342
	5	5,370.40	0.8999	4,832.822
	5	5,371.07	0.9001	4,834.500
	5	5,371.60	0.9000	4,834.440
	5			

		5,370.90	0.8999	4,833.272
	5	5,372.40	0.8999	4,834.622
	5	5,371.50	0.8999	4,833.812
	5	5,370.21	0.8999	4,832.651
	5	5,367.60	0.8999	4,830.303
	5	5,373.88	0.9000	4,836.492
	5	5,371.21	0.9000	4,834.089
	5	5,371.83	0.8999	4,834.109
	5	5,373.25	0.8999	4,835.387
	5	5,371.12	0.8999	4,833.470
	5	5,371.51	0.9001	4,834.896
	5	5,368.52	0.9000	4,831.668
	5	5,369.68	0.9000	4,832.712
	5	5,370.95	0.9000	4,833.855
	5	5,372.77	0.9000	4,835.493
	5	5,372.98	0.9000	4,835.682
	5	5,370.09	0.9000	4,833.081
	5	5,367.95	0.9000	4,831.155
477	1	1,077.90	0.9165	987.895
	5	5,369.76	0.9000	4,832.784
	5	5,369.26	0.9000	4,832.334
	5	5,370.12	0.8999	4,832.570
	5			

		5,373.43	0.8999	4,835.549
	5	5,367.52	0.9000	4,830.768
463	5	5,354.32	0.9000	4,818.888
464	5	5,357.45	0.8999	4,821.169
	5	5,367.13	0.8999	4,829.880
465	5	5,354.38	0.8999	4,818.406
467	5	5,354.60	0.9000	4,819.140
470	5	5,353.70	0.8999	4,817.794
	5	5,372.25	0.8999	4,834.487
	5	5,372.05	0.9000	4,834.845
468	5	5,354.95	0.8999	4,818.919
	5	5,371.15	0.8999	4,833.497
	5	5,372.49	0.8999	4,834.703
	5	5,370.36	0.8999	4,832.786
	5	5,368.95	0.9000	4,832.055
	5	5,369.32	0.8999	4,831.851
469	5	5,353.90	0.9000	4,818.510
466	5	5,355.32	0.9000	4,819.788
	5	5,372.02	0.8999	4,834.280
	5	5,371.04	0.9000	4,833.936
	5	5,369.13	0.9000	4,832.217
	5	5,369.27	0.8999	4,831.806
	5			

	5,370.64	0.9000	4,833.576
5	5,373.08	0.8999	4,835.234
5	5,369.45	0.8999	4,831.968
5	5,371.23	0.9000	4,834.107
5	5,370.49	0.9000	4,833.441
5	5,367.08	0.9000	4,830.372
5	5,366.63	0.8999	4,829.430
5	5,369.82	0.9000	4,832.838
5	5,371.11	0.9000	4,833.999
5	5,377.50	0.8999	4,839.212
5	5,371.60	0.8999	4,833.902
5	5,370.12	0.8999	4,832.570
5	5,368.17	0.8999	4,830.816
5	5,373.30	0.9000	4,835.970
5	5,371.78	0.8999	4,834.064
5	5,369.51	0.9000	4,832.559
5	5,369.59	0.8999	4,832.094
5	5,370.38	0.8999	4,832.804
5	5,373.45	0.8999	4,835.567
5	5,369.85	0.8999	4,832.328
5	5,372.32	0.8999	4,834.550
5	5,371.82	0.8998	4,833.563
5			

	5,371.46	0.8999	4,833.776
5	5,368.89	0.8999	4,831.464
5	5,369.35	0.9000	4,832.415
5	5,371.99	0.8999	4,834.253
5	5,368.88	0.8999	4,831.455
5	5,372.40	0.9000	4,835.160
5	5,370.80	0.9000	4,833.720
5	5,370.22	0.8998	4,832.123
5	5,370.78	0.9000	4,833.702
5	5,369.70	0.8999	4,832.193
5	5,371.26	0.8999	4,833.596
5	5,371.43	0.8999	4,833.749
5	5,373.15	0.8999	4,835.297
5	5,369.05	0.9000	4,832.145
5	5,372.75	0.9000	4,835.475
5	5,367.85	0.8999	4,830.528
5	5,371.53	0.8999	4,833.839
5	5,371.95	0.8999	4,834.217
5	5,371.33	0.8999	4,833.659
5	5,369.40	0.8999	4,831.923
5	5,369.66	0.9000	4,832.694
5	5,370.94	0.8999	4,833.308
5			

	5,371.50	0.8999	4,833.812
5	5,373.48	0.9000	4,836.132
5	5,371.73	0.8999	4,834.019
5	5,370.66	0.9000	4,833.594
5	5,371.12	0.9000	4,834.008
5	5,372.50	0.9000	4,835.250
5	5,372.74	0.9000	4,835.466
5	5,372.72	0.8999	4,834.910
5	5,373.20	0.8999	4,835.342
5	5,372.68	0.8999	4,834.874
5	5,369.40	0.9000	4,832.460
5	5,369.60	0.8999	4,832.103
5	5,373.50	0.8999	4,835.612
5	5,370.35	0.8999	4,832.777
5	5,371.91	0.8999	4,834.181
5	5,370.00	0.8999	4,832.463
5	5,373.05	0.8999	4,835.207
5	5,371.25	0.9000	4,834.125
5	5,371.30	0.9000	4,834.170
5	5,372.05	0.8999	4,834.307
5	5,369.14	0.9000	4,832.226
5	5,369.52	0.9000	4,832.568
5			

		5,371.04	0.8999	4,833.398
	5	5,372.00	0.9000	4,834.800
	5	5,371.72	0.9000	4,834.548
	5	5,371.79	0.9000	4,834.611
	5	5,372.06	0.8999	4,834.316
	5	5,370.93	0.9000	4,833.837
	5	5,368.74	0.9000	4,831.866
	5	5,369.92	0.9000	4,832.928
	5	5,368.94	0.8999	4,831.509
	5	5,371.57	0.9000	4,834.413
	5	5,371.53	0.8999	4,833.839
	5	5,371.27	0.8999	4,833.605
	5	5,370.79	0.8999	4,833.173
	5	5,368.74	0.8999	4,831.329
	5	5,371.35	0.9000	4,834.215
	5	5,371.13	0.9000	4,834.017
	5	5,369.03	0.8999	4,831.590
481	6	6,400.64	0.9167	5,867.466
	5	5,371.67	0.9000	4,834.503
	5	5,372.90	0.8999	4,835.072
	5	5,371.32	0.9000	4,834.188
483	5	5,347.40	0.8999	4,812.125
	2			

		2,159.35	0.9165	1,979.044
482	1	1,279.68	0.9167	1,173.082
	5	5,370.48	0.8999	4,832.894
	5	5,372.41	0.9000	4,835.169
	5	5,372.71	0.8999	4,834.901
	5	5,368.77	0.8999	4,831.356
	5	5,350.46	0.8999	4,814.878
	5	5,353.17	0.9000	4,817.853
	5	5,372.25	0.9000	4,835.025
	5	5,372.43	0.8999	4,834.649
	5	5,352.43	0.9000	4,817.187
	5	5,351.60	0.9000	4,816.440
	5	5,350.42	0.8998	4,814.307
	5	5,352.84	0.8999	4,817.020
	5	5,353.13	0.9000	4,817.817
	5	5,353.05	0.9000	4,817.745
	5	5,352.85	0.8999	4,817.029
	5	5,389.45	0.8999	4,849.966
	5	5,350.82	0.8998	4,814.667
	5	5,370.28	0.8999	4,832.714
	5	5,351.75	0.8999	4,816.039
	5	5,362.94	0.9000	4,826.646
	5			

		5,368.20	0.8999	4,830.843
	5	5,369.38	0.9000	4,832.442
	5	5,371.32	0.9000	4,834.188
	5	5,370.66	0.8999	4,833.056
	5	5,370.15	0.8999	4,832.597
	5	5,372.27	0.9001	4,835.580
	5	5,370.65	0.9000	4,833.585
	5	5,369.74	0.8999	4,832.229
	5	5,370.60	0.8999	4,833.002
	5	5,348.87	0.9000	4,813.983
	5	5,371.46	0.8999	4,833.776
	5	5,370.81	0.9000	4,833.729
	5	5,375.52	0.9000	4,837.968
	5	5,368.84	0.9000	4,831.956
	5	5,370.96	0.8999	4,833.326
	5	5,369.85	0.8999	4,832.328
	5	5,370.05	0.8999	4,832.507
480	6	6,406.66	0.9166	5,872.344
484	5	5,355.10	0.9000	4,819.590
488	5	5,355.30	0.9000	4,819.770
	5	5,371.50	0.9000	4,834.350
	5	5,368.97	0.9000	4,832.073
486	5			

		5,354.65	0.8999	4,818.649
487	5	5,353.63	0.9000	4,818.267
489	5	5,354.97	0.9000	4,819.473
485	5	5,353.38	0.8999	4,817.506
	5	5,370.50	0.8999	4,832.912
	5	5,368.77	0.9000	4,831.893
	5	5,373.12	0.8999	4,835.270
	5	5,379.78	0.9000	4,841.802
	5	5,369.00	0.8999	4,831.563
282	5	5,353.84	0.9000	4,818.456
280	5	5,357.18	0.9000	4,821.462
281	5	5,355.02	0.8999	4,818.982
	5	5,370.45	0.9000	4,833.405
285	5	5,354.43	0.8999	4,818.451
284	5	5,354.18	0.8999	4,818.226
283	5	5,355.15	0.8999	4,819.099
287	5	5,354.36	0.8999	4,818.388
	5	5,372.72	0.9000	4,835.448
286	5	5,355.66	0.8999	4,819.558
	5	5,372.59	0.8999	4,834.793
	5	5,371.48	0.9000	4,834.332
288	5	5,356.60	0.9000	4,820.940
	5			

	5,370.27	0.9000	4,833.243
5	5,372.12	0.8999	4,834.370
5	5,370.35	0.9000	4,833.315
5	5,372.18	0.9000	4,834.962
5	5,372.00	0.9000	4,834.800
5	5,371.40	0.9000	4,834.260
5	5,367.73	0.8999	4,830.420
5	5,371.15	0.9000	4,834.035
5	5,373.95	0.9000	4,836.555
5	5,372.43	0.8999	4,834.649
5	5,372.12	0.9000	4,834.908
5	5,370.27	0.8999	4,832.705
5	5,374.40	0.8999	4,836.422
5	5,371.30	0.8999	4,833.632
5	5,371.99	0.9001	4,835.328
5	5,369.09	0.9000	4,832.181
5	5,369.48	0.9000	4,832.532
5	5,373.73	0.9000	4,836.357
5	5,369.95	0.9001	4,833.491
5	5,370.80	0.9000	4,833.720
5	5,371.39	0.9000	4,834.251
5	5,370.07	0.9000	4,833.063
5			

		5,366.98	0.9000	4,830.282
	5	5,370.10	0.9000	4,833.090
	5	5,369.50	0.9000	4,832.550
	5	5,371.17	0.9000	4,834.053
	5	5,370.61	0.9000	4,833.549
248	5	5,353.55	0.8999	4,817.659
	5	5,370.18	0.9000	4,833.162
	5	5,370.40	0.9000	4,833.360
249	5	5,354.02	0.8999	4,818.082
245	5	5,354.93	0.9000	4,819.437
246	5	5,354.62	0.9000	4,819.158
	5	5,369.27	0.9000	4,832.343
	5	5,369.69	0.8999	4,832.184
247	5	5,354.55	0.9000	4,819.095
	5	5,377.54	0.9000	4,839.786
	5	5,370.58	0.8999	4,832.984
	5	5,371.87	0.9000	4,834.683
	5	5,371.30	0.9000	4,834.170
	5	5,371.33	0.9000	4,834.197
	5	5,370.07	0.9000	4,833.063
	5	5,372.23	0.8999	4,834.469
	5	5,372.79	0.8998	4,834.436
	5			

	5,367.00	0.9000	4,830.300
5	5,370.70	0.9000	4,833.630
5	5,374.04	0.9000	4,836.636
6	5,688.65	0.9166	5,214.216
8	9,237.33	0.9168	8,468.784
8	9,235.46	0.9167	8,466.146
8	9,239.10	0.9168	8,470.406
7	7,997.78	0.9167	7,331.564
8	9,440.41	0.9167	8,654.023
8	9,231.06	0.9168	8,463.035
4	4,615.75	0.9167	4,231.258
5	5,371.73	0.9001	4,835.094
5	5,371.17	0.8999	4,833.515
4	4,616.21	0.9168	4,232.141
4	4,625.24	0.9167	4,239.957
5	5,370.95	0.9000	4,833.855
5	5,372.63	0.9000	4,835.367
5	5,371.23	0.9000	4,834.107
5	5,370.82	0.8999	4,833.200
5	5,373.63	0.9000	4,836.267
5	5,370.43	0.9000	4,833.387
5	5,371.00	0.9000	4,833.900
5			

		5,370.15	0.9000	4,833.135
	5	5,368.40	0.9000	4,831.560
	5	5,370.66	0.9000	4,833.594
	5	5,375.00	0.9000	4,837.500
	5	5,370.22	0.9000	4,833.198
	5	5,373.87	0.9000	4,836.483
244	5	5,356.00	0.8999	4,819.864
250	5	5,355.96	0.9000	4,820.364
251	5	5,355.50	0.8999	4,819.414
	5	5,371.52	0.9000	4,834.368
	5	5,370.97	0.9000	4,833.873
	5	5,370.77	0.9000	4,833.693
	5	5,373.80	0.9000	4,836.420
	5	5,371.68	0.9000	4,834.512
	5	5,368.75	0.9001	4,832.411
	5	5,372.73	0.9000	4,835.457
	5	5,372.20	0.9000	4,834.980
	5	5,371.72	0.9000	4,834.548
	5	5,367.58	0.9000	4,830.822
	5	5,371.60	0.9000	4,834.440
	5	5,366.72	0.9001	4,830.584
	5	5,373.25	0.8999	4,835.387
	5			

	5,369.57	0.9000	4,832.613
5	5,369.75	0.8999	4,832.238
5	5,372.87	0.8999	4,835.045
5	5,368.98	0.8999	4,831.545
5	5,372.50	0.9000	4,835.250
5	5,392.29	0.9000	4,853.061
5	5,372.08	0.9000	4,834.872
5	5,372.32	0.8999	4,834.550
5	5,370.00	0.8999	4,832.463
5	5,383.85	0.9000	4,845.465
252	5,355.82	0.8999	4,819.702
5	5,373.53	0.8999	4,835.639
5	5,373.60	0.9000	4,836.240
5	5,370.06	0.8999	4,832.516
5	5,371.10	0.9000	4,833.990
5	5,375.71	0.8999	4,837.601
5	5,371.02	0.8999	4,833.380
5	5,372.22	0.8999	4,834.460
5	5,370.74	0.9000	4,833.666
5	5,371.20	0.9000	4,834.080
5	5,365.30	0.9000	4,828.770
5	5,370.34	0.8999	4,832.768
5			

	5,367.83	0.8999	4,830.510
5	5,370.35	0.8999	4,832.777
5	5,372.53	0.8999	4,834.739
5	5,370.84	0.9000	4,833.756
5	5,370.70	0.9000	4,833.630
5	5,366.04	0.8999	4,828.899
5	5,375.50	0.9000	4,837.950
5	5,370.54	0.9000	4,833.486
5	5,371.29	0.9001	4,834.698
5	5,365.02	0.9000	4,828.518
5	5,372.85	0.9000	4,835.565
5	5,368.05	0.9001	4,831.781
5	5,368.95	0.9000	4,832.055
5	5,370.76	0.8999	4,833.146
5	5,371.07	0.9000	4,833.963
5	5,367.60	0.9000	4,830.840
5	5,370.38	0.8999	4,832.804
5	5,371.08	0.8999	4,833.434
5	5,369.10	0.9000	4,832.190
5	5,371.73	0.9000	4,834.557
5	5,368.38	0.9000	4,831.542
5	5,369.90	0.8999	4,832.373
5			

	5,371.97	0.9000	4,834.773
5	5,368.52	0.8999	4,831.131
5	5,373.99	0.9000	4,836.591
5	5,368.14	0.8999	4,830.789
5	5,369.87	0.9000	4,832.883
5	5,371.33	0.8999	4,833.659
5	5,368.63	0.8999	4,831.230
5	5,371.27	0.9000	4,834.143
5	5,368.65	0.9000	4,831.785
5	5,370.88	0.8999	4,833.254
5	5,370.97	0.8999	4,833.335
5	5,370.50	0.9001	4,833.987
5	5,370.84	0.9000	4,833.756
5	5,373.86	0.9000	4,836.474
5	5,376.00	0.9001	4,838.937
5	5,374.24	0.8999	4,836.278
5	5,371.86	0.8999	4,834.136
5	5,372.03	0.9000	4,834.827
5	5,369.87	0.9000	4,832.883
5	5,370.65	0.9000	4,833.585
5	5,373.47	0.9000	4,836.123
5	5,371.97	0.9000	4,834.773
5			

	5,371.24	0.9000	4,834.116
5	5,370.87	0.9000	4,833.783
5	5,369.18	0.8999	4,831.725
5	5,375.80	0.8999	4,837.682
5	5,371.32	0.8999	4,833.650
5	5,370.78	0.9000	4,833.702
5	5,371.02	0.9000	4,833.918
5	5,369.62	0.9000	4,832.658
5	5,373.20	0.9000	4,835.880
5	5,371.93	0.8999	4,834.199
5	5,367.37	0.9000	4,830.633
5	5,370.80	0.9000	4,833.720
5	5,371.06	0.9000	4,833.954
5	5,371.79	0.8999	4,834.073
5	5,371.15	0.9000	4,834.035
5	5,369.16	0.8999	4,831.707
5	5,372.44	0.8999	4,834.658
5	5,405.96	0.9000	4,865.364
5	5,372.87	0.9000	4,835.583
5	5,335.08	0.9000	4,801.572
5	5,371.07	0.9001	4,834.500
5	5,371.74	0.9000	4,834.566
5			

	5,369.35	0.8999	4,831.878
5	5,370.32	0.8999	4,832.750
5	5,371.40	0.9000	4,834.260
5	5,368.49	0.9000	4,831.641
5	5,368.75	0.8999	4,831.338
5	5,371.70	0.9000	4,834.530
5	5,372.24	0.8999	4,834.478
5	5,373.10	0.9000	4,835.790
5	5,375.65	0.9000	4,838.085
5	5,371.15	0.9001	4,834.572
5	5,370.22	0.9001	4,833.735
5	5,374.86	0.9001	4,837.911
5	5,370.22	0.9000	4,833.198
5	5,369.70	0.9000	4,832.730
4	4,623.05	0.9167	4,237.949
4	4,617.52	0.9167	4,232.880
5	5,372.57	0.9000	4,835.313
5	5,374.57	0.9001	4,837.650
8	9,235.26	0.9167	8,465.962
5	5,371.85	0.9000	4,834.665
5	5,371.54	0.9000	4,834.386
8	9,233.40	0.9168	8,465.181
5			

	5,373.08	0.8999	4,835.234
8	9,234.99	0.9168	8,466.638
4	4,617.20	0.9168	4,233.048
5	5,369.78	0.9000	4,832.802
5	5,368.23	0.9000	4,831.407
5	5,371.52	0.9000	4,834.368
5	5,367.99	0.9000	4,831.191
5	5,370.36	0.9001	4,833.861
5	5,371.55	0.9000	4,834.395
5	5,368.17	0.9000	4,831.353
5	5,372.87	0.9000	4,835.583
5	5,368.27	0.9000	4,831.443
5	5,369.62	0.8999	4,832.121
5	5,369.87	0.9000	4,832.883
5	5,370.75	0.9000	4,833.675
5	5,370.85	0.8999	4,833.227
5	5,371.30	0.9000	4,834.170
5	5,371.20	0.8999	4,833.542
5	5,373.65	0.8999	4,835.747
5	5,371.13	0.8999	4,833.479
5	5,368.26	0.8999	4,830.897
5	5,367.10	0.8999	4,829.853
5			

		5,371.87	0.9000	4,834.683
	5	5,369.13	0.9000	4,832.217
	5	5,369.98	0.9000	4,832.982
	5	5,371.57	0.9000	4,834.413
	5	5,372.70	0.8999	4,834.892
	5	5,372.76	0.9000	4,835.484
	5	5,371.40	0.9000	4,834.260
	5	5,372.09	0.9000	4,834.881
	5	5,371.32	0.9000	4,834.188
	5	5,372.06	0.9000	4,834.854
	5	5,371.10	0.9000	4,833.990
4329	6	6,142.87	0.8998	5,527.047
4330	6	6,271.02	0.8998	5,642.350
6595	6	6,505.43	0.8998	5,853.260
6593	6	6,532.07	0.8998	5,877.229
6007	6	6,656.05	0.8998	5,988.780
4337	6	6,333.99	0.8998	5,699.007
2806	6	5,989.12	0.8995	5,387.213
4289	6	6,472.38	0.9163	5,930.318
4306	6	6,311.27	0.8998	5,678.565
2807	6	6,008.49	0.8995	5,404.636
4419	6	6,260.24	0.8998	5,632.650
6599	6			

		6,433.76	0.9000	5,790.384
4347	6	6,232.36	0.8998	5,607.565
6596	6	6,549.40	0.9000	5,894.460
4305	6	6,328.06	0.8995	5,692.089
6602	6	6,445.59	0.9000	5,801.031
4291	6	6,365.62	0.8998	5,727.466
4420	6	6,466.32	0.8995	5,816.454
6598	6	6,576.19	0.8998	5,916.926
6601	6	6,483.13	0.8998	5,833.196
4426	6	6,222.88	0.8998	5,599.036
6594	6	6,316.26	0.8998	5,683.054
4346	6	6,340.57	0.8998	5,704.927
4339	6	5,938.27	0.9000	5,344.443
4425	6	6,282.69	0.8998	5,652.850
4304	6	6,232.84	0.8998	5,607.997
4308	6	6,317.91	0.8998	5,684.539
4415	6	6,297.45	0.8998	5,666.130
4424	6	6,119.97	0.8998	5,506.443
2805	6	6,008.86	0.8998	5,406.471
4413	6	6,202.67	0.8998	5,580.852
4320	6	6,396.45	0.9165	5,862.346
4327	6	6,289.94	0.9000	5,660.946
4316	6			

		6,272.60	0.8998	5,643.771
4328	6	6,210.18	0.8998	5,587.609
5989	6	6,277.42	0.8998	5,648.108
4338	6	6,282.95	0.8998	5,653.084
5994	6	6,393.87	0.8998	5,752.884
5992	6	6,650.65	0.8998	5,983.922
4414	6	6,476.90	0.8998	5,827.590
4343	6	6,235.54	0.9000	5,611.986
4418	6	6,234.75	0.8995	5,608.157
5985	6	6,433.35	0.8998	5,788.406
5902	6	6,433.71	0.8998	5,788.730
4334	6	6,360.18	0.8998	5,722.571
4333	6	6,316.78	0.8998	5,683.522
4336	6	6,310.07	0.8998	5,677.485
4417	6	6,355.45	0.8995	5,716.727
4342	6	6,052.67	0.8998	5,445.889
4341	6	6,496.21	0.9000	5,846.589
4345	6	6,254.57	0.8998	5,627.549
5894	6	6,597.64	0.9000	5,937.876
4344	6	6,277.71	0.9000	5,649.939
4416	6	6,308.52	0.8998	5,676.090
4412	6	6,471.45	0.8998	5,822.687
5986	6			

		6,493.95	0.8998	5,842.931
4302	6	6,376.08	0.8995	5,735.283
5903	6	6,468.57	0.8998	5,820.095
4300	6	6,238.29	0.8998	5,612.901
4301	6	6,280.88	0.8998	5,651.221
14319	5	5,714.98	0.9000	5,143.482
14318	5	5,723.18	0.9000	5,150.862
14328	5	5,880.18	0.9000	5,292.162
5988	6	6,597.41	0.9000	5,937.669
5990	6	6,465.87	0.9000	5,819.283
4335	6	6,245.72	0.8998	5,619.586
14710	6	6,969.09	0.8998	6,270.438
14462	7	7,122.12	0.9000	6,409.908
14461	6	6,929.82	0.9000	6,236.838
14535	7	7,166.69	0.8998	6,448.229
14454	6	7,015.06	0.9000	6,313.554
14330	5	5,646.58	0.8998	5,080.510
14334	5	5,468.99	0.8998	4,920.723
14327	5	5,880.48	0.9000	5,292.432
14489	7	7,171.02	0.9000	6,453.918
14496	6	6,912.20	0.8998	6,219.251
14709	6	7,079.50	0.8998	6,369.780
14715	7			

		7,070.56	0.8998	6,361.736
14713	7	7,093.91	0.8998	6,382.745
14708	6	6,857.64	0.8998	6,170.161
14714	6	7,018.21	0.8998	6,314.634
4303	6	6,282.54	0.8998	5,652.715
4290	6	6,548.51	0.9108	5,964.055
14707	6	6,836.05	0.8998	6,150.735
5993	6	6,497.14	0.8998	5,845.801
5987	6	6,560.82	0.9000	5,904.738
14527	6	6,674.86	0.8998	6,005.705
5904	7	6,865.53	0.8998	6,177.260
14533	7	7,106.44	0.8998	6,394.019
5984	6	6,366.00	0.8998	5,727.808
5294	7	6,741.46	0.8995	6,063.943
5298	6	6,606.23	0.8995	5,942.303
4441	3	3,392.26	0.9165	3,109.006
4440	6	6,244.30	0.9165	5,722.900
4313	6	6,144.19	0.8998	5,528.234
4432	6	6,250.21	0.8998	5,623.626
4323	6	5,998.70	0.9163	5,496.308
4430	6	6,464.77	0.8998	5,816.676
5319	7	6,790.75	0.8995	6,108.279
5301	7			

		6,755.25	0.8998	6,078.036
4314	6	6,415.32	0.8998	5,772.184
4318	3	3,331.76	0.8995	2,996.918
5886	6	6,652.36	0.8998	5,985.460
4437	6	6,377.63	0.9165	5,845.097
5891	6	6,467.35	0.8998	5,818.998
5882	6	6,671.69	0.8998	6,002.853
5315	7	6,701.05	0.8998	6,029.269
4435	6	6,336.69	0.8995	5,699.852
4296	6	6,155.05	0.9000	5,539.545
6974	6	6,405.28	0.9000	5,764.752
6616	6	6,007.07	0.9000	5,406.363
4427	6	6,241.83	0.8998	5,616.086
4307	6	6,266.88	0.8998	5,638.625
6614	6	6,433.49	0.9000	5,790.141
14582	7	7,014.91	0.9000	6,313.419
5889	6	6,626.26	0.8998	5,961.977
15478	7	6,956.62	0.9000	6,260.958
14584	7	7,032.48	0.8998	6,327.473
15477	7	7,022.92	0.8998	6,318.872
15469	7	6,886.70	0.8998	6,196.308
5302	7	6,739.85	0.8998	6,064.180
5996	6			

		6,221.82	0.8998	5,598.082
5991	6	6,467.59	0.8998	5,819.214
2804	6	5,980.37	0.8998	5,380.837
5308	7	6,837.85	0.8995	6,150.646
2796	5	5,636.12	0.9000	5,072.508
2198	4	4,301.75	0.9268	3,986.646
2800	5	5,669.13	0.8998	5,100.799
2194	6	5,813.50	0.8998	5,230.696
5309	6	6,505.48	0.8995	5,851.679
5303	7	6,868.23	0.8998	6,179.689
2808	6	5,985.09	0.8995	5,383.588
5300	7	6,779.02	0.8995	6,097.728
5306	7	6,756.41	0.8998	6,079.079
5307	7	6,773.15	0.8998	6,094.141
5881	7	6,767.94	0.8998	6,089.454
5317	7	6,844.34	0.8998	6,158.194
5310	7	6,819.42	0.8995	6,134.068
6002	6	6,300.34	0.8998	5,668.730
2186	6	6,111.53	0.8998	5,498.849
6000	6	6,196.04	0.8995	5,573.337
5995	6	6,233.42	0.9000	5,610.078
5997	6	6,302.05	0.8995	5,668.693
5983	6			

		6,576.12	0.9000	5,918.508
4431	6	6,252.02	0.8998	5,625.254
4438	6	6,236.00	0.9165	5,715.294
4315	6	6,119.72	0.8995	5,504.688
5898	6	6,475.05	0.9000	5,827.545
5900	6	6,494.61	0.8998	5,843.525
5314	6	6,542.84	0.8998	5,886.920
5901	6	6,568.46	0.8998	5,909.971
5905	6	6,541.11	0.8998	5,885.363
5899	6	6,569.04	0.8998	5,910.493
5897	6	6,455.87	0.9000	5,810.283
5890	7	6,778.51	0.8998	6,098.964
5895	6	6,502.82	0.9000	5,852.538
2185	6	6,105.55	0.8998	5,493.468
2184	6	6,090.45	0.8998	5,479.882
6610	6	6,393.63	0.8998	5,752.668
6619	6	6,270.47	0.8998	5,641.855
2178	6	6,111.27	0.8998	5,498.615
2189	6	6,094.46	0.9000	5,485.014
2187	6	6,102.84	0.8998	5,491.030
6001	6	6,255.20	0.8995	5,626.552
5998	6	6,300.80	0.8995	5,667.569
2182	6			

		6,102.27	0.8998	5,490.517
2188	6	6,104.30	0.8998	5,492.343
2183	6	6,112.07	0.8998	5,499.334
2172	6	5,797.81	0.8998	5,216.579
2179	6	6,354.23	0.8998	5,717.218
2181	6	6,104.25	0.8998	5,492.298
2180	6	6,094.42	0.8998	5,483.454
4434	6	6,374.45	0.8998	5,735.411
4433	6	6,342.50	0.8998	5,706.664
6613	6	6,648.93	0.9003	5,985.699
2170	6	5,827.00	0.8998	5,242.843
6611	6	6,391.84	0.9000	5,752.656
6606	6	6,582.77	0.8998	5,922.847
6618	6	6,220.71	0.8998	5,597.083
6977	6	6,762.18	0.8998	6,084.271
	5	5,370.84	0.8999	4,833.218
6612	6	6,555.51	0.9000	5,899.959
6608	6	6,493.10	0.8998	5,842.166
6615	6	6,425.54	0.8998	5,781.379
13694	7	7,245.20	0.9000	6,520.680
6992	6	6,671.17	0.8998	6,002.385
	5	5,369.69	0.9000	4,832.721
	5			

		5,369.25	0.9000	4,832.325
13697	7	7,005.08	0.8998	6,302.820
6994	6	6,813.82	0.8998	6,130.734
6988	6	6,783.53	0.8998	6,103.481
6987	6	6,772.58	0.8998	6,093.628
6993	6	6,786.05	0.8998	6,105.748
	5	5,370.30	0.9001	4,833.807
700	6	6,413.42	0.9166	5,878.540
6997	6	6,588.72	0.8998	5,928.200
6991	6	6,801.30	0.8998	6,119.469
6996	6	6,788.94	0.8998	6,108.348
6998	6	6,625.18	0.8998	5,961.005
6979	6	6,811.63	0.8998	6,128.764
7000	5	4,853.10	0.8998	4,366.576
4292	6	6,307.21	0.9000	5,676.489
4293	6	6,335.42	0.9000	5,701.878
6999	6	6,850.74	0.8998	6,163.953
6995	6	6,560.70	0.8998	5,902.989
2809	6	6,008.50	0.9068	5,448.207
4299	6	6,211.68	0.8995	5,587.406
6976	6	6,862.19	0.8998	6,174.255
6620	6	6,277.07	0.8998	5,647.793
6980	6			

		6,589.50	0.8998	5,928.902
6989	6	6,791.44	0.8998	6,110.598
6621	6	6,101.03	0.8998	5,489.401
6617	6	6,278.69	0.8998	5,649.251
6986	6	6,658.66	0.8998	5,991.129
6983	6	6,829.17	0.8998	6,144.545
6990	6	6,603.62	0.8998	5,941.607
4295	6	6,308.79	0.9000	5,677.911
4294	6	6,448.02	0.8998	5,801.605
6982	6	6,629.33	0.8998	5,964.739
6978	6	6,747.19	0.8998	6,070.784
6975	6	6,703.68	0.8998	6,031.636
6981	6	6,822.32	0.8998	6,138.382
6597	6	6,438.55	0.9000	5,794.695
6604	6	6,626.51	0.9000	5,963.859
4322	6	6,331.12	0.9165	5,802.471
4326	6	6,206.82	0.9000	5,586.138
4325	6	6,308.65	0.9000	5,677.785
4319	6	6,301.14	0.9165	5,774.994
6603	6	6,611.48	0.9000	5,950.332
14712	7	7,073.42	0.8998	6,364.309
15480	7	7,119.63	0.8998	6,405.887
14539	7			

		7,158.32	0.8998	6,440.698
14547	6	6,997.00	0.8998	6,295.550
14536	7	7,172.37	0.8998	6,453.339
15492	6	6,405.87	0.9075	5,813.327
15481	7	7,130.89	0.8998	6,416.018
14716	7	7,061.29	0.8998	6,353.395
14538	7	7,190.10	0.9000	6,471.090
14542	6	6,984.99	0.8998	6,284.744
14532	7	7,121.44	0.8998	6,407.515
15470	7	6,946.59	0.8998	6,250.194
14730	6	7,057.83	0.8998	6,350.282
14727	6	6,958.18	0.8998	6,260.622
15471	7	7,149.53	0.8998	6,432.789
14723	7	6,978.54	0.8998	6,278.941
14724	7	6,917.96	0.8998	6,224.434
14583	6	6,946.13	0.8998	6,249.780
14711	7	7,100.69	0.8998	6,388.845
14537	7	7,191.54	0.8998	6,470.588
14540	7	7,096.38	0.8998	6,384.967
	5	5,372.38	0.9000	4,835.142
	5	5,372.25	0.8999	4,834.487
6609	6	6,439.06	0.8998	5,793.544
6600	6			

		6,411.91	0.8998	5,769.116
6605	6	6,475.90	0.8998	5,826.691
15484	7	7,141.55	0.8998	6,425.609
15474	7	7,074.92	0.8998	6,365.659
4321	6	6,222.80	0.9163	5,701.640
6607	6	6,428.75	0.8998	5,784.267
4324	6	6,273.37	0.8995	5,642.896
14722	7	7,082.97	0.8998	6,372.902
15472	7	7,018.75	0.8998	6,315.120
15468	7	7,019.60	0.8998	6,315.885
15476	7	7,152.28	0.9000	6,437.052
	5	5,371.71	0.9000	4,834.539
	5	5,373.33	0.9000	4,835.997
	5	5,371.44	0.9000	4,834.296
	5	5,368.13	0.9000	4,831.317
	5	5,372.18	0.9000	4,834.962
	5	5,372.09	0.9000	4,834.881
	5	5,370.53	0.9000	4,833.477
	5	5,372.34	0.9000	4,835.106
	5	5,370.73	0.8999	4,833.119
	5	5,372.85	0.9000	4,835.565
	5	5,369.75	0.9000	4,832.775
	5			

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		5,370.67	0.9001	4,834.140
	5	5,372.94	0.9000	4,835.646
	5	5,369.52	0.9000	4,832.568
	5	5,370.14	0.9000	4,833.126
	5	5,370.93	0.9000	4,833.837
04348	4	4,400.57	0.8998	3,959.412
15473	7	7,036.41	0.9000	6,332.769
02174	6	6,117.75	0.8998	5,504.445
13621	5	5,622.78	0.9000	5,060.502
06985	6	6,738.21	0.8998	6,062.704
	5	5,369.43	0.9000	4,832.487
	5	5,372.65	0.8999	4,834.847
	5	5,372.52	0.8999	4,834.730
	5	5,371.74	0.9000	4,834.566
	5	5,371.79	0.9000	4,834.611
	5	5,372.56	0.8999	4,834.766
	5	5,378.95	0.9000	4,841.055
04439	6	6,268.35	0.9165	5,744.942
	5	5,367.47	0.8999	4,830.186
	5	5,369.04	0.9001	4,832.672
	5	5,366.72	0.9000	4,830.048
04310	6	6,314.87	0.9000	5,683.383
14452	6			

		6,959.18	0.8998	6,261.522
13698	7	7,261.33	0.9000	6,535.197
13699	7	7,215.87	0.9000	6,494.283
13696	7	7,200.66	0.8998	6,478.793
13700	7	7,051.23	0.8998	6,344.344
	5	5,372.49	0.9000	4,835.241
	5	5,370.56	0.8999	4,832.966
	5	5,369.26	0.8999	4,831.797
	5	5,369.47	0.9001	4,833.059
	5	5,371.64	0.9000	4,834.476
	5	5,370.20	0.9000	4,833.180
	5	5,343.40	0.9001	4,809.594
	5	5,370.35	0.9000	4,833.315
	5	5,370.36	0.9000	4,833.324
	5	5,371.84	0.9000	4,834.656
	5	5,369.94	0.9000	4,832.946
	5	5,374.68	0.9000	4,837.212
	5	5,371.63	0.9000	4,834.467
	5	5,373.31	0.9000	4,835.979
	5	5,372.80	0.8999	4,834.982
	5	5,374.70	0.8999	4,836.692
	5	5,373.03	0.9000	4,835.727
	5			

	5,370.90	0.9000	4,833.810
5	5,370.79	0.9001	4,834.248
5	5,372.29	0.9000	4,835.061
5	5,372.13	0.9000	4,834.917
5	5,370.18	0.9000	4,833.162
5	5,375.02	0.9000	4,837.518
5	5,370.30	0.8999	4,832.732
5	5,369.37	0.9000	4,832.433
5	5,370.17	0.9000	4,833.153
5	5,373.89	0.9001	4,837.038
5	5,372.82	0.9001	4,836.075
5	5,372.32	0.9000	4,835.088
5	5,371.50	0.8999	4,833.812
5	5,370.09	0.8999	4,832.543
5	5,370.18	0.9000	4,833.162
5	5,371.61	0.9000	4,834.449
5	5,371.03	0.9000	4,833.927
5	5,373.32	0.9000	4,835.988
5	5,370.11	0.8999	4,832.561
5	5,372.27	0.9001	4,835.580
5	5,371.33	0.9000	4,834.197
5	5,369.65	0.8999	4,832.148
5			

	5,372.41	0.8999	4,834.631
5	5,371.29	0.9000	4,834.161
5	5,371.02	0.8999	4,833.380
5	5,371.20	0.8999	4,833.542
5	5,371.07	0.9000	4,833.963
5	5,368.92	0.9000	4,832.028
5	5,368.27	0.9000	4,831.443
5	5,369.09	0.8999	4,831.644
5	5,370.37	0.8999	4,832.795
5	5,367.60	0.8999	4,830.303
5	5,371.11	0.9000	4,833.999
5	5,375.12	0.9000	4,837.608
5	5,369.90	0.8999	4,832.373
5	5,372.60	0.8999	4,834.802
5	5,373.64	0.9000	4,836.276
5	5,372.06	0.9000	4,834.854
5	5,370.63	0.9000	4,833.567
5	5,373.52	0.8999	4,835.630
5	5,370.73	0.8999	4,833.119
5	5,374.13	0.8999	4,836.179
5	5,371.15	0.8999	4,833.497
5	5,372.62	0.9000	4,835.358
5			

	5,370.93	0.9000	4,833.837
5	5,371.97	0.9000	4,834.773
5	5,371.72	0.9000	4,834.548
5	5,369.84	0.9000	4,832.856
5	5,369.42	0.9001	4,833.014
5	5,370.78	0.9000	4,833.702
5	5,368.90	0.9000	4,832.010
5	5,370.70	0.8999	4,833.092
5	5,370.85	0.9000	4,833.765
5	5,370.15	0.9000	4,833.135
5	5,373.62	0.9000	4,836.258
5	5,394.72	0.8999	4,854.708
5	5,368.45	0.8999	4,831.068
5	5,372.13	0.9000	4,834.917
5	5,374.03	0.8999	4,836.089
5	5,370.78	0.9000	4,833.702
5	5,369.55	0.9000	4,832.595
5	5,374.49	0.9000	4,837.041
5	5,372.61	0.8999	4,834.811
5	5,371.70	0.9000	4,834.530
5	5,373.69	0.9000	4,836.321
5	5,370.47	0.9000	4,833.423
5			

		5,369.38	0.8999	4,831.905
	5	5,369.13	0.8999	4,831.680
	5	5,372.31	0.9000	4,835.079
	5	5,369.94	0.9000	4,832.946
	5	5,371.94	0.8999	4,834.208
	5	5,371.32	0.9000	4,834.188
	5	5,368.70	0.8999	4,831.293
	5	5,370.25	0.8999	4,832.687
	5	5,371.25	0.8999	4,833.587
	5	5,375.42	0.9000	4,837.878
	5	5,377.24	0.8999	4,838.978
	5	5,373.09	0.9000	4,835.781
	5	5,366.66	0.9001	4,830.530
	5	5,368.77	0.9000	4,831.893
	5	5,370.13	0.9000	4,833.117
	5	5,369.21	0.9000	4,832.289
	5	5,374.89	0.9000	4,837.401
	5	5,369.94	0.8999	4,832.409
	5	5,371.17	0.8999	4,833.515
	5	5,370.55	0.9001	4,834.032
	5	5,371.14	0.9000	4,834.026
800	5	7,651.83	0.8997	6,884.351
787	6			

		9,260.88	0.8998	8,332.939
802	6	9,171.96	0.8998	8,252.929
803	3	4,692.04	0.8997	4,221.428
788	6	9,105.21	0.8998	8,192.867
723	6	8,807.56	0.9000	7,926.804
678	3	4,413.16	0.8998	3,970.961
801	5	7,644.73	0.8997	6,877.963
532	3	4,408.51	0.8999	3,967.218
533	3	4,404.23	0.8998	3,962.926
645	4	5,856.59	0.8999	5,270.345
535	3	4,413.69	0.9000	3,972.321
641	6	9,091.10	0.8998	8,180.171
644	5	7,384.45	0.8999	6,645.266
640	3	4,544.39	0.8999	4,089.496
647	6	9,140.99	0.9166	8,378.631
646	6	8,832.71	0.8998	7,947.672
706	3	4,401.73	0.8999	3,961.116
785	5	7,686.29	0.8998	6,916.123
483	6	8,806.43	0.8999	7,924.906
786	5	7,704.46	0.8998	6,932.473
652	6	9,083.26	0.8998	8,173.117
720	6	8,809.01	0.8999	7,927.228
675	6			

		8,840.22	0.8998	7,954.429
484	6	8,827.09	0.8999	7,943.498
485	6	8,812.11	0.8999	7,930.017
677	6	8,828.91	0.8999	7,945.136
676	6	8,842.08	0.8998	7,956.103
821	3	4,419.16	0.8998	3,976.360
838	3	4,406.99	0.8999	3,965.850
839	3	4,411.03	0.9000	3,969.927
482	3	4,417.86	0.8999	3,975.632
842	4	5,716.94	0.9000	5,145.246
840	3	4,434.95	0.8999	3,991.011
841	5	7,543.39	0.9000	6,789.051
822	6	8,867.88	0.9000	7,981.092
820	6	8,808.56	0.9000	7,927.704
	1	1,346.72	0.9000	1,212.048
837	3	4,409.81	0.9000	3,968.829
650	6	9,229.16	0.9166	8,459.448
653	6	9,129.66	0.8998	8,214.868
651	6	8,723.91	0.9166	7,996.335
531	3	4,406.61	0.8998	3,965.067
490	3	4,418.98	0.9000	3,977.082
487	6	8,817.61	0.8999	7,934.967
486	6			

		8,830.81	0.8999	7,946.845
642	3	4,571.27	0.8999	4,113.685
534	3	4,414.33	0.8999	3,972.455
799	5	7,609.90	0.8997	6,846.627
798	6	9,198.65	0.8998	8,276.945
796	6	9,204.86	0.9167	8,438.095
654	3	4,537.54	0.9000	4,083.786
789	3	4,612.95	0.9166	4,228.229
712	3	4,406.35	0.8999	3,965.274
672	3	4,403.29	0.8999	3,962.520
674	3	4,413.42	0.8998	3,971.195
794	3	4,614.40	0.9166	4,229.559
710	2	3,230.73	0.8998	2,907.010
791	3	4,607.90	0.9168	4,224.522
657	7	8,829.86	0.8999	7,945.991
655	6	9,115.04	0.8999	8,202.624
711	7	9,987.85	0.8998	8,987.067
797	6	9,196.21	0.8998	8,274.749
721	6	8,808.11	0.8999	7,926.418
795	6	9,217.96	0.9167	8,450.103
648	3	4,722.72	0.9167	4,329.317
643	3	3,681.80	0.9156	3,371.056
792	6			

		9,218.83	0.9167	8,450.901
793	6	9,219.64	0.9168	8,452.565
656	3	4,566.76	0.8998	4,109.170
673	6	8,796.87	0.9000	7,917.183
709	6	8,825.51	0.9000	7,942.959
707	6	8,815.49	0.9000	7,933.941
649	6	9,218.99	0.9167	8,451.048
708	3	4,411.96	0.8999	3,970.322
790	3	4,612.14	0.9167	4,227.948
722	3	4,403.31	0.9000	3,962.979
	8	8,804.69	0.9000	7,924.221
645	1	23.70	0.8997	21.322
643	1	53.65	0.8998	48.274
659	1	112.78	0.8996	101.456
683	1	131.43	0.8997	118.247
685	1	257.42	0.8997	231.600
17168	1	402.40	0.9999	402.360
17287	1	402.20	0.9999	402.160
17286	1	399.90	0.9999	399.860
17149	1	408.25	0.9999	408.209
17148	1	398.85	0.9999	398.810
17223	1	409.48	0.9999	409.434
17222	1			

		396.88	0.9999	396.835
17216	1	379.88	0.9999	379.837
17217	1	402.95	0.9999	402.910
17122	1	397.08	0.9999	397.035
17169	1	398.63	0.9999	398.585
17206	1	407.38	0.9999	407.334
17142	1	404.40	0.9999	404.360
17203	1	409.50	0.9999	409.459
17175	1	413.80	0.9999	413.759
17163	1	401.05	0.9999	401.010
17162	1	397.90	0.9999	397.860
17130	1	407.05	0.9999	407.009
17131	1	406.28	0.9999	406.234
17281	1	422.90	0.9999	422.858
17126	1	413.70	0.9999	413.659
17167	1	406.10	0.9999	406.059
17187	1	393.05	0.9999	393.011
17279	1	393.03	0.9999	392.986
17186	1	399.58	0.9999	399.535
17331	1	424.20	0.9999	424.158
17332	1	393.35	0.9999	393.311
17146	1	380.78	0.9999	380.737
17147	1			

		401.03	0.9999	400.985
17207	1	394.78	0.9999	394.736
17127	1	398.78	0.9999	398.735
17102	1	415.33	0.9999	415.283
17275	1	408.13	0.9999	408.084
17112	1	410.28	0.9999	410.234
17296	1	426.35	0.9999	426.307
17140	1	406.53	0.9999	406.484
17141	1	422.35	0.9999	422.308
17123	1	397.35	0.9999	397.310
17106	1	388.55	0.9999	388.511
17107	1	390.93	0.9999	390.886
17180	1	396.75	0.9999	396.710
17274	1	401.00	0.9999	400.960
17181	1	404.40	0.9999	404.360
17108	1	396.20	0.9999	396.160
17109	1	423.65	0.9999	423.608
17225	1	407.53	0.9999	407.484
17267	1	407.00	0.9999	406.959
17121	1	409.50	0.9999	409.459
17120	1	404.38	0.9999	404.335
17150	1	398.78	0.9999	398.735
17119	1			

		392.13	0.9999	392.086
17191	1	419.53	0.9999	419.483
17118	1	398.80	0.9999	398.760
17198	1	399.20	0.9999	399.160
17343	1	393.15	0.9999	393.111
17190	1	398.35	0.9999	398.310
17199	1	420.55	0.9999	420.508
17176	1	407.40	0.9999	407.359
17212	1	411.30	0.9999	411.259
17164	1	408.38	0.9999	408.334
17220	1	395.65	0.9999	395.610
17314	1	404.15	0.9999	404.110
17292	1	424.03	0.9999	423.983
17211	1	390.80	0.9999	390.761
17178	1	404.10	0.9999	404.060
17201	1	397.20	0.9999	397.160
17114	1	395.10	0.9999	395.060
17132	1	399.73	0.9999	399.685
17137	1	398.03	0.9999	397.985
17213	1	381.50	0.9999	381.462
17221	1	380.23	0.9999	380.187
17152	1	408.03	0.9999	407.984
17155	1			

		405.70	0.9999	405.659
17153	1	397.33	0.9999	397.285
17328	1	380.00	0.9999	379.962
17165	1	392.28	0.9999	392.236
17200	1	397.38	0.9999	397.335
17342	1	404.10	0.9999	404.060
17266	1	390.13	0.9999	390.086
17113	1	402.75	0.9999	402.710
17621	1	396.23	0.9999	396.185
17665	1	401.63	0.9999	401.585
17558	1	406.33	0.9999	406.289
17658	1	406.40	0.9999	406.359
17682	1	402.35	0.9999	402.310
17532	1	406.60	0.9999	406.559
17630	1	401.00	0.9999	400.960
17667	1	406.13	0.9999	406.084
17709	1	406.35	0.9999	406.309
17666	1	395.50	0.9999	395.460
17651	1	406.38	0.9999	406.334
17559	1	424.90	0.9999	424.857
17560	1	406.38	0.9999	406.339
17561	1	394.53	0.9999	394.490
17562	1			

		403.98	0.9999	403.939
17557	1	418.68	0.9999	418.638
17563	1	397.40	0.9999	397.360
17570	1	412.88	0.9999	412.838
17571	1	397.50	0.9999	397.460
17572	1	409.43	0.9999	409.389
50531	1	379.63	0.9999	379.592
50526	1	372.85	0.9999	372.812
17565	1	394.88	0.9999	394.840
17577	1	400.38	0.9999	400.339
17569	1	426.15	0.9999	426.107
17578	1	421.08	0.9999	421.037
17576	1	402.25	0.9999	402.209
17574	1	424.18	0.9999	424.137
17575	1	410.90	0.9999	410.858
17573	1	405.73	0.9999	405.689
50540	1	388.25	0.9999	388.211
50533	1	374.78	0.9999	374.742
50525	1	377.90	0.9999	377.862
50534	1	387.85	0.9999	387.811
50528	1	412.00	0.9999	411.958
17564	1	396.98	0.9999	396.940
50527	1			

		407.33	0.9999	407.289
50536	1	378.63	0.9999	378.592
50538	1	393.43	0.9999	393.390
50535	1	398.03	0.9999	397.990
17740	1	386.28	0.9999	386.236
17552	1	424.65	0.9999	424.608
17553	1	423.23	0.9999	423.183
17684	1	420.30	0.9999	420.258
17677	1	386.68	0.9999	386.636
17856	1	399.45	0.9999	399.410
17650	1	409.00	0.9999	408.959
17670	1	414.38	0.9999	414.334
17535	1	419.20	0.9999	419.158
17686	1	420.68	0.9999	420.633
17720	1	409.00	0.9999	408.959
17878	1	401.18	0.9999	401.135
17566	1	407.75	0.9999	407.709
17567	1	422.98	0.9999	422.937
50537	1	370.55	0.9999	370.512
50541	1	369.43	0.9999	369.393
50532	1	373.15	0.9999	373.112
17568	1	424.38	0.9999	424.337
50530	1			

		419.13	0.9999	419.088
50539	1	403.15	0.9999	403.109
17171	1	396.93	0.9999	396.885
17202	1	380.78	0.9999	380.737
17271	1	414.78	0.9999	414.734
17270	1	410.40	0.9999	410.359
17158	1	418.80	0.9999	418.758
17157	1	413.33	0.9999	413.284
17329	1	416.70	0.9999	416.658
17311	1	408.20	0.9999	408.159
17659	1	419.33	0.9999	419.283
17702	1	408.65	0.9999	408.609
17170	1	376.53	0.9999	376.487
17313	1	401.35	0.9999	401.310
17177	1	394.50	0.9999	394.461
17103	1	388.08	0.9999	388.036
17210	1	385.30	0.9999	385.261
17110	1	403.73	0.9999	403.685
17193	1	412.70	0.9999	412.659
17192	1	396.05	0.9999	396.010
17335	1	378.68	0.9999	378.637
17204	1	403.48	0.9999	403.435
17550	1			

		415.83	0.9999	415.783
17612	1	391.85	0.9999	391.811
17638	1	413.43	0.9999	413.384
17636	1	409.28	0.9999	409.234
17640	1	410.65	0.9999	410.609
17685	1	412.38	0.9999	412.334
17646	1	410.65	0.9999	410.609
17615	1	414.15	0.9999	414.109
17676	1	387.23	0.9999	387.186
17848	1	414.68	0.9999	414.634
17619	1	411.13	0.9999	411.084
17543	1	390.13	0.9999	390.086
17738	1	388.05	0.9999	388.011
17725	1	411.95	0.9999	411.909
17627	1	409.88	0.9999	409.834
17879	1	422.30	0.9999	422.258
17654	1	409.98	0.9999	409.934
17653	1	410.08	0.9999	410.034
17660	1	411.43	0.9999	411.384
17861	1	420.45	0.9999	420.408
9901392	1	400.09	0.9999	400.049
9901394	1	400.09	0.9999	400.049
17530	1			

		392.25	0.9999	392.211
17662	1	415.68	0.9999	415.633
17907	1	399.03	0.9999	398.985
17626	1	387.55	0.9999	387.511
17639	1	411.80	0.9999	411.759
17690	1	412.43	0.9999	412.384
17616	1	413.65	0.9999	413.609
17854	1	415.25	0.9999	415.208
9901401	1	400.08	0.9999	400.039
9901400	1	400.08	0.9999	400.039
9901383	1	400.09	0.9999	400.049
9901398	1	400.09	0.9999	400.049
9901384	1	400.10	0.9999	400.059
9901395	1	400.09	0.9999	400.049
9901391	1	400.10	0.9999	400.059
9901382	1	400.10	0.9999	400.059
9901393	1	400.10	0.9999	400.059
9901397	1	400.09	0.9999	400.049
17681	1	404.88	0.9999	404.835
17582	1	405.33	0.9999	405.284
17554	1	403.60	0.9999	403.560
17625	1	405.55	0.9999	405.509
17672	1			

		404.45	0.9999	404.410
17624	1	402.85	0.9999	402.810
17539	1	393.88	0.9999	393.836
9901380	1	400.10	0.9999	400.059
9901402	1	400.09	0.9999	400.049
9901381	1	400.10	0.9999	400.059
17551	1	407.38	0.9999	407.334
17707	1	408.23	0.9999	408.184
17531	1	385.10	0.9999	385.061
17548	1	397.00	0.9999	396.960
17631	1	401.90	0.9999	401.860
17696	1	398.38	0.9999	398.335
17680	1	405.80	0.9999	405.759
17620	1	396.25	0.9999	396.210
17542	1	394.70	0.9999	394.661
17701	1	410.33	0.9999	410.284
17541	1	381.20	0.9999	381.162
17743	1	398.85	0.9999	398.810
17645	1	403.10	0.9999	403.060
17745	1	395.28	0.9999	395.235
17644	1	405.93	0.9999	405.884
17549	1	401.38	0.9999	401.335
17546	1			

		393.80	0.9999	393.761
17668	1	396.83	0.9999	396.785
17623	1	393.75	0.9999	393.711
17547	1	401.20	0.9999	401.160
17674	1	383.40	0.9999	383.362
17675	1	394.98	0.9999	394.936
17628	1	402.10	0.9999	402.060
17710	1	403.35	0.9999	403.310
17648	1	406.80	0.9999	406.759
17715	1	402.73	0.9999	402.685
17683	1	403.80	0.9999	403.760
17637	1	406.45	0.9999	406.409
17655	1	397.65	0.9999	397.610
17622	1	407.30	0.9999	407.259
17128	1	414.63	0.9999	414.584
17129	1	409.20	0.9999	409.159
17116	1	408.93	0.9999	408.884
17195	1	405.58	0.9999	405.534
17188	1	403.53	0.9999	403.485
17205	1	385.70	0.9999	385.661
17209	1	404.60	0.9999	404.560
17143	1	389.98	0.9999	389.936
17138	1			

		375.38	0.9999	375.337
17156	1	396.90	0.9999	396.860
17273	1	416.80	0.9999	416.758
17145	1	403.65	0.9999	403.610
17174	1	407.83	0.9999	407.784
17272	1	402.88	0.9999	402.835
17173	1	402.50	0.9999	402.460
17105	1	385.45	0.9999	385.411
17104	1	394.40	0.9999	394.361
17197	1	392.08	0.9999	392.036
17219	1	411.88	0.9999	411.834
17182	1	389.50	0.9999	389.461
17117	1	400.23	0.9999	400.185
17218	1	401.85	0.9999	401.810
17189	1	411.10	0.9999	411.059
17161	1	409.93	0.9999	409.884
17160	1	396.60	0.9999	396.560
17194	1	408.20	0.9999	408.159
17185	1	418.80	0.9999	418.758
17300	1	407.15	0.9999	407.109
17151	1	389.68	0.9999	389.636
17183	1	419.98	0.9999	419.933
17139	1			

		416.58	0.9999	416.533
17269	1	407.05	0.9999	407.009
17154	1	411.68	0.9999	411.634
17318	1	397.48	0.9999	397.435
17338	1	397.60	0.9999	397.560
17111	1	402.18	0.9999	402.135
17679	1	385.85	0.9999	385.811
17713	1	419.75	0.9999	419.708
17533	1	408.43	0.9999	408.384
17699	1	418.38	0.9999	418.333
17652	1	415.93	0.9999	415.883
17687	1	418.65	0.9999	418.608
17732	1	424.23	0.9999	424.183
17698	1	416.70	0.9999	416.658
17634	1	416.15	0.9999	416.108
17641	1	418.90	0.9999	418.858
17635	1	423.63	0.9999	423.583
17737	1	386.60	0.9999	386.561
17711	1	416.70	0.9999	416.658
17671	1	420.45	0.9999	420.408
17657	1	418.13	0.9999	418.083
17656	1	424.83	0.9999	424.783
17914	1			

		401.15	0.9999	401.110
17728	1	422.95	0.9999	422.908
17718	1	420.65	0.9999	420.608
17722	1	407.88	0.9999	407.834
17614	1	423.93	0.9999	423.883
9901390	1	400.10	0.9999	400.059
1552	1	401.38	0.9999	401.339
1553	1	401.35	0.9999	401.309
1549	1	402.28	0.9999	402.239
1546	1	404.55	0.9999	404.509
9901385	1	400.10	0.9999	400.059
9901396	1	400.09	0.9999	400.049
9901387	1	400.09	0.9999	400.049
9901386	1	400.09	0.9999	400.049
9901399	1	400.08	0.9999	400.039
9901388	1	400.10	0.9999	400.059
9901389	1	400.10	0.9999	400.059
17692	1	409.33	0.9999	409.284
1551	1	401.85	0.9999	401.809
1545	1	404.90	0.9999	404.859
1555	1	401.18	0.9999	401.139
1548	1	402.68	0.9999	402.639
1547	1			

		403.25	0.9999	403.209
17664	1	421.80	0.9999	421.758
17884	1	399.40	0.9999	399.360
17647	1	420.48	0.9999	420.433
1554	1	401.18	0.9999	401.139
1550	1	401.90	0.9999	401.859
17580	1	403.28	0.9999	403.235
17537	1	379.05	0.9999	379.012
17673	1	401.60	0.9999	401.560
17708	1	407.73	0.9999	407.684
17538	1	403.75	0.9999	403.710
17678	1	398.25	0.9999	398.210
17749	1	377.40	0.9999	377.362
17633	1	397.98	0.9999	397.935
17661	1	403.70	0.9999	403.660
17583	1	397.10	0.9999	397.060
17746	1	396.53	0.9999	396.485
17748	1	394.83	0.9999	394.786
17617	1	394.83	0.9999	394.786
17642	1	394.90	0.9999	394.861
17540	1	396.68	0.9999	396.635
17643	1	400.23	0.9999	400.185
17741	1			

		401.45	0.9999	401.410
1045	1	403.03	0.9999	402.989
1212	1	402.30	0.9999	402.259
1220	1	400.05	0.9999	400.009
1218	1	400.85	0.9999	400.809
1214	1	401.45	0.9999	401.409
1216	1	401.15	0.9999	401.109
1043	1	403.65	0.9999	403.609
1213	1	402.05	0.9999	402.009
1217	1	401.00	0.9999	400.959
16725	1	420.05	0.9999	420.007
1215	1	401.18	0.9999	401.139
1048	1	401.93	0.9999	401.889
1047	1	402.73	0.9999	402.689
1219	1	400.75	0.9999	400.709
1049	1	402.00	0.9999	401.959
1051	1	401.75	0.9999	401.709
1042	1	403.78	0.9999	403.739
1050	1	401.85	0.9999	401.809
1046	1	402.78	0.9999	402.739
1044	1	403.20	0.9999	403.159
16728	1	406.08	0.9999	406.039
16620	1			

		403.83	0.9999	403.789
16633	1	423.40	0.9999	423.357
16732	1	412.13	0.9999	412.088
16735	1	412.33	0.9999	412.288
16733	1	426.15	0.9999	426.107
16734	1	398.85	0.9999	398.810
16724	1	404.10	0.9999	404.059
16722	1	386.30	0.9999	386.261
50357	1	393.33	0.9999	393.290
50358	1	404.15	0.9999	404.109
16721	1	396.33	0.9999	396.290
16741	1	420.78	0.9999	420.737
16730	1	394.40	0.9999	394.360
16731	1	389.43	0.9999	389.391
16634	1	421.88	0.9999	421.837
16727	1	397.80	0.9999	397.760
16729	1	398.13	0.9999	398.090
16726	1	398.08	0.9999	398.040
16723	1	397.83	0.9999	397.790
16618	1	382.38	0.9999	382.341
16619	1	400.45	0.9999	400.409
16737	1	411.93	0.9999	411.888
17144	1			

		416.85	0.9999	416.808
1358	1	400.75	0.9999	400.709
1359	1	400.65	0.9999	400.609
1362	1	399.25	0.9999	399.210
1364	1	403.30	0.9999	403.259
1361	1	400.05	0.9999	400.009
1363	1	407.00	0.9999	406.959
16739	1	392.25	0.9999	392.210
16736	1	404.75	0.9999	404.709
16738	1	396.98	0.9999	396.940
17124	1	413.25	0.9999	413.209
17125	1	403.28	0.9999	403.235
17196	1	414.83	0.9999	414.784
17159	1	412.18	0.9999	412.134
17172	1	406.70	0.9999	406.659
17321	1	376.10	0.9999	376.062
17134	1	398.45	0.9999	398.410
17184	1	406.83	0.9999	406.784
17135	1	416.23	0.9999	416.183
17268	1	410.45	0.9999	410.409
1372	1	401.53	0.9999	401.489
1367	1	402.05	0.9999	402.009
1366	1			

		402.30	0.9999	402.259
1371	1	401.33	0.9999	401.289
1369	1	401.65	0.9999	401.609
1370	1	401.58	0.9999	401.539
49408	1	394.13	0.9999	394.085
49427	1	397.10	0.9999	397.060
49448	1	391.00	0.9999	390.961
49444	1	369.73	0.9999	369.688
1365	1	403.30	0.9999	403.259
1368	1	401.80	0.9999	401.759
17316	1	398.55	0.9999	398.510
17322	1	400.98	0.9999	400.935
17317	1	404.98	0.9999	404.935
17330	1	406.18	0.9999	406.134
17280	1	391.33	0.9999	391.286
17302	1	403.18	0.9999	403.135
17301	1	392.75	0.9999	392.711
17319	1	395.28	0.9999	395.235
17278	1	406.65	0.9999	406.609
17309	1	416.00	0.9999	415.958
17303	1	415.03	0.9999	414.983
17304	1	406.83	0.9999	406.784
17297	1			

		413.03	0.9999	412.984
17294	1	401.83	0.9999	401.785
17312	1	415.58	0.9999	415.533
17315	1	387.53	0.9999	387.486
17337	1	390.78	0.9999	390.736
17285	1	414.78	0.9999	414.734
17308	1	391.23	0.9999	391.186
17307	1	411.28	0.9999	411.234
17299	1	392.75	0.9999	392.711
17334	1	397.03	0.9999	396.985
17333	1	401.63	0.9999	401.585
17336	1	393.85	0.9999	393.811
17284	1	397.18	0.9999	397.135
17344	1	391.00	0.9999	390.961
17341	1	404.50	0.9999	404.460
17734	1	397.68	0.9999	397.635
17747	1	380.30	0.9999	380.262
17721	1	424.28	0.9999	424.233
17327	1	415.28	0.9999	415.233
17288	1	400.68	0.9999	400.635
17727	1	422.15	0.9999	422.108
17305	1	404.38	0.9999	404.335
17306	1			

		406.73	0.9999	406.684
17339	1	402.93	0.9999	402.885
17340	1	394.28	0.9999	394.236
17731	1	409.93	0.9999	409.884
17736	1	398.65	0.9999	398.610
17730	1	422.25	0.9999	422.208
17693	1	410.40	0.9999	410.359
17735	1	397.05	0.9999	397.010
17536	1	410.65	0.9999	410.609
17323	1	406.40	0.9999	406.359
17277	1	386.80	0.9999	386.761
17293	1	406.33	0.9999	406.284
17179	1	404.70	0.9999	404.660
17688	1	402.48	0.9999	402.435
17618	1	401.58	0.9999	401.535
17610	1	405.40	0.9999	405.359
17544	1	396.83	0.9999	396.785
17632	1	395.95	0.9999	395.910
17733	1	425.00	0.9999	424.958
17290	1	407.35	0.9999	407.309
17291	1	399.18	0.9999	399.135
17320	1	387.58	0.9999	387.536
17282	1			

		412.75	0.9999	412.709
17663	1	405.35	0.9999	405.309
17581	1	398.53	0.9999	398.485
17691	1	400.95	0.9999	400.910
17689	1	400.83	0.9999	400.785
17556	1	409.18	0.9999	409.139
17555	1	391.93	0.9999	391.890
17324	1	412.25	0.9999	412.209
17579	1	395.85	0.9999	395.810
17697	1	406.55	0.9999	406.509
17717	1	405.28	0.9999	405.234
17868	1	409.48	0.9999	409.434
17669	1	388.08	0.9999	388.036
17613	1	426.10	0.9999	426.057
17903	1	419.45	0.9999	419.408
17874	1	407.03	0.9999	406.984
17908	1	407.38	0.9999	407.334
17905	1	395.23	0.9999	395.185
17904	1	417.30	0.9999	417.258
17892	1	412.80	0.9999	412.759
17915	1	402.75	0.9999	402.710
17115	1	406.13	0.9999	406.084
17214	1			

		397.23	0.9999	397.185
17208	1	385.70	0.9999	385.661
17283	1	422.85	0.9999	422.808
1375	1	401.38	0.9999	401.334
1376	1	401.15	0.9999	401.109
1373	1	401.38	0.9999	401.339
1374	1	401.00	0.9999	400.959
17694	1	412.98	0.9999	412.934
17723	1	428.95	0.9999	428.907
17133	1	401.65	0.9999	401.610
17215	1	402.48	0.9999	402.435
17295	1	400.00	0.9999	399.960
17276	1	421.75	0.9999	421.708
49453	1	378.13	0.9999	378.087
49417	1	392.80	0.9999	392.760
49420	1	394.35	0.9999	394.310
49423	1	389.68	0.9999	389.636
49422	1	391.63	0.9999	391.585
49410	1	380.75	0.9999	380.712
49451	1	420.00	0.9999	419.958
49452	1	382.55	0.9999	382.511
49439	1	386.08	0.9999	386.036
49437	1			

		400.43	0.9999	400.385
49446	1	381.88	0.9999	381.836
49416	1	411.63	0.9999	411.583
49421	1	423.75	0.9999	423.707
49438	1	383.48	0.9999	383.436
49409	1	389.55	0.9999	389.511
49411	1	399.13	0.9999	399.085
49449	1	385.55	0.9999	385.511
49459	1	398.00	0.9999	397.960
49458	1	387.10	0.9999	387.061
49450	1	381.80	0.9999	381.761
49429	1	372.40	0.9999	372.362
49428	1	384.35	0.9999	384.311
49436	1	422.68	0.9999	422.632
49415	1	391.60	0.9999	391.560
49447	1	419.58	0.9999	419.533
49407	1	370.93	0.9999	370.888
49443	1	379.93	0.9999	379.887
49433	1	378.38	0.9999	378.337
49432	1	383.75	0.9999	383.711
49431	1	426.18	0.9999	426.132
49455	1	382.98	0.9999	382.936
49430	1			

		380.88	0.9999	380.837
49454	1	413.25	0.9999	413.208
49426	1	427.78	0.9999	427.732
49406	1	421.83	0.9999	421.782
17136	1	425.35	0.9999	425.307
49442	1	383.78	0.9999	383.736
49456	1	377.48	0.9999	377.437
49457	1	370.70	0.9999	370.663
49463	1	395.38	0.9999	395.335
49462	1	397.10	0.9999	397.060
49425	1	391.28	0.9999	391.235
49424	1	385.58	0.9999	385.536
49435	1	384.45	0.9999	384.411
49413	1	396.45	0.9999	396.410
49412	1	392.35	0.9999	392.310
49461	1	398.83	0.9999	398.785
49460	1	423.80	0.9999	423.757
49419	1	378.63	0.9999	378.587
49418	1	386.93	0.9999	386.886
49440	1	390.18	0.9999	390.136
49441	1	405.80	0.9999	405.759
49465	1	382.05	0.9999	382.011
49464	1			

		370.13	0.9999	370.088
49434	1	395.53	0.9999	395.485
49445	1	389.63	0.9999	389.586
16204	1	414.68	0.9999	414.634
16320	1	382.05	0.9999	382.012
16306	1	385.68	0.9999	385.636
16855	1	384.98	0.9999	384.937
16084	1	376.40	0.9999	376.362
16875	1	429.50	0.9999	429.457
16156	1	389.18	0.9999	389.136
16155	1	398.83	0.9999	398.785
16267	1	404.95	0.9999	404.910
16262	1	405.60	0.9999	405.559
16208	1	413.38	0.9999	413.334
16206	1	404.95	0.9999	404.910
16202	1	417.20	0.9999	417.158
16212	1	389.20	0.9999	389.161
16211	1	400.98	0.9999	400.935
16641	1	424.08	0.9999	424.033
16685	1	415.63	0.9999	415.583
16684	1	383.13	0.9999	383.087
16660	1	406.53	0.9999	406.484
16691	1			

		406.95	0.9999	406.909
16650	1	397.73	0.9999	397.685
16828	1	411.53	0.9999	411.484
16094	1	406.85	0.9999	406.809
16171	1	402.35	0.9999	402.310
17910	1	413.08	0.9999	413.034
17902	1	418.38	0.9999	418.333
17857	1	376.70	0.9999	376.662
17909	1	394.78	0.9999	394.736
17876	1	416.78	0.9999	416.733
17888	1	415.03	0.9999	414.983
17850	1	404.18	0.9999	404.135
17887	1	402.90	0.9999	402.860
17875	1	376.78	0.9999	376.737
17863	1	412.03	0.9999	411.984
17862	1	388.73	0.9999	388.686
17865	1	398.63	0.9999	398.585
17843	1	409.40	0.9999	409.359
17847	1	416.28	0.9999	416.233
17844	1	388.80	0.9999	388.761
17864	1	391.23	0.9999	391.186
17886	1	403.93	0.9999	403.885
17898	1			

		411.50	0.9999	411.459
17899	1	390.98	0.9999	390.936
17700	1	413.43	0.9999	413.384
17860	1	405.50	0.9999	405.459
17900	1	408.18	0.9999	408.134
17744	1	391.23	0.9999	391.186
17712	1	414.03	0.9999	413.984
17896	1	395.13	0.9999	395.085
17882	1	408.43	0.9999	408.384
17849	1	407.20	0.9999	407.159
17885	1	404.68	0.9999	404.635
17897	1	398.48	0.9999	398.435
17894	1	404.65	0.9999	404.610
17739	1	391.68	0.9999	391.636
17545	1	414.90	0.9999	414.859
17704	1	412.98	0.9999	412.934
17714	1	408.10	0.9999	408.059
17705	1	412.88	0.9999	412.834
17629	1	412.03	0.9999	411.984
17852	1	413.20	0.9999	413.159
17881	1	424.33	0.9999	424.283
17867	1	404.50	0.9999	404.460
17866	1			

		411.80	0.9999	411.759
17880	1	411.15	0.9999	411.109
17845	1	409.85	0.9999	409.809
17889	1	408.30	0.9999	408.259
17859	1	417.80	0.9999	417.758
17853	1	412.43	0.9999	412.384
17706	1	409.93	0.9999	409.884
17649	1	414.25	0.9999	414.209
17895	1	398.73	0.9999	398.685
17912	1	405.50	0.9999	405.459
17893	1	406.65	0.9999	406.609
17911	1	417.50	0.9999	417.458
17901	1	395.53	0.9999	395.485
17726	1	412.33	0.9999	412.284
17729	1	426.48	0.9999	426.432
17703	1	413.93	0.9999	413.884
17695	1	409.10	0.9999	409.059
16863	1	406.13	0.9999	406.084
16884	1	391.90	0.9999	391.861
16826	1	406.13	0.9999	406.084
16873	1	405.43	0.9999	405.384
16862	1	388.43	0.9999	388.386
16874	1			

		425.00	0.9999	424.958
16861	1	386.03	0.9999	385.986
16860	1	375.43	0.9999	375.387
16871	1	407.68	0.9999	407.634
16065	1	413.78	0.9999	413.734
16856	1	387.80	0.9999	387.761
16880	1	409.00	0.9999	408.959
16866	1	420.75	0.9999	420.708
16858	1	412.85	0.9999	412.809
16825	1	388.90	0.9999	388.861
16827	1	414.58	0.9999	414.534
16870	1	388.75	0.9999	388.711
16864	1	387.18	0.9999	387.136
16829	1	371.28	0.9999	371.238
16868	1	407.88	0.9999	407.834
16686	1	397.35	0.9999	397.310
16659	1	420.70	0.9999	420.658
16653	1	380.68	0.9999	380.637
16640	1	411.08	0.9999	411.034
16645	1	408.10	0.9999	408.059
16651	1	403.90	0.9999	403.860
16657	1	406.90	0.9999	406.859
16881	1			

		423.15	0.9999	423.108
16872	1	406.80	0.9999	406.759
16830	1	403.23	0.9999	403.185
16644	1	410.25	0.9999	410.209
16690	1	424.10	0.9999	424.058
16682	1	399.13	0.9999	399.085
16663	1	398.73	0.9999	398.685
16698	1	396.70	0.9999	396.660
16699	1	412.53	0.9999	412.484
16655	1	402.68	0.9999	402.635
16643	1	427.20	0.9999	427.157
16688	1	417.68	0.9999	417.633
16697	1	395.38	0.9999	395.335
16184	1	412.23	0.9999	412.184
16192	1	387.80	0.9999	387.761
16175	1	397.88	0.9999	397.835
16179	1	415.35	0.9999	415.308
16170	1	411.98	0.9999	411.934
16185	1	392.40	0.9999	392.361
16159	1	373.48	0.9999	373.438
16652	1	409.98	0.9999	409.934
16664	1	419.73	0.9999	419.683
16683	1			

		397.63	0.9999	397.585
16115	1	405.15	0.9999	405.109
16187	1	402.48	0.9999	402.435
16196	1	407.98	0.9999	407.934
16189	1	404.20	0.9999	404.160
16194	1	393.23	0.9999	393.186
16172	1	410.23	0.9999	410.184
16177	1	406.40	0.9999	406.359
16182	1	415.25	0.9999	415.208
16168	1	409.65	0.9999	409.609
16180	1	397.05	0.9999	397.010
16183	1	401.88	0.9999	401.835
16101	1	410.43	0.9999	410.384
16167	1	398.60	0.9999	398.560
16118	1	391.58	0.9999	391.536
16111	1	382.00	0.9999	381.962
16197	1	392.38	0.9999	392.336
16113	1	401.35	0.9999	401.310
16174	1	401.33	0.9999	401.285
16176	1	388.95	0.9999	388.911
16188	1	401.43	0.9999	401.385
16151	1	396.70	0.9999	396.660
16160	1			

		393.03	0.9999	392.986
16150	1	396.10	0.9999	396.060
16163	1	402.80	0.9999	402.760
16701	1	400.83	0.9999	400.785
16700	1	390.88	0.9999	390.836
16702	1	417.25	0.9999	417.208
16704	1	393.98	0.9999	393.936
16703	1	425.28	0.9999	425.232
16639	1	420.93	0.9999	420.883
16695	1	389.28	0.9999	389.236
16161	1	399.43	0.9999	399.385
16647	1	398.75	0.9999	398.710
16648	1	393.13	0.9999	393.086
16158	1	398.40	0.9999	398.360
16638	1	404.60	0.9999	404.560
16108	1	401.03	0.9999	400.985
16205	1	405.23	0.9999	405.184
16636	1	412.38	0.9999	412.334
16696	1	418.60	0.9999	418.558
16299	1	410.30	0.9999	410.259
17325	1	388.55	0.9999	388.511
16689	1	387.70	0.9999	387.661
16112	1			

		404.60	0.9999	404.560
16110	1	389.73	0.9999	389.686
16681	1	377.93	0.9999	377.887
16173	1	395.78	0.9999	395.735
16166	1	402.43	0.9999	402.385
16117	1	411.45	0.9999	411.409
16088	1	377.35	0.9999	377.312
16193	1	391.63	0.9999	391.586
16169	1	403.38	0.9999	403.335
16069	1	388.78	0.9999	388.736
16348	1	388.15	0.9999	388.111
16201	1	405.95	0.9999	405.909
16119	1	386.30	0.9999	386.261
16693	1	390.98	0.9999	390.936
16658	1	393.80	0.9999	393.761
16662	1	398.15	0.9999	398.110
16120	1	408.48	0.9999	408.434
16102	1	399.68	0.9999	399.635
16199	1	410.53	0.9999	410.484
16339	1	391.93	0.9999	391.886
16087	1	392.55	0.9999	392.511
16075	1	407.78	0.9999	407.734
16086	1			

		400.78	0.9999	400.735
16089	1	390.98	0.9999	390.936
16085	1	392.60	0.9999	392.561
16178	1	419.15	0.9999	419.108
16100	1	421.40	0.9999	421.358
16333	1	400.40	0.9999	400.360
16210	1	412.93	0.9999	412.884
16198	1	418.83	0.9999	418.783
16063	1	399.08	0.9999	399.035
16106	1	418.20	0.9999	418.158
16181	1	421.30	0.9999	421.258
16092	1	397.43	0.9999	397.385
16356	1	401.88	0.9999	401.835
16099	1	413.95	0.9999	413.909
16326	1	429.33	0.9999	429.282
16344	1	407.43	0.9999	407.384
16149	1	410.10	0.9999	410.059
16152	1	420.00	0.9999	419.958
16109	1	424.65	0.9999	424.608
16068	1	410.30	0.9999	410.259
16083	1	395.60	0.9999	395.560
16349	1	396.30	0.9999	396.260
16107	1			

		424.08	0.9999	424.033
16066	1	405.63	0.9999	405.584
16074	1	425.73	0.9999	425.682
16093	1	416.65	0.9999	416.608
16090	1	403.10	0.9999	403.060
16095	1	407.75	0.9999	407.709
16067	1	406.23	0.9999	406.184
16078	1	421.55	0.9999	421.508
16098	1	406.40	0.9999	406.359
16080	1	407.85	0.9999	407.809
16076	1	395.60	0.9999	395.560
16079	1	405.70	0.9999	405.659
16096	1	416.48	0.9999	416.433
16072	1	396.75	0.9999	396.710
16077	1	421.85	0.9999	421.808
16070	1	414.33	0.9999	414.284
16082	1	390.70	0.9999	390.661
16097	1	392.80	0.9999	392.761
16351	1	402.40	0.9999	402.360
16352	1	404.98	0.9999	404.935
16337	1	394.43	0.9999	394.386
16154	1	420.55	0.9999	420.508
16064	1			

		402.55	0.9999	402.510
16346	1	412.58	0.9999	412.534
16301	1	389.80	0.9999	389.761
16302	1	411.28	0.9999	411.234
16314	1	401.05	0.9999	401.010
16315	1	399.53	0.9999	399.485
16279	1	401.58	0.9999	401.535
16335	1	395.73	0.9999	395.685
16342	1	422.98	0.9999	422.933
16316	1	399.33	0.9999	399.285
16295	1	402.23	0.9999	402.185
16338	1	407.13	0.9999	407.084
16310	1	405.83	0.9999	405.784
16355	1	417.68	0.9999	417.633
16300	1	401.05	0.9999	401.010
16354	1	419.48	0.9999	419.433
16288	1	410.88	0.9999	410.834
16327	1	402.30	0.9999	402.260
16303	1	419.90	0.9999	419.858
16265	1	409.08	0.9999	409.034
16312	1	411.70	0.9999	411.659
16313	1	413.00	0.9999	412.959
16278	1			

		399.38	0.9999	399.335
16345	1	401.33	0.9999	401.285
16347	1	407.18	0.9999	407.134
16318	1	405.15	0.9999	405.109
16307	1	395.65	0.9999	395.610
16330	1	400.58	0.9999	400.535
16308	1	416.08	0.9999	416.033
16328	1	378.00	0.9999	377.962
16268	1	405.73	0.9999	405.684
16343	1	423.23	0.9999	423.183
16263	1	407.93	0.9999	407.884
16264	1	401.98	0.9999	401.935
16290	1	407.15	0.9999	407.109
16296	1	407.25	0.9999	407.209
16246	1	410.80	0.9999	410.759
16214	1	409.55	0.9999	409.509
16324	1	396.10	0.9999	396.060
16325	1	400.63	0.9999	400.585
16336	1	401.55	0.9999	401.510
16304	1	387.48	0.9999	387.436
16635	1	406.20	0.9999	406.159
16114	1	405.35	0.9999	405.309
16191	1			

		390.18	0.9999	390.136
16186	1	402.33	0.9999	402.285
16190	1	411.38	0.9999	411.334
16334	1	425.98	0.9999	425.932
16287	1	411.78	0.9999	411.734
16331	1	407.28	0.9999	407.234
16291	1	402.15	0.9999	402.110
16317	1	408.10	0.9999	408.059
16350	1	422.73	0.9999	422.683
16272	1	400.90	0.9999	400.860
16281	1	409.98	0.9999	409.934
16277	1	410.70	0.9999	410.659
16271	1	410.08	0.9999	410.034
16283	1	410.55	0.9999	410.509
16276	1	404.15	0.9999	404.110
16293	1	409.45	0.9999	409.409
16216	1	408.20	0.9999	408.159
16284	1	411.60	0.9999	411.559
16157	1	400.68	0.9999	400.635
16203	1	395.88	0.9999	395.835
16661	1	412.65	0.9999	412.609
16103	1	395.25	0.9999	395.210
16642	1			

		421.20	0.9999	421.158
16209	1	396.85	0.9999	396.810
16637	1	421.00	0.9999	420.958
16694	1	400.15	0.9999	400.110
16116	1	387.53	0.9999	387.486
16162	1	402.33	0.9999	402.285
16147	1	404.25	0.9999	404.210
16104	1	404.58	0.9999	404.535
16195	1	386.43	0.9999	386.386
16200	1	411.00	0.9999	410.959
16649	1	406.63	0.9999	406.584
16692	1	400.53	0.9999	400.485
16153	1	377.13	0.9999	377.087
16687	1	391.28	0.9999	391.236
16164	1	400.85	0.9999	400.810
16071	1	408.13	0.9999	408.084
13655	1	413.43	0.9999	413.384
13664	1	413.50	0.9999	413.459
13646	1	413.35	0.9999	413.309
13623	1	422.30	0.9999	422.258
13617	1	422.58	0.9999	422.533
13633	1	414.28	0.9999	414.234
13636	1			

		421.70	0.9999	421.658
13644	1	414.83	0.9999	414.784
13649	1	415.33	0.9999	415.283
13675	1	420.73	0.9999	420.683
13767	1	423.63	0.9999	423.583
13711	1	416.35	0.9999	416.308
13652	1	413.75	0.9999	413.709
13668	1	413.10	0.9999	413.059
9900627	1	400.08	0.9999	400.039
16105	1	407.58	0.9999	407.534
16824	1	410.50	0.9999	410.459
16865	1	390.18	0.9999	390.136
16867	1	411.80	0.9999	411.759
16869	1	382.40	0.9999	382.362
1031	1	403.23	0.9999	403.189
16081	1	376.10	0.9999	376.062
16165	1	406.75	0.9999	406.709
16148	1	407.53	0.9999	407.484
16646	1	407.58	0.9999	407.534
16859	1	378.15	0.9999	378.112
16857	1	383.95	0.9999	383.912
16879	1	393.85	0.9999	393.811
16878	1			

		402.73	0.9999	402.685
16876	1	397.03	0.9999	396.985
1039	1	401.53	0.9999	401.489
1036	1	402.28	0.9999	402.239
1037	1	401.80	0.9999	401.759
1040	1	406.20	0.9999	406.159
1041	1	404.10	0.9999	404.059
1032	1	403.00	0.9999	402.959
1033	1	403.08	0.9999	403.039
1035	1	402.43	0.9999	402.389
1034	1	402.50	0.9999	402.459
1038	1	401.63	0.9999	401.589
9900982	1	400.10	0.9999	400.059
9900980	1	400.09	0.9999	400.049
9900985	1	400.10	0.9999	400.059
9900992	1	400.09	0.9999	400.049
9900977	1	400.09	0.9999	400.049
9900987	1	400.08	0.9999	400.039
9900983	1	400.09	0.9999	400.049
9900990	1	400.09	0.9999	400.049
9900988	1	400.08	0.9999	400.039
9900978	1	400.09	0.9999	400.049
9900965	1			

		400.09	0.9999	400.049
9900971	1	400.09	0.9999	400.049
9900976	1	400.09	0.9999	400.049
9900969	1	400.10	0.9999	400.059
9900993	1	400.09	0.9999	400.049
9900979	1	400.09	0.9999	400.049
9900986	1	400.09	0.9999	400.049
9900989	1	400.09	0.9999	400.049
9900984	1	400.09	0.9999	400.049
9900981	1	400.08	0.9999	400.039
9900973	1	400.09	0.9999	400.049
9900966	1	400.09	0.9999	400.049
9900968	1	400.09	0.9999	400.049
9900972	1	400.09	0.9999	400.049
9900975	1	400.09	0.9999	400.049
9900970	1	400.08	0.9999	400.039
16311	1	416.60	0.9999	416.558
16323	1	390.28	0.9999	390.236
16259	1	402.33	0.9999	402.285
9900991	1	400.08	0.9999	400.039
9900967	1	400.11	0.9999	400.069
9900974	1	400.09	0.9999	400.049
16341	1			

		416.88	0.9999	416.833
16332	1	396.80	0.9999	396.760
16319	1	403.28	0.9999	403.235
16322	1	399.68	0.9999	399.635
16309	1	409.80	0.9999	409.759
16329	1	400.53	0.9999	400.485
16340	1	392.83	0.9999	392.786
16321	1	405.68	0.9999	405.634
13860	1	411.23	0.9999	411.184
13745	1	411.85	0.9999	411.809
13756	1	420.78	0.9999	420.733
13799	1	415.88	0.9999	415.833
13763	1	415.28	0.9999	415.233
13736	1	415.78	0.9999	415.733
13761	1	422.58	0.9999	422.533
13731	1	411.85	0.9999	411.809
13704	1	422.50	0.9999	422.458
13700	1	415.93	0.9999	415.883
13871	1	416.90	0.9999	416.858
13893	1	412.70	0.9999	412.659
13884	1	412.95	0.9999	412.909
13888	1	410.95	0.9999	410.909
13890	1			

		416.45	0.9999	416.408
13825	1	414.65	0.9999	414.609
13859	1	415.38	0.9999	415.333
13858	1	420.13	0.9999	420.083
13840	1	414.43	0.9999	414.384
13945	1	421.30	0.9999	421.258
13942	1	412.33	0.9999	412.284
13918	1	411.55	0.9999	411.509
13914	1	416.23	0.9999	416.183
13983	1	411.55	0.9999	411.509
13957	1	411.75	0.9999	411.709
13943	1	412.75	0.9999	412.709
13947	1	412.83	0.9999	412.784
13982	1	414.83	0.9999	414.784
13953	1	414.63	0.9999	414.584
13904	1	417.85	0.9999	417.808
13907	1	412.18	0.9999	412.134
13976	1	414.23	0.9999	414.184
13955	1	412.83	0.9999	412.784
13926	1	416.30	0.9999	416.258
13937	1	422.15	0.9999	422.108
13966	1	411.50	0.9999	411.459
13971	1			

		412.60	0.9999	412.559
13961	1	411.80	0.9999	411.759
13981	1	417.48	0.9999	417.433
13915	1	412.88	0.9999	412.834
13813	1	422.38	0.9999	422.333
13872	1	412.55	0.9999	412.509
13903	1	413.65	0.9999	413.609
13910	1	421.53	0.9999	421.483
13917	1	413.05	0.9999	413.009
13932	1	420.00	0.9999	419.958
13944	1	416.33	0.9999	416.283
13965	1	411.20	0.9999	411.159
13948	1	412.70	0.9999	412.659
13963	1	414.98	0.9999	414.934
13847	1	421.38	0.9999	421.333
13868	1	415.38	0.9999	415.333
13831	1	412.13	0.9999	412.084
13855	1	422.03	0.9999	421.983
13866	1	410.65	0.9999	410.609
13873	1	415.08	0.9999	415.033
13899	1	413.63	0.9999	413.584
13889	1	414.35	0.9999	414.309
13823	1			

		414.03	0.9999	413.984
13835	1	413.13	0.9999	413.084
13762	1	422.63	0.9999	422.583
13714	1	415.88	0.9999	415.833
13742	1	380.80	0.9999	380.762
13815	1	414.93	0.9999	414.884
13811	1	415.33	0.9999	415.283
13836	1	416.13	0.9999	416.083
13838	1	415.43	0.9999	415.383
13805	1	412.58	0.9999	412.534
13809	1	414.45	0.9999	414.409
13833	1	411.63	0.9999	411.584
13730	1	411.20	0.9999	411.159
13752	1	421.35	0.9999	421.308
13764	1	423.23	0.9999	423.183
13723	1	413.53	0.9999	413.484
13650	1	413.33	0.9999	413.284
13682	1	409.15	0.9999	409.109
13690	1	412.48	0.9999	412.434
13632	1	423.08	0.9999	423.033
13681	1	416.98	0.9999	416.933
13685	1	414.70	0.9999	414.659
13025	1			

		421.45	0.9999	421.408
13027	1	421.23	0.9999	421.183
13039	1	409.85	0.9999	409.809
13109	1	413.25	0.9999	413.209
13042	1	419.20	0.9999	419.158
13114	1	406.88	0.9999	406.834
12987	1	408.30	0.9999	408.259
12977	1	402.25	0.9999	402.210
12993	1	414.63	0.9999	414.584
12991	1	406.00	0.9999	405.959
12874	1	406.93	0.9999	406.884
13026	1	410.68	0.9999	410.634
13052	1	415.03	0.9999	414.983
13057	1	409.00	0.9999	408.959
13033	1	414.08	0.9999	414.034
13047	1	412.28	0.9999	412.234
13044	1	409.70	0.9999	409.659
13053	1	410.63	0.9999	410.584
13055	1	413.40	0.9999	413.359
13032	1	416.83	0.9999	416.783
13059	1	408.58	0.9999	408.534
13056	1	416.68	0.9999	416.633
12955	1			

		408.78	0.9999	408.734
12900	1	411.43	0.9999	411.384
12948	1	416.03	0.9999	415.983
12889	1	412.95	0.9999	412.909
12899	1	418.43	0.9999	418.383
12937	1	416.85	0.9999	416.808
12936	1	413.58	0.9999	413.534
12935	1	410.08	0.9999	410.034
12934	1	411.25	0.9999	411.209
12960	1	415.35	0.9999	415.308
12952	1	412.05	0.9999	412.009
12984	1	419.30	0.9999	419.258
12970	1	404.90	0.9999	404.860
12980	1	403.63	0.9999	403.585
12966	1	407.90	0.9999	407.859
12967	1	406.28	0.9999	406.234
12944	1	421.30	0.9999	421.258
12943	1	405.23	0.9999	405.184
12956	1	405.08	0.9999	405.034
12964	1	418.93	0.9999	418.883
12965	1	417.90	0.9999	417.858
12871	1	413.80	0.9999	413.759
12898	1			

		404.35	0.9999	404.310
12895	1	417.83	0.9999	417.783
12879	1	412.03	0.9999	411.984
12884	1	408.88	0.9999	408.834
12861	1	406.03	0.9999	405.984
12862	1	417.90	0.9999	417.858
13931	1	411.00	0.9999	410.959
13900	1	411.88	0.9999	411.834
13901	1	413.33	0.9999	413.284
13826	1	416.23	0.9999	416.183
13758	1	411.60	0.9999	411.559
12881	1	410.68	0.9999	410.634
12873	1	410.18	0.9999	410.134
12887	1	420.63	0.9999	420.583
12877	1	420.53	0.9999	420.483
12940	1	406.88	0.9999	406.834
12941	1	405.53	0.9999	405.484
12951	1	404.08	0.9999	404.035
12902	1	412.00	0.9999	411.959
12957	1	409.20	0.9999	409.159
12958	1	410.15	0.9999	410.109
12990	1	407.63	0.9999	407.584
13674	1			

		422.53	0.9999	422.483
13801	1	416.25	0.9999	416.208
13816	1	416.75	0.9999	416.708
13754	1	422.33	0.9999	422.283
13773	1	416.68	0.9999	416.633
13732	1	412.98	0.9999	412.934
13798	1	415.50	0.9999	415.458
13747	1	416.35	0.9999	416.308
13719	1	416.23	0.9999	416.183
13739	1	412.88	0.9999	412.834
13777	1	420.48	0.9999	420.433
13658	1	413.18	0.9999	413.134
13654	1	422.78	0.9999	422.733
13671	1	414.95	0.9999	414.909
13691	1	412.50	0.9999	412.459
13657	1	412.70	0.9999	412.659
13686	1	412.20	0.9999	412.159
13659	1	423.25	0.9999	423.208
13688	1	416.70	0.9999	416.658
13702	1	422.10	0.9999	422.058
13716	1	420.10	0.9999	420.058
13707	1	411.25	0.9999	411.209
9900400	1			

		400.10	0.9999	400.059
9900443	1	400.10	0.9999	400.059
9900399	1	400.08	0.9999	400.039
9900426	1	400.09	0.9999	400.049
9900419	1	400.10	0.9999	400.059
9900447	1	400.10	0.9999	400.059
9900445	1	400.10	0.9999	400.059
9900423	1	400.10	0.9999	400.059
9900444	1	400.10	0.9999	400.059
9900405	1	400.10	0.9999	400.059
9900401	1	400.10	0.9999	400.059
9900414	1	399.72	0.9999	399.680
9900418	1	400.09	0.9999	400.049
9900428	1	400.10	0.9999	400.059
9900410	1	400.09	0.9999	400.049
9900434	1	400.09	0.9999	400.049
9900424	1	400.10	0.9999	400.059
9900440	1	400.09	0.9999	400.049
9900416	1	400.09	0.9999	400.049
9900425	1	400.10	0.9999	400.059
9900409	1	400.09	0.9999	400.049
9900448	1	400.09	0.9999	400.049
9900417	1			

		400.09	0.9999	400.049
9900422	1	400.09	0.9999	400.049
9900407	1	400.10	0.9999	400.059
9900412	1	400.10	0.9999	400.059
9900404	1	400.10	0.9999	400.059
9900403	1	400.10	0.9999	400.059
9900442	1	400.10	0.9999	400.059
9900421	1	400.10	0.9999	400.059
9900439	1	400.09	0.9999	400.049
9900435	1	400.09	0.9999	400.049
9900420	1	400.10	0.9999	400.059
9900436	1	400.10	0.9999	400.059
9900430	1	400.09	0.9999	400.049
9900446	1	400.10	0.9999	400.059
9900432	1	400.08	0.9999	400.039
541	1	402.63	0.9999	402.589
542	1	402.40	0.9999	402.359
543	1	402.15	0.9999	402.109
13119	1	407.58	0.9999	407.534
13121	1	421.00	0.9999	420.958
12975	1	403.28	0.9999	403.235
12974	1	407.10	0.9999	407.059
12978	1			

		416.58	0.9999	416.533
12979	1	412.58	0.9999	412.534
12982	1	403.85	0.9999	403.810
12981	1	402.00	0.9999	401.960
12986	1	415.08	0.9999	415.033
49249	1	400.40	0.9999	400.359
13103	1	400.65	0.9999	400.610
13104	1	412.15	0.9999	412.109
13040	1	413.20	0.9999	413.159
13046	1	419.73	0.9999	419.683
13029	1	419.50	0.9999	419.458
13038	1	421.35	0.9999	421.308
13043	1	420.88	0.9999	420.833
13122	1	403.55	0.9999	403.510
13120	1	409.33	0.9999	409.284
13106	1	413.83	0.9999	413.784
13034	1	421.50	0.9999	421.458
13107	1	406.03	0.9999	405.984
13105	1	412.35	0.9999	412.309
13108	1	412.48	0.9999	412.434
13115	1	412.33	0.9999	412.284
13113	1	409.00	0.9999	408.959
13116	1			

		421.55	0.9999	421.508
13117	1	418.08	0.9999	418.033
13112	1	415.08	0.9999	415.033
13110	1	409.60	0.9999	409.559
13058	1	420.80	0.9999	420.758
13050	1	419.73	0.9999	419.683
13045	1	423.70	0.9999	423.658
13036	1	422.20	0.9999	422.158
13037	1	419.65	0.9999	419.608
13030	1	414.18	0.9999	414.134
13028	1	419.73	0.9999	419.683
13048	1	420.23	0.9999	420.183
13049	1	419.23	0.9999	419.183
13054	1	415.48	0.9999	415.433
13336	1	404.35	0.9999	404.310
13342	1	409.25	0.9999	409.209
13359	1	399.08	0.9999	399.035
13360	1	396.33	0.9999	396.285
13358	1	393.05	0.9999	393.011
13367	1	387.68	0.9999	387.636
13357	1	415.85	0.9999	415.808
13362	1	377.73	0.9999	377.687
13333	1			

		399.95	0.9999	399.910
13332	1	411.78	0.9999	411.734
13569	1	391.23	0.9999	391.186
13361	1	417.18	0.9999	417.133
13346	1	402.10	0.9999	402.060
13316	1	384.95	0.9999	384.912
13343	1	404.73	0.9999	404.685
13354	1	402.10	0.9999	402.060
13426	1	414.60	0.9999	414.558
13388	1	423.80	0.9999	423.757
13344	1	398.78	0.9999	398.735
13353	1	415.03	0.9999	414.983
13568	1	411.70	0.9999	411.659
13567	1	408.35	0.9999	408.309
13544	1	403.43	0.9999	403.385
13549	1	419.55	0.9999	419.508
13543	1	417.80	0.9999	417.758
13051	1	427.30	0.9999	427.257
13041	1	421.05	0.9999	421.008
13031	1	424.23	0.9999	424.183
12342	1	411.95	0.9999	411.909
12370	1	397.88	0.9999	397.835
12994	1			

		399.95	0.9999	399.910
12996	1	398.10	0.9999	398.060
12968	1	415.83	0.9999	415.783
12989	1	397.98	0.9999	397.935
12872	1	413.58	0.9999	413.534
12906	1	415.05	0.9999	415.008
12942	1	413.88	0.9999	413.834
12949	1	415.90	0.9999	415.858
12893	1	415.60	0.9999	415.558
12891	1	415.38	0.9999	415.333
12985	1	395.75	0.9999	395.710
140406	1	395.59	0.9999	395.550
140410	1	392.82	0.9999	392.780
140400	1	398.25	0.9999	398.210
140408	1	405.94	0.9999	405.899
49241	1	399.88	0.9999	399.840
49238	1	401.28	0.9999	401.239
49239	1	383.55	0.9999	383.511
49237	1	405.80	0.9999	405.759
49240	1	423.93	0.9999	423.887
49245	1	373.58	0.9999	373.542
49247	1	423.95	0.9999	423.907
49258	1			

		394.05	0.9999	394.010
49250	1	413.15	0.9999	413.108
49261	1	413.20	0.9999	413.158
49263	1	417.73	0.9999	417.688
49244	1	408.13	0.9999	408.089
49252	1	381.38	0.9999	381.341
49262	1	398.90	0.9999	398.860
49251	1	396.95	0.9999	396.910
49242	1	400.03	0.9999	399.989
13570	1	396.38	0.9999	396.335
13571	1	422.23	0.9999	422.183
49260	1	395.15	0.9999	395.110
13640	1	425.68	0.9999	425.632
13629	1	426.73	0.9999	426.682
13641	1	426.48	0.9999	426.432
9900441	1	400.10	0.9999	400.059
9900411	1	400.09	0.9999	400.049
9900408	1	400.10	0.9999	400.059
9900415	1	400.10	0.9999	400.059
9900431	1	400.09	0.9999	400.049
9900406	1	400.10	0.9999	400.059
9900433	1	400.08	0.9999	400.039
9900429	1			

		400.09	0.9999	400.049
9900427	1	400.10	0.9999	400.059
9900438	1	400.09	0.9999	400.049
9900437	1	400.10	0.9999	400.059
9900413	1	400.09	0.9999	400.049
17883	1	392.55	0.9999	392.511
12428	1	400.05	0.9999	400.010
12430	1	389.03	0.9999	388.986
12439	1	404.95	0.9999	404.910
12414	1	401.25	0.9999	401.210
12422	1	381.98	0.9999	381.937
12420	1	409.55	0.9999	409.509
12419	1	375.75	0.9999	375.712
12416	1	395.18	0.9999	395.135
12415	1	392.48	0.9999	392.436
12405	1	397.30	0.9999	397.260
12459	1	393.00	0.9999	392.961
12460	1	415.03	0.9999	414.983
12452	1	410.03	0.9999	409.984
12457	1	421.40	0.9999	421.358
12406	1	373.63	0.9999	373.588
12407	1	413.43	0.9999	413.384
12403	1			

		389.75	0.9999	389.711
12413	1	399.00	0.9999	398.960
12412	1	410.93	0.9999	410.884
12410	1	395.35	0.9999	395.310
12442	1	399.80	0.9999	399.760
12423	1	383.75	0.9999	383.712
12461	1	411.88	0.9999	411.834
12454	1	378.18	0.9999	378.137
12453	1	381.35	0.9999	381.312
12451	1	394.60	0.9999	394.561
12437	1	378.08	0.9999	378.037
12418	1	395.73	0.9999	395.685
12424	1	389.38	0.9999	389.336
12444	1	383.78	0.9999	383.737
13351	1	393.90	0.9999	393.861
12456	1	394.23	0.9999	394.186
12445	1	393.15	0.9999	393.111
12433	1	423.20	0.9999	423.158
12435	1	407.88	0.9999	407.834
12434	1	388.30	0.9999	388.261
12458	1	391.75	0.9999	391.711
12449	1	417.95	0.9999	417.908
12450	1			

		393.73	0.9999	393.686
12446	1	410.20	0.9999	410.159
13425	1	417.55	0.9999	417.508
13424	1	422.40	0.9999	422.357
13337	1	413.98	0.9999	413.934
13335	1	390.85	0.9999	390.811
13352	1	403.00	0.9999	402.960
13363	1	418.80	0.9999	418.758
13341	1	402.13	0.9999	402.085
13340	1	390.93	0.9999	390.886
12436	1	393.33	0.9999	393.286
13339	1	408.18	0.9999	408.134
13312	1	404.33	0.9999	404.285
13350	1	407.80	0.9999	407.759
13349	1	409.85	0.9999	409.809
13348	1	416.88	0.9999	416.833
13347	1	399.58	0.9999	399.535
13345	1	426.75	0.9999	426.707
13334	1	410.08	0.9999	410.034
13318	1	419.48	0.9999	419.433
13319	1	401.53	0.9999	401.485
13324	1	390.58	0.9999	390.536
13356	1			

		401.73	0.9999	401.685
13355	1	400.60	0.9999	400.560
13364	1	405.75	0.9999	405.709
13365	1	410.45	0.9999	410.409
13327	1	381.68	0.9999	381.637
13326	1	410.13	0.9999	410.084
13325	1	400.63	0.9999	400.585
13317	1	418.60	0.9999	418.558
13320	1	392.78	0.9999	392.736
13321	1	411.60	0.9999	411.559
13328	1	388.08	0.9999	388.036
13366	1	399.08	0.9999	399.035
13313	1	410.48	0.9999	410.434
13314	1	402.30	0.9999	402.260
13315	1	388.88	0.9999	388.836
13322	1	407.58	0.9999	407.534
13323	1	390.85	0.9999	390.811
13329	1	409.20	0.9999	409.159
13330	1	391.70	0.9999	391.661
13331	1	405.28	0.9999	405.234
12849	1	406.88	0.9999	406.834
12790	1	395.50	0.9999	395.460
12799	1			

		412.40	0.9999	412.359
12795	1	415.13	0.9999	415.083
12784	1	402.03	0.9999	401.985
12796	1	415.48	0.9999	415.433
12830	1	401.13	0.9999	401.085
12285	1	379.23	0.9999	379.187
49098	1	413.13	0.9999	413.084
49080	1	416.03	0.9999	415.983
49073	1	419.28	0.9999	419.233
49065	1	379.85	0.9999	379.812
49083	1	414.15	0.9999	414.109
49082	1	380.83	0.9999	380.787
49074	1	403.68	0.9999	403.635
49088	1	424.08	0.9999	424.033
49089	1	400.78	0.9999	400.735
49091	1	402.10	0.9999	402.060
49059	1	413.48	0.9999	413.434
49094	1	398.33	0.9999	398.285
186	1	400.23	0.9999	400.185
177	1	402.05	0.9999	402.010
197	1	401.10	0.9999	401.060
200	1	400.60	0.9999	400.560
176	1			

		402.40	0.9999	402.360
12855	1	414.33	0.9999	414.284
12824	1	383.10	0.9999	383.062
12841	1	405.78	0.9999	405.734
12840	1	404.95	0.9999	404.910
12852	1	396.93	0.9999	396.885
12801	1	407.45	0.9999	407.409
12844	1	404.35	0.9999	404.310
12825	1	424.45	0.9999	424.408
12826	1	410.33	0.9999	410.284
12839	1	412.63	0.9999	412.584
12835	1	409.55	0.9999	409.509
12845	1	403.73	0.9999	403.685
12842	1	396.58	0.9999	396.535
12859	1	405.13	0.9999	405.084
12854	1	420.28	0.9999	420.233
199	1	400.90	0.9999	400.860
183	1	401.28	0.9999	401.235
192	1	401.80	0.9999	401.760
182	1	401.40	0.9999	401.360
181	1	401.43	0.9999	401.385
180	1	401.70	0.9999	401.660
179	1			

		401.80	0.9999	401.760
191	1	402.30	0.9999	402.260
195	1	401.38	0.9999	401.335
178	1	402.28	0.9999	402.235
187	1	400.20	0.9999	400.160
194	1	401.55	0.9999	401.510
198	1	401.13	0.9999	401.085
193	1	401.78	0.9999	401.735
185	1	400.95	0.9999	400.910
184	1	401.33	0.9999	401.285
188	1	406.95	0.9999	406.909
189	1	405.83	0.9999	405.784
190	1	403.20	0.9999	403.160
201	1	399.98	0.9999	399.935
12455	1	418.93	0.9999	418.883
12427	1	381.25	0.9999	381.212
12425	1	402.30	0.9999	402.260
12431	1	405.85	0.9999	405.809
12400	1	398.45	0.9999	398.410
12447	1	405.83	0.9999	405.784
12462	1	388.43	0.9999	388.386
12417	1	405.25	0.9999	405.209
12409	1			

		391.03	0.9999	390.986
12401	1	386.38	0.9999	386.336
12404	1	386.15	0.9999	386.111
12402	1	395.75	0.9999	395.710
12397	1	392.95	0.9999	392.911
12396	1	404.55	0.9999	404.510
12395	1	409.63	0.9999	409.584
12399	1	406.43	0.9999	406.384
12398	1	390.70	0.9999	390.661
97238	1	383.93	0.9999	383.887
97212	1	374.20	0.9999	374.163
97213	1	381.45	0.9999	381.412
13863	1	405.75	0.9999	405.709
13862	1	407.63	0.9999	407.584
13839	1	397.48	0.9999	397.435
13894	1	398.00	0.9999	397.960
13867	1	403.50	0.9999	403.460
13834	1	402.90	0.9999	402.860
13969	1	408.85	0.9999	408.809
13925	1	399.10	0.9999	399.060
13935	1	399.48	0.9999	399.435
12441	1	414.73	0.9999	414.684
12391	1			

		415.45	0.9999	415.408
12392	1	406.45	0.9999	406.409
12408	1	397.33	0.9999	397.285
12421	1	411.08	0.9999	411.034
12438	1	396.95	0.9999	396.910
12432	1	394.10	0.9999	394.061
12411	1	393.50	0.9999	393.461
12426	1	392.53	0.9999	392.486
12440	1	399.40	0.9999	399.360
13916	1	423.73	0.9999	423.683
13934	1	408.38	0.9999	408.334
13959	1	391.30	0.9999	391.261
13978	1	395.15	0.9999	395.110
13977	1	402.83	0.9999	402.785
13769	1	424.60	0.9999	424.558
13738	1	423.90	0.9999	423.858
13724	1	424.38	0.9999	424.333
13631	1	405.63	0.9999	405.584
13638	1	403.43	0.9999	403.385
13635	1	386.90	0.9999	386.861
13830	1	402.23	0.9999	402.185
13810	1	408.45	0.9999	408.409
13820	1			

		424.70	0.9999	424.658
13622	1	401.95	0.9999	401.910
13634	1	402.98	0.9999	402.935
13625	1	405.53	0.9999	405.484
13643	1	404.65	0.9999	404.610
13627	1	396.58	0.9999	396.535
13651	1	399.40	0.9999	399.360
13630	1	387.60	0.9999	387.561
13979	1	398.48	0.9999	398.435
13929	1	403.65	0.9999	403.610
13956	1	405.00	0.9999	404.960
13892	1	424.98	0.9999	424.933
13876	1	425.18	0.9999	425.132
13854	1	423.68	0.9999	423.633
13827	1	424.78	0.9999	424.733
13849	1	404.18	0.9999	404.135
13852	1	407.50	0.9999	407.459
13861	1	427.48	0.9999	427.432
13941	1	423.83	0.9999	423.783
13930	1	425.60	0.9999	425.557
13923	1	424.35	0.9999	424.308
13928	1	404.40	0.9999	404.360
13939	1			

		400.63	0.9999	400.585
13906	1	406.53	0.9999	406.484
13964	1	404.08	0.9999	404.035
13984	1	399.80	0.9999	399.760
13985	1	403.30	0.9999	403.260
13936	1	401.43	0.9999	401.385
49112	1	388.00	0.9999	387.961
49106	1	394.88	0.9999	394.836
49107	1	409.83	0.9999	409.784
49104	1	407.98	0.9999	407.934
49103	1	399.45	0.9999	399.410
49109	1	386.15	0.9999	386.111
49108	1	403.88	0.9999	403.835
49105	1	426.13	0.9999	426.082
49102	1	379.88	0.9999	379.837
49062	1	401.55	0.9999	401.510
49113	1	421.28	0.9999	421.233
49114	1	401.43	0.9999	401.385
49115	1	384.73	0.9999	384.687
49116	1	392.25	0.9999	392.211
49111	1	399.50	0.9999	399.460
49110	1	379.30	0.9999	379.262
49061	1			

		378.73	0.9999	378.687
49095	1	418.83	0.9999	418.783
13877	1	424.23	0.9999	424.183
13897	1	425.40	0.9999	425.357
12777	1	408.40	0.9999	408.359
12779	1	380.88	0.9999	380.837
12776	1	404.20	0.9999	404.160
12833	1	416.63	0.9999	416.583
12838	1	400.40	0.9999	400.360
12837	1	394.48	0.9999	394.436
12803	1	428.98	0.9999	428.932
12802	1	402.98	0.9999	402.935
12823	1	405.68	0.9999	405.634
12853	1	405.88	0.9999	405.834
12793	1	418.88	0.9999	418.833
12792	1	417.60	0.9999	417.558
12780	1	412.03	0.9999	411.984
12781	1	406.05	0.9999	406.009
12782	1	391.85	0.9999	391.811
12786	1	392.88	0.9999	392.836
12785	1	420.80	0.9999	420.758
12789	1	410.48	0.9999	410.434
12788	1			

		422.80	0.9999	422.758
12787	1	400.60	0.9999	400.560
12805	1	403.98	0.9999	403.935
12804	1	414.75	0.9999	414.709
12821	1	417.75	0.9999	417.708
12827	1	395.13	0.9999	395.085
12820	1	406.28	0.9999	406.234
12828	1	410.08	0.9999	410.034
12831	1	388.60	0.9999	388.561
12822	1	399.48	0.9999	399.435
12834	1	398.23	0.9999	398.185
12856	1	404.48	0.9999	404.435
12800	1	410.38	0.9999	410.334
12832	1	417.30	0.9999	417.258
12843	1	400.70	0.9999	400.660
12848	1	395.85	0.9999	395.810
12829	1	409.28	0.9999	409.234
12858	1	398.85	0.9999	398.810
12847	1	411.35	0.9999	411.309
12836	1	409.55	0.9999	409.509
12857	1	401.58	0.9999	401.535
12846	1	412.33	0.9999	412.284
12876	1			

		425.45	0.9999	425.407
12880	1	401.05	0.9999	401.010
12888	1	403.35	0.9999	403.310
12883	1	391.88	0.9999	391.836
12894	1	424.53	0.9999	424.483
12897	1	396.18	0.9999	396.135
12885	1	397.43	0.9999	397.385
12939	1	421.63	0.9999	421.583
12938	1	398.43	0.9999	398.385
12963	1	386.00	0.9999	385.961
12875	1	403.33	0.9999	403.285
12878	1	393.23	0.9999	393.186
12886	1	424.58	0.9999	424.533
12890	1	429.50	0.9999	429.457
12896	1	426.45	0.9999	426.407
12882	1	396.45	0.9999	396.410
12863	1	389.40	0.9999	389.361
12892	1	390.68	0.9999	390.636
12850	1	427.08	0.9999	427.032
12851	1	395.55	0.9999	395.510
12950	1	399.25	0.9999	399.210
12903	1	399.70	0.9999	399.660
12904	1			

		402.85	0.9999	402.810
12959	1	393.95	0.9999	393.911
12387	1	400.20	0.9999	400.160
12388	1	414.23	0.9999	414.184
12389	1	428.65	0.9999	428.607
12390	1	393.68	0.9999	393.636
12394	1	398.90	0.9999	398.860
12393	1	407.80	0.9999	407.759
12954	1	392.85	0.9999	392.811
12946	1	401.93	0.9999	401.885
12947	1	393.98	0.9999	393.936
12901	1	388.80	0.9999	388.761
12953	1	428.85	0.9999	428.807
12969	1	396.88	0.9999	396.835
12971	1	400.65	0.9999	400.610
12962	1	397.18	0.9999	397.135
12972	1	397.73	0.9999	397.685
12973	1	397.25	0.9999	397.210
48802	1	391.80	0.9999	391.761
48811	1	393.68	0.9999	393.636
48812	1	380.53	0.9999	380.487
48813	1	388.60	0.9999	388.561
48827	1			

		379.00	0.9999	378.962
48831	1	395.13	0.9999	395.085
48786	1	390.85	0.9999	390.811
48858	1	375.73	0.9999	375.687
48796	1	375.35	0.9999	375.312
48795	1	383.40	0.9999	383.362
48815	1	384.98	0.9999	384.937
48806	1	378.85	0.9999	378.812
48818	1	396.10	0.9999	396.060
48820	1	383.05	0.9999	383.012
48852	1	389.80	0.9999	389.761
48856	1	395.75	0.9999	395.710
48851	1	395.35	0.9999	395.310
48800	1	385.48	0.9999	385.436
48807	1	389.35	0.9999	389.311
48810	1	385.45	0.9999	385.411
2035	1	381.41	0.9999	381.367
2084	1	370.95	0.9999	370.908
1645	1	400.00	0.9999	399.960
48847	1	397.63	0.9999	397.585
48848	1	379.35	0.9999	379.312
48836	1	383.20	0.9999	383.162
48829	1			

		393.98	0.9999	393.936
48819	1	391.50	0.9999	391.461
48821	1	394.63	0.9999	394.586
48814	1	397.73	0.9999	397.685
2023	1	389.92	0.9999	389.881
2029	1	381.38	0.9999	381.337
2027	1	391.73	0.9999	391.691
2051	1	377.03	0.9999	376.991
99273	1	414.18	0.9999	414.134
2055	1	377.03	0.9999	376.994
99266	1	413.13	0.9999	413.084
2056	1	376.67	0.9999	376.633
99267	1	415.30	0.9999	415.258
2054	1	377.04	0.9999	377.001
99271	1	418.20	0.9999	418.158
2053	1	377.05	0.9999	377.007
99269	1	414.43	0.9999	414.384
2052	1	377.07	0.9999	377.027
99247	1	418.30	0.9999	418.258
2049	1	377.05	0.9999	377.012
99265	1	417.78	0.9999	417.733
2039	1	385.02	0.9999	384.976
99919	1			

		402.55	0.9999	402.510
2036	1	381.38	0.9999	381.345
99918	1	406.65	0.9999	406.609
2030	1	381.28	0.9999	381.239
99917	1	409.95	0.9999	409.909
2041	1	385.99	0.9999	385.951
99996	1	411.85	0.9999	411.809
2042	1	385.03	0.9999	384.986
99963	1	422.20	0.9999	422.158
2045	1	385.04	0.9999	385.001
99998	1	405.85	0.9999	405.809
2046	1	384.90	0.9999	384.862
99991	1	391.35	0.9999	391.311
2044	1	385.12	0.9999	385.076
99992	1	421.73	0.9999	421.683
2040	1	385.07	0.9999	385.031
99965	1	421.93	0.9999	421.883
2048	1	377.06	0.9999	377.022
99972	1	419.35	0.9999	419.308
2038	1	396.26	0.9999	396.218
99971	1	405.03	0.9999	404.984
2028	1	381.40	0.9999	381.366
99957	1			

		424.45	0.9999	424.408
2033	1	381.38	0.9999	381.337
99929	1	408.78	0.9999	408.734
2031	1	381.39	0.9999	381.347
99976	1	396.88	0.9999	396.835
2026	1	390.00	0.9999	389.956
99983	1	396.70	0.9999	396.660
2022	1	389.95	0.9999	389.911
99997	1	405.03	0.9999	404.984
2021	1	389.96	0.9999	389.921
99962	1	413.20	0.9999	413.159
2025	1	389.96	0.9999	389.921
99999	1	398.55	0.9999	398.510
2024	1	389.98	0.9999	389.941
99931	1	404.18	0.9999	404.135
2091	1	398.61	0.9999	398.572
99984	1	404.60	0.9999	404.560
2037	1	381.36	0.9999	381.322
99959	1	414.75	0.9999	414.709
2079	1	370.93	0.9999	370.891
99987	1	417.45	0.9999	417.408
2034	1	381.38	0.9999	381.342
99981	1			

		415.35	0.9999	415.308
2080	1	370.87	0.9999	370.833
99974	1	404.68	0.9999	404.635
2081	1	370.81	0.9999	370.769
99989	1	425.35	0.9999	425.307
2082	1	370.97	0.9999	370.928
99990	1	420.80	0.9999	420.758
2083	1	370.90	0.9999	370.862
99973	1	409.85	0.9999	409.809
2086	1	370.75	0.9999	370.708
99994	1	408.98	0.9999	408.934
2088	1	368.75	0.9999	368.714
99993	1	414.88	0.9999	414.834
2087	1	371.02	0.9999	370.979
99985	1	406.60	0.9999	406.559
2032	1	381.40	0.9999	381.363
99988	1	407.93	0.9999	407.884
2047	1	384.99	0.9999	384.952
99986	1	406.83	0.9999	406.784
2050	1	377.03	0.9999	376.996
99975	1	402.58	0.9999	402.535
12798	1	422.70	0.9999	422.658
49084	1			

		395.85	0.9999	395.810
12783	1	413.18	0.9999	413.134
49081	1	387.10	0.9999	387.061
12778	1	405.60	0.9999	405.559
49100	1	398.23	0.9999	398.185
12265	1	378.90	0.9999	378.862
49090	1	395.43	0.9999	395.385
12266	1	378.15	0.9999	378.112
49093	1	388.00	0.9999	387.961
12797	1	391.90	0.9999	391.861
49096	1	394.40	0.9999	394.361
12791	1	421.05	0.9999	421.008
49058	1	391.03	0.9999	390.986
15295	1	391.60	0.9999	391.561
49063	1	391.83	0.9999	391.786
15224	1	404.93	0.9999	404.885
49075	1	392.98	0.9999	392.936
15290	1	396.60	0.9999	396.560
49077	1	384.43	0.9999	384.387
15213	1	401.78	0.9999	401.735
49079	1	392.93	0.9999	392.886
15251	1	409.43	0.9999	409.384
49076	1			

		391.40	0.9999	391.361
15250	1	398.40	0.9999	398.360
49060	1	394.55	0.9999	394.511
15208	1	398.50	0.9999	398.460
49086	1	394.68	0.9999	394.636
15205	1	393.18	0.9999	393.136
49071	1	384.45	0.9999	384.412
15209	1	412.95	0.9999	412.909
2337	1	396.33	0.9999	396.285
15284	1	402.53	0.9999	402.485
2327	1	396.28	0.9999	396.235
15255	1	400.23	0.9999	400.185
2321	1	396.30	0.9999	396.260
15227	1	398.33	0.9999	398.285
2314	1	396.28	0.9999	396.235
15278	1	401.53	0.9999	401.485
2313	1	396.30	0.9999	396.260
15204	1	397.63	0.9999	397.585
46988	1	385.88	0.9999	385.836
15238	1	422.88	0.9999	422.833
94623	1	384.13	0.9999	384.087
15242	1	398.75	0.9999	398.710
94652	1			

		384.50	0.9999	384.462
15207	1	399.78	0.9999	399.735
94648	1	380.68	0.9999	380.637
15218	1	409.20	0.9999	409.159
49087	1	394.75	0.9999	394.711
15296	1	401.15	0.9999	401.110
49097	1	387.78	0.9999	387.736
15281	1	408.98	0.9999	408.934
49064	1	395.43	0.9999	395.385
15246	1	406.35	0.9999	406.309
49099	1	396.60	0.9999	396.560
15253	1	393.88	0.9999	393.836
49092	1	384.65	0.9999	384.612
15247	1	412.05	0.9999	412.009
49078	1	386.60	0.9999	386.561
15248	1	410.03	0.9999	409.984
46956	1	385.28	0.9999	385.236
15289	1	393.35	0.9999	393.311
47168	1	375.08	0.9999	375.037
15271	1	397.18	0.9999	397.135
47157	1	375.40	0.9999	375.362
15230	1	404.60	0.9999	404.560
47166	1			

		384.45	0.9999	384.412
15240	1	417.60	0.9999	417.558
47176	1	378.75	0.9999	378.712
15236	1	411.55	0.9999	411.509
47152	1	383.35	0.9999	383.312
15217	1	399.58	0.9999	399.535
47154	1	381.15	0.9999	381.112
15291	1	407.78	0.9999	407.734
00017	1	413.70	0.9999	413.659
15259	1	411.50	0.9999	411.459
00016	1	404.85	0.9999	404.810
15210	1	409.28	0.9999	409.234
00001	1	413.53	0.9999	413.484
15239	1	398.30	0.9999	398.260
00012	1	399.75	0.9999	399.710
15229	1	418.98	0.9999	418.933
00013	1	406.25	0.9999	406.209
15187	1	420.88	0.9999	420.833
00014	1	404.68	0.9999	404.635
15232	1	395.10	0.9999	395.060
00015	1	423.93	0.9999	423.883
15260	1	414.93	0.9999	414.884
99264	1			

		414.33	0.9999	414.284
15198	1	399.30	0.9999	399.260
99275	1	420.58	0.9999	420.533
15228	1	392.15	0.9999	392.111
99274	1	396.90	0.9999	396.860
546	1	401.63	0.9999	401.589
99260	1	405.98	0.9999	405.934
547	1	401.48	0.9999	401.439
99262	1	429.05	0.9999	429.007
9900636	1	400.10	0.9999	400.059
99268	1	429.20	0.9999	429.157
9900607	1	400.10	0.9999	400.059
00011	1	416.35	0.9999	416.308
49599	1	377.30	0.9999	377.262
00010	1	401.90	0.9999	401.860
15287	1	399.75	0.9999	399.710
00009	1	420.38	0.9999	420.333
15285	1	399.30	0.9999	399.260
00008	1	400.10	0.9999	400.060
15261	1	417.88	0.9999	417.833
00007	1	415.10	0.9999	415.058
15262	1	411.63	0.9999	411.584
00006	1			

		412.88	0.9999	412.834
15275	1	413.98	0.9999	413.934
00005	1	406.45	0.9999	406.409
549	1	401.18	0.9999	401.139
00004	1	410.15	0.9999	410.109
545	1	402.00	0.9999	401.959
00003	1	398.15	0.9999	398.110
548	1	401.18	0.9999	401.139
00002	1	406.43	0.9999	406.384
544	1	402.03	0.9999	401.989
99923	1	401.43	0.9999	401.385
553	1	403.63	0.9999	403.589
94653	1	372.00	0.9999	371.963
552	1	403.43	0.9999	403.389
94639	1	380.00	0.9999	379.962
551	1	403.75	0.9999	403.709
94634	1	381.85	0.9999	381.812
550	1	400.50	0.9999	400.459
94632	1	382.20	0.9999	382.162
48789	1	388.55	0.9999	388.511
94656	1	380.38	0.9999	380.337
48787	1	395.50	0.9999	395.460
94644	1			

		390.13	0.9999	390.086
48843	1	393.03	0.9999	392.986
94627	1	383.88	0.9999	383.837
48840	1	389.03	0.9999	388.986
94620	1	381.23	0.9999	381.187
48791	1	382.48	0.9999	382.437
99995	1	406.55	0.9999	406.509
48801	1	382.43	0.9999	382.387
99922	1	399.23	0.9999	399.185
48804	1	385.85	0.9999	385.811
99921	1	399.93	0.9999	399.885
48859	1	400.53	0.9999	400.485
99257	1	418.88	0.9999	418.833
48826	1	388.15	0.9999	388.111
99272	1	410.15	0.9999	410.109
48846	1	393.00	0.9999	392.961
99259	1	410.65	0.9999	410.609
48854	1	389.20	0.9999	389.161
99258	1	402.55	0.9999	402.510
48784	1	382.90	0.9999	382.862
99256	1	386.43	0.9999	386.386
48781	1	376.08	0.9999	376.037
99255	1			

		409.03	0.9999	408.984
48792	1	386.20	0.9999	386.161
99254	1	406.10	0.9999	406.059
48824	1	397.20	0.9999	397.160
99261	1	428.35	0.9999	428.307
48823	1	389.25	0.9999	389.211
48837	1	378.10	0.9999	378.062
48835	1	390.80	0.9999	390.761
48853	1	387.25	0.9999	387.211
48828	1	388.58	0.9999	388.536
48788	1	392.88	0.9999	392.836
48798	1	382.58	0.9999	382.537
10946	1	426.38	0.9999	426.332
10947	1	416.58	0.9999	416.533
10941	1	409.60	0.9999	409.559
10965	1	398.75	0.9999	398.710
10968	1	427.50	0.9999	427.457
10982	1	401.03	0.9999	400.985
10935	1	414.00	0.9999	413.959
10993	1	418.00	0.9999	417.958
10992	1	413.50	0.9999	413.459
10940	1	414.00	0.9999	413.959
15194	1			

		396.88	0.9999	396.835
15181	1	417.08	0.9999	417.033
15159	1	411.85	0.9999	411.809
15186	1	423.60	0.9999	423.558
15189	1	391.95	0.9999	391.911
15199	1	411.45	0.9999	411.409
15300	1	419.55	0.9999	419.508
10964	1	422.53	0.9999	422.483
10983	1	415.40	0.9999	415.358
10969	1	417.95	0.9999	417.908
11129	1	413.30	0.9999	413.259
15182	1	403.73	0.9999	403.685
15191	1	389.75	0.9999	389.711
15195	1	389.38	0.9999	389.336
15190	1	394.45	0.9999	394.411
15193	1	409.38	0.9999	409.334
15188	1	407.13	0.9999	407.084
15178	1	408.65	0.9999	408.609
15183	1	411.33	0.9999	411.284
15196	1	403.88	0.9999	403.835
15179	1	399.43	0.9999	399.385
15197	1	400.35	0.9999	400.310
15180	1			

		398.95	0.9999	398.910
15185	1	403.23	0.9999	403.185
15192	1	412.95	0.9999	412.909
15184	1	399.95	0.9999	399.910
15270	1	401.48	0.9999	401.435
15252	1	406.00	0.9999	405.959
15233	1	409.85	0.9999	409.809
15293	1	402.05	0.9999	402.010
15298	1	409.10	0.9999	409.059
15200	1	412.48	0.9999	412.434
15206	1	417.23	0.9999	417.183
15235	1	405.43	0.9999	405.384
15264	1	397.65	0.9999	397.610
15211	1	400.33	0.9999	400.285
15219	1	399.93	0.9999	399.885
15212	1	416.35	0.9999	416.308
15258	1	398.13	0.9999	398.085
15237	1	403.53	0.9999	403.485
15249	1	411.85	0.9999	411.809
15223	1	399.20	0.9999	399.160
15245	1	400.35	0.9999	400.310
15276	1	406.65	0.9999	406.609
15299	1			

		400.30	0.9999	400.260
15231	1	404.63	0.9999	404.585
15282	1	382.90	0.9999	382.862
15269	1	399.40	0.9999	399.360
15292	1	397.83	0.9999	397.785
15257	1	410.63	0.9999	410.584
15225	1	405.63	0.9999	405.584
15265	1	404.73	0.9999	404.685
15277	1	403.30	0.9999	403.260
15216	1	402.35	0.9999	402.310
15215	1	395.68	0.9999	395.635
15244	1	412.28	0.9999	412.234
15272	1	383.75	0.9999	383.712
15294	1	397.75	0.9999	397.710
15297	1	395.23	0.9999	395.185
15263	1	398.20	0.9999	398.160
15226	1	407.38	0.9999	407.334
15214	1	396.10	0.9999	396.060
15243	1	408.60	0.9999	408.559
15283	1	419.90	0.9999	419.858
15221	1	397.45	0.9999	397.410
15201	1	397.83	0.9999	397.785
15267	1			

		421.15	0.9999	421.108
15203	1	395.75	0.9999	395.710
15241	1	418.05	0.9999	418.008
15202	1	396.50	0.9999	396.460
1632	1	400.00	0.9999	399.960
99315	1	405.60	0.9999	405.559
99297	1	411.48	0.9999	411.434
99928	1	413.68	0.9999	413.634
99914	1	416.18	0.9999	416.133
99904	1	412.35	0.9999	412.309
99905	1	405.58	0.9999	405.534
99932	1	426.18	0.9999	426.132
99925	1	415.35	0.9999	415.308
99882	1	421.90	0.9999	421.858
11095	1	401.08	0.9999	401.035
11051	1	409.88	0.9999	409.834
11052	1	417.43	0.9999	417.383
11058	1	406.83	0.9999	406.784
11131	1	411.20	0.9999	411.159
11029	1	403.90	0.9999	403.860
11163	1	412.03	0.9999	411.984
11096	1	409.30	0.9999	409.259
11162	1			

		408.95	0.9999	408.909
11105	1	403.08	0.9999	403.035
99862	1	398.38	0.9999	398.335
99877	1	404.18	0.9999	404.135
99879	1	386.95	0.9999	386.911
99894	1	421.80	0.9999	421.758
99863	1	400.45	0.9999	400.410
99864	1	411.00	0.9999	410.959
99860	1	408.45	0.9999	408.409
99875	1	410.38	0.9999	410.334
99887	1	413.08	0.9999	413.034
99927	1	413.83	0.9999	413.784
99858	1	422.40	0.9999	422.358
99872	1	422.90	0.9999	422.858
99871	1	420.05	0.9999	420.008
99786	1	407.05	0.9999	407.009
99903	1	409.55	0.9999	409.509
99907	1	421.03	0.9999	420.983
99915	1	419.15	0.9999	419.108
99926	1	417.15	0.9999	417.108
99906	1	410.38	0.9999	410.334
99930	1	422.95	0.9999	422.908
99890	1			

		416.15	0.9999	416.108
99893	1	403.13	0.9999	403.085
99891	1	410.48	0.9999	410.434
99895	1	422.03	0.9999	421.983
99888	1	399.20	0.9999	399.160
99892	1	414.25	0.9999	414.209
99897	1	407.93	0.9999	407.884
99883	1	417.15	0.9999	417.108
99881	1	413.50	0.9999	413.459
99880	1	425.25	0.9999	425.207
99889	1	427.10	0.9999	427.057
99859	1	397.73	0.9999	397.685
99857	1	412.85	0.9999	412.809
99865	1	413.65	0.9999	413.609
99861	1	402.45	0.9999	402.410
99876	1	388.28	0.9999	388.236
99869	1	422.05	0.9999	422.008
99868	1	418.25	0.9999	418.208
99870	1	411.20	0.9999	411.159
99873	1	417.78	0.9999	417.733
99886	1	411.33	0.9999	411.284
11034	1	398.53	0.9999	398.485
11041	1			

		397.60	0.9999	397.560
11036	1	401.95	0.9999	401.910
11020	1	394.58	0.9999	394.536
11033	1	386.90	0.9999	386.861
11035	1	417.90	0.9999	417.858
11046	1	411.03	0.9999	410.984
11028	1	390.35	0.9999	390.311
11021	1	411.88	0.9999	411.834
99878	1	400.43	0.9999	400.385
99942	1	410.65	0.9999	410.609
99902	1	410.95	0.9999	410.909
99866	1	415.78	0.9999	415.733
99898	1	408.53	0.9999	408.484
99924	1	412.13	0.9999	412.084
99867	1	422.28	0.9999	422.233
99896	1	418.48	0.9999	418.433
99874	1	417.58	0.9999	417.533
99884	1	426.10	0.9999	426.057
11110	1	399.23	0.9999	399.185
11097	1	401.08	0.9999	401.035
11132	1	399.68	0.9999	399.635
11117	1	390.70	0.9999	390.661
11118	1			

		402.33	0.9999	402.285
11103	1	399.93	0.9999	399.885
11104	1	418.65	0.9999	418.608
11120	1	426.95	0.9999	426.907
11063	1	413.05	0.9999	413.009
11064	1	395.78	0.9999	395.735
11112	1	389.28	0.9999	389.236
11116	1	398.30	0.9999	398.260
11170	1	422.10	0.9999	422.058
11172	1	403.88	0.9999	403.835
11173	1	404.20	0.9999	404.160
11174	1	417.28	0.9999	417.233
11175	1	403.38	0.9999	403.335
11062	1	412.18	0.9999	412.134
11109	1	426.83	0.9999	426.782
11177	1	398.90	0.9999	398.860
11138	1	403.25	0.9999	403.210
11122	1	406.33	0.9999	406.284
11182	1	403.43	0.9999	403.385
11183	1	413.15	0.9999	413.109
11060	1	405.28	0.9999	405.234
11121	1	403.03	0.9999	402.985
11099	1			

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		406.00	0.9999	405.959
11100	1	409.10	0.9999	409.059
11114	1	412.10	0.9999	412.059
11065	1	405.43	0.9999	405.384
11115	1	404.35	0.9999	404.310
11113	1	407.70	0.9999	407.659
11139	1	415.30	0.9999	415.258
11178	1	409.23	0.9999	409.184
11164	1	414.23	0.9999	414.184
11055	1	407.25	0.9999	407.209
11061	1	390.10	0.9999	390.061
11098	1	399.00	0.9999	398.960
11119	1	417.65	0.9999	417.608
11111	1	401.20	0.9999	401.160
11169	1	406.60	0.9999	406.559
11176	1	391.05	0.9999	391.011
11134	1	412.65	0.9999	412.609
11135	1	414.33	0.9999	414.284
11107	1	399.33	0.9999	399.285
11125	1	407.18	0.9999	407.134
13760	1	410.80	0.9999	410.759
12995	1	403.70	0.9999	403.660
13746	1			

		415.30	0.9999	415.258
12860	1	389.28	0.9999	389.236
11130	1	406.58	0.9999	406.534
11165	1	427.60	0.9999	427.557
11048	1	415.53	0.9999	415.483
11047	1	413.70	0.9999	413.659
11059	1	397.13	0.9999	397.085
11133	1	391.80	0.9999	391.761
11171	1	413.50	0.9999	413.459
11050	1	407.43	0.9999	407.384
11049	1	404.23	0.9999	404.185
11092	1	412.60	0.9999	412.559
11136	1	406.15	0.9999	406.109
11057	1	414.05	0.9999	414.009
11094	1	404.03	0.9999	403.985
11093	1	406.38	0.9999	406.334
11167	1	418.00	0.9999	417.958
11166	1	404.00	0.9999	403.960
11102	1	398.18	0.9999	398.135
11106	1	394.15	0.9999	394.111
11123	1	413.05	0.9999	413.009
11137	1	389.78	0.9999	389.736
11108	1			

		411.38	0.9999	411.334
11128	1	402.50	0.9999	402.460
11180	1	397.73	0.9999	397.685
11168	1	409.93	0.9999	409.884
11124	1	406.35	0.9999	406.309
11181	1	407.13	0.9999	407.084
11054	1	395.85	0.9999	395.810
11053	1	413.43	0.9999	413.384
11179	1	410.03	0.9999	409.984
11101	1	396.00	0.9999	395.960
99398	1	405.88	0.9999	405.834
99391	1	417.80	0.9999	417.758
99388	1	403.23	0.9999	403.185
99389	1	403.08	0.9999	403.035
99374	1	402.23	0.9999	402.185
99395	1	402.63	0.9999	402.585
99382	1	403.30	0.9999	403.260
99393	1	395.83	0.9999	395.785
99362	1	404.10	0.9999	404.060
99383	1	409.15	0.9999	409.109
99373	1	402.03	0.9999	401.985
99360	1	406.35	0.9999	406.309
99367	1			

		422.95	0.9999	422.908
99375	1	406.23	0.9999	406.184
99369	1	417.00	0.9999	416.958
99370	1	414.78	0.9999	414.734
99379	1	414.20	0.9999	414.159
99366	1	417.25	0.9999	417.208
99361	1	403.20	0.9999	403.160
99372	1	400.15	0.9999	400.110
1644	1	399.83	0.9999	399.785
1643	1	400.03	0.9999	399.985
1642	1	400.00	0.9999	399.960
1641	1	400.03	0.9999	399.985
99426	1	405.20	0.9999	405.159
1640	1	400.05	0.9999	400.010
1633	1	400.03	0.9999	399.985
1636	1	400.10	0.9999	400.060
1638	1	399.98	0.9999	399.935
1635	1	399.98	0.9999	399.935
2381	1	402.55	0.9999	402.509
2382	1	410.83	0.9999	410.788
2383	1	404.33	0.9999	404.289
2380	1	413.20	0.9999	413.158
2386	1			

		420.48	0.9999	420.438
2379	1	408.85	0.9999	408.809
2378	1	392.30	0.9999	392.260
2385	1	412.55	0.9999	412.508
2387	1	386.35	0.9999	386.311
2384	1	404.90	0.9999	404.859
1744	1	399.85	0.9999	399.810
1740	1	399.93	0.9999	399.885
1720	1	399.95	0.9999	399.910
1628	1	400.03	0.9999	399.985
1629	1	399.98	0.9999	399.935
1634	1	400.00	0.9999	399.960
1631	1	400.00	0.9999	399.960
1630	1	400.00	0.9999	399.960
1637	1	400.10	0.9999	400.060
1639	1	400.00	0.9999	399.960
1734	1	399.95	0.9999	399.910
1733	1	399.95	0.9999	399.910
1723	1	399.95	0.9999	399.910
1728	1	399.95	0.9999	399.910
1747	1	399.98	0.9999	399.935
1752	1	399.93	0.9999	399.885
1726	1			

		399.98	0.9999	399.935
1732	1	399.93	0.9999	399.885
1745	1	399.88	0.9999	399.835
1749	1	399.95	0.9999	399.910
1739	1	400.00	0.9999	399.960
1737	1	399.98	0.9999	399.935
1735	1	399.95	0.9999	399.910
1724	1	399.93	0.9999	399.885
1727	1	399.85	0.9999	399.810
1729	1	399.95	0.9999	399.910
1730	1	399.98	0.9999	399.935
1722	1	400.00	0.9999	399.960
1721	1	399.95	0.9999	399.910
1725	1	398.50	0.9999	398.460
1741	1	399.95	0.9999	399.910
1751	1	399.93	0.9999	399.885
1738	1	399.95	0.9999	399.910
1736	1	399.95	0.9999	399.910
1731	1	399.98	0.9999	399.935
1748	1	400.00	0.9999	399.960
1750	1	399.98	0.9999	399.935
1746	1	399.95	0.9999	399.910
1743	1			

		399.98	0.9999	399.935
1742	1	399.98	0.9999	399.935
99304	1	404.80	0.9999	404.760
99305	1	408.95	0.9999	408.909
99307	1	418.98	0.9999	418.933
99306	1	412.98	0.9999	412.934
99308	1	410.33	0.9999	410.284
99314	1	407.45	0.9999	407.409
99316	1	403.58	0.9999	403.535
99309	1	402.68	0.9999	402.635
99312	1	404.18	0.9999	404.135
99313	1	394.70	0.9999	394.661
99278	1	411.75	0.9999	411.709
99279	1	397.88	0.9999	397.835
99283	1	404.80	0.9999	404.760
99291	1	417.63	0.9999	417.583
99310	1	406.63	0.9999	406.584
99302	1	413.95	0.9999	413.909
99288	1	405.88	0.9999	405.834
99295	1	416.10	0.9999	416.058
99296	1	409.60	0.9999	409.559
99285	1	398.93	0.9999	398.885
99780	1			

		411.65	0.9999	411.609
99825	1	418.50	0.9999	418.458
99815	1	396.28	0.9999	396.235
99821	1	403.53	0.9999	403.485
99424	1	417.13	0.9999	417.083
99427	1	400.30	0.9999	400.260
99430	1	399.50	0.9999	399.460
99404	1	410.30	0.9999	410.259
99435	1	404.55	0.9999	404.510
99417	1	401.90	0.9999	401.860
99431	1	404.45	0.9999	404.410
99433	1	420.48	0.9999	420.433
99434	1	421.63	0.9999	421.583
99432	1	418.08	0.9999	418.033
99428	1	414.95	0.9999	414.909
99421	1	407.33	0.9999	407.284
99411	1	413.88	0.9999	413.834
99422	1	408.40	0.9999	408.359
99400	1	400.40	0.9999	400.360
99408	1	405.90	0.9999	405.859
99386	1	413.85	0.9999	413.809
99377	1	424.13	0.9999	424.083
99387	1			

		408.73	0.9999	408.684
99401	1	410.28	0.9999	410.234
99419	1	416.08	0.9999	416.033
99416	1	401.25	0.9999	401.210
99410	1	406.08	0.9999	406.034
99420	1	419.85	0.9999	419.808
99418	1	393.50	0.9999	393.461
99415	1	402.10	0.9999	402.060
99396	1	413.20	0.9999	413.159
99390	1	411.70	0.9999	411.659
99365	1	405.35	0.9999	405.309
99371	1	418.55	0.9999	418.508
99363	1	419.48	0.9999	419.433
99385	1	405.95	0.9999	405.909
99397	1	408.93	0.9999	408.884
99399	1	408.65	0.9999	408.609
99384	1	416.18	0.9999	416.133
99376	1	413.40	0.9999	413.359
99409	1	419.13	0.9999	419.083
99407	1	403.63	0.9999	403.585
99412	1	411.15	0.9999	411.109
99436	1	399.10	0.9999	399.060
99425	1			

		415.10	0.9999	415.058
99413	1	400.40	0.9999	400.360
99402	1	404.18	0.9999	404.135
99368	1	412.38	0.9999	412.334
99364	1	414.10	0.9999	414.059
99378	1	414.88	0.9999	414.834
99414	1	395.80	0.9999	395.760
99423	1	420.30	0.9999	420.258
99406	1	402.15	0.9999	402.110
99437	1	396.63	0.9999	396.585
99403	1	406.75	0.9999	406.709
99405	1	414.65	0.9999	414.609
99392	1	422.60	0.9999	422.558
99359	1	411.70	0.9999	411.659
99394	1	414.05	0.9999	414.009
99380	1	398.28	0.9999	398.235
99846	1	405.10	0.9999	405.059
99854	1	406.88	0.9999	406.834
99822	1	416.80	0.9999	416.758
99837	1	414.20	0.9999	414.159
99810	1	401.60	0.9999	401.560
99766	1	408.00	0.9999	407.959
99784	1			

		405.73	0.9999	405.684
99956	1	416.80	0.9999	416.758
99300	1	406.60	0.9999	406.559
99298	1	407.40	0.9999	407.359
99841	1	414.88	0.9999	414.834
99849	1	415.53	0.9999	415.483
99848	1	411.08	0.9999	411.034
99838	1	417.18	0.9999	417.133
99817	1	403.30	0.9999	403.260
99850	1	402.03	0.9999	401.985
99856	1	408.20	0.9999	408.159
99833	1	412.85	0.9999	412.809
99813	1	413.30	0.9999	413.259
99816	1	405.75	0.9999	405.709
99824	1	396.73	0.9999	396.685
99818	1	395.23	0.9999	395.185
99835	1	410.73	0.9999	410.684
99768	1	413.15	0.9999	413.109
99772	1	407.70	0.9999	407.659
99789	1	413.05	0.9999	413.009
99785	1	408.60	0.9999	408.559
99776	1	412.53	0.9999	412.484
99767	1			

		418.28	0.9999	418.233
99781	1	401.95	0.9999	401.910
99787	1	420.40	0.9999	420.358
99794	1	411.43	0.9999	411.384
99765	1	414.30	0.9999	414.259
99779	1	402.40	0.9999	402.360
99763	1	397.43	0.9999	397.385
99764	1	417.13	0.9999	417.083
99792	1	411.90	0.9999	411.859
99770	1	407.33	0.9999	407.284
99774	1	412.43	0.9999	412.384
99831	1	407.78	0.9999	407.734
99828	1	394.78	0.9999	394.736
99844	1	412.30	0.9999	412.259
99885	1	397.55	0.9999	397.510
99819	1	413.58	0.9999	413.534
99901	1	414.95	0.9999	414.909
99934	1	421.30	0.9999	421.258
99899	1	422.30	0.9999	422.258
99945	1	416.23	0.9999	416.183
99951	1	419.83	0.9999	419.783
99944	1	406.38	0.9999	406.334
99855	1			

		401.73	0.9999	401.685
99820	1	397.25	0.9999	397.210
99814	1	405.20	0.9999	405.159
99811	1	419.30	0.9999	419.258
99823	1	411.88	0.9999	411.834
99827	1	417.18	0.9999	417.133
99840	1	407.65	0.9999	407.609
99851	1	406.10	0.9999	406.059
99829	1	406.03	0.9999	405.984
99853	1	395.23	0.9999	395.185
99939	1	400.65	0.9999	400.610
99938	1	414.30	0.9999	414.259
99954	1	412.28	0.9999	412.234
99953	1	409.35	0.9999	409.309
99940	1	419.33	0.9999	419.283
99910	1	414.13	0.9999	414.084
99281	1	402.73	0.9999	402.685
99299	1	404.18	0.9999	404.135
99303	1	406.53	0.9999	406.484
99292	1	387.88	0.9999	387.836
99950	1	427.93	0.9999	427.882
99943	1	404.15	0.9999	404.110
99937	1			

		416.10	0.9999	416.058
99941	1	402.85	0.9999	402.810
99955	1	407.55	0.9999	407.509
99952	1	409.45	0.9999	409.409
99947	1	402.15	0.9999	402.110
99949	1	405.45	0.9999	405.409
99948	1	408.55	0.9999	408.509
99946	1	414.35	0.9999	414.309
98466	1	382.38	0.9999	382.337
97931	1	399.13	0.9999	399.085
97048	1	402.28	0.9999	402.235
97041	1	424.90	0.9999	424.858
97036	1	419.48	0.9999	419.433
97065	1	403.95	0.9999	403.910
97067	1	403.83	0.9999	403.785
97005	1	417.73	0.9999	417.683
97038	1	407.58	0.9999	407.534
97071	1	419.18	0.9999	419.133
97006	1	399.83	0.9999	399.785
97037	1	400.35	0.9999	400.310
97066	1	396.33	0.9999	396.285
97068	1	402.90	0.9999	402.860
97063	1			

		407.93	0.9999	407.884
97047	1	408.88	0.9999	408.834
97057	1	402.75	0.9999	402.710
97045	1	395.33	0.9999	395.285
97070	1	406.30	0.9999	406.259
97074	1	406.05	0.9999	406.009
97030	1	409.70	0.9999	409.659
97062	1	416.23	0.9999	416.183
97059	1	388.20	0.9999	388.161
97058	1	409.93	0.9999	409.884
97073	1	392.30	0.9999	392.261
97064	1	409.90	0.9999	409.859
97053	1	409.08	0.9999	409.034
97072	1	395.93	0.9999	395.885
97075	1	415.48	0.9999	415.433
97061	1	399.18	0.9999	399.135
97015	1	413.35	0.9999	413.309
97023	1	412.23	0.9999	412.184
97010	1	390.78	0.9999	390.736
97000	1	386.55	0.9999	386.511
97024	1	401.33	0.9999	401.285
97013	1	396.05	0.9999	396.010
97012	1			

		390.63	0.9999	390.586
97054	1	413.53	0.9999	413.484
97034	1	400.98	0.9999	400.935
97069	1	402.90	0.9999	402.860
97044	1	408.28	0.9999	408.234
97039	1	405.80	0.9999	405.759
97016	1	395.00	0.9999	394.961
97017	1	415.33	0.9999	415.283
97020	1	406.43	0.9999	406.384
97029	1	393.73	0.9999	393.686
97019	1	412.33	0.9999	412.284
97011	1	390.13	0.9999	390.086
97025	1	406.63	0.9999	406.584
97022	1	408.78	0.9999	408.734
97060	1	401.28	0.9999	401.235
97040	1	414.10	0.9999	414.059
97056	1	411.33	0.9999	411.284
97051	1	400.40	0.9999	400.360
97052	1	407.50	0.9999	407.459
97049	1	395.10	0.9999	395.060
97042	1	404.58	0.9999	404.535
97001	1	410.33	0.9999	410.284
97055	1			

		408.73	0.9999	408.684
97046	1	402.38	0.9999	402.335
47664	1	428.75	0.9999	428.707
47657	1	386.08	0.9999	386.036
47648	1	428.53	0.9999	428.482
47656	1	370.40	0.9999	370.363
47659	1	423.58	0.9999	423.533
47650	1	382.85	0.9999	382.812
47655	1	382.63	0.9999	382.587
99289	1	403.33	0.9999	403.285
99286	1	408.48	0.9999	408.434
99293	1	416.65	0.9999	416.608
97952	1	405.00	0.9999	404.960
11126	1	405.83	0.9999	405.784
12794	1	395.85	0.9999	395.810
13626	1	401.48	0.9999	401.435
97935	1	405.48	0.9999	405.434
97945	1	405.35	0.9999	405.309
97940	1	393.85	0.9999	393.811
97938	1	401.15	0.9999	401.110
97924	1	409.85	0.9999	409.809
97021	1	417.95	0.9999	417.908
10994	1			

		389.48	0.9999	389.436
10987	1	395.65	0.9999	395.610
10960	1	411.68	0.9999	411.634
10936	1	405.90	0.9999	405.859
10927	1	414.53	0.9999	414.484
10932	1	406.85	0.9999	406.809
10926	1	408.55	0.9999	408.509
10922	1	412.45	0.9999	412.409
10957	1	424.70	0.9999	424.658
10953	1	415.78	0.9999	415.733
10985	1	394.83	0.9999	394.786
10986	1	393.43	0.9999	393.386
10934	1	408.50	0.9999	408.459
10996	1	414.10	0.9999	414.059
10990	1	398.95	0.9999	398.910
10991	1	421.18	0.9999	421.133
10971	1	422.33	0.9999	422.283
10948	1	416.70	0.9999	416.658
10949	1	419.70	0.9999	419.658
10956	1	408.58	0.9999	408.534
47632	1	380.15	0.9999	380.112
47644	1	429.95	0.9999	429.907
47633	1			

		426.50	0.9999	426.457
47646	1	385.80	0.9999	385.761
48158	1	382.00	0.9999	381.962
48155	1	413.88	0.9999	413.834
48134	1	386.93	0.9999	386.886
48178	1	426.30	0.9999	426.257
48172	1	388.58	0.9999	388.536
48142	1	381.15	0.9999	381.112
10984	1	417.95	0.9999	417.908
10981	1	415.13	0.9999	415.083
10980	1	411.43	0.9999	411.384
10972	1	413.80	0.9999	413.759
10976	1	418.78	0.9999	418.733
10977	1	420.75	0.9999	420.708
10997	1	415.05	0.9999	415.008
10942	1	397.80	0.9999	397.760
10943	1	421.23	0.9999	421.183
12905	1	411.83	0.9999	411.784
47651	1	373.70	0.9999	373.663
96997	1	418.98	0.9999	418.933
96998	1	405.53	0.9999	405.484
96995	1	391.78	0.9999	391.736
96999	1			

		405.15	0.9999	405.109
96996	1	387.83	0.9999	387.786
95783	1	399.73	0.9999	399.685
97921	1	406.00	0.9999	405.959
94461	1	402.88	0.9999	402.835
94467	1	410.13	0.9999	410.084
97050	1	399.25	0.9999	399.210
97939	1	400.45	0.9999	400.410
97941	1	403.45	0.9999	403.410
97930	1	410.28	0.9999	410.234
97948	1	408.25	0.9999	408.209
98602	1	409.18	0.9999	409.134
98568	1	403.00	0.9999	402.960
98592	1	400.75	0.9999	400.710
98579	1	400.83	0.9999	400.785
98474	1	383.20	0.9999	383.162
98596	1	413.23	0.9999	413.184
98556	1	405.60	0.9999	405.559
98603	1	418.48	0.9999	418.433
98537	1	403.10	0.9999	403.060
98468	1	415.95	0.9999	415.908
97929	1	399.80	0.9999	399.760
97043	1			

		400.73	0.9999	400.685
97009	1	394.75	0.9999	394.711
97031	1	400.43	0.9999	400.385
97035	1	411.25	0.9999	411.209
97914	1	403.93	0.9999	403.885
97925	1	408.95	0.9999	408.909
97944	1	400.53	0.9999	400.485
97937	1	403.60	0.9999	403.560
97936	1	384.13	0.9999	384.087
97932	1	399.08	0.9999	399.035
98586	1	414.43	0.9999	414.384
98546	1	381.58	0.9999	381.537
98415	1	422.93	0.9999	422.883
98576	1	383.00	0.9999	382.962
10063	1	422.60	0.9999	422.558
11005	1	399.75	0.9999	399.710
11004	1	414.48	0.9999	414.434
10989	1	410.58	0.9999	410.534
10988	1	400.75	0.9999	400.710
10974	1	406.75	0.9999	406.709
10954	1	410.08	0.9999	410.034
10955	1	411.30	0.9999	411.259
10962	1			

		413.83	0.9999	413.784
10963	1	402.15	0.9999	402.110
10053	1	414.53	0.9999	414.484
10060	1	410.20	0.9999	410.159
10061	1	411.60	0.9999	411.559
10068	1	406.20	0.9999	406.159
10059	1	409.53	0.9999	409.484
10057	1	420.55	0.9999	420.508
10094	1	417.55	0.9999	417.508
10095	1	414.08	0.9999	414.034
10092	1	389.28	0.9999	389.236
10098	1	416.23	0.9999	416.183
10938	1	414.40	0.9999	414.359
10945	1	396.30	0.9999	396.260
10959	1	424.90	0.9999	424.858
10951	1	406.95	0.9999	406.909
10950	1	407.85	0.9999	407.809
10930	1	411.30	0.9999	411.259
10929	1	410.43	0.9999	410.384
10928	1	417.78	0.9999	417.733
10923	1	409.95	0.9999	409.909
11012	1	413.63	0.9999	413.584
10931	1			

		417.58	0.9999	417.533
10944	1	396.60	0.9999	396.560
10967	1	413.18	0.9999	413.134
10961	1	419.43	0.9999	419.383
10966	1	384.65	0.9999	384.612
10970	1	404.25	0.9999	404.210
10973	1	429.93	0.9999	429.882
10975	1	419.85	0.9999	419.808
10978	1	404.73	0.9999	404.685
10979	1	404.20	0.9999	404.160
11038	1	423.45	0.9999	423.408
11039	1	405.58	0.9999	405.534
11042	1	408.98	0.9999	408.934
11043	1	407.45	0.9999	407.409
11044	1	409.55	0.9999	409.509
11045	1	410.80	0.9999	410.759
11037	1	418.00	0.9999	417.958
11030	1	408.20	0.9999	408.159
11016	1	406.58	0.9999	406.534
11013	1	401.15	0.9999	401.110
11031	1	427.50	0.9999	427.457
11009	1	386.60	0.9999	386.561
11015	1			

		420.90	0.9999	420.858
11014	1	413.40	0.9999	413.359
11017	1	402.88	0.9999	402.835
11024	1	404.15	0.9999	404.110
11025	1	391.53	0.9999	391.486
11026	1	404.60	0.9999	404.560
11027	1	406.73	0.9999	406.684
11023	1	405.78	0.9999	405.734
11000	1	395.78	0.9999	395.735
11008	1	408.35	0.9999	408.309
11002	1	398.15	0.9999	398.110
11006	1	408.53	0.9999	408.484
11007	1	396.00	0.9999	395.960
11010	1	415.98	0.9999	415.933
11018	1	407.83	0.9999	407.784
11019	1	411.03	0.9999	410.984
11011	1	413.60	0.9999	413.559
11022	1	415.55	0.9999	415.508
11001	1	401.98	0.9999	401.935
11003	1	417.45	0.9999	417.408
10958	1	412.40	0.9999	412.359
10952	1	407.43	0.9999	407.384
10933	1			

		399.60	0.9999	399.560
10939	1	398.55	0.9999	398.510
10937	1	408.05	0.9999	408.009
10924	1	415.10	0.9999	415.058
10995	1	397.00	0.9999	396.960
10999	1	410.10	0.9999	410.059
99311	1	422.90	0.9999	422.858
99331	1	403.95	0.9999	403.910
99343	1	393.70	0.9999	393.661
99348	1	410.40	0.9999	410.359
10104	1	413.75	0.9999	413.709
10115	1	417.05	0.9999	417.008
10117	1	408.48	0.9999	408.434
10116	1	396.40	0.9999	396.360
10111	1	401.35	0.9999	401.310
10107	1	419.25	0.9999	419.208
97026	1	423.65	0.9999	423.608
97027	1	418.23	0.9999	418.183
99830	1	394.15	0.9999	394.111
99847	1	393.50	0.9999	393.461
99836	1	389.53	0.9999	389.486
99778	1	394.03	0.9999	393.986
99783	1			

		392.20	0.9999	392.161
99790	1	393.05	0.9999	393.011
99793	1	390.25	0.9999	390.211
99333	1	404.63	0.9999	404.585
10079	1	407.33	0.9999	407.284
10039	1	396.63	0.9999	396.585
10044	1	410.60	0.9999	410.559
10090	1	409.93	0.9999	409.884
10078	1	414.33	0.9999	414.284
10082	1	422.58	0.9999	422.533
10077	1	412.68	0.9999	412.634
10089	1	422.38	0.9999	422.333
10065	1	416.95	0.9999	416.908
10091	1	402.58	0.9999	402.535
10049	1	405.38	0.9999	405.334
10080	1	410.80	0.9999	410.759
10099	1	403.85	0.9999	403.810
10071	1	407.75	0.9999	407.709
10047	1	409.18	0.9999	409.134
10067	1	412.10	0.9999	412.059
10070	1	410.08	0.9999	410.034
10096	1	408.65	0.9999	408.609
10048	1			

		414.23	0.9999	414.184
10084	1	414.83	0.9999	414.784
10114	1	410.63	0.9999	410.584
10113	1	414.00	0.9999	413.959
10112	1	416.15	0.9999	416.108
10110	1	409.60	0.9999	409.559
10109	1	407.05	0.9999	407.009
10105	1	413.30	0.9999	413.259
10106	1	418.00	0.9999	417.958
10108	1	412.18	0.9999	412.134
10102	1	411.88	0.9999	411.834
10103	1	414.30	0.9999	414.259
10046	1	405.90	0.9999	405.859
10051	1	415.28	0.9999	415.233
10069	1	414.55	0.9999	414.509
10097	1	423.53	0.9999	423.483
10087	1	410.23	0.9999	410.184
10086	1	407.18	0.9999	407.134
10038	1	413.53	0.9999	413.484
10045	1	416.33	0.9999	416.283
10100	1	406.95	0.9999	406.909
10101	1	420.05	0.9999	420.008
10062	1			

		416.40	0.9999	416.358
10072	1	415.80	0.9999	415.758
10076	1	412.45	0.9999	412.409
10075	1	403.68	0.9999	403.635
10074	1	421.93	0.9999	421.883
10073	1	413.48	0.9999	413.434
10081	1	424.10	0.9999	424.058
10088	1	410.68	0.9999	410.634
10083	1	408.83	0.9999	408.784
10085	1	410.93	0.9999	410.884
10043	1	407.38	0.9999	407.334
10042	1	410.80	0.9999	410.759
10041	1	414.00	0.9999	413.959
10052	1	404.33	0.9999	404.285
10050	1	410.55	0.9999	410.509
10058	1	413.55	0.9999	413.509
10055	1	407.25	0.9999	407.209
10056	1	397.68	0.9999	397.635
10064	1	408.70	0.9999	408.659
10066	1	418.80	0.9999	418.758
2298	1	388.15	0.9999	388.111
2303	1	390.88	0.9999	390.835
2304	1			

		402.68	0.9999	402.634
2305	1	403.88	0.9999	403.834
2309	1	410.08	0.9999	410.033
2307	1	410.20	0.9999	410.158
2310	1	402.28	0.9999	402.234
2308	1	395.95	0.9999	395.910
97002	1	384.35	0.9999	384.312
97014	1	384.15	0.9999	384.112
2295	1	395.35	0.9999	395.310
2297	1	391.03	0.9999	390.985
2299	1	403.23	0.9999	403.184
2296	1	407.13	0.9999	407.084
2301	1	382.73	0.9999	382.686
2302	1	408.53	0.9999	408.484
2300	1	398.75	0.9999	398.710
2306	1	393.00	0.9999	392.960
2228	1	402.23	0.9999	402.184
2230	1	401.63	0.9999	401.584
48288	1	402.18	0.9999	402.134
48287	1	405.53	0.9999	405.484
48285	1	383.80	0.9999	383.761
47653	1	426.50	0.9999	426.457
47630	1			

		382.33	0.9999	382.287
47660	1	372.95	0.9999	372.913
47649	1	386.03	0.9999	385.986
47031	1	404.08	0.9999	404.035
47030	1	384.18	0.9999	384.137
47033	1	407.78	0.9999	407.734
97917	1	384.53	0.9999	384.487
47667	1	379.40	0.9999	379.362
48282	1	417.88	0.9999	417.833
48290	1	389.23	0.9999	389.186
48283	1	400.00	0.9999	399.960
48289	1	378.65	0.9999	378.612
48286	1	399.28	0.9999	399.235
48284	1	381.43	0.9999	381.386
48281	1	376.48	0.9999	376.437
48280	1	378.45	0.9999	378.412
47032	1	418.68	0.9999	418.633
47027	1	411.13	0.9999	411.084
47035	1	381.28	0.9999	381.237
47034	1	390.73	0.9999	390.686
10093	1	408.35	0.9999	408.309
99287	1	421.38	0.9999	421.333
99280	1			

		422.85	0.9999	422.808
99282	1	413.65	0.9999	413.609
99284	1	416.63	0.9999	416.583
99290	1	425.05	0.9999	425.007
99357	1	407.98	0.9999	407.934
99353	1	401.60	0.9999	401.560
99335	1	398.60	0.9999	398.560
99328	1	411.25	0.9999	411.209
99341	1	405.20	0.9999	405.159
99342	1	400.73	0.9999	400.685
99330	1	406.63	0.9999	406.584
99301	1	429.45	0.9999	429.407
99326	1	405.05	0.9999	405.009
99356	1	405.30	0.9999	405.259
97950	1	417.93	0.9999	417.883
97951	1	416.38	0.9999	416.333
97947	1	417.73	0.9999	417.683
97942	1	420.70	0.9999	420.658
97032	1	418.40	0.9999	418.358
97933	1	407.10	0.9999	407.059
97928	1	391.60	0.9999	391.561
99350	1	392.58	0.9999	392.536
99319	1			

		402.00	0.9999	401.960
99345	1	411.83	0.9999	411.784
97934	1	414.00	0.9999	413.959
97912	1	422.45	0.9999	422.408
97913	1	427.40	0.9999	427.357
97923	1	420.53	0.9999	420.483
97927	1	424.88	0.9999	424.833
97915	1	392.23	0.9999	392.186
97919	1	416.90	0.9999	416.858
97007	1	415.20	0.9999	415.158
97018	1	428.30	0.9999	428.257
97028	1	429.95	0.9999	429.907
99773	1	400.40	0.9999	400.360
99782	1	426.68	0.9999	426.632
99832	1	398.53	0.9999	398.485
99842	1	422.30	0.9999	422.258
99852	1	384.75	0.9999	384.712
99843	1	388.30	0.9999	388.261
99834	1	420.55	0.9999	420.508
99845	1	429.23	0.9999	429.182
99788	1	422.68	0.9999	422.633
99339	1	414.80	0.9999	414.759
99775	1			

		423.05	0.9999	423.008
99771	1	420.85	0.9999	420.808
99762	1	400.10	0.9999	400.060
99769	1	424.83	0.9999	424.783
99777	1	398.43	0.9999	398.385
99791	1	400.95	0.9999	400.910
99839	1	381.80	0.9999	381.762
99826	1	423.23	0.9999	423.183
98847	1	390.05	0.9999	390.011
98811	1	408.68	0.9999	408.634
98812	1	418.78	0.9999	418.733
98809	1	415.75	0.9999	415.708
98802	1	413.38	0.9999	413.334
98801	1	403.18	0.9999	403.135
98806	1	403.88	0.9999	403.835
98805	1	404.75	0.9999	404.710
98803	1	401.45	0.9999	401.410
98756	1	400.95	0.9999	400.910
98740	1	404.88	0.9999	404.835
98749	1	408.55	0.9999	408.509
98746	1	403.70	0.9999	403.660
98787	1	401.23	0.9999	401.185
98785	1			

		423.40	0.9999	423.358
98738	1	419.63	0.9999	419.583
98748	1	418.25	0.9999	418.208
98768	1	423.20	0.9999	423.158
98745	1	426.18	0.9999	426.132
98794	1	420.85	0.9999	420.808
98770	1	414.75	0.9999	414.709
98799	1	426.50	0.9999	426.457
98742	1	408.15	0.9999	408.109
98736	1	404.83	0.9999	404.785
98776	1	406.73	0.9999	406.684
98744	1	403.23	0.9999	403.185
98737	1	414.43	0.9999	414.384
98753	1	409.80	0.9999	409.759
98771	1	406.88	0.9999	406.834
98786	1	426.03	0.9999	425.982
98773	1	398.63	0.9999	398.585
98772	1	402.00	0.9999	401.960
98778	1	418.48	0.9999	418.433
98792	1	408.03	0.9999	407.984
98734	1	401.93	0.9999	401.885
98765	1	401.63	0.9999	401.585
98754	1			

		409.33	0.9999	409.284
98757	1	408.83	0.9999	408.784
98752	1	407.90	0.9999	407.859
98764	1	401.80	0.9999	401.760
98777	1	424.55	0.9999	424.508
98747	1	408.20	0.9999	408.159
98750	1	400.80	0.9999	400.760
98743	1	408.80	0.9999	408.759
98789	1	408.40	0.9999	408.359
98781	1	402.95	0.9999	402.910
98790	1	400.68	0.9999	400.635
98762	1	401.88	0.9999	401.835
98739	1	401.53	0.9999	401.485
98751	1	414.15	0.9999	414.109
98763	1	413.95	0.9999	413.909
2225	1	402.90	0.9999	402.859
2227	1	402.78	0.9999	402.734
2222	1	404.63	0.9999	404.584
2220	1	408.35	0.9999	408.309
2224	1	403.18	0.9999	403.134
2226	1	402.80	0.9999	402.759
2223	1	403.85	0.9999	403.809
2221	1			

		405.15	0.9999	405.109
2231	1	401.10	0.9999	401.059
2232	1	400.60	0.9999	400.559
2229	1	401.90	0.9999	401.859
1607	1	400.78	0.9999	400.735
1608	1	400.30	0.9999	400.260
1609	1	399.90	0.9999	399.860
11235	1	404.10	0.9999	404.060
11250	1	409.70	0.9999	409.659
11337	1	395.15	0.9999	395.110
11245	1	415.68	0.9999	415.633
11240	1	417.78	0.9999	417.733
11239	1	420.70	0.9999	420.658
11247	1	414.35	0.9999	414.309
2594	1	411.60	0.9999	411.559
11339	1	409.68	0.9999	409.634
11336	1	405.05	0.9999	405.009
11332	1	414.88	0.9999	414.834
11192	1	397.63	0.9999	397.585
11203	1	395.40	0.9999	395.360
11230	1	416.13	0.9999	416.083
11241	1	406.30	0.9999	406.259
11244	1			

		407.83	0.9999	407.784
11238	1	411.30	0.9999	411.259
1598	1	402.05	0.9999	402.010
1599	1	401.63	0.9999	401.585
1597	1	403.00	0.9999	402.960
1596	1	403.13	0.9999	403.085
1585	1	402.08	0.9999	402.035
1587	1	401.68	0.9999	401.635
1592	1	397.40	0.9999	397.360
1593	1	392.65	0.9999	392.611
1594	1	392.23	0.9999	392.186
1595	1	405.75	0.9999	405.709
1606	1	400.95	0.9999	400.910
1605	1	400.93	0.9999	400.885
1604	1	401.38	0.9999	401.335
1603	1	401.30	0.9999	401.260
1602	1	401.35	0.9999	401.310
1601	1	401.38	0.9999	401.335
1600	1	401.65	0.9999	401.610
1586	1	401.98	0.9999	401.935
1588	1	401.38	0.9999	401.335
1583	1	404.20	0.9999	404.160
1584	1			

		402.73	0.9999	402.685
1591	1	399.98	0.9999	399.935
1590	1	400.88	0.9999	400.835
1589	1	400.68	0.9999	400.635
1582	1	406.35	0.9999	406.309
99320	1	410.15	0.9999	410.109
99318	1	413.65	0.9999	413.609
47200	1	396.80	0.9999	396.760
47203	1	380.38	0.9999	380.337
47201	1	383.08	0.9999	383.037
47202	1	379.85	0.9999	379.812
47195	1	388.83	0.9999	388.786
47197	1	398.40	0.9999	398.360
47193	1	399.85	0.9999	399.810
47199	1	420.00	0.9999	419.958
47192	1	386.45	0.9999	386.411
47196	1	393.13	0.9999	393.086
47194	1	394.98	0.9999	394.936
47198	1	397.88	0.9999	397.835
99338	1	413.85	0.9999	413.809
99349	1	417.38	0.9999	417.333
99336	1	411.58	0.9999	411.534
99354	1			

		411.70	0.9999	411.659
99351	1	418.75	0.9999	418.708
99337	1	416.68	0.9999	416.633
99355	1	417.73	0.9999	417.683
99347	1	414.48	0.9999	414.434
99344	1	421.68	0.9999	421.633
99346	1	417.78	0.9999	417.733
99352	1	415.85	0.9999	415.808
99340	1	410.25	0.9999	410.209
99329	1	419.85	0.9999	419.808
99325	1	420.08	0.9999	420.033
99334	1	413.05	0.9999	413.009
99332	1	411.03	0.9999	410.984
99321	1	419.18	0.9999	419.133
99324	1	412.50	0.9999	412.459
99323	1	420.90	0.9999	420.858
99322	1	414.05	0.9999	414.009
99327	1	417.90	0.9999	417.858
2595	1	411.40	0.9999	411.359
2633	1	399.88	0.9999	399.835
2634	1	392.63	0.9999	392.586
2636	1	387.38	0.9999	387.336
2637	1			

		410.55	0.9999	410.509
2640	1	386.38	0.9999	386.336
2639	1	401.00	0.9999	400.960
2643	1	409.78	0.9999	409.734
2644	1	394.20	0.9999	394.161
2645	1	401.95	0.9999	401.910
99958	1	429.33	0.9999	429.282
99964	1	419.18	0.9999	419.133
99920	1	404.98	0.9999	404.935
99979	1	398.18	0.9999	398.135
99960	1	407.13	0.9999	407.084
99978	1	417.95	0.9999	417.908
99977	1	409.38	0.9999	409.334
99961	1	402.03	0.9999	401.985
99967	1	399.70	0.9999	399.660
99966	1	413.63	0.9999	413.584
99969	1	414.33	0.9999	414.284
99970	1	415.70	0.9999	415.658
99968	1	397.58	0.9999	397.535
99936	1	404.43	0.9999	404.385
99911	1	405.15	0.9999	405.109
99909	1	409.65	0.9999	409.609
99913	1			

		408.55	0.9999	408.509
99916	1	397.18	0.9999	397.135
99935	1	408.73	0.9999	408.684
99933	1	411.70	0.9999	411.659
11263	1	409.48	0.9999	409.434
11223	1	403.98	0.9999	403.935
11221	1	406.73	0.9999	406.684
11246	1	409.78	0.9999	409.734
11232	1	415.65	0.9999	415.608
11231	1	415.63	0.9999	415.583
11251	1	406.88	0.9999	406.834
11237	1	406.15	0.9999	406.109
11242	1	418.10	0.9999	418.058
11201	1	414.88	0.9999	414.834
11258	1	413.48	0.9999	413.434
11257	1	413.68	0.9999	413.634
11261	1	413.75	0.9999	413.709
11260	1	425.23	0.9999	425.182
11255	1	423.30	0.9999	423.258
11236	1	419.75	0.9999	419.708
11234	1	397.18	0.9999	397.135
11228	1	415.50	0.9999	415.458
2745	1			

		388.48	0.9999	388.436
2744	1	403.43	0.9999	403.385
2752	1	380.30	0.9999	380.262
2753	1	410.73	0.9999	410.684
2754	1	405.83	0.9999	405.784
2746	1	400.63	0.9999	400.585
2747	1	402.55	0.9999	402.510
2748	1	390.75	0.9999	390.711
2647	1	398.43	0.9999	398.385
2646	1	393.93	0.9999	393.886
2642	1	408.53	0.9999	408.484
2641	1	407.93	0.9999	407.884
2593	1	399.73	0.9999	399.685
2592	1	399.75	0.9999	399.710
2591	1	411.98	0.9999	411.934
2581	1	401.00	0.9999	400.960
2749	1	387.78	0.9999	387.736
2750	1	398.73	0.9999	398.685
11264	1	402.18	0.9999	402.135
11249	1	411.05	0.9999	411.009
11225	1	414.35	0.9999	414.309
11259	1	420.03	0.9999	419.983
11243	1			

		415.88	0.9999	415.833
11220	1	404.70	0.9999	404.660
11222	1	404.90	0.9999	404.860
11254	1	419.13	0.9999	419.083
11253	1	411.03	0.9999	410.984
11189	1	398.80	0.9999	398.760
11256	1	399.60	0.9999	399.560
11191	1	399.75	0.9999	399.710
11193	1	422.25	0.9999	422.208
11262	1	406.28	0.9999	406.234
11197	1	398.73	0.9999	398.685
11328	1	387.05	0.9999	387.011
11331	1	400.45	0.9999	400.410
11323	1	398.40	0.9999	398.360
11329	1	409.15	0.9999	409.109
11322	1	410.50	0.9999	410.459
11330	1	414.80	0.9999	414.759
11324	1	407.03	0.9999	406.984
11325	1	402.53	0.9999	402.485
11326	1	391.00	0.9999	390.961
11227	1	411.28	0.9999	411.234
11327	1	384.83	0.9999	384.787
11333	1			

		403.45	0.9999	403.410
11335	1	403.13	0.9999	403.085
11334	1	408.90	0.9999	408.859
11338	1	406.13	0.9999	406.084
11340	1	405.28	0.9999	405.234
11341	1	403.38	0.9999	403.335
99980	1	420.58	0.9999	420.533
99982	1	416.60	0.9999	416.558
99912	1	408.35	0.9999	408.309
99900	1	399.18	0.9999	399.135
99276	1	427.55	0.9999	427.507
99246	1	392.88	0.9999	392.836
99277	1	423.43	0.9999	423.383
99263	1	422.05	0.9999	422.008
99252	1	416.10	0.9999	416.058
99253	1	403.48	0.9999	403.435
99251	1	404.80	0.9999	404.760
99250	1	412.35	0.9999	412.309
99249	1	393.15	0.9999	393.111
99248	1	421.35	0.9999	421.308
99238	1	402.10	0.9999	402.060
99239	1	408.08	0.9999	408.034
99240	1			

		408.05	0.9999	408.009
99241	1	380.60	0.9999	380.562
99242	1	404.20	0.9999	404.160
99243	1	397.63	0.9999	397.585
99244	1	400.38	0.9999	400.335
99245	1	383.45	0.9999	383.412
2584	1	386.93	0.9999	386.886
2589	1	395.05	0.9999	395.010
2583	1	403.53	0.9999	403.485
2582	1	416.43	0.9999	416.383
100	1	399.28	0.9999	399.235
2650	1	404.38	0.9999	404.335
2649	1	410.83	0.9999	410.784
2648	1	373.88	0.9999	373.838
2638	1	402.03	0.9999	401.985
0021	1	402.40	0.9999	402.360
0018	1	403.05	0.9999	403.010
0022	1	402.20	0.9999	402.160
0023	1	402.10	0.9999	402.060
0036	1	401.95	0.9999	401.910
0034	1	402.20	0.9999	402.160
0035	1	402.00	0.9999	401.960
97	1			

		401.90	0.9999	401.860
2635	1	386.75	0.9999	386.711
2585	1	377.73	0.9999	377.687
2586	1	389.70	0.9999	389.661
2587	1	404.38	0.9999	404.335
2590	1	381.00	0.9999	380.962
2756	1	407.23	0.9999	407.184
2758	1	407.48	0.9999	407.434
16255	1	384.40	0.9999	384.362
2755	1	393.18	0.9999	393.136
2757	1	395.15	0.9999	395.110
2579	1	405.68	0.9999	405.634
50094	1	384.80	0.9999	384.762
50101	1	374.53	0.9999	374.488
50066	1	378.55	0.9999	378.512
2580	1	418.95	0.9999	418.908
50082	1	418.03	0.9999	417.983
50060	1	395.95	0.9999	395.910
50076	1	398.45	0.9999	398.410
50049	1	382.18	0.9999	382.137
50098	1	379.35	0.9999	379.312
50085	1	419.70	0.9999	419.658
50074	1			

		369.35	0.9999	369.313
50072	1	417.38	0.9999	417.333
2260	1	402.13	0.9999	402.085
2250	1	401.40	0.9999	401.360
2243	1	401.20	0.9999	401.160
2238	1	402.05	0.9999	402.010
2233	1	409.53	0.9999	409.484
2264	1	401.73	0.9999	401.685
2241	1	401.60	0.9999	401.560
2120	1	403.13	0.9999	403.085
2133	1	406.90	0.9999	406.859
2134	1	406.80	0.9999	406.759
2251	1	400.63	0.9999	400.585
2246	1	403.93	0.9999	403.885
2265	1	401.73	0.9999	401.685
2236	1	402.95	0.9999	402.910
2234	1	405.20	0.9999	405.159
2237	1	402.65	0.9999	402.610
2259	1	402.35	0.9999	402.310
2247	1	403.25	0.9999	403.210
2249	1	401.48	0.9999	401.435
2263	1	401.93	0.9999	401.885
12306	1			

		394.85	0.9999	394.811
12305	1	384.63	0.9999	384.587
12301	1	394.88	0.9999	394.836
12320	1	400.53	0.9999	400.485
12323	1	411.90	0.9999	411.859
12307	1	388.60	0.9999	388.561
12300	1	398.15	0.9999	398.110
12302	1	416.68	0.9999	416.633
12310	1	399.33	0.9999	399.285
12311	1	398.95	0.9999	398.910
12308	1	417.33	0.9999	417.283
12315	1	406.55	0.9999	406.509
12319	1	395.38	0.9999	395.335
12314	1	397.38	0.9999	397.335
12316	1	410.38	0.9999	410.334
12303	1	408.23	0.9999	408.184
12304	1	424.73	0.9999	424.683
12322	1	410.58	0.9999	410.534
12317	1	382.75	0.9999	382.712
12309	1	398.23	0.9999	398.185
12276	1	404.05	0.9999	404.010
12275	1	394.88	0.9999	394.836
12274	1			

		400.23	0.9999	400.185
12273	1	392.58	0.9999	392.536
12271	1	416.05	0.9999	416.008
12296	1	399.83	0.9999	399.785
12294	1	386.88	0.9999	386.836
12264	1	398.88	0.9999	398.835
12272	1	395.33	0.9999	395.285
12288	1	411.65	0.9999	411.609
12279	1	426.55	0.9999	426.507
12277	1	412.50	0.9999	412.459
12280	1	410.68	0.9999	410.634
12278	1	392.58	0.9999	392.536
12259	1	382.33	0.9999	382.287
12283	1	393.25	0.9999	393.211
12291	1	409.73	0.9999	409.684
12292	1	400.63	0.9999	400.585
12293	1	385.90	0.9999	385.861
12258	1	395.28	0.9999	395.235
12290	1	395.35	0.9999	395.310
12289	1	390.55	0.9999	390.511
12297	1	382.75	0.9999	382.712
12298	1	394.90	0.9999	394.861
12299	1			

		397.48	0.9999	397.435
12262	1	407.23	0.9999	407.184
12263	1	404.73	0.9999	404.685
12321	1	407.80	0.9999	407.759
12267	1	384.80	0.9999	384.762
12284	1	406.55	0.9999	406.509
12295	1	417.88	0.9999	417.833
12281	1	383.38	0.9999	383.337
12269	1	393.58	0.9999	393.536
12282	1	408.10	0.9999	408.059
12261	1	399.43	0.9999	399.385
2315	1	396.30	0.9999	396.260
2323	1	396.28	0.9999	396.235
2338	1	396.30	0.9999	396.260
2341	1	400.63	0.9999	400.585
2331	1	396.30	0.9999	396.260
2333	1	396.30	0.9999	396.260
2326	1	396.30	0.9999	396.260
2318	1	395.93	0.9999	395.885
2316	1	395.50	0.9999	395.460
2317	1	396.30	0.9999	396.260
2319	1	396.30	0.9999	396.260
2330	1			

		396.30	0.9999	396.260
2325	1	396.25	0.9999	396.210
2324	1	396.30	0.9999	396.260
2339	1	400.10	0.9999	400.060
2332	1	396.33	0.9999	396.285
2320	1	396.30	0.9999	396.260
2340	1	400.23	0.9999	400.185
2343	1	399.80	0.9999	399.760
2342	1	400.13	0.9999	400.085
2328	1	396.28	0.9999	396.235
2334	1	396.30	0.9999	396.260
2335	1	396.18	0.9999	396.135
2336	1	396.30	0.9999	396.260
2329	1	396.23	0.9999	396.185
2322	1	396.28	0.9999	396.235
11632	1	415.20	0.9999	415.158
11637	1	414.93	0.9999	414.884
11631	1	421.40	0.9999	421.358
11636	1	397.18	0.9999	397.135
11630	1	407.73	0.9999	407.684
11621	1	412.23	0.9999	412.184
11633	1	409.03	0.9999	408.984
11618	1			

		413.63	0.9999	413.584
11638	1	402.18	0.9999	402.135
11617	1	414.98	0.9999	414.934
48838	1	423.28	0.9999	423.233
11611	1	424.65	0.9999	424.608
11614	1	413.50	0.9999	413.459
11615	1	405.38	0.9999	405.334
11608	1	411.55	0.9999	411.509
11610	1	412.65	0.9999	412.609
11622	1	424.93	0.9999	424.883
11623	1	403.50	0.9999	403.460
11628	1	419.03	0.9999	418.983
11627	1	421.38	0.9999	421.333
48860	1	423.35	0.9999	423.308
48855	1	412.30	0.9999	412.259
48803	1	405.70	0.9999	405.659
48839	1	403.75	0.9999	403.710
48832	1	418.00	0.9999	417.958
48793	1	400.00	0.9999	399.960
48857	1	401.43	0.9999	401.385
48809	1	407.30	0.9999	407.259
48833	1	401.20	0.9999	401.160
48805	1			

		424.65	0.9999	424.608
48841	1	398.10	0.9999	398.060
48842	1	426.93	0.9999	426.882
48849	1	421.53	0.9999	421.483
48845	1	418.30	0.9999	418.258
48825	1	415.38	0.9999	415.333
48785	1	404.03	0.9999	403.985
48834	1	411.28	0.9999	411.234
48844	1	400.93	0.9999	400.885
48822	1	422.10	0.9999	422.058
48816	1	401.53	0.9999	401.485
48817	1	428.65	0.9999	428.607
48799	1	407.83	0.9999	407.784
48790	1	402.40	0.9999	402.360
48794	1	412.23	0.9999	412.184
48783	1	401.55	0.9999	401.510
48808	1	402.25	0.9999	402.210
48797	1	407.83	0.9999	407.784
48782	1	413.10	0.9999	413.059
48830	1	381.35	0.9999	381.312
2312	1	395.68	0.9999	395.635
2311	1	395.60	0.9999	395.560
2310	1			

		395.68	0.9999	395.635
2309	1	395.68	0.9999	395.635
2308	1	395.70	0.9999	395.660
2307	1	395.68	0.9999	395.635
2303	1	395.65	0.9999	395.610
2306	1	395.68	0.9999	395.635
2305	1	395.68	0.9999	395.635
2304	1	395.68	0.9999	395.635
2302	1	395.68	0.9999	395.635
2296	1	395.68	0.9999	395.635
2289	1	395.60	0.9999	395.560
2286	1	395.65	0.9999	395.610
2299	1	395.65	0.9999	395.610
2285	1	395.65	0.9999	395.610
2284	1	395.65	0.9999	395.610
2283	1	395.68	0.9999	395.635
12318	1	405.30	0.9999	405.259
12312	1	391.50	0.9999	391.461
2297	1	395.68	0.9999	395.635
2293	1	395.68	0.9999	395.635
2292	1	395.65	0.9999	395.610
2288	1	395.68	0.9999	395.635
2291	1			

		395.68	0.9999	395.635
2287	1	395.68	0.9999	395.635
2294	1	395.65	0.9999	395.610
2295	1	395.65	0.9999	395.610
2301	1	395.68	0.9999	395.635
2300	1	395.68	0.9999	395.635
48726	1	394.83	0.9999	394.786
48725	1	408.28	0.9999	408.234
48709	1	393.83	0.9999	393.786
48706	1	392.98	0.9999	392.936
48703	1	374.48	0.9999	374.438
48701	1	386.08	0.9999	386.036
48713	1	409.58	0.9999	409.534
48712	1	379.63	0.9999	379.587
48695	1	397.38	0.9999	397.335
48720	1	411.95	0.9999	411.909
48707	1	416.98	0.9999	416.933
48714	1	376.75	0.9999	376.712
48716	1	389.73	0.9999	389.686
48715	1	385.90	0.9999	385.861
48708	1	391.13	0.9999	391.086
48704	1	389.70	0.9999	389.661
2733	1			

		417.25	0.9999	417.208
2726	1	404.80	0.9999	404.760
2723	1	388.30	0.9999	388.261
2739	1	401.60	0.9999	401.560
2734	1	403.33	0.9999	403.285
2720	1	387.75	0.9999	387.711
2738	1	391.88	0.9999	391.836
2725	1	410.88	0.9999	410.834
2718	1	420.38	0.9999	420.333
2717	1	411.95	0.9999	411.909
2728	1	397.33	0.9999	397.285
2722	1	367.05	0.9999	367.013
2721	1	409.20	0.9999	409.159
48692	1	396.45	0.9999	396.410
2727	1	415.75	0.9999	415.708
2724	1	406.48	0.9999	406.434
2730	1	407.00	0.9999	406.959
2729	1	394.70	0.9999	394.661
2737	1	403.83	0.9999	403.785
2719	1	410.20	0.9999	410.159
2731	1	409.08	0.9999	409.034
2735	1	392.10	0.9999	392.061
2732	1			

		390.10	0.9999	390.061
2736	1	377.35	0.9999	377.312
48721	1	407.88	0.9999	407.834
48717	1	383.83	0.9999	383.787
48693	1	380.55	0.9999	380.512
48724	1	419.28	0.9999	419.233
48723	1	393.88	0.9999	393.836
48702	1	406.75	0.9999	406.709
48710	1	390.80	0.9999	390.761
48697	1	387.85	0.9999	387.811
48722	1	387.05	0.9999	387.011
48705	1	391.33	0.9999	391.286
48696	1	374.98	0.9999	374.938
48693	1	400.10	0.9999	400.060
48692	1	400.08	0.9999	400.035
48718	1	394.88	0.9999	394.836
48719	1	417.48	0.9999	417.433
48711	1	391.35	0.9999	391.311
48700	1	410.05	0.9999	410.009
48699	1	404.20	0.9999	404.160
11657	1	394.88	0.9999	394.836
11655	1	388.25	0.9999	388.211
11629	1			

		417.43	0.9999	417.383
11634	1	414.30	0.9999	414.259
11635	1	412.23	0.9999	412.184
11648	1	413.15	0.9999	413.109
11649	1	405.35	0.9999	405.309
11650	1	404.15	0.9999	404.110
11651	1	400.78	0.9999	400.735
11652	1	393.20	0.9999	393.161
11653	1	417.60	0.9999	417.558
11654	1	402.05	0.9999	402.010
11626	1	410.23	0.9999	410.184
11607	1	422.15	0.9999	422.108
11606	1	396.70	0.9999	396.660
11639	1	398.60	0.9999	398.560
11620	1	407.30	0.9999	407.259
11619	1	418.10	0.9999	418.058
11612	1	390.75	0.9999	390.711
11624	1	414.80	0.9999	414.759
11625	1	415.68	0.9999	415.633
11616	1	414.88	0.9999	414.834
11345	1	393.88	0.9999	393.836
11353	1	418.98	0.9999	418.933
11354	1			

		424.18	0.9999	424.133
11270	1	403.08	0.9999	403.035
11269	1	395.38	0.9999	395.335
11289	1	418.95	0.9999	418.908
11302	1	405.73	0.9999	405.684
11288	1	413.10	0.9999	413.059
11287	1	421.75	0.9999	421.708
11285	1	413.03	0.9999	412.984
11346	1	387.23	0.9999	387.186
11391	1	417.25	0.9999	417.208
11396	1	383.90	0.9999	383.862
11399	1	420.18	0.9999	420.133
11352	1	412.98	0.9999	412.934
11349	1	394.35	0.9999	394.311
11347	1	420.48	0.9999	420.433
11350	1	404.75	0.9999	404.710
11393	1	399.45	0.9999	399.410
11394	1	398.60	0.9999	398.560
11301	1	408.35	0.9999	408.309
11292	1	406.60	0.9999	406.559
11297	1	392.40	0.9999	392.361
11273	1	425.13	0.9999	425.082
11274	1			

		407.58	0.9999	407.534
11296	1	405.63	0.9999	405.584
11268	1	418.90	0.9999	418.858
11304	1	403.68	0.9999	403.635
11282	1	411.80	0.9999	411.759
11281	1	407.18	0.9999	407.134
11286	1	416.88	0.9999	416.833
11343	1	406.95	0.9999	406.909
11344	1	416.80	0.9999	416.758
11348	1	427.20	0.9999	427.157
11320	1	396.80	0.9999	396.760
11310	1	402.95	0.9999	402.910
11315	1	398.55	0.9999	398.510
11299	1	399.33	0.9999	399.285
11300	1	402.03	0.9999	401.985
11305	1	396.33	0.9999	396.285
11284	1	413.68	0.9999	413.634
11283	1	421.45	0.9999	421.408
11295	1	390.00	0.9999	389.961
11298	1	398.73	0.9999	398.685
11355	1	415.75	0.9999	415.708
11397	1	418.93	0.9999	418.883
11395	1			

		415.80	0.9999	415.758
11309	1	418.08	0.9999	418.033
11291	1	411.13	0.9999	411.084
11316	1	417.58	0.9999	417.533
11278	1	406.25	0.9999	406.209
11290	1	419.68	0.9999	419.633
11318	1	409.68	0.9999	409.634
11317	1	399.90	0.9999	399.860
11319	1	407.55	0.9999	407.509
11342	1	405.10	0.9999	405.059
11311	1	384.58	0.9999	384.537
11312	1	415.00	0.9999	414.959
11306	1	399.95	0.9999	399.910
11313	1	425.63	0.9999	425.582
11293	1	412.48	0.9999	412.434
11294	1	409.15	0.9999	409.109
11271	1	394.25	0.9999	394.211
11276	1	413.20	0.9999	413.159
11277	1	411.73	0.9999	411.684
11272	1	409.20	0.9999	409.159
48694	1	387.60	0.9999	387.561
48691	1	414.05	0.9999	414.009
48728	1			

		374.43	0.9999	374.388
48727	1	420.13	0.9999	420.083
11308	1	398.53	0.9999	398.485
11314	1	419.35	0.9999	419.308
11392	1	390.93	0.9999	390.886
11321	1	400.80	0.9999	400.760
11307	1	408.88	0.9999	408.834
11280	1	408.03	0.9999	407.984
11279	1	388.70	0.9999	388.661
11267	1	425.98	0.9999	425.932
11275	1	400.15	0.9999	400.110
11265	1	406.35	0.9999	406.309
48946	1	399.68	0.9999	399.635
48933	1	389.23	0.9999	389.186
48934	1	406.35	0.9999	406.309
48939	1	386.48	0.9999	386.436
48947	1	385.15	0.9999	385.111
48942	1	395.15	0.9999	395.110
12195	1	404.00	0.9999	403.960
12187	1	415.58	0.9999	415.533
12170	1	401.08	0.9999	401.035
12156	1	411.18	0.9999	411.134
48943	1			

		408.20	0.9999	408.159
48935	1	382.05	0.9999	382.012
48932	1	401.05	0.9999	401.010
48936	1	394.95	0.9999	394.911
48937	1	385.63	0.9999	385.586
48938	1	379.68	0.9999	379.637
48940	1	395.88	0.9999	395.835
48945	1	393.48	0.9999	393.436
48944	1	396.88	0.9999	396.835
48931	1	385.40	0.9999	385.361
12173	1	397.53	0.9999	397.485
12207	1	402.93	0.9999	402.885
12200	1	389.85	0.9999	389.811
12194	1	405.05	0.9999	405.009
12198	1	397.50	0.9999	397.460
12183	1	414.80	0.9999	414.759
12191	1	389.83	0.9999	389.786
12155	1	421.00	0.9999	420.958
12185	1	401.05	0.9999	401.010
12164	1	400.25	0.9999	400.210
12203	1	402.48	0.9999	402.435
12158	1	390.85	0.9999	390.811
12204	1			

		412.30	0.9999	412.259
12206	1	398.23	0.9999	398.185
12175	1	421.13	0.9999	421.083
12184	1	399.58	0.9999	399.535
12163	1	422.15	0.9999	422.108
12168	1	404.75	0.9999	404.710
12157	1	405.60	0.9999	405.559
12189	1	379.68	0.9999	379.637
12186	1	391.80	0.9999	391.761
12178	1	407.73	0.9999	407.684
12205	1	379.78	0.9999	379.737
12169	1	394.18	0.9999	394.136
12180	1	404.00	0.9999	403.960
12182	1	404.65	0.9999	404.610
12161	1	405.08	0.9999	405.034
12196	1	417.90	0.9999	417.858
12181	1	406.78	0.9999	406.734
12209	1	398.93	0.9999	398.885
12193	1	408.18	0.9999	408.134
12177	1	398.88	0.9999	398.835
12190	1	409.23	0.9999	409.184
12171	1	407.15	0.9999	407.109
12179	1			

		411.28	0.9999	411.234
12174	1	391.03	0.9999	390.986
12188	1	397.85	0.9999	397.810
12165	1	410.03	0.9999	409.984
12172	1	397.60	0.9999	397.560
12192	1	399.15	0.9999	399.110
12201	1	411.08	0.9999	411.034
11351	1	409.35	0.9999	409.309
11405	1	426.78	0.9999	426.732
11406	1	417.23	0.9999	417.183
11404	1	416.08	0.9999	416.033
11403	1	401.75	0.9999	401.710
11402	1	410.93	0.9999	410.884
11401	1	413.03	0.9999	412.984
11400	1	410.38	0.9999	410.334
11398	1	418.65	0.9999	418.608
12167	1	410.40	0.9999	410.359
12176	1	420.95	0.9999	420.908
12199	1	399.18	0.9999	399.135
12160	1	422.10	0.9999	422.058
12166	1	401.08	0.9999	401.035
12159	1	424.35	0.9999	424.308
12208	1			

		409.30	0.9999	409.259
12162	1	410.03	0.9999	409.984
12202	1	400.10	0.9999	400.060
12197	1	404.60	0.9999	404.560
11356	1	416.48	0.9999	416.433
12268	1	381.68	0.9999	381.637
12260	1	392.15	0.9999	392.111
11266	1	413.25	0.9999	413.209
49085	1	385.65	0.9999	385.611
2262	1	401.88	0.9999	401.835
2261	1	402.10	0.9999	402.060
2248	1	402.80	0.9999	402.760
2244	1	401.03	0.9999	400.985
2254	1	391.80	0.9999	391.761
2242	1	401.25	0.9999	401.210
2239	1	402.08	0.9999	402.035
2240	1	401.68	0.9999	401.635
2245	1	404.03	0.9999	403.985
2252	1	401.05	0.9999	401.010
2255	1	403.63	0.9999	403.585
2235	1	403.45	0.9999	403.410
2256	1	402.90	0.9999	402.860
2257	1			

		402.78	0.9999	402.735
2258	1	401.50	0.9999	401.460
2588	1	389.83	0.9999	389.786
0032	1	402.70	0.9999	402.660
0037	1	401.83	0.9999	401.785
0038	1	401.58	0.9999	401.535
0017	1	403.98	0.9999	403.935
0015	1	407.73	0.9999	407.684
0026	1	401.63	0.9999	401.585
0024	1	402.13	0.9999	402.085
0029	1	405.10	0.9999	405.059
0025	1	401.95	0.9999	401.910
0020	1	402.53	0.9999	402.485
0016	1	406.38	0.9999	406.334
0019	1	402.78	0.9999	402.735
99	1	400.63	0.9999	400.585
103	1	404.23	0.9999	404.185
101	1	406.23	0.9999	406.184
94	1	402.18	0.9999	402.135
102	1	400.60	0.9999	400.560
0031	1	403.08	0.9999	403.035
0033	1	401.90	0.9999	401.860
95	1			

		402.08	0.9999	402.035
98	1	401.53	0.9999	401.485
96	1	401.80	0.9999	401.760
104	1	404.23	0.9999	404.185
138943	1	395.02	0.9999	394.980
138956	1	396.81	0.9999	396.770
138942	1	392.30	0.9999	392.260
138944	1	400.09	0.9999	400.050
138955	1	399.67	0.9999	399.630
2759	1	377.38	0.9999	377.337
0030	1	404.48	0.9999	404.435
50050	1	403.75	0.9999	403.710
50079	1	382.08	0.9999	382.037
50099	1	383.80	0.9999	383.762
50083	1	371.53	0.9999	371.488
50070	1	395.58	0.9999	395.535
50088	1	391.60	0.9999	391.561
50081	1	393.95	0.9999	393.911
50065	1	368.63	0.9999	368.588
50095	1	422.75	0.9999	422.708
15862	1	422.23	0.9999	422.183
15854	1	404.40	0.9999	404.360
15853	1			

		404.65	0.9999	404.610
15856	1	407.20	0.9999	407.159
15858	1	391.58	0.9999	391.536
15855	1	410.85	0.9999	410.809
15254	1	387.48	0.9999	387.436
15364	1	375.13	0.9999	375.087
15266	1	388.80	0.9999	388.761
15279	1	391.50	0.9999	391.461
15865	1	398.63	0.9999	398.585
15864	1	406.38	0.9999	406.334
15863	1	405.95	0.9999	405.909
15986	1	399.05	0.9999	399.010
15995	1	387.25	0.9999	387.211
15989	1	400.75	0.9999	400.709
15988	1	386.25	0.9999	386.211
15987	1	392.30	0.9999	392.260
15366	1	383.68	0.9999	383.637
15861	1	425.73	0.9999	425.682
141452	1	400.28	0.9999	400.239
141456	1	405.35	0.9999	405.309
141467	1	403.58	0.9999	403.539
141465	1	401.40	0.9999	401.359
141455	1			

		398.58	0.9999	398.540
141463	1	393.89	0.9999	393.850
141466	1	399.43	0.9999	399.390
141460	1	399.98	0.9999	399.940
141459	1	405.65	0.9999	405.609
141453	1	400.14	0.9999	400.099
15356	1	388.48	0.9999	388.436
15344	1	427.70	0.9999	427.657
141468	1	405.35	0.9999	405.309
141470	1	405.55	0.9999	405.509
141458	1	409.36	0.9999	409.319
141457	1	402.22	0.9999	402.179
141469	1	400.09	0.9999	400.049
141462	1	400.48	0.9999	400.439
141461	1	394.82	0.9999	394.780
141451	1	407.92	0.9999	407.879
141464	1	399.07	0.9999	399.030
141454	1	397.83	0.9999	397.790
9900631	1	400.06	0.9999	400.019
9900630	1	400.06	0.9999	400.019
9900632	1	400.07	0.9999	400.029
9900608	1	400.09	0.9999	400.049
9900626	1			

		400.06	0.9999	400.019
9900629	1	400.08	0.9999	400.039
9900628	1	400.07	0.9999	400.029
9900615	1	400.09	0.9999	400.049
9900614	1	400.09	0.9999	400.049
9900613	1	400.10	0.9999	400.059
9900633	1	400.07	0.9999	400.029
9900610	1	400.10	0.9999	400.059
9900609	1	400.09	0.9999	400.049
9900612	1	400.10	0.9999	400.059
9900611	1	400.02	0.9999	399.979
15357	1	398.25	0.9999	398.210
15358	1	404.58	0.9999	404.535
15359	1	402.00	0.9999	401.960
15343	1	395.15	0.9999	395.110
15345	1	390.48	0.9999	390.436
15346	1	395.85	0.9999	395.810
15347	1	402.03	0.9999	401.985
15348	1	402.75	0.9999	402.710
15349	1	395.35	0.9999	395.310
15352	1	413.25	0.9999	413.209
15354	1	402.18	0.9999	402.135
15392	1			

		395.05	0.9999	395.010
15393	1	402.00	0.9999	401.960
15394	1	402.23	0.9999	402.185
9900635	1	400.06	0.9999	400.019
9900640	1	400.10	0.9999	400.059
9900639	1	400.10	0.9999	400.059
9900606	1	400.10	0.9999	400.059
9900634	1	400.07	0.9999	400.029
9900953	1	400.09	0.9999	400.049
9900957	1	400.09	0.9999	400.049
9900955	1	400.09	0.9999	400.049
9900951	1	400.08	0.9999	400.039
9900959	1	400.10	0.9999	400.059
9900958	1	400.09	0.9999	400.049
9900949	1	400.10	0.9999	400.059
9900962	1	400.08	0.9999	400.039
9900948	1	400.10	0.9999	400.059
9900952	1	400.09	0.9999	400.049
9900945	1	400.11	0.9999	400.069
9900947	1	400.10	0.9999	400.059
9900963	1	400.10	0.9999	400.059
9900954	1	400.09	0.9999	400.049
9900944	1			

		400.10	0.9999	400.059
854	1	403.33	0.9999	403.289
867	1	399.45	0.9999	399.410
866	1	399.85	0.9999	399.810
865	1	400.10	0.9999	400.059
864	1	400.50	0.9999	400.459
855	1	403.28	0.9999	403.239
863	1	400.53	0.9999	400.489
15857	1	403.23	0.9999	403.185
50061	1	388.25	0.9999	388.211
15859	1	401.93	0.9999	401.885
9900638	1	400.11	0.9999	400.069
852	1	400.83	0.9999	400.785
851	1	400.93	0.9999	400.885
850	1	401.10	0.9999	401.060
849	1	401.38	0.9999	401.335
848	1	401.60	0.9999	401.560
847	1	402.15	0.9999	402.110
845	1	402.03	0.9999	401.985
846	1	402.35	0.9999	402.310
853	1	407.78	0.9999	407.739
15234	1	386.78	0.9999	386.736
15286	1			

		387.55	0.9999	387.511
15370	1	417.40	0.9999	417.358
50093	1	375.48	0.9999	375.437
50064	1	389.63	0.9999	389.586
50100	1	416.23	0.9999	416.183
50108	1	419.05	0.9999	419.008
50059	1	389.80	0.9999	389.761
50054	1	390.93	0.9999	390.886
50058	1	384.78	0.9999	384.737
15866	1	413.35	0.9999	413.309
15860	1	405.10	0.9999	405.059
15867	1	416.20	0.9999	416.158
15371	1	417.65	0.9999	417.608
15351	1	382.40	0.9999	382.362
15386	1	426.58	0.9999	426.532
15353	1	386.43	0.9999	386.386
15398	1	418.43	0.9999	418.383
15350	1	383.88	0.9999	383.837
15222	1	385.63	0.9999	385.586
15363	1	384.78	0.9999	384.737
15369	1	386.98	0.9999	386.936
15385	1	415.30	0.9999	415.258
15274	1			

		389.53	0.9999	389.486
15256	1	390.08	0.9999	390.036
15374	1	417.13	0.9999	417.083
15288	1	373.23	0.9999	373.188
15268	1	389.60	0.9999	389.561
15388	1	414.93	0.9999	414.884
15379	1	415.15	0.9999	415.108
50096	1	379.48	0.9999	379.437
50090	1	383.45	0.9999	383.412
50103	1	377.70	0.9999	377.662
50102	1	375.25	0.9999	375.212
50052	1	376.88	0.9999	376.837
50053	1	389.38	0.9999	389.336
50080	1	389.63	0.9999	389.586
15280	1	384.73	0.9999	384.687
15355	1	415.90	0.9999	415.858
15373	1	427.68	0.9999	427.632
16286	1	416.13	0.9999	416.083
16285	1	417.25	0.9999	417.208
16231	1	375.10	0.9999	375.062
16232	1	383.80	0.9999	383.762
16253	1	396.10	0.9999	396.060
16217	1			

		395.65	0.9999	395.610
16266	1	396.85	0.9999	396.810
16218	1	423.58	0.9999	423.533
16289	1	386.23	0.9999	386.186
16273	1	388.15	0.9999	388.111
16245	1	381.50	0.9999	381.462
16244	1	411.95	0.9999	411.909
16297	1	388.25	0.9999	388.211
16237	1	419.68	0.9999	419.633
16236	1	403.68	0.9999	403.635
16247	1	406.45	0.9999	406.409
16239	1	402.50	0.9999	402.460
16233	1	402.95	0.9999	402.910
16224	1	397.75	0.9999	397.710
16223	1	393.63	0.9999	393.586
16215	1	397.78	0.9999	397.735
16252	1	402.48	0.9999	402.435
16269	1	412.40	0.9999	412.359
16292	1	418.75	0.9999	418.708
16270	1	391.80	0.9999	391.761
16282	1	394.33	0.9999	394.286
16294	1	416.00	0.9999	415.958
9900794	1			

		400.09	0.9999	400.049
9900801	1	400.09	0.9999	400.049
862	1	400.88	0.9999	400.839
16240	1	424.28	0.9999	424.233
16280	1	395.40	0.9999	395.360
16261	1	415.53	0.9999	415.483
16260	1	397.03	0.9999	396.985
16275	1	395.88	0.9999	395.835
16274	1	379.13	0.9999	379.087
16256	1	399.40	0.9999	399.360
16241	1	395.65	0.9999	395.610
16257	1	394.15	0.9999	394.111
16222	1	401.00	0.9999	400.960
877	1	402.13	0.9999	402.089
868	1	404.98	0.9999	404.939
876	1	402.20	0.9999	402.159
869	1	404.30	0.9999	404.259
858	1	402.43	0.9999	402.389
861	1	401.08	0.9999	401.039
860	1	401.38	0.9999	401.339
870	1	403.90	0.9999	403.859
873	1	403.73	0.9999	403.689
856	1			

		402.90	0.9999	402.859
875	1	403.03	0.9999	402.989
874	1	402.93	0.9999	402.889
872	1	404.00	0.9999	403.959
871	1	404.05	0.9999	404.009
857	1	403.18	0.9999	403.139
859	1	402.15	0.9999	402.109
9900811	1	400.08	0.9999	400.039
9900813	1	400.10	0.9999	400.059
9900802	1	400.10	0.9999	400.059
9900797	1	400.09	0.9999	400.049
9900809	1	400.10	0.9999	400.059
9900807	1	400.09	0.9999	400.049
9900796	1	400.10	0.9999	400.059
9900803	1	400.10	0.9999	400.059
9900960	1	400.09	0.9999	400.049
9900946	1	400.10	0.9999	400.059
9900950	1	400.10	0.9999	400.059
9900964	1	400.10	0.9999	400.059
9900956	1	400.11	0.9999	400.069
9900961	1	400.11	0.9999	400.069
9900798	1	400.09	0.9999	400.049
9900805	1			

		400.09	0.9999	400.049
9900806	1	400.10	0.9999	400.059
9900800	1	400.09	0.9999	400.049
9900804	1	400.09	0.9999	400.049
9900795	1	400.08	0.9999	400.039
9900810	1	400.10	0.9999	400.059
9900799	1	400.08	0.9999	400.039
9900812	1	400.09	0.9999	400.049
9900808	1	400.10	0.9999	400.059
13547	1	412.85	0.9999	412.809
13548	1	399.03	0.9999	398.985
13566	1	422.65	0.9999	422.608
13588	1	396.50	0.9999	396.460
13583	1	388.00	0.9999	387.961
13572	1	413.78	0.9999	413.734
13575	1	408.13	0.9999	408.084
13581	1	407.10	0.9999	407.059
49592	1	388.10	0.9999	388.061
49255	1	390.23	0.9999	390.190
13591	1	387.83	0.9999	387.786
13597	1	387.18	0.9999	387.136
13599	1	389.95	0.9999	389.911
13561	1			

		405.63	0.9999	405.584
13556	1	406.23	0.9999	406.184
13589	1	392.10	0.9999	392.061
13621	1	417.55	0.9999	417.508
13616	1	412.20	0.9999	412.159
13615	1	401.15	0.9999	401.110
13628	1	414.53	0.9999	414.484
49636	1	393.90	0.9999	393.860
49648	1	397.83	0.9999	397.785
49650	1	382.58	0.9999	382.536
49649	1	408.18	0.9999	408.134
49620	1	388.98	0.9999	388.936
49627	1	396.63	0.9999	396.585
49652	1	401.50	0.9999	401.459
49256	1	398.53	0.9999	398.490
49254	1	397.40	0.9999	397.360
49246	1	395.58	0.9999	395.540
49633	1	399.43	0.9999	399.385
49644	1	373.43	0.9999	373.387
49612	1	401.75	0.9999	401.709
49635	1	394.63	0.9999	394.585
49637	1	391.55	0.9999	391.510
49630	1			

		391.88	0.9999	391.835
49645	1	369.78	0.9999	369.738
49643	1	399.80	0.9999	399.760
49654	1	417.98	0.9999	417.933
49642	1	412.90	0.9999	412.858
49621	1	387.83	0.9999	387.786
49623	1	392.40	0.9999	392.360
49638	1	386.75	0.9999	386.711
49639	1	422.20	0.9999	422.157
49647	1	381.35	0.9999	381.311
49651	1	377.20	0.9999	377.162
49656	1	368.10	0.9999	368.063
12286	1	384.33	0.9999	384.287
13898	1	399.43	0.9999	399.385
16243	1	405.03	0.9999	404.984
49622	1	415.03	0.9999	414.983
49624	1	398.55	0.9999	398.510
49625	1	373.65	0.9999	373.612
49628	1	383.75	0.9999	383.711
49629	1	414.83	0.9999	414.783
49631	1	381.38	0.9999	381.336
49632	1	381.63	0.9999	381.586
49653	1			

		390.10	0.9999	390.061
49640	1	394.43	0.9999	394.385
49641	1	402.95	0.9999	402.909
16249	1	402.63	0.9999	402.585
16228	1	391.18	0.9999	391.136
16213	1	416.85	0.9999	416.808
16220	1	389.75	0.9999	389.711
16238	1	400.75	0.9999	400.710
16250	1	408.35	0.9999	408.309
16298	1	421.85	0.9999	421.808
16229	1	386.40	0.9999	386.361
16235	1	420.70	0.9999	420.658
16258	1	393.68	0.9999	393.636
16248	1	392.50	0.9999	392.461
16219	1	397.20	0.9999	397.160
16242	1	401.38	0.9999	401.335
16227	1	405.98	0.9999	405.934
16226	1	424.03	0.9999	423.983
16225	1	404.65	0.9999	404.610
16254	1	384.25	0.9999	384.212
16230	1	408.03	0.9999	407.984
16221	1	389.78	0.9999	389.736
16251	1			

		426.13	0.9999	426.082
13550	1	413.38	0.9999	413.334
13557	1	418.80	0.9999	418.758
13577	1	384.08	0.9999	384.037
13558	1	415.83	0.9999	415.783
13595	1	397.55	0.9999	397.510
13590	1	403.65	0.9999	403.610
13594	1	383.45	0.9999	383.412
13596	1	410.55	0.9999	410.509
13554	1	393.33	0.9999	393.286
13618	1	411.83	0.9999	411.784
13593	1	381.70	0.9999	381.662
13592	1	423.50	0.9999	423.458
13579	1	418.25	0.9999	418.208
13564	1	425.30	0.9999	425.257
13565	1	416.38	0.9999	416.333
13585	1	403.60	0.9999	403.560
13586	1	399.53	0.9999	399.485
13555	1	420.75	0.9999	420.708
13545	1	416.43	0.9999	416.383
13553	1	418.53	0.9999	418.483
12369	1	404.30	0.9999	404.260
12341	1			

		407.80	0.9999	407.759
12349	1	407.45	0.9999	407.409
12350	1	405.55	0.9999	405.509
12347	1	404.18	0.9999	404.135
12371	1	394.80	0.9999	394.761
12363	1	411.55	0.9999	411.509
12362	1	402.55	0.9999	402.510
12373	1	398.30	0.9999	398.260
12365	1	406.95	0.9999	406.909
12360	1	398.95	0.9999	398.910
12361	1	415.43	0.9999	415.383
12364	1	410.18	0.9999	410.134
12356	1	413.65	0.9999	413.609
12355	1	399.18	0.9999	399.135
12366	1	411.25	0.9999	411.209
12345	1	411.53	0.9999	411.484
12368	1	399.95	0.9999	399.910
12367	1	399.38	0.9999	399.335
13562	1	425.70	0.9999	425.657
12351	1	409.85	0.9999	409.809
12358	1	413.33	0.9999	413.284
13552	1	405.95	0.9999	405.909
13563	1			

		411.40	0.9999	411.359
13620	1	427.70	0.9999	427.657
13560	1	421.88	0.9999	421.833
13546	1	413.08	0.9999	413.034
13573	1	406.18	0.9999	406.134
13578	1	382.18	0.9999	382.137
13576	1	415.80	0.9999	415.758
12354	1	406.08	0.9999	406.034
12338	1	423.20	0.9999	423.158
12340	1	407.48	0.9999	407.434
12372	1	410.65	0.9999	410.609
12359	1	400.28	0.9999	400.235
12352	1	397.90	0.9999	397.860
12343	1	414.30	0.9999	414.259
12344	1	418.10	0.9999	418.058
12357	1	405.65	0.9999	405.609
12335	1	422.70	0.9999	422.658
12992	1	390.50	0.9999	390.461
12976	1	392.60	0.9999	392.561
49257	1	425.45	0.9999	425.407
12348	1	395.78	0.9999	395.735
12346	1	413.33	0.9999	413.284
12374	1			

		411.65	0.9999	411.609
12339	1	407.80	0.9999	407.759
13035	1	424.38	0.9999	424.333
13111	1	399.30	0.9999	399.260
13639	1	411.68	0.9999	411.634
12337	1	416.03	0.9999	415.983
12336	1	412.30	0.9999	412.259
12983	1	393.23	0.9999	393.186
13598	1	398.63	0.9999	398.585
13587	1	394.95	0.9999	394.911
13580	1	407.75	0.9999	407.709
13582	1	385.80	0.9999	385.761
13584	1	422.33	0.9999	422.283
13559	1	412.88	0.9999	412.834
13551	1	408.43	0.9999	408.384
13765	1	398.70	0.9999	398.660
13718	1	397.83	0.9999	397.785
13766	1	397.00	0.9999	396.960
13734	1	393.50	0.9999	393.461
13775	1	404.45	0.9999	404.410
13687	1	402.63	0.9999	402.585
13684	1	402.10	0.9999	402.060
13721	1			

		396.53	0.9999	396.485
13725	1	397.30	0.9999	397.260
13710	1	382.65	0.9999	382.612
13946	1	428.30	0.9999	428.257
13727	1	428.23	0.9999	428.182
13770	1	398.40	0.9999	398.360
13717	1	407.88	0.9999	407.834
13829	1	406.93	0.9999	406.884
13814	1	405.13	0.9999	405.084
13728	1	402.68	0.9999	402.635
13726	1	396.60	0.9999	396.560
13709	1	401.78	0.9999	401.735
13680	1	402.95	0.9999	402.910
13951	1	427.63	0.9999	427.582
13808	1	400.38	0.9999	400.335
13695	1	403.33	0.9999	403.285
13696	1	403.68	0.9999	403.635
13683	1	397.23	0.9999	397.185
13667	1	392.88	0.9999	392.836
13753	1	397.65	0.9999	397.610
13712	1	403.55	0.9999	403.510
13676	1	408.48	0.9999	408.434
13665	1			

		428.73	0.9999	428.682
13802	1	400.53	0.9999	400.485
13819	1	403.08	0.9999	403.035
13818	1	404.65	0.9999	404.610
13677	1	429.58	0.9999	429.532
13759	1	429.48	0.9999	429.432
13701	1	402.20	0.9999	402.160
13776	1	395.90	0.9999	395.860
13772	1	406.15	0.9999	406.109
13689	1	394.35	0.9999	394.311
13656	1	407.73	0.9999	407.684
140403	1	399.00	0.9999	398.960
140392	1	397.29	0.9999	397.250
140401	1	411.18	0.9999	411.138
140391	1	395.75	0.9999	395.710
13822	1	402.73	0.9999	402.685
13803	1	405.98	0.9999	405.934
13661	1	397.60	0.9999	397.560
13706	1	408.18	0.9999	408.134
13663	1	406.28	0.9999	406.234
13705	1	390.73	0.9999	390.686
140407	1	393.89	0.9999	393.850
140398	1			

		398.43	0.9999	398.390
140296	1	402.55	0.9999	402.509
140396	1	400.07	0.9999	400.029
140393	1	399.48	0.9999	399.440
140402	1	402.54	0.9999	402.499
140414	1	398.01	0.9999	397.970
140397	1	404.22	0.9999	404.179
140399	1	395.42	0.9999	395.380
140301	1	415.92	0.9999	415.878
49589	1	414.15	0.9999	414.108
49590	1	397.73	0.9999	397.690
49591	1	390.35	0.9999	390.311
49596	1	391.03	0.9999	390.990
49588	1	399.40	0.9999	399.360
49248	1	384.55	0.9999	384.511
49253	1	384.50	0.9999	384.461
49259	1	377.65	0.9999	377.612
13118	1	391.40	0.9999	391.361
13574	1	401.28	0.9999	401.235
49595	1	401.55	0.9999	401.509
49598	1	392.55	0.9999	392.510
49593	1	393.30	0.9999	393.260
49594	1			

		418.25	0.9999	418.208
49597	1	426.18	0.9999	426.137
140395	1	401.18	0.9999	401.139
140416	1	404.69	0.9999	404.649
140404	1	394.90	0.9999	394.860
140394	1	402.71	0.9999	402.669
140415	1	400.46	0.9999	400.419
13806	1	409.50	0.9999	409.459
13968	1	419.63	0.9999	419.583
13857	1	418.30	0.9999	418.258
13841	1	417.70	0.9999	417.658
13887	1	410.20	0.9999	410.159
13637	1	415.13	0.9999	415.083
13911	1	418.55	0.9999	418.508
13853	1	418.65	0.9999	418.608
13919	1	418.43	0.9999	418.383
13669	1	417.85	0.9999	417.808
13958	1	410.25	0.9999	410.209
13708	1	418.25	0.9999	418.208
13895	1	418.43	0.9999	418.383
13647	1	419.10	0.9999	419.058
13886	1	419.45	0.9999	419.408
13645	1			

		418.15	0.9999	418.108
13856	1	412.18	0.9999	412.134
13828	1	418.75	0.9999	418.708
13924	1	409.53	0.9999	409.484
13896	1	419.40	0.9999	419.358
13843	1	394.20	0.9999	394.161
13962	1	398.65	0.9999	398.610
13880	1	401.50	0.9999	401.460
13881	1	407.78	0.9999	407.734
13967	1	400.58	0.9999	400.535
13878	1	407.08	0.9999	407.034
13902	1	399.48	0.9999	399.435
13912	1	404.50	0.9999	404.460
13949	1	407.83	0.9999	407.784
13844	1	407.83	0.9999	407.784
13842	1	402.83	0.9999	402.785
13973	1	419.63	0.9999	419.583
13642	1	410.20	0.9999	410.159
13768	1	418.68	0.9999	418.633
13950	1	409.90	0.9999	409.859
13648	1	417.63	0.9999	417.583
13879	1	418.58	0.9999	418.533
13922	1			

		418.23	0.9999	418.183
13913	1	410.60	0.9999	410.559
13975	1	410.55	0.9999	410.509
13875	1	400.33	0.9999	400.285
13883	1	403.80	0.9999	403.760
13927	1	427.05	0.9999	427.007
13832	1	402.43	0.9999	402.385
13837	1	399.18	0.9999	399.135
13954	1	397.65	0.9999	397.610
13743	1	426.48	0.9999	426.432
13703	1	404.08	0.9999	404.035
13771	1	402.20	0.9999	402.160
13757	1	393.33	0.9999	393.286
13970	1	405.03	0.9999	404.984
13960	1	399.45	0.9999	399.410
13920	1	401.88	0.9999	401.835
13864	1	407.63	0.9999	407.584
13865	1	408.53	0.9999	408.484
13921	1	404.88	0.9999	404.835
13870	1	405.28	0.9999	405.234
13933	1	405.55	0.9999	405.509
13851	1	406.55	0.9999	406.509
13952	1			

		408.53	0.9999	408.484
13800	1	408.38	0.9999	408.334
13807	1	407.95	0.9999	407.909
13694	1	397.30	0.9999	397.260
13693	1	400.60	0.9999	400.560
13697	1	399.15	0.9999	399.110
13713	1	408.75	0.9999	408.709
13720	1	407.48	0.9999	407.434
13699	1	403.75	0.9999	403.710
13673	1	391.75	0.9999	391.711
13744	1	426.98	0.9999	426.932
13733	1	389.73	0.9999	389.686
13737	1	398.88	0.9999	398.835
13735	1	409.63	0.9999	409.584
13748	1	406.90	0.9999	406.859
13740	1	397.85	0.9999	397.810
13821	1	408.80	0.9999	408.759
13755	1	407.30	0.9999	407.259
13729	1	405.15	0.9999	405.109
13679	1	381.95	0.9999	381.912
13698	1	404.43	0.9999	404.385
14865	1	403.85	0.9999	403.810
14880	1			

		412.95	0.9999	412.909
14881	1	402.28	0.9999	402.235
14852	1	392.35	0.9999	392.311
14903	1	417.88	0.9999	417.833
14898	1	401.10	0.9999	401.060
14884	1	393.38	0.9999	393.336
14874	1	403.78	0.9999	403.735
15342	1	414.75	0.9999	414.709
14863	1	392.10	0.9999	392.061
14862	1	388.43	0.9999	388.386
15341	1	409.03	0.9999	408.984
13940	1	418.73	0.9999	418.683
14890	1	418.13	0.9999	418.083
15375	1	404.68	0.9999	404.635
14850	1	405.85	0.9999	405.809
14851	1	402.80	0.9999	402.760
15372	1	401.50	0.9999	401.460
14871	1	416.13	0.9999	416.083
14877	1	374.70	0.9999	374.663
15368	1	399.55	0.9999	399.510
14872	1	407.50	0.9999	407.459
14855	1	390.68	0.9999	390.636
15365	1			

		413.03	0.9999	412.984
14876	1	396.83	0.9999	396.785
14882	1	403.40	0.9999	403.360
15362	1	402.18	0.9999	402.135
49616	1	401.58	0.9999	401.539
49606	1	395.80	0.9999	395.760
15361	1	395.93	0.9999	395.885
49601	1	372.95	0.9999	372.912
49603	1	383.70	0.9999	383.661
15360	1	399.80	0.9999	399.760
49618	1	381.10	0.9999	381.061
49613	1	388.60	0.9999	388.561
15395	1	412.43	0.9999	412.384
49609	1	428.70	0.9999	428.657
49617	1	409.90	0.9999	409.859
15387	1	407.90	0.9999	407.859
13812	1	418.83	0.9999	418.783
13624	1	418.78	0.9999	418.733
50056	1	428.58	0.9999	428.532
14879	1	408.10	0.9999	408.059
14866	1	405.25	0.9999	405.209
14873	1	410.68	0.9999	410.634
15382	1			

		403.45	0.9999	403.410
14868	1	392.85	0.9999	392.811
14885	1	403.00	0.9999	402.960
14867	1	417.68	0.9999	417.633
15381	1	397.60	0.9999	397.560
14923	1	402.10	0.9999	402.060
14888	1	417.33	0.9999	417.283
14889	1	407.98	0.9999	407.934
15380	1	409.15	0.9999	409.109
14913	1	406.38	0.9999	406.334
13672	1	409.08	0.9999	409.034
13905	1	417.33	0.9999	417.283
15378	1	403.33	0.9999	403.285
13874	1	417.93	0.9999	417.883
13974	1	418.68	0.9999	418.633
13938	1	410.45	0.9999	410.409
15376	1	398.90	0.9999	398.860
13869	1	417.60	0.9999	417.558
13722	1	409.20	0.9999	409.159
13850	1	409.40	0.9999	409.359
15397	1	408.33	0.9999	408.284
13653	1	419.15	0.9999	419.108
14853	1			

		384.30	0.9999	384.262
49619	1	399.83	0.9999	399.790
15396	1	394.40	0.9999	394.361
49614	1	395.43	0.9999	395.390
49604	1	402.70	0.9999	402.659
49610	1	390.48	0.9999	390.440
15383	1	404.90	0.9999	404.860
49615	1	406.95	0.9999	406.909
49608	1	395.10	0.9999	395.060
49605	1	387.50	0.9999	387.461
15389	1	399.90	0.9999	399.860
49611	1	400.55	0.9999	400.509
49602	1	387.83	0.9999	387.791
15390	1	404.60	0.9999	404.560
49607	1	387.93	0.9999	387.891
13848	1	409.20	0.9999	409.159
15391	1	414.85	0.9999	414.809
13670	1	409.63	0.9999	409.584
13882	1	409.93	0.9999	409.884
15367	1	419.65	0.9999	419.608
13846	1	419.25	0.9999	419.208
13909	1	420.08	0.9999	420.033
15384	1			

		392.83	0.9999	392.786
13662	1	419.75	0.9999	419.708
13804	1	410.18	0.9999	410.134
15377	1	371.23	0.9999	371.188
13660	1	420.13	0.9999	420.083
13908	1	409.95	0.9999	409.909
50075	1	380.10	0.9999	380.062
13972	1	409.15	0.9999	409.109
13774	1	409.88	0.9999	409.834
50057	1	384.33	0.9999	384.287
13891	1	410.05	0.9999	410.009
13751	1	419.40	0.9999	419.358
50104	1	379.20	0.9999	379.162
13750	1	380.80	0.9999	380.762
13678	1	388.85	0.9999	388.811
50069	1	390.65	0.9999	390.611
13741	1	409.85	0.9999	409.809
13666	1	409.50	0.9999	409.459
50089	1	381.70	0.9999	381.662
13885	1	418.65	0.9999	418.608
13715	1	419.35	0.9999	419.308
50084	1	378.85	0.9999	378.812
13817	1			

		409.38	0.9999	409.334
14896	1	409.33	0.9999	409.284
50067	1	403.70	0.9999	403.660
14922	1	394.80	0.9999	394.761
14908	1	397.03	0.9999	396.985
50106	1	379.13	0.9999	379.087
14870	1	393.83	0.9999	393.786
14891	1	411.95	0.9999	411.909
50091	1	390.05	0.9999	390.011
14943	1	398.50	0.9999	398.460
14941	1	402.05	0.9999	402.010
50051	1	374.58	0.9999	374.538
14918	1	402.03	0.9999	401.985
14940	1	427.53	0.9999	427.482
50077	1	418.95	0.9999	418.908
14919	1	403.15	0.9999	403.110
14869	1	401.28	0.9999	401.235
50073	1	374.78	0.9999	374.738
14906	1	417.15	0.9999	417.108
14875	1	406.90	0.9999	406.859
50092	1	396.85	0.9999	396.810
14909	1	416.30	0.9999	416.258
14900	1			

		408.25	0.9999	408.209
50086	1	380.03	0.9999	379.987
14897	1	395.78	0.9999	395.735
14916	1	393.80	0.9999	393.761
14901	1	404.33	0.9999	404.285
50055	1	399.23	0.9999	399.185
14917	1	403.23	0.9999	403.185
14944	1	398.08	0.9999	398.035
14938	1	403.63	0.9999	403.585
50105	1	380.00	0.9999	379.962
14939	1	426.95	0.9999	426.907
14937	1	403.10	0.9999	403.060
14856	1	402.05	0.9999	402.010
50068	1	393.50	0.9999	393.461
14936	1	409.53	0.9999	409.484
14942	1	415.25	0.9999	415.208
14924	1	401.35	0.9999	401.310
50071	1	372.40	0.9999	372.363
14925	1	406.85	0.9999	406.809
14933	1	423.35	0.9999	423.308
14932	1	409.08	0.9999	409.034
50087	1	374.38	0.9999	374.338
14912	1			

		406.78	0.9999	406.734
14935	1	407.73	0.9999	407.684
14934	1	407.80	0.9999	407.759
50078	1	384.00	0.9999	383.962
14893	1	410.13	0.9999	410.084
14895	1	393.78	0.9999	393.736
14894	1	398.70	0.9999	398.660
50063	1	393.75	0.9999	393.711
14899	1	405.90	0.9999	405.859
14921	1	411.25	0.9999	411.209
14920	1	414.80	0.9999	414.759
50107	1	372.63	0.9999	372.588
14928	1	416.38	0.9999	416.333
14902	1	411.48	0.9999	411.434
14904	1	424.05	0.9999	424.008
50062	1	407.20	0.9999	407.159
14905	1	414.60	0.9999	414.559
14878	1	407.85	0.9999	407.809
14861	1	419.85	0.9999	419.808
50097	1	385.48	0.9999	385.436
14860	1	405.45	0.9999	405.409
14857	1	398.70	0.9999	398.660
14886	1			

		404.98	0.9999	404.935
14887	1	400.25	0.9999	400.210
14864	1	419.80	0.9999	419.758
14854	1	394.95	0.9999	394.911
14892	1	393.95	0.9999	393.911
14929	1	418.28	0.9999	418.233
14859	1	392.18	0.9999	392.136
14858	1	412.65	0.9999	412.609
14907	1	415.10	0.9999	415.058
14930	1	403.53	0.9999	403.485
14931	1	405.03	0.9999	404.984
14914	1	413.50	0.9999	413.459
14910	1	404.25	0.9999	404.210
14911	1	412.78	0.9999	412.734
14927	1	410.28	0.9999	410.234
14926	1	420.73	0.9999	420.683
17289	1	413.50	0.9999	413.459
17298	1	402.08	0.9999	402.035
16073	1	397.05	0.9999	397.005
16353	1	398.72	0.9999	398.675
16877	1	394.63	0.9999	394.590
13824	1	416.88	0.9999	416.838
12988	1			

		410.34	0.9999	410.298
9900402	1	399.98	0.9999	399.940
17224	1	372.33	0.9999	372.292
50529	1	387.28	0.9999	387.241
17534	1	408.71	0.9999	408.664
1360	1	400.18	0.9999	400.139
17716	1	422.02	0.9999	421.972
17326	1	415.00	0.9999	414.953
13980	1	406.37	0.9999	406.324
49101	1	405.53	0.9999	405.489
196	1	401.28	0.9999	401.234
97246	1	382.14	0.9999	382.101
13338	1	412.95	0.9999	412.903
99381	1	409.54	0.9999	409.494
99358	1	404.76	0.9999	404.714
11056	1	408.31	0.9999	408.264
11032	1	407.92	0.9999	407.879
11040	1	401.52	0.9999	401.474
15220	1	412.69	0.9999	412.648
48850	1	400.17	0.9999	400.124
2043	1	384.93	0.9999	384.891
2290	1	395.53	0.9999	395.490
2090	1			

		398.52	0.9999	398.482
2089	1	397.73	0.9999	397.693
2298	1	395.13	0.9999	395.085
48698	1	393.99	0.9999	393.950
11303	1	398.27	0.9999	398.225
48941	1	414.69	0.9999	414.648
15273	1	385.36	0.9999	385.316
14915	1	423.12	0.9999	423.077
12353	1	401.13	0.9999	401.089
13619	1	393.67	0.9999	393.625
13845	1	406.59	0.9999	406.549
13692	1	399.42	0.9999	399.375
14883	1	397.03	0.9999	396.985
140405	1	396.95	0.9999	396.910
17166	1	390.66	0.9999	390.620
17310	1	394.45	0.9999	394.405
49414	1	392.02	0.9999	391.975
17851	1	425.84	0.9999	425.797
16656	1	418.55	0.9999	418.503
16207	1	408.18	0.9999	408.139
16121	1	389.36	0.9999	389.316
16654	1	411.52	0.9999	411.478
99317	1			

		423.71	0.9999	423.662
10054	1	407.79	0.9999	407.749
99294	1	425.87	0.9999	425.822
98793	1	417.87	0.9999	417.828
11229	1	420.86	0.9999	420.817
11233	1	408.40	0.9999	408.359
11226	1	405.44	0.9999	405.399
11252	1	410.93	0.9999	410.888
11248	1	409.79	0.9999	409.749
99908	1	402.86	0.9999	402.814
49072	1	389.01	0.9999	388.966
12287	1	418.26	0.9999	418.213
12313	1	398.19	0.9999	398.150
2085	1	370.86	0.9999	370.817
99429	1	395.99	0.9999	395.945
99812	1	411.57	0.9999	411.528
97003	1	395.91	0.9999	395.870
10998	1	405.70	0.9999	405.654
10925	1	419.38	0.9999	419.338
10040	1	390.12	0.9999	390.075
9900637	1	399.97	0.9999	399.930
49655	1	367.28	0.9999	367.243
49626	1			

		392.63	0.9999	392.590
140409	1	407.45	0.9999	407.409
1531	1	404.64	0.9999	404.599
1532	1	404.30	0.9999	404.259
1533	1	403.72	0.9999	403.679
1534	1	402.64	0.9999	402.599
1535	1	402.42	0.9999	402.379
1536	1	402.32	0.9999	402.279
1537	1	402.35	0.9999	402.309
1538	1	402.10	0.9999	402.059
1539	1	401.92	0.9999	401.879
1540	1	401.63	0.9999	401.589
1541	1	401.46	0.9999	401.419
1542	1	401.18	0.9999	401.139
1543	1	401.19	0.9999	401.149
1544	1	400.87	0.9999	400.829
07746	13	4,638.80	0.8991	4,170.745
22254	14	4,481.53	0.9166	4,107.770
01861	11	3,807.78	0.9165	3,489.830
01696	18	6,245.50	0.9166	5,724.625
08580	22	7,584.40	0.8998	6,824.443
02041	18	6,697.63	0.9166	6,139.047
06716	15			

		5,067.10	0.8995	4,557.856
07691	21	7,465.20	0.9002	6,720.173
03228	20	7,028.35	0.8996	6,322.703
02058	17	6,272.00	0.9166	5,748.915
02048	21	7,438.10	0.9166	6,817.762
02042	19	6,954.95	0.9166	6,374.907
02047	22	7,752.09	0.9166	7,105.565
02051	20	6,851.43	0.9166	6,280.020
02057	17	6,189.45	0.9166	5,673.249
02053	15	5,330.85	0.9166	4,886.257
02052	20	6,933.07	0.9165	6,354.158
02059	14	5,031.00	0.9165	4,610.911
02062	18	6,324.00	0.9166	5,796.578
02063	16	5,356.70	0.9166	4,909.951
02064	9	2,852.15	0.9166	2,614.280
02157	15	5,373.93	0.9165	4,925.206
02163	19	6,276.90	0.9166	5,753.406
02273	23	8,410.95	0.9166	7,709.476
02560	13	4,607.93	0.9166	4,223.628
02545	10	3,598.97	0.9162	3,297.376
02321	10	3,584.65	0.9165	3,285.331
02985	18	6,574.80	0.9165	6,025.804
02851	19			

		6,597.61	0.9166	6,047.369
02738	11	3,838.40	0.9165	3,517.893
02702	19	6,569.98	0.9165	6,021.386
03079	23	8,413.96	0.9165	7,711.394
03078	22	8,074.95	0.9166	7,401.499
03077	21	7,744.55	0.9165	7,097.880
03080	22	8,165.10	0.9166	7,484.130
03081	22	7,981.72	0.9166	7,316.044
03138	22	7,796.93	0.8998	7,015.677
03139	22	7,777.08	0.8996	6,996.261
03140	21	7,521.10	0.8997	6,766.733
03141	21	7,546.00	0.8997	6,789.136
03147	22	7,788.97	0.8996	7,006.957
03149	22	7,767.30	0.8997	6,988.239
03150	22	7,646.03	0.8997	6,879.133
03151	22	7,637.35	0.8996	6,870.560
03152	21	7,300.09	0.8996	6,567.160
03163	22	7,905.46	0.8996	7,111.751
03227	20	7,297.95	0.8997	6,565.965
03221	21	7,391.25	0.9046	6,686.124
03220	22	8,154.15	0.9166	7,474.093
03218	21	7,654.50	0.9025	6,908.186
03237	17			

		6,122.85	0.8997	5,508.728
03236	17	5,973.07	0.8997	5,373.971
03393	17	5,784.15	0.8992	5,201.107
03392	15	5,229.90	0.8992	4,702.726
03239	16	5,651.50	0.8997	5,084.654
03238	16	5,717.49	0.8996	5,143.454
03477	14	4,840.98	0.8996	4,354.945
03577	20	7,196.70	0.9166	6,596.495
03578	20	7,296.50	0.9166	6,687.971
03579	20	7,278.20	0.9166	6,671.198
03590	15	5,424.90	0.9166	4,972.463
03813	15	5,301.75	0.9166	4,859.584
03814	16	5,438.51	0.9165	4,984.394
04031	11	3,615.00	0.9165	3,313.147
04470	12	4,005.60	0.9166	3,671.532
04240	19	6,841.27	0.9165	6,270.023
04239	20	7,127.34	0.9165	6,532.207
04702	13	4,456.34	0.9165	4,084.235
04701	13	4,563.30	0.9164	4,181.808
04539	13	4,369.58	0.9166	4,005.157
04538	14	5,034.58	0.9166	4,614.696
04713	22	8,056.20	0.9166	7,384.312
04712	21			

		7,642.20	0.9166	7,004.840
04707	15	5,491.48	0.9166	5,033.490
04716	21	7,614.76	0.9166	6,979.689
04797	13	4,599.25	0.8996	4,137.485
04767	9	3,106.45	0.8991	2,793.009
04940	21	7,178.37	0.9164	6,578.258
04947	21	7,407.35	0.9165	6,788.836
04946	21	7,412.83	0.9165	6,793.858
04945	21	7,550.95	0.9165	6,920.445
06587	21	7,126.40	0.8993	6,408.771
06575	22	7,605.82	0.8993	6,839.913
06089	21	7,120.50	0.8995	6,404.889
04948	20	7,024.15	0.9166	6,438.335
06609	17	5,740.42	0.8998	5,165.229
06715	12	4,106.33	0.8995	3,693.643
06721	21	7,282.60	0.8994	6,549.970
06722	21	7,347.49	0.8993	6,607.597
06921	15	4,867.22	0.8993	4,377.090
07003	22	7,713.70	0.8994	6,937.701
07007	21	7,570.22	0.8994	6,808.655
07008	19	6,766.87	0.8994	6,086.122
07009	19	6,462.07	0.8994	5,811.985
07464	19			

		6,738.17	0.8996	6,061.657
07465	18	6,171.65	0.8993	5,550.164
07692	21	7,467.10	0.9001	6,721.136
07739	17	5,814.30	0.8995	5,229.962
07695	21	7,543.21	0.9000	6,788.889
07694	21	7,465.85	0.9000	6,719.265
07693	21	7,532.45	0.9000	6,779.205
07740	16	5,465.62	0.8995	4,916.325
07741	16	5,314.74	0.8996	4,781.140
08655	22	7,593.89	0.8996	6,831.463
08656	22	7,634.10	0.8995	6,866.872
17628	20	7,020.63	0.9166	6,435.109
17627	22	7,851.45	0.9167	7,197.424
17609	20	7,267.47	0.9167	6,662.089
17608	21	7,648.57	0.9166	7,010.679
17637	18	6,139.82	0.9166	5,627.759
17635	21	7,283.10	0.9167	6,676.417
17904	23	7,901.72	0.9004	7,114.708
17699	21	7,635.51	0.9166	6,998.708
17662	21	7,742.30	0.9166	7,096.592
17661	21	7,689.20	0.9167	7,048.689
17911	19	6,192.26	0.8997	5,571.176
17910	20			

		6,781.73	0.9004	6,106.269
17906	23	7,871.72	0.9004	7,087.696
17905	22	7,662.62	0.9005	6,900.189
18149	13	4,464.03	0.8993	4,014.502
18148	13	4,609.90	0.8996	4,147.066
17976	19	6,312.93	0.8994	5,677.849
17971	17	5,744.32	0.8994	5,166.441
18215	19	6,712.15	0.8998	6,039.592
18222	17	5,965.05	0.8996	5,366.158
18230	15	5,117.17	0.8999	4,604.941
18231	12	3,937.23	0.8997	3,542.325
18253	16	5,706.94	0.8999	5,135.675
18254	16	5,715.93	0.8999	5,143.765
18255	17	5,979.72	0.8999	5,381.150
18256	17	6,015.15	0.8999	5,413.033
18257	17	6,031.62	0.8999	5,427.854
18261	16	5,628.13	0.8991	5,060.251
18263	17	5,974.18	0.8993	5,372.580
18264	18	6,231.28	0.9000	5,608.152
22251	14	4,484.55	0.9167	4,110.986
01843	19	6,583.60	0.9166	6,034.527
22343	11	3,781.70	0.9167	3,466.684
22290	10			

		3,468.40	0.9166	3,179.135
22267	10	3,436.14	0.9166	3,149.565
01944	18	6,482.56	0.9165	5,941.266
01856	10	3,420.65	0.9166	3,135.367
01945	20	6,975.84	0.9166	6,394.054
02000	19	7,061.75	0.9166	6,472.800
01965	16	5,376.14	0.9166	4,927.769
01960	18	6,428.23	0.9166	5,892.115
02002	19	6,947.13	0.9166	6,367.739
02003	19	6,945.19	0.9167	6,366.655
02004	19	6,870.22	0.9167	6,297.930
01959	17	6,130.05	0.9166	5,618.803
02001	19	6,870.66	0.9166	6,297.646
02006	19	6,789.40	0.9166	6,223.164
02007	19	6,726.57	0.9165	6,164.901
02005	19	6,784.33	0.9165	6,217.838
01697	18	5,905.15	0.9166	5,412.660
01708	17	5,862.23	0.9166	5,373.320
01709	15	4,890.73	0.9166	4,482.843
01719	16	5,685.07	0.9166	5,210.935
01720	17	6,195.89	0.9166	5,679.152
01721	16	5,526.11	0.9166	5,065.232
01730	13			

		4,352.95	0.9165	3,989.478
01738	20	7,293.80	0.9166	6,685.497
01737	20	7,428.23	0.9166	6,808.715
01736	19	6,925.70	0.9166	6,348.096
01735	19	6,837.99	0.9166	6,267.701
01739	19	6,940.15	0.9166	6,361.341
01748	19	6,935.17	0.9166	6,356.776
01749	18	6,620.57	0.9166	6,068.414
01750	20	7,087.36	0.9165	6,495.565
01842	18	6,622.87	0.9166	6,070.522
01841	19	6,904.75	0.9165	6,328.203
01840	19	6,903.73	0.9166	6,327.958
07951	18	6,174.05	0.8995	5,553.557
07941	17	5,718.60	0.9003	5,148.455
07938	18	6,187.47	0.8996	5,566.248
08453	20	6,592.65	0.8995	5,930.088
08015	14	5,075.32	0.8996	4,565.757
08014	13	4,616.35	0.8998	4,153.791
08013	14	4,951.77	0.8997	4,455.107
08460	24	8,033.73	0.8996	7,227.143
08496	21	7,257.37	0.8999	6,530.907
08498	21	7,143.78	0.8999	6,428.687
08581	21			

		7,489.86	0.8998	6,739.376
08579	22	7,793.56	0.8998	7,012.645
08499	20	6,815.56	0.8999	6,133.322
08582	21	7,107.45	0.8994	6,392.440
08652	21	7,325.26	0.8995	6,589.071
08653	22	7,570.66	0.8994	6,809.051
08654	22	7,615.17	0.8996	6,850.606
23988	17	6,063.36	0.9166	5,557.675
D 001	22	7,924.59	0.9165	7,262.886
D 003	22	7,965.45	0.9165	7,300.334
23671	13	4,451.42	0.9166	4,080.171
23986	17	6,284.98	0.9167	5,761.441
23987	17	6,249.96	0.9167	5,729.338
23135	13	4,851.68	0.9166	4,447.049
23146	13	4,458.69	0.9166	4,086.835
23397	10	3,536.59	0.9167	3,241.992
23534	16	5,381.08	0.9166	4,932.297
00438	11	3,782.96	0.9166	3,467.461
00413	11	3,551.93	0.9166	3,255.699
00240	16	5,427.42	0.9166	4,974.773
00053	12	4,000.15	0.9166	3,666.537
00663	17	6,154.02	0.9166	5,640.774
00473	12			

		4,020.08	0.9166	3,684.805
00664	17	6,041.17	0.9165	5,536.732
00735	15	5,348.75	0.9091	4,862.548
00747	15	5,346.29	0.9166	4,900.409
00864	11	4,034.72	0.9166	3,698.224
00866	18	6,102.75	0.9035	5,513.834
00867	18	6,449.34	0.9166	5,911.465
00869	11	4,011.06	0.9165	3,676.136
00904	17	6,226.24	0.9165	5,706.348
00952	16	5,734.23	0.9155	5,249.687
00910	10	3,430.72	0.9166	3,144.597
01110	11	3,909.36	0.9165	3,582.928
01257	19	7,012.28	0.9165	6,426.754
01203	20	6,879.01	0.9165	6,304.612
01138	21	7,178.05	0.9166	6,579.400
01261	20	7,288.55	0.9166	6,680.684
01260	19	7,056.03	0.9166	6,467.557
01259	19	6,972.06	0.9165	6,389.892
01258	19	7,005.62	0.9166	6,421.351
01265	20	7,190.12	0.9166	6,590.463
01264	19	7,032.52	0.9166	6,446.007
01263	19	7,040.55	0.9166	6,453.368
01262	19			

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		6,997.86	0.9165	6,413.538
01266	20	7,153.81	0.9165	6,556.466
01267	19	6,673.96	0.9165	6,116.684
01317	10	3,504.96	0.9164	3,211.945
01322	17	5,819.00	0.9166	5,333.695
01335	16	5,381.28	0.9166	4,932.481
01351	20	6,951.88	0.9166	6,372.093
01352	18	6,297.70	0.9167	5,773.101
01353	14	4,696.95	0.9166	4,305.224
01695	18	6,247.97	0.9166	5,726.889
01684	20	6,730.75	0.9166	6,169.405
01683	19	6,728.23	0.9166	6,167.095
15054	17	5,918.17	0.8993	5,322.210
15481	18	6,321.43	0.8994	5,685.494
15384	20	6,754.92	0.8993	6,074.699
14971	20	6,886.46	0.8994	6,193.682
14967	20	6,995.48	0.8993	6,291.035
14968	19	6,656.28	0.8993	5,985.992
14969	18	6,233.22	0.8994	5,606.158
15387	19	6,651.16	0.8993	5,981.388
15388	19	6,692.47	0.9003	6,025.230
15055	17	6,062.96	0.8994	5,453.026
15056	17			

		5,912.30	0.8994	5,317.522
14966	20	7,054.27	0.8994	6,344.610
14965	20	7,091.01	0.8993	6,376.945
14964	20	7,011.14	0.8993	6,305.118
14959	21	7,448.43	0.8994	6,699.117
14960	22	7,726.33	0.8994	6,949.061
14961	21	7,400.61	0.8993	6,655.368
14962	23	7,935.81	0.8993	7,136.673
14958	21	7,366.21	0.8993	6,624.432
14957	21	7,339.91	0.8993	6,600.781
14956	23	8,080.25	0.8993	7,266.568
14955	21	7,377.62	0.8994	6,635.431
14951	21	7,450.39	0.8995	6,701.625
14952	21	7,476.19	0.8993	6,723.337
14953	22	7,779.07	0.8995	6,997.273
14954	21	7,233.47	0.8993	6,505.059
14950	21	7,376.80	0.8994	6,634.693
14949	21	7,447.17	0.8994	6,697.984
14760	18	6,278.94	0.8996	5,648.534
14761	21	7,145.45	0.8996	6,428.046
14201	17	5,810.40	0.8994	5,225.873
14202	17	5,886.76	0.8994	5,294.551
14203	19			

		6,399.82	0.8994	5,755.998
F2369	19	6,806.60	0.8999	6,125.259
F2368	22	7,935.42	0.8998	7,140.290
F2367	21	7,533.36	0.8998	6,778.517
F2366	21	7,528.21	0.8999	6,774.636
F2365	22	8,003.89	0.8998	7,201.900
F2364	22	7,930.05	0.8999	7,136.251
04543	19	6,915.15	0.9167	6,339.118
04978	21	7,569.82	0.9166	6,938.497
04542	20	7,341.37	0.9168	6,730.568
04541	20	7,381.57	0.9167	6,766.685
04540	20	7,275.35	0.9167	6,669.313
04539	20	7,279.00	0.9166	6,671.931
04979	22	7,843.62	0.9166	7,189.462
03835	16	5,749.62	0.9167	5,270.676
04537	20	7,203.38	0.9166	6,602.618
03834	16	5,778.40	0.9167	5,297.059
04534	20	7,152.35	0.9166	6,555.844
04535	20	7,145.78	0.9166	6,549.821
04538	20	7,238.26	0.9167	6,635.312
04531	20	7,213.53	0.9166	6,611.921
04532	20	7,205.20	0.9167	6,605.006
04533	19			

		6,823.33	0.9167	6,254.946
04527	20	7,255.36	0.9166	6,650.262
04528	20	7,234.69	0.9166	6,631.316
04529	20	7,167.46	0.9166	6,569.693
04550	21	7,515.35	0.9166	6,888.569
04977	22	7,936.45	0.9166	7,274.550
04549	20	7,141.69	0.9166	6,546.073
04548	20	7,214.65	0.9167	6,613.669
04544	20	7,352.43	0.9167	6,739.972
04545	19	7,008.77	0.9166	6,424.238
04546	19	6,871.90	0.9166	6,298.783
04547	20	7,188.02	0.9167	6,589.257
04501	19	6,721.82	0.9166	6,161.220
04524	20	7,286.49	0.9168	6,680.254
04525	20	7,145.55	0.9166	6,549.611
04497	19	6,784.33	0.9166	6,218.516
04500	19	6,891.95	0.9166	6,317.161
04492	19	7,094.55	0.9166	6,502.864
04493	19	7,007.62	0.9165	6,422.483
04494	20	7,299.60	0.9166	6,690.813
04495	19	6,892.68	0.9166	6,317.830
04491	20	7,374.30	0.9166	6,759.283
04490	19			

		6,767.20	0.9166	6,202.815
04489	20	7,170.64	0.9166	6,572.608
04488	20	7,168.55	0.9166	6,570.692
04261	16	5,621.48	0.9166	5,152.648
04262	17	5,999.56	0.9166	5,499.196
04486	21	7,510.12	0.9166	6,883.775
04487	20	7,131.52	0.9166	6,536.751
04258	18	6,313.08	0.9166	5,786.569
04259	17	6,144.30	0.9166	5,631.865
04260	17	5,904.03	0.9166	5,411.633
04257	19	6,860.80	0.9167	6,289.295
03994	17	5,938.70	0.8995	5,341.860
04254	17	5,916.98	0.8994	5,321.731
04255	16	5,565.62	0.8994	5,005.718
04256	17	5,951.95	0.8994	5,353.183
03993	18	6,300.35	0.8995	5,667.164
03969	20	6,914.00	0.8995	6,219.143
03968	21	7,258.80	0.8993	6,527.838
03967	22	7,647.23	0.8995	6,878.683
03959	21	7,414.15	0.8997	6,670.510
03965	21	7,287.28	0.8994	6,554.179
03966	21	7,310.38	0.8994	6,574.955
03962	21			

		7,401.60	0.8994	6,656.999
03963	22	7,698.60	0.8995	6,924.890
03964	21	7,364.20	0.8993	6,622.625
03956	22	7,667.80	0.8996	6,897.952
03957	21	7,262.82	0.8996	6,533.632
03961	22	7,656.65	0.8995	6,887.156
03953	22	7,566.80	0.8993	6,804.823
03954	22	7,679.00	0.8994	6,906.492
03915	22	7,932.50	0.8998	7,137.663
03916	21	7,308.75	0.8998	6,576.413
03950	21	7,478.57	0.8994	6,726.225
03951	21	7,375.45	0.8993	6,632.742
03838	21	7,643.00	0.8994	6,874.114
03837	21	7,561.87	0.8995	6,801.902
03756	20	7,036.70	0.9166	6,449.839
03755	20	7,111.08	0.9166	6,518.015
03591	13	4,543.73	0.8997	4,087.993
03592	13	4,565.98	0.8995	4,107.099
03752	21	7,407.45	0.9166	6,789.668
03751	19	6,910.13	0.9167	6,334.516
03758	20	7,066.70	0.9166	6,477.337
03757	21	7,538.05	0.9165	6,908.622
03748	20			

		7,135.13	0.9166	6,540.060
03747	20	7,310.58	0.9166	6,700.877
03754	21	7,486.92	0.9167	6,863.259
03753	20	7,085.72	0.9166	6,494.770
03744	19	6,990.10	0.9166	6,407.125
03743	20	7,382.30	0.9165	6,765.877
03750	20	7,272.40	0.9166	6,665.881
03749	20	7,120.45	0.9166	6,526.604
03735	20	6,968.45	0.9166	6,387.281
03734	21	7,382.23	0.9167	6,767.290
03746	19	6,892.07	0.9166	6,317.271
03745	20	7,330.67	0.9166	6,719.292
03731	20	7,133.75	0.9166	6,538.795
03742	19	7,010.50	0.9166	6,425.824
03736	20	7,116.54	0.9166	6,523.020
03729	20	7,190.30	0.9166	6,590.628
03741	20	7,223.02	0.9165	6,619.897
03732	21	7,326.15	0.9166	6,715.149
03733	20	7,037.80	0.9167	6,451.551
03737	20	7,176.85	0.9166	6,578.300
03728	20	7,326.60	0.9167	6,716.294
03724	22	7,847.48	0.9166	7,193.000
03726	21			

		7,450.84	0.9167	6,830.185
03739	20	7,125.18	0.9166	6,530.939
03738	20	7,137.73	0.9166	6,542.443
03585	21	7,420.40	0.9166	6,801.538
03584	21	7,295.87	0.9166	6,687.394
03722	21	7,384.27	0.9166	6,768.421
03723	21	7,458.05	0.9166	6,836.048
03582	21	7,426.45	0.9167	6,807.826
03581	20	7,233.59	0.9166	6,630.308
03580	20	7,263.17	0.9167	6,658.147
03586	20	6,829.60	0.9166	6,260.011
D 083	22	7,945.21	0.8995	7,146.716
F2363	22	7,949.51	0.8998	7,152.969
D 064	21	7,755.50	0.8996	6,976.847
03583	21	7,480.63	0.9166	6,856.745
07485	19	6,446.14	0.8993	5,797.013
06024	14	4,585.43	0.8999	4,126.428
D 063	21	7,730.36	0.8997	6,955.004
D 065	23	8,537.17	0.8997	7,680.891
07031	16	5,360.30	0.8997	4,822.661
07323	18	5,955.75	0.8993	5,356.005
07484	20	7,006.30	0.8997	6,303.568
07321	20			

		7,072.25	0.8991	6,358.659
07320	18	6,054.27	0.8994	5,445.210
07319	22	7,540.15	0.8993	6,780.856
07483	20	7,144.31	0.8994	6,425.592
07317	22	7,868.25	0.8997	7,079.064
07316	23	7,995.84	0.8995	7,192.258
07315	22	7,859.65	0.8996	7,070.541
07322	20	6,990.18	0.8993	6,286.268
07312	23	8,145.83	0.8995	7,327.174
07311	22	7,889.92	0.8995	7,096.983
07318	22	7,704.33	0.8997	6,931.585
07314	20	6,770.38	0.8995	6,089.956
06937	21	6,949.03	0.8998	6,252.737
07039	16	5,406.30	0.8997	4,864.048
07310	23	8,195.05	0.8995	7,371.447
06934	23	8,108.25	0.9000	7,297.425
06935	21	7,327.78	0.8999	6,594.269
06936	22	7,740.85	0.8998	6,965.216
19226	16	5,751.58	0.9167	5,272.473
19224	18	6,522.10	0.9166	5,978.156
19223	18	6,513.83	0.9166	5,970.576
17708	12	4,327.42	0.9165	3,966.080
17751	10			

		3,133.28	0.9166	2,871.964
19138	15	5,416.65	0.9166	4,964.901
18150	14	4,927.58	0.9166	4,516.619
19137	16	5,692.46	0.9166	5,217.708
19136	17	6,212.47	0.9166	5,694.350
18889	16	5,607.15	0.9164	5,138.392
18888	17	5,904.42	0.9166	5,411.991
18887	20	7,142.80	0.9166	6,547.090
18870	19	6,468.04	0.9162	5,926.018
18869	19	6,486.90	0.9142	5,930.323
18868	22	7,684.07	0.9166	7,043.218
18864	22	7,592.13	0.9166	6,958.946
18865	22	7,960.32	0.9163	7,294.041
18866	22	7,921.28	0.9166	7,260.645
18867	22	7,738.30	0.9166	7,092.925
18763	18	6,449.69	0.9166	5,911.785
18764	19	6,780.77	0.9166	6,215.253
18765	18	6,586.90	0.9166	6,037.552
18766	20	7,173.68	0.9166	6,575.395
18760	20	7,237.98	0.9165	6,633.608
18761	20	7,281.30	0.9165	6,673.311
18762	19	6,850.25	0.9166	6,278.939
18727	20			

		6,699.22	0.9018	6,041.356
18725	20	6,927.65	0.9023	6,250.818
18721	17	6,138.85	0.9166	5,626.869
17263	11	3,968.92	0.9163	3,636.721
18726	18	6,049.74	0.9073	5,488.929
18787	21	7,224.40	0.9165	6,621.162
19304	22	7,612.39	0.8995	6,847.344
19305	23	8,194.15	0.8996	7,371.457
16092	15	4,942.22	0.9166	4,530.038
06019	17	6,023.85	0.9166	5,521.460
06018	18	6,435.15	0.9165	5,897.814
06017	18	6,440.22	0.9165	5,902.461
19303	24	8,359.33	0.8996	7,520.053
06020	20	7,193.85	0.9165	6,593.163
D 060	20	7,456.28	0.9164	6,832.934
D 062	19	6,624.66	0.9104	6,031.090
D 056	21	7,641.24	0.9165	7,003.196
D 057	23	8,428.76	0.9165	7,724.958
D 058	21	7,560.99	0.9165	6,929.647
D 059	21	7,888.02	0.9165	7,229.370
D 052	23	8,343.61	0.9164	7,646.084
D 054	22	8,022.22	0.9166	7,353.166
D 055	22			

		7,945.31	0.9165	7,281.876
D 048	22	7,816.33	0.9165	7,163.666
D 049	22	7,974.27	0.9166	7,309.215
D 050	23	8,228.23	0.9165	7,541.172
2052	1	336.41	0.8998	302.701
2052	1	333.53	0.8998	300.110
2052	1	341.73	0.8998	307.488
88	1	415.35	0.9165	380.668
88	1	418.90	0.9165	383.921
88	1	416.36	0.9165	381.593
88	1	424.00	0.9165	388.596
2052	1	347.71	0.8998	312.869
88	1	423.23	0.9165	387.890
88	1	426.55	0.9165	390.933
88	1	421.58	0.9165	386.378
88	1	429.20	0.9165	393.361
D 020	22	8,094.77	0.9165	7,418.856
D 023	22	8,100.79	0.9166	7,425.184
D 024	22	8,026.85	0.9165	7,356.608
D 017	23	8,200.70	0.9165	7,515.941
05263	23	8,078.47	0.9165	7,403.917
05274	19	6,674.75	0.9165	6,117.408
D 026	23			

		8,163.25	0.9051	7,388.557
D 025	23	8,150.71	0.9147	7,455.454
D 022	22	8,043.80	0.9165	7,372.142
D 016	22	7,859.60	0.9165	7,203.323
D 015	22	7,895.19	0.9164	7,235.152
D 014	22	7,990.86	0.9166	7,324.422
D 013	23	8,306.90	0.9165	7,613.273
D 012	22	8,000.40	0.9166	7,333.166
D 011	22	8,023.93	0.9165	7,353.931
D 010	22	7,924.23	0.9165	7,262.556
D 009	22	7,922.25	0.9164	7,259.949
D 006	22	7,940.46	0.9165	7,277.431
17548	23	8,148.24	0.9009	7,340.749
17700	22	7,933.57	0.9166	7,271.910
17710	17	6,072.23	0.9166	5,565.806
17897	17	5,918.54	0.9166	5,424.933
D 007	22	7,961.23	0.9165	7,296.467
17515	22	8,009.39	0.9007	7,214.057
17517	23	8,245.71	0.9008	7,427.735
17542	21	7,620.31	0.9003	6,860.565
190	16	6,476.03	0.8991	5,822.598
191	18	6,996.90	0.8993	6,292.312
192	15			

		6,033.70	0.8993	5,426.106
193	14	5,715.84	0.8991	5,139.111
201	6	2,240.68	0.8991	2,014.595
196	18	7,169.29	0.8993	6,447.342
195	16	6,440.33	0.8994	5,792.432
194	16	6,499.28	0.8995	5,846.102
17731	15	4,900.57	0.9167	4,492.352
17730	16	5,495.16	0.9166	5,036.863
18134	15	5,103.04	0.9166	4,677.446
17973	17	5,897.45	0.9165	5,405.012
17711	16	5,809.09	0.9166	5,324.611
17717	12	4,338.41	0.9166	3,976.586
17716	13	4,650.88	0.9164	4,262.066
17712	15	5,390.87	0.9166	4,941.271
18133	15	5,216.53	0.9166	4,781.471
18217	21	7,573.39	0.9166	6,941.769
18216	22	7,899.97	0.9166	7,241.112
18158	17	6,223.67	0.9166	5,704.615
17974	16	5,569.70	0.9166	5,105.187
18219	20	7,426.02	0.9166	6,806.689
18220	19	6,745.68	0.9166	6,183.090
18259	13	4,664.15	0.9163	4,273.760
18152	22			

		7,811.37	0.9166	7,159.901
18326	14	4,687.65	0.9166	4,296.699
18327	19	6,283.02	0.9166	5,759.016
18260	13	4,693.03	0.9164	4,300.692
18329	20	6,930.05	0.9166	6,352.083
18330	19	6,559.83	0.9166	6,012.740
18331	19	6,498.77	0.9165	5,956.122
18272	22	7,900.95	0.9166	7,242.010
18273	20	6,899.06	0.9166	6,323.678
18295	20	6,881.28	0.9166	6,307.381
18294	21	7,475.58	0.9166	6,852.116
18333	19	6,669.25	0.9166	6,113.034
18332	21	7,245.70	0.9166	6,641.408
18289	17	5,889.05	0.9166	5,397.903
18290	15	4,900.05	0.9167	4,491.875
18514	22	7,342.88	0.9004	6,611.529
18518	17	5,984.23	0.9001	5,386.405
04552	20	6,971.31	0.9003	6,276.270
04008	15	5,213.84	0.9007	4,696.105
17859	15	4,763.86	0.9004	4,289.379
18519	18	5,868.35	0.9002	5,282.688
04553	21	7,421.48	0.9003	6,681.558
04551	20			

		7,025.57	0.9004	6,325.823
04554	20	7,099.37	0.9003	6,391.562
04558	20	7,131.15	0.9004	6,420.887
04559	21	7,383.45	0.9003	6,647.320
18328	20	6,930.81	0.9166	6,352.780
04557	20	7,129.04	0.9004	6,418.987
05808	13	4,636.31	0.9166	4,249.641
17191	19	6,260.43	0.9166	5,738.310
17541	23	8,316.50	0.9008	7,491.503
15979	18	6,402.12	0.8992	5,756.786
04981	21	7,488.45	0.9166	6,863.913
04984	21	7,313.70	0.9166	6,703.737
189	17	6,675.98	0.8993	6,003.708
04980	21	7,519.50	0.9166	6,892.373
8687	21	7,687.10	0.9165	7,045.227
4552	21	7,659.39	0.9167	7,021.362
14970	20	6,952.15	0.8992	6,251.373
5050	19	6,793.54	0.9165	6,226.279
8459	13	4,487.04	0.9166	4,112.820
18867	19	6,628.25	0.8996	5,962.773
19698	20	6,939.18	0.8995	6,241.792
20255	19	7,029.76	0.9166	6,443.478
3958	22			

		7,814.96	0.8995	7,029.556
3725	22	7,790.80	0.9166	7,141.047
17924	15	4,923.13	0.9166	4,512.540
D 19	22	7,944.05	0.9165	7,280.721
20354	19	6,815.48	0.9166	6,247.068
20552	19	6,907.07	0.9165	6,330.329
04046	21	7,259.94	0.8995	6,530.316
04047	21	7,083.56	0.8993	6,370.245
04048	21	7,281.05	0.8995	6,549.304
04049	22	7,497.33	0.8994	6,743.098
04045	21	7,046.55	0.8995	6,338.371
12997	12	4,239.38	0.8996	3,813.746
14636	21	7,552.67	0.8993	6,792.116
14637	21	7,583.17	0.8993	6,819.544
14640	20	6,985.70	0.8994	6,282.938
14639	20	6,995.47	0.8994	6,291.725
14638	21	7,584.42	0.8997	6,823.702
17012	19	7,065.17	0.9165	6,475.228
D 112	21	7,554.39	0.8993	6,793.662
D 214	21	7,500.25	0.9137	6,852.978
D 216	20	7,280.32	0.9165	6,672.413
D 113	22	8,014.07	0.8995	7,208.655
20512	18			

		6,410.10	0.9009	5,774.859
20511	19	6,877.00	0.8995	6,185.861
20011	13	4,628.24	0.8996	4,163.564
20591	19	7,061.04	0.9166	6,472.149
20592	18	6,683.01	0.9167	6,126.315
20013	16	5,700.03	0.8997	5,128.316
18328	14	4,877.81	0.8991	4,385.638
20589	18	6,548.26	0.9166	6,002.135
20588	18	6,613.01	0.9166	6,061.484
20587	18	6,589.11	0.9166	6,039.578
20586	18	6,641.32	0.9167	6,088.098
20583	18	6,610.13	0.9166	6,058.845
20585	19	7,021.53	0.9166	6,435.934
D 116	20	7,291.05	0.8993	6,556.841
D 115	21	7,709.78	0.8998	6,937.260
21186	21	7,535.60	0.9038	6,810.675
21187	20	7,348.32	0.9034	6,638.472
21188	20	7,237.69	0.9032	6,537.081
20582	18	6,584.81	0.9166	6,035.636
20575	19	6,990.28	0.9165	6,406.591
20576	18	6,598.75	0.9165	6,047.754
D 114	21	7,674.13	0.8997	6,904.414
20578	18			

		6,731.02	0.9166	6,169.652
20579	17	6,235.32	0.9165	5,714.670
20580	19	6,885.77	0.9166	6,311.496
20581	18	6,499.77	0.9166	5,957.689
20573	18	6,638.07	0.9165	6,083.791
20574	18	6,633.57	0.9166	6,080.330
20590	18	6,562.67	0.9166	6,015.343
20577	19	7,080.59	0.9165	6,489.360
20564	19	6,900.84	0.9165	6,324.619
20570	19	6,975.38	0.9165	6,392.935
20572	19	6,952.95	0.9166	6,373.073
20560	18	6,512.66	0.9165	5,968.852
20558	19	6,916.28	0.9166	6,339.462
20557	19	6,857.73	0.9166	6,285.795
88	1	422.33	0.9165	387.065
88	1	423.64	0.9165	388.266
88	1	416.27	0.9165	381.511
D 008	23	8,233.87	0.9165	7,546.341
D 051	22	7,811.88	0.9164	7,158.806
D 018	22	7,851.97	0.9165	7,196.330
D 004	22	7,947.47	0.9164	7,283.061
D 061	19	6,989.39	0.9164	6,405.076
19225	18			

		6,380.96	0.9166	5,848.787
D 021	20	7,672.17	0.9165	7,031.543
D 053	23	8,180.42	0.9164	7,496.536
07313	23	8,261.42	0.8996	7,431.973
07038	17	5,930.77	0.8996	5,335.320
03727	20	7,234.01	0.9167	6,631.416
07334	21	7,151.48	0.8999	6,435.616
18262	16	5,611.58	0.8993	5,046.493
17607	21	7,751.62	0.9166	7,105.134
18221	18	6,335.88	0.8997	5,700.391
17660	22	7,914.46	0.9166	7,254.394
15383	19	6,638.19	0.8993	5,969.724
14963	22	7,760.23	0.8994	6,979.550
01111	12	4,170.31	0.9166	3,822.506
00748	16	5,421.64	0.9166	4,969.475
03952	21	7,548.72	0.8993	6,788.563
03740	20	7,176.90	0.9166	6,578.346
03955	22	7,729.33	0.8994	6,951.759
03730	20	7,268.47	0.9166	6,662.279
04983	22	7,819.27	0.9167	7,167.924
04985	21	7,464.93	0.9167	6,843.101
04556	20	7,166.53	0.9004	6,452.743
18325	13			

		4,287.39	0.9166	3,929.821
D 005	22	7,971.68	0.9166	7,306.841
18218	21	7,688.70	0.9166	7,047.462
17898	17	5,747.45	0.9166	5,268.112
17896	19	6,264.95	0.9166	5,742.453
14641	22	7,603.14	0.8994	6,838.264
12814	9	2,999.86	0.8999	2,699.574
D 215	21	7,714.24	0.9165	7,070.100
188	17	6,866.68	0.8992	6,174.518
20584	19	6,822.79	0.9166	6,253.769
20571	18	6,604.98	0.9165	6,053.464
20559	18	6,589.11	0.9166	6,039.578
08497	21	7,173.42	0.8999	6,455.360
07940	16	5,500.67	0.9005	4,953.353
01832	12	4,028.85	0.9148	3,685.591
01845	13	4,485.41	0.9166	4,111.326
23675	13	4,375.16	0.9166	4,010.271
D 002	22	7,968.53	0.9165	7,303.157
00734	15	5,498.44	0.9100	5,003.580
00595	12	4,021.23	0.9166	3,685.859
07690	21	7,351.71	0.9000	6,616.539
04944	21	7,404.51	0.9165	6,786.233
08657	22			

		7,577.01	0.9006	6,823.855
07689	21	7,443.17	0.9001	6,699.597
02986	17	6,227.19	0.9166	5,707.842
03235	20	7,129.94	0.8997	6,414.807
04241	17	6,006.55	0.9165	5,505.003
04708	16	5,728.55	0.9166	5,250.788
17636	21	7,384.89	0.9166	6,768.990
02701	19	6,720.63	0.9166	6,160.129
02054	15	5,274.42	0.9167	4,835.060
07937	18	6,240.92	0.8996	5,614.331
04551	21	7,565.28	0.9167	6,935.092
03836	16	5,781.92	0.9166	5,299.707
04530	20	7,251.18	0.9166	6,646.431
04536	20	7,165.54	0.9166	6,567.933
03960	22	7,601.07	0.8995	6,837.162
04496	20	7,307.37	0.9166	6,697.935
04498	19	6,835.61	0.9166	6,265.520
04526	20	7,167.65	0.9166	6,569.867
34	12	4,571.62	0.9012	4,119.943
99	13	4,647.74	0.9006	4,185.754
130	12	4,591.70	0.9007	4,135.744
108	11	4,230.45	0.9006	3,809.943
106	11			

		4,285.82	0.9000	3,857.238
104	12	4,490.85	0.9002	4,042.663
109	11	4,146.73	0.9004	3,733.715
107	12	4,476.61	0.9002	4,029.844
105	12	4,496.90	0.9006	4,049.908
129	11	4,113.80	0.9007	3,705.299
128	11	4,082.15	0.9006	3,676.384
132	14	5,150.70	0.9009	4,640.265
111	11	4,049.00	0.9008	3,647.339
131	11	4,125.84	0.9007	3,716.144
112	12	4,513.70	0.9007	4,065.489
127	11	4,077.59	0.9005	3,671.869
113	11	4,104.22	0.9006	3,696.260
110	12	4,503.32	0.9006	4,055.689
122	11	4,247.75	0.9017	3,830.196
125	11	4,039.84	0.9005	3,637.875
126	12	4,481.71	0.9005	4,035.779
67	11	4,312.32	0.9017	3,888.418
124	10	3,855.24	0.9006	3,472.029
123	12	4,579.60	0.9003	4,123.013
64	10	3,836.43	0.9019	3,460.076
66	10	3,875.29	0.9017	3,494.348
63	12			

		4,707.86	0.9019	4,246.018
55	10	3,608.65	0.9020	3,255.002
102	9	3,511.88	0.9002	3,161.394
103	12	4,493.09	0.9000	4,043.781
120	11	4,302.41	0.9013	3,877.762
121	11	4,256.67	0.9013	3,836.536
116	11	4,233.15	0.9006	3,812.374
117	12	4,392.60	0.9007	3,956.414
118	11	4,215.20	0.9014	3,799.581
85	11	4,316.75	0.9003	3,886.370
81	10	4,001.63	0.9006	3,603.867
83	11	4,367.50	0.9004	3,932.497
82	11	4,302.83	0.9010	3,876.849
86	11	4,361.00	0.9003	3,926.208
74	11	4,278.02	0.8997	3,848.934
84	11	4,313.08	0.9003	3,883.065
96	11	4,247.30	0.9013	3,828.091
97	12	4,441.76	0.9016	4,004.690
94	11	4,258.09	0.9003	3,833.558
95	12	4,687.25	0.9007	4,221.806
92	11	4,294.54	0.9008	3,868.521
87	11	4,326.15	0.9003	3,894.832
89	11			

		4,270.03	0.9009	3,846.870
88	11	4,390.20	0.9004	3,952.936
91	11	4,362.43	0.9005	3,928.368
90	11	4,293.95	0.9003	3,865.843
70	11	4,221.40	0.9005	3,801.370
72	11	4,203.59	0.9003	3,784.492
68	12	4,530.66	0.9003	4,078.953
69	11	4,298.54	0.9005	3,870.835
73	11	4,240.81	0.9008	3,820.121
31	11	4,128.92	0.9018	3,723.460
33	11	4,144.15	0.9008	3,733.050
32	12	4,565.57	0.9011	4,114.035
43	12	4,479.56	0.9006	4,034.291
35	11	4,042.72	0.9013	3,643.703
36	12	4,550.33	0.9008	4,098.937
47	11	4,085.60	0.9008	3,680.308
45	12	4,466.48	0.9010	4,024.298
44	11	4,081.81	0.8999	3,673.220
51	11	4,182.00	0.9017	3,770.909
49	11	4,127.66	0.9011	3,719.434
46	12	4,445.61	0.9005	4,003.271
53	12	4,512.40	0.9015	4,067.928
52	11			

		4,221.65	0.9018	3,807.083
50	11	4,137.97	0.9016	3,730.793
54	12	4,548.85	0.9015	4,100.788
58	11	4,250.45	0.9018	3,833.055
61	11	4,228.16	0.9015	3,811.686
56	13	4,968.45	0.9016	4,479.554
57	11	4,130.90	0.9015	3,724.006
59	11	4,252.08	0.9015	3,833.250
38	12	4,314.50	0.9012	3,888.227
37	11	3,960.76	0.9013	3,569.832
60	11	4,229.35	0.9018	3,814.027
41	12	4,378.03	0.9007	3,943.291
42	11	3,994.66	0.9006	3,597.590
39	12	4,408.50	0.9014	3,973.821
76	11	4,327.18	0.9005	3,896.625
79	11	4,364.60	0.9004	3,929.885
40	12	4,413.78	0.9000	3,972.402
75	11	4,292.38	0.9003	3,864.429
77	11	4,364.10	0.9014	3,933.799
71	11	4,280.68	0.9007	3,855.608
26	11	4,052.51	0.9015	3,653.337
27	12	4,427.91	0.9016	3,992.203
78	11			

		4,358.49	0.9009	3,926.563
30	11	4,104.46	0.9013	3,699.349
25	12	4,510.90	0.9015	4,066.576
28	11	4,230.75	0.9013	3,813.174
119	11	4,173.72	0.9017	3,763.443
101	12	4,423.24	0.9010	3,985.339
98	11	3,899.97	0.9013	3,515.042
115	12	4,568.20	0.9005	4,113.664
100	11	4,111.03	0.8994	3,697.460
62	11	4,253.94	0.9015	3,834.926
114	11	4,201.70	0.9005	3,783.630
93	10	3,981.40	0.9007	3,586.046
49	12	4,507.43	0.9000	4,056.687
65	12	4,693.30	0.9017	4,231.948
29	12	4,440.95	0.9015	4,003.516
80	11	4,318.64	0.9004	3,888.503
20561	19	6,925.21	0.9166	6,347.647
20556	18	6,551.90	0.9166	6,005.471
20548	19	6,850.05	0.9166	6,278.755
20563	18	6,567.15	0.9166	6,019.449
20562	18	6,539.18	0.9165	5,993.158
20551	18	6,517.38	0.9166	5,973.830
20550	19			

		6,915.29	0.9166	6,338.554
20549	18	6,577.00	0.9165	6,027.820
20569	18	6,570.41	0.9165	6,021.780
20546	19	6,936.20	0.9165	6,357.027
20547	18	6,524.38	0.9165	5,979.594
20568	18	6,586.17	0.9165	6,036.224
20544	18	6,576.22	0.9165	6,027.105
20545	18	6,690.01	0.9165	6,131.394
20541	19	6,909.02	0.9166	6,332.807
20567	19	6,878.45	0.9165	6,304.099
20566	18	6,652.55	0.9165	6,097.062
20543	19	6,998.27	0.9165	6,413.914
20565	19	6,872.86	0.9165	6,298.976
20542	19	6,951.67	0.9166	6,371.900
20538	20	7,363.11	0.9166	6,749.026
20537	19	6,998.59	0.9166	6,414.907
20536	20	7,332.36	0.9165	6,720.107
20535	19	7,004.81	0.9166	6,420.608
20540	19	6,917.68	0.9164	6,339.361
20539	18	6,679.63	0.9166	6,122.548
20371	19	6,894.99	0.9166	6,319.947
20372	18	6,657.06	0.9166	6,101.861
20390	17			

		6,171.48	0.9166	5,656.778
20391	18	6,590.45	0.9166	6,040.806
20386	19	6,811.66	0.9165	6,242.886
20387	19	6,876.59	0.9166	6,303.082
20388	19	6,913.60	0.9166	6,337.005
20389	19	6,883.05	0.9166	6,309.003
20385	18	6,519.57	0.9166	5,975.837
20384	19	6,951.79	0.9166	6,372.010
20383	18	6,584.44	0.9166	6,035.297
20382	19	6,975.99	0.9165	6,393.494
20378	19	6,953.00	0.9166	6,373.119
20379	18	6,597.90	0.9166	6,047.635
20380	18	6,708.29	0.9165	6,148.147
20381	19	6,915.76	0.9166	6,338.985
20375	18	6,585.65	0.9166	6,036.406
20374	19	6,887.02	0.9167	6,313.331
20373	18	6,676.62	0.9166	6,119.789
20355	18	6,401.08	0.9166	5,867.229
20365	18	6,607.00	0.9165	6,055.315
20366	18	6,516.03	0.9166	5,972.593
20367	19	7,006.75	0.9166	6,422.387
20370	18	6,565.53	0.9166	6,017.964
20363	18			

		6,602.80	0.9166	6,052.126
20376	19	6,948.60	0.9166	6,369.086
20377	17	6,199.45	0.9166	5,682.415
20368	18	6,504.30	0.9166	5,961.841
20369	19	7,056.55	0.9166	6,468.033
20364	19	6,976.65	0.9165	6,394.099
20362	19	6,898.82	0.9166	6,323.458
20361	18	6,493.20	0.9166	5,951.667
20360	19	6,897.06	0.9165	6,321.155
20351	20	7,149.92	0.9165	6,552.901
20357	18	6,520.84	0.9166	5,977.001
20359	19	6,862.64	0.9166	6,290.295
20352	20	7,176.79	0.9166	6,578.245
20358	19	6,789.05	0.9166	6,222.843
20353	19	6,818.60	0.9166	6,249.928
20350	20	7,156.67	0.9166	6,559.803
20349	20	7,206.60	0.9165	6,604.848
20348	20	7,172.36	0.9165	6,573.467
20356	19	6,851.30	0.9166	6,279.901
20347	20	7,195.15	0.9165	6,594.354
20346	20	7,162.05	0.9165	6,564.018
20296	19	7,018.78	0.9165	6,432.711
20290	20			

		7,147.23	0.9166	6,551.151
20289	20	7,346.99	0.9166	6,734.251
20288	19	7,025.88	0.9166	6,439.921
20287	19	6,991.76	0.9166	6,408.647
20295	20	7,412.85	0.9165	6,793.877
20294	19	7,057.25	0.9165	6,467.969
20293	19	6,969.88	0.9166	6,388.592
18325	14	5,006.43	0.9165	4,588.393
20275	20	7,221.52	0.9166	6,619.245
20291	20	7,116.30	0.9166	6,522.800
20292	21	7,544.32	0.9166	6,915.123
20272	20	7,271.89	0.9166	6,665.414
20273	20	7,271.07	0.9166	6,664.662
20274	20	6,970.96	0.9166	6,389.581
20269	20	7,054.58	0.9166	6,466.228
20270	20	7,237.07	0.9165	6,632.774
20271	20	7,241.34	0.9166	6,637.412
20267	18	6,587.84	0.9165	6,037.755
20266	20	7,302.96	0.9166	6,693.893
20265	20	7,323.58	0.9166	6,712.793
20262	20	7,159.16	0.9166	6,562.086
20263	20	7,149.47	0.9165	6,552.489
20264	20			

		7,283.72	0.9165	6,675.529
20268	20	6,980.21	0.9166	6,398.060
20260	20	7,446.39	0.9166	6,825.361
20259	20	7,411.07	0.9166	6,792.986
20253	19	6,991.08	0.9165	6,407.324
20257	20	7,371.13	0.9166	6,756.377
20258	20	7,447.07	0.9165	6,825.239
20261	16	5,934.12	0.9166	5,439.214
20256	20	7,390.35	0.9166	6,773.994
20254	20	7,364.46	0.9165	6,749.527
20251	19	7,002.70	0.9166	6,418.674
20250	19	6,823.60	0.9166	6,254.511
20249	20	7,315.30	0.9166	6,705.203
20252	20	7,329.22	0.9165	6,717.230
20244	19	6,941.64	0.9166	6,362.707
20246	20	7,190.86	0.9165	6,590.423
20240	20	7,259.06	0.9166	6,653.654
20248	20	7,139.28	0.9166	6,543.864
20247	20	7,201.75	0.9166	6,601.124
20241	20	7,358.23	0.9166	6,744.553
20242	20	7,426.70	0.9165	6,806.570
20243	19	7,012.13	0.9166	6,427.318
20236	20			

		7,232.28	0.9165	6,628.384
20237	20	7,201.30	0.9166	6,600.711
20238	20	7,257.95	0.9165	6,651.911
20233	20	7,242.30	0.9166	6,638.292
20232	20	7,317.83	0.9166	6,707.522
20239	20	7,208.75	0.9166	6,607.540
20234	20	7,321.08	0.9167	6,711.234
20235	18	6,417.25	0.9166	5,882.051
20228	20	7,145.32	0.9166	6,549.400
20231	20	7,347.20	0.9165	6,733.708
20230	20	7,221.74	0.9166	6,619.446
20229	20	7,200.36	0.9166	6,599.849
20224	20	7,403.63	0.9165	6,785.426
20225	19	6,883.59	0.9166	6,309.498
20226	20	7,244.67	0.9166	6,640.464
20227	20	7,090.02	0.9165	6,498.003
19714	20	7,091.53	0.8994	6,378.122
19713	20	7,125.68	0.8993	6,408.124
19710	20	7,149.39	0.8994	6,430.161
19717	19	6,644.76	0.8993	5,975.632
19718	18	6,276.58	0.8993	5,644.528
19709	20	6,988.29	0.8993	6,284.569
19716	20			

		6,913.45	0.8994	6,217.956
19715	18	6,368.34	0.8993	5,727.048
19711	20	7,195.16	0.8994	6,471.326
19712	20	7,182.65	0.8993	6,459.357
19705	20	6,997.74	0.8992	6,292.367
19706	20	6,961.37	0.8995	6,261.752
19707	20	6,946.45	0.8996	6,249.026
19708	20	6,992.34	0.8993	6,288.211
19703	20	7,044.10	0.8993	6,334.759
19702	21	7,087.57	0.8993	6,373.851
19701	20	7,092.10	0.8993	6,377.925
19704	20	6,928.47	0.8993	6,230.773
19697	18	6,416.00	0.8996	5,771.833
19700	19	6,701.90	0.8997	6,029.699
18873	18	6,370.70	0.8993	5,729.170
18878	18	6,496.48	0.8993	5,842.284
18899	18	6,524.83	0.9164	5,979.354
18868	21	7,352.50	0.8994	6,612.838
19696	20	7,195.42	0.8995	6,472.280
19695	20	7,026.23	0.8997	6,321.499
18895	19	6,915.45	0.9165	6,338.009
18897	20	7,354.85	0.9165	6,740.720
18894	19			

		6,948.77	0.9164	6,367.852
18896	16	5,670.85	0.9165	5,197.334
18892	20	7,240.45	0.9165	6,635.872
18891	20	7,178.30	0.9164	6,578.194
18890	19	7,029.43	0.9164	6,441.769
18889	19	6,992.36	0.9164	6,407.798
16651	10	3,591.19	0.9144	3,283.784
18040	18	6,432.55	0.9166	5,896.075
18887	20	7,375.32	0.9164	6,758.743
18886	21	7,492.87	0.9163	6,865.716
18888	19	6,992.41	0.9165	6,408.543
16136	14	5,070.22	0.9166	4,647.363
16053	10	3,580.90	0.9166	3,282.252
18038	19	7,005.63	0.9165	6,420.659
18037	20	7,308.34	0.9166	6,698.824
17908	17	6,181.73	0.9165	5,665.555
17906	19	6,938.21	0.9164	6,358.175
17907	21	7,673.97	0.9164	7,032.426
18039	18	6,556.60	0.9165	6,009.123
18885	17	5,970.57	0.8992	5,368.736
18884	19	6,675.37	0.8993	6,003.160
18877	19	6,936.67	0.8994	6,238.840
18880	20			

		7,276.30	0.8993	6,543.576
18879	20	7,087.65	0.8995	6,375.341
18883	19	6,520.47	0.8993	5,863.858
18876	20	7,342.82	0.8993	6,603.398
18875	20	7,327.80	0.8994	6,590.623
18874	21	7,580.63	0.8995	6,818.776
18871	20	7,155.21	0.8996	6,436.826
18870	20	7,230.15	0.8997	6,504.965
18872	20	7,183.80	0.8993	6,460.391
18881	18	6,409.34	0.8992	5,763.278
18882	20	6,984.12	0.8993	6,280.819
18869	21	7,524.73	0.8996	6,769.247
18864	21	7,431.37	0.8994	6,683.774
18865	21	7,517.05	0.8995	6,761.586
18866	20	7,209.26	0.8995	6,484.729
18863	20	7,290.19	0.9000	6,561.171
18862	21	7,585.07	0.8998	6,825.045
18861	19	6,701.40	0.9000	6,031.260
18860	20	7,084.34	0.9000	6,375.906
18859	22	7,617.89	0.8999	6,855.339
18858	19	6,640.93	0.8999	5,976.172
18857	20	7,051.95	0.8998	6,345.344
18856	20			

		7,159.72	0.8999	6,443.032
18853	22	7,766.06	0.8999	6,988.677
18854	22	7,834.77	0.8998	7,049.726
18855	22	7,881.95	0.8998	7,092.178
18165	20	7,135.22	0.8991	6,415.276
16593	12	4,192.47	0.8996	3,771.546
16595	8	2,712.23	0.8993	2,439.108
18163	20	7,103.20	0.8997	6,390.749
18164	22	7,965.78	0.8990	7,161.236
16052	8	2,916.54	0.8998	2,624.302
18092	16	5,679.10	0.8993	5,107.214
17985	19	6,876.67	0.8994	6,184.876
15963	10	3,501.43	0.8996	3,149.886
18091	17	5,983.88	0.8992	5,380.704
17986	19	6,808.02	0.8994	6,123.133
18089	18	6,447.65	0.8993	5,798.371
18090	17	6,136.95	0.8993	5,518.959
17982	21	7,499.54	0.8994	6,745.086
17983	21	7,601.82	0.8996	6,838.597
17984	19	6,610.52	0.8994	5,945.501
17911	20	7,116.23	0.8994	6,400.337
17910	21	7,624.02	0.8993	6,856.281
17981	20			

		7,232.43	0.8993	6,504.124
D 211	21	7,515.33	0.9133	6,863.750
17980	21	7,482.97	0.8994	6,730.183
17979	20	7,180.60	0.8996	6,459.667
17909	21	7,516.37	0.8994	6,760.223
D 213	21	7,513.13	0.9165	6,885.783
D 212	21	7,573.29	0.9165	6,940.920
17174	19	6,816.21	0.9165	6,247.056
17175	17	6,071.20	0.9166	5,564.861
17202	18	6,561.10	0.9166	6,013.904
17018	16	5,698.90	0.9165	5,223.041
17017	19	6,718.08	0.9166	6,157.792
17398	19	6,873.63	0.9159	6,295.557
17013	19	6,917.82	0.9164	6,339.490
17016	20	7,015.63	0.9166	6,430.526
17173	18	6,474.50	0.9166	5,934.526
17014	17	6,198.60	0.9165	5,681.016
17015	18	6,489.00	0.9165	5,947.168
08150	13	4,486.85	0.9166	4,112.646
09621	17	5,949.28	0.9166	5,453.110
07939	9	3,151.47	0.9166	2,888.637
07745	13	4,484.30	0.9166	4,110.309
09620	17			

		6,148.50	0.9165	5,635.100
10685	19	6,880.38	0.9159	6,301.740
10684	19	6,939.48	0.9158	6,355.175
10490	12	4,145.86	0.9158	3,796.778
09107	21	7,324.25	0.9166	6,713.407
10688	20	6,918.22	0.9158	6,335.705
10687	19	7,024.85	0.9159	6,434.060
10686	19	6,916.55	0.9159	6,334.868
10689	11	3,685.85	0.9159	3,375.870
10931	15	5,221.30	0.9165	4,785.321
10930	14	5,020.18	0.9165	4,600.994
09106	18	6,444.65	0.9164	5,905.877
09102	19	6,724.50	0.9163	6,161.659
09103	20	7,065.30	0.9166	6,476.053
09104	19	6,716.47	0.9165	6,155.644
09099	23	8,110.73	0.9166	7,434.295
09098	23	8,158.90	0.9163	7,476.000
09100	21	7,571.18	0.9164	6,938.229
09095	21	7,468.00	0.9163	6,842.928
09093	22	7,834.86	0.9164	7,179.865
09101	21	7,560.57	0.9164	6,928.506
08706	21	7,647.99	0.9166	7,010.147
09097	22			

		7,762.50	0.9165	7,114.331
09096	21	7,589.08	0.9164	6,954.632
09094	21	7,644.83	0.9164	7,005.722
08708	19	6,591.90	0.9164	6,040.817
08707	20	7,297.21	0.9135	6,666.001
08705	20	7,361.23	0.9165	6,746.567
08704	21	7,767.61	0.9166	7,119.791
08702	21	7,620.00	0.9166	6,984.492
08699	19	6,693.28	0.9166	6,135.060
08698	20	7,409.83	0.9166	6,791.850
08703	21	7,629.41	0.9166	6,993.117
08694	21	7,769.36	0.9166	7,121.395
08701	22	8,097.47	0.9166	7,422.141
08700	21	7,555.20	0.9166	6,925.096
08697	21	7,711.90	0.9166	7,068.727
08696	21	7,768.42	0.9166	7,120.533
08695	21	7,704.25	0.9166	7,061.715
08692	22	7,931.32	0.9166	7,269.847
08691	22	7,948.13	0.9165	7,284.461
08690	22	7,927.53	0.9165	7,265.581
08693	21	7,598.67	0.9166	6,964.940
08685	21	7,611.49	0.9165	6,975.930
08686	21			

		7,625.78	0.9166	6,989.789
08682	21	7,589.10	0.9166	6,956.169
08689	18	6,438.81	0.9165	5,901.169
08688	21	7,665.70	0.9166	7,026.380
08681	22	7,847.03	0.9166	7,192.587
08680	22	7,878.98	0.9166	7,221.873
08675	18	6,389.81	0.9010	5,757.218
08016	15	5,170.97	0.9165	4,739.194
08017	14	4,885.00	0.9165	4,477.102
08683	22	7,911.03	0.9165	7,250.458
08684	21	7,623.88	0.9166	6,988.048
07463	16	5,749.30	0.9166	5,269.808
07722	14	4,934.07	0.9165	4,522.075
07723	15	5,462.02	0.9165	5,005.941
06999	22	7,802.43	0.9010	7,029.989
07038	16	5,363.22	0.9165	4,915.391
07011	22	7,763.08	0.9166	7,115.639
07012	22	7,633.80	0.9166	6,997.141
07459	19	6,700.33	0.9166	6,141.522
06934	16	5,282.45	0.9166	4,841.893
07461	19	6,731.30	0.9166	6,169.909
07460	19	6,881.50	0.9166	6,307.582
07058	10			

		3,539.32	0.9166	3,244.140
07039	10	3,554.18	0.9018	3,205.159
06935	14	4,807.72	0.9165	4,406.275
06757	13	4,451.62	0.9165	4,079.909
06586	13	4,323.08	0.9166	3,962.535
06250	9	3,136.68	0.9165	2,874.767
06311	9	3,040.95	0.9165	2,787.030
05838	12	3,965.82	0.9033	3,582.325
06920	11	3,589.16	0.9165	3,289.465
06073	15	4,931.86	0.9166	4,520.542
05837	13	4,484.01	0.9165	4,109.595
06592	13	4,479.45	0.9166	4,105.863
06087	13	4,547.95	0.9166	4,168.650
06813	21	7,461.75	0.9165	6,838.693
06814	21	7,487.75	0.9165	6,862.522
06752	18	6,272.36	0.9166	5,749.245
06717	16	5,628.80	0.9165	5,158.795
06611	17	5,756.58	0.9166	5,276.481
06088	12	3,951.55	0.9165	3,621.595
05643	13	4,708.05	0.9166	4,315.398
05642	14	5,163.05	0.9165	4,731.935
05435	18	6,442.88	0.9166	5,905.543
05436	17			

		5,921.87	0.9165	5,427.393
06610	18	6,378.68	0.9165	5,846.060
03649	9	3,139.60	0.9165	2,877.443
05049	19	6,816.05	0.9165	6,246.909
05051	18	6,131.60	0.9166	5,620.224
04958	13	4,372.38	0.9165	4,007.286
04007	14	4,871.90	0.9151	4,458.275
03795	14	4,934.37	0.9165	4,522.350
02729	16	5,377.00	0.9166	4,928.558
04910	20	7,015.87	0.9161	6,427.238
04957	13	4,588.60	0.9166	4,205.910
03166	15	5,308.13	0.9164	4,864.370
15967	20	6,935.05	0.8992	6,235.996
04911	21	7,170.52	0.9164	6,571.064
15964	16	5,591.30	0.8994	5,028.815
15963	18	6,469.59	0.8995	5,819.396
15961	18	6,463.78	0.8994	5,813.523
15960	20	7,040.76	0.8994	6,332.459
14926	15	5,229.52	0.8996	4,704.476
15968	19	6,883.89	0.8994	6,191.370
15682	16	5,623.81	0.8993	5,057.492
15681	17	5,929.58	0.8992	5,331.878
15680	18			

		6,355.12	0.8994	5,715.794
15962	19	6,787.77	0.8995	6,105.599
15683	17	5,940.02	0.8993	5,341.859
15518	19	6,506.00	0.8993	5,850.845
15676	20	7,171.45	0.8993	6,449.284
15677	21	7,527.20	0.8993	6,769.210
15516	19	6,674.06	0.8993	6,001.982
15515	20	7,145.34	0.8994	6,426.518
15514	20	7,024.48	0.8996	6,319.222
15678	22	7,708.82	0.8993	6,932.541
15482	16	5,635.67	0.8993	5,068.158
15513	20	6,927.87	0.8993	6,230.233
15512	20	6,943.09	0.8993	6,243.920
15517	20	6,865.36	0.8996	6,176.077
15392	20	6,968.13	0.8994	6,267.136
15391	19	6,827.27	0.8994	6,140.446
15390	19	6,751.92	0.9003	6,078.753
15483	19	6,351.74	0.8994	5,712.754
05813	1	195.65	0.8997	176.026
03514	1	214.55	0.9166	196.656
12136	1	183.35	0.8997	164.959
RMC 1	1	421.61	0.9000	379.449
04987	1			

		206.23	0.9000	185.607
09234	1	213.95	0.8999	192.533
RMC 1	1	412.60	0.9000	371.340
06163	1	198.67	0.8999	178.783
RMC 1	1	417.24	0.9000	375.516
07971	1	184.09	0.8995	165.588
11941	1	194.36	0.9000	174.924
RMC 2	1	403.93	0.8996	363.375
20286	1	368.65	0.9165	337.867
RMC 1	1	416.87	0.9000	375.183
20286	1	378.45	0.9165	346.849
20286	1	367.14	0.9165	336.483
20286	1	372.17	0.9165	341.093
00187	1	197.80	0.8998	177.980
T 071	1	201.82	0.8997	181.577
07747	1	209.28	0.8990	188.142
17497	1	190.95	0.8991	171.683
11958	1	163.04	0.8996	146.670
17903	1	152.84	0.8997	137.510
05395	1	203.78	0.9004	183.483
17639	1	217.28	0.8999	195.530
04789	1	191.07	0.8997	171.905
05168	1			

		199.69	0.8999	179.701
05251	1	211.51	0.8996	190.274
05250	1	206.96	0.9006	186.388
WPM12	15	5,913.58	0.8998	5,321.039
WPM 5	16	6,440.28	0.9000	5,796.252
WPM11	16	6,330.87	0.8997	5,695.883
E6	17	6,485.36	0.8997	5,834.878
E4	19	6,929.40	0.8992	6,230.916
04039	21	7,305.66	0.8993	6,569.980
04367	21	7,898.33	0.9166	7,239.609
04397	12	4,069.04	0.9163	3,728.461
WPM 6	15	6,010.69	0.9000	5,409.621
1653	1	335.37	0.9012	302.235
03318	1	340.45	0.8993	306.166
01962	18	7,291.00	0.9003	6,564.087
01993	18	7,536.43	0.9002	6,784.294
02022	18	7,358.77	0.9002	6,624.364
02597	18	7,444.76	0.8999	6,699.539
01995	18	7,547.22	0.9003	6,794.762
02588	18	7,130.67	0.8999	6,416.889
02613	18	7,102.65	0.9000	6,392.385
02625	18	7,365.18	0.9000	6,628.662
02578	17			

		6,941.67	0.9000	6,247.503
01965	19	7,845.10	0.9003	7,062.943
01975	19	7,870.88	0.9002	7,085.366
04386	20	7,222.45	0.9166	6,620.097
02001	19	7,823.33	0.8997	7,038.650
02035	19	7,514.48	0.8993	6,757.771
02034	19	8,049.30	0.8993	7,238.735
04694	18	7,371.85	0.9127	6,728.287
05002	21	7,848.38	0.9166	7,193.825
04989	21	7,871.67	0.9166	7,215.172
04979	20	7,416.55	0.9166	6,798.009
04742	18	7,197.03	0.9062	6,521.948
04730	17	6,980.56	0.9085	6,341.838
04726	18	7,459.57	0.9133	6,812.825
04744	17	6,976.05	0.9093	6,343.322
04705	18	7,243.70	0.9115	6,602.632
04706	18	6,983.95	0.9003	6,287.650
05011	21	7,735.65	0.9166	7,090.496
04737	18	7,225.30	0.9081	6,561.294
02598	18	7,384.64	0.9000	6,646.176
04746	17	6,749.84	0.9023	6,090.380
04749	15	6,020.39	0.9005	5,421.361
03989	22			

		8,093.00	0.9166	7,418.043
03902	21	7,762.45	0.9166	7,115.061
04001	20	7,107.33	0.9166	6,514.578
03975	22	7,979.05	0.9166	7,313.597
04163	21	7,374.10	0.8994	6,632.265
03852	21	7,632.25	0.9166	6,995.720
03847	20	7,161.70	0.9166	6,564.414
03853	22	8,206.40	0.9167	7,522.806
04125	21	7,124.18	0.8993	6,406.775
04113	20	6,660.53	0.8994	5,990.480
04139	22	7,440.75	0.8994	6,692.210
04119	21	7,262.54	0.8995	6,532.654
04107	21	7,121.49	0.8995	6,405.780
04108	21	7,136.03	0.8994	6,418.145
04090	21	7,300.20	0.8994	6,565.799
03955	21	7,737.05	0.9166	7,091.780
03939	21	7,665.35	0.9165	7,025.293
04092	21	7,229.45	0.8993	6,501.444
04444	21	7,668.23	0.9165	7,027.932
03942	20	7,487.90	0.9166	6,863.409
03962	21	7,792.60	0.9166	7,142.697
04153	20	6,956.78	0.8993	6,256.232
04458	14			

		5,198.00	0.9166	4,764.486
04394	21	7,867.88	0.9166	7,211.698
04155	21	7,207.55	0.8993	6,481.749
04148	18	6,164.90	0.8994	5,544.711
04147	21	7,402.07	0.8993	6,656.681
03906	21	7,799.33	0.9165	7,148.085
03905	21	7,733.60	0.9165	7,087.844
03859	21	7,784.68	0.9166	7,135.437
03710	19	6,963.28	0.9166	6,382.542
04028	21	7,195.40	0.8993	6,470.823
04062	21	7,334.73	0.8995	6,597.589
20286	1	368.29	0.9165	337.537
20286	1	366.89	0.9165	336.254
20286	1	374.95	0.9165	343.641
20286	1	375.43	0.9165	344.081
20286	1	359.83	0.9165	329.784
20286	1	368.53	0.9165	337.757
20286	1	374.76	0.9165	343.467
20286	1	357.16	0.9165	327.337
20286	1	365.68	0.9165	335.145
20286	1	375.09	0.9165	343.769
20286	1	361.11	0.9165	330.957
20286	1			

		367.68	0.9165	336.978
20286	1	370.78	0.9165	339.819
20286	1	357.70	0.9165	327.832
20286	1	366.81	0.9165	336.181
20286	1	359.36	0.9165	329.353
RMC 3	1	406.96	0.8997	366.141
RMC 3	1	409.48	0.8997	368.409
RMC 3	1	416.07	0.8997	374.338
RMC 3	1	412.37	0.8997	371.009
RMC 3	1	400.89	0.8997	360.680
RMC 3	1	400.96	0.8997	360.743
RMC 3	1	406.94	0.8997	366.123
RMC 3	1	408.02	0.8997	367.095
RMC 3	1	403.61	0.8997	363.127
RMC 3	1	396.59	0.8997	356.812
RMC 3	1	413.49	0.8997	372.016
20285	1	366.75	0.9166	336.163
20285	1	367.53	0.9166	336.877
20285	1	370.45	0.9166	339.554
20285	1	357.06	0.9166	327.281
20285	1	373.85	0.9166	342.670
20285	1	362.27	0.9166	332.056
20285	1			

		368.71	0.9166	337.959
20285	1	363.73	0.9166	333.394
20285	1	370.43	0.9166	339.536
20285	1	360.34	0.9166	330.287
20285	1	371.21	0.9166	340.251
20285	1	371.23	0.9166	340.269
20285	1	372.32	0.9166	341.268
20285	1	358.43	0.9166	328.536
20285	1	364.09	0.9166	333.724
20285	1	369.58	0.9166	338.757
20285	1	372.88	0.9166	341.781
20285	1	367.75	0.9166	337.079
20285	1	367.67	0.9166	337.006
RMC 2	1	404.50	0.8996	363.888
RMC 2	1	410.40	0.8996	369.195
RMC 2	1	403.59	0.8996	363.069
RMC 1	1	401.49	0.9000	361.341
RMC 1	1	419.76	0.9000	377.784
RMC 2	1	403.58	0.8996	363.060
RMC 1	1	418.30	0.9000	376.470
RMC 1	1	406.64	0.9000	365.976
RMC 1	1	420.75	0.9000	378.675
RMC 1	1			

		420.95	0.9000	378.855
RMC 1	1	406.87	0.9000	366.183
05031	1	196.98	0.8997	177.222
03514	1	181.25	0.9166	166.133
05030	1	195.59	0.8997	175.972
RMC 1	1	421.06	0.9000	378.954
03796	1	206.41	0.8993	185.624
03796	1	209.83	0.8993	188.700
03100	1	211.31	0.8995	190.073
07961	1	181.18	0.8999	163.043
05291	1	195.66	0.8998	176.054
07971	1	202.20	0.8995	181.878
05977	1	178.32	0.8995	160.398
05328	1	196.98	0.8995	177.183
02728	1	195.11	0.8998	175.559
05406	1	207.35	0.8997	186.552
05011	1	192.28	0.8999	173.032
08164	1	189.48	0.8996	170.456
05006	1	166.83	0.9004	150.213
05422	1	141.54	0.8999	127.371
05789	1	217.05	0.9002	195.388
02422	1	185.64	0.9166	170.157
03902	1			

		193.78	0.8995	174.305
12136	1	173.76	0.8997	156.331
04550	1	197.10	0.8997	177.330
04550	1	202.14	0.8997	181.865
08129	1	211.41	0.8996	190.184
08152	1	166.81	0.8995	150.045
04545	1	140.04	0.8998	126.007
08129	1	185.33	0.8996	166.722
12016	1	164.32	0.8999	147.871
12182	1	162.37	0.9004	146.197
11962	1	195.47	0.8996	175.844
C 181	1	199.00	0.8998	179.060
04540	1	169.68	0.8997	152.661
04585	1	147.15	0.8997	132.390
C 204	1	164.07	0.8999	147.646
07972	1	205.37	0.8996	184.750
11941	1	212.11	0.9000	190.899
C 181	1	206.59	0.8998	185.889
04762	1	213.11	0.8995	191.692
07783	1	198.29	0.8996	178.381
11962	1	192.45	0.8996	173.128
04987	1	178.30	0.9000	160.470
12309	1			

		200.72	0.9003	180.708
12310	1	195.56	0.9004	176.082
11142	1	211.74	0.8998	190.523
10994	1	181.67	0.8994	163.393
07711	1	202.38	0.8992	181.980
05022	1	214.82	0.8994	193.209
05206	1	168.64	0.8998	151.742
12309	1	163.34	0.9003	147.055
05206	1	210.38	0.8998	189.299
05131	1	158.17	0.8999	142.337
05159	1	203.18	0.9000	182.862
C 212	1	142.05	0.8999	127.830
C 216	1	140.82	0.8998	126.709
05374	1	215.56	0.8999	193.982
05123	1	178.57	0.8998	160.677
T 071	1	196.09	0.8997	176.422
05176	1	167.92	0.8996	151.060
07783	1	163.32	0.8996	146.922
07711	1	201.90	0.8992	181.548
05176	1	204.55	0.8996	184.013
00190	1	201.72	0.8996	181.467
06365	1	205.37	0.9000	184.833
00193	1			

		197.73	0.8998	177.917
06341	1	95.40	0.8996	85.821
05009	1	190.42	0.8995	171.282
04755	1	168.85	0.8995	151.880
01505	1	150.96	0.8998	135.833
06397	1	204.27	0.9000	183.843
04948	1	216.81	0.8998	195.085
06052	1	198.52	0.9004	178.747
04849	1	209.83	0.8996	188.763
01504	1	214.13	0.8998	192.674
16060	1	198.11	0.9166	181.587
06213	1	195.43	0.8996	175.808
06021	1	153.24	0.8994	137.824
06014	1	198.69	0.8996	178.741
06162	1	187.82	0.8998	169.000
06163	1	194.95	0.8999	175.435
07788	1	160.63	0.8994	144.470
04026	21	7,192.88	0.8994	6,469.276
04031	21	7,211.88	0.8993	6,485.643
04032	21	7,245.81	0.8994	6,516.881
04033	21	7,126.18	0.8993	6,408.573
04030	21	7,241.88	0.8993	6,512.622
04040	21			

		7,315.35	0.8993	6,578.694
04042	21	7,330.80	0.8993	6,592.588
E14	20	6,914.25	0.8997	6,220.750
E15	18	7,049.70	0.8995	6,341.205
E16	17	6,731.97	0.8996	6,056.080
E10	21	7,309.50	0.8997	6,576.357
E11	18	6,704.23	0.8996	6,031.125
E12	18	7,043.70	0.8995	6,335.808
E13	20	7,021.70	0.8996	6,316.721
E9	18	6,398.30	0.8997	5,756.550
E8	19	7,311.04	0.9000	6,579.936
E7	19	7,251.53	0.9000	6,526.377
E5	18	6,796.22	0.8998	6,115.238
E2	15	5,888.90	0.8999	5,299.421
E1	20	7,507.03	0.9001	6,757.077
WPM 1	2	547.08	0.9000	492.372
WPM 7	15	6,048.18	0.8999	5,442.757
WPM10	15	5,898.13	0.8997	5,306.547
WPM 9	15	6,119.32	0.8998	5,506.164
WPM 8	15	6,023.15	0.8999	5,420.232
WPM13	15	6,138.84	0.8997	5,523.114
WPM 4	15	5,850.43	0.8999	5,264.801
WPM 3	15			

		6,026.04	0.9000	5,423.436
WPM 2	15	5,806.48	0.8999	5,225.251
20284	1	362.04	0.9165	331.809
20284	1	345.30	0.9165	316.467
20284	1	364.66	0.9165	334.210
20284	1	362.85	0.9165	332.552
20284	1	363.61	0.9165	333.248
20284	1	363.67	0.9165	333.303
20284	1	371.49	0.9165	340.470
20284	1	351.82	0.9165	322.443
20284	1	361.96	0.9165	331.736
20284	1	362.74	0.9165	332.451
20284	1	362.54	0.9165	332.267
04127	1	196.87	0.9166	180.451
04917	1	208.39	0.8998	187.509
04127	1	190.36	0.9166	174.483
03904	1	193.44	0.9001	174.115
04208	1	163.24	0.8996	146.850
04765	1	171.42	0.9166	157.123
05053	1	197.80	0.8994	177.901
04208	1	180.75	0.8996	162.602
04789	1	149.84	0.8997	134.811
05208	1			

		215.82	0.8998	194.194
05216	1	175.80	0.9161	161.050
05121	1	211.13	0.8997	189.953
05296	1	172.74	0.8995	155.379
05361	1	157.25	0.8996	141.462
05251	1	146.58	0.8996	131.863
05291	1	178.15	0.8999	160.317
05420	1	179.49	0.8995	161.451
05440	1	212.83	0.8992	191.376
05361	1	191.58	0.8996	172.345
05420	1	211.59	0.8995	190.325
05395	1	151.77	0.9004	136.653
05440	1	191.01	0.8992	171.756
05756	1	140.28	0.8995	126.181
05767	1	210.10	0.8996	189.005
05121	1	201.59	0.8997	181.370
18646	1	173.36	0.8992	155.885
18646	1	197.52	0.8992	177.609
18732	1	193.31	0.8992	173.824
19298	1	159.52	0.8997	143.520
18878	1	208.86	0.8996	187.890
18879	1	202.49	0.8998	182.200
04976	1			

		216.69	0.8993	194.869
19290	1	173.00	0.8997	155.648
06307	1	207.62	0.8996	186.774
18879	1	215.57	0.8998	193.969
05208	1	156.04	0.8998	140.404
06074	1	163.31	0.8993	146.864
04976	1	202.22	0.8993	181.856
06723	1	212.41	0.8994	191.041
06074	1	175.60	0.8993	157.917
18616	1	187.62	0.8998	168.820
18322	1	211.03	0.8993	189.779
18197	1	212.90	0.9165	195.122
17240	1	205.49	0.8995	184.838
16093	1	205.83	0.8996	185.164
17715	1	198.23	0.8993	178.268
17242	1	195.73	0.8994	176.039
18157	1	154.79	0.8998	139.280
16199	1	179.18	0.8993	161.136
06782	1	199.49	0.8998	179.501
07057	1	208.63	0.8998	187.725
17222	1	210.80	0.8993	189.572
06937	1	209.92	0.8996	188.844
17222	1			

		163.71	0.8993	147.224
07696	1	214.55	0.9001	193.116
17697	1	173.17	0.9004	155.922
17563	1	166.79	0.9049	150.928
06329	1	212.37	0.9166	194.658
05858	1	144.21	0.8996	129.731
06653	1	174.91	0.9026	157.873
06484	1	217.57	0.9166	199.424
06925	1	166.55	0.9166	152.659
06329	1	195.66	0.9166	179.341
06653	1	194.45	0.9026	175.510
06496	1	194.58	0.9166	178.352
07491	1	147.73	0.9165	135.394
15685	1	206.48	0.9165	189.238
08199	1	162.22	0.8999	145.981
06925	1	206.65	0.9166	189.415
17193	1	204.49	0.8993	183.897
15389	1	165.24	0.9016	148.980
08199	1	207.79	0.8999	186.990
17183	1	136.69	0.9167	125.303
16199	1	166.74	0.8993	149.949
04059	21	7,424.53	0.8995	6,678.364
04027	21			

		7,319.10	0.8993	6,582.066
04029	21	7,207.54	0.8992	6,481.019
04025	21	7,249.24	0.8995	6,520.691
04024	21	7,273.89	0.8994	6,542.136
04023	22	7,533.90	0.8993	6,775.236
04064	21	7,113.93	0.8993	6,397.557
04060	21	7,537.54	0.8995	6,780.017
04061	21	7,417.70	0.8995	6,672.221
04071	21	7,081.85	0.8993	6,368.707
04067	21	7,309.88	0.8993	6,573.775
04066	21	7,142.83	0.8994	6,424.261
04065	21	7,288.58	0.8994	6,555.348
04075	21	7,214.90	0.8994	6,489.081
04069	22	7,340.84	0.8993	6,601.617
04070	22	7,179.68	0.8993	6,456.686
04079	22	7,475.62	0.8994	6,723.572
04072	21	7,078.10	0.8994	6,366.043
04073	22	7,521.28	0.8994	6,764.639
04074	22	7,582.68	0.8995	6,820.620
04078	20	6,753.95	0.8993	6,073.827
04077	20	7,017.16	0.8994	6,311.233
04076	21	7,302.09	0.8994	6,567.499
04083	22			

		7,289.68	0.8994	6,556.338
04084	21	7,117.87	0.8994	6,401.812
04081	21	7,076.23	0.8994	6,364.361
04080	22	7,397.53	0.8994	6,653.338
04082	21	7,006.14	0.8994	6,301.322
04087	21	7,222.73	0.8994	6,496.123
04086	21	7,219.73	0.8995	6,494.147
04085	21	7,302.30	0.8994	6,567.688
04095	21	7,204.19	0.8993	6,478.728
04088	22	7,656.69	0.8994	6,886.426
04089	21	7,233.65	0.8994	6,505.944
04094	21	7,161.39	0.8992	6,439.521
04093	20	6,990.54	0.8994	6,287.291
04099	22	7,465.10	0.8995	6,714.857
04098	22	7,585.05	0.8994	6,821.993
04097	21	7,216.83	0.8993	6,490.095
04096	21	7,114.22	0.8993	6,397.818
04100	22	7,356.00	0.8994	6,615.986
04101	21	7,149.40	0.8994	6,430.170
04102	22	7,528.10	0.8994	6,770.773
04103	20	6,718.43	0.8994	6,042.555
04104	22	7,410.83	0.8994	6,665.300
04105	22			

		7,338.90	0.8994	6,600.606
04106	21	7,094.21	0.8994	6,380.532
04112	21	7,076.00	0.8994	6,364.154
04111	21	7,033.90	0.8994	6,326.289
04110	22	7,383.53	0.8994	6,640.746
04109	22	7,398.93	0.8993	6,653.857
04115	21	7,167.68	0.8992	6,445.177
04114	21	7,181.64	0.8993	6,458.448
04118	21	7,139.00	0.8994	6,420.816
04116	21	7,185.84	0.8993	6,462.225
04123	20	6,879.72	0.8995	6,188.308
04122	21	7,329.56	0.8994	6,592.206
04121	21	7,295.58	0.8995	6,562.374
04120	21	7,266.07	0.8994	6,535.103
04127	21	7,227.36	0.8994	6,500.287
04126	21	7,208.65	0.8993	6,482.738
04124	21	7,210.79	0.8994	6,485.384
04131	21	7,217.98	0.8994	6,491.851
04130	21	7,249.42	0.8992	6,518.678
04129	21	7,365.83	0.8994	6,624.827
04128	21	7,224.73	0.8994	6,497.922
04135	22	7,396.20	0.8994	6,652.142
04134	22			

		7,334.57	0.8993	6,595.978
04133	20	7,022.23	0.8994	6,315.793
04132	21	7,322.56	0.8994	6,585.910
04138	22	7,434.90	0.8995	6,687.692
04137	21	7,190.76	0.8995	6,468.088
04136	21	7,001.68	0.8995	6,298.011
04140	22	7,508.75	0.8993	6,752.618
04142	21	7,028.19	0.8994	6,321.154
04146	21	7,280.92	0.8993	6,547.731
04145	22	7,509.94	0.8993	6,753.689
04144	22	7,679.28	0.8993	6,905.976
04151	21	7,333.81	0.8994	6,596.028
04150	21	7,278.31	0.8992	6,544.656
04149	21	7,067.65	0.8994	6,356.644
04154	21	7,078.96	0.8994	6,366.816
04152	21	7,443.54	0.8994	6,694.719
04158	22	7,520.86	0.8994	6,764.261
04157	21	7,303.16	0.8994	6,568.462
04156	21	7,131.69	0.8993	6,413.528
04167	20	6,828.47	0.8993	6,140.843
04166	21	7,110.50	0.8993	6,394.472
04165	21	7,204.23	0.8993	6,478.764
04164	21			

		7,132.75	0.8993	6,414.482
03837	22	7,992.14	0.9167	7,326.394
03836	19	7,029.67	0.9165	6,442.692
03835	19	7,052.59	0.9164	6,462.993
03834	19	7,012.80	0.9165	6,427.231
03840	21	7,650.72	0.9166	7,012.649
03839	21	7,543.00	0.9166	6,913.913
03838	22	7,889.27	0.9166	7,231.304
03841	21	7,550.26	0.9165	6,919.813
03845	22	7,951.67	0.9165	7,287.705
03842	21	7,477.23	0.9165	6,852.881
03843	22	7,993.45	0.9167	7,327.595
03844	22	7,912.83	0.9165	7,252.108
03849	22	7,814.91	0.9166	7,163.146
03848	20	7,146.81	0.9166	6,550.766
03846	22	7,951.28	0.9166	7,288.143
03851	21	7,714.69	0.9166	7,071.284
03850	22	8,102.86	0.9166	7,427.081
03857	21	7,799.58	0.9166	7,149.095
03854	18	6,538.79	0.9166	5,993.454
03855	22	8,192.53	0.9165	7,508.453
03856	21	7,893.50	0.9166	7,235.182
03861	19			

		7,128.83	0.9166	6,534.285
03190	16	5,700.98	0.9166	5,225.518
03189	18	6,674.12	0.9165	6,116.830
03188	17	6,131.28	0.9164	5,618.704
03862	19	7,050.42	0.9166	6,462.414
03711	21	7,468.69	0.9166	6,845.801
03709	21	7,666.92	0.9166	7,027.498
03899	21	7,692.91	0.9166	7,051.321
03720	22	8,063.03	0.9165	7,389.766
03721	21	7,848.01	0.9165	7,192.701
03918	21	7,359.73	0.9166	6,745.928
03900	21	7,642.60	0.9166	7,005.207
03901	21	7,682.35	0.9166	7,041.642
03924	21	7,762.75	0.9167	7,116.112
03907	20	7,352.65	0.9166	6,739.438
03908	21	7,734.03	0.9166	7,089.011
03917	22	7,681.55	0.9166	7,040.908
03923	21	7,774.48	0.9167	7,126.865
03920	22	7,834.71	0.9166	7,181.295
03925	21	7,808.61	0.9165	7,156.591
03930	22	8,200.74	0.9166	7,516.798
03919	22	7,858.60	0.9166	7,203.192
03926	21			

		7,759.38	0.9166	7,112.247
03931	21	7,829.79	0.9166	7,176.785
03937	21	7,578.53	0.9166	6,946.480
03932	21	7,944.77	0.9166	7,282.176
03935	21	7,672.55	0.9166	7,032.659
03936	22	8,012.58	0.9166	7,344.330
03938	21	7,854.17	0.9166	7,199.132
03950	21	7,628.04	0.9166	6,991.861
03951	21	7,680.99	0.9165	7,039.627
03974	22	7,929.11	0.9165	7,267.029
03976	22	7,858.98	0.9166	7,203.541
03977	22	7,947.67	0.9166	7,284.834
03978	22	8,016.99	0.9166	7,348.373
03979	22	7,972.16	0.9166	7,307.281
03980	22	8,084.07	0.9166	7,409.858
03981	21	7,735.00	0.9166	7,089.901
03982	22	7,976.30	0.9166	7,311.076
03983	22	8,078.48	0.9166	7,404.734
03984	22	8,056.85	0.9166	7,384.908
03985	20	7,354.02	0.9165	6,739.959
03986	21	7,796.99	0.9166	7,146.721
03987	22	8,098.49	0.9165	7,422.266
03990	21			

		7,710.10	0.9167	7,067.848
03994	21	7,673.07	0.9166	7,033.135
03991	19	6,917.23	0.9165	6,339.641
03995	21	7,546.64	0.9166	6,917.250
03992	21	7,680.99	0.9165	7,039.627
03993	21	7,644.18	0.9165	7,005.890
03998	22	7,984.50	0.9166	7,318.592
03999	22	7,817.73	0.9166	7,165.731
04000	22	7,734.60	0.9166	7,089.534
04010	20	7,381.21	0.9166	6,765.617
04005	22	8,220.95	0.9165	7,534.500
04004	21	7,866.95	0.9166	7,210.846
04011	21	7,574.45	0.9166	6,942.740
04016	21	7,745.32	0.9167	7,100.134
04017	21	7,617.23	0.9166	6,981.953
03713	21	7,352.61	0.9166	6,739.402
03716	22	7,743.85	0.9166	7,098.012
03715	22	7,950.50	0.9166	7,287.428
03714	22	7,780.10	0.9165	7,130.461
03903	21	7,855.58	0.9166	7,200.424
03904	21	7,754.87	0.9166	7,108.113
03909	21	7,711.81	0.9167	7,069.416
03910	21			

		7,783.61	0.9166	7,134.456
03928	21	7,760.59	0.9165	7,112.580
03911	21	7,711.12	0.9166	7,068.012
03912	21	7,740.92	0.9166	7,095.327
03913	21	7,736.35	0.9166	7,091.138
03927	21	7,774.71	0.9166	7,126.299
03922	21	7,483.56	0.9166	6,859.431
03921	21	7,443.55	0.9165	6,822.013
03940	21	7,833.03	0.9165	7,178.971
03944	20	7,509.62	0.9166	6,883.317
03933	20	7,455.22	0.9166	6,833.454
03934	20	7,391.95	0.9166	6,775.461
03943	20	7,584.66	0.9166	6,952.099
03948	21	7,783.79	0.9166	7,134.621
03949	20	7,190.67	0.9167	6,591.687
03941	21	7,895.25	0.9166	7,236.786
03947	21	7,804.93	0.9166	7,153.998
03945	20	7,528.67	0.9166	6,900.778
03954	21	7,756.41	0.9166	7,109.525
03953	21	7,786.39	0.9166	7,137.005
03952	21	7,788.87	0.9166	7,139.278
03956	21	7,914.60	0.9166	7,254.522
03957	21			

		7,931.95	0.9166	7,270.425
03958	19	6,956.66	0.9166	6,376.474
03959	21	7,722.80	0.9166	7,078.718
03963	22	8,126.53	0.9166	7,448.777
03961	21	7,820.54	0.9166	7,168.306
03960	21	7,786.16	0.9165	7,136.015
03965	21	7,496.62	0.9166	6,871.401
03966	22	7,807.91	0.9166	7,156.730
03968	21	7,410.56	0.9166	6,792.519
03969	21	7,466.09	0.9166	6,843.418
03971	21	7,889.07	0.9166	7,231.121
03972	21	7,856.68	0.9166	7,201.432
03973	19	6,795.81	0.9164	6,227.680
04003	21	7,603.10	0.9166	6,969.001
04002	21	7,534.00	0.9166	6,905.664
01981	19	7,983.24	0.9000	7,184.916
01982	18	7,510.56	0.9001	6,760.255
01983	18	7,392.12	0.9001	6,653.647
01976	19	7,824.75	0.9001	7,043.057
01972	18	7,238.90	0.9002	6,516.457
01979	19	7,760.87	0.9000	6,984.783
01978	18	7,389.47	0.9000	6,650.523
01977	18			

		7,222.83	0.9000	6,500.547
01973	18	7,398.80	0.9002	6,660.399
01974	18	7,651.70	0.9002	6,888.060
01968	18	7,411.04	0.9005	6,673.641
01964	19	7,791.32	0.8999	7,011.408
01971	19	8,050.59	0.9005	7,249.556
01970	18	7,513.06	0.9004	6,764.759
01969	18	7,485.67	0.9004	6,740.097
01963	18	7,324.02	0.9002	6,593.082
01967	18	7,355.77	0.9005	6,623.870
02002	18	7,379.50	0.8996	6,638.598
02003	19	7,941.25	0.9000	7,147.125
01999	17	7,140.64	0.8999	6,425.861
01992	18	7,554.10	0.9003	6,800.956
01996	17	7,093.52	0.9002	6,385.586
01998	18	7,449.58	0.9001	6,705.366
01997	18	7,433.88	0.9001	6,691.235
01994	18	7,456.43	0.9001	6,711.532
01990	19	7,886.35	0.9004	7,100.869
01991	18	7,406.03	0.9002	6,666.908
01988	18	7,445.43	0.9000	6,700.887
01989	18	7,385.19	0.9003	6,648.886
02033	19			

		8,187.74	0.8995	7,364.872
02032	19	7,564.30	0.8994	6,803.331
02031	18	7,452.72	0.9002	6,708.938
02027	19	8,090.46	0.8997	7,278.986
02028	19	7,745.84	0.9001	6,972.030
02029	18	7,557.12	0.9002	6,802.919
02030	18	7,533.53	0.9002	6,781.683
02026	20	8,194.35	0.9001	7,375.734
02025	19	7,817.51	0.9001	7,036.540
02024	18	7,455.77	0.9003	6,712.429
02023	18	7,422.34	0.9002	6,681.590
02019	19	7,937.10	0.8999	7,142.596
02020	19	7,763.03	0.9002	6,988.279
02015	19	7,914.71	0.8997	7,120.864
02016	19	7,814.30	0.8995	7,028.962
02017	18	7,466.02	0.8999	6,718.671
02602	18	7,137.25	0.8999	6,422.811
02600	18	7,303.01	0.8999	6,571.978
02599	17	6,780.23	0.8999	6,101.528
04745	17	6,889.34	0.9103	6,271.366
04752	14	5,609.80	0.8997	5,047.137
04751	15	6,055.60	0.8996	5,447.617
04748	15			

		6,049.58	0.9000	5,444.622
04741	18	7,315.65	0.9064	6,630.905
04750	15	6,029.55	0.8997	5,424.786
04735	18	7,349.56	0.8999	6,613.869
04743	18	7,197.59	0.9043	6,508.780
04747	15	6,054.26	0.9009	5,454.282
04740	18	7,217.26	0.9010	6,502.751
04739	18	7,238.28	0.9009	6,520.966
04738	16	6,367.70	0.9054	5,765.315
02604	18	7,280.83	0.9000	6,552.747
04734	17	6,952.67	0.8998	6,256.012
04729	17	6,883.15	0.9022	6,209.977
04732	17	6,872.76	0.9006	6,189.607
04725	18	7,403.81	0.9110	6,744.870
04736	18	7,246.45	0.8995	6,518.181
04728	18	7,360.13	0.9086	6,687.414
04721	16	6,381.92	0.9006	5,747.557
04731	15	6,052.78	0.9041	5,472.318
04724	16	6,622.15	0.9121	6,040.063
04720	18	7,228.93	0.8996	6,503.145
04727	18	7,421.68	0.9133	6,778.220
04712	16	6,416.10	0.9003	5,776.414
04722	17			

		6,866.53	0.9046	6,211.463
04723	16	6,610.30	0.9141	6,042.475
04718	18	7,519.92	0.9030	6,790.487
04713	16	6,434.06	0.9000	5,790.654
04719	18	7,361.60	0.9016	6,637.218
04710	17	6,637.94	0.8999	5,973.482
04711	16	6,338.36	0.9003	5,706.425
04704	18	7,106.11	0.9074	6,448.084
DC564	8	3,142.27	0.9985	3,137.556
DC512	7	2,729.47	0.9996	2,728.378
DC535	7	2,688.39	0.9973	2,681.131
DC687	4	1,598.30	0.9974	1,594.144
DC571	5	1,941.87	0.9978	1,937.597
DC587	7	2,755.70	0.9987	2,752.117
DC574	19	7,471.84	0.9996	7,468.851
DC662	8	3,213.34	0.9971	3,204.021
DC545	7	2,699.83	0.9970	2,691.730
DC515	9	3,502.78	0.9974	3,493.672
DC518	9	3,567.70	0.9983	3,561.634
102	21	8,166.81	0.9997	8,164.359
DC550	10	3,941.20	0.9977	3,932.135
DC587	9	3,558.14	0.9972	3,548.177
DC563	8			

		3,146.69	0.9989	3,143.228
R 30	20	8,665.31	0.9997	8,662.710
5967	13	5,190.84	0.9996	5,188.763
1922	19	7,727.44	0.9962	7,698.075
119	21	8,348.84	0.9997	8,346.335
DC578	7	2,735.45	0.9975	2,728.611
DC567	7	2,701.25	0.9976	2,694.767
DC551	8	3,093.14	0.9974	3,085.097
DC596	9	3,562.83	0.9964	3,550.003
DC534	6	2,338.86	0.9980	2,334.182
168A	5	2,038.87	0.9999	2,038.666
151	19	7,493.97	0.9999	7,493.220
140	21	8,381.40	0.9998	8,379.723
DC558	8	3,170.17	0.9982	3,164.463
DC583	8	3,146.37	0.9981	3,140.391
DC579	7	2,695.38	0.9985	2,691.336
DC601	8	3,138.58	0.9973	3,130.105
DC604	8	3,189.11	0.9972	3,180.180
DC602	9	3,624.87	0.9975	3,615.807
DC576	6	2,300.81	0.9987	2,297.818
DC548	10	3,934.16	0.9975	3,924.324
DC603	6	2,335.11	0.9979	2,330.206
DC552	7			

		2,694.60	0.9982	2,689.749
DC611	8	3,270.96	0.9975	3,262.782
DC614	9	3,593.17	0.9973	3,583.468
DC545	10	3,926.64	0.9972	3,915.645
DC568	8	3,204.64	0.9981	3,198.551
DC665	8	3,151.58	0.9973	3,143.070
DC617	9	3,603.35	0.9975	3,594.341
DC658	7	2,824.07	0.9982	2,818.986
DC647	19	7,448.38	0.9960	7,418.586
DC546	8	3,103.45	0.9980	3,097.243
DC693	9	3,597.95	0.9984	3,592.193
DC686	6	2,411.17	0.9985	2,407.553
DC656	9	3,599.14	0.9973	3,589.422
DC557	4	1,531.66	0.9985	1,529.362
DC677	6	2,349.39	0.9979	2,344.456
DC561	8	3,066.46	0.9979	3,060.020
2975	19	7,472.44	0.9963	7,444.791
528	18	7,392.00	0.9977	7,374.998
1245	19	7,405.44	0.9962	7,377.299
12784	19	7,490.95	0.9969	7,467.728
3146	4	1,649.04	0.9984	1,646.401
M 523	5	1,977.69	0.9987	1,975.119
DC623	3			

		1,128.97	0.9956	1,124.002
3147	3	1,232.85	0.9973	1,229.521
3143	3	1,230.30	0.9977	1,227.470
DC706	6	2,415.07	0.9981	2,410.481
DC601	10	3,885.81	0.9980	3,878.038
DC585	12	4,710.58	0.9981	4,701.629
DC598	11	4,258.33	0.9982	4,250.665
DC516	5	1,938.87	0.9984	1,935.767
DC579	14	5,599.51	0.9981	5,588.870
DC586	9	3,458.90	0.9980	3,451.982
DC515	12	4,696.87	0.9984	4,689.355
DC600	5	1,938.57	0.9984	1,935.468
2457	20	7,418.12	0.9954	7,383.996
DC599	10	3,943.31	0.9981	3,935.817
DC567	7	2,795.70	0.9988	2,792.345
DC545	6	2,296.15	0.9973	2,289.950
DC543	10	3,922.60	0.9976	3,913.185
DC546	5	1,930.76	0.9976	1,926.126
DC549	7	2,733.25	0.9985	2,729.150
DC544	5	1,945.73	0.9981	1,942.033
DC584	5	1,963.21	0.9983	1,959.872
DC562	9	3,502.53	0.9975	3,493.773
DC590	6			

		2,329.62	0.9985	2,326.125
DC570	8	3,099.62	0.9980	3,093.420
DC536	8	3,164.45	0.9994	3,162.551
DC537	7	2,760.69	0.9994	2,759.033
DC602	7	2,810.58	0.9976	2,803.834
DC552	11	4,279.39	0.9980	4,270.831
DC523	9	3,604.51	0.9980	3,597.300
DC513	10	3,822.51	0.9983	3,816.011
DC534	7	2,718.30	0.9982	2,713.407
DC526	2	773.36	0.9974	771.349
DC535	7	2,711.46	0.9982	2,706.579
DC577	8	3,147.50	0.9979	3,140.890
DC573	8	3,193.91	0.9963	3,182.092
DC558	7	2,823.20	0.9971	2,815.012
DC578	7	2,776.83	0.9979	2,770.998
DC524	6	2,438.31	0.9984	2,434.408
DC575	7	2,838.44	0.9972	2,830.492
DC517	7	2,787.73	0.9984	2,783.269
DC589	9	3,446.51	0.9979	3,439.272
DC532	8	3,094.61	0.9987	3,090.587
DC525	4	1,626.15	0.9974	1,621.922
DC540	6	2,338.60	0.9986	2,335.325
DC576	7			

		2,858.84	0.9972	2,850.835
DC552	6	2,358.69	0.9975	2,352.793
DC527	7	2,781.85	0.9972	2,774.060
DC551	8	3,180.54	0.9996	3,179.267
DC514	7	2,671.60	0.9988	2,668.394
DC540	9	3,597.39	0.9978	3,589.475
DC557	8	3,192.28	0.9981	3,186.214
DC560	8	3,155.79	0.9968	3,145.691
DC580	8	3,194.69	0.9975	3,186.703
DC564	7	2,824.15	0.9975	2,817.089
DC524	5	1,974.03	0.9968	1,967.713
DC508	3	1,196.54	0.9983	1,194.505
DC572	7	2,691.03	0.9984	2,686.724
DC551	6	2,337.31	0.9977	2,331.934
DC547	2	784.56	0.9988	783.618
DC577	8	3,248.98	0.9971	3,239.557
DC572	8	3,192.66	0.9979	3,185.955
DC526	3	1,167.13	0.9973	1,163.978
DC525	5	1,953.33	0.9973	1,948.056
DC561	7	2,811.18	0.9981	2,805.838
DC539	2	781.48	0.9979	779.838
DC544	6	2,368.83	0.9979	2,363.855
DC542	9			

		3,609.94	0.9969	3,598.749
DC537	13	5,163.07	0.9978	5,151.711
DC563	9	3,567.42	0.9976	3,558.858
DC546	8	3,167.79	0.9973	3,159.236
DC579	14	5,620.99	0.9969	5,603.564
DC543	9	3,608.90	0.9973	3,599.155
DC547	7	2,745.52	0.9979	2,739.754
DC584	3	1,196.67	0.9972	1,193.319
DC571	8	3,174.05	0.9972	3,165.162
DC567	6	2,370.43	0.9975	2,364.503
DC520	8	3,171.71	0.9977	3,164.415
DC562	10	3,983.91	0.9981	3,976.340
DC559	8	3,142.38	0.9964	3,131.067
DC585	9	3,564.23	0.9974	3,554.963
DC513	6	2,397.03	0.9975	2,391.037
DC516	6	2,408.82	0.9983	2,404.725
DC521	8	3,106.84	0.9976	3,099.383
DC512	9	3,569.57	0.9981	3,562.787
DC532	7	2,785.14	0.9969	2,776.506
DC535	6	2,372.17	0.9978	2,366.951
DC506	7	2,774.89	0.9974	2,767.675
DC502	10	3,953.39	0.9970	3,941.529
DC590	9			

		3,581.39	0.9975	3,572.436
DC519	7	2,760.02	0.9985	2,755.879
DC556	6	2,357.94	0.9975	2,352.045
DC555	5	1,938.16	0.9969	1,932.151
DC508	6	2,325.92	0.9975	2,320.105
DC541	6	2,355.16	0.9978	2,349.978
104	21	8,029.42	0.9998	8,027.814
DC586	6	2,364.79	0.9981	2,360.296
DC589	7	2,809.34	0.9969	2,800.631
DC581	7	2,785.58	0.9983	2,780.844
DC588	8	3,163.08	0.9972	3,154.223
DC591	8	3,193.11	0.9976	3,185.446
DC505	7	2,804.07	0.9978	2,797.901
DC504	7	2,776.43	0.9964	2,766.434
DC531	6	2,366.89	0.9983	2,362.866
DC503	6	2,371.19	0.9977	2,365.736
105	21	8,220.26	0.9997	8,217.793
107	21	8,269.12	0.9998	8,267.466
108	21	8,019.45	0.9998	8,017.846
101	19	7,513.80	0.9998	7,512.297
103	21	8,257.43	0.9998	8,255.778
106	22	8,269.02	0.9998	8,267.366
112	22			

		8,244.52	0.9997	8,242.046
111	21	8,277.54	0.9998	8,275.884
110	22	8,294.11	0.9999	8,293.280
DC509	7	2,699.15	0.9976	2,692.672
113	21	8,267.16	0.9999	8,266.333
M 276	21	8,379.17	0.9998	8,377.494
M 278	20	7,876.73	0.9998	7,875.154
109	19	7,502.84	0.9998	7,501.339
21136	1	410.52	0.9963	409.001
21127	1	408.44	0.9962	406.887
9344	1	391.94	0.9960	390.372
4825	1	410.09	0.9965	408.654
3695	1	398.24	0.9998	398.160
DC510	6	2,334.14	0.9971	2,327.370
3129	1	395.85	0.9964	394.424
3129	1	387.14	0.9964	385.746
3129	1	395.55	0.9964	394.126
4447	1	398.77	0.9965	397.374
20234	1	407.86	0.9988	407.370
20227	1	395.19	0.9976	394.241
8631	1	410.59	0.9968	409.276
9432	1	409.40	0.9979	408.540
9432	1			

		410.46	0.9979	409.598
2672	1	391.26	0.9968	390.007
21127	1	413.82	0.9962	412.247
7545	1	412.34	0.9950	410.278
M 124	1	389.17	0.9996	389.014
16713	1	410.60	0.9964	409.121
2673	1	395.59	0.9966	394.244
2750	1	412.90	0.9956	411.083
2751	1	407.34	0.9955	405.506
9423	1	405.88	0.9980	405.068
19024	1	402.77	0.9989	402.326
19233	1	402.44	0.9988	401.957
M 124	1	395.80	0.9996	395.641
M 126	1	398.11	0.9996	397.950
2673	1	389.34	0.9966	388.016
19631	1	409.61	0.9988	409.118
4847	1	411.91	0.9961	410.303
5883	1	400.63	0.9958	398.947
2749	1	410.91	0.9957	409.143
4449	1	394.92	0.9967	393.616
101	1	395.90	0.9951	393.960
20236	1	414.07	0.9963	412.537
3130	1			

		387.28	0.9965	385.924
3130	1	384.33	0.9965	382.984
5280	1	397.46	0.9960	395.870
5280	1	389.52	0.9960	387.961
9343	1	413.84	0.9959	412.143
5280	1	396.39	0.9960	394.804
5280	1	393.94	0.9960	392.364
5280	1	389.80	0.9960	388.240
772	1	394.15	0.9982	393.440
15041	1	389.47	0.9968	388.223
9343	1	404.68	0.9959	403.020
3129	1	392.75	0.9964	391.336
3129	1	381.87	0.9964	380.495
7512	1	395.44	0.9961	393.897
5280	1	392.81	0.9960	391.238
3127	1	386.41	0.9964	385.018
12172	1	387.72	0.9952	385.858
22801	1	398.45	0.9975	397.453
3128	1	399.45	0.9963	397.972
8631	1	408.17	0.9968	406.863
6989	1	391.56	0.9974	390.541
3128	1	399.63	0.9963	398.151
19233	1			

		408.36	0.9988	407.869
10455	1	396.19	0.9959	394.565
2673	1	398.71	0.9966	397.354
2748	1	392.72	0.9956	390.992
2750	1	398.83	0.9956	397.075
7512	1	397.41	0.9961	395.860
9432	1	411.81	0.9979	410.945
9342	1	393.12	0.9958	391.468
11822	1	395.05	0.9959	393.430
11822	1	397.29	0.9959	395.661
3652	1	391.93	0.9955	390.166
10450	1	399.04	0.9960	397.443
10456	1	409.50	0.9958	407.780
M 125	1	411.22	0.9996	411.055
4847	1	395.15	0.9961	393.608
860	1	391.20	0.9960	389.635
21127	1	404.65	0.9962	403.112
2751	1	396.37	0.9955	394.586
4851	1	396.09	0.9961	394.545
19024	1	398.56	0.9989	398.121
897	1	390.10	0.9962	388.617
897	1	399.43	0.9962	397.912
7512	1			

		400.13	0.9961	398.569
15042	1	391.83	0.9967	390.536
M 19	1	406.34	0.9998	406.258
4851	1	384.80	0.9961	383.299
4851	1	393.68	0.9961	392.144
21127	1	397.80	0.9962	396.288
D26	1	362.34	0.9995	362.158
D26	1	385.31	0.9995	385.117
6007	1	393.77	0.9973	392.706
5280	1	392.77	0.9960	391.198
9423	1	408.59	0.9980	407.772
2751	1	406.75	0.9955	404.919
4825	1	400.18	0.9965	398.779
6980	1	405.66	0.9965	404.240
3202	1	392.62	0.9967	391.324
19233	1	386.87	0.9988	386.405
20565	1	410.17	0.9971	408.980
D9	1	387.93	0.9998	387.852
D14	1	389.70	0.9998	389.622
3127	1	386.76	0.9964	385.367
17456	1	387.79	0.9963	386.355
6980	1	407.69	0.9965	406.263
6980	1			

		409.47	0.9965	408.036
6989	1	403.24	0.9974	402.191
16713	1	405.85	0.9964	404.388
10450	1	386.25	0.9960	384.705
3128	1	388.82	0.9963	387.381
3126	1	382.06	0.9966	380.760
20565	1	404.11	0.9971	402.938
9343	1	408.07	0.9959	406.396
M 19	1	399.24	0.9998	399.160
3127	1	382.36	0.9964	380.983
3127	1	387.20	0.9964	385.806
3127	1	388.69	0.9964	387.290
6989	1	394.14	0.9974	393.115
7261	1	391.54	0.9959	389.934
2673	1	412.47	0.9966	411.067
12266	1	410.90	0.9955	409.050
4847	1	388.80	0.9961	387.283
M 127	1	386.96	0.9997	386.843
6007	1	390.14	0.9973	389.086
3695	1	405.43	0.9998	405.348
M 363	1	388.45	0.9998	388.372
7394	1	395.23	0.9955	393.451
130	1			

		408.76	0.9988	408.269
4825	1	395.82	0.9965	394.434
19024	1	398.67	0.9989	398.231
11822	1	410.80	0.9959	409.115
4448	1	397.18	0.9967	395.869
7394	1	405.77	0.9955	403.944
15041	1	390.28	0.9968	389.031
15045	1	394.14	0.9969	392.918
15042	1	397.58	0.9967	396.267
15045	1	395.60	0.9969	394.373
15041	1	388.14	0.9968	386.897
2749	1	404.74	0.9957	402.999
3197	1	412.29	0.9968	410.970
6374	1	407.37	0.9967	406.025
2673	1	402.35	0.9966	400.982
2673	1	403.58	0.9966	402.207
7512	1	397.73	0.9961	396.178
12176	1	410.54	0.9954	408.651
772	1	402.34	0.9982	401.615
M 125	1	391.76	0.9996	391.603
15044	1	408.22	0.9964	406.750
15045	1	387.00	0.9969	385.800
19024	1			

		397.50	0.9989	397.062
9344	1	384.16	0.9960	382.623
134	1	383.67	0.9982	382.979
2749	1	398.19	0.9957	396.477
7396	1	407.86	0.9968	406.554
3695	1	401.39	0.9998	401.309
M 127	1	402.37	0.9997	402.249
M 125	1	404.08	0.9996	403.918
D0002	1	382.61	0.9998	382.533
D0003	1	377.39	0.9999	377.352
D0002	1	392.32	0.9998	392.241
D0003	1	389.42	0.9999	389.381
D0002	1	384.20	0.9998	384.123
D0002	1	392.92	0.9998	392.841
D0001	1	366.39	0.9994	366.170
D0001	1	383.12	0.9994	382.890
D0001	1	381.20	0.9994	380.971
D0001	1	376.27	0.9994	376.044
D0001	1	363.81	0.9994	363.591
D0002	1	378.22	0.9998	378.144
D0008	1	367.47	0.9996	367.323
D0008	1	379.63	0.9996	379.478
D0001	1			

		393.73	0.9994	393.493
D0001	1	380.31	0.9994	380.081
D0001	1	378.75	0.9994	378.522
D0008	1	383.43	0.9996	383.276
D0007	1	377.48	0.9996	377.329
D0007	1	377.12	0.9996	376.969
D0040	1	384.62	0.9995	384.427
D0007	1	382.45	0.9996	382.297
D0039	1	377.70	0.9995	377.511
D0039	1	362.47	0.9995	362.288
D0039	1	372.42	0.9995	372.233
D0001	1	384.69	0.9994	384.459
D0008	1	364.04	0.9996	363.894
D0040	1	362.37	0.9995	362.188
D0040	1	368.08	0.9995	367.895
D0040	1	374.77	0.9995	374.582
D0009	1	391.40	0.9998	391.321
D0039	1	370.87	0.9995	370.684
D0039	1	375.40	0.9995	375.212
D0039	1	377.27	0.9995	377.081
D0040	1	379.95	0.9995	379.760
D0039	1	377.76	0.9995	377.571
D0039	1			

		381.61	0.9995	381.419
D0040	1	363.71	0.9995	363.528
D0014	1	381.90	0.9998	381.823
D0011	1	373.62	0.9996	373.470
D0038	1	388.88	0.9995	388.685
D0025	1	389.63	0.9998	389.552
D0011	1	375.37	0.9996	375.219
D0039	1	364.55	0.9995	364.367
D0039	1	370.27	0.9995	370.084
D0038	1	373.00	0.9995	372.813
D0038	1	380.26	0.9995	380.069
D0014	1	389.96	0.9998	389.882
D0010	1	388.30	0.9998	388.222
D0011	1	389.73	0.9996	389.574
D0011	1	359.80	0.9996	359.656
D0011	1	378.07	0.9996	377.918
D0011	1	387.33	0.9996	387.175
D0014	1	381.62	0.9998	381.543
D0014	1	392.71	0.9998	392.631
D0011	1	376.20	0.9996	376.049
D0011	1	385.48	0.9996	385.325
D0014	1	385.78	0.9998	385.702
D0040	1			

		367.07	0.9995	366.886
D0014	1	393.81	0.9998	393.731
D0040	1	379.04	0.9995	378.850
D0014	1	393.77	0.9998	393.691
D0010	1	390.73	0.9998	390.651
D0026	1	365.69	0.9995	365.507
D0010	1	387.08	0.9998	387.002
D0014	1	390.27	0.9998	390.191
D0040	1	379.58	0.9995	379.390
15040	1	386.44	0.9969	385.242
D0009	1	385.67	0.9998	385.592
D0009	1	385.04	0.9998	384.962
D0026	1	363.53	0.9995	363.348
D0009	1	392.76	0.9998	392.681
D0009	1	389.17	0.9998	389.092
D0009	1	390.69	0.9998	390.611
D0009	1	376.70	0.9998	376.624
D0010	1	373.09	0.9998	373.015
D0010	1	394.60	0.9998	394.521
D0010	1	375.02	0.9998	374.944
D0009	1	387.52	0.9998	387.442
D0011	1	366.03	0.9996	365.883
D0010	1			

		394.12	0.9998	394.041
D0010	1	380.90	0.9998	380.823
D0026	1	367.20	0.9995	367.016
D0025	1	401.81	0.9998	401.729
D0025	1	382.74	0.9998	382.663
D0024	1	367.81	0.9996	367.662
D0024	1	364.35	0.9996	364.204
D0025	1	378.57	0.9998	378.494
5280	1	392.58	0.9960	391.009
6980	1	407.63	0.9965	406.203
6980	1	409.15	0.9965	407.717
D0025	1	393.38	0.9998	393.301
D0025	1	388.78	0.9998	388.702
D0024	1	394.07	0.9996	393.912
D0024	1	373.00	0.9996	372.850
D0026	1	374.59	0.9995	374.402
D0026	1	369.44	0.9995	369.255
D0025	1	391.05	0.9998	390.971
D0026	1	395.29	0.9995	395.092
D0026	1	388.63	0.9995	388.435
D0026	1	380.16	0.9995	379.969
D0003	1	378.41	0.9999	378.372
D0004	1			

		387.07	0.9999	387.031
D0034	1	386.22	0.9994	385.988
D0034	1	376.01	0.9994	375.784
D0004	1	383.17	0.9999	383.131
D0002	1	383.24	0.9998	383.163
D0034	1	384.69	0.9994	384.459
D0004	1	385.73	0.9999	385.691
D0003	1	388.21	0.9999	388.171
D0003	1	397.27	0.9999	397.230
D0004	1	396.89	0.9999	396.850
D0001	1	375.60	0.9994	375.374
D0035	1	381.74	0.9994	381.510
D0003	1	387.01	0.9999	386.971
D0034	1	377.83	0.9994	377.603
D0034	1	364.80	0.9994	364.581
D0040	1	378.23	0.9995	378.040
D0002	1	385.77	0.9998	385.692
D0004	1	382.98	0.9999	382.941
D0004	1	381.55	0.9999	381.511
D0035	1	389.53	0.9994	389.296
D0036	1	395.90	0.9998	395.820
D0036	1	388.10	0.9998	388.022
D0034	1			

		377.14	0.9994	376.913
D0034	1	379.97	0.9994	379.742
D0035	1	372.09	0.9994	371.866
D0035	1	379.38	0.9994	379.152
D0035	1	381.96	0.9994	381.730
D0034	1	372.49	0.9994	372.266
D0034	1	375.68	0.9994	375.454
D0036	1	383.65	0.9998	383.573
D0037	1	393.22	0.9998	393.141
D0037	1	394.81	0.9998	394.731
D0037	1	386.95	0.9998	386.872
D0035	1	390.78	0.9994	390.545
D0036	1	380.39	0.9998	380.313
D0036	1	392.24	0.9998	392.161
D0036	1	382.32	0.9998	382.243
D0036	1	387.21	0.9998	387.132
D0035	1	366.48	0.9994	366.260
D0037	1	383.40	0.9998	383.323
D0037	1	386.81	0.9998	386.732
D0037	1	387.60	0.9998	387.522
D0038	1	376.79	0.9995	376.601
D0037	1	394.95	0.9998	394.871
D0036	1			

		388.55	0.9998	388.472
D0038	1	376.74	0.9995	376.551
D0037	1	381.11	0.9998	381.033
D0037	1	388.37	0.9998	388.292
D0036	1	394.05	0.9998	393.971
D0038	1	370.35	0.9995	370.164
D0038	1	383.98	0.9995	383.788
6374	1	408.21	0.9967	406.862
679	1	380.75	0.9996	380.597
D0038	1	372.51	0.9995	372.323
7397	1	410.38	0.9966	408.984
3201	1	393.97	0.9968	392.709
3200	1	399.36	0.9968	398.082
D0038	1	385.27	0.9995	385.077
6373	1	395.25	0.9967	393.945
796	1	389.08	0.9972	387.990
2748	1	392.66	0.9956	390.932
3199	1	392.41	0.9968	391.154
133	1	398.25	0.9976	397.294
D0034	1	365.40	0.9994	365.180
130	1	402.85	0.9988	402.366
D0038	1	374.71	0.9995	374.522
D0035	1			

		362.50	0.9994	362.282
10733	1	383.10	0.9973	382.065
5273	1	382.75	0.9997	382.635
22988	1	410.66	0.9971	409.469
2750	1	407.18	0.9956	405.388
20565	1	407.27	0.9971	406.088
3695	1	409.75	0.9998	409.668
12267	1	402.39	0.9957	400.659
4851	1	389.75	0.9961	388.229
19631	1	381.00	0.9988	380.542
108	1	385.72	0.9953	383.907
3198	1	406.67	0.9968	405.368
D0005	1	376.08	0.9995	375.891
DC591	1	382.92	0.9986	382.383
D0028	1	380.07	0.9995	379.879
D0043	1	389.56	0.9998	389.482
3126	1	389.51	0.9966	388.185
D0044	1	396.69	0.9998	396.610
D0005	1	366.82	0.9995	366.636
D0005	1	360.75	0.9995	360.569
D0005	1	377.37	0.9995	377.181
D0005	1	367.38	0.9995	367.196
D0022	1			

		374.70	0.9996	374.550
D0024	1	372.67	0.9996	372.520
D0041	1	373.86	0.9995	373.673
D0041	1	390.36	0.9995	390.164
D0041	1	382.45	0.9995	382.258
D0044	1	378.12	0.9998	378.044
D0005	1	360.63	0.9995	360.449
D0045	1	387.16	0.9998	387.082
D0005	1	378.22	0.9995	378.030
D0005	1	363.08	0.9995	362.898
D0023	1	371.37	0.9996	371.221
D0023	1	353.76	0.9996	353.618
D0043	1	382.24	0.9998	382.163
D0043	1	383.30	0.9998	383.223
D0043	1	370.47	0.9998	370.395
D0045	1	390.69	0.9998	390.611
D0023	1	360.22	0.9996	360.075
D0041	1	368.17	0.9995	367.985
D0006	1	373.12	0.9996	372.970
D0005	1	377.10	0.9995	376.911
D0041	1	375.90	0.9995	375.712
D0043	1	395.21	0.9998	395.130
D0023	1			

		361.32	0.9996	361.175
D0022	1	367.08	0.9996	366.933
D0021	1	379.91	0.9998	379.834
D0043	1	386.22	0.9998	386.142
D0041	1	370.99	0.9995	370.804
D0043	1	379.02	0.9998	378.944
D0044	1	394.67	0.9998	394.591
D0044	1	383.29	0.9998	383.213
D0022	1	365.54	0.9996	365.393
D0023	1	352.04	0.9996	351.899
D0041	1	372.90	0.9995	372.713
D0023	1	366.11	0.9996	365.963
D0022	1	369.85	0.9996	369.702
D0022	1	380.18	0.9996	380.027
D0043	1	389.34	0.9998	389.262
D0023	1	380.51	0.9996	380.357
D0022	1	368.38	0.9996	368.232
D0023	1	371.13	0.9996	370.981
D0022	1	356.19	0.9996	356.047
D0022	1	375.62	0.9996	375.469
DC528	1	397.93	0.9995	397.333
20227	1	402.57	0.9976	401.603
D0029	1			

		367.81	0.9995	367.626
D0022	1	381.47	0.9996	381.317
D0041	1	374.88	0.9995	374.692
D0041	1	373.35	0.9995	373.163
D0023	1	390.82	0.9996	390.663
D0023	1	359.36	0.9996	359.216
DC676	1	382.27	0.9979	381.467
D0029	1	379.16	0.9995	378.970
9342	1	396.26	0.9958	394.595
D0028	1	371.88	0.9995	371.694
D0028	1	366.87	0.9995	366.686
D0028	1	377.58	0.9995	377.391
7398	1	403.29	0.9962	401.757
RM239	1	418.29	0.9995	418.080
3201	1	412.69	0.9968	411.369
DC573	1	382.03	0.9978	381.189
D0028	1	370.90	0.9995	370.714
D0027	1	388.36	0.9995	388.165
898	1	395.81	0.9961	394.266
21127	1	407.02	0.9962	405.473
7512	1	397.73	0.9961	396.178
DC583	1	382.76	0.9983	382.109
D0028	1			

		376.01	0.9995	375.821
899	1	387.24	0.9961	385.729
15040	1	398.61	0.9969	397.374
19024	1	402.14	0.9989	401.697
D0024	1	373.57	0.9996	373.420
D0027	1	370.73	0.9995	370.544
D0024	1	360.52	0.9996	360.375
D0028	1	380.59	0.9995	380.399
D0028	1	382.47	0.9995	382.278
D0027	1	373.30	0.9995	373.113
D0027	1	372.29	0.9995	372.103
D0027	1	376.46	0.9995	376.271
D0028	1	391.03	0.9995	390.834
5273	1	381.52	0.9997	381.405
10456	1	392.58	0.9958	390.931
3286	1	387.51	0.9970	386.347
10450	1	405.58	0.9960	403.957
5273	1	381.83	0.9997	381.715
10455	1	408.17	0.9959	406.496
D0028	1	380.89	0.9995	380.699
D0024	1	372.34	0.9996	372.191
D0027	1	374.49	0.9995	374.302
D0028	1			

		367.30	0.9995	367.116
D0024	1	375.28	0.9996	375.129
D0024	1	355.90	0.9996	355.757
5273	1	386.89	0.9997	386.773
167	1	390.02	0.9952	388.147
11822	1	390.51	0.9959	388.908
D0027	1	371.15	0.9995	370.964
6374	1	399.49	0.9967	398.171
7394	1	409.62	0.9955	407.776
4450	1	387.83	0.9968	386.588
10456	1	409.57	0.9958	407.849
15040	1	387.96	0.9969	386.757
D0015	1	369.45	0.9996	369.302
D0015	1	381.26	0.9996	381.107
D0015	1	370.59	0.9996	370.441
D0016	1	366.64	0.9996	366.493
D0015	1	344.67	0.9996	344.532
D0016	1	370.97	0.9996	370.821
D0016	1	387.83	0.9996	387.674
D0016	1	386.46	0.9996	386.305
D0015	1	374.13	0.9996	373.980
D0015	1	364.86	0.9996	364.714
D0016	1			

		378.36	0.9996	378.208
D0012	1	353.71	0.9996	353.568
D0012	1	379.54	0.9996	379.388
D0013	1	384.99	0.9996	384.836
D0013	1	369.21	0.9996	369.062
D0013	1	360.66	0.9996	360.515
D0013	1	370.27	0.9996	370.121
D0012	1	367.63	0.9996	367.482
D0020	1	395.96	0.9998	395.880
D0013	1	389.85	0.9996	389.694
D0020	1	387.72	0.9998	387.642
D0020	1	385.25	0.9998	385.172
D0019	1	377.12	0.9999	377.082
D0019	1	385.62	0.9999	385.581
D0020	1	391.13	0.9998	391.051
D0015	1	349.67	0.9996	349.530
D0017	1	365.49	0.9996	365.343
D 8	1	380.92	0.9996	380.767
D0012	1	382.56	0.9996	382.406
D0018	1	390.21	0.9999	390.170
D0020	1	374.88	0.9998	374.805
D0012	1	374.00	0.9996	373.850
D0013	1			

		376.08	0.9996	375.929
D0012	1	370.85	0.9996	370.701
D0012	1	359.32	0.9996	359.176
D0018	1	385.58	0.9999	385.541
D0020	1	389.68	0.9998	389.602
D0019	1	388.61	0.9999	388.571
D0020	1	396.53	0.9998	396.450
D0019	1	396.48	0.9999	396.440
D0013	1	392.32	0.9996	392.163
D0013	1	380.85	0.9996	380.697
D0012	1	373.35	0.9996	373.200
D0012	1	374.69	0.9996	374.540
D0012	1	385.03	0.9996	384.875
D0021	1	392.97	0.9998	392.891
D0018	1	389.33	0.9999	389.291
D0017	1	374.93	0.9996	374.780
D0022	1	362.37	0.9996	362.225
D0018	1	390.27	0.9999	390.230
D0018	1	375.08	0.9999	375.042
D0017	1	352.45	0.9996	352.309
D0017	1	354.66	0.9996	354.518
D0017	1	382.69	0.9996	382.536
D0019	1			

		384.78	0.9999	384.741
D0019	1	378.60	0.9999	378.562
D0019	1	390.60	0.9999	390.560
D0018	1	389.43	0.9999	389.391
D0018	1	389.53	0.9999	389.491
D0019	1	384.72	0.9999	384.681
D0017	1	354.12	0.9996	353.978
D0017	1	391.04	0.9996	390.883
D0021	1	395.97	0.9998	395.890
D0021	1	377.88	0.9998	377.804
D0018	1	383.25	0.9999	383.211
D0021	1	377.21	0.9998	377.134
D0021	1	384.40	0.9998	384.323
D0017	1	369.53	0.9996	369.382
D0021	1	388.98	0.9998	388.902
D0017	1	372.25	0.9996	372.101
D0007	1	371.50	0.9996	371.351
D0007	1	375.66	0.9996	375.509
D0006	1	365.52	0.9996	365.373
D0045	1	392.82	0.9998	392.741
D0021	1	384.06	0.9998	383.983
D 1	1	383.12	0.9994	382.890
D 8	1			

		380.20	0.9998	380.123
D 13	1	382.86	0.9996	382.706
D 17	1	357.91	0.9996	357.766
D0021	1	380.50	0.9998	380.423
D0006	1	370.52	0.9996	370.371
D0006	1	378.15	0.9996	377.998
D0006	1	375.71	0.9996	375.559
D0006	1	377.50	0.9996	377.349
5273	1	391.87	0.9997	391.752
DC511	1	381.60	0.9969	380.417
5273	1	380.06	0.9997	379.945
16713	1	410.10	0.9964	408.623
3126	1	394.88	0.9966	393.537
D0041	1	377.43	0.9995	377.241
108	1	388.03	0.9953	386.206
D0005	1	356.23	0.9995	356.051
D0007	1	373.26	0.9996	373.110
D0006	1	381.17	0.9996	381.017
D 44	1	385.93	0.9998	385.852
D0007	1	358.83	0.9996	358.686
D0008	1	361.68	0.9996	361.535
D0008	1	372.12	0.9996	371.971
D0044	1			

		374.35	0.9998	374.275
D0006	1	380.64	0.9996	380.487
D0043	1	382.25	0.9998	382.173
D0045	1	389.46	0.9998	389.382
D0045	1	396.74	0.9998	396.660
D0006	1	382.29	0.9996	382.137
D0045	1	394.27	0.9998	394.191
D0007	1	358.95	0.9996	358.806
D0007	1	371.90	0.9996	371.751
D0007	1	356.04	0.9996	355.897
D0008	1	376.83	0.9996	376.679
D0006	1	373.30	0.9996	373.150
D0016	1	390.90	0.9996	390.743
D0016	1	374.97	0.9996	374.820
D0015	1	375.99	0.9996	375.839
D0016	1	374.50	0.9996	374.350
D0016	1	372.39	0.9996	372.241
D0013	1	370.23	0.9996	370.081
D0015	1	373.56	0.9996	373.410
D0016	1	365.38	0.9996	365.233
DC565	4	1,584.81	0.9978	1,581.323
DC681	6	2,421.19	0.9982	2,416.831
DC646	7			

		2,739.28	0.9980	2,733.801
116	21	8,362.65	0.9999	8,361.813
158	18	7,179.35	0.9999	7,178.632
R 27	20	8,573.59	0.9998	8,571.875
115	21	8,251.03	0.9999	8,250.204
117	21	8,365.63	0.9998	8,363.956
118	21	8,256.25	0.9998	8,254.598
125	20	8,021.06	0.9998	8,019.455
121	21	8,258.78	0.9998	8,257.128
124	20	7,968.10	0.9997	7,965.709
120	21	8,336.09	0.9997	8,333.589
33040	22	9,154.97	0.9995	9,150.392
129	19	7,607.47	0.9997	7,605.187
130	19	7,470.61	0.9998	7,469.115
128	20	7,881.43	0.9998	7,879.853
123	21	8,304.13	0.9998	8,302.469
33042	23	9,202.75	0.9991	9,194.467
RM 48	22	9,114.50	0.9995	9,109.942
RM 46	22	9,278.15	0.9994	9,272.583
33159	21	8,633.16	0.9991	8,625.390
D 57	20	8,453.72	0.9996	8,450.338
33045	20	8,424.57	0.9990	8,416.145
RM 44	22			

		9,164.05	0.9996	9,160.384
RM 55	22	9,000.90	0.9995	8,996.399
RM 57	22	9,162.21	0.9996	9,158.545
RM 40	22	9,010.67	0.9996	9,007.065
RM 56	23	9,507.58	0.9996	9,503.776
RM 54	21	8,646.15	0.9992	8,639.233
RM 59	22	9,088.73	0.9995	9,084.185
1909	20	8,033.49	0.9960	8,001.356
1913	18	7,287.20	0.9960	7,258.051
1910	19	7,659.99	0.9961	7,630.116
1915	19	7,725.24	0.9961	7,695.111
1918	19	7,764.99	0.9960	7,733.930
1921	19	7,733.54	0.9960	7,702.605
1920	19	7,738.69	0.9962	7,709.282
1919	19	7,842.52	0.9963	7,813.502
R 25	20	8,395.05	0.9998	8,393.370
R 310	7	2,862.00	0.9995	2,860.569
1928	17	6,935.29	0.9958	6,906.161
1927	19	7,708.20	0.9958	7,675.825
1923	20	8,069.15	0.9962	8,038.487
1925	19	7,823.18	0.9959	7,791.104
R 24	20	8,530.30	0.9998	8,528.593
R 31	20			

		8,695.12	0.9997	8,692.511
R 29	20	8,588.88	0.9998	8,587.162
R 28	20	8,485.37	0.9997	8,482.824
R 22	20	8,600.30	0.9995	8,595.999
R 21	20	8,507.05	0.9996	8,503.647
R 19	20	8,483.54	0.9996	8,480.146
R 17	20	8,497.14	0.9995	8,492.891
R 18	20	8,409.37	0.9995	8,405.165
R 9	20	8,505.00	0.9995	8,500.747
R 13	20	8,430.89	0.9993	8,424.988
R 14	20	8,542.62	0.9993	8,536.640
R 15	20	8,441.95	0.9993	8,436.040
R 8	20	8,211.10	0.9994	8,206.173
134	20	7,906.39	0.9997	7,904.018
133	20	7,832.97	0.9998	7,831.403
132	21	8,373.80	0.9998	8,372.125
131	20	7,986.60	0.9998	7,985.002
137	19	7,562.89	0.9997	7,560.621
136	19	7,509.91	0.9997	7,507.657
135	21	8,283.75	0.9998	8,282.093
139	20	8,033.83	0.9998	8,032.223
141	21	8,516.94	0.9999	8,516.088
142	21			

		8,351.22	0.9998	8,349.549
155	19	7,579.24	0.9999	7,578.482
147	21	8,395.15	0.9999	8,394.310
149	20	8,051.57	0.9998	8,049.959
150	19	7,581.46	0.9999	7,580.701
143	19	7,642.86	0.9998	7,641.331
144	21	8,263.55	0.9998	8,261.897
145	21	8,398.09	0.9999	8,397.250
157	21	8,440.06	0.9999	8,439.215
161	20	7,987.12	0.9999	7,986.321
162	18	7,462.71	0.9998	7,461.217
159	19	7,596.84	0.9999	7,596.080
166	19	7,927.34	0.9999	7,926.547
167	19	7,817.52	0.9999	7,816.738
168	20	8,265.45	0.9999	8,264.623
165	21	8,190.99	0.9997	8,188.532
164	15	6,357.30	0.9998	6,356.028
178	20	8,041.32	0.9998	8,039.711
170	16	6,351.67	0.9999	6,351.034
171	17	6,715.81	0.9997	6,713.795
176	18	7,291.39	0.9998	7,289.931
177	20	7,828.09	0.9998	7,826.524
172	21			

		8,384.89	0.9998	8,383.213
174	19	7,717.14	0.9999	7,716.368
175	20	7,971.52	0.9998	7,969.925
163	17	6,946.33	0.9999	6,945.635
169	20	8,046.99	0.9998	8,045.380
160	20	7,906.21	0.9999	7,905.419
156	21	8,367.77	0.9999	8,366.933
152	20	7,914.45	0.9999	7,913.658
153	21	8,419.18	0.9999	8,418.338
154	21	8,435.89	0.9999	8,435.046
148	22	8,733.18	0.9999	8,732.306
146	20	7,852.77	0.9998	7,851.199
138	21	8,269.64	0.9998	8,267.986
127	20	7,931.19	0.9997	7,928.810
R 10	20	8,383.00	0.9995	8,378.808
R 12	20	8,656.73	0.9994	8,651.535
R 20	20	8,516.82	0.9996	8,513.413
R 23	20	8,573.77	0.9995	8,569.483
R 26	20	8,295.88	0.9996	8,292.561
1926	19	7,814.95	0.9961	7,784.471
R 32	20	8,716.42	0.9996	8,712.933
1924	20	8,303.95	0.9959	8,269.903
1914	19			

		7,746.28	0.9962	7,716.844
1916	19	7,786.02	0.9960	7,754.875
1917	19	7,788.06	0.9960	7,756.907
1911	19	7,662.59	0.9959	7,631.173
1912	19	7,692.94	0.9963	7,664.476
RM 58	22	9,091.89	0.9996	9,088.253
RM 49	22	9,179.07	0.9995	9,174.480
RM 38	22	8,985.41	0.9994	8,980.018
33154	22	8,781.09	0.9992	8,774.065
33151	22	8,827.22	0.9996	8,823.689
122	20	8,020.39	0.9997	8,017.983
M 309	21	8,239.55	0.9997	8,237.078
M 308	20	7,817.93	0.9998	7,816.366
DC548	6	2,403.29	0.9979	2,398.243
DC568	6	2,408.60	0.9972	2,401.855
D0015	1	378.92	0.9996	378.768
D0001	1	375.74	0.9994	375.514
D0011	1	379.08	0.9996	378.928
22801	1	383.45	0.9975	382.491
20234	1	410.02	0.9988	409.527
19631	1	407.50	0.9988	407.011
M 277	21	8,324.78	0.9998	8,323.115
R 289	21			

		8,067.18	0.9997	8,064.759
DC530	8	3,209.89	0.9971	3,200.581
DC534	9	3,554.82	0.9976	3,546.288
DC507	18	7,119.82	0.9968	7,097.036
DC570	8	3,178.16	0.9971	3,168.943
DC523	19	7,554.32	0.9970	7,531.657
DC514	9	3,502.70	0.9973	3,493.242
DC517	6	2,353.95	0.9982	2,349.712
DC566	17	6,776.32	0.9969	6,755.313
DC554	9	3,480.42	0.9983	3,474.503
DC557	9	3,523.91	0.9979	3,516.509
DC606	10	3,970.49	0.9975	3,960.563
DC539	8	3,144.18	0.9981	3,138.206
18023	18	7,402.15	0.9976	7,384.384
DC566	6	2,316.54	0.9979	2,311.675
DC682	8	3,209.27	0.9979	3,202.530
114	21	8,406.04	0.9999	8,405.199
7177	19	7,435.21	0.9977	7,418.109
126	20	8,040.92	0.9997	8,038.507
33685	13	5,061.40	0.9996	5,059.375
R 16	20	8,671.62	0.9993	8,665.549
R 11	20	8,463.48	0.9993	8,457.555
14868-14872	5			

		5,372.22	0.9000	4,834.998
14763-14767	5	5,372.38	0.9000	4,835.142
14973-14977	5	5,372.35	0.9000	4,835.115
10453-10457	5	5,372.43	0.8999	4,834.649
14748-14752	5	5,371.35	0.8999	4,833.677
14743-14747	5	5,371.78	0.8999	4,834.064
14793-14797	5	5,371.92	0.8999	4,834.190
14723-14727	5	5,372.10	0.9000	4,834.890
14678-14682	5	5,374.03	0.8999	4,836.089
10413-10417	5	5,371.65	0.9000	4,834.485
10503-10507	5	5,372.12	0.8999	4,834.370
10558-10562	5	5,372.01	0.9000	4,834.809
14873-14877	5	5,371.13	0.9000	4,834.017
14883-14887	5	5,370.83	0.9001	4,834.284
10603-10607	5	5,372.23	0.9000	4,835.007
14858-14862	5	5,366.13	0.9000	4,829.517
14888-14892	5	5,369.60	0.9000	4,832.640
14878-14882	5	5,370.33	0.8999	4,832.759
14808-14812	5	5,372.07	0.8999	4,834.325
14798-14802	5	5,371.43	0.9000	4,834.287
13648-13652	5	5,410.94	0.8999	4,869.304
14983-14987	5	5,370.84	0.8999	4,833.218
14778-14782	5			

		5,331.00	0.9001	4,798.433
14773-14777	5	5,371.00	0.9000	4,833.900
933-938	6	6,413.59	0.9166	5,878.696
10548-10552	5	5,371.59	0.9000	4,834.431
10563-10567	5	5,372.70	0.9000	4,835.430
14788-14792	5	5,336.01	0.9000	4,802.409
10518-10522	5	5,371.28	0.9000	4,834.152
10533-10537	5	5,370.47	0.8999	4,832.885
10538-10542	5	5,375.95	0.9000	4,838.355
10618-10622	5	5,372.58	0.8999	4,834.784
10543-10547	5	5,372.52	0.8999	4,834.730
10623-10627	5	5,375.15	0.8999	4,837.097
10553-10557	5	5,371.62	0.9000	4,834.458
10513-10517	5	5,372.67	0.8999	4,834.865
10508-10512	5	5,377.83	0.9000	4,840.047
11773-11777	5	5,374.50	0.9000	4,837.050
10598-10602	5	5,372.38	0.8999	4,834.604
14713-14717	5	5,370.99	0.9000	4,833.891
11778-11782	5	5,370.80	0.9000	4,833.720
10608-10612	5	5,373.77	0.8999	4,835.855
14853-14857	5	5,370.44	0.9000	4,833.396
14738-14742	5	5,372.50	0.9000	4,835.250
14693-14697	5			

		5,372.77	0.9000	4,835.493
14718-14722	5	5,370.99	0.8999	4,833.353
14843-14847	5	5,372.52	0.9000	4,835.268
14768-14772	5	5,372.50	0.9000	4,835.250
14823-14827	5	5,373.10	0.8999	4,835.252
14828-14832	5	5,371.52	0.9000	4,834.368
14728-14732	5	5,372.06	0.9000	4,834.854
241-245	5	4,866.56	0.9166	4,460.688
10393-10397	5	5,373.58	0.8999	4,835.684
14818-14822	5	5,371.13	0.8999	4,833.479
221-225	5	4,879.09	0.9166	4,472.173
236-240	5	4,881.44	0.9166	4,474.327
10488-10492	6	5,371.05	0.9000	4,833.945
10301-10306	5	6,414.36	0.9166	5,879.402
9268-9272	5	5,373.07	0.9000	4,835.763
10568-10572	5	5,373.86	0.9000	4,836.474
10483-10487	5	5,372.58	0.9000	4,835.322
2442-2446	5	4,873.24	0.9167	4,467.299
2437-2441	5	4,874.07	0.9167	4,468.059
10498-10502	5	5,371.25	0.9000	4,834.125
10463-10467	5	5,369.65	0.9000	4,832.685
10388-10392	5	5,372.85	0.9000	4,835.565
14848-14852	5			

		5,372.82	0.8999	4,835.000
14758-14762	5	5,372.85	0.8999	4,835.027
10458-10462	5	5,371.01	0.9000	4,833.909
14833-14837	5	5,371.43	0.9000	4,834.287
14753-14757	5	5,370.40	0.9000	4,833.360
14838-14842	5	5,372.10	0.9000	4,834.890
1347-1352	6	8,823.88	0.8999	7,940.609
1224-1229	6	8,827.80	0.8999	7,944.137
14813-14817	5	5,372.55	0.8999	4,834.757
1230-1232	3	4,402.48	0.8998	3,961.351
1341-1346	6	8,812.18	0.9000	7,930.962
1233-1238	6	8,816.41	0.8999	7,933.887
2145-2149	5	5,038.51	0.9166	4,618.298
14698-14702	5	5,377.28	0.9000	4,839.552
2150-2154	5	5,031.30	0.9167	4,612.192
3529-3532	4	4,614.28	0.9169	4,230.833
1295-1302	8	8,815.04	0.8999	7,932.654
1279-1286	8	8,812.33	0.9000	7,931.097
14863-14867	5	5,371.10	0.9000	4,833.990
1303-1310	8	8,810.79	0.8999	7,928.829
2995-2997	3	3,088.80	0.9167	2,831.502
10493-10497	5	5,374.38	0.9000	4,836.942
927-932	6			

		6,414.08	0.9166	5,879.145
10468-10472	5	5,370.85	0.9000	4,833.765
10583-10587	5	5,370.83	0.9000	4,833.747
951-956	6	6,415.39	0.9167	5,880.988
10473-10477	5	5,370.99	0.9000	4,833.891
10593-10597	5	5,371.33	0.9000	4,834.197
10588-10592	5	5,371.69	0.9000	4,834.521
10578-10582	5	5,369.83	0.9000	4,832.847
14893-14897	5	5,370.71	0.9000	4,833.639
13673-13677	5	5,371.19	0.9000	4,834.071
10613-10617	5	5,371.84	0.9000	4,834.656
14898-14902	5	5,370.91	0.9001	4,834.356
14803-14807	5	5,442.58	0.9000	4,898.322
14908-14912	5	5,368.74	0.9000	4,831.866
251-255	5	4,890.26	0.9166	4,482.412
14903-14907	5	5,370.02	0.9000	4,833.018
14913-14917	5	5,372.44	0.9000	4,835.196
226-230	5	4,879.95	0.9167	4,473.450
246-250	5	4,877.45	0.9166	4,470.670
261	1	1,019.17	0.9167	934.273
256-260	5	4,881.38	0.9167	4,474.761
2165-2170	6	5,612.58	0.9167	5,145.052
13643-13647	5			

		5,370.10	0.9000	4,833.090
13638-13642	5	5,366.32	0.9000	4,829.688
2160-2164	5	4,958.66	0.9167	4,545.603
2155-2159	5	4,974.45	0.9167	4,560.078
2447-2451	5	4,873.42	0.9166	4,466.976
3545-3552	8	8,718.25	0.9169	7,993.763
3517-3520	4	4,617.12	0.9169	4,233.437
3521-3528	8	9,222.91	0.9170	8,457.408
1338-1340	3	4,409.88	0.8999	3,968.451
915-922	8	9,024.78	0.9000	8,122.302
839-846	8	8,792.18	0.9000	7,912.962
1359-1364	6	6,775.03	0.9000	6,097.527
1317-1322	6	8,801.86	0.9000	7,921.674
1311-1316	6	8,802.21	0.9000	7,921.989
1353-1358	6	6,608.75	0.9000	5,947.875
1693-1700	8	9,245.71	0.9167	8,475.542
1709-1716	8	9,234.01	0.9167	8,464.816
1271-1278	8	8,809.64	0.8999	7,927.795
1717-1724	8	9,234.78	0.9167	8,465.522
939-944	6	6,415.11	0.9166	5,880.089
2452-2456	5	4,873.62	0.9165	4,466.672
2457-2461	5	4,875.15	0.9167	4,469.050
957-961	5			

		5,364.74	0.9167	4,917.857
201-205	5	4,872.57	0.9167	4,466.684
211-215	5	4,872.54	0.9166	4,466.170
216-220	5	4,883.11	0.9166	4,475.858
3533-3536	4	4,610.90	0.9170	4,228.195
3459-3466	8	8,314.27	0.8999	7,482.011
2467-2468	2	1,898.40	0.9167	1,740.263
3537-3544	8	9,222.73	0.9169	8,456.321
2462-2466	5	4,874.23	0.9167	4,468.206
206-210	5	4,870.27	0.9166	4,464.089
1377-1380	4	4,216.05	0.8999	3,794.023
9625-9630	6	6,412.88	0.9168	5,879.328
718-725	8	9,217.69	0.9166	8,448.934
863-866	4	4,428.15	0.9000	3,985.335
926	1	1,048.24	0.9167	960.921
925	1	1,012.01	0.9166	927.608
924	1	1,044.51	0.9165	957.293
1381-1382	2	2,084.53	0.9000	1,876.077
1291-1294	4	4,406.66	0.9000	3,965.994
1725-1728	4	4,606.70	0.9168	4,223.422
9631-9636	6	6,414.23	0.9167	5,879.924
9613-9618	6	6,415.42	0.9167	5,881.015
201-206	6			

		6,415.47	0.9166	5,880.419
1735-1743	9	9,976.77	0.9167	9,145.705
911-914	4	4,475.81	0.9000	4,028.229
867-875	9	9,478.28	0.8999	8,529.504
15068-15072	5	5,372.34	0.9000	4,835.106
981-989	9	9,750.90	0.9001	8,776.785
14978-14982	5	5,366.93	0.9000	4,830.237
15083-15087	5	5,372.77	0.9001	4,836.030
15073-15077	5	5,369.95	0.9000	4,832.955
14273-14277	5	5,361.25	0.8999	4,824.588
15053-15055	3	3,254.87	0.8999	2,929.057
15078-15082	5	5,372.10	0.9000	4,834.890
14263-14267	5	5,371.13	0.8999	4,833.479
11918-11922	5	5,372.25	0.8999	4,834.487
11923-11927	5	5,371.13	0.8999	4,833.479
15153-15157	5	5,372.47	0.9000	4,835.223
14358-14362	5	5,373.84	0.8999	4,835.918
14268-14272	5	5,372.06	0.9000	4,834.854
9678-9682	5	5,370.99	0.9000	4,833.891
14053-14057	5	5,372.60	0.9001	4,835.877
15148-15152	5	5,373.47	0.9000	4,836.123
9698-9702	5	5,371.22	0.9000	4,834.098
9583-9587	5			

		5,368.99	0.8999	4,831.554
9673-9677	5	5,371.80	0.9000	4,834.620
11748-11752	5	5,371.86	0.9000	4,834.674
11783-11787	5	5,371.38	0.9000	4,834.242
9693-9697	5	5,371.72	0.9000	4,834.548
13568-13572	5	5,371.95	0.9000	4,834.755
13538-13542	5	5,369.85	0.9001	4,833.401
13573-13577	5	5,369.31	0.8999	4,831.842
9533-9537	5	5,370.17	0.9000	4,833.153
13543-13547	5	5,369.79	0.9001	4,833.347
13548-13552	5	5,369.57	0.9000	4,832.613
9568-9572	5	5,371.65	0.8999	4,833.947
9618-9622	5	5,368.18	0.9000	4,831.362
9538-9542	5	5,380.38	0.9000	4,842.342
9463-9467	5	5,369.71	0.9000	4,832.739
9528-9532	5	5,371.12	0.9000	4,834.008
9628-9632	5	5,372.45	0.8999	4,834.667
9378-9382	5	5,369.50	0.8999	4,832.013
9553-9557	5	5,369.21	0.9000	4,832.289
9548-9552	5	5,369.86	0.8999	4,832.337
9273-9277	5	5,374.97	0.9000	4,837.473
9388-9392	5	5,372.54	0.9000	4,835.286
9303-9307	5			

		5,367.00	0.9000	4,830.300
10223-10227	5	5,372.12	0.9000	4,834.908
9283-9287	5	5,373.14	0.9000	4,835.826
10318-10322	5	5,373.35	0.8999	4,835.477
10218-10222	5	5,372.48	0.9000	4,835.232
9333-9337	5	5,369.30	0.8999	4,831.833
10313-10317	5	5,372.14	0.8999	4,834.388
10308-10312	5	5,377.48	0.8999	4,839.194
10398-10402	5	5,371.15	0.8999	4,833.497
10243-10247	5	5,370.54	0.9001	4,834.023
10418-10422	5	5,371.37	0.9000	4,834.233
10213-10217	5	5,374.93	0.9000	4,837.437
9278-9282	5	5,373.29	0.9000	4,835.961
10428-10432	5	5,374.02	0.9000	4,836.618
10408-10412	5	5,373.28	0.9000	4,835.952
10423-10427	5	5,371.57	0.9000	4,834.413
11768-11772	5	5,371.54	0.8999	4,833.848
10358-10362	5	5,373.28	0.8999	4,835.414
10433-10437	5	5,374.04	0.8999	4,836.098
10378-10382	5	5,370.37	0.9000	4,833.333
10403-10407	5	5,369.50	0.9000	4,832.550
10368-10372	5	5,371.68	0.9000	4,834.512
14733-14737	5			

		5,372.01	0.8999	4,834.271
14278-14282	5	5,371.85	0.9000	4,834.665
10323-10327	5	5,371.99	0.9000	4,834.791
14288-14292	5	5,369.30	0.8999	4,831.833
14283-14287	5	5,374.33	0.9000	4,836.897
14308-14312	5	5,370.90	0.9001	4,834.347
11948-11952	5	5,372.39	0.9000	4,835.151
11943-11947	5	5,369.40	0.9000	4,832.460
14298-14302	5	5,372.76	0.9000	4,835.484
11933-11937	5	5,371.10	0.9000	4,833.990
11928-11932	5	5,376.12	0.9000	4,838.508
11953-11957	5	5,373.97	0.9000	4,836.573
14188-14192	5	5,373.83	0.9000	4,836.447
13663-13667	5	5,378.37	0.8999	4,839.995
11938-11942	5	5,372.80	0.9000	4,835.520
14258-14262	5	5,370.35	0.9000	4,833.315
14368-14372	5	5,371.50	0.8999	4,833.812
14253-14257	5	5,370.69	0.8999	4,833.083
15188-15192	5	5,372.25	0.9000	4,835.025
15193-15197	5	5,371.87	0.9000	4,834.683
14363-14367	5	5,370.83	0.9000	4,833.747
15043-15047	5	5,365.05	0.8999	4,828.008
15038-15042	5			

		5,371.02	0.8999	4,833.380
15198-15202	5	5,374.85	0.9000	4,837.365
10298-10302	5	5,368.19	0.8999	4,830.834
10348-10352	5	5,371.87	0.9000	4,834.683
15048-15052	5	5,372.59	0.9000	4,835.331
10263-10267	5	5,372.47	0.8999	4,834.685
10373-10377	5	5,371.63	0.9000	4,834.467
10283-10287	5	5,371.58	0.9000	4,834.422
14168-14172	5	5,371.38	0.9000	4,834.242
11678-11682	5	5,373.56	0.9000	4,836.204
14083-14087	5	5,371.62	0.9000	4,834.458
14103-14107	5	5,372.36	0.9000	4,835.124
14073-14077	5	5,373.30	0.9000	4,835.970
14178-14182	5	5,371.58	0.9000	4,834.422
15153-14157	5	5,371.31	0.9001	4,834.716
14183-14187	5	5,370.60	0.9000	4,833.540
14038-14042	5	5,372.17	0.8999	4,834.415
14013-14017	5	5,370.75	0.9000	4,833.675
14003-14007	5	5,370.51	0.9000	4,833.459
14098-14102	5	5,372.05	0.8999	4,834.307
14093-14097	5	5,372.96	0.8999	4,835.126
14068-14072	5	5,371.17	0.9000	4,834.053
14088-14092	5			

		5,373.24	0.9000	4,835.916
14118-14122	5	5,371.33	0.8999	4,833.659
14113-14117	5	5,371.50	0.9000	4,834.350
14193-14197	5	5,368.15	0.8999	4,830.798
14198-14202	5	5,369.42	0.9000	4,832.478
14213-14217	5	5,373.40	0.9000	4,836.060
14218-14222	5	5,371.10	0.8999	4,833.452
14223-14227	5	5,372.38	0.9000	4,835.142
11888-11892	5	5,370.87	0.9000	4,833.783
11958-11962	5	5,371.45	0.9000	4,834.305
11968-11972	5	5,374.65	0.9000	4,837.185
11868-11872	5	5,373.10	0.9000	4,835.790
11963-11967	5	5,365.17	0.9000	4,828.653
11973-11977	5	5,375.33	0.9000	4,837.797
11878-11882	5	5,370.40	0.9001	4,833.897
11873-11877	5	5,370.35	0.9000	4,833.315
11858-11862	5	5,372.08	0.8999	4,834.334
11883-11887	5	5,372.70	0.9001	4,835.967
11908-11912	5	5,373.63	0.9000	4,836.267
11893-11897	5	5,372.18	0.9001	4,835.499
11798-11802	5	5,370.65	0.9000	4,833.585
11913-11917	5	5,371.20	0.9000	4,834.080
11843-11847	5			

		5,371.87	0.9000	4,834.683
11898-11902	5	5,372.62	0.9000	4,835.358
11808-11812	5	5,371.39	0.9000	4,834.251
11903-11907	5	5,371.98	0.9000	4,834.782
11828-11832	5	5,373.02	0.8999	4,835.180
11838-11842	5	5,373.32	0.8999	4,835.450
11803-11807	5	5,373.57	0.9000	4,836.213
14143-14147	5	5,373.72	0.8999	4,835.810
11848-11852	5	5,372.27	0.9000	4,835.043
11833-11837	5	5,373.20	0.8999	4,835.342
14158-14162	5	5,370.90	0.9000	4,833.810
14133-14137	5	5,372.32	0.9000	4,835.088
14128-14132	5	5,372.78	0.9000	4,835.502
14028-14032	5	5,370.78	0.9000	4,833.702
14138-14142	5	5,373.18	0.9000	4,835.862
14148-14152	5	5,372.68	0.8999	4,834.874
14018-14022	5	5,371.49	0.9000	4,834.341
14108-14112	5	5,375.16	0.9000	4,837.644
14033-14037	5	5,369.54	0.9000	4,832.586
965	1	930.14	0.8999	837.032
966	1	1,126.10	0.8998	1,013.264
10319-10324	6	6,413.43	0.9167	5,879.191
10313-10318	6			

		6,416.04	0.9166	5,880.942
14163-14167	5	5,370.81	0.9000	4,833.729
14958-14962	5	5,366.60	0.9000	4,829.940
962-964	3	3,006.84	0.9000	2,706.156
10299-10300	2	2,694.55	0.9166	2,469.824
923-926	4	4,411.64	0.8998	3,969.593
14943-14947	5	5,371.44	0.9000	4,834.296
14933-14937	5	5,371.10	0.9000	4,833.990
14968-14972	5	5,370.23	0.9001	4,833.744
14953-14957	5	5,372.70	0.8999	4,834.892
14963-14967	5	5,372.60	0.8999	4,834.802
15128-15132	5	5,371.60	0.8999	4,833.902
15023-15027	5	5,374.50	0.8999	4,836.512
14948-14952	5	5,369.21	0.8999	4,831.752
15013-15017	5	5,374.49	0.9000	4,837.041
14303-14307	5	5,380.28	0.9000	4,842.252
14923-14927	5	5,370.15	0.9000	4,833.135
14928-14932	5	5,368.28	0.9000	4,831.452
15033-15037	5	5,373.67	0.9000	4,836.303
14918-14922	5	5,372.42	0.9001	4,835.715
15123-15127	5	5,371.92	0.8999	4,834.190
14063-14067	5	5,371.95	0.9000	4,834.755
14058-14062	5			

		5,372.39	0.9000	4,835.151
14048-14052	5	5,373.48	0.9000	4,836.132
14238-14242	5	5,368.90	0.9000	4,832.010
14023-14027	5	5,373.64	0.9000	4,836.276
14248-14252	5	5,370.60	0.8999	4,833.002
15138-15142	5	5,373.70	0.9000	4,836.330
15108-15112	5	5,371.87	0.9000	4,834.683
14998-15002	5	5,372.27	0.9000	4,835.043
14988-14992	5	5,366.70	0.9000	4,830.030
15028-15032	5	5,370.40	0.8999	4,832.822
14993-14997	5	5,374.68	0.8999	4,836.674
14293-14297	5	5,371.19	0.9000	4,834.071
15178-15182	5	5,372.34	0.9000	4,835.106
15163-15167	5	5,371.87	0.9000	4,834.683
15063-15065	3	2,686.62	0.9000	2,417.958
15066-15067	2	1,815.88	0.9000	1,634.292
15158-15162	5	5,371.75	0.9000	4,834.575
15168-15172	5	5,367.67	0.9000	4,830.903
15003-15007	5	5,370.50	0.9000	4,833.450
15056-15057	2	2,072.18	0.9000	1,864.961
15058-15062	5	5,374.84	0.9000	4,837.356
15143-15147	5	5,372.95	0.9000	4,835.655
09578-09582	5			

		5,374.35	0.8999	4,836.377
9593-9597	5	5,370.65	0.9000	4,833.585
15008-15012	5	5,369.52	0.9000	4,832.568
09563-09567	5	5,370.45	0.8999	4,832.867
09573-09577	5	5,370.89	0.8999	4,833.263
09383-09387	5	5,370.25	0.8999	4,832.687
09613-09617	5	5,371.47	0.8999	4,833.785
09558-09562	5	5,370.69	0.9000	4,833.621
09623-09627	5	5,137.95	0.9000	4,624.155
09598-09602	5	5,375.16	0.9000	4,837.644
09608-09612	5	5,606.33	0.9000	5,045.697
09543-09547	5	5,368.76	0.9000	4,831.884
09638-09642	5	5,370.77	0.9000	4,833.693
09633-09637	5	5,374.67	0.8999	4,836.665
09688-09692	5	5,376.59	0.9000	4,838.931
09603-09607	5	5,378.76	0.9000	4,840.884
09668-09672	5	5,371.40	0.9000	4,834.260
13553-13557	5	5,368.68	0.9000	4,831.812
14043-14047	5	5,372.78	0.9000	4,835.502
13518-13522	5	5,369.35	0.9000	4,832.415
12448-12452	5	5,369.95	0.9000	4,832.955
12443-12447	5	5,372.59	0.9000	4,835.331
12493-12497	5			

		5,373.03	0.9001	4,836.264
12503-12507	5	5,371.42	0.9000	4,834.278
12433-12437	5	5,371.16	0.9000	4,834.044
12468-12472	5	5,374.46	0.9000	4,837.014
12513-12517	5	5,373.40	0.9000	4,836.060
12528-12532	5	5,370.64	0.9000	4,833.576
12523-12527	5	5,373.80	0.9000	4,836.420
12463-12467	5	5,372.55	0.9000	4,835.295
12498-12502	5	5,373.29	0.9000	4,835.961
12518-12522	5	5,372.50	0.9000	4,835.250
6006	6	6,649.41	0.8995	5,981.144
14545	6	6,795.12	0.9000	6,115.608
14455	6	7,020.31	0.8998	6,316.523
6003	6	6,328.46	0.8998	5,692.449
6010	6	6,773.66	0.8998	6,094.600
14531	7	7,124.74	0.9000	6,412.266
14460	6	7,048.91	0.8998	6,342.256
2080	4	4,289.61	0.8998	3,859.576
2176	6	5,831.38	0.8998	5,246.784
6011	5	5,388.70	0.8998	4,848.482
2173	5	5,741.15	0.8998	5,165.599
14459	7	7,166.89	0.9000	6,450.201
14471	5			

		5,718.25	0.8998	5,144.995
14526	6	6,673.95	0.9000	6,006.555
14488	6	6,968.28	0.9000	6,271.452
14321	5	5,549.50	0.8998	4,993.162
6009	6	6,770.29	0.9000	6,093.261
14585	6	6,897.49	0.8998	6,206.016
14320	5	5,649.97	0.8998	5,083.560
6004	6	6,277.28	0.8998	5,647.982
14464	6	6,866.14	0.8998	6,177.809
7301	5	5,732.04	0.8998	5,157.402
13608	5	5,847.73	0.8998	5,261.495
6005	7	6,785.93	0.8998	6,103.944
7302	3	2,962.49	0.9000	2,666.241
13657	6	6,232.09	0.8998	5,607.322
2076	6	5,969.17	0.8998	5,370.760
13654	6	6,052.98	0.8998	5,446.168
10058	4	4,588.73	0.9166	4,206.029
14587	6	6,922.48	0.9000	6,230.232
14544	6	6,994.67	0.9000	6,295.203
5311	7	6,751.84	0.8995	6,073.280
5318	6	6,628.39	0.8995	5,962.236
14588	6	6,917.76	0.9000	6,225.984
2168	6			

		6,205.76	0.8998	5,583.632
2068	6	6,093.03	0.8998	5,482.203
13636	5	5,415.05	0.9000	4,873.545
2171	5	5,721.91	0.8998	5,148.288
13627	5	5,618.72	0.8998	5,055.443
13631	5	5,644.62	0.8998	5,078.746
2177	6	6,101.24	0.8998	5,489.590
14447	6	6,947.56	0.8998	6,251.067
13632	5	5,616.90	0.8998	5,053.805
2073	5	5,716.77	0.8998	5,143.663
13610	5	5,793.21	0.8998	5,212.440
13625	5	5,510.23	0.8998	4,957.829
7273	5	5,747.23	0.8998	5,171.070
2066	5	5,887.46	0.8998	5,297.242
14342	5	5,870.33	0.8998	5,281.829
2169	6	5,973.16	0.8998	5,374.350
10059	4	4,600.96	0.9166	4,217.239
2067	5	5,911.74	0.8998	5,319.088
7285	5	5,854.92	0.8998	5,267.964
13653	6	5,913.48	0.8998	5,320.653
14326	5	5,718.00	0.8998	5,144.770
14457	6	7,040.82	0.8998	6,334.977
14463	6			

		6,959.40	0.9000	6,263.460
14323	5	5,799.31	0.8998	5,217.929
14450	6	6,960.83	0.9000	6,264.747
6008	7	6,806.30	0.9000	6,125.670
5999	6	6,311.32	0.8995	5,677.032
14451	6	6,862.63	0.8998	6,174.651
14490	7	7,062.46	0.8998	6,354.448
14322	5	5,673.43	0.8998	5,104.668
7287	5	5,771.46	0.8998	5,192.871
13639	5	5,683.10	0.8998	5,113.369
13609	5	5,778.29	0.8998	5,199.016
13629	5	5,615.56	0.9000	5,054.004
2175	6	6,118.14	0.8998	5,504.796
2075	5	5,782.23	0.8998	5,202.561
13619	5	5,662.81	0.9000	5,096.529
13624	5	5,594.57	0.8998	5,033.714
13613	5	5,854.29	0.8998	5,267.397
13614	5	5,728.49	0.8998	5,154.208
2074	5	5,729.10	0.8998	5,154.757
2072	5	5,753.05	0.8998	5,176.306
13655	5	5,467.27	0.8998	4,919.176
14497	6	7,097.96	0.8998	6,386.389
14534	6			

		6,990.85	0.8998	6,290.017
14498	5	5,673.10	0.8998	5,104.371
13620	5	5,669.31	0.8998	5,100.961
14530	6	7,052.74	0.9000	6,347.466
13637	5	5,231.64	0.9000	4,708.476
13633	5	5,613.25	0.8998	5,050.521
2070	6	6,122.21	0.8998	5,508.458
13626	5	5,641.18	0.8998	5,075.651
13644	5	5,778.88	0.8998	5,199.547
13645	5	5,800.37	0.8998	5,218.882
12423-12427	5	5,370.40	0.9000	4,833.360
12418-12422	5	5,372.70	0.9001	4,835.967
12458-12462	5	5,375.10	0.9000	4,837.590
12353-12357	5	5,373.47	0.8999	4,835.585
12413-12417	5	5,373.00	0.9000	4,835.700
12438-12442	5	5,370.93	0.9000	4,833.837
12358-12362	5	5,370.54	0.9000	4,833.486
12408-12412	5	5,373.52	0.9000	4,836.168
12453-12457	5	5,371.82	0.9000	4,834.638
12308-12312	5	5,371.37	0.8999	4,833.695
12378-12382	5	5,370.73	0.9000	4,833.657
11708-11712	5	5,370.03	0.8999	4,832.489
12293-12297	5			

		5,369.45	0.8999	4,831.968
12318-12322	5	5,370.93	0.8999	4,833.299
12313-12317	5	5,371.96	0.9000	4,834.764
12538-12542	5	5,372.51	0.8999	4,834.721
12338-12342	5	5,368.97	0.8999	4,831.536
12288-12292	5	5,373.12	0.8999	4,835.270
12553-12557	5	5,371.55	0.9000	4,834.395
12543-12547	5	5,371.19	0.9000	4,834.071
12573-12577	5	5,372.49	0.9001	4,835.778
12558-12562	5	5,371.95	0.9000	4,834.755
12563-12567	5	5,372.27	0.9001	4,835.580
12533-12537	5	5,369.90	0.9000	4,832.910
12588-12592	5	5,372.01	0.9000	4,834.809
12568-12572	5	5,372.96	0.9000	4,835.664
12508-12512	5	5,372.04	0.9000	4,834.836
12583-12587	5	5,371.80	0.9000	4,834.620
12478-12482	5	5,373.14	0.9000	4,835.826
12548-12552	5	5,369.90	0.9000	4,832.910
12578-12582	5	5,373.72	0.9000	4,836.348
11713-11717	5	5,373.11	0.9000	4,835.799
12483-12487	5	5,371.65	0.9000	4,834.485
11378-11382	5	5,368.90	0.8999	4,831.473
11388-11392	5			

		5,370.77	0.8999	4,833.155
12473-12477	5	5,371.40	0.9000	4,834.260
11383-11387	5	5,372.76	0.8999	4,834.946
11473-11477	5	5,367.00	0.9000	4,830.300
11408-11412	5	5,368.71	0.9001	4,832.375
11308-11312	5	5,373.80	0.8999	4,835.882
11393-11397	5	5,370.54	0.8999	4,832.948
11373-11377	5	5,370.30	0.9001	4,833.807
11403-11407	5	5,371.02	0.8999	4,833.380
11413-11417	5	5,370.96	0.9000	4,833.864
11328-11332	5	5,392.82	0.8999	4,852.998
11333-11337	5	5,386.68	0.9000	4,848.012
12603-12607	5	5,373.61	0.9000	4,836.249
11323-11327	5	5,204.19	0.9000	4,683.771
11348-11352	5	5,372.19	0.9000	4,834.971
12608-12612	5	5,372.17	0.9000	4,834.953
11353-11357	5	5,371.58	0.8999	4,833.884
12628-12632	5	5,375.64	0.8999	4,837.538
12623-12627	5	5,373.17	0.8999	4,835.315
12638-12642	5	5,372.65	0.8999	4,834.847
12643-12647	5	5,370.80	0.9000	4,833.720
12618-12622	5	5,371.35	0.9000	4,834.215
12613-12617	5			

		5,371.17	0.9000	4,834.053
11303-11307	5	5,371.65	0.9000	4,834.485
11313-11317	5	5,370.58	0.8999	4,832.984
11788-11792	5	5,372.38	0.9000	4,835.142
11318-11322	5	5,372.27	0.8999	4,834.505
11338-11342	5	5,371.78	0.8999	4,834.064
11343-11347	5	5,379.71	0.8999	4,841.201
11478-11482	5	5,371.40	0.9001	4,834.797
11483-11487	5	5,371.93	0.9000	4,834.737
12648-12652	5	5,372.33	0.9000	4,835.097
12598-12602	5	5,371.57	0.8999	4,833.875
12593-12597	5	5,373.33	0.8999	4,835.459
11363-11367	5	5,370.40	0.9000	4,833.360
11358-11362	5	5,370.44	0.9001	4,833.933
11418-11422	5	5,370.40	0.9000	4,833.360
12633-12637	5	5,371.50	0.8999	4,833.812
11423-11427	5	5,370.11	0.9000	4,833.099
13983-13987	5	5,367.95	0.9000	4,831.155
12328-12332	5	5,371.88	0.9000	4,834.692
12343-12347	5	5,370.87	0.8999	4,833.245
12238-12242	5	5,372.95	0.9001	4,836.192
12173-12177	5	5,367.87	0.8999	4,830.546
12333-12337	5			

		5,373.25	0.9000	4,835.925
12228-12232	5	5,369.45	0.9000	4,832.505
12323-12327	5	5,370.59	0.9000	4,833.531
12258-12262	5	5,368.84	0.8999	4,831.419
12243-12247	5	5,370.50	0.9000	4,833.450
12248-12252	5	5,371.98	0.9000	4,834.782
12263-12267	5	5,372.31	0.9000	4,835.079
12273-12277	5	5,403.29	0.9000	4,862.961
12178-12182	5	5,369.56	0.9000	4,832.604
12253-12257	5	5,368.82	0.9000	4,831.938
12268-12272	5	5,371.35	0.9000	4,834.215
12283-12287	5	5,372.93	0.8999	4,835.099
12163-12167	5	5,370.71	0.9000	4,833.639
12168-12172	5	5,368.08	0.8999	4,830.735
12183-12187	5	5,371.66	0.8999	4,833.956
12193-12197	5	5,368.63	0.9000	4,831.767
12188-12192	5	5,369.88	0.8999	4,832.355
09883-09887	5	5,371.72	0.8999	4,834.010
09878-09882	5	5,373.70	0.8999	4,835.792
09813-09817	5	5,371.75	0.9000	4,834.575
09903-09907	5	5,373.10	0.8999	4,835.252
09788-09792	5	5,370.90	0.9000	4,833.810
09933-09937	5			

		5,374.58	0.9000	4,837.122
09898-09902	5	5,371.92	0.9000	4,834.728
09888-09892	5	5,371.24	0.9000	4,834.116
12158-12162	5	5,370.79	0.9001	4,834.248
12198-12202	5	5,371.83	0.9001	4,835.184
12128-12132	5	5,368.10	0.9000	4,831.290
09913-09917	5	5,371.20	0.9000	4,834.080
12103-12107	5	5,366.67	0.8999	4,829.466
12108-12112	5	5,368.20	0.8999	4,830.843
12203-12207	5	5,370.83	0.9000	4,833.747
11688-11692	5	5,372.46	0.9000	4,835.214
12223-12227	5	5,368.03	0.8999	4,830.690
12153-12157	5	5,367.44	0.9000	4,830.696
12143-12147	5	5,369.08	0.8999	4,831.635
12133-12137	5	5,370.15	0.9000	4,833.135
12218-12222	5	5,370.95	0.9000	4,833.855
12118-12122	5	5,368.68	0.8999	4,831.275
12138-12142	5	5,370.14	0.8999	4,832.588
11693-11697	5	5,378.35	0.8999	4,839.977
12148-12152	5	5,371.05	0.9000	4,833.945
12113-12117	5	5,369.29	0.9000	4,832.361
09893-09897	5	5,372.80	0.9001	4,836.057
09643-09647	5			

		5,370.97	0.9000	4,833.873
11683-11687	5	5,371.82	0.9000	4,834.638
12123-12127	5	5,371.87	0.8999	4,834.145
09773-09777	5	5,371.90	0.9000	4,834.710
09718-09722	5	5,373.38	0.9000	4,836.042
09713-09717	5	5,371.25	0.9000	4,834.125
09863-09867	5	5,370.92	0.9000	4,833.828
09868-09872	5	5,372.25	0.8999	4,834.487
11718-11722	5	5,372.66	0.8999	4,834.856
09838-09842	5	5,371.80	0.9000	4,834.620
09873-09877	5	5,371.27	0.9000	4,834.143
09848-09852	5	5,371.65	0.9001	4,835.022
09723-09727	5	5,372.31	0.9000	4,835.079
09733-09737	5	5,372.50	0.9000	4,835.250
09843-09847	5	5,372.00	0.8999	4,834.262
09748-09752	5	5,372.80	0.9001	4,836.057
09758-09762	5	5,373.15	0.9001	4,836.372
09743-09747	5	5,371.32	0.9000	4,834.188
09658-09662	5	5,372.55	0.8999	4,834.757
09663-09667	5	5,371.62	0.9000	4,834.458
09738-09742	5	5,372.10	0.9000	4,834.890
09753-09757	5	5,371.78	0.9000	4,834.602
09763-09767	5			

		5,372.15	0.9000	4,834.935
09653-09657	5	5,372.15	0.9000	4,834.935
09728-09732	5	5,371.63	0.8999	4,833.929
09683-09687	5	5,372.94	0.9000	4,835.646
09648-09652	5	5,370.56	0.9000	4,833.504
09808-09812	5	5,371.98	0.9000	4,834.782
09803-09807	5	5,369.34	0.9000	4,832.406
09708-09712	5	5,368.40	0.9000	4,831.560
09768-09772	5	5,375.80	0.9000	4,838.220
09818-09822	5	5,371.48	0.8999	4,833.794
09703-09707	5	5,371.07	0.9000	4,833.963
09798-09802	5	5,371.79	0.9000	4,834.611
09783-09787	5	5,371.70	0.9000	4,834.530
09778-09782	5	5,372.77	0.9000	4,835.493
12748-12752	5	5,372.30	0.9000	4,835.070
12758-12762	5	5,368.42	0.9000	4,831.578
09823-09827	5	5,371.00	0.8999	4,833.362
12713-12717	5	5,370.45	0.9000	4,833.405
12678-12682	5	5,370.43	0.9000	4,833.387
12683-12687	5	5,371.90	0.9000	4,834.710
12663-12667	5	5,372.55	0.9000	4,835.295
11758-11762	5	5,374.71	0.8999	4,836.701
12703-12707	5			

		5,372.35	0.9001	4,835.652
12768-12772	5	5,370.60	0.9000	4,833.540
12763-12767	5	5,365.36	0.9000	4,828.824
12658-12662	5	5,372.35	0.9000	4,835.115
13213-13217	5	5,373.02	0.8999	4,835.180
13233-13237	5	5,373.54	0.9000	4,836.186
13208-13212	5	5,371.00	0.8999	4,833.362
13158-13162	5	5,373.98	0.9000	4,836.582
13183-13187	5	5,372.12	0.9000	4,834.908
13218-13222	5	5,373.33	0.8999	4,835.459
13228-13232	5	5,372.00	0.9000	4,834.800
11823-11827	5	5,372.94	0.9000	4,835.646
11818-11822	5	5,372.88	0.9001	4,836.129
11733-11737	5	5,373.18	0.9000	4,835.862
11853-11857	5	5,374.35	0.9000	4,836.915
11753-11757	5	5,371.26	0.9000	4,834.134
12403-12407	5	5,373.81	0.8999	4,835.891
13223-13227	5	5,372.55	0.9000	4,835.295
11738-11742	5	5,371.88	0.8999	4,834.154
12368-12372	5	5,375.25	0.9000	4,837.725
12363-12367	5	5,373.11	0.9000	4,835.799
12303-12307	5	5,370.42	0.9000	4,833.378
09828-09832	5			

		5,372.40	0.9000	4,835.160
12383-12387	5	5,370.25	0.9000	4,833.225
12298-12302	5	5,369.94	0.9000	4,832.946
12393-12397	5	5,371.53	0.9000	4,834.377
12388-12392	5	5,371.42	0.9000	4,834.278
09833-09837	5	5,370.35	0.9000	4,833.315
09928-09932	5	5,371.90	0.8999	4,834.172
09853-09857	5	5,371.01	0.9000	4,833.909
12398-12402	5	5,372.85	0.9000	4,835.565
12668-12672	5	5,372.30	0.9000	4,835.070
09923-09927	5	5,371.07	0.9001	4,834.500
09943-09947	5	5,369.45	0.9000	4,832.505
13958-13962	5	5,371.34	0.9000	4,834.206
12653-12657	5	5,370.27	0.9000	4,833.243
12673-12677	5	5,373.06	0.9000	4,835.754
09448-09452	5	5,375.44	0.9000	4,837.896
12753-12757	5	5,368.62	0.8999	4,831.221
13963-13967	5	5,371.33	0.8999	4,833.659
09438-09442	5	5,368.56	0.9000	4,831.704
09398-09402	5	5,369.93	0.8999	4,832.400
09428-09432	5	5,369.14	0.9000	4,832.226
12708-12712	5	5,371.67	0.8999	4,833.965
09513-09517	5			

		5,369.05	0.8999	4,831.608
09348-09352	5	5,372.77	0.8999	4,834.955
13948-13952	5	5,370.08	0.9000	4,833.072
09323-09327	5	5,372.35	0.9000	4,835.115
13913-13917	5	5,369.59	0.9000	4,832.631
13918-13922	5	5,371.10	0.9000	4,833.990
13908-13912	5	5,370.19	0.9000	4,833.171
13943-13947	5	5,369.61	0.9000	4,832.649
09318-09322	5	5,370.22	0.8999	4,832.660
09393-09397	5	5,370.17	0.8999	4,832.615
09298-09302	5	5,369.30	0.9000	4,832.370
13953-13957	5	5,372.78	0.9000	4,835.502
09293-09297	5	5,371.29	0.8999	4,833.623
09288-09292	5	5,370.00	0.9000	4,833.000
13893-13897	5	5,370.87	0.9000	4,833.783
13898-13902	5	5,369.76	0.9000	4,832.784
12698-12702	5	5,373.25	0.8999	4,835.387
13988-13992	5	5,369.35	0.8998	4,831.341
13883-13887	5	5,369.43	0.8999	4,831.950
12688-12692	5	5,371.40	0.9000	4,834.260
13923-13927	5	5,372.97	0.9000	4,835.673
13998-14002	5	5,372.87	0.8999	4,835.045
15183-15187	5			

		5,373.42	0.9000	4,836.078
15203-15205	3	3,452.12	0.9000	3,106.908
15118-15122	5	5,371.77	0.9000	4,834.593
13903-13907	5	5,370.89	0.9000	4,833.801
15113-15117	5	5,370.93	0.9001	4,834.374
15088-15092	5	5,372.55	0.9000	4,835.295
15098-15102	5	5,372.65	0.8999	4,834.847
09308-09312	5	5,367.57	0.9000	4,830.813
11673-11677	5	5,376.57	0.9000	4,838.913
15103-15107	5	5,372.67	0.9000	4,835.403
10573-10577	5	5,372.84	0.8999	4,835.018
11793-11797	5	5,374.04	0.9000	4,836.636
15093-15097	5	5,372.61	0.9000	4,835.349
09518-09522	5	5,374.25	0.8999	4,836.287
09358-09362	5	5,370.73	0.9000	4,833.657
09433-09437	5	5,369.26	0.9000	4,832.334
09413-09417	5	5,371.19	0.8999	4,833.533
09313-09317	5	5,367.15	0.8999	4,829.898
09508-09512	5	5,257.13	0.9000	4,731.417
09368-09372	5	5,370.25	0.9000	4,833.225
09363-09367	5	5,371.14	0.9000	4,834.026
13723-13727	5	5,372.60	0.9000	4,835.340
09468-09472	5			

		5,371.52	0.8999	4,833.830
09458-09462	5	5,375.08	0.8999	4,837.034
09338-09342	5	5,369.93	0.9000	4,832.937
09478-09482	5	5,374.14	0.9000	4,836.726
09488-09492	5	5,372.01	0.9000	4,834.809
09493-09497	5	5,370.27	0.9000	4,833.243
13718-13722	5	5,369.56	0.9000	4,832.604
13978-13982	5	5,372.00	0.8999	4,834.262
09503-09507	5	5,360.37	0.8999	4,823.796
09353-09357	5	5,370.58	0.8999	4,832.984
13973-13977	5	5,369.55	0.8999	4,832.058
13968-13972	5	5,370.00	0.8999	4,832.463
09453-09457	5	5,373.15	0.9000	4,835.835
09473-09477	5	5,371.53	0.8999	4,833.839
09418-09422	5	5,366.74	0.9000	4,830.066
09498-09502	5	5,371.76	0.8999	4,834.046
09403-09407	5	5,371.28	0.9000	4,834.152
09423-09427	5	5,371.48	0.9001	4,834.869
10333-10337	5	5,374.06	0.9000	4,836.654
10288-10292	5	5,370.94	0.8999	4,833.308
09408-09412	5	5,370.99	0.8999	4,833.353
10343-10347	5	5,374.03	0.8999	4,836.089
10363-10367	5			

		5,369.79	0.9000	4,832.811
10328-10332	5	5,378.92	0.9000	4,841.028
10268-10272	5	5,368.45	0.9000	4,831.605
10353-10357	5	5,371.66	0.8999	4,833.956
10338-10342	5	5,370.76	0.9000	4,833.684
10273-10277	5	5,374.66	0.9000	4,837.194
10293-10297	5	5,372.04	0.9000	4,834.836
10203-10207	5	5,372.34	0.9000	4,835.106
10303-10307	5	5,370.20	0.8999	4,832.642
10163-10167	5	5,372.61	0.9000	4,835.349
10248-10252	5	5,369.83	0.9000	4,832.847
10143-10147	5	5,371.17	0.8999	4,833.515
13318-13322	5	5,371.35	0.9001	4,834.752
13323-13327	5	5,371.48	0.9000	4,834.332
10238-10242	5	5,373.00	0.9000	4,835.700
10178-10182	5	5,373.19	0.9000	4,835.871
10173-10177	5	5,370.00	0.9000	4,833.000
10168-10172	5	5,369.76	0.8999	4,832.247
10183-10187	5	5,370.28	0.9000	4,833.252
10138-10142	5	5,370.51	0.9000	4,833.459
13293-13297	5	5,372.77	0.9000	4,835.493
10253-10257	5	5,372.60	0.9000	4,835.340
13298-13302	5			

		5,370.79	0.9000	4,833.711
13313-13317	5	5,375.25	0.8999	4,837.187
13303-13307	5	5,370.60	0.9000	4,833.540
13308-13312	5	5,373.10	0.9000	4,835.790
13288-13292	5	5,371.88	0.9000	4,834.692
10228-10232	5	5,369.99	0.9000	4,832.991
10233-10237	5	5,369.27	0.9000	4,832.343
10258-10262	5	5,369.32	0.8999	4,831.851
10443-10447	5	5,370.64	0.9000	4,833.576
10438-10442	5	5,373.73	0.9000	4,836.357
10278-10282	5	5,373.35	0.8999	4,835.477
12043-12047	5	5,391.41	0.9000	4,852.269
12098-12102	5	5,366.61	0.8999	4,829.412
12093-12097	5	5,367.57	0.8999	4,830.276
12023-12027	5	5,320.40	0.8999	4,787.827
11978-11982	5	5,373.59	0.8999	4,835.693
12088-12092	5	5,369.85	0.9000	4,832.865
13113-13117	5	5,369.85	0.9000	4,832.865
13108-13112	5	5,369.48	0.8999	4,831.995
13103-13107	5	5,371.80	0.8999	4,834.082
13123-13127	5	5,369.74	0.9000	4,832.766
13128-13132	5	5,373.79	0.9000	4,836.411
12063-12067	5			

		5,369.66	0.8999	4,832.157
12013-12017	5	5,373.20	0.8999	4,835.342
11813-11817	5	5,374.06	0.9000	4,836.654
11743-11747	5	5,371.08	0.9000	4,833.972
11983-11987	5	5,376.60	0.9000	4,838.940
12068-12072	5	5,370.76	0.8999	4,833.146
13118-13122	5	5,371.50	0.8999	4,833.812
12083-12087	5	5,369.24	0.8999	4,831.779
11998-12002	5	5,371.60	0.9000	4,834.440
10153-10157	5	5,369.58	0.9000	4,832.622
12073-12077	5	5,369.60	0.8998	4,831.566
12028-12032	5	5,372.99	0.9001	4,836.228
10148-10152	5	5,366.45	0.9000	4,829.805
12038-12042	5	5,371.58	0.9000	4,834.422
12003-12007	5	5,370.11	0.9001	4,833.636
12078-12082	5	5,370.78	0.9000	4,833.702
12018-12022	5	5,372.28	0.8999	4,834.514
11988-11992	5	5,371.30	0.9000	4,834.170
10188-10192	5	5,371.29	0.9000	4,834.161
11993-11997	5	5,377.21	0.9000	4,839.489
12053-12057	5	5,377.16	0.9000	4,839.444
10193-10197	5	5,368.88	0.9001	4,832.528
12058-12062	5			

		5,368.87	0.9000	4,831.983
10198-10202	5	5,368.89	0.9000	4,832.001
13283-13287	5	5,370.31	0.8999	4,832.741
13278-13282	5	5,371.48	0.9000	4,834.332
13268-13272	5	5,371.70	0.8999	4,833.992
13033-13037	5	5,371.28	0.9000	4,834.152
13273-13277	5	5,372.99	0.9000	4,835.691
12048-12052	5	5,372.57	0.9000	4,835.313
13028-13032	5	5,371.46	0.9000	4,834.314
13063-13067	5	5,368.90	0.8999	4,831.473
13068-13072	5	5,370.83	0.9000	4,833.747
13083-13087	5	5,369.32	0.9000	4,832.388
13088-13092	5	5,371.70	0.9000	4,834.530
13093-13097	5	5,371.14	0.9000	4,834.026
13133-13137	5	5,375.10	0.9000	4,837.590
13043-13047	5	5,371.35	0.9000	4,834.215
13098-13102	5	5,371.93	0.8999	4,834.199
13138-13142	5	5,372.18	0.9001	4,835.499
13038-13042	5	5,367.40	0.9000	4,830.660
13143-13147	5	5,371.30	0.9000	4,834.170
13048-13052	5	5,372.90	0.9000	4,835.610
13053-13057	5	5,369.64	0.9000	4,832.676
13203-13207	5			

		5,373.19	0.9000	4,835.871
13243-13247	5	5,372.29	0.9000	4,835.061
13188-13192	5	5,372.28	0.9000	4,835.052
13023-13027	5	5,372.66	0.9000	4,835.394
13258-13262	5	5,372.40	0.9001	4,835.697
13163-13167	5	5,370.80	0.8999	4,833.182
13248-13252	5	5,372.00	0.9000	4,834.800
13253-13257	5	5,373.21	0.9000	4,835.889
13073-13077	5	5,370.14	0.9000	4,833.126
13173-13177	5	5,370.85	0.8999	4,833.227
13168-13172	5	5,370.80	0.8999	4,833.182
13198-13202	5	5,371.62	0.9000	4,834.458
13193-13197	5	5,370.30	0.9001	4,833.807
13178-13182	5	5,373.06	0.9000	4,835.754
2064	5	5,624.96	0.8998	5,061.057
13618	5	5,739.39	0.9000	5,165.451
13617	5	5,708.04	0.8998	5,135.808
13611	6	5,832.74	0.8998	5,248.007
13616	5	5,827.22	0.9000	5,244.498
13615	5	5,730.19	0.9000	5,157.171
13628	5	5,680.64	0.8998	5,111.155
13622	5	5,652.91	0.8998	5,086.205
2069	6			

		5,970.17	0.9000	5,373.153
7289	5	5,823.84	0.8998	5,240.000
2065	5	5,849.89	0.8998	5,263.438
2062	5	5,791.99	0.8995	5,209.895
13635	3	2,880.84	0.8998	2,592.035
2063	5	5,846.87	0.8998	5,260.721
7284	5	5,624.48	0.8998	5,060.625
7288	5	5,614.82	0.8995	5,050.530
7272	5	5,827.43	0.8998	5,243.230
13634	4	4,195.05	0.8998	3,774.496
7297	5	5,665.61	0.8998	5,097.632
10060	2	2,299.24	0.9164	2,107.023
10060	4	4,603.65	0.9165	4,219.245
13888-13892	5	5,364.40	0.9000	4,827.960
09373-09377	5	5,368.95	0.9000	4,832.055
13993-13997	5	5,370.63	0.8999	4,833.029
12008-12012	5	5,373.69	0.9000	4,836.321
10158-10162	5	5,367.00	0.9000	4,830.300
13058-13062	5	5,374.05	0.9000	4,836.645
09343-09347	5	5,369.33	0.9001	4,832.933
13653-13657	5	5,329.54	0.9000	4,796.586
13738-13742	5	5,369.81	0.9000	4,832.829
10478-10482	5			

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		5,364.77	0.9001	4,828.829
14708-14712	5	5,369.33	0.9000	4,832.397
13623	5	5,549.70	0.8998	4,993.342
14688-14692	5	5,370.16	0.8999	4,832.606
5321	5	4,806.19	0.8995	4,323.167
13630	5	5,701.56	0.8998	5,129.978
5320	6	6,309.02	0.8995	5,674.963
5883	7	6,772.70	0.8998	6,093.736
09588-09592	5	5,369.94	0.8999	4,832.409
2071	6	5,900.92	0.8998	5,309.352
10448-10452	5	5,373.19	0.8999	4,835.333
10523-10527	5	5,371.09	0.9001	4,834.518
14683-14687	5	5,370.68	0.8999	4,833.074
01260-01262	3	4,424.84	0.8999	3,981.913
01365-01370	6	6,742.40	0.9000	6,068.160
09328-09332	5	5,373.28	0.8999	4,835.414
14783-14787	5	5,371.15	0.8999	4,833.497
00231-00235	5	4,880.55	0.9166	4,473.512
12213-12217	5	5,370.31	0.8999	4,832.741
12773-12777	5	5,367.39	0.9000	4,830.651
12278-12282	5	5,371.07	0.9000	4,833.963
09908-09912	5	5,372.42	0.9000	4,835.178
12233-12237	5			

		5,368.68	0.9000	4,831.812
09793-09797	5	5,371.09	0.9000	4,833.981
12428-12432	5	5,373.88	0.8999	4,835.954
14331	5	5,710.82	0.8998	5,138.310
14581	6	6,934.92	0.9000	6,241.428
14528	7	7,092.48	0.8998	6,381.458
11698-11702	5	5,371.84	0.8999	4,834.118
12488-12492	5	5,369.18	0.9000	4,832.262
09938-09942	5	5,369.85	0.9000	4,832.865
11763-11767	5	5,374.34	0.9000	4,836.906
13238-13242	5	5,372.63	0.9000	4,835.367
13153-13157	5	5,370.41	0.8999	4,832.831
13148-13152	5	5,372.82	0.9000	4,835.538
09918-09922	5	5,371.23	0.9000	4,834.107
14078-14082	5	5,372.38	0.8999	4,834.604
12373-12377	5	5,371.47	0.9000	4,834.323
14173-14177	5	5,376.89	0.9000	4,839.201
10208-10212	5	5,370.98	0.8999	4,833.344
00389-00391	3	3,847.46	0.9166	3,526.581
14243-14247	5	5,369.04	0.9000	4,832.136
15173-15177	5	5,370.71	0.9000	4,833.639
14938-14942	5	5,371.64	0.9000	4,834.476
10307-10312	6			

		6,416.00	0.9166	5,880.905
14233-14237	5	5,371.38	0.9000	4,834.242
14008-14012	5	5,372.52	0.8999	4,834.730
15133-15137	5	5,371.36	0.9000	4,834.224
09523-09527	5	5,487.48	0.9000	4,938.732
SA690	66	6,952.22	0.3598	2,501.061
SA696	66	6,958.12	0.3600	2,504.923
SA689	65	6,844.75	0.3590	2,457.265
SA695	67	6,935.95	0.3610	2,503.877
SA679	63	6,769.33	0.3600	2,436.958
SA677	65	6,939.87	0.3603	2,500.088
SA673	66	6,942.58	0.3588	2,490.650
SA678	65	6,942.40	0.3603	2,500.999
SA649	68	6,983.19	0.3603	2,515.694
SA655	65	6,936.29	0.3590	2,490.128
SA650	66	6,963.00	0.3608	2,511.902
SA654	66	7,043.40	0.3605	2,539.145
SA700	68	7,179.90	0.3593	2,579.379
SA698	66	7,017.43	0.3603	2,528.029
SA699	64	6,777.98	0.3603	2,441.767
SA697	65	6,872.98	0.3598	2,472.554
SA706	66	6,992.95	0.3610	2,524.454
SA707	65			

		6,910.99	0.3615	2,498.322
SA705	65	6,926.79	0.3600	2,493.644
SA709	65	6,949.75	0.3600	2,501.910
SA668	67	7,012.05	0.3608	2,529.597
SA669	65	6,944.94	0.3610	2,507.123
SA670	65	6,943.65	0.3608	2,504.921
SA671	66	6,982.88	0.3595	2,510.345
SA653	64	6,913.97	0.3600	2,489.029
SA656	65	6,937.17	0.3603	2,499.115
SA651	63	6,795.34	0.3615	2,456.515
SA652	65	6,970.46	0.3610	2,516.336
SA681	64	6,790.13	0.3593	2,439.354
SA682	68	7,091.97	0.3595	2,549.563
SA683	67	6,990.55	0.3598	2,514.850
SA684	66	6,933.92	0.3603	2,497.944
SA632	70	6,911.01	0.3618	2,500.057
SA626	69	6,890.98	0.3608	2,485.921
SA625	70	7,020.68	0.3620	2,541.486
SA627	71	6,897.58	0.3598	2,481.404
SA607	68	6,960.07	0.3620	2,519.545
SA608	67	6,971.90	0.3603	2,511.626
SA601	65	6,833.82	0.3595	2,456.758
SA602	67			

		6,938.55	0.3610	2,504.816
SA687	66	6,874.31	0.3610	2,481.625
SA685	68	7,084.35	0.3618	2,562.763
SA688	67	6,940.09	0.3630	2,519.252
SA686	68	6,939.58	0.3598	2,496.513
SA721	67	6,921.75	0.3598	2,490.099
SA722	67	6,911.35	0.3588	2,479.446
SA726	68	6,973.00	0.3600	2,510.280
SA725	67	6,880.00	0.3608	2,481.960
SA614	70	7,009.21	0.3620	2,537.334
SA613	69	6,862.91	0.3628	2,489.520
SA616	69	6,922.45	0.3620	2,505.926
SA615	69	6,917.18	0.3618	2,502.289
SA728	68	6,977.87	0.3600	2,512.033
SA727	70	6,960.35	0.3605	2,509.206
SA724	68	6,982.91	0.3608	2,519.084
SA723	68	6,995.64	0.3605	2,521.928
SA646	68	6,942.04	0.3600	2,499.134
SA648	68	7,019.07	0.3613	2,535.639
SA647	69	7,023.20	0.3610	2,535.375
SA641	67	6,879.70	0.3618	2,488.731
SA640	68	6,977.00	0.3615	2,522.185
SA634	69			

		7,074.90	0.3590	2,539.889
SA636	69	7,028.77	0.3610	2,537.385
SA635	68	6,855.78	0.3595	2,464.652
SA714	65	7,065.15	0.3593	2,538.155
SA713	64	6,916.98	0.3603	2,491.842
SA717	67	6,966.80	0.3605	2,511.531
SA716	67	6,962.12	0.3600	2,506.363
SA710	64	6,837.55	0.3605	2,464.936
SA708	65	6,935.63	0.3618	2,508.964
SA711	66	7,025.19	0.3603	2,530.824
SA712	66	7,072.30	0.3595	2,542.491
SA606	69	6,997.50	0.3618	2,531.345
SA605	71	6,989.58	0.3598	2,514.501
SA604	70	6,963.43	0.3608	2,512.057
SA603	68	6,897.87	0.3590	2,476.335
SA639	70	6,993.10	0.3603	2,519.264
SA638	67	6,938.94	0.3605	2,501.487
SA633	69	6,999.82	0.3618	2,532.184
SA618	70	6,941.23	0.3580	2,484.960
SA621	65	6,809.17	0.3605	2,454.705
SA620	70	6,986.70	0.3618	2,527.438
SA701	66	6,927.40	0.3600	2,493.864
SA703	66			

		6,968.05	0.3585	2,498.045
SA702	66	6,900.34	0.3585	2,473.771
SA704	66	7,047.00	0.3603	2,538.681
SA680	68	7,224.12	0.3605	2,604.295
SA674	65	7,007.72	0.3610	2,529.786
SA676	66	6,949.77	0.3605	2,505.392
SA675	65	7,003.17	0.3580	2,507.134
SA730	68	6,969.04	0.3608	2,514.081
SA729	67	6,929.05	0.3608	2,499.654
SA731	67	6,895.23	0.3595	2,478.835
SA732	69	7,067.00	0.3610	2,551.187
SA691	64	6,741.01	0.3610	2,433.504
SA693	66	7,005.85	0.3608	2,527.360
SA692	66	6,981.94	0.3605	2,516.989
SA694	66	6,936.05	0.3608	2,502.180
SA619	69	7,003.75	0.3615	2,531.855
SA624	67	6,831.37	0.3618	2,471.248
SA623	69	6,903.24	0.3635	2,509.327
SA622	69	6,970.45	0.3625	2,526.788
SA749	69	6,967.42	0.3620	2,522.206
SA748	69	6,957.15	0.3580	2,490.659
SA663	66	6,979.36	0.3613	2,521.293
SA657	66			

		6,995.58	0.3608	2,523.655
SA664	64	6,821.25	0.3600	2,455.650
SA658	66	6,991.47	0.3593	2,511.685
SA659	66	6,733.43	0.3653	2,459.385
SA660	65	6,928.05	0.3608	2,499.294
SA662	69	6,989.57	0.3653	2,552.940
SA661	66	6,968.35	0.3593	2,503.379
SA665	66	7,111.72	0.3600	2,560.219
SA672	66	7,023.78	0.3598	2,526.804
SA666	65	6,982.73	0.3600	2,513.782
SA667	65	6,968.75	0.3628	2,527.914
SA737	68	6,969.32	0.3588	2,500.243
SA742	72	7,134.53	0.3595	2,564.863
SA741	69	6,843.23	0.3598	2,461.851
SA740	69	6,967.04	0.3580	2,494.200
SA734	67	6,768.48	0.3608	2,441.729
SA733	68	6,976.88	0.3610	2,518.653
SA736	69	7,075.38	0.3588	2,538.292
SA735	67	6,808.58	0.3633	2,473.216
SA612	69	7,008.25	0.3610	2,529.978
SA611	69	6,966.24	0.3608	2,513.071
SA609	68	6,961.43	0.3610	2,513.076
SA610	68			

		6,912.35	0.3625	2,505.726
SA644	68	6,944.89	0.3598	2,498.424
SA643	69	7,051.00	0.3608	2,543.648
SA642	67	6,971.85	0.3603	2,511.608
SA645	69	6,963.04	0.3613	2,515.398
SA631	71	6,917.82	0.3600	2,490.415
SA629	69	6,921.53	0.3598	2,490.020
SA630	67	6,938.16	0.3600	2,497.737
SA628	68	7,032.59	0.3610	2,538.764
SA743	69	6,986.87	0.3600	2,515.273
SA744	70	7,006.59	0.3613	2,531.130
SA739	69	6,951.18	0.3585	2,491.998
SA738	69	7,006.63	0.3555	2,490.856
SA715	67	6,951.60	0.3605	2,506.051
SA720	68	6,984.94	0.3610	2,521.563
SA719	67	6,899.36	0.3608	2,488.944
SA718	67	6,995.82	0.3613	2,527.239
SA747	69	6,944.58	0.3613	2,508.729
SA746	71	7,016.64	0.3608	2,531.252
SA745	69	6,867.42	0.3615	2,482.572
SA750	68	6,969.37	0.3608	2,514.200
1239	50	5,334.56	0.3603	1,921.775
1240	50			

		5,290.85	0.3598	1,903.383
1237	50	5,416.68	0.3605	1,952.713
1238	50	5,364.05	0.3605	1,933.740
1241	48	5,258.02	0.3598	1,891.572
1242	49	5,269.74	0.3613	1,903.693
1243	49	5,433.70	0.3613	1,962.924
1244	51	5,469.58	0.3595	1,966.314
1229	50	5,404.12	0.3598	1,944.132
1230	49	5,389.90	0.3598	1,939.016
1231	50	5,406.15	0.3590	1,940.807
1232	48	5,240.07	0.3603	1,887.735
1227	49	5,333.68	0.3603	1,921.458
1228	48	5,290.97	0.3603	1,906.071
1225	49	5,353.85	0.3615	1,935.416
1226	49	5,448.67	0.3628	1,976.505
1250	49	5,302.57	0.3593	1,904.948
1252	50	5,400.71	0.3590	1,938.854
1249	48	5,339.61	0.3613	1,928.934
1251	47	5,205.17	0.3605	1,876.463
1255	48	5,388.24	0.3603	1,941.113
1256	49	5,373.91	0.3595	1,931.920
1253	49	5,477.47	0.3610	1,977.366
1254	50			

		5,350.12	0.3600	1,926.043
1275	51	5,444.99	0.3613	1,967.002
1273	49	5,291.13	0.3625	1,918.034
1276	50	5,410.50	0.3615	1,955.895
1257	47	5,283.25	0.3620	1,912.536
1260	49	5,331.97	0.3603	1,920.842
1259	50	5,379.20	0.3603	1,937.856
1258	50	5,430.12	0.3600	1,954.843
1291	51	5,322.81	0.3615	1,924.195
1292	53	5,482.62	0.3595	1,971.001
1289	51	5,351.03	0.3623	1,938.410
1290	52	5,317.61	0.3543	1,883.763
1279	51	5,337.28	0.3603	1,922.755
1280	53	5,538.68	0.3610	1,999.463
1277	50	5,334.77	0.3608	1,924.518
1113	50	5,510.60	0.3593	1,979.683
1115	48	5,288.50	0.3608	1,907.826
1114	49	5,352.37	0.3595	1,924.177
1116	49	5,375.39	0.3615	1,943.203
1173	47	5,189.78	0.3628	1,882.592
1174	48	5,326.15	0.3580	1,906.761
1175	50	5,415.44	0.3563	1,929.250
1176	50			

		5,455.31	0.3583	1,954.364
1218	50	5,324.05	0.3603	1,917.989
1217	51	5,472.91	0.3603	1,971.615
1219	50	5,359.02	0.3620	1,939.965
1220	51	5,509.15	0.3603	1,984.671
1215	49	5,157.58	0.3600	1,856.728
1213	50	5,421.78	0.3608	1,955.907
1214	48	5,173.16	0.3593	1,858.457
1216	51	5,422.52	0.3595	1,949.395
1193	50	5,049.57	0.3560	1,797.646
1195	51	5,569.72	0.3593	2,000.921
1194	49	5,215.89	0.3590	1,872.504
1196	52	5,601.91	0.3283	1,838.826
1265	50	5,432.15	0.3613	1,962.364
1266	51	5,458.06	0.3595	1,962.172
1267	50	5,442.01	0.3625	1,972.728
1268	48	5,274.10	0.3590	1,893.401
1271	50	5,439.56	0.3605	1,960.961
1272	49	5,292.55	0.3625	1,918.549
1269	49	5,301.56	0.3583	1,899.283
1270	49	5,368.56	0.3605	1,935.365
1221	50	5,332.23	0.3610	1,924.935
1222	49			

		5,319.12	0.3595	1,912.223
1223	49	5,311.60	0.3603	1,913.503
1224	47	5,178.16	0.3603	1,865.432
1235	50	5,406.57	0.3603	1,947.716
1236	50	5,419.20	0.3595	1,948.202
1234	50	5,449.14	0.3593	1,957.603
1233	49	5,327.50	0.3608	1,921.895
1281	52	5,346.43	0.3610	1,930.061
1282	52	5,400.96	0.3600	1,944.345
1283	53	5,448.93	0.3588	1,954.803
1284	51	5,354.57	0.3598	1,926.306
1211	49	5,342.99	0.3593	1,919.469
1212	50	5,423.44	0.3595	1,949.726
1209	50	5,405.23	0.3590	1,940.477
1210	49	5,341.95	0.3618	1,932.450
1199	49	5,255.52	0.3630	1,907.753
1197	49	5,331.45	0.3583	1,909.991
1198	48	5,202.75	0.3605	1,875.591
1189	50	5,350.60	0.3608	1,930.228
1191	53	5,432.42	0.3685	2,001.846
1192	47	5,007.70	0.3805	1,905.429
1159	50	5,457.60	0.3580	1,953.820
1160	49			

		5,384.60	0.3598	1,937.109
1157	47	5,070.75	0.3543	1,796.313
1158	47	5,133.38	0.3645	1,871.117
1138	48	5,307.88	0.3615	1,918.798
1140	49	5,423.90	0.3595	1,949.892
1137	51	5,442.54	0.3613	1,966.117
1139	52	5,468.10	0.3615	1,976.718
1287	51	5,277.40	0.3600	1,899.864
1288	50	5,258.55	0.3600	1,893.078
1285	50	5,341.45	0.3613	1,929.598
1286	51	5,369.68	0.3603	1,934.427
1117	48	5,272.30	0.3615	1,905.936
1118	47	5,188.60	0.3643	1,889.947
1119	48	5,281.20	0.3613	1,907.833
1247	49	5,418.25	0.3615	1,958.697
1245	48	5,334.82	0.3613	1,927.203
1248	50	5,430.71	0.3610	1,960.486
1246	48	5,248.55	0.3633	1,906.535
1263	49	5,294.14	0.3615	1,913.831
1261	49	5,374.05	0.3620	1,945.406
336	79	7,184.69	0.9060	6,509.329
299	75	6,945.70	0.8975	6,233.765
298	64			

		6,030.30	0.9128	5,504.156
300	67	6,405.53	0.9048	5,795.403
301	73	6,614.32	0.9113	6,027.299
342	70	6,516.10	0.9018	5,875.893
343	71	6,664.77	0.9023	6,013.288
345	71	6,480.58	0.9025	5,848.723
344	67	6,144.83	0.9013	5,538.028
GA132	75	6,583.44	0.9200	6,056.764
GA131	75	6,727.27	0.9270	6,236.179
GA130	75	6,719.95	0.9320	6,262.993
GA129	75	6,013.00	0.9253	5,563.528
311	83	6,887.34	0.9135	6,291.585
312	77	6,302.45	0.9125	5,750.985
280	71	6,942.14	0.9060	6,289.578
313	67	6,523.88	0.9093	5,931.837
GA140	75	6,505.16	0.9270	6,030.283
GA139	75	6,632.88	0.9228	6,120.490
GA138	68	5,662.27	0.9248	5,236.184
GA137	75	5,789.98	0.9268	5,365.863
282	73	7,032.75	0.9125	6,417.384
281	69	6,708.56	0.9125	6,121.561
GA145	75	6,461.15	0.9148	5,910.336
GA146	75			

		7,132.13	0.9173	6,541.946
GA147	75	6,419.13	0.9108	5,846.222
GA148	75	6,744.82	0.9018	6,082.141
341	80	7,850.27	0.9083	7,130.007
339	72	6,691.18	0.9093	6,083.955
338	77	6,746.83	0.9000	6,072.147
GA136	75	6,146.65	0.9205	5,657.991
GA135	75	6,934.45	0.9100	6,310.349
GA134	75	6,627.07	0.9113	6,038.917
GA133	75	6,742.17	0.9125	6,152.230
303	77	7,015.48	0.9038	6,340.240
302	73	6,761.15	0.9118	6,164.478
304	75	6,952.70	0.9035	6,281.764
305	74	6,793.17	0.9150	6,215.750
309	73	6,945.03	0.9065	6,295.669
310	79	6,659.92	0.9060	6,033.887
308	72	7,094.12	0.9073	6,436.140
307	73	7,110.57	0.9075	6,452.842
315	70	6,432.43	0.9005	5,792.403
328	70	6,537.72	0.9053	5,918.271
327	70	6,949.08	0.9120	6,337.560
GA141	75	7,065.12	0.9213	6,508.741
GA142	75			

		6,232.99	0.9223	5,748.375
GA143	77	6,823.87	0.9068	6,187.544
GA144	75	7,128.63	0.9190	6,551.210
333	73	6,955.74	0.9018	6,272.338
316	72	6,497.78	0.9008	5,852.875
332	72	6,809.78	0.9028	6,147.528
331	73	6,785.89	0.9060	6,148.016
319	76	6,853.73	0.9065	6,212.906
320	79	7,081.20	0.9055	6,412.026
318	78	6,921.70	0.9063	6,272.790
317	76	6,545.49	0.9018	5,902.395
G507	72	6,609.78	0.9058	5,986.808
G504	70	6,593.65	0.9065	5,977.143
356	76	6,898.60	0.9103	6,279.450
1026	78	7,587.70	0.9148	6,940.848
1028	81	7,637.40	0.9003	6,875.569
1027	76	7,616.70	0.9038	6,883.592
1025	81	7,576.20	0.9090	6,886.765
1005	78	7,722.80	0.9190	7,097.253
1007	76	7,569.50	0.9190	6,956.370
1006	72	7,441.50	0.9235	6,872.225
1008	76	7,409.75	0.9035	6,694.709
1022	75			

		7,376.70	0.9068	6,688.822
1023	78	7,451.80	0.9030	6,728.975
1024	79	7,576.50	0.9045	6,852.944
1021	75	7,428.80	0.9208	6,840.067
1033	75	7,447.95	0.9115	6,788.806
1035	78	7,501.25	0.9148	6,861.768
1036	78	7,452.35	0.9158	6,824.489
1034	76	7,334.40	0.9045	6,633.964
1029	76	7,370.50	0.9033	6,657.404
1030	81	7,485.00	0.9048	6,772.053
1032	82	7,621.65	0.9015	6,870.917
1031	77	7,503.65	0.9060	6,798.306
1004	74	7,375.35	0.9185	6,774.258
1002	75	7,697.85	0.9190	7,074.324
1001	74	7,176.00	0.9203	6,603.714
1003	75	7,404.10	0.9190	6,804.367
1013	81	7,728.05	0.9210	7,117.534
1015	77	7,421.90	0.9040	6,709.397
1016	80	7,633.70	0.9040	6,900.864
1014	79	7,475.90	0.9213	6,887.172
1020	79	7,484.90	0.9190	6,878.623
1018	74	7,477.60	0.9185	6,868.175
1017	72			

		7,295.80	0.9208	6,717.607
1019	77	7,548.10	0.9198	6,942.364
1009	74	7,518.75	0.9173	6,896.573
1012	71	7,290.40	0.9223	6,723.571
1011	76	7,494.50	0.9218	6,908.055
1010	76	7,404.45	0.9168	6,788.029
1037	76	7,481.95	0.9240	6,913.321
1039	79	7,478.70	0.9135	6,831.792
1040	81	7,592.55	0.9135	6,935.794
1038	76	7,579.50	0.9238	7,001.563
1051	83	8,022.10	0.9105	7,304.122
1049	78	7,825.60	0.9123	7,138.903
1050	83	7,876.90	0.9098	7,166.009
1052	93	8,123.60	0.9118	7,406.692
1062	85	8,059.10	0.9118	7,347.884
1064	84	7,959.30	0.9080	7,227.044
1063	85	7,948.80	0.9030	7,177.766
1061	87	7,808.10	0.9118	7,119.035
1056	88	8,006.85	0.9083	7,272.221
1054	89	8,005.40	0.9113	7,294.920
1053	86	8,039.75	0.9113	7,326.222
1055	89	7,938.50	0.9073	7,202.204
1043	84			

		7,877.45	0.9130	7,192.111
1041	83	7,904.35	0.9145	7,228.528
1042	83	7,837.90	0.9115	7,144.245
1044	85	8,282.05	0.9180	7,602.921
1059	87	7,992.00	0.9180	7,336.656
1057	87	7,861.80	0.9203	7,234.821
1058	88	8,066.40	0.9193	7,415.038
1060	84	8,017.60	0.9123	7,314.055
1066	86	8,014.50	0.9203	7,375.343
1068	88	7,941.80	0.9048	7,185.343
1067	86	7,980.40	0.9063	7,232.237
1065	87	8,040.55	0.9115	7,328.961
1045	84	7,960.90	0.9053	7,206.604
1048	82	8,139.15	0.9115	7,418.835
1047	79	7,965.40	0.9223	7,346.090
1046	80	7,856.75	0.9225	7,247.851
1069	91	8,072.05	0.9240	7,458.574
1071	82	7,916.55	0.9228	7,304.996
1070	87	7,964.95	0.9183	7,313.815
1072	85	8,002.85	0.9175	7,342.614
1138	87	8,047.40	0.9145	7,359.347
1137	91	7,987.05	0.9155	7,312.144
1112	85			

		8,045.70	0.9125	7,341.701
1110	90	8,019.35	0.9125	7,317.656
1109	87	8,004.45	0.9105	7,288.051
1111	84	7,972.60	0.9088	7,245.100
1099	83	7,949.35	0.9110	7,241.857
1097	85	8,128.30	0.9058	7,362.207
1098	87	8,038.45	0.9085	7,302.931
1100	84	8,025.55	0.9055	7,267.135
1107	88	7,983.85	0.9128	7,287.259
1105	86	8,016.20	0.9100	7,294.742
1106	86	7,890.00	0.9108	7,185.817
1108	88	8,029.80	0.9093	7,301.095
1114	82	7,944.70	0.9118	7,243.580
1116	84	8,035.80	0.9118	7,326.640
1115	83	7,983.40	0.9128	7,286.848
1113	82	7,966.70	0.9110	7,257.663
1121	91	7,877.90	0.9095	7,164.950
1122	91	8,041.60	0.9123	7,335.949
1123	89	7,966.40	0.9165	7,301.205
1124	83	7,991.25	0.9163	7,321.982
1125	85	8,008.25	0.9193	7,361.583
1126	83	7,963.65	0.9165	7,298.685
1127	84			

		8,036.45	0.9188	7,383.488
1128	84	7,966.95	0.9145	7,285.775
1129	90	7,934.00	0.9205	7,303.247
1130	91	7,964.25	0.9165	7,299.235
1132	87	8,032.20	0.9165	7,361.511
1089	81	8,010.40	0.9105	7,293.469
1090	83	7,968.40	0.9133	7,277.141
1092	83	7,984.40	0.9188	7,335.667
1083	85	7,941.05	0.9120	7,242.237
1084	88	7,999.20	0.9085	7,267.273
1082	89	8,073.55	0.9178	7,409.500
1101	84	7,867.70	0.9080	7,143.871
1103	83	7,914.30	0.9113	7,211.905
1104	85	8,035.60	0.9105	7,316.413
1102	87	8,030.25	0.9080	7,291.467
1118	80	8,002.40	0.9098	7,280.183
1120	79	7,942.95	0.9113	7,238.013
1119	82	7,987.15	0.9115	7,280.287
1117	82	7,988.15	0.9108	7,275.207
1085	86	8,016.45	0.9038	7,244.866
1087	83	7,999.65	0.9123	7,297.680
1088	84	7,996.70	0.9120	7,292.990
1086	82			

		7,941.85	0.9070	7,203.257
1135	86	7,988.20	0.9160	7,317.191
1134	85	7,984.15	0.9188	7,335.437
1133	84	7,951.15	0.9165	7,287.228
1136	87	7,959.60	0.9145	7,279.054
1074	85	7,874.45	0.9170	7,220.870
1075	89	8,074.45	0.9055	7,311.414
1076	86	8,016.00	0.9145	7,330.632
1073	85	8,011.10	0.9203	7,372.214
1096	83	7,729.00	0.9053	6,996.677
1094	82	8,026.00	0.9215	7,395.959
1093	82	7,965.10	0.9123	7,266.162
1095	81	8,005.10	0.9043	7,238.611
1078	86	7,975.60	0.9163	7,307.643
1080	85	7,990.30	0.9165	7,323.109
1079	87	7,985.10	0.9153	7,308.362
1077	86	8,094.00	0.9163	7,416.127
GA12	75	6,761.62	0.9423	6,371.136
GA11	78	7,050.32	0.9390	6,620.250
GA9	72	6,228.45	0.9320	5,804.915
GA10	75	6,880.12	0.9393	6,462.152
GA25	76	7,387.57	0.9573	7,071.751
GA26	81			

		7,833.63	0.9543	7,475.241
GA27	95	8,774.55	0.9503	8,338.016
GA28	75	7,259.21	0.9393	6,818.212
GA33	76	6,838.30	0.9165	6,267.301
GA34	76	6,909.17	0.9150	6,321.890
GA35	86	7,850.94	0.9115	7,156.131
GA36	71	6,442.40	0.9095	5,859.362
GA21	71	6,019.85	0.9443	5,684.243
GA22	57	4,755.67	0.9483	4,509.564
GA23	76	7,075.85	0.9390	6,644.223
GA24	69	6,358.01	0.9543	6,067.131
GA16	82	7,064.35	0.9555	6,749.986
GA15	75	6,640.86	0.9585	6,365.264
GA14	87	7,897.00	0.9583	7,567.300
GA13	72	6,517.70	0.9505	6,195.073
GA17	76	6,641.05	0.9463	6,284.093
GA20	75	6,319.40	0.9465	5,981.312
GA18	73	6,028.70	0.9540	5,751.379
GA19	75	6,449.70	0.9475	6,111.090
GA92	76	7,050.76	0.9440	6,655.917
GA91	79	7,427.62	0.9448	7,017.243
GA90	76	6,851.38	0.9468	6,486.544
GA89	79			

		7,403.45	0.9430	6,981.453
GA4	74	6,859.99	0.9608	6,590.735
GA3	75	6,522.45	0.9620	6,274.596
GA1	70	6,752.50	0.9593	6,477.335
GA2	39	3,505.84	0.9640	3,379.629
GA5	75	6,623.15	0.9518	6,303.583
GA6	57	4,906.90	0.9428	4,625.979
GA7	75	6,850.97	0.9355	6,409.082
GA8	68	6,144.42	0.9345	5,741.960
GA57	75	6,709.73	0.9225	6,189.725
GA58	81	7,402.55	0.9210	6,817.748
GA59	76	6,665.65	0.9248	6,164.059
GA32	75	6,433.48	0.9113	5,862.508
GA31	72	6,977.27	0.9233	6,441.764
GA30	75	6,863.74	0.9188	6,306.061
GA29	77	7,335.65	0.9425	6,913.850
GA64	76	6,156.20	0.9338	5,748.351
GA62	75	6,884.45	0.9268	6,380.164
GA63	65	5,809.55	0.9313	5,410.143
GA61	84	7,821.93	0.9313	7,284.172
GA53	97	8,386.20	0.9220	7,732.076
GA54	76	6,372.79	0.9218	5,874.119
GA55	71			

		6,259.48	0.9180	5,746.202
GA56	88	7,644.08	0.9188	7,022.998
GA73	65	6,145.75	0.9265	5,694.037
GA74	75	6,625.63	0.9413	6,236.374
GA75	76	6,949.26	0.9413	6,540.990
GA76	75	6,789.34	0.9378	6,366.703
GA112	66	5,925.65	0.9150	5,421.969
GA111	77	6,920.96	0.9215	6,377.664
GA110	76	6,571.75	0.9205	6,049.295
GA109	71	6,145.50	0.9213	5,661.541
GA124	81	7,007.13	0.8628	6,045.401
GA122	75	6,846.03	0.9150	6,264.117
GA121	73	6,256.40	0.9193	5,751.195
GA123	76	6,790.25	0.9098	6,177.429
GA101	75	7,085.00	0.9158	6,488.088
GA103	74	6,422.53	0.9060	5,818.812
GA104	85	7,866.45	0.9088	7,148.636
GA80	76	7,016.05	0.9235	6,479.322
GA79	80	7,246.12	0.9080	6,579.476
GA78	76	7,142.27	0.9070	6,478.038
GA77	79	7,512.86	0.9185	6,900.561
GA44	75	6,138.38	0.9138	5,608.944
GA43	75			

		7,144.95	0.9278	6,628.727
GA42	76	7,067.21	0.9283	6,560.137
GA41	81	7,647.48	0.9208	7,041.417
GA84	76	6,933.08	0.9398	6,515.361
GA83	65	5,893.83	0.9305	5,484.208
GA82	76	7,262.29	0.9305	6,757.560
GA81	77	6,949.61	0.9315	6,473.561
GA85	76	7,028.50	0.9363	6,580.433
GA86	76	7,012.67	0.9383	6,579.637
GA88	75	7,074.49	0.9423	6,665.938
GA87	76	6,989.94	0.9440	6,598.503
GA105	76	6,808.49	0.9175	6,246.789
GA106	76	7,001.94	0.9153	6,408.525
GA107	76	6,607.15	0.9225	6,095.095
GA108	65	5,831.97	0.9183	5,355.206
GA113	86	7,820.29	0.9048	7,075.407
GA114	74	6,535.36	0.9133	5,968.417
GA115	75	6,371.89	0.9135	5,820.721
GA116	73	6,434.10	0.9148	5,885.592
GA40	76	7,399.34	0.9183	6,794.443
GA39	88	7,712.48	0.9103	7,020.284
GA38	76	6,706.47	0.9020	6,049.235
GA37	80			

		7,446.21	0.9058	6,744.404
GA48	95	9,067.27	0.9208	8,348.688
GA47	87	7,552.30	0.9220	6,963.220
GA46	76	6,966.65	0.9198	6,407.576
GA45	79	6,083.35	0.9108	5,540.411
GA49	75	7,284.60	0.9338	6,801.995
GA50	80	7,775.13	0.9355	7,273.634
GA51	95	8,527.21	0.9318	7,945.227
GA52	76	6,476.00	0.9213	5,966.015
GA100	71	6,493.63	0.9178	5,959.528
GA99	82	7,334.73	0.9175	6,729.614
GA97	76	7,047.65	0.9235	6,508.504
GA157	76	6,743.27	0.8990	6,062.199
GA158	69	6,173.61	0.8993	5,551.618
GA159	76	6,402.73	0.9055	5,797.672
GA160	85	7,567.45	0.9050	6,848.542
GA203	70	5,799.64	0.8915	5,170.379
GA202	89	7,095.94	0.8910	6,322.482
GA201	76	6,919.18	0.8980	6,213.423
GA117	80	7,350.99	0.9175	6,744.533
GA118	76	6,760.74	0.9165	6,196.218
GA119	76	6,678.65	0.9145	6,107.625
GA120	80			

		6,901.03	0.9180	6,335.145
GA69	89	7,712.65	0.9128	7,039.721
GA70	75	6,574.30	0.9193	6,043.425
GA71	75	7,556.10	0.9175	6,932.721
GA72	75	6,716.28	0.9255	6,215.917
GA68	88	8,372.95	0.9080	7,602.638
GA67	85	8,057.39	0.9088	7,322.153
GA66	75	7,214.10	0.9188	6,627.954
GA65	81	6,877.50	0.9348	6,428.743
GA93	78	7,257.85	0.9403	6,824.193
GA94	76	6,667.55	0.9335	6,224.157
GA95	85	7,585.03	0.9315	7,065.455
GA96	76	7,153.59	0.9328	6,672.511
GA193	75	6,021.85	0.8988	5,412.137
GA194	76	5,849.30	0.8990	5,258.520
GA195	75	6,565.90	0.9010	5,915.875
GA196	57	4,861.75	0.9213	4,478.887
GA125	77	6,912.00	0.8573	5,925.312
GA126	75	6,901.25	0.8655	5,973.031
GA127	76	6,372.28	0.8738	5,567.779
GA128	75	6,681.15	0.9010	6,019.716
GA311	79	7,297.83	0.9675	7,060.650
GA312	77			

		6,890.30	0.9630	6,635.358
GA313	75	6,682.10	0.9528	6,366.370
GA314	85	7,185.16	0.9610	6,904.938
GA161	83	7,428.49	0.9090	6,752.497
GA162	68	5,821.70	0.9075	5,283.192
GA163	76	6,294.74	0.9060	5,703.034
GA164	76	6,740.60	0.9160	6,174.389
GA156	64	5,293.49	0.9330	4,938.826
GA155	78	6,692.90	0.9368	6,269.574
GA154	73	6,665.70	0.9345	6,229.096
GA318	77	7,109.82	0.9160	6,512.595
GA317	70	6,408.70	0.9388	6,016.167
GA316	84	7,147.10	0.9538	6,816.546
GA315	83	7,321.50	0.9538	6,982.880
GA192	75	6,214.59	0.9053	5,625.757
GA191	75	6,065.65	0.9175	5,565.233
GA190	72	6,139.35	0.9325	5,724.943
GA189	76	6,541.10	0.9318	6,094.669
GA175	57	4,720.65	0.9190	4,338.277
GA173	55	4,562.83	0.9180	4,188.677
GA174	76	6,896.44	0.9160	6,317.139
GA176	75	6,750.05	0.9055	6,112.170
GA197	86			

		7,588.21	0.9208	6,986.844
GA198	76	6,890.05	0.9193	6,333.678
GA199	71	6,296.55	0.9208	5,797.548
GA200	76	6,173.65	0.8923	5,508.439
GA308	75	6,977.60	0.9663	6,742.106
GA307	75	6,757.25	0.9643	6,515.678
GA309	75	7,303.93	0.9648	7,046.466
GA310	80	7,522.12	0.9675	7,277.651
GA165	75	6,643.85	0.9098	6,044.242
GA166	95	8,079.15	0.9105	7,356.066
GA167	70	6,031.70	0.9103	5,490.354
GA168	83	6,772.90	0.9038	6,121.008
GA129	75	6,087.77	0.9110	5,545.958
GA130	76	6,397.37	0.9135	5,843.997
GA131	73	6,281.62	0.9095	5,713.133
GA132	76	6,390.30	0.8963	5,727.306
GA183	70	6,491.90	0.9253	6,006.630
GA184	76	7,177.07	0.9278	6,658.526
GA182	76	6,618.98	0.9245	6,119.247
GA181	72	6,296.10	0.9223	5,806.578
GA169	81	6,533.20	0.9003	5,881.513
GA170	76	6,410.65	0.9028	5,787.214
GA171	84			

		6,915.50	0.9028	6,242.967
GA172	74	6,406.64	0.9153	5,863.677
GA177	74	6,569.30	0.8910	5,853.246
GA178	76	6,364.40	0.8918	5,675.453
GA179	78	6,217.14	0.8935	5,555.014
GA210	75	6,162.85	0.8995	5,543.483
GA209	77	6,649.65	0.9003	5,986.347
GA319	60	5,230.18	0.9163	4,792.152
GA320	38	3,317.29	0.9160	3,038.637
GA137	78	6,633.43	0.8730	5,790.984
GA138	76	6,202.64	0.8600	5,334.270
GA139	75	6,436.94	0.8653	5,569.562
GA140	75	7,018.70	0.8733	6,129.079
GA205	76	6,516.75	0.8928	5,817.828
GA206	74	6,521.95	0.8920	5,817.579
GA207	76	6,215.63	0.8928	5,549.003
GA208	81	6,854.34	0.8963	6,143.202
GA144	74	7,066.45	0.8993	6,354.505
GA143	66	6,120.60	0.8848	5,415.200
GA142	76	6,760.60	0.8830	5,969.609
GA141	66	5,513.35	0.8795	4,848.991
GA133	78	6,502.15	0.8973	5,834.054
GA134	76			

		6,248.60	0.8985	5,614.367
GA135	78	6,752.79	0.8945	6,040.370
GA136	77	6,230.34	0.8835	5,504.505
GA148	67	6,135.40	0.9148	5,612.357
GA147	52	4,292.15	0.9153	3,928.390
GA146	39	3,337.35	0.9115	3,041.994
GA145	82	6,689.83	0.9133	6,109.487
GA185	65	6,154.39	0.9248	5,691.272
GA186	75	6,899.38	0.9288	6,407.799
GA187	64	5,302.70	0.9268	4,914.277
GA188	93	8,551.15	0.9160	7,832.853
GA149	75	6,907.45	0.9273	6,404.933
GA150	75	6,621.48	0.9235	6,114.936
GA151	75	7,179.85	0.9250	6,641.361
GA152	53	4,311.82	0.9265	3,994.901
164	34	3,519.14	0.9098	3,201.537
162	70	7,187.18	0.9305	6,687.670
GS 92	80	8,049.67	0.9178	7,387.584
163	69	7,103.72	0.9308	6,611.787
GS 83	43	4,071.99	0.9130	3,717.726
GS 80	46	4,840.80	0.9225	4,465.638
GS 84	75	7,269.02	0.9368	6,809.254
GS 81	60			

		5,478.80	0.9403	5,151.441
GS 90	60	6,481.29	0.9428	6,110.236
GS 91	39	4,191.12	0.9428	3,951.178
GS 94	42	4,407.77	0.9025	3,978.012
GS 93	77	7,679.19	0.9078	6,970.784
GS 88	76	7,771.18	0.9565	7,433.133
GS 87	78	8,754.30	0.9390	8,220.287
GS 86	75	7,412.60	0.9433	6,991.934
GS 89	71	7,155.68	0.9668	6,917.753
157	77	7,823.34	0.9053	7,082.078
156	62	5,979.00	0.8808	5,266.004
155	65	6,183.04	0.8810	5,447.258
154	75	7,271.39	0.9133	6,640.596
161	63	5,856.45	0.8955	5,244.450
160	70	6,717.18	0.8995	6,042.103
159	70	6,640.52	0.8995	5,973.147
158	76	7,558.09	0.9053	6,841.960
GS 79	73	7,684.42	0.9380	7,207.985
GS 78	78	8,106.34	0.9403	7,621.986
GS 85	45	4,784.73	0.9148	4,376.831
R 500	32	5,541.55	0.9999	5,540.995
R 317	55	8,968.75	0.9995	8,964.265
R 318	49			

		8,135.90	0.9994	8,131.018
R 501	34	5,809.95	0.9999	5,809.369
152	90	8,745.73	0.9045	7,910.512
151	75	7,128.55	0.9000	6,415.695
150	90	8,749.12	0.8810	7,707.974
153	78	7,714.56	0.9140	7,051.107
1262	49	5,366.70	0.3598	1,930.670
1264	49	5,361.75	0.3613	1,936.932
1101	46	5,201.05	0.3593	1,868.477
1102	48	5,210.75	0.3618	1,884.988
1103	48	5,363.75	0.3625	1,944.359
1104	48	5,289.30	0.3620	1,914.726
1133	48	5,223.11	0.3608	1,884.236
1135	50	5,344.84	0.3625	1,937.504
1134	47	5,239.61	0.3620	1,896.738
1136	48	5,322.93	0.3623	1,928.231
1166	46	5,212.48	0.3620	1,886.917
1168	47	5,355.19	0.3608	1,931.884
1165	46	5,109.68	0.3615	1,847.149
1167	48	5,370.08	0.3668	1,969.476
1105	50	5,406.70	0.3623	1,958.577
1106	50	5,439.03	0.3605	1,960.770
1107	48			

		5,280.92	0.3620	1,911.693
1108	50	5,354.73	0.3620	1,938.412
1177	50	5,355.17	0.3585	1,919.828
1179	50	5,372.65	0.3603	1,935.497
1178	50	5,390.56	0.3608	1,944.644
1180	49	5,347.44	0.3613	1,931.762
1297	51	5,314.70	0.3618	1,922.592
1298	50	5,293.40	0.3560	1,884.450
1299	52	5,399.00	0.3610	1,949.039
1300	51	5,437.25	0.3618	1,966.925
1131	49	5,286.10	0.3655	1,932.069
1132	50	5,439.35	0.3603	1,959.525
1129	50	5,388.15	0.3605	1,942.428
1130	49	5,362.35	0.3615	1,938.489
1163	48	5,315.55	0.3573	1,898.980
1164	50	5,382.39	0.3665	1,972.645
1161	48	5,293.02	0.3585	1,897.547
1162	49	5,355.27	0.3638	1,947.979
1151	50	5,253.00	0.3618	1,900.272
1152	49	5,345.25	0.3603	1,925.626
1149	49	5,276.15	0.3583	1,890.180
1150	49	5,343.33	0.3635	1,942.300
1148	48			

		5,296.85	0.3645	1,930.701
1147	50	5,418.52	0.3603	1,952.021
1146	50	5,570.58	0.3588	1,998.445
1125	49	5,272.29	0.3600	1,898.024
1126	49	5,347.02	0.3615	1,932.947
1127	50	5,354.10	0.3610	1,932.830
1128	49	5,302.85	0.3610	1,914.328
1109	47	5,252.49	0.3605	1,893.522
1110	49	5,273.75	0.3595	1,895.913
1111	48	5,372.90	0.3598	1,932.900
1112	49	5,362.15	0.3598	1,929.033
1293	53	5,488.65	0.3640	1,997.868
1296	51	5,381.05	0.3610	1,942.559
1295	49	5,160.93	0.3608	1,861.805
1294	51	5,336.15	0.3588	1,914.343
1123	48	5,280.47	0.3565	1,882.487
1124	49	5,330.10	0.3600	1,918.836
1121	51	5,471.13	0.3588	1,962.767
1122	50	5,388.62	0.3603	1,941.250
1170	47	5,312.43	0.3620	1,923.099
1171	50	5,515.49	0.3565	1,966.272
1169	48	5,321.30	0.3643	1,938.283
1172	48			

		5,414.35	0.3603	1,950.519
1184	50	5,376.55	0.3603	1,936.902
1183	50	5,370.13	0.3588	1,926.534
1182	49	5,257.52	0.3565	1,874.305
1181	48	5,154.59	0.3613	1,862.095
1202	49	5,357.28	0.3603	1,929.960
1204	49	5,389.33	0.3600	1,940.158
1201	49	5,249.37	0.3605	1,892.397
1203	50	5,339.01	0.3593	1,918.039
1156	49	5,350.33	0.3598	1,924.781
1155	50	5,325.02	0.3680	1,959.607
1154	49	5,309.21	0.3605	1,913.970
1153	51	5,430.70	0.3623	1,967.271
1207	48	5,266.55	0.3590	1,890.691
1208	49	5,353.00	0.3603	1,928.418
1205	48	5,249.70	0.3593	1,885.954
1206	49	5,236.15	0.3595	1,882.395
1143	51	5,453.94	0.3605	1,966.145
1141	48	5,189.82	0.3595	1,865.740
1142	47	5,282.56	0.3603	1,903.042
1188	51	5,430.35	0.3605	1,957.641
1187 GA149	51 75	5,370.37	0.3620	1,944.073

		7,143.75	0.9133	6,524.029
GA150	75	6,512.90	0.8993	5,856.725
GA151	75	6,384.36	0.9008	5,750.712
GA152	75	6,628.67	0.9035	5,989.003
270	68	6,442.83	0.9125	5,879.082
289	72	6,829.54	0.9088	6,206.344
291	76	6,980.72	0.9055	6,321.041
290	68	6,364.69	0.9075	5,775.956
353	72	6,845.75	0.9145	6,260.438
352	78	7,002.24	0.9023	6,317.771
350	70	6,470.02	0.9028	5,840.810
351	70	6,327.99	0.9053	5,728.412
266	74	7,231.02	0.9008	6,513.341
267	74	7,162.29	0.9043	6,476.500
269	71	6,698.62	0.9070	6,075.648
268	69	6,675.23	0.9048	6,039.414
347	75	6,899.89	0.9015	6,220.250
349	71	6,521.59	0.9058	5,906.930
348	72	6,530.49	0.9075	5,926.419
346	75	6,946.79	0.9010	6,259.057
297	76	7,055.63	0.9118	6,432.970
296	71	6,393.78	0.9063	5,794.363
292	73			

		6,984.13	0.9110	6,362.542
295	76	6,903.52	0.9113	6,290.832
294	72	6,824.12	0.9113	6,218.479
285	67	6,638.70	0.9108	6,046.196
288	71	7,157.92	0.9020	6,456.443
286	69	6,738.99	0.9075	6,115.633
287	72	7,136.80	0.9010	6,430.256
279	70	6,669.94	0.9090	6,062.975
306	76	6,950.24	0.9118	6,336.881
275	75	7,137.95	0.9015	6,434.861
276	66	6,473.65	0.9050	5,858.653
272	73	7,213.30	0.9085	6,553.283
271	62	6,252.73	0.9145	5,718.121
277	67	6,554.49	0.9148	5,995.719
278	72	7,004.00	0.9100	6,373.640
334	74	6,979.00	0.9075	6,333.442
335	76	7,035.25	0.9058	6,372.177
337	75	7,046.93	0.9028	6,361.616
GA227	75	6,808.70	0.9270	6,311.664
GA225	75	6,733.85	0.9250	6,228.811
GA226	75	6,923.53	0.9280	6,425.035
GA228	75	6,655.32	0.9228	6,141.196
321	76			

		6,883.90	0.9153	6,300.489
322	79	6,917.82	0.9118	6,307.322
324	72	6,459.80	0.9058	5,850.963
323	79	6,946.70	0.9115	6,331.917
326	65	6,664.72	0.9030	6,018.242
325	64	6,690.87	0.9083	6,076.982
330	74	7,018.13	0.9113	6,395.270
329	73	6,977.35	0.9110	6,356.365
358	74	6,695.40	0.9040	6,052.641
359	73	6,606.90	0.9038	5,970.985
360	71	6,506.27	0.9030	5,875.161
354	69	6,450.50	0.9030	5,824.801
355	70	6,672.80	0.9028	6,023.870
SA617	69	6,923.80	0.3568	2,470.065
SA637	68	6,989.05	0.3618	2,528.288
1200	51	5,505.75	0.3598	1,980.693
G505	69	6,303.50	0.9050	5,704.667
G506	65	5,995.05	0.9045	5,422.522
284	68	6,539.60	0.9085	5,941.226
283	63	6,294.30	0.9123	5,741.975
314	68	6,400.27	0.9070	5,805.044
357	76	6,877.55	0.9018	6,201.830
274	73			

		7,023.65	0.9110	6,398.545
273	66	6,370.19	0.9105	5,800.057
293	75	7,079.04	0.9063	6,415.380
GS 82	80	8,078.92	0.9370	7,569.948
340	72	6,397.11	0.9100	5,821.370
1081	87	7,840.84	0.9178	7,195.930
1091	82	8,042.78	0.9140	7,351.100
1131	93	8,011.92	0.9168	7,344.927
GA98	75	7,180.52	0.9138	6,561.200
GA102	75	6,925.61	0.9165	6,347.321
GA60	75	6,735.24	0.9273	6,245.251
GA204	88	7,936.31	0.8903	7,065.299
GA153	78	7,375.79	0.9340	6,888.987
GA180	75	6,850.09	0.9140	6,260.982
1144	48	5,268.41	0.3593	1,892.676
1145	50	5,350.97	0.3585	1,918.322
1185	51	5,477.95	0.3598	1,970.692
1186	52	5,471.45	0.3600	1,969.722
1190	50	5,241.39	0.3613	1,893.452
1278	48	5,100.06	0.3613	1,842.396
1120	50	5,438.69	0.3578	1,945.691
1274	50	5,360.50	0.3628	1,944.521
MM002	22			

		5,341.85	0.5268	2,813.819
MM006	22	5,396.93	0.5145	2,776.720
MM007	22	5,420.38	0.5343	2,895.838
MM016	21	5,373.42	0.5273	2,833.135
5200N	19	3,982.10	0.0413	164.261
MM010	21	5,363.39	0.5320	2,853.323
MM008	21	5,298.40	0.5438	2,881.005
MM009	21	5,209.30	0.5413	2,819.533
1352	13	3,957.75	0.4463	1,766.145
1208	14	3,810.90	0.4490	1,711.094
1176	18	4,616.85	0.4463	2,060.269
1169	13	4,104.17	0.4750	1,949.480
1177	14	3,906.75	0.2865	1,119.283
MM005	23	5,622.88	0.5223	2,936.549
MM013	21	5,414.72	0.5233	2,833.252
MM019	20	5,146.85	0.5120	2,635.187
1353	13	4,018.95	0.4348	1,747.238
1354	13	3,873.08	0.3880	1,502.755
MM014	21	5,390.34	0.5170	2,786.805
1210	12	4,023.40	0.4383	1,763.255
1213	14	3,847.35	0.4468	1,718.803
1214	12	3,861.10	0.4315	1,666.064
1211	15			

		4,008.92	0.4640	1,860.138
1207	13	4,072.00	0.4110	1,673.592
1273	12	3,899.50	0.4650	1,813.267
1272	15	4,782.23	0.4543	2,172.327
1363	14	4,204.74	0.4185	1,759.683
1355	13	4,019.83	0.4545	1,827.012
1366	13	3,919.93	0.4085	1,601.291
1357	12	3,834.27	0.4293	1,645.860
1356	13	4,126.82	0.4603	1,899.368
1365	14	3,964.00	0.3253	1,289.291
1359	13	3,852.14	0.3850	1,483.073
1358	14	4,340.78	0.4055	1,760.186
1430	15	4,278.80	0.3418	1,462.279
1292	6	2,729.85	0.2848	777.324
1433	13	3,478.36	0.3533	1,228.730
1432	13	3,379.07	0.3080	1,040.753
1431	11	3,061.57	0.3440	1,053.180
1380	14	4,425.90	0.4870	2,155.413
1367	13	3,899.35	0.4430	1,727.412
1379	14	4,473.00	0.5138	2,298.003
1209	13	3,931.95	0.4348	1,709.415
1212	11	3,626.38	0.4665	1,691.706
1368	14			

		3,662.65	0.4705	1,723.276
1376	13	4,118.12	0.4168	1,716.226
1377	20	5,345.65	0.4303	2,299.965
1276	13	3,993.00	0.4505	1,798.846
1279	13	4,155.25	0.4125	1,714.040
1278	13	3,846.52	0.4058	1,560.725
1277	12	3,924.68	0.4488	1,761.200
1271	14	4,484.20	0.4680	2,098.605
1162	14	4,137.80	0.4148	1,716.152
1204	14	4,390.78	0.4415	1,938.529
1270	13	4,174.25	0.4583	1,912.850
1269	11	3,340.71	0.4478	1,495.802
1268	11	3,441.05	0.4165	1,433.197
1361	12	3,810.52	0.4910	1,870.965
1362	14	4,133.15	0.3985	1,647.060
1364	13	3,949.28	0.4520	1,785.074
1373	12	3,883.75	0.4888	1,898.182
1205	16	4,309.63	0.4620	1,991.049
1206	17	4,976.17	0.4495	2,236.788
1329	5	2,539.50	0.4900	1,244.355
X0020	6	1,551.77	0.7980	1,238.312
703	18	4,314.83	0.4240	1,829.487
D3247	23			

		5,024.05	0.0220	110.529
1341	14	4,193.88	0.4143	1,737.314
1340	16	5,020.77	0.4463	2,240.518
1339	14	4,099.68	0.3845	1,576.326
1369	13	3,866.65	0.4308	1,665.559
1338	12	3,627.80	0.4323	1,568.116
1370	13	4,085.92	0.4525	1,848.878
1337	14	4,415.02	0.4630	2,044.154
1372	13	3,946.03	0.3923	1,547.830
1371	15	3,951.15	0.4563	1,802.712
D3253	23	4,716.80	0.0220	103.769
D3257	21	4,527.53	0.0220	99.605
D3246	23	4,995.17	0.0220	109.893
D3252	24	4,919.42	0.0220	108.227
MM015	21	5,258.31	0.5343	2,809.252
D3251	24	4,876.57	0.0220	107.284
MM003	22	5,300.62	0.4945	2,621.156
D3254	22	4,683.31	0.0220	103.032
MM018	22	5,620.16	0.5183	2,912.647
MM012	20	5,288.71	0.5190	2,744.840
D3237	22	4,735.35	0.0220	104.177
D3258	21	4,422.43	0.0220	97.293
D3256	22			

		4,759.57	0.0220	104.710
D3238	19	3,975.67	0.0220	87.464
D3240	24	5,046.02	0.0220	111.012
D3255	22	4,739.62	0.0220	104.271
152	17	3,467.90	0.1800	624.222
D3239	24	5,094.76	0.0220	112.084
D3236	22	4,854.90	0.0220	106.807
D3244	23	4,903.80	0.0220	107.883
D3243	23	4,796.92	0.0220	105.532
D3245	23	4,967.92	0.0220	109.294
147	15	2,992.02	0.1950	583.443
127	10	1,883.95	-	-
123	10	1,837.25	-	-
48	18	3,177.05	0.2155	684.654
108	19	3,625.22	0.0005	1.812
113	8	1,600.73	0.0058	9.204
89	15	2,922.92	0.0008	2.192
88	4	628.06	0.0003	0.157
102	17	3,228.00	0.0005	1.614
134	17	3,640.74	0.0023	8.191
D3242	23	4,735.40	0.0220	104.178
1175	14	3,869.83	0.3875	1,499.559
D3249	24			

		5,122.85	0.0220	112.702
D3250	24	5,062.83	0.0220	111.382
1350	13	3,860.75	0.3840	1,482.528
1351	12	3,852.57	0.4253	1,638.305
1181	19	5,295.01	0.3695	1,956.506
1374	15	4,050.54	0.4628	1,874.387
1180	11	2,692.75	0.4435	1,194.234
1179	16	3,870.43	0.4258	1,647.835
36	21	4,316.90	0.2658	1,147.216
35	19	4,632.65	0.4443	2,058.054
MM004	22	5,461.48	0.5310	2,900.045
D3235	23	4,993.82	0.0220	109.864
D3234	24	5,118.70	0.0220	112.611
3	21	6,545.00	0.8890	5,818.505
1160	13	4,035.47	0.4260	1,719.110
1161	13	3,506.03	0.4673	1,638.192
150	15	3,798.50	0.4605	1,749.209
141	20	4,196.35	0.4468	1,874.719
151	12	2,988.38	0.4720	1,410.515
140	24	4,712.83	0.4360	2,054.793
1149	16	4,016.72	0.4248	1,706.101
1150	13	4,331.94	0.4613	1,998.107
1151	13			

		3,911.97	0.4480	1,752.562
1159	17	4,316.85	0.4300	1,856.245
7	23	4,767.03	0.0003	1.191
131	14	2,815.26	0.0003	0.703
132	15	3,023.47	0.0008	2.267
126	19	3,722.67	0.0950	353.653
MM001	41	5,530.15	0.2565	1,418.483
2	15	2,708.04	-	-
145	19	4,804.23	0.4385	2,106.654
146	18	4,725.15	0.4893	2,311.779
MM011	21	5,236.88	0.5348	2,800.421
34	23	4,671.45	0.4070	1,901.280
40	20	4,001.54	0.4465	1,786.687
41	19	3,989.58	0.4278	1,706.542
142	20	3,744.22	0.2240	838.705
144	19	4,866.00	0.4438	2,159.287
138	21	4,496.00	0.4673	2,100.756
33	21	4,957.19	0.4598	2,279.068
1408	9	2,507.27	0.3840	962.791
1413	12	3,531.90	0.3140	1,109.016
696	16	3,714.88	0.3333	1,237.983
695	17	4,505.05	0.4498	2,026.146
697	15			

		3,828.07	0.4393	1,681.479
685	14	3,763.44	0.4095	1,541.128
698	16	3,922.17	0.4120	1,615.934
139	22	4,613.95	0.4520	2,085.505
700	18	4,410.82	0.4428	1,952.890
701	19	4,288.12	0.3530	1,513.706
689	17	4,117.82	0.3890	1,601.831
688	15	3,734.88	0.4015	1,499.554
111	1	165.18	0.0005	0.082
81	2	353.42	0.0003	0.088
X0010	2	345.63	0.5763	199.169
00011	4	703.40	0.2110	148.417
140	1	102.87	0.0003	0.025
X0016	1	251.81	0.5200	130.941
107	2	372.89	0.0003	0.093
139	3	396.88	0.0003	0.099
1	4	768.89	0.0005	0.384
00012	5	1,015.65	0.2818	286.159
6	7	1,369.83	0.0003	0.342
70	13	2,704.08	0.0008	2.028
135	3	960.06	0.0008	0.720
112	1	170.03	0.0005	0.085
90	1			

		193.95	0.0003	0.048
120	2	288.35	0.0003	0.072
97	3	560.24	0.0015	0.840
136	6	1,039.67	0.0050	5.198
129	4	771.93	0.0005	0.385
94	5	961.25	0.0005	0.480
00014	6	1,069.27	0.2078	222.140
X0014	4	1,020.51	0.7760	791.915
X0008	6	1,737.79	0.8420	1,463.219
1289	2	423.19	0.2350	99.449
1287	1	367.50	0.4530	166.477
1378	1	251.66	0.4095	103.054
1288	2	682.85	0.4985	340.400
1327	2	559.80	0.5025	281.299
47	22	4,404.67	0.4680	2,061.385
39	22	4,288.11	0.4620	1,981.106
38	18	3,807.01	0.4555	1,734.093
699	16	4,095.60	0.4480	1,834.828
687	15	3,961.08	0.4105	1,626.023
686	15	3,875.80	0.3698	1,433.077
880	1	115.77	0.0015	0.173
875	1	137.77	0.0010	0.137
890	1			

		128.80	0.0015	0.193
876	1	346.70	0.0005	0.173
864	1	244.10	0.0008	0.183
871	2	421.56	0.0010	0.421
866	1	192.68	0.0005	0.096
867	3	1,178.63	0.0008	0.883
912	4	1,463.52	0.0093	13.537
917	1	280.94	0.0008	0.210
923	2	515.07	0.0005	0.257
926	1	366.43	0.0010	0.366
908	2	303.08	0.0008	0.227
907	2	553.19	0.0003	0.138
906	2	504.82	0.0008	0.378
904	2	659.55	0.0010	0.659
905	1	259.35	0.0083	2.139
903	2	629.24	0.0008	0.471
902	1	195.84	0.0010	0.195
897	2	400.75	0.0008	0.300
898	1	353.73	0.0013	0.442
900	3	954.42	0.0008	0.715
893	2	474.29	0.0005	0.237
894	1	292.67	0.0005	0.146
889	2			

		528.82	0.0005	0.264
886	2	575.23	0.0003	0.143
128	2	322.35	0.0095	3.062
860	14	3,932.06	0.4098	1,611.161
861	9	2,249.23	0.3350	753.492
862	1	206.62	0.3420	70.664
863	1	148.54	0.0120	1.782
916	1	47.78	0.0005	0.023
874	1	44.74	0.0010	0.044
868	1	86.37	0.0005	0.043
1187	5	2,371.55	0.4915	1,165.616
1192	5	2,378.16	0.4515	1,073.739
1197	4	1,779.38	0.3590	638.797
1196	3	842.89	0.4963	418.284
1190	3	905.55	0.2235	202.390
1189	2	499.80	0.5225	261.145
1191	1	307.15	0.5530	169.853
1183	1	313.48	0.5895	184.796
1184	3	890.88	0.5320	473.948
1188	1	380.55	0.2325	88.477
1185	2	767.72	0.2045	156.998
1186	3	1,334.97	0.4590	612.751
1267	2			

		595.99	0.4840	288.459
1266	2	417.31	0.5215	217.627
1265	2	389.17	0.5145	200.227
1218	1	107.48	0.0018	0.193
24	3	525.63	0.0003	0.131
1182	1	269.87	0.4040	109.027
1216	1	116.18	0.4313	50.102
1217	5	1,043.98	0.0615	64.204
1219	1	312.96	0.6155	192.626
1220	1	303.92	0.5415	164.572
1221	1	304.68	0.5215	158.890
1222	1	380.71	0.5195	197.778
1223	1	323.31	0.5240	169.414
1260	4	1,774.80	0.2563	454.792
27	3	593.60	0.0010	0.593
1261	2	866.08	0.5240	453.825
1262	2	407.36	0.0015	0.611
1263	2	475.65	0.2425	115.345
1410	3	963.51	0.0260	25.051
1417	2	540.64	0.0380	20.544
1415	1	284.71	0.2340	66.622
1383	1	344.34	0.0315	10.846
2029	1			

		194.44	0.5508	107.087
2027	1	154.40	0.6343	97.928
1833	1	159.41	0.5538	88.273
465	1	188.44	0.5655	106.562
1794	1	202.12	0.7198	145.475
1416	1	288.59	0.3580	103.315
1675	1	222.05	0.5260	116.798
1543	1	189.20	0.4880	92.329
2026	1	236.29	0.5680	134.212
1827	1	171.47	0.5290	90.707
561	1	158.88	0.8385	133.220
1651	1	194.58	0.4188	81.480
1668	1	230.78	0.6023	138.987
1761	1	170.25	0.5605	95.425
1650	1	208.01	0.5435	113.053
1634	1	165.69	0.5558	92.082
1555	1	219.20	0.5708	125.108
1290	2	408.87	0.5245	214.452
1295	3	929.50	0.5210	484.269
1324	2	445.17	0.1485	66.107
1326	2	590.38	0.5038	297.403
1328	2	411.15	0.4433	182.242
1325	2			

		517.42	0.0005	0.258
1294	2	785.48	0.2175	170.841
1293	1	441.69	0.7563	334.028
1402	1	280.87	0.0015	0.421
1397	1	287.45	0.0035	1.006
1403	4	1,164.87	0.0013	1.456
1395	3	1,006.54	0.0015	1.509
1396	2	644.76	0.0255	16.441
1394	2	444.38	0.0178	7.887
1398	1	315.60	0.0055	1.735
1399	2	734.75	0.0028	2.020
1400	6	1,566.72	0.3835	600.837
1388	1	305.48	0.4910	149.990
1389	1	295.58	0.4493	132.789
765	1	169.77	0.5375	91.251
769	1	183.31	0.5623	103.066
1387	1	341.12	0.5055	172.436
1390	1	204.53	0.0048	0.971
1391	1	285.11	0.4700	134.001
732	2	589.58	0.0005	0.294
715	2	638.74	0.0005	0.319
721	2	515.40	0.0005	0.257
756	3			

		1,014.98	0.0005	0.507
710	1	437.09	0.1968	85.997
766	1	388.58	0.0003	0.097
761	2	445.00	0.0005	0.222
737	2	836.35	0.0003	0.209
828	4	2,026.65	0.0003	0.506
716	1	323.17	0.0003	0.080
712	1	277.10	0.0005	0.138
711	1	240.15	0.0003	0.060
738	1	249.46	0.0005	0.124
736	2	549.60	0.0008	0.412
791	3	977.33	0.0003	0.244
734	1	224.62	0.0010	0.224
733	2	460.59	0.0003	0.115
827	5	2,448.92	0.0005	1.224
741	1	240.58	0.0010	0.240
752	1	330.72	0.0005	0.165
747	2	569.51	0.0003	0.142
748	2	558.07	0.0003	0.139
824	1	374.08	0.0003	0.093
746	1	283.50	0.0005	0.141
723	1	299.43	0.0003	0.074
767	1			

		146.13	0.0005	0.073
728	1	178.47	0.0003	0.044
829	2	559.85	0.0005	0.279
837	2	550.96	0.0003	0.137
834	1	240.91	0.0008	0.180
780	2	526.86	0.0003	0.131
802	2	695.61	0.0005	0.347
830	1	298.90	0.0003	0.074
840	1	410.78	0.0003	0.102
774	1	314.60	0.0015	0.471
777	2	533.74	0.0003	0.133
758	3	1,520.08	0.0003	0.380
804	2	491.81	0.0005	0.245
809	2	749.33	0.0003	0.187
772	1	331.50	0.0008	0.248
785	1	147.42	0.0003	0.036
807	1	190.00	0.0005	0.095
789	1	146.20	0.0003	0.036
808	1	266.31	0.0008	0.199
965	2	471.28	0.0008	0.353
960	2	544.70	0.0005	0.272
957	1	339.05	0.0040	1.356
884	3			

		923.95	0.0005	0.461
882	1	142.09	0.0005	0.071
881	2	538.12	0.0170	9.148
1054	2	511.92	0.0210	10.750
1050	2	389.13	0.0195	7.588
1052	1	357.50	0.0205	7.328
1051	2	408.95	0.0220	8.996
1068	4	2,191.54	0.0005	1.095
X0022	6	1,788.85	0.8183	1,463.726
985	1	346.25	0.1635	56.611
2070	2	274.90	0.4860	133.601
2054	2	373.43	0.3898	145.544
1916	2	335.14	0.5813	194.800
2529	2	393.33	0.5680	223.411
2689	2	344.02	0.5210	179.234
2155	2	297.92	0.5770	171.899
2136	2	339.69	0.5560	188.867
2498	2	367.60	0.5800	213.208
2176	2	305.80	0.5523	168.878
2183	3	512.20	0.4190	214.611
2571	1	181.93	0.6533	118.845
2497	2	405.64	0.8133	329.886
2729	2			

		449.17	0.9065	407.172
2277	2	504.93	0.8983	453.553
2344	5	1,000.14	0.4693	469.315
2317	2	300.37	0.5658	169.934
2331	3	522.20	0.5665	295.826
2380	2	390.56	0.3545	138.453
132	4	1,236.25	0.0005	0.618
133	4	1,039.26	0.0005	0.519
136	4	924.54	0.0005	0.462
1319	3	892.78	0.4565	407.554
1320	2	420.75	0.5810	244.455
1234	1	367.77	0.5140	189.033
4468	3	835.93	0.9670	808.344
1236	3	995.20	0.5045	502.078
1235	2	477.44	0.1688	80.568
1238	1	306.44	0.2355	72.166
1244	3	1,052.71	0.2845	299.495
1237	3	889.65	0.4398	391.223
1247	6	2,461.09	0.3760	925.369
1243	1	398.84	0.2243	89.439
1245	1	320.58	0.4935	158.206
1242	1	389.22	0.1608	62.567
1246	3			

		839.31	0.5205	436.860
1239	2	470.57	0.5338	251.166
1240	1	359.16	0.7330	263.264
1241	1	329.18	0.4860	159.981
1264	2	495.02	0.0010	0.495
1259	3	991.73	0.4600	456.195
1258	4	1,348.27	0.4928	664.360
1257	2	425.52	0.5005	212.972
1256	2	692.14	0.4778	330.669
1255	2	425.13	0.5078	215.859
1254	2	424.41	0.5110	216.873
1253	2	554.30	0.1885	104.485
1251	2	700.54	0.0160	11.208
1252	1	366.19	0.2665	97.589
1249	3	897.02	0.4535	406.798
1248	3	988.14	0.5030	497.034
4469	3	830.05	0.9705	805.563
1250	1	367.31	0.5140	188.797
969	18	4,500.99	0.4465	2,009.692
836	3	630.28	0.5600	352.956
529	2	415.20	0.5428	225.349
695	2	391.15	0.5610	219.435
1143	3			

		870.64	0.9018	785.099
970	15	4,084.43	0.3748	1,530.640
967	16	4,178.79	0.4510	1,884.634
971	14	3,794.66	0.4565	1,732.262
1385	12	3,305.88	0.4390	1,451.281
1393	12	3,037.12	0.0873	264.988
1392	6	2,269.91	0.0480	108.955
1381	16	4,921.67	0.4688	2,307.032
977	17	4,204.32	0.4008	1,684.881
976	18	4,547.35	0.4093	1,861.002
749	1	54.41	0.0003	0.013
717	1	48.74	0.0003	0.012
799	1	53.56	0.0010	0.053
815	1	52.72	0.0005	0.026
826	1	54.32	0.0003	0.013
775	1	107.34	0.0015	0.161
753	1	81.79	0.1130	9.242
784	1	49.97	0.0005	0.024
805	1	61.10	0.0018	0.106
801	1	304.51	0.0005	0.152
1018	1	74.65	0.0050	0.373
936	1	118.52	0.0005	0.059
935	1			

		96.22	0.0013	0.120
928	1	66.81	0.0028	0.183
932	1	149.06	0.0010	0.149
952	1	109.86	0.0010	0.109
933	1	220.76	0.0005	0.110
19	1	165.51	0.4378	72.452
883	1	58.17	0.0005	0.029
896	1	107.81	0.0008	0.080
888	1	49.01	0.0003	0.012
924	1	125.11	0.0010	0.125
895	1	88.25	0.0013	0.110
901	1	79.90	0.0005	0.039
910	1	106.04	0.0005	0.053
914	1	140.88	0.0010	0.140
25	1	252.15	0.0015	0.378
18	1	130.45	0.0443	5.772
944	1	89.19	0.0015	0.133
941	1	131.16	0.0005	0.065
818	1	51.62	0.0008	0.038
813	1	51.18	0.0005	0.025
943	1	80.22	0.0020	0.160
825	1	143.88	0.0063	0.899
816	1			

		141.50	0.0005	0.070
1111	2	513.10	0.2270	116.473
817	1	390.61	0.0008	0.292
X0018	2	414.98	0.8200	340.283
1120	2	586.70	0.2160	126.727
134	3	946.44	0.0010	0.946
4467	3	834.10	0.9723	810.953
4470	2	557.95	0.9678	539.956
1747	2	398.33	0.8910	354.912
118	4	525.24	0.0408	21.403
782	1	71.31	0.0008	0.053
810	1	52.03	0.0003	0.013
819	1	76.74	0.0005	0.038
835	1	131.68	0.0005	0.065
822	1	76.21	0.0013	0.095
794	1	56.03	0.0010	0.056
735	1	50.02	0.0003	0.012
795	1	63.09	0.0010	0.063
821	1	84.49	0.0015	0.126
831	1	128.45	0.0010	0.128
759	1	123.21	0.0003	0.030
745	1	90.50	0.0003	0.022
776	1			

		101.05	0.0013	0.126
744	1	127.00	0.0010	0.127
841	16	4,008.23	0.3933	1,576.236
842	19	4,994.20	0.4220	2,107.552
981	15	3,823.24	0.3953	1,511.135
690	15	4,028.61	0.4065	1,637.629
702	18	4,244.80	0.4113	1,745.674
973	16	3,897.70	0.4015	1,564.926
974	16	3,983.10	0.4210	1,676.885
975	18	4,273.97	0.4118	1,759.807
1164	15	3,922.23	0.4760	1,866.981
1163	13	3,508.84	0.4540	1,593.013
1146	16	4,140.33	0.4253	1,760.675
1133	16	4,052.81	0.4475	1,813.632
1135	16	4,162.07	0.4265	1,775.122
806	1	166.39	0.0005	0.083
2102	1	217.30	0.5135	111.583
2121	1	154.71	0.5303	82.034
1855	2	282.64	0.4345	122.807
2079	1	225.19	0.4188	94.298
2178	1	187.08	0.5075	94.943
1868	7	1,791.93	0.6225	1,115.476
1940	1			

		202.92	0.5620	114.041
1894	1	159.55	0.4990	79.615
1987	1	257.44	0.5408	139.210
1948	1	163.32	0.5413	88.396
1883	1	174.77	0.5153	90.050
1838	1	162.90	0.5565	90.653
1867	1	159.50	0.6608	105.389
1866	2	288.67	0.5728	165.335
1381	3	791.96	0.9703	768.399
843	17	4,240.03	0.3713	1,574.111
966	17	4,107.84	0.2948	1,210.785
1080	18	4,620.94	0.0005	2.310
821	3	789.48	0.8345	658.821
884	2	372.29	0.8435	314.026
892	2	361.64	0.5595	202.337
1269	2	341.42	0.4535	154.833
1150	2	336.18	0.4085	137.329
1264	2	317.88	0.5640	179.284
1126	10	2,785.40	0.4560	1,270.142
1147	14	3,959.00	0.4385	1,736.021
1155	12	3,134.52	0.3760	1,178.579
1079	19	4,653.33	0.0005	2.326
1153	13			

		3,903.44	0.4543	1,773.137
1154	11	3,681.38	0.4270	1,571.949
1168	19	4,980.74	0.4328	2,155.415
1167	19	4,513.73	0.3920	1,769.382
1165	14	3,742.97	0.4485	1,678.722
1423	1	270.87	0.4580	124.058
1420	1	327.33	0.0190	6.219
1166	14	4,093.00	0.4565	1,868.454
1132	16	4,004.86	0.4513	1,807.193
1131	14	3,851.89	0.3865	1,488.755
15A	11	3,639.12	0.9163	3,334.343
4818D	15	3,504.60	0.0030	10.513
694	16	3,922.80	0.4183	1,640.711
978	17	4,499.45	0.4653	2,093.369
1129	17	4,744.37	0.4188	1,986.704
1128	14	3,568.45	0.4325	1,543.354
979	17	4,075.51	0.4020	1,638.355
980	16	3,909.10	0.4315	1,686.776
984	10	2,632.36	0.4158	1,094.403
983	10	2,803.83	0.4168	1,168.496
982	11	3,298.60	0.4353	1,435.715
1130	13	3,543.90	0.3800	1,346.682
972	17			

		4,512.78	0.4545	2,051.058
1215	12	4,065.34	0.4870	1,979.820
1178	13	3,760.20	0.4538	1,706.190
968	17	4,323.42	0.4175	1,805.027
691	17	4,224.46	0.4388	1,853.481
692	18	4,334.09	0.3935	1,705.464
1139	8	2,068.42	0.4170	862.531
1138	14	3,997.82	0.4610	1,842.995
1137	15	3,683.01	0.3600	1,325.883
1136	14	4,089.71	0.4263	1,743.238
1157	15	3,833.25	0.4370	1,675.130
1156	12	3,893.63	0.4273	1,663.553
1084	17	4,499.38	0.0005	2.249
1083	16	4,237.02	0.0005	2.118
1056	3	907.19	0.0180	16.329
1053	2	451.58	0.0200	9.031
1055	2	567.29	0.0210	11.913
1418	3	1,134.31	0.0985	111.729
1419	2	712.53	0.0145	10.331
1422	2	483.70	0.0145	7.013
1421	1	444.49	0.0045	2.000
1427	1	396.50	0.5060	200.629
1425	2			

		421.43	0.0385	16.225
1424	2	446.20	0.0188	8.366
1428	1	318.21	0.0003	0.079
1426	2	499.54	0.0135	6.743
1429	4	1,538.13	0.0018	2.691
1154	1	185.44	0.6275	116.363
1139	2	272.14	0.5168	140.628
975	1	167.89	0.3998	67.114
1130	1	201.44	0.4573	92.108
1161	1	184.09	0.5873	108.106
819	20	7,199.58	0.9725	7,001.591
4466	3	840.54	0.9645	810.700
4050	2	501.49	0.8135	407.962
4465	8	2,480.18	0.8998	2,231.541
4081	1	176.98	0.5043	89.242
3990	1	243.28	0.6238	151.745
4088	2	375.53	0.5750	215.929
4239	1	200.61	0.7038	141.179
398	1	229.84	0.5638	129.572
4267	2	374.84	0.5620	210.660
X0024	2	570.13	0.8420	480.049
4399	3	839.34	0.9003	755.615
3981	3			

		581.02	0.5478	318.253
4442	2	402.92	0.9968	401.610
3978	3	549.98	0.8875	488.107
23	5	972.04	0.0013	1.215
1349	1	177.43	0.3915	69.463
1406	1	311.81	0.8055	251.162
1405	2	508.00	0.0025	1.270
00013	4	827.15	0.2753	227.673
2060	2	541.90	0.8970	486.084
671	1	193.13	0.5248	101.344
1444	2	265.98	0.5738	152.606
649	1	169.40	0.6180	104.689
685	1	156.13	0.4948	77.245
352	2	255.87	0.4010	102.603
315	1	185.75	0.6633	123.198
1332	1	247.53	0.5575	137.997
1383	1	245.55	0.5610	137.753
986	2	273.15	0.4410	120.459
1328	2	277.53	0.5288	146.743
1453	1	179.87	0.3883	69.834
674	1	161.21	0.5200	83.829
1380	3	747.82	0.9693	724.824
1379	3			

		741.43	0.9795	726.230
1086	2	444.22	0.9163	407.016
4417	2	423.74	0.4380	185.598
4430	3	794.85	0.8103	644.027
4167	2	398.27	0.3458	137.701
4330	1	173.32	0.5560	96.365
4379	1	180.14	0.4030	72.596
308	1	289.96	0.8145	236.172
1152	13	3,988.92	0.4163	1,660.387
1232	1	322.14	0.5270	169.767
1301	3	917.99	0.2415	221.694
131	1	240.57	0.0100	2.405
1298	4	1,551.34	0.2825	438.253
1299	1	381.59	0.2965	113.141
1296	2	592.71	0.5295	313.839
1297	2	501.28	0.5170	259.161
1110	3	865.92	0.5150	445.948
948	1	145.89	0.0005	0.072
953	2	410.40	0.0010	0.410
954	1	210.50	0.0003	0.052
940	1	239.35	0.0010	0.239
934	1	192.58	0.0030	0.577
937	1			

		285.85	0.0010	0.285
929	1	147.10	0.0008	0.110
949	1	396.23	0.0010	0.396
931	3	1,130.20	0.0005	0.565
951	1	124.46	0.0005	0.062
930	3	1,075.18	0.0005	0.537
5200P	2	430.26	0.0415	17.855
5	6	998.50	0.0003	0.249
4	4	666.39	0.0053	3.498
1302	1	319.36	0.5210	166.386
1304	2	782.56	0.2485	194.466
1306	2	813.16	0.4980	404.953
1303	2	466.40	0.5215	243.227
1300	2	836.03	0.5423	453.337
1233	1	354.59	0.2010	71.272
1231	3	889.67	0.4480	398.572
1230	1	235.60	0.1380	32.512
1229	1	371.37	0.0125	4.642
1228	1	348.81	0.4510	157.313
1085	8	2,075.42	0.0005	1.037
913	1	166.59	0.0008	0.124
00018	1	154.04	0.4478	68.971
86	1			

		179.19	0.0003	0.044
99	3	492.18	0.0003	0.123
MM017	12	1,682.51	0.2733	459.745
1077	15	3,964.51	0.0005	1.982
30	1	124.40	0.0005	0.062
995	2	475.53	0.0025	1.188
129	1	229.58	0.4555	104.573
130	1	164.93	0.0368	6.061
1227	1	115.48	0.0075	0.866
1308	1	358.39	0.3053	109.398
1309	2	418.61	0.5155	215.793
1314	1	311.35	0.5220	162.524
1313	2	565.52	0.5140	290.677
1305	2	444.78	0.4505	200.373
1311	3	947.85	0.5168	489.801
1307	1	340.71	0.0230	7.836
1315	1	322.79	0.2335	75.371
1316	1	429.07	0.5165	221.614
1317	2	588.45	0.2120	124.751
1310	2	379.42	0.5100	193.504
1312	5	2,418.80	0.3640	880.443
1322	2	581.14	0.2180	126.688
1323	2			

		512.24	0.0008	0.384
1318	1	348.37	0.4570	159.205
1225	1	255.40	0.5238	133.765
1224	1	341.17	0.5170	176.384
1321	2	736.38	0.2115	155.744
1346	15	4,849.02	0.4230	2,051.135
1049	1	207.63	0.5538	114.975
1062	2	282.10	0.6358	179.345
354	2	345.62	0.5273	182.228
156	3	718.12	0.4250	305.201
103	2	507.59	0.8400	426.375
554	2	387.32	0.4158	161.028
151	2	306.51	0.5858	179.538
17	2	439.75	0.5398	237.355
373	3	505.36	0.4545	229.686
635	2	391.81	0.5763	225.780
1141	2	301.03	0.7540	226.976
663	2	394.77	0.4128	162.941
424	2	361.17	0.5310	191.781
444	2	371.86	0.7125	264.950
486	2	298.56	0.5623	167.865
1347	14	4,448.90	0.4585	2,039.820
1203	5			

		2,652.69	0.5458	1,447.705
1195	1	334.19	0.2720	90.899
1193	1	307.68	0.1333	40.998
1194	2	469.94	0.2470	116.075
1201	2	573.17	0.5935	340.176
1202	1	374.26	0.7315	273.771
1198	3	851.77	0.5185	441.642
1199	2	442.87	0.0160	7.085
1200	1	356.83	0.5720	204.106
848	16	3,927.04	0.4095	1,608.122
847	14	3,331.96	0.4425	1,474.392
849	17	4,354.17	0.4058	1,766.704
850	15	4,001.25	0.4638	1,855.579
709	12	2,855.67	0.3515	1,003.768
00016	1	207.42	0.4140	85.871
00015	4	764.42	0.3228	246.716
X0002	5	905.36	0.1035	93.704
X0004	2	559.97	0.5683	318.202
X0006	2	417.07	0.7468	311.447
803	1	160.58	0.0003	0.040
1456	2	407.87	0.7898	322.115
1824	2	308.75	0.5738	177.145
1541	4			

		801.83	0.5560	445.817
1455	3	1,052.60	0.8808	927.077
851	17	4,117.87	0.4275	1,760.389
859	15	4,053.03	0.4555	1,846.155
858	14	3,554.41	0.4080	1,450.199
857	18	4,552.73	0.3678	1,674.266
1141	18	4,617.75	0.4230	1,953.308
1140	16	4,007.73	0.4200	1,683.246
1107	6	2,381.74	0.5285	1,258.749
1142	13	3,954.29	0.4500	1,779.430
1143	14	4,285.47	0.4595	1,969.173
844	17	4,245.22	0.4373	1,856.222
856	14	3,674.50	0.4473	1,643.420
855	18	4,502.61	0.3490	1,571.410
845	15	3,659.08	0.4363	1,596.273
846	16	4,288.09	0.4550	1,951.080
708	18	4,170.08	0.3968	1,654.479
707	17	4,094.89	0.3995	1,635.908
704	16	3,854.40	0.4185	1,613.066
705	17	3,904.18	0.4135	1,614.378
706	17	4,086.20	0.3633	1,484.312
1144	15	3,771.86	0.4455	1,680.363
1145	11			

		3,223.40	0.4485	1,445.694
852	17	4,199.00	0.3968	1,665.953
853	15	3,917.60	0.4233	1,658.124
854	14	3,953.44	0.4043	1,598.178
32	8	1,698.68	0.0045	7.644
31	5	1,018.48	0.0005	0.509
1408	2	395.96	0.5293	209.561
1430	2	406.48	0.5635	229.051
1835	2	665.34	0.8878	590.655
20	1	262.79	0.4885	128.372
16	1	221.98	0.4000	88.792
17365	4	705.30	0.4020	283.530
2570	1	205.28	0.6183	126.914
2274	1	205.91	0.4755	97.910
2158	1	154.56	0.5630	87.017
1672	2	287.43	0.3863	111.019
2327	2	288.06	0.5648	162.681
1637	2	306.68	0.4028	123.515
4154	1	263.55	0.7043	185.605
2333	1	226.28	0.4075	92.209
2562	1	224.26	0.5565	124.800
938	1	141.44	0.0013	0.176
2423	1			

		238.53	0.5650	134.769
1101	1	70.12	0.0010	0.070
1102	1	79.74	0.0005	0.039
CM4	7	3,512.20	0.0265	93.073
MR3	5	3,045.30	0.5235	1,594.214
MR4	7	6,404.70	0.0605	387.484
MZ2	8	5,056.80	0.0215	108.721
MZ1	8	5,305.10	0.0280	148.542
MR002	4	995.56	0.5128	510.473
1105	2	750.72	0.2150	161.404
1106	5	1,782.93	0.4960	884.333
1104	2	680.20	0.4950	336.699
1109	2	338.01	0.1650	55.771
1148	1	181.71	0.3810	69.231
1124	4	1,076.76	0.5185	558.300
1094	1	291.15	0.0780	22.709
1093	3	677.70	0.0230	15.587
1123	2	407.88	0.5605	228.616
1125	2	333.34	0.2415	80.501
1089	1	132.14	0.0010	0.132
137	1	307.48	0.8971	275.840
1877	1	232.97	0.5143	119.804
4035	1			

		196.41	0.4225	82.983
4411	1	199.21	0.6635	132.175
4160	1	183.31	0.5445	99.812
1348	17	5,202.68	0.3858	2,006.933
1360	14	4,136.35	0.4098	1,694.869
1082	20	4,908.71	0.0005	2.454
1114	5	1,230.29	0.4750	584.387
1115	4	757.77	0.1930	146.249
1116	7	2,144.07	0.5055	1,083.827
1119	2	450.07	0.2405	108.241
1118	4	878.83	0.4565	401.185
1121	2	410.93	0.4810	197.657
1117	2	446.21	0.4920	219.535
1122	4	1,041.16	0.5035	524.224
1081	16	4,190.25	0.0008	3.142
1113	6	1,574.23	0.4615	726.507
1112	5	837.44	0.0245	20.517
29	6	1,260.24	0.0003	0.315
104	1	266.79	0.7558	201.626
40	1	221.61	0.5433	120.389
27	1	185.55	0.6128	113.695
25	1	235.45	0.5790	136.325
627	1			

		202.11	0.5670	114.596
621	1	165.80	0.5548	91.977
585	1	194.95	0.6550	127.692
576	1	163.02	0.3518	57.342
141	1	188.48	0.5565	104.889
168	1	201.58	0.5635	113.590
249	1	169.28	0.4045	68.473
1290	1	162.62	0.3910	63.584
1232	1	163.05	0.5168	84.256
1038	1	167.25	0.5570	93.158
1024	1	231.04	0.5720	132.154
270	1	235.83	0.5405	127.466
1325	1	219.21	0.4113	90.150
16	13	8,063.90	0.4128	3,328.374
26	10	4,264.96	0.0013	5.331
6272	1	426.79	0.3848	164.207
6266	1	402.07	0.3915	157.410
5084	1	318.36	0.4155	132.278
6049	1	360.80	0.4333	156.316
5135	1	336.51	0.3818	128.462
5034	1	301.42	0.3660	110.319
5089	1	363.18	0.3848	139.733
6080	1			

		335.37	0.3865	129.620
6010	1	372.69	0.3883	144.696
6000	1	336.95	0.3868	130.315
10252	1	485.14	0.4095	198.664
5032	1	313.72	0.3660	114.821
6808	1	347.02	0.3018	104.713
5955	1	376.90	0.3843	144.823
6404	1	414.29	0.3398	140.755
5788	1	413.72	0.3978	164.557
G 204	8	5,100.27	0.7073	3,607.165
01273	2	963.54	0.3903	376.021
01426	2	784.00	0.5515	432.376
00274	5	4,070.14	0.6713	2,732.081
00178	4	3,459.62	0.6850	2,369.839
01787	6	4,230.47	0.7058	2,985.654
00735	5	3,931.74	0.6513	2,560.545
00472	5	3,983.82	0.6585	2,623.345
01021	4	2,515.10	0.5370	1,350.608
02554	2	929.19	0.6850	636.495
07815	1	958.98	0.9695	929.731
08260	1	898.12	0.9370	841.538
02564	2	1,031.11	0.2913	300.310
00061	3			

		1,785.25	0.6268	1,118.905
02047	3	1,533.52	0.4995	765.993
01908	1	716.25	0.6268	448.909
01786	1	733.89	0.4130	303.096
02502	1	994.45	0.8733	868.403
01706	1	793.07	0.5700	452.049
07818	1	941.18	0.9320	877.179
07801	1	1,021.37	0.9650	985.622
06146	1	954.22	0.9845	939.429
07801	1	1,001.83	0.9650	966.765
29	13	2,148.31	0.2555	548.893
38	4	657.60	0.0023	1.479
6102	1	185.17	0.5553	102.815
38	18	2,933.97	0.2110	619.067
G381	20	3,760.75	0.0363	136.327
G307	20	6,521.05	0.8773	5,720.591
2345	1	244.85	0.5385	131.851
1134	14	3,961.27	0.4343	1,720.181
109	2	202.93	0.0010	0.202
1226	1	327.11	0.5193	169.851
2416	2	398.67	0.3265	130.165
1350	1	152.71	0.4270	65.207
17	1			

		202.79	0.0070	1.419
1523	1	216.92	0.4580	99.349
1078	17	4,423.86	0.0005	2.211
693	17	4,220.55	0.4040	1,705.102
42	19	3,566.22	0.2490	887.988
1375	13	4,125.93	0.4635	1,912.368
44	25	4,894.91	0.4608	2,255.329
1158	19	5,145.76	0.1175	604.626
D3241	24	5,014.34	0.0220	110.315
1732	1	156.93	0.4085	64.105
1019	1	181.16	0.3703	67.074
900	1	242.46	0.5543	134.383
1291	1	299.19	0.3625	108.456
F59	72	7,420.19	0.1000	742.019
3580	1	180.10	0.6080	109.500
2128	1	185.57	0.5298	98.305
2123	1	170.50	0.5993	102.172
G342	21	6,131.54	0.7315	4,485.221
G343	22	5,845.38	0.5645	3,299.717
811	7	4,018.53	0.9970	4,006.474
1079	1	220.43	0.9983	220.044
69	12	3,144.31	0.4125	1,297.027
1545	4			

		850.70	0.6333	538.705
1854	2	1,262.53	0.7883	995.189
485	2	1,168.34	0.7690	898.453
751	2	945.25	0.7655	723.588
344	2	863.09	0.7505	647.749
1171	1	147.94	0.4655	68.866
576	1	296.90	0.5220	154.981
1341	1	177.96	0.3695	65.756
1385	1	126.48	0.3735	47.240
1737	1	529.46	0.0205	10.853
526	1	125.59	0.2380	29.890
442	1	303.40	0.7328	222.316
1901	3	1,331.56	0.7550	1,005.327
1523	3	1,734.15	0.4765	826.322
138	1	286.91	0.7790	223.502
524	9	2,627.28	0.4300	1,129.730
113	1	266.59	0.5940	158.354
155	7	2,075.04	0.4640	962.818
2104	2	787.62	0.3295	259.520
1497	2	1,414.47	0.8210	1,161.279
1469	1	380.28	0.7125	270.949
1506	2	1,171.25	0.7920	927.630
438	1			

		285.45	0.0350	9.990
1997	8	2,395.95	0.4805	1,151.253
246	10	2,709.93	0.4915	1,331.930
15	1	265.80	0.3890	103.396
15	2	910.00	0.4830	439.530
135	1	286.46	0.4965	142.227
290	2	570.92	0.5285	301.731
1629	1	399.70	0.3995	159.680
1266	2	1,386.20	0.7300	1,011.926
1090	5	1,137.76	0.4765	542.142
2032	11	3,021.19	0.5100	1,540.806
110	1	256.08	0.4035	103.328
326	1	288.42	0.4955	142.912
1550	1	471.70	0.0350	16.509
1780	4	2,488.40	0.8745	2,176.105
18	3	1,352.30	0.7545	1,020.310
365	1	265.20	0.5780	153.285
103	1	272.90	0.4690	127.990
468	1	236.68	0.7435	175.971
163	1	264.98	0.7245	191.978
361	8	2,375.45	0.4055	963.244
73	1	291.23	0.4165	121.297
133	1			

		344.99	0.5230	180.429
640	2	1,187.59	0.7310	868.128
1015	3	1,769.65	0.5040	891.903
937	4	2,638.51	0.5310	1,401.048
16	1	363.30	0.0220	7.992
112	9	2,693.52	0.4670	1,257.873
50	8	2,421.41	0.4065	984.303
97	9	2,837.87	0.4705	1,335.217
14	1	316.99	0.7590	240.595
494	1	359.44	0.1815	65.238
126	7	1,883.66	0.4105	773.242
452	8	2,446.74	0.4290	1,049.651
1032	2	1,200.15	0.8070	968.521
582	1	415.93	0.6085	253.093
1302	1	204.74	0.3640	74.525
518	1	237.06	0.4345	103.002
368	1	281.83	0.4730	133.305
45	25	5,077.24	0.4515	2,292.373
1404	3	862.03	0.0085	7.327
336	10	2,790.87	0.4835	1,349.385
14	1	250.23	0.4115	102.969
48	1	507.71	0.5810	294.979
48	1			

		307.41	0.4810	147.864
107	1	46.10	0.1885	8.689
23	1	50.35	0.2850	14.349
33	1	46.28	0.2478	11.465
8	1	47.07	0.3245	15.274
4	1	31.10	0.3425	10.651
133	1	37.63	0.3823	14.384
36	1	28.90	0.2318	6.697
39	1	20.55	0.2953	6.067
15	1	30.16	0.3470	10.465
24	1	22.60	0.2883	6.514
43	1	19.10	0.3798	7.253
66	1	23.40	0.2495	5.838
126	1	20.80	0.3120	6.489
124	1	20.00	0.2335	4.670
79	1	26.70	0.3220	8.597
31	1	45.59	0.2625	11.967
2986	1	51.53	0.9000	46.377
129	1	25.25	0.3403	8.591
135	1	19.70	0.4003	7.884
18	1	23.35	0.3675	8.581
30	1	18.92	0.3158	5.973
139	1			

		13.45	0.3660	4.922
131	1	18.85	0.3083	5.810
35	1	23.43	0.3210	7.521
6	1	18.90	0.3403	6.430
137	1	12.10	0.3798	4.594
68	1	9.99	0.3483	3.479
21	1	11.00	0.3103	3.412
17	1	13.91	0.2755	3.832
63	1	10.95	0.3580	3.920
22	1	7.59	0.3095	2.349
32	1	9.27	0.3510	3.253
5	1	51.16	0.3293	16.844
27	1	33.63	0.3573	12.014
27	1	15.50	0.3763	5.831
27	1	16.85	0.3635	6.124
11	1	21.50	0.3148	6.767
11	1	17.40	0.3760	6.542
762	1	177.02	0.4243	75.100
762	1	60.63	0.0003	0.015
322	1	56.99	0.9660	55.052
2555	2	284.67	0.3940	112.159
1285	1	138.08	0.4260	58.822
921	1			

		73.98	0.0015	0.110
955	1	23.66	0.0005	0.011
1434	1	28.15	0.2825	7.952
153	1	7.75	0.2740	2.123
1409	1	6.97	0.2583	1.800
1401	1	13.95	0.1090	1.520
1386	1	8.92	0.3630	3.237
1382	1	22.59	0.4880	11.023
885	1	47.00	0.0013	0.058
143	1	25.77	0.3165	8.156
1414	1	10.58	0.2485	2.629
20	36	3,717.04	0.8998	3,344.592
21	1	364.53	0.4235	154.378
11	3	2,196.58	0.8997	1,976.263
12	3	2,196.32	0.8997	1,976.029
13	3	2,197.97	0.8998	1,977.733
14	3	2,196.82	0.8999	1,976.918
15	3	2,196.37	0.8999	1,976.513
16	3	2,197.96	0.8999	1,977.944
17	3	2,198.13	0.8999	1,978.097
18	3	2,193.90	0.9000	1,974.510
19	3	2,196.68	0.9000	1,977.012
110	3			

		2,196.88	0.8999	1,976.972
I11	3	2,200.05	0.8998	1,979.604
I12	3	2,196.65	0.8998	1,976.545
I13	3	2,195.57	0.8999	1,975.793
I14	3	2,197.91	0.8999	1,977.899
I15	3	2,197.00	0.8997	1,976.640
I16	3	2,195.13	0.9000	1,975.617
I17	3	2,196.52	0.8998	1,976.428
I18	3	2,196.05	0.8998	1,976.005
I19	3	2,196.60	0.8997	1,976.281
I20	3	2,197.17	0.8996	1,976.574
I21	3	2,195.96	0.8998	1,975.924
I22	3	2,196.15	0.8999	1,976.315
I23	3	2,195.00	0.8998	1,975.061
I24	3	2,196.23	0.8999	1,976.387
I25	3	2,196.45	0.8999	1,976.585
I26	3	2,196.70	0.8997	1,976.370
I27	3	2,196.20	0.8998	1,976.140
I28	3	2,197.05	0.8998	1,976.905
I29	3	2,195.97	0.8998	1,975.933
I30	3	2,195.35	0.8997	1,975.156
I31	3	2,196.30	0.8998	1,976.230
I32	2			

		1,348.05	0.8998	1,212.975
2797	5	5,633.41	0.8998	5,068.660
14729	7	7,165.96	0.8998	6,447.572
5304	7	6,764.73	0.8998	6,086.565
15483	7	7,009.36	0.8998	6,306.671
14594	7	7,051.97	0.8998	6,345.010
4436	6	6,107.17	0.9123	5,571.265
4429	6	6,323.13	0.8998	5,689.236
5296	6	6,641.20	0.8995	5,973.759
5295	7	6,840.89	0.8995	6,153.380
4428	6	6,246.20	0.9000	5,621.580
14597	7	6,952.55	0.8998	6,255.556
14718	6	6,864.78	0.8998	6,176.585
5299	7	6,788.08	0.8995	6,105.877
5887	7	6,727.80	0.8998	6,053.338
4311	6	6,200.12	0.8998	5,578.557
4312	6	6,479.70	0.9000	5,831.730
5305	6	6,661.02	0.8998	5,993.252
4309	6	6,125.75	0.8998	5,511.643
15485	7	6,955.77	0.8998	6,258.454
5888	7	6,839.21	0.8998	6,153.579
14598	6	6,959.24	0.8998	6,261.576
14495	6			

		7,013.19	0.8998	6,310.117
14599	7	7,065.74	0.8998	6,357.399
2798	6	5,917.06	0.8998	5,323.874
5312	7	6,778.64	0.8998	6,099.081
15482	7	6,914.63	0.8998	6,221.438
14596	6	7,058.89	0.9000	6,353.001
14601	7	7,072.87	0.9000	6,365.583
14592	7	7,005.27	0.8998	6,302.991
14486	7	7,187.78	0.8998	6,467.205
15487	7	7,027.76	0.8998	6,323.227
5893	6	6,418.16	0.8998	5,774.739
14548	7	7,041.92	0.8998	6,335.967
14717	7	7,085.52	0.8998	6,375.196
5892	6	6,537.20	0.8998	5,881.845
5316	7	6,748.91	0.8995	6,070.644
14600	7	7,015.25	0.9000	6,313.725
15479	7	7,041.58	0.8998	6,335.661
14493	6	7,091.51	0.9000	6,382.359
5297	7	6,798.03	0.8995	6,114.827
807	20	6,835.97	0.9162	6,263.115
794	21	6,959.70	0.9061	6,306.184
818	20	7,338.69	0.9760	7,162.561
817	20			

		7,240.68	0.9745	7,056.042
801	20	6,885.89	0.9030	6,217.958
802	20	7,002.65	0.9153	6,409.525
803	20	7,019.11	0.9163	6,431.610
2254	21	7,316.51	0.9101	6,658.755
820	14	4,839.95	0.9548	4,620.942
809	19	6,332.13	0.9090	5,755.906
816	21	7,380.71	0.9718	7,172.204
810	20	6,516.36	0.9083	5,918.809
2252	20	6,891.71	0.9103	6,273.523
2251	20	6,780.71	0.9096	6,167.733
2256	21	7,031.75	0.9099	6,398.189
2257	18	6,202.11	0.9099	5,643.299
787	20	6,825.03	0.9021	6,156.859
786	21	7,002.17	0.9094	6,367.773
800	20	6,741.76	0.9010	6,074.325
799	21	7,093.10	0.9057	6,424.220
789	20	6,755.23	0.9002	6,081.058
790	20	7,030.63	0.9159	6,439.354
795	20	6,727.11	0.9069	6,100.816
806	20	6,816.68	0.9158	6,242.715
788	20	6,860.95	0.9071	6,223.567
804	21			

		7,241.90	0.9005	6,521.330
796	20	6,585.22	0.9000	5,926.698
805	20	6,787.62	0.9058	6,148.226
808	21	7,344.48	0.9124	6,701.103
791	19	6,570.97	0.9068	5,958.555
793	21	6,997.67	0.9014	6,307.699
792	21	6,976.42	0.9075	6,331.101
2224	21	7,083.97	0.9092	6,440.745
2217	20	6,785.03	0.9102	6,175.734
2216	20	6,957.70	0.9102	6,332.898
2215	20	6,820.11	0.9099	6,205.618
2255	21	7,074.31	0.9101	6,438.329
811	20	6,651.52	0.9086	6,043.571
812	19	6,211.45	0.9081	5,640.617
813	19	6,297.57	0.9048	5,698.041
2259	20	6,893.16	0.9095	6,269.329
2258	21	7,114.25	0.9095	6,470.410
2219	20	6,914.62	0.9109	6,298.527
2214	20	6,809.48	0.9099	6,195.945
2223	20	6,713.44	0.9090	6,102.516
2222	20	6,747.10	0.9090	6,133.113
2221	20	6,602.06	0.9090	6,001.272
2220	20			

		6,854.35	0.9089	6,229.918
815	20	7,154.74	0.9665	6,915.056
814	20	6,924.10	0.9708	6,721.570
798	21	7,352.93	0.9155	6,731.607
797	20	6,557.32	0.9010	5,908.145
2227	20	6,721.42	0.9083	6,105.065
2225	19	6,276.03	0.9092	5,706.166
2246	20	6,645.40	0.9111	6,054.623
2229	22	7,353.84	0.9092	6,686.111
1622	17	6,620.63	0.9948	6,585.871
2247	20	6,742.90	0.9111	6,143.456
2248	20	6,762.08	0.9093	6,148.759
2249	20	6,702.00	0.9093	6,094.128
2253	20	6,736.68	0.9103	6,132.399
2218	20	6,712.92	0.9109	6,114.798
2261	20	7,026.44	0.9113	6,403.194
2260	20	6,717.19	0.9112	6,120.703
2250	20	6,739.15	0.9096	6,129.930
709	3	844.60	0.9800	827.708
713	2	706.17	0.9795	691.693
643	4	871.49	0.8993	783.687
710	3	839.56	0.9783	821.299
712	3			

		835.12	0.9778	816.538
711	3	849.30	0.9808	832.950
560	2	601.93	0.8998	541.586
1618	18	6,927.85	0.9943	6,888.014
1619	18	7,012.26	0.9945	6,973.692
2226	20	6,773.55	0.9083	6,152.415
2228	22	7,471.43	0.9092	6,793.024
46	1	1,321.27	0.9004	1,189.671
2	1	1,311.32	0.9000	1,180.188
RE3	18	7,222.90	0.9998	7,221.455
RE7	17	6,709.00	0.9994	6,704.974
RE8	15	5,788.05	0.9998	5,786.892
E1 82	2	531.10	0.9995	530.834
RE6	20	7,897.77	0.9993	7,892.241
RE5	20	7,876.15	0.9993	7,870.636
RE4	13	4,928.20	0.9990	4,923.271
1320	3	1,102.05	0.9970	1,098.743
20	3	923.47	0.9970	920.699
870	3	1,469.29	0.9995	1,468.555
113	1	322.67	0.9980	322.024
26	4	1,925.97	0.9985	1,923.081
768	1	859.89	0.9975	857.740
193	1			

		341.21	0.9978	340.442
1011	1	422.82	0.9998	422.714
1128	1	297.46	0.9973	296.656
300	1	94.25	0.9995	94.202
312	1	168.41	0.9973	167.946
1052	1	178.06	0.9975	177.614
413	1	100.06	0.9995	100.009
414	1	100.09	0.9995	100.039
02692	1	518.51	0.9995	518.250
1044	1	777.58	0.9998	777.385
1074	1	498.99	0.9998	498.865
822	1	401.05	0.9997	400.929
720	1	424.44	0.9995	424.227
3238	1	298.85	0.9999	298.820
127	30	4,981.05	0.0035	17.433
129	18	3,499.99	0.0008	2.624
X0022	7	2,110.62	0.8833	1,864.205
X0020	3	582.04	0.6873	400.006
56	3	603.64	0.0013	0.754
147	1	285.55	0.2293	65.462
142	1	326.63	0.0005	0.163
140	1	263.68	0.0005	0.131
139	1			

		309.65	0.0005	0.154
143	1	316.28	0.0005	0.158
X0016	2	368.48	0.7565	278.755
145	1	316.97	0.0003	0.079
146	1	306.24	0.0003	0.076
133	1	192.84	0.1533	29.552
1210	1	235.88	0.4018	94.764
1526	1	167.80	0.4343	72.867
1450	1	209.44	0.5138	107.599
1429	1	153.63	0.5235	80.425
1559	2	323.94	0.4135	133.949
144	1	212.12	0.2770	58.757
1827	3	829.55	0.9745	808.396
18	26	4,190.09	0.2295	961.625
0 12	2	324.37	0.0173	5.595
0 11	6	1,420.59	0.7120	1,011.460
1828	3	822.22	0.9755	802.075
7	20	3,924.16	0.4425	1,736.440
75	20	2,903.16	0.0065	18.870
76	21	3,037.27	0.0068	20.501
46	14	2,088.12	0.2178	454.688
3693G	25	5,640.19	0.0033	18.330
3312G	23			

		4,900.63	0.0020	9.801
3312H	12	2,515.70	0.0003	0.628
129	17	2,958.35	0.0003	0.739
4	18	3,449.48	0.3960	1,365.994
5	19	3,126.54	0.2758	862.143
1498	2	528.68	0.5753	304.123
134	1	189.52	0.0023	0.426
131	1	330.80	0.0010	0.330
132	1	262.49	0.1825	47.904
1497	1	109.83	0.7498	82.345
1529	1	270.67	0.9180	248.475
1249	2	313.01	0.3693	115.578
135	1	259.44	0.0013	0.324
1469	1	268.32	0.5328	142.947
1280	2	450.56	0.6428	289.597
MR001	1	359.95	0.7723	277.971
136	1	142.86	0.4975	71.072
137	1	289.46	0.0015	0.434
X0018	2	482.53	0.7738	373.357
141	1	155.24	0.4005	62.173
138	1	185.60	0.3275	60.784
1426	2	312.95	0.8150	255.054
25	20			

		3,647.15	0.4738	1,727.837
126	29	4,965.27	0.0043	21.102
28	14	2,636.74	0.5325	1,404.064
26	4	562.32	0.2245	126.240
130	21	3,995.53	0.0005	1.997
138	27	4,557.67	0.3775	1,720.520
136	27	4,264.78	0.3920	1,671.793
37	21	3,684.41	0.4513	1,662.590
55	17	2,421.94	0.0013	3.027
26	20	3,545.24	0.0050	17.726
85	20	3,136.86	0.0015	4.705
128	25	4,231.84	0.0005	2.115
127	22	3,920.77	0.0060	23.524
8	26	5,135.86	0.4360	2,239.234
X0010	7	1,461.41	0.4185	611.600
X0006	19	6,713.58	0.9738	6,537.348
0 17	3	606.13	0.3420	207.296
X0012	5	1,220.51	0.7910	965.423
X0014	6	1,682.54	0.8533	1,435.627
X0008	12	4,092.50	0.8425	3,447.931
6776	15	5,287.35	0.9160	4,843.212
6347	2	324.65	0.7710	250.305
6087	2			

		306.14	0.5913	181.005
6104	2	265.18	0.5613	148.832
6056	1	271.26	0.6100	165.468
42	10	1,578.98	0.2210	348.954
6775	16	5,620.26	0.9160	5,148.158
6774	16	5,584.17	0.9160	5,115.099
89	5	1,108.42	0.1243	137.721
28	22	4,457.69	0.4768	2,125.203
97	10	3,381.24	0.8997	3,042.101
29	22	4,438.42	0.4433	1,967.329
23	12	1,913.85	0.2525	483.247
16	21	4,097.41	0.4693	1,922.709
6001	2	395.05	0.5470	216.092
6049	2	297.66	0.5698	169.591
6348	2	469.05	0.9120	427.773
6148	1	318.95	0.7778	248.063
6149	1	177.36	0.6983	123.841
6349	1	118.43	0.7005	82.960
6244	1	165.73	0.6635	109.961
6028	1	245.62	0.8130	199.689
6181	1	243.49	0.7825	190.530
19	13	2,349.73	0.4843	1,137.856
13	14			

		2,630.47	0.4860	1,278.408
17	12	2,071.74	0.2745	568.692
22	18	3,525.66	0.4175	1,471.963
30	21	3,356.57	0.2215	743.480
7	15	2,156.42	0.2755	594.093
34	14	2,395.93	0.2258	540.881
20	12	1,856.26	0.2585	479.843
2	26	5,070.98	0.4208	2,133.614
10	7	1,192.60	0.2665	317.827
12	19	3,828.11	0.4578	1,752.317
9	15	2,654.44	0.4585	1,217.060
730	4	1,486.03	0.9475	1,408.013
25	22	4,700.51	0.4673	2,196.313
55	5	966.60	0.0008	0.724
24	24	4,901.92	0.4328	2,121.305
26	16	2,934.43	0.3123	916.275
0 14	3	618.79	0.4923	304.599
0 13	5	1,130.81	0.6583	744.355
37	3	435.40	0.0005	0.217
125	24	4,109.21	0.4090	1,680.666
35	5	926.90	0.0005	0.463
1	24	4,716.72	0.4343	2,048.235
X0004	15			

		5,891.36	0.9788	5,766.168
X0002	16	5,419.18	0.9593	5,198.348
49	3	608.19	0.0048	2.888
52	5	989.66	0.0005	0.494
51	4	767.75	0.0005	0.383
47	6	1,351.15	0.0100	13.511
195	1	345.56	0.0003	0.086
53	3	595.70	0.0008	0.446
69	1	402.93	0.0008	0.302
197	1	229.54	0.3928	90.151
194	1	227.87	0.4753	108.295
0 15	3	710.54	0.3460	245.846
198	1	356.08	0.0010	0.356
199	1	355.89	0.0013	0.444
200	1	357.77	0.0008	0.268
193	1	341.11	0.0010	0.341
70	1	91.82	0.1100	10.100
192	1	102.81	0.0005	0.051
127	17	2,899.06	0.4758	1,379.227
130	29	4,458.85	0.3808	1,697.707
86	16	2,734.04	0.0025	6.835
123	24	4,224.48	0.4103	1,733.092
72	1			

		283.30	0.2583	73.162
71	1	289.15	0.0005	0.144
201	1	219.34	0.3580	78.523
61	18	3,106.75	0.4643	1,442.308
G303	12	1,898.23	0.4043	767.359
G283	21	5,239.44	0.6025	3,156.762
G288	26	5,401.29	0.5833	3,150.302
G290	32	6,438.46	0.6875	4,426.441
G284	22	5,577.78	0.6040	3,368.979
G233	17	3,973.28	0.4283	1,701.557
G286	19	3,766.26	0.6223	2,343.555
G285	21	5,230.63	0.6213	3,249.528
G327	20	4,920.24	0.6558	3,226.447
G355	20	5,362.05	0.7150	3,833.865
G354	22	5,359.37	0.6545	3,507.707
G324	20	5,641.70	0.7315	4,126.903
G262	14	3,233.87	0.4355	1,408.350
G257	14	2,806.44	0.1598	448.328
G328	20	4,651.12	0.6390	2,972.065
G337	20	5,375.49	0.6700	3,601.578
G159	21	4,770.57	0.6588	3,142.612
G158	20	4,946.32	0.6890	3,408.014
G364	20			

		4,632.07	0.6498	3,009.687
G384	22	4,235.08	0.0268	113.288
G353	22	5,394.00	0.5893	3,178.414
G352	21	5,603.03	0.5885	3,297.383
G357	18	4,343.25	0.4918	2,135.793
G356	15	3,248.60	0.5390	1,750.995
G289	28	5,529.18	0.6880	3,804.075
G293	27	5,293.12	0.2583	1,366.948
G287	28	5,268.58	0.5850	3,082.119
G294	21	4,732.08	0.6218	2,942.170
G338	20	5,425.99	0.6380	3,461.781
G365	21	5,066.29	0.5868	2,972.645
G363	14	2,980.86	0.4105	1,223.643
G339	20	5,494.20	0.7208	3,959.944
00023	1	413.56	0.8128	336.120
G323	20	5,346.54	0.6640	3,550.102
G296	9	2,179.51	0.5785	1,260.846
G300	7	1,355.71	0.6110	828.338
G281	22	5,289.88	0.5560	2,941.173
G282	22	5,123.93	0.5603	2,870.681
G 76	20	3,992.71	0.0018	6.987
G 77	23	4,599.75	0.0018	8.049
G 72	23			

		4,490.77	0.0018	7.858
G 73	22	4,307.41	0.0015	6.461
G387	20	3,921.63	0.0155	60.785
G347	20	4,811.25	0.6850	3,295.706
G388	24	4,624.79	0.0303	139.899
G389	23	4,535.98	0.0248	112.265
G232	20	4,637.17	0.3665	1,699.522
G280	22	4,885.65	0.5773	2,820.241
G279	24	5,353.57	0.5753	3,079.641
G231	20	4,689.30	0.3668	1,719.800
01791	2	934.55	0.0003	0.233
02555	1	750.49	0.8710	653.676
02556	1	870.81	0.8695	757.169
02557	1	728.27	0.8598	626.130
02558	1	823.24	0.8595	707.574
01509	1	612.29	0.8910	545.550
01588	1	791.61	0.8535	675.639
01421	2	831.86	0.4658	387.438
01508	1	562.31	0.7995	449.566
01522	2	1,170.64	0.4160	486.986
01500	1	235.60	0.1683	39.639
01590	3	1,996.43	0.5843	1,166.414
01550	2			

		760.14	0.4400	334.461
01627	1	643.37	0.5648	363.343
00956	2	1,361.26	0.8873	1,207.777
00957	2	1,293.79	0.8605	1,113.306
00078	1	628.58	0.8543	536.964
01590	1	724.28	0.8580	621.432
01589	1	782.74	0.8690	680.201
02643	1	610.34	0.8690	530.385
00840	1	621.90	0.8385	521.463
00939	2	1,073.15	0.8625	925.591
00863	1	851.77	0.8585	731.244
00865	2	1,409.27	0.8255	1,163.352
00898	3	1,321.85	0.2400	317.244
00028	2	979.63	0.3373	330.380
02642	1	821.06	0.9055	743.469
01380	2	1,139.88	0.8753	997.679
02729	1	874.39	0.8580	750.226
01591	1	658.19	0.8578	564.562
00276	2	976.04	0.8625	841.834
00392	2	976.54	0.9398	917.703
00513	2	896.06	0.8508	762.323
02644	1	817.20	0.8690	710.146
02501	1			

		796.77	0.8600	685.222
02503	1	913.33	0.8733	797.565
02680	1	947.89	0.8553	810.682
00862	2	1,489.96	0.8860	1,320.104
00953	1	451.93	0.8048	363.690
00958	2	1,309.60	0.8603	1,126.583
02678	1	746.47	0.8565	639.351
542	2	1,289.42	0.9940	1,281.683
00518	2	1,179.82	0.8818	1,040.306
02715	1	711.99	0.8575	610.531
00140	3	2,087.26	0.9893	2,064.821
00222	1	485.53	0.8683	421.561
01229	3	1,649.84	0.3975	655.811
00461	1	559.79	0.8673	485.477
00847	2	1,661.06	0.9488	1,575.930
00423	1	527.35	0.8800	464.068
00865	1	866.14	0.8700	753.541
00908	1	910.01	0.9420	857.229
01583	7	4,576.38	0.9973	4,563.794
01584	8	4,783.05	0.9973	4,769.896
01458	5	3,961.10	0.9953	3,942.284
01953	6	3,583.00	0.9955	3,566.876
01914	6			

		3,849.33	0.9953	3,831.045
01593	9	5,367.39	0.9958	5,344.846
01728	5	3,509.17	0.9950	3,491.624
01729	5	3,664.63	0.9950	3,646.306
01763	3	1,860.57	0.6425	1,195.416
01614	1	324.36	0.4040	131.041
02048	3	1,560.22	0.3930	613.166
01594	6	4,640.46	0.9953	4,618.417
01874	6	4,299.18	0.9960	4,281.983
01495	6	3,880.24	0.9953	3,861.808
02049	1	578.15	0.4280	247.448
01894	3	1,915.50	0.6210	1,189.525
01659	2	753.16	0.4055	305.406
01589	1	599.31	0.7670	459.670
01532	3	1,497.31	0.3920	586.945
01963	1	607.74	0.4045	245.830
01551	1	313.33	0.7268	227.712
01634	1	528.82	0.3685	194.870
01523	3	1,889.41	0.3865	730.256
01916	2	829.29	0.4210	349.131
01531	2	698.02	0.3870	270.133
01553	2	1,288.45	0.5903	760.507
01397	5			

		3,270.89	0.9960	3,257.806
01496	4	2,621.37	0.9960	2,610.884
01915	4	2,289.73	0.9958	2,279.998
01396	5	3,410.38	0.9958	3,395.885
01544	4	2,335.40	0.9950	2,323.723
00018	5	3,665.52	0.9965	3,652.690
00017	5	3,601.63	0.9965	3,589.024
02044	2	1,176.34	0.8513	1,001.359
1442	4	2,637.64	0.9933	2,619.835
307	4	2,830.57	0.9840	2,785.280
02728	2	1,071.37	0.8580	919.235
02679	1	839.49	0.8568	719.233
02727	2	1,157.37	0.8573	992.155
01551	8	5,289.71	0.9935	5,255.326
1543	2	1,393.51	0.9945	1,385.845
01416	8	5,609.88	0.9933	5,572.013
02134	5	3,285.72	0.9965	3,274.219
01954	4	2,471.90	0.9955	2,460.776
01459	3	2,428.79	0.9953	2,417.253
01873	6	3,858.40	0.9953	3,840.072
01464	1	528.09	0.1780	94.000
01604	3	1,840.07	0.4100	754.428
01449	2			

		1,089.95	0.7393	805.745
01241	3	2,025.64	0.6480	1,312.614
01233	2	1,236.50	0.3915	484.089
01481	2	1,061.79	0.5505	584.515
01511	3	1,675.66	0.4135	692.885
01506	1	715.32	0.4640	331.908
00971	1	835.94	0.8538	713.683
00467	1	597.35	0.8538	509.987
00379	2	898.19	0.8620	774.239
01443	4	2,063.24	0.3885	801.568
01413	2	890.93	0.4045	360.381
01193	2	1,295.49	0.5013	649.364
01433	2	889.70	0.4285	381.236
01482	3	1,750.05	0.4960	868.024
01267	3	1,631.32	0.5980	975.529
01266	2	1,483.56	0.5380	798.155
01291	3	1,594.35	0.3885	619.404
01294	2	1,359.28	0.3895	529.439
01139	2	1,039.44	0.5203	540.768
01393	3	1,751.60	0.5423	949.805
01234	2	1,134.16	0.3855	437.218
06148	1	899.26	0.9658	868.460
06148	1			

		898.15	0.9658	867.388
08247	1	965.56	0.9305	898.453
08940	1	948.38	0.9540	904.754
08940	1	938.12	0.9540	894.966
09956	1	1,007.33	0.9663	973.332
07819	1	1,022.70	0.9455	966.962
08261	1	947.56	0.9710	920.080
09956	1	989.35	0.9663	955.959
08247	1	976.45	0.9305	908.586
08270	1	993.07	0.9668	960.050
07819	1	943.45	0.9455	892.031
06153	1	936.27	0.9800	917.544
06147	1	958.48	0.9820	941.227
06148	1	892.80	0.9658	862.221
06149	1	962.89	0.9810	944.595
06154	1	967.33	0.9640	932.506
06154	1	950.60	0.9640	916.378
07802	1	1,021.09	0.9415	961.356
07805	1	937.38	0.9280	869.888
06100	1	884.58	0.9650	853.619
06100	1	903.81	0.9650	872.176
08255	1	860.70	0.9210	792.704
07818	1			

		853.27	0.9320	795.247
07818	1	992.87	0.9320	925.354
07824	1	991.48	0.9220	914.144
08269	1	957.34	0.9245	885.060
07826	1	1,016.44	0.9543	969.937
08269	1	953.64	0.9245	881.640
07818	1	977.02	0.9320	910.582
07816	1	994.17	0.9490	943.467
07819	1	987.97	0.9455	934.125
07816	1	1,024.98	0.9490	972.706
08247	1	975.29	0.9305	907.507
08247	1	951.45	0.9305	885.324
08247	1	966.38	0.9305	899.216
08256	1	861.82	0.9193	792.228
07818	1	965.02	0.9320	899.398
07801	1	989.73	0.9650	955.089
08255	1	872.85	0.9210	803.894
06157	1	894.80	0.9695	867.508
06164	1	936.73	0.9413	881.697
07818	1	957.94	0.9320	892.800
06164	1	953.48	0.9413	897.463
06160	1	962.36	0.9743	937.579
07816	1			

		964.64	0.9490	915.443
06164	1	1,010.39	0.9413	951.029
08255	1	878.17	0.9210	808.794
08255	1	875.36	0.9210	806.206
08255	1	885.27	0.9210	815.333
08255	1	858.25	0.9210	790.448
06157	1	947.60	0.9695	918.698
06157	1	891.35	0.9695	864.163
06157	1	873.92	0.9695	847.265
06156	1	926.64	0.9720	900.694
08953	1	983.51	0.9650	949.087
08952	1	987.48	0.9668	954.646
06165	1	1,019.01	0.9588	976.975
06165	1	1,012.82	0.9588	971.041
08940	1	970.76	0.9540	926.105
08940	1	946.75	0.9540	903.199
07815	1	951.75	0.9695	922.721
07814	1	988.43	0.9383	927.394
06156	1	918.68	0.9720	892.956
06156	1	952.80	0.9720	926.121
06157	1	889.93	0.9695	862.787
06157	1	933.68	0.9695	905.202
06153	1			

		922.33	0.9800	903.883
06160	1	900.34	0.9743	877.156
07816	1	1,029.67	0.9490	977.156
07816	1	976.59	0.9490	926.783
07808	1	902.89	0.9533	860.679
07815	1	999.81	0.9695	969.315
07815	1	969.15	0.9695	939.590
07815	1	996.99	0.9695	966.581
06154	1	1,016.23	0.9640	979.645
06100	1	917.91	0.9650	885.783
06100	1	917.52	0.9650	885.406
06100	1	906.37	0.9650	874.647
06158	1	883.86	0.9305	822.431
06158	1	986.89	0.9305	918.301
07809	1	925.56	0.9498	879.050
07819	1	982.12	0.9455	928.594
07814	1	980.45	0.9383	919.907
07814	1	948.15	0.9383	889.601
07809	1	1,030.87	0.9498	979.068
06160	1	938.95	0.9743	914.772
07802	1	1,015.48	0.9415	956.074
06155	1	898.84	0.9653	867.605
06154	1			

		969.51	0.9640	934.607
06158	1	889.07	0.9305	827.279
08958	1	966.13	0.9678	934.972
07805	1	880.49	0.9280	817.094
07805	1	887.37	0.9280	823.479
06152	1	951.40	0.9875	939.507
06152	1	793.35	0.9875	783.433
07814	1	958.84	0.9383	899.631
07814	1	976.41	0.9383	916.116
07814	1	906.46	0.9383	850.486
06158	1	996.07	0.9305	926.843
06164	1	922.24	0.9413	868.058
07805	1	921.90	0.9280	855.523
07805	1	955.33	0.9280	886.546
07808	1	937.72	0.9533	893.881
07808	1	1,013.71	0.9533	966.319
07802	1	1,000.28	0.9415	941.763
07802	1	998.83	0.9415	940.398
08930	1	962.30	0.9570	920.921
07808	1	1,060.53	0.9533	1,010.950
08262	1	911.08	0.9533	868.487
08262	1	1,026.37	0.9533	978.387
08956	1			

		1,023.87	0.9678	990.850
08960	1	990.84	0.9675	958.637
08958	1	942.69	0.9678	912.288
08991	1	943.04	0.9688	913.570
08959	1	971.87	0.9610	933.967
08957	1	995.49	0.9683	963.883
08957	1	950.20	0.9683	920.031
08270	1	1,022.42	0.9668	988.424
08262	1	1,027.56	0.9533	979.521
08276	1	981.45	0.9613	943.418
08954	1	908.30	0.9230	838.360
08954	1	917.40	0.9230	846.760
08930	1	933.61	0.9570	893.464
08956	1	1,017.96	0.9678	985.130
08276	1	985.59	0.9613	947.398
08960	1	947.98	0.9675	917.170
08270	1	961.29	0.9668	929.327
08262	1	1,025.84	0.9533	977.881
07814	1	873.11	0.9383	819.195
06165	1	1,028.35	0.9588	985.930
08954	1	916.66	0.9230	846.077
06156	1	944.18	0.9720	917.742
06100	1			

		910.93	0.9650	879.047
06155	1	931.68	0.9653	899.304
06164	1	960.29	0.9413	903.872
06154	1	1,015.37	0.9640	978.816
06165	1	974.95	0.9588	934.733
06158	1	952.62	0.9305	886.412
06157	1	901.05	0.9695	873.567
06156	1	977.82	0.9720	950.441
06156	1	909.77	0.9720	884.296
06156	1	917.51	0.9720	891.819
06101	1	900.98	0.9758	879.131
06164	1	924.03	0.9413	869.743
06147	1	960.89	0.9820	943.593
08956	1	1,041.31	0.9678	1,007.727
08276	1	988.42	0.9613	950.118
06152	1	960.86	0.9875	948.849
06152	1	931.42	0.9875	919.777
08270	1	994.81	0.9668	961.732
09957	1	1,041.49	0.9663	1,006.339
08957	1	994.79	0.9683	963.205
07802	1	1,000.44	0.9415	941.914
08262	1	1,004.87	0.9533	957.892
06158	1			

		894.07	0.9305	831.932
06157	1	905.90	0.9695	878.270
06147	1	950.58	0.9820	933.469
07805	1	981.92	0.9280	911.221
08275	1	966.80	0.9695	937.312
07811	1	1,026.20	0.9888	1,014.655
07811	1	1,021.92	0.9888	1,010.423
08956	1	979.43	0.9678	947.843
07816	1	944.43	0.9490	896.264
09956	1	1,028.81	0.9663	994.087
08959	1	987.95	0.9610	949.419
08260	1	891.22	0.9370	835.073
09955	1	978.20	0.9683	947.142
08953	1	984.05	0.9650	949.608
08263	1	982.02	0.9690	951.577
08262	1	990.72	0.9533	944.403
08256	1	892.90	0.9193	820.798
09954	1	984.38	0.9693	954.110
09954	1	1,012.76	0.9693	981.617
08273	1	976.38	0.9305	908.521
09957	1	1,011.42	0.9663	977.284
09958	1	952.20	0.9678	921.491
08269	1			

		954.58	0.9245	882.509
07824	1	1,011.14	0.9220	932.271
09958	1	973.22	0.9678	941.833
08269	1	929.93	0.9245	859.720
07826	1	1,013.50	0.9543	967.132
08270	1	954.44	0.9668	922.704
09957	1	986.08	0.9663	952.799
09958	1	967.52	0.9678	936.317
08275	1	955.52	0.9695	926.376
09956	1	1,016.23	0.9663	981.932
08275	1	974.81	0.9695	945.078
07826	1	1,022.89	0.9543	976.092
07824	1	929.36	0.9220	856.869
06146	1	966.62	0.9845	951.637
06146	1	959.39	0.9845	944.519
06146	1	1,009.91	0.9845	994.256
06148	1	860.84	0.9658	831.356
06148	1	864.68	0.9658	835.064
06158	1	912.90	0.9305	849.453
06155	1	889.25	0.9653	858.348
06100	1	910.88	0.9650	878.999
06155	1	894.01	0.9653	862.943
06154	1			

		1,012.02	0.9640	975.587
06155	1	937.53	0.9653	904.950
06153	1	984.85	0.9800	965.153
08247	1	941.99	0.9305	876.521
08261	1	990.29	0.9710	961.571
08247	1	890.39	0.9305	828.507
08261	1	977.17	0.9710	948.832
06153	1	967.87	0.9800	948.512
06152	1	930.47	0.9875	918.839
07808	1	986.70	0.9533	940.571
07808	1	936.02	0.9533	892.261
06160	1	967.72	0.9743	942.801
06160	1	983.42	0.9743	958.096
06160	1	918.75	0.9743	895.092
06160	1	963.63	0.9743	938.816
06149	1	976.14	0.9810	957.593
06149	1	945.20	0.9810	927.241
06154	1	997.65	0.9640	961.734
06097	1	977.40	0.9238	902.873
07824	1	992.08	0.9220	914.697
08261	1	1,028.90	0.9710	999.061
07811	1	950.02	0.9888	939.332
06149	1			

		904.09	0.9810	886.912
06152	1	953.10	0.9875	941.186
08269	1	914.11	0.9245	845.094
06146	1	968.17	0.9845	953.163
06147	1	980.17	0.9820	962.526
06147	1	829.63	0.9820	814.696
06164	1	925.65	0.9413	871.268
06152	1	939.32	0.9875	927.578
00937	1	902.99	0.8610	777.474
00866	1	1,015.25	0.8860	899.511
00885	1	799.30	0.8730	697.788
00011	1	887.90	0.8555	759.598
00064	1	972.46	0.8185	795.958
00895	1	938.23	0.8533	800.544
01364	2	972.32	0.4075	396.220
01296	1	431.57	0.7398	319.253
01295	2	1,008.08	0.3895	392.647
01308	1	600.10	0.7738	464.327
01125	2	835.53	0.3910	326.692
01323	3	1,672.23	0.5915	989.124
01322	2	1,506.78	0.5438	819.311
01242	3	1,985.35	0.6238	1,238.362
01342	1			

		309.72	0.5825	180.411
01293	3	1,765.18	0.4135	729.901
01386	1	302.89	0.6400	193.849
00887	1	757.17	0.8735	661.387
00884	1	723.10	0.8733	631.447
00883	1	673.22	0.8753	589.235
00077	1	746.99	0.8545	638.302
00076	1	706.78	0.8580	606.417
00940	2	1,128.62	0.8735	985.849
00075	1	800.54	0.8580	686.863
00898	1	439.37	0.9403	413.117
00014	1	493.61	0.8758	432.278
01072	1	536.36	0.8633	463.012
00465	1	439.74	0.8635	379.715
00262	1	557.47	0.8503	473.988
00810	1	314.36	0.8795	276.479
00766	1	531.85	0.8888	472.681
00780	1	406.74	0.8575	348.779
00734	5	3,905.60	0.6510	2,542.545
00553	4	3,307.78	0.6613	2,187.269
00474	7	4,800.48	0.6608	3,171.917
01585	6	4,091.75	0.6823	2,791.596
00970	4			

		2,250.88	0.3895	876.717
00942	4	2,040.16	0.3040	620.208
00471	5	4,000.15	0.6575	2,630.098
00736	5	3,935.22	0.6518	2,564.779
20	7	4,639.04	0.3983	1,847.497
01220	2	1,051.83	0.4053	426.254
01219	1	276.76	0.6703	185.498
01301	2	1,140.75	0.2560	292.032
01321	2	1,583.77	0.5060	801.387
01359	1	342.62	0.6825	233.838
01363	2	793.66	0.4305	341.670
01274	1	409.69	0.7295	298.868
01300	2	1,147.12	0.2950	338.400
01218	1	444.29	0.7613	338.215
01354	2	875.64	0.4720	413.302
01194	2	1,318.36	0.6128	807.825
01195	2	1,228.32	0.5150	632.584
01429	5	4,165.19	0.6930	2,886.476
01431	5	4,097.27	0.6933	2,840.432
01587	7	4,997.05	0.6833	3,414.234
01432	4	3,184.92	0.6933	2,207.945
01430	5	4,216.68	0.6933	2,923.213
23	7			

		4,525.99	0.3940	1,783.240
00969	4	2,486.20	0.3920	974.590
00936	4	2,435.25	0.3935	958.270
00959	5	3,899.75	0.6373	2,485.115
00958	5	3,882.43	0.6375	2,475.049
01114	5	3,984.15	0.6663	2,654.439
00960	6	4,696.50	0.6383	2,997.541
00199	1	347.42	0.7593	263.778
00288	1	382.17	0.5005	191.276
00545	1	883.33	0.8405	742.438
00494	1	941.19	0.7758	730.128
00197	1	541.02	0.7570	409.552
00246	1	446.81	0.4935	220.500
00198	1	220.22	0.5703	125.580
00572	1	316.62	0.4080	129.180
00511	1	533.70	0.3030	161.711
00584	1	326.99	0.4910	160.552
00521	1	485.61	0.4080	198.128
00585	1	311.43	0.6293	195.967
00544	3	1,894.20	0.5613	1,063.119
00196	2	814.28	0.7678	625.163
00558	1	296.02	0.5345	158.222
00707	3			

		1,913.46	0.5913	1,131.333
00501	2	810.04	0.4095	331.711
00699	1	412.50	0.3915	161.493
00636	2	1,084.05	0.3965	429.825
00635	2	1,160.60	0.3950	458.437
00694	3	1,927.20	0.5455	1,051.287
00500	3	2,148.10	0.5893	1,265.767
00642	2	637.72	0.4190	267.204
00643	1	399.45	0.3960	158.182
00625	1	512.42	0.7715	395.332
00641	2	746.53	0.4020	300.105
00626	1	773.37	0.7620	589.307
00728	1	265.43	0.5598	148.574
00930	1	378.30	0.1985	75.092
00925	1	490.02	0.3830	187.677
00927	2	1,024.18	0.3785	387.652
00687	1	320.04	0.4245	135.856
00808	1	437.64	0.3900	170.679
00697	3	1,384.70	0.3965	549.033
00708	2	1,677.96	0.5863	983.704
00700	3	2,127.55	0.5260	1,119.091
00906	1	708.95	0.4673	331.256
00693	3			

		1,968.20	0.5528	1,087.922
00630	1	590.10	0.4265	251.677
00672	1	609.86	0.8215	500.999
00543	3	2,273.86	0.4895	1,113.054
00547	1	742.17	0.5645	418.954
00575	1	432.58	0.2373	102.629
00181	1	788.02	0.4523	356.382
00297	3	1,459.42	0.5835	851.571
00495	1	406.92	0.8270	336.522
00709	1	723.95	0.7885	570.834
00654	1	574.67	0.3985	229.005
00686	2	896.35	0.6888	617.361
00653	2	1,175.33	0.3915	460.141
00612	2	968.72	0.8035	778.366
00871	3	1,826.27	0.6088	1,111.741
00926	2	704.79	0.4225	297.773
00698	1	534.93	0.4150	221.995
00600	3	1,192.80	0.3885	463.402
00223	1	859.60	0.7950	683.382
00245	2	864.45	0.8223	710.794
00577	2	892.20	0.3905	348.404
00595	2	917.20	0.8203	752.333
00571	4			

		2,088.25	0.3925	819.638
00601	1	272.48	0.5135	139.918
00497	1	685.74	0.8403	576.193
00517	2	1,278.20	0.3805	486.355
00520	2	1,191.60	0.4020	479.023
00556	1	814.20	0.7840	638.332
00578	3	1,402.90	0.4000	561.160
00211	1	285.40	0.7403	211.267
00236	2	1,042.30	0.5033	524.537
00372	2	1,185.50	0.7513	890.606
02723	2	1,386.89	0.6803	943.431
02610	2	835.71	0.3030	253.220
01775	2	936.02	0.3980	372.535
01780	2	792.06	0.4035	319.596
01785	2	1,245.92	0.3920	488.400
01783	2	1,723.33	0.5233	901.732
01709	2	1,133.77	0.3055	346.366
01784	2	1,617.49	0.4360	705.225
02462	1	494.18	0.1085	53.618
02444	3	1,389.29	0.5675	788.422
01910	1	599.26	0.6285	376.634
02115	1	775.71	0.6418	497.811
02115	1			

		804.22	0.6418	516.108
02115	1	789.94	0.6418	506.943
02115	1	759.06	0.6418	487.126
02720	1	708.83	0.7165	507.876
00856	5	3,876.46	0.6558	2,541.988
00473	6	3,860.00	0.6593	2,544.705
00855	5	3,869.90	0.6553	2,535.751
01779	2	1,159.74	0.3735	433.162
02116	1	802.42	0.6423	515.354
00957	5	3,898.88	0.6370	2,483.586
02069	3	1,496.65	0.4065	608.388
00003	3	1,869.10	0.3950	738.294
01988	3	1,499.05	0.3935	589.876
00051	2	749.52	0.3965	297.184
00052	2	830.17	0.3930	326.256
00002	2	671.50	0.3920	263.228
00737	4	3,480.13	0.6528	2,271.654
00915	4	2,257.38	0.5923	1,336.933
00858	6	4,430.65	0.6573	2,912.044
00857	5	3,956.40	0.6563	2,596.387
01179	5	3,932.68	0.6593	2,592.619
01126	4	2,440.82	0.3960	966.564
01395	4			

		2,599.33	0.3910	1,016.338
02070	3	1,180.58	0.3920	462.787
00001	3	1,428.73	0.4005	572.206
02125	3	1,793.31	0.3910	701.184
00124	2	807.35	0.4165	336.261
00162	1	693.70	0.7955	551.838
00139	3	2,180.85	0.5188	1,131.315
01955	2	698.55	0.4045	282.563
00062	2	1,413.50	0.6055	855.874
01115	4	2,915.85	0.6683	1,948.516
01178	5	3,979.93	0.6585	2,620.783
01083	4	3,022.75	0.6098	1,843.121
01180	5	3,845.40	0.6603	2,538.925
01124	4	2,487.92	0.3925	976.508
00875	1	242.33	0.6280	152.183
00778	1	378.81	0.4085	154.743
00745	1	240.83	0.5595	134.744
00475	1	419.63	0.6043	253.561
00779	1	654.17	0.7058	461.680
00873	1	900.47	0.8570	771.702
1411	5	2,965.72	0.3370	999.447
899	6	3,533.93	0.2975	1,051.344
30	3			

		1,953.76	0.3655	714.099
1166	3	1,494.38	0.3910	584.302
1080	2	1,242.06	0.3940	489.371
621	2	1,241.14	0.3900	484.044
01071	1	569.71	0.8758	498.923
00683	1	494.28	0.9310	460.174
00684	1	474.37	0.9370	444.484
01477	1	455.80	0.8630	393.355
02726	1	370.73	0.8760	324.759
00897	1	509.75	0.9325	475.341
00935	1	583.87	0.8630	503.879
02500	1	763.15	0.8600	656.309
01257	5	3,959.35	0.6573	2,602.282
01260	6	5,185.70	0.6585	3,414.783
01327	5	3,786.90	0.6333	2,398.054
01259	5	3,937.90	0.6575	2,589.169
01328	5	3,730.90	0.6340	2,365.390
1050	3	1,718.60	0.3535	607.525
14	8	4,766.25	0.3760	1,792.110
6	5	3,384.33	0.3933	1,330.887
01113	5	4,066.78	0.6660	2,708.475
01112	5	3,986.00	0.6650	2,650.690
01042	4			

		3,092.73	0.6565	2,030.377
01181	5	3,591.53	0.6623	2,378.490
01041	5	3,945.70	0.6553	2,585.419
01142	5	2,999.05	0.3955	1,186.124
01143	5	3,069.70	0.3950	1,212.531
01141	4	2,496.05	0.3975	992.179
01628	1	341.44	0.4160	142.039
01629	1	374.55	0.3870	144.950
01149	5	2,920.40	0.3955	1,155.018
01039	5	3,903.50	0.6538	2,551.913
01040	5	3,861.54	0.6545	2,527.377
01608	1	633.30	0.4020	254.586
01610	1	401.18	0.3635	145.828
01630	1	236.44	0.3935	93.039
01579	1	655.13	0.4740	310.531
01617	1	398.39	0.3860	153.778
01624	1	434.14	0.3885	168.663
01580	3	2,253.00	0.3825	861.772
01412	2	1,016.29	0.4045	411.089
01521	1	918.55	0.7995	734.380
01640	2	714.11	0.3960	282.787
01599	3	1,717.33	0.3880	666.324
01636	1			

		544.85	0.4040	220.119
01641	1	442.19	0.4095	181.076
01597	2	1,162.24	0.5230	607.851
01513	1	349.29	0.5635	196.824
01602	3	1,986.47	0.4168	827.861
01541	3	1,924.51	0.5545	1,067.140
01603	4	2,102.99	0.3830	805.445
00479	2	848.41	0.4070	345.302
00696	1	643.22	0.4930	317.107
00711	1	515.80	0.4500	232.109
00823	1	158.36	0.5248	83.099
00763	2	938.50	0.8185	768.162
00805	2	1,019.15	0.3905	397.978
00807	3	1,453.92	0.4025	585.202
00716	2	1,279.58	0.5100	652.585
00774	1	621.72	0.8040	499.862
00911	2	929.97	0.8373	778.617
00928	2	826.93	0.4120	340.695
00695	2	1,182.67	0.5438	643.076
00744	1	761.40	0.8295	631.581
01563	1	737.95	0.3158	233.007
01547	1	605.28	0.8493	514.034
02641	1			

		722.15	0.8393	606.064
01593	1	694.03	0.8310	576.738
01529	2	1,294.10	0.6630	857.988
01530	3	1,709.95	0.6605	1,129.421
01627	3	2,081.45	0.6723	1,399.254
02521	2	914.67	0.2460	225.008
01495	1	446.90	0.8030	358.860
00777	1	459.15	0.4010	184.119
00478	3	1,255.39	0.4010	503.411
00806	2	1,114.08	0.3920	436.719
00811	1	481.07	0.5205	250.396
00933	1	299.91	0.6578	197.265
00988	1	418.55	0.5990	250.711
01772	2	1,159.78	0.3705	429.698
01719	1	516.30	0.0003	0.129
02114	1	609.07	0.6410	390.413
01910	1	766.47	0.6285	481.726
02651	1	608.25	0.6783	412.545
01566	2	725.68	0.4055	294.263
01613	2	922.78	0.2330	215.007
01626	2	1,240.22	0.6693	830.017
01617	2	944.47	0.3955	373.537
01614	2			

		1,571.40	0.6285	987.624
01609	1	411.75	0.6365	262.078
01624	3	1,884.10	0.6693	1,260.933
01548	1	535.05	0.8490	454.257
01599	1	620.05	0.4285	265.691
01708	1	809.08	0.4083	330.306
01711	2	1,136.54	0.3515	399.493
01710	2	1,129.91	0.3445	389.253
02468	2	987.05	0.2633	259.840
02082	1	678.05	0.6615	448.530
02467	3	1,675.98	0.5348	896.230
02083	1	746.30	0.6625	494.423
02083	1	696.60	0.6625	461.497
02083	1	691.05	0.6625	457.820
02083	1	670.83	0.6625	444.424
02475	3	1,806.40	0.6375	1,151.580
01699	3	1,759.95	0.4025	708.379
02082	1	649.62	0.6615	429.723
02082	1	627.60	0.6615	415.157
02082	1	652.10	0.6615	431.364
02082	1	645.05	0.6615	426.700
01703	1	622.20	0.4025	250.435
02045	1			

		554.85	0.5853	324.725
02046	1	638.25	0.6630	423.159
02045	1	857.85	0.5853	502.056
01773	2	1,214.72	0.3805	462.200
01167	1	569.20	0.4155	236.502
01084	1	671.75	0.3830	257.280
01075	1	746.00	0.5360	399.856
01098	1	830.25	0.8335	692.013
01127	1	792.36	0.8205	650.131
01073	1	459.51	0.5725	263.069
00787	1	693.69	0.4143	287.361
00973	1	556.53	0.6468	359.935
00809	2	976.30	0.8483	828.146
01033	1	476.22	0.3995	190.249
01024	1	513.77	0.5883	302.225
01175	1	732.49	0.4000	292.996
00821	2	974.97	0.8298	808.981
01182	1	895.95	0.7913	708.920
01018	3	1,468.22	0.4000	587.288
01134	2	883.42	0.5825	514.592
01059	3	1,922.10	0.5770	1,109.051
01119	1	613.70	0.2770	169.994
01085	1			

		482.05	0.4025	194.025
01054	1	756.10	0.8285	626.428
01092	1	614.05	0.4030	247.462
01132	1	284.90	0.5835	166.239
01045	2	1,215.18	0.7948	965.764
01140	1	502.53	0.7875	395.742
01394	2	1,277.70	0.5598	715.192
01292	1	408.43	0.4020	164.188
01174	3	1,919.30	0.3920	752.365
01168	3	1,799.40	0.3875	697.267
02739	1	343.65	0.8428	289.611
02434	1	319.85	0.8300	265.475
02667	1	1,337.87	0.6528	873.294
02453	1	1,018.88	0.7443	758.301
01074	1	929.15	0.4335	402.786
02677	1	966.32	0.7903	763.634
01034	2	1,368.02	0.3945	539.683
01097	2	1,389.30	0.5430	754.389
01647	5	4,095.08	0.7078	2,898.292
02063	5	3,819.25	0.6325	2,415.675
01789	6	4,278.55	0.7080	3,029.213
01096	3	1,937.50	0.5205	1,008.468
01919	4			

		2,569.53	0.3950	1,014.964
01646	5	4,064.10	0.7073	2,874.334
01788	6	4,145.75	0.7068	2,930.008
02064	5	3,835.70	0.6325	2,426.080
01505	5	4,014.18	0.6685	2,683.479
02062	5	3,786.79	0.6325	2,395.144
01648	6	4,684.35	0.7095	3,323.546
01776	2	1,214.40	0.3920	476.044
01750	1	424.20	0.4015	170.316
01910	1	747.55	0.6285	469.835
01506	5	4,054.23	0.6685	2,710.252
01507	7	5,107.23	0.6693	3,418.013
01586	5	4,047.14	0.6833	2,765.208
01693	2	1,007.30	0.3300	332.409
01659	1	392.42	0.3890	152.651
01697	1	470.08	0.4035	189.677
01765	1	398.50	0.3800	151.430
01691	2	1,260.90	0.3905	492.381
01700	2	1,218.85	0.3915	477.179
02114	1	746.25	0.6410	478.346
01677	1	671.02	0.3985	267.401
01704	1	588.90	0.3595	211.709
01692	1			

		548.10	0.4200	230.202
01690	1	551.45	0.1985	109.462
01736	2	1,277.00	0.4580	584.866
01741	2	1,160.65	0.3560	413.191
01738	2	1,264.20	0.4030	509.472
01735	3	1,673.50	0.6123	1,024.600
01452	1	531.25	0.4088	217.148
01405	1	741.08	0.4088	302.916
02650	2	1,087.75	0.6778	737.222
02662	3	1,744.65	0.5995	1,045.917
01531	3	1,908.40	0.6005	1,145.994
02523	3	1,736.50	0.6030	1,047.109
00951	2	1,292.65	0.2738	353.862
02528	3	1,820.60	0.6283	1,143.791
02653	2	1,163.38	0.3045	354.249
02628	2	1,135.40	0.5678	644.623
02630	2	1,174.43	0.5678	666.782
01747	3	1,862.72	0.3160	588.619
02477	1	588.95	0.6373	375.308
01744	1	700.85	0.4065	284.895
01737	2	1,231.75	0.3875	477.303
02652	1	581.26	0.0955	55.510
02494	1			

		533.94	0.2510	134.018
01766	2	899.47	0.4655	418.703
01758	2	1,171.57	0.3635	425.865
01044	2	1,055.70	0.4440	468.730
00987	1	736.47	0.8253	607.771
01000	1	842.94	0.8233	693.950
01022	2	1,574.67	0.5068	797.964
00989	2	1,178.94	0.4215	496.923
00940	3	1,795.05	0.5935	1,065.362
00941	2	1,254.39	0.5615	704.339
01019	1	600.18	0.3885	233.169
01162	1	281.22	0.7390	207.821
01023	1	692.02	0.7905	547.041
00870	3	2,190.28	0.4965	1,087.474
01787	1	371.35	0.4045	150.211
01764	1	451.88	0.3965	179.170
01759	2	1,301.13	0.3785	492.477
01763	2	1,016.67	0.4785	486.476
01714	2	1,082.31	0.3990	431.841
01716	1	487.98	0.4025	196.411
01720	2	1,236.01	0.3875	478.953
01752	1	544.23	0.3960	215.515
01715	1			

		534.25	0.4000	213.700
01722	1	572.78	0.4205	240.853
01757	1	512.98	0.3845	197.240
01705	1	620.72	0.3990	247.667
01721	1	676.52	0.4085	276.358
01724	1	691.82	0.3960	273.960
01717	2	686.29	0.3975	272.800
01723	1	339.94	0.4020	136.655
00551	6	3,963.60	0.6605	2,617.957
01552	3	1,761.70	0.5975	1,052.615
01577	3	1,265.10	0.4765	602.820
01514	2	678.35	0.5080	344.601
01447	2	912.83	0.2848	259.928
01510	2	842.98	0.2770	233.505
00554	4	3,358.65	0.6613	2,220.907
00648	6	3,864.45	0.6355	2,455.857
00650	4	3,294.60	0.6365	2,097.012
00651	4	2,614.50	0.6365	1,664.129
01413	4	3,011.15	0.6283	1,891.754
01448	6	3,319.70	0.0203	67.223
01473	4	1,900.60	0.0015	2.850
01449	6	3,119.80	0.0205	63.955
00180	5			

		3,315.20	0.4868	1,613.673
00552	5	3,958.90	0.6608	2,615.843
00649	6	3,896.08	0.6360	2,477.906
00407	4	2,468.55	0.4580	1,130.595
01597	9	4,993.35	0.0015	7.490
01526	4	2,982.62	0.6638	1,979.714
01527	5	3,784.25	0.6608	2,500.443
01528	5	3,749.15	0.6623	2,482.874
01379	8	4,710.88	0.0140	65.952
01418	5	3,737.73	0.6823	2,550.066
01419	4	2,571.70	0.6823	1,754.542
01420	5	3,195.00	0.5483	1,751.658
01964	3	1,670.37	0.6125	1,023.101
01689	5	4,483.55	0.6595	2,956.901
01686	5	3,864.20	0.6583	2,543.609
01682	4	3,201.75	0.6743	2,158.779
02478	6	3,936.68	0.6385	2,513.570
01767	4	2,230.92	0.6223	1,388.189
01771	4	3,063.10	0.6980	2,138.043
02476	5	3,019.50	0.6383	1,927.195
02524	4	2,405.98	0.6025	1,449.602
01562	4	2,663.03	0.5605	1,492.628
02088	1			

		691.50	0.3795	262.424
02041	1	610.30	0.8225	501.971
01994	1	250.28	0.5585	139.781
01975	1	518.15	0.2378	123.190
01940	2	804.30	0.2955	237.670
01667	3	1,799.55	0.3940	709.022
02006	2	829.46	0.3948	327.429
02046	3	1,940.80	0.5663	1,098.978
00118	2	861.30	0.4310	371.220
01959	1	594.20	0.3915	232.629
01965	3	1,585.75	0.5320	843.619
01918	3	1,778.98	0.3845	684.017
01917	3	1,201.85	0.4005	481.340
02080	2	823.93	0.3820	314.741
02089	2	1,018.62	0.3945	401.845
01962	2	1,144.55	0.3955	452.669
01910	5	3,911.85	0.6530	2,554.438
01838	4	2,335.55	0.3935	919.038
02004	7	5,569.10	0.6683	3,721.551
01909	5	3,940.50	0.6528	2,572.161
01860	5	3,892.35	0.5205	2,025.968
01908	5	4,039.70	0.6528	2,636.914
01911	4			

		3,052.25	0.6525	1,991.593
02002	5	3,977.15	0.6690	2,660.713
02003	5	3,915.00	0.6688	2,618.156
00063	2	858.33	0.5133	440.537
02113	3	1,866.72	0.6658	1,242.768
00221	3	1,968.10	0.5875	1,156.258
00422	1	575.88	0.8238	474.381
00053	2	1,338.62	0.3985	533.440
00330	1	745.88	0.8333	621.504
00054	2	1,100.42	0.5185	570.567
00424	1	619.02	0.8290	513.167
00444	1	766.65	0.8240	631.719
00312	1	961.55	0.8338	801.692
00309	2	711.92	0.3840	273.377
00310	2	1,390.02	0.3950	549.057
00435	2	1,422.10	0.5343	759.756
00421	1	601.33	0.8220	494.293
00336	2	1,044.48	0.6758	705.807
00359	2	800.60	0.4055	324.643
00318	3	1,897.65	0.5715	1,084.506
02126	2	587.10	0.4070	238.949
01591	2	1,557.88	0.5788	901.623
01872	3			

		1,668.48	0.4065	678.237
01635	2	854.55	0.4180	357.201
01861	2	850.33	0.4265	362.665
01901	2	1,108.20	0.4480	496.473
02030	3	1,381.73	0.4095	565.818
01636	1	226.56	0.5838	132.254
01588	1	547.51	0.6095	333.707
01770	3	1,917.60	0.6310	1,210.005
01939	3	1,791.65	0.5725	1,025.719
01780	3	1,768.23	0.3890	687.841
01730	2	1,403.17	0.8078	1,133.410
00176	5	4,109.70	0.6838	2,810.007
00125	5	3,337.63	0.3950	1,318.363
00126	4	2,310.98	0.3940	910.526
00109	4	1,820.08	0.5390	981.023
02065	5	3,864.85	0.6325	2,444.517
01764	3	2,020.75	0.6148	1,242.256
01615	2	690.41	0.3710	256.142
01941	1	775.95	0.4220	327.450
01658	2	802.58	0.3810	305.782
01779	1	417.55	0.4180	174.535
01895	3	1,745.10	0.6030	1,052.295
00177	5			

		4,103.50	0.6843	2,807.819
00073	5	4,011.48	0.6723	2,696.717
00074	4	3,355.73	0.6728	2,257.567
00175	5	4,071.48	0.6838	2,783.874
00005	5	3,878.30	0.6143	2,382.245
00370	5	4,000.70	0.6815	2,726.477
00072	5	3,996.70	0.6718	2,684.783
00006	5	3,918.75	0.6145	2,408.071
00004	5	3,829.60	0.6143	2,352.331
00071	5	4,061.80	0.6710	2,725.467
00412	4	2,113.32	0.3930	830.534
00138	4	2,760.30	0.4910	1,355.307
00371	4	2,670.35	0.6830	1,823.849
00007	7	5,278.20	0.6150	3,246.093
00360	4	2,153.90	0.3870	833.559
00273	5	3,942.68	0.6708	2,644.552
00272	5	3,977.50	0.6708	2,667.908
00275	7	5,728.40	0.6725	3,852.349
00368	5	4,039.00	0.6810	2,750.559
01646	1	168.65	0.4035	68.050
01650	1	200.70	0.4315	86.602
01649	2	815.63	0.3925	320.134
01740	2			

		1,153.55	0.3880	447.577
01729	3	2,597.12	0.7110	1,846.552
01671	3	1,983.35	0.5603	1,111.171
01657	1	677.62	0.3930	266.304
01678	1	647.25	0.6485	419.741
01676	2	1,104.15	0.3825	422.337
01662	2	953.68	0.3770	359.537
01661	2	963.35	0.3915	377.151
01725	2	699.00	0.4065	284.143
01658	1	588.85	0.3930	231.418
01730	2	797.75	0.4460	355.796
00369	5	4,018.40	0.6813	2,737.535
01618	1	370.80	0.4180	154.994
01665	1	529.52	0.4300	227.693
01606	2	963.28	0.3985	383.867
01751	1	427.40	0.4015	171.601
01774	1	472.63	0.3980	188.106
02084	1	465.40	0.3495	162.657
02084	1	443.70	0.3495	155.073
01910	1	764.85	0.6285	480.708
01910	1	774.78	0.6285	486.949
02116	1	714.03	0.6423	458.585
02116	1			

		793.56	0.6423	509.663
02116	1	723.10	0.6423	464.410
00220	3	2,052.83	0.5480	1,124.950
00594	1	637.27	0.5125	326.600
00350	1	874.95	0.8118	710.240
00317	3	2,110.18	0.5363	1,131.584
00380	3	1,552.15	0.4130	641.037
00050	3	1,236.30	0.3915	484.011
00574	2	982.32	0.8243	809.677
00264	2	879.62	0.3760	330.737
01648	2	1,241.05	0.4220	523.723
01647	2	1,021.16	0.3800	388.040
01619	2	1,122.97	0.3680	413.252
01607	1	750.78	0.3910	293.554
01637	1	466.59	0.4125	192.468
01655	1	235.80	0.4145	97.739
01642	1	346.88	0.3905	135.456
01639	1	623.45	0.4170	259.978
01672	2	1,449.52	0.5468	792.525
01654	1	413.50	0.4210	174.083
01644	2	851.55	0.5268	448.553
01664	1	466.63	0.4055	189.218
01663	1			

		438.58	0.4155	182.229
01643	1	249.58	0.4245	105.946
01622	2	996.57	0.3360	334.847
01645	1	682.35	0.4015	273.963
01542	2	926.32	0.5220	483.539
01596	3	1,862.10	0.5365	999.016
01578	1	532.37	0.4780	254.472
01638	2	906.80	0.4070	369.067
01632	2	843.53	0.3870	326.446
01631	1	627.20	0.3960	248.371
01623	1	425.14	0.4110	174.732
01620	1	353.23	0.3835	135.463
02160	1	602.55	0.8195	493.789
00210	1	616.43	0.8200	505.472
02112	3	2,138.57	0.6005	1,284.211
02090	2	974.65	0.4170	406.429
00308	3	1,476.25	0.4095	604.524
00408	3	2,079.90	0.5585	1,161.624
00452	2	1,115.10	0.3780	421.507
02109	2	1,293.45	0.4960	641.551
02626	4	2,292.85	0.5680	1,302.338
02394	4	2,466.03	0.6688	1,649.157
02627	4			

		2,293.06	0.5698	1,306.470
02629	6	3,537.28	0.5678	2,008.290
02393	5	3,722.10	0.6685	2,488.223
02525	6	3,616.97	0.6293	2,275.978
02527	5	2,975.04	0.6293	1,872.043
02381	4	1,972.58	0.5953	1,174.178
01565	4	2,945.32	0.6288	1,851.869
02395	5	3,840.40	0.6680	2,565.387
01613	5	3,842.40	0.6458	2,481.229
01616	7	6,122.40	0.6475	3,964.254
01555	5	2,704.25	0.3815	1,031.671
01532	6	4,029.50	0.6715	2,705.809
01512	4	1,894.28	0.3890	736.874
01567	4	3,051.10	0.6595	2,012.200
01688	5	3,909.80	0.6590	2,576.558
01681	4	2,355.40	0.0018	4.121
01727	5	4,072.20	0.7085	2,885.153
01615	5	3,888.73	0.6465	2,514.063
01687	5	3,921.75	0.6588	2,583.452
01726	5	4,059.45	0.7075	2,872.060
01769	5	4,048.73	0.6968	2,820.952
01770	4	3,442.28	0.6973	2,400.129
02756	4			

		2,028.58	0.2985	605.531
01728	4	3,435.85	0.7095	2,437.735
01614	5	3,838.08	0.6458	2,478.440
02466	4	2,020.08	0.5805	1,172.656
01422	5	3,952.58	0.6740	2,664.038
01564	5	3,962.99	0.6575	2,605.665
01565	5	3,891.73	0.6585	2,562.704
01768	5	3,962.10	0.6955	2,755.640
01623	5	3,814.50	0.6698	2,554.761
01581	5	3,168.33	0.4408	1,396.441
02396	5	3,712.45	0.6683	2,480.844
01490	5	3,947.98	0.6833	2,697.457
01329	5	3,826.80	0.6338	2,425.234
01425	5	3,944.80	0.6740	2,658.795
01492	6	4,357.15	0.6848	2,983.558
01489	5	4,016.88	0.6833	2,744.533
01423	5	3,842.68	0.6738	2,589.005
01424	5	3,951.63	0.6735	2,661.422
01566	5	3,847.85	0.6590	2,535.733
01258	5	3,920.35	0.6575	2,577.630
01388	4	3,240.55	0.6825	2,211.675
01491	5	3,933.50	0.6835	2,688.547
01330	5			

		3,837.90	0.6343	2,434.188
620	4	3,077.35	0.4535	1,395.578
1013	3	2,477.08	0.4450	1,102.300
1278	1	480.50	0.0460	22.103
1437	4	2,751.40	0.4630	1,273.898
1320	4	2,729.94	0.5695	1,554.700
1583	4	2,699.97	0.3860	1,042.188
1111	4	3,064.08	0.5160	1,581.065
1581	4	2,235.80	0.4040	903.263
1521	4	2,785.20	0.4655	1,296.510
851	4	2,548.87	0.5525	1,408.250
849	4	2,460.15	0.4170	1,025.882
704	4	2,933.35	0.5065	1,485.741
702	4	2,716.50	0.4380	1,189.827
1441	3	2,098.75	0.4950	1,038.881
622	4	2,684.57	0.5320	1,428.191
701	3	2,392.65	0.4630	1,107.796
618	3	2,287.43	0.4875	1,115.122
621	4	2,596.72	0.5110	1,326.923
700	4	2,423.60	0.4665	1,130.609
619	4	2,576.45	0.4940	1,272.766
617	2	1,555.98	0.5095	792.771
1644	4			

		2,783.10	0.4340	1,207.865
1586	3	1,817.73	0.5020	912.500
1645	4	2,711.08	0.4720	1,279.629
856	3	1,773.72	0.5115	907.257
1207	2	1,333.70	0.4995	666.183
1647	4	2,737.31	0.4870	1,333.069
1321	2	1,436.97	0.5170	742.913
1206	4	2,798.40	0.5195	1,453.768
703	4	2,684.24	0.4845	1,300.514
793	4	2,883.30	0.5135	1,480.574
540	4	2,912.03	0.5170	1,505.519
794	4	3,174.40	0.5260	1,669.734
796	4	2,496.15	0.5300	1,322.959
1108	4	3,108.04	0.5435	1,689.219
1588	4	2,307.83	0.4745	1,095.065
1011	2	1,243.07	0.4840	601.645
1012	3	1,813.25	0.5180	939.263
1208	3	2,218.90	0.5675	1,259.225
1641	4	2,547.43	0.4295	1,094.121
1440	4	2,219.15	0.5315	1,179.478
857	3	1,875.15	0.5370	1,006.955
854	4	2,574.96	0.4820	1,241.130
1560	1			

		586.00	0.0300	17.580
1016	2	1,598.69	0.5375	859.295
936	4	2,739.37	0.5610	1,536.786
1209	4	2,769.35	0.5260	1,456.678
1435	3	1,589.63	0.5050	802.763
1522	3	1,602.23	0.5290	847.579
795	3	2,211.70	0.4900	1,083.733
1646	4	2,156.22	0.4965	1,070.563
1322	3	1,775.53	0.5320	944.581
1319	4	2,885.55	0.4990	1,439.889
1643	4	2,586.35	0.4225	1,092.732
1210	4	2,836.90	0.4485	1,272.349
1582	4	2,818.60	0.4680	1,319.104
939	4	2,864.78	0.4740	1,357.905
1438	4	2,986.40	0.4850	1,448.404
1585	5	3,330.35	0.4965	1,653.518
938	4	2,690.59	0.4910	1,321.079
1436	4	2,654.58	0.4965	1,317.998
1520	4	2,748.15	0.4690	1,288.882
1638	5	2,276.55	0.3210	730.772
855	2	1,053.45	0.3185	335.523
1317	3	1,857.77	0.5155	957.680
541	3			

		2,305.92	0.5005	1,154.112
792	3	2,149.98	0.4960	1,066.390
1589	4	2,588.17	0.4740	1,226.792
1439	4	2,943.38	0.3920	1,153.804
853	4	2,598.28	0.4655	1,209.499
542	4	3,386.20	0.5010	1,696.486
1110	4	3,071.65	0.5120	1,572.684
1642	5	3,350.56	0.4715	1,579.789
940	4	2,525.18	0.4975	1,256.277
1587	2	1,170.13	0.3260	381.462
1761	1	581.91	0.1000	58.191
543	4	2,703.95	0.4830	1,306.007
1014	4	2,704.75	0.5325	1,440.279
1519	4	2,123.90	0.5150	1,093.808
852	4	2,515.10	0.4515	1,135.567
1584	4	2,746.55	0.4275	1,174.150
1318	4	2,883.82	0.5115	1,475.073
539	2	1,338.55	0.5245	702.069
699	3	2,422.90	0.5570	1,349.555
850	4	2,532.22	0.4450	1,126.837
1109	3	2,296.86	0.4970	1,141.539
02559	1	371.00	0.5850	217.035
1152	1			

		227.15	0.5130	116.527
1054	1	194.10	0.3405	66.091
1133	1	184.64	0.5205	96.105
1138	1	193.60	0.4760	92.153
1172	1	215.25	0.3740	80.503
1079	1	191.90	0.4390	84.244
1055	1	193.80	0.9270	179.652
1068	1	173.76	0.4605	80.016
1069	1	156.68	0.4655	72.934
1070	1	137.18	0.4220	57.889
1077	1	149.42	0.5330	79.640
1057	1	177.60	0.5025	89.244
1052	1	151.93	0.5850	88.879
1053	1	143.80	0.4270	61.402
1056	1	233.42	0.7470	174.364
1059	1	192.41	0.4545	87.450
1051	1	183.47	0.5070	93.019
1168	1	140.44	0.0285	4.002
1066	1	206.82	0.5100	105.478
1067	1	227.91	0.7685	175.148
1082	1	318.75	0.5860	186.787
1158	1	207.38	0.4710	97.675
1367	1			

		293.10	0.4320	126.619
1232	1	194.41	0.5205	101.190
1134	1	220.83	0.9825	216.965
1273	1	300.47	0.3910	117.483
1286	1	338.55	0.5845	197.882
1378	1	251.51	0.0990	24.899
1218	1	264.53	0.8100	214.269
1215	1	143.15	0.4635	66.350
1178	1	200.98	0.4135	83.105
1155	1	188.42	0.4285	80.737
1490	1	176.60	0.5675	100.220
1123	1	229.98	0.7745	178.119
1495	1	195.40	0.4790	93.596
1153	1	263.08	0.7965	209.543
1151	1	153.09	0.5155	78.917
2035	1	107.10	0.5160	55.263
1122	1	136.87	0.6390	87.459
1114	1	153.25	0.5210	79.843
1129	1	136.75	0.4920	67.281
1127	1	126.64	0.1705	21.592
1159	1	133.20	0.5065	67.465
1131	1	128.85	0.6150	79.242
864	1			

		130.45	0.5095	66.464
2003	1	127.78	0.5200	66.445
1213	1	139.40	0.7575	105.595
1156	1	134.23	0.5425	72.819
397	1	364.64	0.7210	262.905
387	1	288.95	0.7765	224.369
377	1	339.95	0.5115	173.884
375	1	269.00	0.4130	111.097
370	1	303.10	0.3010	91.233
91	1	327.53	0.4720	154.594
1389	1	265.30	0.4200	111.426
98	1	323.42	0.5965	192.920
1487	1	271.79	0.5885	159.948
1384	1	268.66	0.4980	133.792
1223	1	211.48	0.4705	99.501
1499	1	259.16	0.8735	226.376
1485	1	310.19	0.6935	215.116
1484	1	249.94	0.4405	110.098
1948	1	306.10	0.5625	172.181
1463	1	218.25	0.4980	108.688
912	1	177.13	0.7245	128.330
1747	1	64.56	0.5370	34.668
1949	1			

		298.81	0.7990	238.749
1660	1	296.92	0.6595	195.818
5	1	321.33	0.6480	208.221
12	1	303.87	0.5785	175.788
807	1	398.48	0.7415	295.472
892	1	194.55	0.4490	87.352
888	1	144.25	0.5205	75.082
865	1	233.15	0.7770	181.157
1335	1	234.30	0.7610	178.302
897	1	315.49	0.6040	190.555
896	1	354.78	0.6695	237.525
878	1	178.57	0.3145	56.160
903	1	171.45	0.4730	81.095
870	1	181.30	0.7250	131.442
804	1	273.25	0.7030	192.094
866	1	268.41	0.3970	106.558
863	1	144.00	0.7420	106.848
899	1	150.48	0.4510	67.866
884	1	132.52	0.4080	54.068
860	1	130.51	0.7465	97.425
893	1	146.07	0.3305	48.276
1212	1	121.89	0.2190	26.693
900	1			

		127.17	0.4825	61.359
955	1	154.26	0.4315	66.563
966	1	147.02	0.4915	72.260
1039	1	135.50	0.4510	61.110
973	1	132.90	0.8540	113.496
837	1	315.53	0.6135	193.577
861	1	197.32	0.4385	86.524
902	1	177.58	0.4800	85.238
812	1	285.81	0.6785	193.922
824	1	304.05	0.7735	235.182
904	1	297.26	0.7500	222.945
952	1	193.08	0.4860	93.836
951	1	197.12	0.4550	89.689
943	1	173.16	0.6700	116.017
972	1	326.06	0.6565	214.058
949	1	193.44	0.4795	92.754
961	1	212.16	0.5865	124.431
950	1	198.08	0.7110	140.834
947	1	275.45	0.6580	181.246
960	1	155.00	0.2015	31.232
962	1	128.15	0.4235	54.271
894	1	310.54	0.6085	188.963
3130	3			

		545.25	0.3955	215.646
3158	2	434.01	0.4480	194.436
1340	2	422.17	0.4918	207.602
1112	1	138.03	0.4040	55.764
858	1	134.64	0.5745	77.350
889	1	309.47	0.7125	220.497
910	1	139.60	0.4935	68.892
1113	1	207.48	0.6350	131.749
963	1	275.18	0.4235	116.538
829	1	234.76	0.4505	105.759
1100	1	196.72	0.6265	123.245
61	2	603.27	0.8999	542.882
1106A	12	3,425.06	0.6125	2,097.849
1361	2	433.07	0.3983	172.470
1384	3	681.82	0.4145	282.614
1164	2	506.20	0.3960	200.455
1091	3	582.28	0.4188	243.829
3128	3	646.49	0.4215	272.495
981	3	746.09	0.9268	691.438
926	6	1,485.50	0.4900	727.895
1253	3	964.41	0.9285	895.454
853A	2	418.30	0.9960	416.626
910	3			

		565.90	0.4010	226.925
1879	8	2,799.85	0.9943	2,783.750
1383	2	469.78	0.4000	187.912
1207	2	482.14	0.5648	272.288
1023	3	576.05	0.3975	228.979
1024	3	477.47	0.4000	190.988
0022	3	630.38	0.1403	88.410
60	12	2,464.71	0.0003	0.616
3399	6	1,423.83	0.5518	785.598
3304	3	565.52	0.5470	309.339
3584	7	2,178.83	0.8875	1,933.711
2809	1	190.92	0.6310	120.470
1829	3	667.82	0.3960	264.456
3701	2	458.25	0.4153	190.288
1743	2	412.83	0.3978	164.203
1994	3	614.77	0.4033	247.906
1902	2	457.07	0.3790	173.229
2053	2	501.52	0.3898	195.467
2050	3	594.80	0.3915	232.864
1992	3	618.89	0.4100	253.744
1991	3	520.08	0.4030	209.592
3696	3	712.94	0.4158	296.404
3695	3			

		606.27	0.3978	241.143
3690	2	436.80	0.4433	193.611
3593	7	1,508.50	0.3710	559.653
3491	3	540.52	0.4913	265.530
1852	2	640.64	0.8988	575.775
1850	3	992.92	0.9330	926.394
3512	3	673.59	0.4158	280.045
1827	4	731.89	0.3953	289.279
2205	3	521.43	0.4033	210.266
2213	3	519.05	0.5610	291.187
2152	2	476.77	0.4770	227.419
2204	4	763.28	0.3988	304.357
2154	2	465.68	0.6225	289.885
2120	2	574.14	0.9593	550.743
2049	3	663.33	0.3978	263.839
2054	5	1,048.16	0.5300	555.524
1865	7	1,602.90	0.4010	642.762
1039	6	1,344.00	0.4110	552.384
2130	9	2,572.60	0.4520	1,162.815
83	8	2,483.60	0.4820	1,197.095
82	9	2,708.03	0.5235	1,417.653
106	7	2,028.98	0.4385	889.707
108	8			

		2,401.13	0.5530	1,327.824
412	8	2,329.03	0.4400	1,024.773
2033	9	2,485.44	0.5165	1,283.729
2129	11	3,076.59	0.4180	1,286.014
50	3	512.90	0.0018	0.897
407	8	2,523.97	0.6120	1,544.669
2124	9	2,597.69	0.4105	1,066.351
1698	7	1,971.35	0.5100	1,005.388
2125	10	2,835.07	0.4020	1,139.698
0015	8	1,813.38	0.1095	198.565
0013	7	1,409.66	0.1460	205.810
0002	2	412.16	0.5863	241.628
0016	2	297.46	0.4815	143.226
0018	2	435.86	0.2468	107.548
0016	6	1,127.88	0.1340	151.135
0014	3	696.36	0.7893	549.602
0020	2	369.88	0.6305	233.209
54	3	669.52	0.0025	1.673
64	1	238.87	0.0125	2.985
48	5	927.29	0.0005	0.463
R002	7	1,235.90	0.2985	368.916
0024	3	344.17	0.2815	96.883
0022	2			

		455.65	0.2973	135.441
0012	8	1,730.55	0.0838	144.933
0014	7	1,330.18	0.1405	186.890
489	9	2,541.40	0.3395	862.805
194	7	2,095.97	0.4735	992.441
595	8	2,448.37	0.4975	1,218.064
196	11	2,909.13	0.4280	1,245.107
195	9	2,880.09	0.5215	1,501.966
73	20	5,163.52	0.5270	2,721.175
0011	4	921.10	0.1920	176.851
0010	7	1,629.35	0.5693	927.507
488	9	2,205.41	0.3465	764.174
553	10	2,746.73	0.4465	1,226.414
157	10	2,888.18	0.3705	1,070.070
191	7	2,063.00	0.4995	1,030.468
149	4	1,082.50	0.3305	357.766
1516	20	4,659.70	0.2498	1,163.760
315	10	3,054.18	0.4235	1,293.445
192	8	2,318.07	0.3835	888.979
2937	4	799.61	0.4008	320.443
1514	18	3,595.37	0.0755	271.450
3124	3	728.76	0.4350	317.010
2938	3			

		635.84	0.4168	264.986
3031	4	813.76	0.4160	338.524
3032	2	438.01	0.3985	174.546
2955	8	1,590.56	0.4805	764.264
1513	21	5,807.90	0.5633	3,271.299
3523	3	794.52	0.9480	753.204
3033	2	474.48	0.4040	191.689
1515	22	4,838.00	0.1595	771.661
54	1	236.73	0.4480	106.055
537	2	574.37	0.6305	362.140
470	1	478.63	0.8143	389.724
539	1	287.85	0.3535	101.754
469	1	321.60	0.2075	66.732
498	1	309.90	0.4945	153.245
341	1	56.25	0.2995	16.846
534	1	272.99	0.3430	93.635
467	1	273.17	0.1580	43.160
531	1	260.72	0.7030	183.286
52	1	237.38	0.8765	208.063
502	1	257.35	0.7425	191.082
535	1	276.52	0.8018	221.699
538	1	248.70	0.7355	182.918
159	1			

		124.44	0.4325	53.820
100	1	232.62	0.5650	131.430
277	9	2,697.52	0.5255	1,417.546
198	1	94.36	0.4085	38.546
472	1	272.23	0.4860	132.303
413	1	253.54	0.3265	82.780
474	1	290.14	0.4258	123.527
528	1	450.90	0.6795	306.386
306	1	273.99	0.5880	161.106
529	2	725.45	0.4945	358.735
429	1	250.15	0.1210	30.268
409	1	308.57	0.3645	112.473
71	1	94.38	0.4735	44.688
176	2	565.35	0.3250	183.738
476	1	240.70	0.4930	118.665
563	1	399.40	0.8960	357.862
435	1	234.70	0.7540	176.963
99	1	161.85	0.4410	71.375
562	1	179.28	0.8956	160.563
405	1	241.79	0.5555	134.314
364	1	116.69	0.4525	52.802
130	1	121.00	0.4810	58.201
459	1			

		87.98	0.3765	33.124
427	1	100.60	0.3305	33.248
572	1	403.70	0.4323	174.499
167	3	366.33	0.0005	0.183
399	1	100.48	0.3400	34.163
598	1	94.25	0.3860	36.380
369	1	263.75	0.4465	117.764
383	8	2,316.35	0.4760	1,102.582
568	1	213.37	0.0610	13.015
408	1	422.18	0.4415	186.392
497	1	119.07	0.3335	39.709
272	7	2,141.92	0.5210	1,115.940
386	10	2,639.05	0.4050	1,068.815
49	1	244.08	0.4810	117.402
407	1	243.74	0.7825	190.726
466	1	272.68	0.7880	214.871
412	11	2,134.89	0.0035	7.472
M031	20	5,410.70	0.5118	2,768.925
M022	21	5,494.80	0.5090	2,796.853
271	10	3,088.95	0.5025	1,552.197
463	1	257.86	0.7720	199.067
M032	21	5,651.35	0.5303	2,996.628
M033	22			

		5,626.17	0.4875	2,742.757
74	23	4,896.68	0.4900	2,399.373
6029E	26	5,732.70	0.0005	2.866
75	28	6,885.26	0.5370	3,697.384
72	19	4,859.78	0.5353	2,601.197
2401	6	1,462.95	0.4370	639.309
2422	4	684.13	0.2873	196.516
2452	4	826.86	0.2925	241.856
2330	3	489.13	0.3880	189.782
2229	11	2,443.32	0.4968	1,213.719
2248	2	422.88	0.9233	390.423
2808	2	400.04	0.4705	188.218
2279	2	475.29	0.3893	185.006
2546	4	765.69	0.3993	305.701
2589	7	1,706.14	0.5463	931.978
2549	3	662.66	0.4170	276.329
2648	3	507.15	0.4435	224.921
2592	2	483.45	0.4025	194.588
1667	2	499.52	0.4188	209.174
1544	2	411.90	0.3735	153.844
1463	2	463.47	0.3335	154.567
1456	2	467.23	0.3998	186.775
2687	3			

		591.75	0.3943	233.297
2926	2	633.69	0.9520	603.272
2928	2	541.95	0.8710	472.038
2936	2	472.87	0.3988	188.556
1421	4	817.02	0.4070	332.527
2590	3	552.70	0.6658	367.960
63	16	3,215.10	-	-
1714	7	1,486.16	0.4583	681.032
1680	3	511.66	0.3815	195.198
1679	3	595.01	0.3973	236.367
70	23	6,058.21	0.4648	2,815.553
68	14	3,602.24	0.5115	1,842.545
15	18	4,196.13	0.0003	1.049
59	11	2,192.53	0.0003	0.548
57	2	651.56	0.0003	0.162
56	5	1,060.82	0.0023	2.386
M005	21	5,284.53	0.5178	2,736.065
M006	21	5,295.80	0.5315	2,814.717
M007	22	5,438.93	0.4780	2,599.808
62	9	1,856.34	0.0003	0.464
M004	22	5,457.32	0.5013	2,735.481
11	17	3,554.39	-	-
65	10			

		1,914.24	0.0008	1.435
10	4	656.02	0.0075	4.920
66	11	2,607.83	0.4778	1,245.890
475	1	308.91	0.7630	235.698
444	1	284.67	0.4230	120.415
18	6	1,173.46	-	-
9	9	1,628.43	0.0003	0.407
1482	6	2,304.25	0.9965	2,296.185
1880	3	1,228.52	0.9955	1,222.991
3384	2	763.64	0.9980	762.112
311	7	2,047.87	0.3615	740.305
303	11	3,185.73	0.4030	1,283.849
312	8	2,454.65	0.4675	1,147.548
313	8	2,476.25	0.4975	1,231.934
92	9	2,526.05	0.4360	1,101.357
93	10	2,790.38	0.3795	1,058.949
95	9	2,534.02	0.4135	1,047.817
455	6	1,892.18	0.5945	1,124.901
492	8	2,326.60	0.4450	1,035.337
125	7	2,177.45	0.5690	1,238.969
91	8	2,414.84	0.4850	1,171.197
94	7	2,133.93	0.5640	1,203.536
M041	20			

		5,393.13	0.5273	2,843.527
M038	21	5,478.20	0.5043	2,762.382
M025	21	5,384.15	0.5335	2,872.444
M042	8	1,656.93	0.1508	249.782
M026	21	5,414.45	0.5343	2,892.669
M035	21	5,663.00	0.5695	3,225.078
M034	21	5,267.15	0.5373	2,829.776
M036	21	5,681.26	0.5598	3,180.085
M037	21	5,698.30	0.5623	3,203.869
378	6	1,457.83	0.2535	369.559
566	7	2,201.60	0.5080	1,118.412
452	4	1,132.95	0.3825	433.353
410	21	7,415.95	0.9000	6,674.355
270	8	2,340.38	0.5315	1,243.911
538	9	2,726.55	0.5400	1,472.337
241	9	2,431.05	0.5125	1,245.913
87	14	4,008.55	0.4670	1,871.992
273	8	2,357.60	0.5365	1,264.852
274	9	2,705.80	0.5125	1,386.722
380	8	2,494.65	0.5380	1,342.121
129	1	352.70	0.4490	158.362
197	1	305.80	0.4150	126.907
98	1			

		349.60	0.4690	163.962
247	8	2,182.07	0.4920	1,073.578
371	1	253.65	0.5985	151.809
508	1	245.15	0.4715	115.588
509	1	264.69	0.4565	120.830
510	1	305.99	0.1180	36.106
385	9	2,681.47	0.5100	1,367.549
168	2	397.43	0.0035	1.391
441	1	321.87	0.6130	197.306
431	1	327.60	0.7880	258.148
400	1	316.14	0.2170	68.602
416	3	546.58	0.4705	257.165
503	1	251.08	0.4260	106.960
578	1	248.78	0.8135	202.382
575	1	268.60	0.6045	162.368
571	1	234.77	0.4690	110.107
574	1	300.57	0.6495	195.220
570	1	376.99	0.5395	203.386
406	2	504.74	0.4910	247.827
39	8	2,090.57	0.5150	1,076.643
59	1	266.98	0.7338	195.896
131	1	272.84	0.7810	213.088
101	1			

		265.90	0.7005	186.262
60	1	239.55	0.7825	187.447
506	1	281.35	0.3990	112.258
504	1	300.48	0.7565	227.313
248	10	2,785.59	0.4315	1,201.982
384	8	2,468.60	0.5245	1,294.780
339	11	2,808.50	0.4085	1,147.272
276	7	2,149.03	0.5380	1,156.178
104	2	612.38	0.7250	443.975
536	8	2,496.85	0.5365	1,339.560
535	10	2,785.85	0.4790	1,334.422
333	9	2,486.55	0.4510	1,121.434
408	14	2,505.60	0.0008	1.879
2132	7	1,891.55	0.4960	938.208
1964	5	1,428.60	0.5070	724.300
2027	9	2,599.63	0.4330	1,125.639
1995	8	2,380.22	0.4460	1,061.578
332	9	2,558.35	0.4680	1,197.307
417	10	1,871.62	0.0030	5.614
402	9	2,181.10	0.0035	7.633
533	8	2,511.45	0.5090	1,278.328
532	8	2,610.22	0.5420	1,414.739
537	8			

		2,401.53	0.4585	1,101.101
1959	10	2,896.80	0.4445	1,287.627
1911	10	2,782.25	0.4395	1,222.798
1956	7	2,110.20	0.4480	945.369
1957	9	2,760.15	0.4850	1,338.672
2128	11	2,892.20	0.4265	1,233.523
1510	20	7,192.00	0.9210	6,623.832
2686	3	625.48	0.3983	249.097
2028	10	2,996.10	0.5335	1,598.419
1960	11	3,055.27	0.4970	1,518.469
3313	3	828.48	0.9323	772.350
1517	20	4,431.69	0.1163	515.183
1509	21	7,686.50	0.9578	7,361.745
3566	3	529.52	0.3985	211.013
3377	3	570.80	0.5318	303.522
3614	2	407.62	0.5465	222.764
3492	3	637.39	0.3845	245.076
3220	2	436.28	0.5243	228.719
3301	2	464.29	0.6118	284.029
3115	2	356.44	0.9573	341.202
3118	2	437.04	0.9585	418.902
3564	2	431.42	0.3993	172.244
3381	2			

		397.81	0.5638	224.265
3383	1	192.42	0.9148	176.016
3219	1	248.63	0.6143	152.720
3365	3	552.85	0.3973	219.619
3474	8	1,516.28	0.2465	373.763
1549	3	556.18	0.4010	223.028
1619	3	977.10	0.9633	941.191
1627	2	574.22	0.9035	518.807
635	3	669.54	0.3978	266.309
685	4	1,035.20	0.5625	582.300
676	3	855.35	0.9420	805.739
817	3	551.70	0.3975	219.300
453	2	440.90	0.6533	288.017
454	3	665.65	0.6650	442.657
455	3	651.12	0.5430	353.558
456	1	63.24	0.6265	39.619
1414	1	81.21	0.6163	50.045
2432	1	73.92	0.6075	44.906
1511	19	6,271.83	0.7930	4,973.561
21	4	797.40	0.3985	317.763
43	2	585.85	0.9578	561.097
3733	11	2,760.17	0.6345	1,751.327
3193	3			

		509.92	0.4070	207.537
2609	9	2,495.22	0.6125	1,528.322
1415	2	371.92	0.3665	136.308
3702	5	1,058.42	0.3878	410.402
2608	6	1,267.60	0.6018	762.778
2431	2	431.68	0.6245	269.584
424	19	3,860.53	0.0100	38.605
86	12	3,421.17	0.4520	1,546.368
304	8	2,292.83	0.4785	1,097.119
381	9	2,719.90	0.5190	1,411.628
401	8	1,985.83	0.0028	5.461
413	10	1,903.98	0.0055	10.471
1745	7	2,056.30	0.3620	744.380
46	1	247.53	0.4125	102.106
1812	8	2,339.79	0.4715	1,103.210
108	1	252.18	0.7925	199.852
107	1	352.08	0.7885	277.615
1819	6	1,778.65	0.4810	855.530
240	9	2,325.98	0.4220	981.563
204	8	2,345.31	0.4525	1,061.252
275	9	2,667.97	0.5785	1,543.420
153	9	2,715.53	0.4715	1,280.372
1867	7			

		1,988.78	0.5010	996.378
1817	6	1,768.55	0.4875	862.168
1862	8	2,368.99	0.4910	1,163.174
22	1	302.80	0.6235	188.795
497	1	287.90	0.7630	219.667
20	1	292.00	0.6560	191.552
16	1	260.28	0.4880	127.016
393	1	251.35	0.4710	118.385
1868	6	1,569.68	0.4830	758.155
362	1	266.33	0.7490	199.481
19	1	341.95	0.4410	150.799
4	1	316.70	0.4390	139.031
286	1	283.93	0.4240	120.386
64	1	266.83	0.7720	205.992
161	1	291.78	0.0785	22.904
18	1	308.98	0.5505	170.093
52	8	2,452.80	0.4945	1,212.909
17	1	257.55	0.4355	112.163
188	1	281.47	0.7220	203.221
279	1	291.38	0.7445	216.932
50	1	283.90	0.4215	119.663
127	1	76.10	0.2580	19.633
154	1			

		98.13	0.3225	31.646
209	1	101.67	0.3655	37.160
44	1	112.00	0.3455	38.696
47	1	304.48	0.5730	174.467
113	2	450.17	0.5570	250.744
160	1	274.68	0.5990	164.533
5	1	281.35	0.6415	180.486
54	1	237.28	0.7795	184.959
112	1	253.27	0.9435	238.960
109	1	288.40	0.1010	29.128
2	1	253.00	0.4605	116.506
58	1	266.37	0.7655	203.906
61	1	243.53	0.4430	107.883
M029	21	5,315.73	0.5183	2,754.877
M030	20	5,403.30	0.5440	2,939.395
M028	20	5,407.99	0.5115	2,766.186
M027	20	5,385.45	0.5193	2,796.394
M014	20	5,337.12	0.5373	2,867.367
M012	21	5,469.00	0.4823	2,637.425
M013	21	5,365.84	0.4958	2,660.115
M001	41	5,426.01	0.1780	965.829
M017	21	5,437.56	0.5093	2,769.077
1909	10			

		2,778.39	0.4290	1,191.929
M008	21	5,402.18	0.4813	2,599.799
M009	21	5,530.58	0.5328	2,946.416
M021	20	5,170.21	0.4965	2,567.009
M015	21	5,202.72	0.4980	2,590.954
M016	21	5,491.19	0.5383	2,955.633
1963	6	1,675.93	0.4960	831.261
1912	8	2,318.13	0.4430	1,026.931
450	5	1,429.60	0.4105	586.850
1816	8	2,513.73	0.5235	1,315.937
457	10	2,624.20	0.3950	1,036.559
48	8	2,535.87	0.5395	1,368.101
1962	6	1,670.05	0.4985	832.519
2126	10	2,959.69	0.5210	1,541.998
1961	10	2,819.90	0.4780	1,347.912
1996	9	2,830.60	0.5005	1,416.715
2034	8	2,217.50	0.5010	1,110.967
1913	12	3,497.23	0.5110	1,787.084
1958	10	3,057.20	0.4620	1,412.426
1865	9	2,639.60	0.4265	1,125.789
1609	1	260.37	0.4415	114.953
152	9	2,634.39	0.4490	1,182.841
39	9			

		2,418.83	0.3755	908.270
32	7	1,710.60	0.4375	748.387
40	9	2,469.05	0.4995	1,233.290
37	9	2,527.35	0.4345	1,098.133
41	8	2,326.15	0.3700	860.675
193	10	2,864.58	0.4220	1,208.852
1695	9	2,690.75	0.5150	1,385.736
1696	7	2,019.75	0.5045	1,018.963
2131	8	2,174.96	0.4950	1,076.605
1998	9	2,768.45	0.4545	1,258.260
66	9	2,466.04	0.4840	1,193.563
67	9	2,481.39	0.4175	1,035.980
68	9	2,522.45	0.5245	1,323.025
90	8	2,232.11	0.4150	926.325
457	9	2,611.08	0.4255	1,111.014
413	9	2,701.45	0.4200	1,134.609
107	6	1,790.04	0.5785	1,035.538
1740	10	3,018.90	0.4890	1,476.242
1746	3	889.40	0.4970	442.031
2001	8	2,101.08	0.4955	1,041.085
1999	8	2,433.00	0.4665	1,134.994
1697	6	1,730.15	0.5020	868.535
2002	7			

		2,012.65	0.4910	988.211
2000	11	3,202.65	0.4655	1,490.833
0012	3	591.22	0.6953	411.045
0006	1	209.63	0.4445	93.180
0004	2	300.34	0.3660	109.924
493	8	2,355.20	0.4768	1,122.841
494	8	2,463.92	0.5660	1,394.578
495	8	2,458.72	0.5115	1,257.635
420	8	2,318.70	0.4705	1,090.948
519	8	2,295.70	0.3850	883.844
78	7	2,395.50	0.5540	1,327.107
2155	9	2,524.80	0.4825	1,218.216
518	4	848.20	0.2085	176.849
456	8	2,550.35	0.5390	1,374.638
546	5	1,451.23	0.4715	684.254
421	8	2,427.13	0.4700	1,140.751
80	8	2,546.56	0.5125	1,305.112
410	8	2,343.45	0.5440	1,274.836
411	8	2,483.82	0.4925	1,223.281
110	8	2,269.05	0.4660	1,057.377
109	9	2,694.75	0.5210	1,403.964
111	8	2,394.36	0.5120	1,225.912
2156	9			

		2,481.40	0.4830	1,198.516
406	7	1,851.90	0.2425	449.085
408	9	2,549.93	0.4775	1,217.591
451	8	2,451.48	0.5520	1,353.216
453	9	2,604.95	0.4850	1,263.400
456	9	2,635.00	0.4880	1,285.880
596	8	2,498.63	0.4790	1,196.843
496	10	2,852.35	0.4480	1,277.852
359	9	2,758.05	0.4940	1,362.476
362	9	2,628.95	0.4240	1,114.674
597	10	2,898.93	0.5215	1,511.791
451	7	2,055.65	0.4355	895.235
151	8	2,385.70	0.4590	1,095.036
150	8	2,333.18	0.4280	998.601
2127	10	2,813.80	0.5440	1,530.707
455	7	2,116.15	0.4790	1,013.635
454	9	2,525.38	0.4770	1,204.606
452	8	2,442.05	0.5595	1,366.326
414	9	2,698.20	0.3830	1,033.410
46	8	2,680.70	0.5560	1,490.469
1910	11	3,127.17	0.4820	1,507.295
2151	9	2,605.50	0.4670	1,216.768
1866	11			

		3,074.23	0.4495	1,381.866
1864	10	2,953.08	0.5415	1,599.092
1820	8	2,537.55	0.4965	1,259.893
533	1	192.78	0.5630	108.535
528	1	141.28	0.4295	60.679
531	1	228.07	0.6260	142.771
535	1	174.20	0.4545	79.173
527	1	171.55	0.3565	61.157
524	1	195.38	0.4370	85.381
546	1	232.07	0.7365	170.919
505	1	172.35	0.6405	110.390
525	1	167.54	0.4550	76.230
523	1	162.03	0.4490	72.751
558	1	238.25	0.4815	114.717
556	1	232.28	0.6165	143.200
875	1	187.48	0.5840	109.488
504	1	145.57	0.4600	66.962
521	1	156.78	0.8000	125.424
509	1	129.62	0.2990	38.756
519	1	153.52	0.6475	99.404
501	1	159.53	0.3650	58.228
502	1	147.86	0.5780	85.463
564	1			

		233.86	0.0835	19.527
574	1	227.62	0.6965	158.537
526	1	246.35	0.4905	120.834
872	1	263.23	0.6790	178.733
914	1	318.28	0.4560	145.135
433	1	349.55	0.6950	242.937
583	1	259.92	0.4105	106.697
586	1	258.26	0.6500	167.869
587	1	213.13	0.5055	107.737
593	1	258.65	0.4325	111.866
577	1	186.22	0.5520	102.793
548	1	207.06	0.5730	118.645
579	1	230.56	0.0725	16.715
981	1	213.00	0.8310	177.003
983	1	247.00	0.4570	112.879
1303	1	160.59	0.7590	121.887
1126	1	206.50	0.4700	97.055
1128	1	184.34	0.4180	77.054
913	1	296.79	0.5580	165.608
907	1	281.30	0.5245	147.541
867	1	223.98	0.0435	9.743
868	1	249.60	0.4825	120.432
980	1			

		164.85	0.4495	74.100
869	1	229.77	0.4963	114.023
1323	1	180.07	0.3400	61.223
820	1	249.90	0.4765	119.077
624	1	183.05	0.5890	107.816
1116	1	280.20	0.8090	226.681
1117	1	216.34	0.3830	82.858
830	1	257.17	0.7030	180.790
1119	1	229.61	0.4830	110.901
825	1	315.47	0.5998	189.203
832	1	210.37	0.5865	123.382
835	1	223.90	0.4320	96.724
988	1	245.25	0.6990	171.429
1390	1	187.40	0.4965	93.044
1342	1	137.35	0.5140	70.597
1387	1	158.13	0.4675	73.925
1386	1	158.60	0.4260	67.563
1383	1	172.03	0.4770	82.058
1382	1	307.20	0.7580	232.857
1373	1	181.18	0.4540	82.255
876	1	260.25	0.4065	105.791
1369	1	134.67	0.4315	58.110
1379	1			

		149.74	0.2165	32.418
842	1	228.18	0.2440	55.675
1331	1	125.70	0.4720	59.330
1045	1	129.95	0.4525	58.802
1048	1	130.20	0.6910	89.968
971	1	153.95	0.4215	64.889
399	1	300.58	0.2680	80.555
984	1	210.80	0.8035	169.377
1037	1	270.10	0.7500	202.575
611	1	220.39	0.2570	56.640
1098	1	198.55	0.7700	152.883
995	1	202.05	0.4540	91.730
1020	1	136.50	0.4385	59.855
1329	1	165.68	0.3205	53.100
2	1	315.70	0.7765	245.141
55	1	319.56	0.6700	214.105
1359	1	243.77	0.7605	185.387
1343	1	256.53	0.6120	156.996
1344	1	234.89	0.9775	229.604
1030	1	135.75	0.4515	61.291
1026	1	176.63	0.6720	118.695
1358	1	125.90	0.7070	89.011
1333	1			

		192.60	0.4665	89.847
1332	1	192.15	0.8750	168.131
1058	1	184.75	0.8035	148.446
1081	1	218.99	0.6990	153.074
813	1	260.26	0.4615	120.109
1038	1	236.02	0.6265	147.866
1064	1	127.53	0.4805	61.278
1063	1	129.80	0.4710	61.135
920	1	234.25	0.4570	107.052
1080	1	134.68	0.4685	63.097
1091	1	131.29	0.0225	2.954
985	1	199.05	0.4285	85.292
885	1	189.58	0.5855	110.999
1154	1	296.78	0.4465	132.512
1177	1	134.61	0.5075	68.314
1179	1	186.70	0.4960	92.603
1180	1	214.02	0.4305	92.135
1176	1	189.47	0.2710	51.346
1229	1	151.27	0.4610	69.735
1087	1	210.83	0.0270	5.692
1036	1	141.25	0.9725	137.365
1130	1	183.71	0.4275	78.536
1157	1			

		296.95	0.5915	175.645
1167	1	344.50	0.7460	256.997
1267	1	379.00	0.5875	222.662
1259	1	305.80	0.5860	179.198
1257	1	194.02	0.8500	164.917
1260	1	280.70	0.3945	110.736
1250	1	197.75	0.4595	90.866
1271	1	171.78	0.4700	80.736
1220	1	255.90	0.4225	108.117
1231	1	244.45	0.4230	103.402
1255	1	123.86	0.4160	51.525
1248	1	212.80	0.6675	142.044
1237	1	249.64	0.4250	106.097
1135	1	184.38	0.1065	19.636
1084	1	175.85	0.5900	103.751
1090	1	136.40	0.1490	20.323
1270	1	154.43	0.7210	111.344
1238	1	243.01	0.0255	6.196
1035	1	198.68	0.4290	85.233
1240	1	226.26	0.7210	163.133
1235	1	255.33	0.7040	179.752
1018	1	276.10	0.4595	126.867
1021	1			

		362.50	0.7495	271.693
591	2	699.50	0.7580	530.221
759	1	534.00	0.6270	334.818
763	1	295.23	0.3075	90.783
642	2	1,190.58	0.7580	902.459
10	4	2,526.65	0.8615	2,176.708
6	1	290.65	0.0345	10.027
96	1	444.70	0.4340	192.999
65	1	434.92	0.4850	210.936
62	1	432.32	0.6655	287.708
32	1	436.90	0.5380	235.052
436	2	679.05	0.7070	480.088
31	1	423.15	0.4880	206.497
431	2	1,311.20	0.7518	985.694
422	2	1,330.05	0.7810	1,038.769
1258	1	235.38	0.4095	96.388
89	1	324.45	0.6090	197.590
1214	1	134.43	0.4935	66.341
1293	1	171.57	0.4430	76.005
744	1	267.77	0.7780	208.325
1326	1	186.97	0.0720	13.461
632	1	193.52	0.4615	89.309
1219	1			

		254.70	0.7580	193.062
799	1	282.15	0.6010	169.572
653	1	194.70	0.5535	107.766
673	1	175.32	0.3048	53.428
21	1	291.09	0.6850	199.396
651	1	220.30	0.5820	128.214
56	1	286.18	0.6415	183.584
1211	1	163.02	0.3300	53.796
594	2	669.02	0.4670	312.432
638	2	751.08	0.4980	374.037
64	1	289.82	0.7085	205.337
1275	1	226.78	0.4895	111.008
1274	1	204.50	0.3575	73.108
719	1	201.92	0.0110	2.221
384	1	293.03	0.5005	146.661
738	3	1,776.60	0.5560	987.789
770	1	255.73	0.6470	165.457
1287	1	395.90	0.9100	360.269
890	1	330.85	0.6700	221.669
775	1	155.10	0.1660	25.746
1281	1	245.80	0.7120	175.009
777	1	189.37	0.1965	37.211
976	1			

		173.40	0.7345	127.362
994	1	168.33	0.4590	77.263
1277	1	170.15	0.7470	127.102
737	1	283.48	0.4230	119.912
743	1	161.87	0.1275	20.638
1234	1	142.28	0.6580	93.620
752	1	167.09	0.0660	11.027
1299	1	126.48	0.4710	59.572
735	1	217.90	0.6560	142.942
765	1	208.15	0.4230	88.047
1296	1	183.70	0.8120	149.164
748	1	233.30	0.5035	117.466
771	1	294.45	0.6600	194.337
669	1	259.39	0.4430	114.909
671	1	198.41	0.3370	66.864
85	1	316.70	0.4365	138.239
636	1	280.60	0.7735	217.044
639	1	230.15	0.3155	72.612
1285	1	143.26	0.4160	59.596
1276	1	125.28	0.1325	16.599
66	1	274.90	0.6115	168.101
13	1	356.95	0.6965	248.615
798	1			

		294.50	0.3985	117.358
891	1	194.20	0.1170	22.721
629	1	203.66	0.4505	91.748
1283	1	155.24	0.5075	78.784
530	1	206.42	0.5225	107.854
675	1	200.22	0.4270	85.493
674	1	273.85	0.5755	157.600
627	1	254.31	0.7550	192.004
676	1	268.45	0.5965	160.130
659	1	174.15	0.2075	36.136
655	1	298.52	0.7435	221.949
662	1	276.60	0.7760	214.641
457	8	2,322.22	0.4835	1,122.793
337	8	2,202.45	0.4010	883.182
338	8	2,363.50	0.5020	1,186.477
245	8	2,275.68	0.4935	1,123.048
334	9	2,615.25	0.5355	1,400.466
382	10	2,685.99	0.4910	1,318.821
1512	21	6,375.97	0.6848	4,365.945
286	3	1,064.09	0.9368	996.786
3231	5	1,111.45	0.4950	550.167
536	3	536.92	0.4100	220.137
69	9			

		2,471.49	0.4780	1,181.372
1606	1	318.41	0.4645	147.901
1576	1	290.98	0.4515	131.377
181	9	2,636.68	0.4745	1,251.104
148	9	2,612.60	0.4760	1,243.597
149	8	2,467.50	0.5400	1,332.450
150	10	2,693.27	0.5360	1,443.592
147	8	2,298.45	0.4080	937.767
379	7	2,123.38	0.4745	1,007.543
306	7	2,082.35	0.5455	1,135.921
305	11	3,057.08	0.5215	1,594.267
119	2	508.65	0.7175	364.956
246	2	421.49	0.4723	199.048
167	4	839.16	0.4108	344.684
230	2	431.73	0.5218	225.255
3472	3	521.45	0.5070	264.375
3480	4	730.66	0.3990	291.533
3481	2	449.51	0.4055	182.276
465	5	1,152.60	0.4065	468.531
470	2	427.40	0.3463	147.987
3483	3	544.80	0.4028	219.418
608	3	666.32	0.7213	480.583
463	2			

		447.64	0.5653	253.028
3293	2	475.07	0.4010	190.503
397	3	598.20	0.4058	242.719
3263	2	423.10	0.4088	172.942
3267	3	626.20	0.4865	304.646
396	3	502.23	0.3940	197.878
313	2	491.73	0.5745	282.498
295	3	599.86	0.4123	247.292
92	3	577.24	0.3995	230.607
89	15	4,209.19	0.5080	2,138.268
208	10	3,032.10	0.5225	1,584.272
242	11	2,805.06	0.4085	1,145.867
243	7	2,187.84	0.5740	1,255.820
207	8	2,375.34	0.5920	1,406.201
151	8	2,385.73	0.5430	1,295.451
152	9	2,527.05	0.3860	975.441
176	8	2,377.57	0.4905	1,166.198
244	10	2,805.85	0.5005	1,404.327
154	9	2,875.72	0.4920	1,414.854
525	10	3,150.99	0.4480	1,411.643
547	9	2,547.42	0.3780	962.924
156	8	2,469.78	0.4980	1,229.950
46	4			

		860.89	0.0005	0.430
45	4	854.27	0.0003	0.213
203	8	1,899.82	0.0005	0.949
166	7	1,201.35	0.0005	0.600
165	7	1,346.37	0.0005	0.673
121	7	2,064.16	0.4050	835.984
70	9	2,479.20	0.3935	975.565
1620	1	252.33	0.6920	174.612
1621	1	271.95	0.5255	142.909
508	1	192.03	0.2590	49.735
1448	1	199.23	0.4245	84.573
1465	1	169.25	0.6100	103.242
1480	1	138.90	0.5195	72.158
1529	1	256.38	0.5595	143.444
1651	1	255.50	0.8085	206.571
1442	1	164.58	0.4455	73.320
1400	1	287.03	0.4595	131.890
506	1	240.30	0.4770	114.623
1464	1	144.80	0.3950	57.196
511	1	177.75	0.4080	72.522
36	7	1,049.52	0.0288	30.173
1402	1	287.07	0.4485	128.750
1525	1			

		263.05	0.7480	196.761
44	5	892.63	0.0003	0.223
1468	1	160.88	0.9800	157.662
1479	1	130.69	0.4095	53.517
1461	1	175.18	0.6285	110.100
1821	1	166.83	0.5885	98.179
397	7	1,585.55	0.0085	13.477
302	5	1,367.04	0.3810	520.842
303	7	2,139.25	0.5480	1,172.309
180	9	2,627.29	0.4615	1,212.494
179	9	2,625.70	0.4370	1,147.430
570	7	2,183.60	0.5185	1,132.196
239	6	1,528.75	0.3150	481.556
201	7	2,130.93	0.5045	1,075.054
404	7	1,372.75	0.0500	68.637
403	5	1,223.20	0.0360	44.035
409	16	2,707.80	0.0015	4.061
425	5	1,667.69	0.8865	1,478.407
85	14	4,082.24	0.4180	1,706.376
400	12	3,007.59	0.0065	19.549
203	9	2,641.50	0.4630	1,223.014
453	8	2,283.26	0.4615	1,053.724
460	10			

		2,776.75	0.4850	1,346.723
175	8	2,390.97	0.4625	1,105.823
360	8	2,281.90	0.4255	970.948
453	8	2,467.18	0.5140	1,268.130
153	8	2,431.94	0.5580	1,357.022
123	8	2,542.17	0.5250	1,334.639
127	9	2,591.00	0.4445	1,151.699
126	8	2,436.84	0.4815	1,173.338
522	9	2,715.55	0.4585	1,245.079
550	8	2,356.98	0.4860	1,145.492
523	8	2,504.60	0.5185	1,298.635
450	5	1,454.73	0.4195	610.259
419	4	1,132.25	0.2425	274.570
308	7	2,017.22	0.5015	1,011.635
88	14	4,128.68	0.4960	2,047.825
307	10	2,783.63	0.4905	1,365.370
205	10	3,007.50	0.4960	1,491.720
42	8	2,107.55	0.4995	1,052.721
38	10	2,718.58	0.3975	1,080.635
36	9	2,481.92	0.4415	1,095.767
35	9	2,421.42	0.3470	840.232
569	10	3,181.10	0.5125	1,630.313
454	9			

		2,839.80	0.4415	1,253.771
34	9	2,423.05	0.3895	943.777
521	8	2,465.83	0.5200	1,282.231
M018	21	5,510.38	0.5378	2,963.206
M019	22	5,513.59	0.4860	2,679.604
M023	22	5,556.55	0.5445	3,025.541
M024	22	5,533.40	0.4895	2,708.599
64	9	2,441.20	0.3360	820.243
338	10	2,731.80	0.4470	1,221.114
337	8	2,472.15	0.4905	1,212.589
394	8	2,448.40	0.4150	1,016.086
96	8	2,377.35	0.4455	1,059.109
35	9	2,518.68	0.4460	1,123.331
340	10	2,763.10	0.3825	1,056.885
491	9	2,839.35	0.4870	1,382.763
36	9	2,510.85	0.4225	1,060.834
339	8	2,448.20	0.4920	1,204.514
177	9	2,794.96	0.5275	1,474.341
43	11	2,850.38	0.4185	1,192.884
501	1	282.30	0.7860	221.887
551	1	288.15	0.7705	222.019
269	6	1,806.47	0.4260	769.556
516	1			

		314.39	0.6990	219.758
206	7	2,089.25	0.5930	1,238.925
418	1	257.71	0.6080	156.687
515	1	297.05	0.7643	227.020
561	1	354.90	0.7840	278.241
191	1	262.73	0.4328	113.696
213	1	290.86	0.7330	213.200
560	2	683.19	0.7455	509.318
183	1	324.53	0.4915	159.506
136	1	320.00	0.4560	145.920
548	1	295.47	0.7805	230.614
547	1	282.00	0.6080	171.456
218	1	342.04	0.7050	241.138
443	2	687.85	0.5695	391.730
372	1	267.20	0.2455	65.597
405	6	1,360.59	0.0415	56.464
68	1	256.42	0.6410	164.365
411	1	205.13	0.7575	155.385
438	1	276.40	0.0955	26.396
517	1	300.77	0.4240	127.526
185	1	303.86	0.5820	176.846
510	1	367.94	0.5175	190.408
426	1			

		281.84	0.6555	184.746
419	2	318.28	0.0020	0.636
415	1	218.07	0.7475	163.007
439	1	265.75	0.7655	203.431
155	1	275.38	0.4690	129.153
432	1	297.93	0.7070	210.636
1705	1	135.18	0.0170	2.298
1739	1	374.15	0.9898	370.314
1718	1	315.60	0.6435	203.088
1564	1	284.28	0.4410	125.367
1444	1	234.47	0.2820	66.120
1417	1	189.13	0.4100	77.543
1702	1	88.18	0.8055	71.028
1648	1	113.94	0.5820	66.313
1527	1	286.87	0.4915	140.996
1553	1	272.38	0.5165	140.684
1735	1	311.75	0.4580	142.781
1416	1	256.60	0.6595	169.227
1557	1	248.38	0.5325	132.262
1457	1	244.33	0.4060	99.197
1456	1	136.98	0.6115	83.763
1691	1	282.99	0.5085	143.900
1699	1			

		109.63	0.6205	68.025
1551	1	284.06	0.6960	197.705
1590	1	167.08	0.5210	87.048
1475	1	155.54	0.3215	50.006
1500	1	274.90	0.7620	209.473
1524	1	136.82	0.5370	73.472
516	1	275.98	0.7105	196.083
357	8	2,161.90	0.3955	855.031
333	6	1,604.90	0.2475	397.212
335	9	2,595.14	0.4400	1,141.861
396	7	2,066.03	0.4320	892.524
1477	1	157.97	0.4180	66.031
363	9	2,714.13	0.4545	1,233.572
336	7	2,186.08	0.5530	1,208.902
1965	1	125.05	0.5645	70.590
1462	1	131.24	0.4670	61.289
1709	1	176.74	0.5180	91.551
1636	1	269.47	0.8810	237.403
1649	1	251.08	0.7540	189.314
1498	1	265.45	0.3635	96.491
334	8	2,317.25	0.4820	1,116.914
549	9	2,664.85	0.5185	1,381.724
548	8			

		2,418.85	0.4680	1,132.021
534	8	2,567.10	0.5340	1,370.831
40	9	2,432.45	0.5200	1,264.874
41	11	2,950.74	0.5570	1,643.562
37	9	2,612.10	0.5220	1,363.516
178	8	2,331.75	0.4770	1,112.244
335	8	2,360.50	0.5515	1,301.815
567	8	2,391.66	0.4355	1,041.567
202	8	2,385.66	0.4680	1,116.488
571	9	2,708.67	0.4140	1,121.389
568	8	2,477.00	0.4970	1,231.069
187	2	559.20	0.5930	331.605
128	1	269.53	0.6045	162.930
132	1	279.30	0.7565	211.290
M011	21	5,334.60	0.5023	2,679.302
M010	21	5,516.51	0.5233	2,886.513
M002	21	5,354.63	0.5045	2,701.410
M003	21	5,350.27	0.4968	2,657.746
300	8	2,324.70	0.4045	940.341
393	8	2,297.05	0.3930	902.740
124	9	2,933.40	0.5370	1,575.235
390	7	1,795.65	0.2990	536.899
122	8			

		2,437.64	0.4640	1,131.064
593	7	2,124.25	0.5195	1,103.547
594	8	2,423.08	0.4565	1,106.136
33	9	2,430.85	0.4025	978.417
65	9	2,486.31	0.5055	1,256.829
38	9	2,532.18	0.4120	1,043.258
2030	10	2,852.60	0.4760	1,357.837
44	8	2,363.90	0.3440	813.181
49	9	2,704.29	0.4840	1,308.876
2152	9	2,795.08	0.5485	1,533.101
2153	9	2,622.95	0.4805	1,260.327
2154	12	3,215.55	0.3980	1,279.788
1692	10	3,001.83	0.5380	1,614.984
1693	11	3,175.53	0.4810	1,527.429
1694	11	3,240.74	0.5105	1,654.397
2150	11	3,151.20	0.5085	1,602.385
1741	8	2,404.20	0.5190	1,247.779
1742	9	2,664.40	0.5570	1,484.070
1744	5	1,587.34	0.4235	672.238
1743	9	2,394.19	0.5300	1,268.920
1813	9	2,666.42	0.4825	1,286.547
409	8	2,450.90	0.5065	1,241.380
77	6			

		1,741.39	0.3665	638.219
1814	9	2,663.74	0.4780	1,273.267
1863	9	2,724.73	0.4740	1,291.522
1818	7	1,959.30	0.4205	823.885
1815	11	3,403.30	0.5155	1,754.401
426	9	2,591.77	0.4885	1,266.079
422	8	2,503.90	0.5370	1,344.594
51	8	2,547.28	0.4845	1,234.157
79	7	2,393.24	0.5795	1,386.882
81	8	2,436.09	0.4545	1,107.202
2031	9	2,636.80	0.5150	1,357.952
53	9	2,637.10	0.4725	1,246.029
47	8	2,525.55	0.5160	1,303.183
45	8	2,521.56	0.4675	1,178.829
2149	9	2,679.97	0.4980	1,334.625
356	7	1,858.65	0.3020	561.312
395	10	2,921.60	0.4785	1,397.985
424	9	2,347.03	0.3520	826.154
423	9	2,805.09	0.4680	1,312.782
2029	9	2,607.70	0.4975	1,297.330
302	9	2,658.70	0.4770	1,268.199
301	9	2,481.10	0.4200	1,042.062
1394	1			

		197.73	0.6830	135.049
1395	1	297.18	0.6600	196.138
43	3	576.22	0.0005	0.288
397	8	2,466.44	0.4505	1,111.131
128	10	2,774.42	0.4200	1,165.256
392	9	2,510.42	0.2910	730.532
391	8	2,418.40	0.5425	1,311.982
490	9	2,576.14	0.4585	1,181.160
425	9	2,444.27	0.4160	1,016.816
458	9	2,633.20	0.4715	1,241.553
459	8	2,436.45	0.4940	1,203.606
122	10	2,905.05	0.3690	1,071.963
309	10	2,813.20	0.4970	1,398.160
123	7	1,850.90	0.5425	1,004.113
124	11	3,110.37	0.4930	1,533.412
121	7	2,064.73	0.3990	823.827
125	7	1,825.53	0.4255	776.763
454	9	2,716.55	0.5235	1,422.113
455	8	2,297.10	0.5300	1,217.463
456	9	2,646.67	0.4810	1,273.048
358	8	2,420.45	0.4620	1,118.247
398	10	2,900.67	0.4225	1,225.533
592	9			

		2,868.87	0.4830	1,385.664
590	8	2,015.83	0.3690	743.841
591	9	2,572.62	0.4630	1,191.123
314	8	2,495.60	0.4745	1,184.162
458	11	2,888.45	0.3810	1,100.499
551	10	2,967.70	0.4605	1,366.625
552	8	2,208.62	0.4755	1,050.198
531	8	2,412.00	0.4215	1,016.658
1869	1	82.23	0.5630	46.295
2157	1	78.55	0.4805	37.743
664	2	1,096.40	0.7555	828.330
726	1	170.35	0.0190	3.236
1025	2	1,326.13	0.7323	971.058
584	2	1,095.32	0.7125	780.415
979	2	1,267.47	0.7060	894.833
1031	2	1,288.64	0.8068	1,039.610
667	2	1,177.75	0.8785	1,034.653
766	1	358.67	0.5955	213.587
1023	2	1,382.05	0.7388	1,020.989
739	1	264.52	0.3410	90.201
901	1	593.23	0.4455	264.283
424	1	309.73	0.6965	215.726
834	2			

		1,238.29	0.8635	1,069.263
818	2	1,115.14	0.8448	942.014
663	2	771.15	0.7553	582.411
1244	3	1,967.11	0.7465	1,468.447
628	1	370.40	0.5580	206.683
654	1	378.30	0.5735	216.955
668	2	878.26	0.8790	771.990
441	1	342.30	0.1920	65.721
911	1	479.24	0.3710	177.798
585	2	869.21	0.7080	615.400
803	1	554.96	0.3795	210.607
768	2	759.10	0.5465	414.848
590	2	1,007.78	0.7585	764.401
773	1	368.68	0.7768	286.372
948	1	649.25	0.2575	167.181
1222	1	428.33	0.4635	198.530
1033	1	403.94	0.3260	131.684
769	1	424.93	0.5425	230.524
898	2	828.43	0.4580	379.420
1340	2	1,356.23	0.7360	998.185
1360	1	351.97	0.2915	102.599
597	1	453.22	0.3450	156.360
756	2			

		1,142.61	0.7575	865.527
464	1	472.25	0.5560	262.571
481	1	540.72	0.5210	281.715
572	2	976.85	0.7160	699.424
575	1	392.10	0.4655	182.522
1365	3	1,973.25	0.8725	1,721.660
1362	2	1,375.22	0.7375	1,014.224
459	1	490.09	0.2620	128.403
1684	2	1,285.98	0.7590	976.058
1902	3	1,151.26	0.7230	832.360
1803	3	1,375.03	0.7765	1,067.710
1570	2	896.90	0.4540	407.192
1656	2	1,214.31	0.8025	974.483
1492	1	345.43	0.4270	147.498
641	2	1,267.37	0.7338	929.932
1065	1	392.56	0.4190	164.482
637	1	532.67	0.5010	266.867
630	1	400.08	0.4025	161.032
562	2	828.25	0.4880	404.186
644	2	698.58	0.7588	530.047
398	1	286.85	0.2335	66.979
419	1	311.98	0.4745	148.034
727	1			

		418.08	0.0040	1.672
681	1	447.15	0.4300	192.274
831	1	397.30	0.5030	199.841
657	1	340.04	0.4565	155.228
401	1	412.03	0.3230	133.085
429	1	350.48	0.4540	159.117
425	1	352.42	0.5185	182.729
1753	3	1,430.06	0.7695	1,100.431
1751	3	1,462.54	0.8075	1,181.001
1542	2	1,263.89	0.7575	957.396
1924	1	371.75	0.5000	185.875
1990	3	1,412.10	0.7950	1,122.619
1738	1	579.14	0.3375	195.459
1591	1	445.02	0.5000	222.510
1727	2	1,191.28	0.7490	892.268
1749	3	1,444.80	0.8055	1,163.786
1942	3	1,384.69	0.7755	1,073.827
1804	3	1,354.17	0.7655	1,036.617
1763	2	1,337.76	0.7610	1,018.035
1669	3	1,341.79	0.3350	449.499
974	1	393.93	0.7575	298.401
1767	2	669.74	0.3720	249.143
1765	2			

		896.07	0.7560	677.428
1938	1	374.62	0.3485	130.555
1572	2	1,359.24	0.7850	1,067.003
1916	1	316.78	0.4145	131.305
1571	2	879.10	0.0380	33.405
1593	3	1,490.21	0.8520	1,269.658
1883	4	2,061.50	0.8790	1,812.058
1925	6	1,806.09	0.0410	74.049
1981	2	815.20	0.7615	620.774
1528	2	1,446.72	0.8265	1,195.714
1338	2	1,330.53	0.7315	973.282
1982	2	912.28	0.3805	347.122
1923	2	627.85	0.3425	215.038
1859	4	2,375.55	0.8595	2,041.785
1850	1	360.57	0.4395	158.470
1618	2	1,191.17	0.8500	1,012.494
2020	2	858.02	0.4335	371.951
1792	1	326.26	0.2510	81.891
2018	2	831.36	0.7420	616.869
2139	1	555.64	0.9960	553.417
1532	1	294.10	0.8620	253.514
1533	1	338.72	0.7460	252.685
1750	3			

		1,481.99	0.8075	1,196.706
1603	2	793.50	0.7620	604.647
2144	1	338.97	0.6830	231.516
1675	1	272.85	0.4200	114.597
1672	1	627.27	0.4550	285.407
1729	2	774.16	0.7480	579.071
1896	1	388.63	0.6800	264.268
2148	1	412.45	0.4850	200.038
1652	1	411.66	0.0115	4.734
499	2	1,210.33	0.7825	947.083
500	2	1,222.70	0.7830	957.374
508	1	498.02	0.0210	10.458
134	2	820.47	0.5475	449.207
503	2	1,275.75	0.7565	965.104
504	2	1,399.37	0.7690	1,076.115
55	1	320.95	0.1195	38.353
441	2	955.68	0.7900	754.987
506	1	426.32	0.5210	222.112
436	3	1,295.30	0.7395	957.874
442	1	601.20	0.7905	475.248
507	1	362.30	0.4400	159.412
435	3	1,366.35	0.7550	1,031.594
433	1			

		404.80	0.5338	216.062
505	2	1,344.55	0.7650	1,028.580
431	1	479.95	0.5050	242.374
2140	2	604.58	0.1975	119.404
1083	1	400.48	0.3610	144.573
1568	1	308.97	0.6700	207.009
1403	2	856.48	0.7773	665.699
1543	1	362.50	0.5500	199.375
1983	4	2,059.28	0.8540	1,758.625
1789	3	1,428.28	0.7898	1,127.984
1805	2	1,159.97	0.7605	882.157
1631	2	1,305.87	0.7700	1,005.519
1632	2	1,310.05	0.7790	1,020.528
2136	1	505.63	0.2770	140.059
1482	2	1,393.53	0.7950	1,107.856
1725	2	1,354.75	0.7505	1,016.739
1683	2	1,332.69	0.7625	1,016.176
1782	2	1,105.70	0.7950	879.031
1772	2	1,045.85	0.3265	341.470
347	2	1,328.88	0.7610	1,011.277
490	5	2,132.80	0.0080	17.062
550	1	314.40	0.4400	138.336
502	1			

		541.53	0.0160	8.664
137	1	358.10	0.4690	167.948
440	1	331.76	0.4080	135.358
498	2	743.98	0.5100	379.429
63	1	355.55	0.4750	168.886
156	2	990.60	0.5340	528.980
53	1	441.60	0.3485	153.897
254	2	1,023.17	0.7650	782.725
511	1	384.73	0.7325	281.814
348	2	1,269.35	0.7355	933.606
289	1	485.80	0.1155	56.109
559	2	1,347.20	0.7355	990.865
52915	1	1,004.25	0.9090	912.863
1019	2	740.12	0.3150	233.137
1536	1	327.33	0.7145	233.877
4971	8	8,195.90	0.9940	8,146.724
5293	9	9,013.58	0.9685	8,729.652
102	1	297.61	0.0610	18.154
1723	4	2,264.05	0.8698	1,969.157
4963	9	9,320.12	0.9943	9,266.529
5539	4	3,780.95	0.9935	3,756.373
325	2	683.22	0.5278	360.569
342	1			

		423.45	0.3690	156.253
359	1	313.48	0.5000	156.740
323	1	508.68	0.7840	398.805
369	1	449.75	0.7385	332.140
322	2	989.40	0.7830	774.700
357	2	767.18	0.7915	607.222
315	2	1,196.00	0.5240	626.704
558	2	1,384.20	0.7475	1,034.689
210	1	575.94	0.4990	287.394
367	2	1,054.40	0.5140	541.961
67	1	320.60	0.1720	55.143
69	1	312.55	0.0490	15.314
56	1	339.92	0.4910	166.900
353	1	286.35	0.4070	116.544
444	2	1,209.68	0.4415	534.073
554	1	336.08	0.2215	74.441
319	1	336.92	0.3735	125.839
512	2	803.30	0.5625	451.856
964	1	562.18	0.4300	241.737
9	1	392.75	0.3005	118.021
1075	2	1,113.35	0.8160	908.493
908	4	2,607.05	0.8670	2,260.312
989	2			

		1,264.85	0.8155	1,031.485
1993	2	573.83	0.4560	261.666
2019	1	315.60	0.4025	127.029
1978	3	1,408.58	0.7635	1,075.450
1985	1	413.82	0.5410	223.876
1892	3	1,402.20	0.7820	1,096.520
1885	3	1,374.68	0.8075	1,110.054
503	1	131.47	0.4890	64.288
443	1	303.15	0.3550	107.618
1453	2	1,378.64	0.7400	1,020.193
1451	2	1,186.57	0.7703	913.955
536	1	297.38	0.4700	139.768
1253	1	331.66	0.7450	247.086
2146	1	460.18	0.9950	457.879
1546	2	1,331.98	0.8158	1,086.562
917	2	1,363.30	0.7715	1,051.785
906	2	709.55	0.8075	572.961
1481	2	1,410.35	0.7930	1,118.407
956	1	235.08	0.1180	27.739
2025	2	534.26	0.4095	218.779
1243	4	2,747.95	0.7490	2,058.214
1666	2	1,103.80	0.7475	825.090
1280	1			

		388.87	0.3535	137.465
1279	1	533.54	0.8995	479.919
1289	2	1,363.40	0.7705	1,050.499
1284	1	477.43	0.7700	367.621
1977	3	1,378.53	0.7718	1,063.880
1734	1	352.86	0.6245	220.361
1954	1	340.15	0.4465	151.876
2147	3	1,088.28	0.1255	136.579
1559	2	1,252.59	0.8090	1,013.345
2143	2	784.18	0.8805	690.470
1951	4	2,058.10	0.8748	1,800.322
1778	1	326.45	0.4940	161.266
1474	4	2,362.39	0.8555	2,021.024
1096	2	1,037.70	0.8145	845.206
1140	3	1,718.75	0.8495	1,460.078
1297	1	386.33	0.3550	137.147
1190	3	1,348.22	0.7845	1,057.678
1187	3	1,368.70	0.7900	1,081.273
1940	1	417.42	0.5210	217.475
2008	2	934.83	0.3110	290.732
2115	1	418.30	0.0235	9.830
2141	1	500.71	0.9970	499.207
2138	4			

		1,761.12	0.0150	26.416
2142	1	340.76	0.0150	5.111
1936	3	1,400.67	0.7635	1,069.411
1835	3	1,146.05	0.7470	856.099
1611	1	292.40	0.0355	10.380
1655	3	1,492.25	0.8270	1,234.090
1653	2	1,287.30	0.8105	1,043.356
2134	2	706.80	0.1410	99.658
1937	1	584.03	0.3590	209.666
1617	3	1,447.69	0.8310	1,203.030
1615	3	1,478.75	0.8490	1,255.458
1726	2	1,334.73	0.7540	1,006.386
1730	1	388.25	0.4605	178.789
1711	2	615.80	0.0180	11.084
958	2	809.00	0.8025	649.222
1719	3	1,491.84	0.8175	1,219.579
1667	2	939.80	0.7475	702.500
1784	2	888.00	0.7010	622.488
1785	2	968.73	0.8063	781.038
1544	4	1,803.15	0.4330	780.763
1616	3	1,541.55	0.8518	1,313.015
1676	3	1,488.15	0.8020	1,193.496
1491	1			

		369.80	0.7575	280.123
428	1	313.31	0.4408	138.091
18	1	257.60	0.2150	55.384
511	1	349.01	0.0145	5.060
1851	2	666.55	0.4998	333.108
178	1	577.35	0.3800	219.393
368	1	336.56	0.5125	172.487
291	1	323.30	0.4660	150.657
42	1	292.15	0.3665	107.072
9	1	336.92	0.3675	123.818
24	1	304.89	0.4300	131.102
105	1	247.05	0.5240	129.454
373	1	320.43	0.5725	183.446
473	1	307.81	0.6680	205.617
382	1	263.07	0.1325	34.856
131	1	284.61	0.4660	132.628
10	1	353.52	0.4695	165.977
374	1	684.73	0.4840	331.409
17	1	462.15	0.4690	216.748
320	1	306.71	0.7170	219.911
1598	2	1,252.15	0.4415	552.824
112	1	589.48	0.4490	264.676
1	1			

		403.29	0.8388	338.259
19	1	327.44	0.4965	162.573
8	1	283.03	0.7900	223.593
57	1	344.06	0.4810	165.492
1471	2	903.68	0.4325	390.841
1472	2	1,186.35	0.7780	922.980
4	1	388.87	0.4245	165.075
111	1	253.84	0.8285	210.306
5	1	425.73	0.4905	208.820
7	1	386.52	0.1318	50.924
134	1	501.23	0.4365	218.786
465	2	729.69	0.5590	407.896
118	1	383.37	0.1140	43.704
47	1	327.60	0.4535	148.566
132	1	439.28	0.4640	203.825
137	1	341.67	0.3830	130.859
428	1	373.62	0.4585	171.304
174	1	354.35	0.4810	170.442
1288	3	2,192.17	0.8675	1,901.707
1217	2	661.75	0.2450	162.128
1413	1	333.20	0.7650	254.898
1489	3	1,743.00	0.6050	1,054.515
45	1			

		374.47	0.4165	155.966
1024	2	1,321.50	0.7385	975.927
25	1	410.35	0.0335	13.746
1141	2	1,049.73	0.8025	842.408
1183	2	1,098.10	0.8010	879.578
1295	2	756.24	0.2985	225.737
1146	1	320.84	0.5180	166.195
1449	2	1,165.25	0.7700	897.242
1969	1	365.47	0.4520	165.192
1459	1	302.47	0.6820	206.284
1917	1	389.88	0.5465	213.069
2014	1	448.86	0.4600	206.475
2024	1	602.49	0.6185	372.640
1895	1	361.65	0.5285	191.132
1830	2	626.55	0.4795	300.430
1891	1	313.35	0.7025	220.128
1994	2	595.08	0.5310	315.987
1552	1	437.60	0.5250	229.740
370	1	621.63	0.4915	305.531
148	1	274.04	0.0015	0.411
116	1	485.43	0.0245	11.893
1268	1	534.28	0.8995	480.584
16	1			

		394.77	0.0635	25.067
1473	2	1,181.52	0.7785	919.813
1839	1	449.35	0.3325	149.408
1873	2	804.54	0.4675	376.122
1829	2	664.53	0.4730	314.322
1093	2	1,317.86	0.7420	977.852
1396	2	1,351.38	0.7715	1,042.589
1454	2	1,359.50	0.7430	1,010.108
468	1	353.75	0.8935	316.075
1089	1	367.73	0.4620	169.891
1838	3	1,274.93	0.7725	984.883
1401	1	384.95	0.6110	235.204
1878	3	1,362.75	0.7870	1,072.484
1826	1	345.05	0.4670	161.138
1886	3	1,244.00	0.7265	903.766
2022	2	770.15	0.5165	397.782
1787	3	1,382.10	0.7268	1,004.441
1678	2	1,324.73	0.8030	1,063.758
1686	2	944.63	0.7470	705.638
1689	1	307.76	0.6820	209.892
1071	2	785.90	0.3460	271.921
420	4	2,812.20	0.8438	2,372.793
472	1			

		370.88	0.7540	279.643
1476	1	366.38	0.4848	177.602
1690	4	2,099.85	0.8630	1,812.170
1600	2	1,357.18	0.7675	1,041.635
1504	2	1,046.08	0.4380	458.183
1575	2	979.33	0.7680	752.125
1980	2	697.50	0.7600	530.100
63	1	503.18	0.4890	246.055
1834	2	1,046.08	0.7430	777.237
259	2	776.10	0.2275	176.562
6	1	329.38	0.1515	49.901
280	1	528.92	0.5590	295.666
556	2	1,046.48	0.7600	795.324
226	1	331.59	0.4695	155.681
219	2	1,069.63	0.4080	436.409
361	1	419.95	0.5330	223.833
283	1	298.80	0.6580	196.610
8	1	318.90	0.3815	121.660
216	1	365.34	0.4540	165.864
429	3	1,415.73	0.8158	1,154.881
227	1	358.92	0.4205	150.925
190	2	811.10	0.5195	421.366
288	1			

		435.80	0.4925	214.631
430	2	1,036.17	0.8160	845.514
225	1	323.05	0.7615	246.002
1776	1	327.48	0.6390	209.259
1339	2	1,353.73	0.7375	998.375
1846	3	1,453.90	0.7938	1,154.033
1810	4	1,662.65	0.3205	532.879
1246	2	1,290.35	0.8060	1,040.022
1879	3	1,377.83	0.7885	1,086.418
1569	1	349.07	0.7140	249.235
1844	3	1,472.72	0.7940	1,169.339
839	3	1,408.65	0.7900	1,112.833
1752	3	1,404.17	0.7688	1,079.455
1717	1	300.85	0.4975	149.672
1149	2	1,382.00	0.7795	1,077.269
1224	1	355.09	0.4580	162.631
1290	2	1,337.35	0.7750	1,036.446
1848	1	391.08	0.5870	229.563
165	2	622.58	0.3610	224.751
355	1	381.43	0.3590	136.933
164	1	348.54	0.4160	144.992
10	1	303.05	0.4350	131.826
366	1			

		321.88	0.6288	202.382
364	1	293.77	0.4858	142.698
255	1	333.30	0.5300	176.649
129	1	386.15	0.5120	197.708
186	2	874.13	0.5215	455.858
256	1	340.75	0.2810	95.750
251	1	449.51	0.4780	214.865
545	2	1,097.55	0.7850	861.576
220	2	657.40	0.5155	338.889
223	1	322.60	0.4515	145.653
9	1	351.90	0.8538	300.434
65	2	683.60	0.6480	442.972
11	2	983.15	0.5118	503.127
26	4	2,544.05	0.8680	2,208.235
14	2	1,232.03	0.7680	946.199
68	1	327.55	0.5520	180.807
7	1	348.35	0.5030	175.220
1991	3	1,397.60	0.7955	1,111.790
480	1	446.48	0.7855	350.710
954	3	2,023.35	0.8365	1,692.532
383	1	646.98	0.4315	279.171
1418	1	379.64	0.6280	238.413
67	1			

		380.52	0.3820	145.358
217	1	472.80	0.3455	163.352
162	2	628.98	0.5260	330.843
320	1	396.88	0.5440	215.902
184	1	308.33	0.3815	117.627
547	1	341.73	0.7685	262.619
827	3	1,109.35	0.7805	865.847
1596	1	397.70	0.7040	279.980
1900	3	1,379.05	0.7690	1,060.489
1979	3	1,384.95	0.7675	1,062.949
946	2	1,014.64	0.7900	801.565
1855	3	1,372.58	0.7798	1,070.269
1856	3	1,386.62	0.7965	1,104.442
8	1	380.47	0.4415	167.977
945	2	1,068.80	0.7890	843.283
1786	1	478.13	0.4610	220.417
1076	2	1,050.85	0.8160	857.493
990	2	1,130.88	0.8163	923.080
1973	1	387.87	0.6100	236.600
1976	1	401.07	0.5050	202.540
1884	3	1,436.90	0.8175	1,174.665
1989	3	1,450.25	0.7920	1,148.598
19	2			

		758.00	0.7640	579.112
380	2	894.35	0.7523	672.774
1265	2	1,354.63	0.7170	971.269
571	2	674.88	0.7185	484.901
1802	1	385.70	0.3855	148.687
1466	1	393.72	0.3670	144.495
1930	3	1,326.59	0.7535	999.585
1929	3	1,342.43	0.7430	997.425
379	2	1,057.60	0.7215	763.058
1840	1	498.28	0.4625	230.454
423	2	955.75	0.7820	747.396
1166	1	641.03	0.4240	271.796
565	1	365.65	0.5965	218.110
371	1	437.40	0.5020	219.574
918	2	1,180.75	0.7710	910.358
1364	2	1,171.40	0.7370	863.321
774	1	290.23	0.3995	115.946
767	1	388.10	0.4375	169.793
805	1	336.92	0.5710	192.381
802	2	629.53	0.0180	11.331
815	1	469.88	0.5035	236.584
809	3	1,405.03	0.7920	1,112.783
800	1			

		294.33	0.0830	24.429
806	1	465.46	0.4900	228.075
1728	2	838.51	0.7405	620.916
645	4	2,614.32	0.8810	2,303.215
684	2	1,314.30	0.7500	985.725
665	1	242.30	0.0260	6.299
1361	2	1,297.13	0.7328	950.472
741	1	643.58	0.4470	287.680
685	2	1,345.92	0.7655	1,030.301
731	1	263.49	0.1080	28.456
1	1	366.73	0.5755	211.053
211	2	715.32	0.4740	339.061
346	1	484.22	0.7465	361.470
434	1	320.89	0.4665	149.695
106	2	683.86	0.5130	350.820
317	2	1,273.26	0.6930	882.369
313	2	873.18	0.7973	696.142
7	2	970.79	0.2575	249.978
370	1	317.50	0.3565	113.188
57	1	303.48	0.5490	166.610
321	1	308.23	0.1440	44.385
189	1	358.14	0.6090	218.107
349	1			

		563.30	0.7480	421.348
13	1	363.50	0.4570	166.119
311	1	404.06	0.5065	204.656
345	1	562.22	0.7520	422.789
1779	1	390.25	0.4180	163.124
1634	1	485.02	0.7485	363.037
394	1	324.14	0.4455	144.404
1769	1	310.40	0.4175	129.592
1852	1	294.10	0.5025	147.785
17	3	1,388.58	0.7728	1,073.025
92	1	383.97	0.5025	192.944
107	1	573.73	0.4345	249.285
20	1	549.63	0.5900	324.281
1398	2	1,384.47	0.7718	1,068.464
1496	2	1,451.50	0.8260	1,198.939
1861	1	419.11	0.3305	138.515
1670	1	301.75	0.0860	25.950
1658	1	341.29	0.5500	187.709
1594	3	1,611.90	0.8550	1,378.174
1455	2	1,322.15	0.7475	988.307
1397	2	1,394.55	0.7718	1,076.243
1188	3	1,384.98	0.7865	1,089.286
1353	1			

		311.46	0.1915	59.644
1363	2	1,367.30	0.7345	1,004.281
1773	1	355.31	0.5395	191.689
1247	2	716.85	0.4980	356.991
1608	1	647.45	0.8550	553.569
1540	2	1,229.90	0.8118	998.371
1712	1	472.45	0.4760	224.886
1807	2	1,062.30	0.7605	807.879
1713	1	369.10	0.3215	118.665
1748	3	1,431.00	0.8035	1,149.808
1715	2	827.53	0.4175	345.493
321	1	502.58	0.0240	12.061
377	1	422.76	0.7230	305.655
11	1	256.87	0.4700	120.728
188	1	218.04	0.2750	59.961
375	1	269.85	0.4115	111.043
318	4	1,804.83	0.3440	620.861
179	1	252.00	0.3625	91.350
564	1	337.53	0.8959	302.393
533	2	819.93	0.2115	173.415
402	2	894.60	0.1958	175.117
403	1	256.80	0.5010	128.656
2	1			

		239.74	0.4670	111.958
378	1	569.60	0.5025	286.224
43	1	317.15	0.4145	131.458
72	1	248.53	0.5405	134.330
109	1	277.88	0.5275	146.581
56	1	288.96	0.6985	201.838
462	2	883.90	0.3210	283.731
577	2	778.67	0.4940	384.662
347	1	617.15	0.4935	304.563
346	1	304.46	0.3675	111.889
579	1	293.30	0.0570	16.718
296	2	706.20	0.0160	11.299
573	1	326.55	0.4758	155.356
500	1	313.39	0.5105	159.985
532	1	314.57	0.0765	24.064
507	2	910.87	0.5558	506.216
481	2	779.05	0.0010	0.779
354	1	472.76	0.1090	51.530
543	2	673.05	0.0145	9.759
380	1	641.90	0.4525	290.459
308	1	413.55	0.4740	196.022
352	1	561.30	0.0710	39.852
442	2			

		818.05	0.4970	406.570
317	1	307.20	0.5590	171.724
436	1	459.70	0.3100	142.507
576	1	385.58	0.1325	51.089
74	1	242.65	0.5040	122.295
1630	4	2,603.12	0.8795	2,289.444
1599	4	2,360.00	0.8285	1,955.260
381	1	340.50	0.2055	69.972
1508	2	1,234.75	0.7475	922.975
1545	2	1,417.43	0.8135	1,153.079
1189	3	1,437.93	0.7930	1,140.278
465	2	1,041.27	0.7690	800.736
1450	2	1,173.15	0.7685	901.565
1507	2	1,151.79	0.7918	911.929
1272	1	450.87	0.6820	307.493
1446	1	576.94	0.3490	201.352
1186	1	324.08	0.7615	246.786
1125	2	709.86	0.4575	324.760
1132	1	371.25	0.7480	277.695
1143	1	416.50	0.5750	239.487
1558	2	1,474.83	0.8245	1,215.997
1944	3	1,194.18	0.7740	924.295
1601	2			

		1,385.80	0.7593	1,052.168
1577	1	316.32	0.0025	0.790
1573	2	1,294.52	0.7825	1,012.961
281	1	326.25	0.3815	124.464
291	1	379.63	0.5585	212.023
1941	3	1,434.52	0.7915	1,135.422
1623	1	350.82	0.4260	149.449
1945	3	1,207.90	0.7605	918.607
1687	2	665.98	0.7640	508.808
1539	3	1,973.75	0.8685	1,714.201
1934	3	1,397.20	0.7675	1,072.351
1534	1	325.65	0.4340	141.332
1946	3	1,180.55	0.7550	891.315
862	1	588.40	0.5075	298.613
660	1	307.72	0.6925	213.096
877	1	548.88	0.7120	390.802
811	1	314.45	0.4345	136.628
646	1	340.05	0.4305	146.391
1860	1	410.30	0.4255	174.582
1626	1	341.84	0.5005	171.090
462	3	1,295.55	0.7595	983.970
1147	2	1,437.45	0.7833	1,125.882
780	2			

		1,187.84	0.7760	921.763
437	1	537.17	0.4130	221.851
822	1	298.40	0.4270	127.416
816	2	975.45	0.7830	763.777
725	3	893.51	0.0020	1.787
810	2	809.08	0.7938	642.207
401	1	426.93	0.3700	157.964
444	1	242.23	0.4235	102.584
323	1	247.13	0.3265	80.687
437	1	233.83	0.1935	45.246
1392	1	647.70	0.5490	355.587
15	2	1,037.23	0.7675	796.074
1144	2	827.52	0.4745	392.658
1680	1	446.86	0.0380	16.980
372	2	975.78	0.3300	322.007
461	1	317.10	0.4925	156.171
967	2	704.29	0.4610	324.677
93	1	404.93	0.7300	295.598
1142	2	950.67	0.8035	763.863
578	1	265.58	0.7680	203.965
1161	2	1,086.39	0.2625	285.177
24	1	551.57	0.2805	154.715
22	1			

		556.77	0.3930	218.810
53	1	315.99	0.4250	134.295
530	2	828.78	0.7080	586.776
464	1	391.83	0.2890	113.238
527	1	387.22	0.6485	251.112
478	1	389.64	0.4735	184.494
460	1	306.90	0.5835	179.076
477	1	363.58	0.4410	160.338
461	1	383.03	0.4375	167.575
430	1	348.92	0.3650	127.355
434	1	359.59	0.4350	156.421
62	1	388.23	0.0010	0.388
55	1	491.19	0.1105	54.276
50	1	394.98	0.4350	171.816
82	1	361.74	0.1350	48.834
75	1	274.02	0.4640	127.145
76	1	385.24	0.4240	163.341
1870	1	553.82	0.3380	187.191
1933	3	1,413.48	0.7645	1,080.605
1724	1	442.72	0.5360	237.297
1874	1	592.43	0.6010	356.050
1903	3	1,244.65	0.7725	961.492
1405	2			

		1,217.52	0.7765	945.404
1764	3	1,213.13	0.7595	921.372
1404	2	1,133.28	0.7773	880.841
1880	2	880.15	0.4125	363.061
1607	1	323.34	0.7580	245.091
1931	3	1,239.65	0.7360	912.382
1754	2	598.37	0.4505	269.565
1877	3	1,402.96	0.7865	1,103.428
1755	2	1,087.40	0.4395	477.912
1720	3	1,444.60	0.7995	1,154.957
1722	1	314.55	0.3770	118.585
545	1	453.29	0.5240	237.523
601	1	322.44	0.5975	192.657
478	3	1,480.40	0.8750	1,295.350
600	1	401.55	0.5745	230.690
634	1	399.50	0.0200	7.990
808	1	332.75	0.4500	149.737
841	2	880.77	0.7910	696.689
1027	1	327.92	0.5370	176.093
460	1	581.05	0.6325	367.514
1790	3	1,461.97	0.7930	1,159.342
467	4	2,466.52	0.8423	2,077.426
625	1			

		417.45	0.5085	212.273
1097	2	883.20	0.8150	719.808
883	2	863.66	0.7855	678.404
552	2	1,357.72	0.8068	1,095.340
755	2	1,273.80	0.7490	954.076
781	2	993.79	0.7755	770.684
881	2	1,069.70	0.7850	839.714
567	4	2,844.65	0.8860	2,520.359
801	2	1,067.14	0.7075	755.001
718	4	954.94	0.0025	2.387
776	1	516.93	0.4550	235.203
742	1	625.59	0.4975	311.231
650	1	431.07	0.2575	111.000
648	1	519.20	0.5315	275.954
643	2	778.31	0.7580	589.958
686	1	567.64	0.7620	432.541
814	1	361.58	0.6130	221.648
823	1	256.80	0.5400	138.672
633	1	316.15	0.0270	8.536
1345	1	447.56	0.4190	187.527
470	2	602.24	0.0445	26.799
626	1	365.06	0.4450	162.451
434	1			

		322.08	0.5260	169.414
603	1	516.12	0.4945	255.221
463	2	829.93	0.7755	643.610
1677	2	1,289.67	0.8085	1,042.698
1783	2	1,177.48	0.6865	808.340
1793	1	581.87	0.4640	269.987
596	4	2,384.85	0.8850	2,110.592
882	2	942.87	0.7855	740.624
879	1	280.50	0.4200	117.810
828	2	604.07	0.7860	474.799
1150	2	1,020.50	0.7880	804.154
1184	2	887.88	0.8010	711.191
416	1	442.59	0.0670	29.653
2112	1	416.15	0.1985	82.605
1256	1	425.26	0.4005	170.316
1633	2	1,005.18	0.7495	753.382
1627	1	357.97	0.4825	172.720
1673	1	378.13	0.7020	265.447
1148	2	1,344.60	0.7850	1,055.511
1227	1	589.70	0.5270	310.771
1245	2	1,323.97	0.8058	1,066.788
1291	2	1,391.25	0.7715	1,073.349
1988	2			

		625.98	0.3510	219.718
1249	3	1,873.70	0.8500	1,592.645
2145	1	365.10	0.3925	143.301
1261	3	1,435.53	0.3425	491.669
1639	2	1,008.05	0.4560	459.670
1650	1	329.80	0.5660	186.666
1788	3	1,468.67	0.7905	1,160.983
1355	1	308.50	0.4710	145.303
1947	3	1,192.93	0.7605	907.223
1304	1	439.93	0.4505	198.188
1654	2	1,446.98	0.8215	1,188.694
1685	2	1,247.83	0.7570	944.607
1766	2	779.20	0.7555	588.685
2135	2	829.09	0.2610	216.392
1350	2	1,213.38	0.7735	938.549
1635	1	318.05	0.4305	136.920
1736	1	392.39	0.8840	346.872
1349	2	1,204.60	0.7745	932.962
1348	1	449.33	0.4535	203.771
1628	1	301.02	0.7185	216.282
1907	1	316.20	0.4955	156.677
986	1	423.27	0.5060	214.174
1809	4			

		2,201.00	0.8765	1,929.176
1992	2	906.20	0.7818	708.421
2017	3	1,018.23	0.7420	755.526
1241	2	826.04	0.4445	367.174
1252	1	649.73	0.9953	646.643
880	4	2,471.11	0.8570	2,117.741
1800	1	501.59	0.3555	178.315
1806	2	1,156.44	0.7480	865.017
2015	3	1,352.25	0.7605	1,028.386
1828	1	591.44	0.3490	206.412
1799	1	587.12	0.5095	299.137
1871	1	393.67	0.4625	182.072
1688	3	1,194.63	0.3465	413.939
1758	1	474.05	0.4605	218.300
1756	3	1,984.85	0.8568	1,700.520
1762	2	1,342.75	0.7620	1,023.175
1836	3	1,225.79	0.7750	949.987
1833	2	820.38	0.7465	612.413
1679	3	1,410.75	0.7965	1,123.662
1823	1	538.26	0.4650	250.290
1987	1	313.74	0.4335	136.006
1757	1	577.28	0.4730	273.053
1668	1			

		633.92	0.7478	474.013
1665	2	1,224.95	0.7695	942.599
1664	2	1,369.25	0.7593	1,039.603
1662	4	2,318.45	0.8625	1,999.663
2006	1	695.64	0.8700	605.206
549	2	704.17	0.2595	182.732
393	2	964.52	0.7540	727.248
386	2	1,134.60	0.7655	868.536
389	1	390.61	0.2290	89.449
418	1	396.47	0.4740	187.926
385	2	1,308.25	0.7355	962.217
25	2	608.98	0.4655	283.480
2016	3	1,344.48	0.7630	1,025.838
392	2	986.45	0.7555	745.262
840	2	974.42	0.7900	769.791
757	2	858.92	0.7585	651.490
887	2	990.23	0.7695	761.981
836	1	332.63	0.4265	141.866
391	2	785.15	0.3235	253.996
975	1	330.41	0.0925	30.562
1062	2	1,357.67	0.7260	985.668
1443	1	489.50	0.3665	179.401
1927	1			

		450.67	0.8730	393.434
473	2	1,269.60	0.7235	918.555
1791	3	1,471.09	0.7875	1,158.483
1781	3	1,343.88	0.7775	1,044.866
1043	2	793.62	0.4325	343.240
905	2	1,453.55	0.8070	1,173.014
1092	2	1,319.73	0.7498	989.467
2026	1	357.64	0.3940	140.910
581	2	1,089.35	0.5420	590.427
1922	1	528.52	0.5255	277.737
1943	3	1,267.95	0.7745	982.027
965	5	2,079.92	0.0440	91.516
1411	1	512.25	0.7275	372.661
977	2	1,295.20	0.7090	918.296
479	2	1,127.90	0.8745	986.348
440	2	920.34	0.7798	717.635
421	2	830.92	0.5275	438.310
1061	2	1,296.70	0.7325	949.832
944	1	479.30	0.5380	257.863
1060	2	1,329.30	0.7325	973.712
388	1	395.66	0.4230	167.364
916	1	391.84	0.0245	9.600
474	2			

		875.10	0.7405	648.011
484	2	1,331.30	0.7655	1,019.110
520	1	185.99	0.4180	77.743
435	4	2,314.15	0.8658	2,003.475
430	3	1,312.28	0.7510	985.522
373	2	704.83	0.6200	436.994
94	1	351.10	0.4960	174.145
439	2	1,034.47	0.7790	805.852
1483	1	461.55	0.3285	151.619
376	4	2,656.60	0.8530	2,266.079
426	1	497.96	0.6290	313.216
374	1	460.80	0.6070	279.705
30	2	1,015.03	0.7810	792.738
95	1	425.17	0.6640	282.312
833	2	1,220.85	0.8635	1,054.203
363	1	402.24	0.3720	149.633
496	1	425.65	0.6620	281.780
328	1	287.86	0.0760	21.877
358	2	773.19	0.7928	612.946
83	1	424.50	0.2810	119.284
80	1	284.28	0.6000	170.568
177	1	568.89	0.3610	205.369
352	1			

		259.50	0.4040	104.838
365	1	283.09	0.4590	129.938
371	1	294.20	0.3965	116.650
388	1	460.68	0.3450	158.934
410	1	315.55	0.4510	142.313
305	1	292.37	0.0710	20.758
158	1	268.58	0.5825	156.447
175	1	300.21	0.7965	239.117
78	1	252.84	0.3565	90.137
351	2	814.07	0.5815	473.381
542	2	865.85	0.5880	509.119
544	2	1,047.90	0.7373	772.564
318	2	1,224.44	0.7228	884.964
316	1	411.29	0.4788	196.905
341	2	874.04	0.1540	134.602
257	1	324.31	0.4035	130.859
555	1	418.98	0.6235	261.234
258	2	705.71	0.5020	354.266
324	1	275.47	0.4050	111.565
282	1	370.82	0.4075	151.109
221	2	1,108.44	0.8000	886.752
215	2	1,118.39	0.7765	868.429
252	2			

		611.55	0.4030	246.454
285	2	854.89	0.7410	633.473
158	4	1,614.96	0.1580	255.163
557	1	429.79	0.7580	325.780
52	1	374.71	0.4795	179.673
250	1	367.95	0.7900	290.680
514	2	871.61	0.7955	693.365
287	2	836.47	0.5050	422.417
562	4	2,929.83	0.8340	2,443.478
253	2	999.21	0.7678	767.143
546	2	723.46	0.7850	567.916
212	2	576.21	0.4635	267.073
214	2	1,357.56	0.7750	1,052.109
543	1	401.17	0.4060	162.875
513	2	1,072.43	0.7945	852.045
427	1	287.31	0.4405	126.560
222	2	699.65	0.8005	560.069
284	2	1,012.51	0.7395	748.751
228	1	484.85	0.1740	84.363
549	1	502.51	0.6055	304.269
260	1	506.82	0.3135	158.888
536	1	387.17	0.4770	184.680
21	1			

		386.45	0.3980	153.807
443	1	300.31	0.4355	130.785
553	1	505.82	0.5715	289.076
1047	2	1,374.16	0.8000	1,099.328
1887	3	1,288.93	0.8210	1,058.211
1888	1	340.25	0.7665	260.801
1890	1	395.68	0.4675	184.980
978	2	1,293.05	0.7130	921.944
982	1	666.09	0.5430	361.686
1905	3	1,295.40	0.7640	989.685
396	1	639.02	0.5420	346.348
1876	1	664.13	0.7895	524.330
1094	2	1,367.25	0.7520	1,028.172
1825	1	450.30	0.8885	400.091
1574	2	1,051.63	0.7685	808.177
1547	2	1,395.92	0.7815	1,090.911
1095	2	933.13	0.7528	702.413
1549	1	368.35	0.5805	213.827
1797	1	303.50	0.5060	153.571
886	2	1,351.38	0.7780	1,051.373
88	1	294.76	0.4685	138.095
97	1	296.83	0.4925	146.188
395	4			

		2,517.20	0.8720	2,194.998
1975	1	397.08	0.7230	287.088
1	1	451.41	0.4935	222.770
350	1	314.37	0.6740	211.885
378	2	1,189.79	0.7520	894.722
1046	3	2,004.35	0.8590	1,721.736
1831	4	2,020.43	0.8570	1,731.508
1682	1	299.35	0.4660	139.497
1904	3	1,294.10	0.7645	989.339
1875	2	1,079.69	0.7970	860.512
992	3	1,992.00	0.8515	1,696.188
1509	2	930.20	0.7915	736.253
1605	1	341.55	0.6425	219.445
61	1	357.23	0.4478	159.949
1837	3	1,266.55	0.7765	983.476
1733	1	451.11	0.5180	233.674
1661	1	318.55	0.3905	124.393
1612	2	534.30	0.2815	150.405
1774	1	318.38	0.0590	18.784
957	2	1,098.00	0.8025	881.145
29	2	1,210.84	0.7805	945.060
1602	2	867.55	0.7525	652.831
28	2			

		1,109.61	0.3305	366.726
1919	2	590.97	0.4695	277.460
23	1	310.98	0.6895	214.420
1845	3	1,477.41	0.7930	1,171.586
1843	3	1,354.28	0.7960	1,078.006
1377	1	359.85	0.5385	193.779
1264	2	684.47	0.4685	320.674
1351	2	1,017.15	0.7745	787.782
1085	3	2,194.43	0.8625	1,892.695
466	2	749.96	0.7700	577.469
1337	2	1,139.38	0.7485	852.825
59	1	326.53	0.5285	172.571
1325	1	299.65	0.4360	130.647
1366	2	899.06	0.4660	418.961
1391	2	1,057.35	0.2955	312.446
1388	1	452.58	0.2880	130.343
666	2	608.52	0.5785	352.028
1185	2	832.06	0.8018	667.104
1230	1	341.49	0.6245	213.260
1376	1	445.12	0.7255	322.934
87	1	354.25	0.5965	211.310
1541	2	1,315.78	0.8120	1,068.413
826	3			

		1,313.02	0.7888	1,035.644
1346	2	1,261.73	0.4195	529.295
1380	1	527.55	0.0280	14.771
1374	1	563.23	0.4100	230.924
817	2	976.62	0.7825	764.205
819	3	1,552.37	0.8450	1,311.752
1566	4	2,383.12	0.8305	1,979.181
2005	1	508.37	0.5205	264.606
58	1	358.56	0.4870	174.618
2137	1	392.05	0.0030	1.176
1972	2	604.12	0.3635	219.597
1935	3	1,410.64	0.7665	1,081.255
1841	3	1,416.25	0.7795	1,103.966
1771	1	428.88	0.0315	13.509
1842	3	1,451.85	0.7945	1,153.494
1770	1	512.64	0.3460	177.373
1928	3	1,917.45	0.8705	1,669.140
1847	3	1,342.93	0.7915	1,062.929
1897	1	311.57	0.5355	166.845
1857	3	1,316.25	0.7565	995.743
1899	4	1,993.37	0.8585	1,711.308
4962	9	9,014.15	0.9945	8,964.572
4969	9			

		8,872.40	0.9935	8,814.729
5306	8	7,489.57	0.9683	7,251.776
5818	9	9,167.90	0.9930	9,103.724
5297	8	7,578.70	0.9718	7,364.601
5303	9	8,315.23	0.9698	8,063.694
5294	5	4,782.25	0.9688	4,632.804
4972	5	5,013.55	0.9940	4,983.468
5296	9	9,006.65	0.9683	8,720.688
5305	9	8,345.80	0.9673	8,072.475
5295	8	7,792.62	0.9678	7,541.308
5287	3	3,027.60	0.9690	2,933.744
5304	7	6,646.05	0.9680	6,433.376
5290	5	4,711.83	0.9713	4,576.364
437	6	4,336.78	0.9960	4,319.432
420	8	5,248.63	0.9972	5,233.933
6	4	3,042.68	0.9963	3,031.269
473	5	3,340.44	0.9960	3,327.078
482	1	806.58	0.9960	803.353
59	1	585.07	0.9995	584.777
421	7	5,243.59	0.9970	5,227.859
414	3	1,949.56	0.7075	1,379.313
56	5	3,382.96	0.9995	3,381.268
447	1			

		492.37	0.9960	490.400
484	2	1,010.36	0.9960	1,006.318
483	2	1,205.28	0.9955	1,199.856
422	8	5,244.83	0.9970	5,229.095
423	8	5,082.40	0.9970	5,067.152
32	4	2,275.18	0.9953	2,264.372
55	5	3,364.80	0.9968	3,353.864
45	7	4,147.23	0.9968	4,133.751
432	1	789.52	0.9955	785.967
454	1	921.25	0.9998	921.019
4966	9	9,499.67	0.9948	9,449.796
53	1	1,125.58	0.9990	1,124.454
52	1	1,313.67	0.8994	1,181.514
55	1	1,317.86	0.9014	1,187.919
60	1	1,312.05	0.8998	1,180.582
58	1	1,315.05	0.8992	1,182.492
62	1	1,316.26	0.8996	1,184.107
67	1	1,327.37	0.9003	1,195.031
63	1	1,316.39	0.8993	1,183.829
11	1	1,313.18	0.9006	1,182.649
66	1	1,319.12	0.8994	1,186.416
49	1	1,312.71	0.9001	1,181.570
41	1			

		1,311.77	0.9001	1,180.724
64	1	1,318.87	0.8995	1,186.323
65	1	1,306.12	0.8994	1,174.724
50	1	1,320.16	0.9011	1,189.596
45	1	1,311.73	0.9004	1,181.081
35	1	1,312.55	0.9000	1,181.295
47	1	1,314.16	0.9006	1,183.532
36	1	1,310.39	0.8933	1,170.571
48	1	1,318.27	0.9003	1,186.838
39	1	1,311.16	0.9006	1,180.830
43	1	1,274.65	0.9004	1,147.694
42	1	1,313.87	0.9007	1,183.402
51	1	1,329.32	0.9006	1,197.185
37	1	1,323.51	0.8997	1,190.761
6	1	1,313.43	0.9002	1,182.349
8	1	1,313.28	0.9003	1,182.345
7	1	1,313.41	0.9008	1,183.119
9	1	1,308.45	0.9003	1,177.997
10	1	1,314.63	0.9002	1,183.429
12	1	1,338.38	0.9005	1,205.211
57	1	1,313.17	0.9006	1,182.640
72	1	909.62	0.8973	816.202
3	1			

		1,308.80	0.9004	1,178.443
17	1	1,316.55	0.9000	1,184.895
15	1	1,321.22	0.9003	1,189.494
40	1	1,317.60	0.9008	1,186.894
13	1	1,313.85	0.9001	1,182.596
4	1	1,307.85	0.9002	1,177.326
16	1	1,314.77	0.9005	1,183.950
14	1	1,313.72	0.9006	1,183.136
1	1	1,311.91	0.9002	1,180.981
5	1	1,313.52	0.9004	1,182.693
68	1	1,316.10	0.9006	1,185.279
71	1	1,314.58	0.9005	1,183.779
61	1	1,316.25	0.8992	1,183.572
69	1	1,318.16	0.9001	1,186.475
59	1	1,317.60	0.9004	1,186.367
70	1	1,315.92	0.9003	1,184.722
56	1	1,317.40	0.9003	1,186.055
54	1	1,313.10	0.9012	1,183.365
24	1	1,311.62	0.8995	1,179.802
38	1	1,322.69	0.9000	1,190.421
32	1	1,312.47	0.8951	1,174.791
44	1	1,313.63	0.9003	1,182.661
25	1			

		1,316.71	0.8995	1,184.380
19	1	1,315.92	0.8995	1,183.670
23	1	1,319.17	0.8991	1,186.065
31	1	1,322.74	0.8967	1,186.100
28	1	1,318.69	0.8992	1,185.766
26	1	1,321.30	0.8797	1,162.347
29	1	1,324.42	0.8936	1,183.501
30	1	1,321.65	0.8989	1,188.031
33	1	1,398.38	0.8974	1,254.906
27	1	1,320.06	0.8682	1,146.076
22	1	1,318.17	0.8989	1,184.903
21	1	1,312.20	0.9003	1,181.373
18	1	1,314.73	0.9002	1,183.519
34	1	1,319.07	0.8773	1,157.220
20	1	550.00	0.8994	494.670
73	1	109.59	0.8050	88.219
1518	3	1,570.86	0.4495	706.101
2012	1	408.50	0.0160	6.536
1502	3	1,854.12	0.8750	1,622.355
1182	4	2,319.80	0.8710	2,020.545
1555	2	768.16	0.4685	359.882
1768	1	402.51	0.4910	197.632
1824	1			

		315.16	0.3925	123.700
520	8	2,313.95	0.4790	1,108.382
1526	1	284.88	0.7345	209.244
953	1	283.00	0.7895	223.428
1173	1	197.31	0.4180	82.475
6327	7	2,939.18	0.9965	2,928.892
853	10	3,765.78	0.9940	3,743.185
6325	3	1,232.02	0.9966	1,227.831
3374	5	1,866.95	0.9948	1,857.148
1914	1	99.75	0.5585	55.710
1336	1	172.19	0.7600	130.864
183	6	1,293.72	0.00025	0.323
182	9	1,768.27	0.00025	0.442
132	27	4,414.73	0.42875	1,892.815
134	24	4,084.82	0.43625	1,782.002
191	7	1,517.56	0.02350	35.662
181	5	1,007.97	0.00050	0.503
14	22	3,623.77	0.23850	864.269
MM005	36	5,220.76	0.26475	1,382.196
MM006	21	5,576.71	0.52375	2,920.801
MM007	21	5,481.45	0.54325	2,977.797
92	1	295.56	0.02475	7.315
91	1			

		363.07	0.00300	1.089
93	1	296.93	0.37475	111.274
95	1	274.67	0.00400	1.098
3312F	24	5,155.96	0.00125	6.444
G138	17	5,343.90	0.74425	3,977.197
G137	18	5,593.05	0.75075	4,198.982
G129	21	6,594.35	0.70850	4,672.096
G130	22	6,796.53	0.68150	4,631.835
G262	24	6,832.85	0.63625	4,347.400
G136	18	5,742.25	0.75575	4,339.705
G264	24	6,830.35	0.63275	4,321.903
G263	24	6,870.62	0.63650	4,373.149
G101	24	7,021.35	0.67100	4,711.325
G 45	25	7,198.50	0.71650	5,157.725
G 55	18	5,259.80	0.75875	3,990.873
G 93	24	6,461.10	0.64175	4,146.410
G 181	23	7,094.49	0.66100	4,689.457
G145	19	5,749.40	0.67675	3,890.906
G251	22	7,078.15	0.75875	5,370.546
G146	23	7,319.70	0.70625	5,169.538
G377	21	6,455.75	0.71400	4,609.405
G379	19	5,518.75	0.69150	3,816.215
G349	16			

		4,240.24	0.69100	2,930.005
G348	22	6,269.61	0.63650	3,990.606
G122	22	6,664.85	0.75600	5,038.626
G121	21	6,264.70	0.76300	4,779.966
G112	24	6,985.10	0.63800	4,456.493
G111	22	7,010.36	0.74500	5,222.718
G100	22	6,518.12	0.68950	4,494.243
G340	22	6,105.35	0.60850	3,715.105
G341	23	6,652.05	0.60300	4,011.186
G142	23	6,988.60	0.66775	4,666.637
G370	20	5,842.60	0.73275	4,281.165
G373	19	5,871.22	0.75800	4,450.384
G318	22	6,200.07	0.63150	3,915.344
G319	22	6,020.00	0.63200	3,804.640
G304	18	5,436.40	0.73650	4,003.908
G305	18	5,584.91	0.75125	4,195.663
G301	13	2,765.20	0.44775	1,238.118
G303	16	4,949.13	0.74200	3,672.254
G210	21	6,527.26	0.76500	4,993.353
G337	22	6,053.87	0.62600	3,789.722
G336	22	6,177.60	0.60300	3,725.092
G252	21	6,650.85	0.73450	4,885.049
G261	23			

		6,576.17	0.64375	4,233.409
G 88	22	6,453.78	0.65775	4,244.973
G 172	22	6,199.85	0.59950	3,716.810
G 171	22	6,621.80	0.64200	4,251.195
G387	22	5,491.88	0.54600	2,998.566
G385	22	5,621.85	0.61650	3,465.870
G260	23	6,509.65	0.64475	4,197.096
G386	22	5,741.50	0.66225	3,802.308
G314	22	6,301.30	0.59050	3,720.917
G312	21	6,624.55	0.73850	4,892.230
G315	22	5,843.45	0.59075	3,452.018
G369	17	4,925.45	0.71100	3,501.994
G202	22	7,211.15	0.76375	5,507.515
G235	23	5,208.00	0.26575	1,384.026
G232	17	4,852.45	0.77225	3,747.304
G259	17	5,162.55	0.75775	3,911.922
G 179	23	7,128.95	0.67325	4,799.565
G 182	22	6,825.09	0.68550	4,678.599
G248	21	6,376.77	0.67650	4,313.884
G245	20	6,673.69	0.77450	5,168.772
G247	21	6,301.90	0.67575	4,258.508
G240	23	6,733.67	0.68500	4,612.563
G242	23			

		6,541.34	0.62550	4,091.608
G241	23	6,428.05	0.62525	4,019.138
G292	23	5,242.72	0.58900	3,087.962
G329	21	6,307.77	0.74700	4,711.904
G256	20	6,202.74	0.72875	4,520.246
G253	19	5,775.56	0.75650	4,369.211
G102	23	7,263.52	0.75975	5,518.459
G238	23	6,828.05	0.68100	4,649.902
G239	22	6,560.55	0.68425	4,489.056
G126	19	5,887.81	0.71050	4,183.289
G383	17	4,405.57	0.65075	2,866.924
G382	20	5,645.93	0.65125	3,676.911
G381	20	5,933.55	0.72475	4,300.340
G380	20	6,041.31	0.70350	4,250.061
G357	21	4,120.69	0.10700	440.913
G375	18	5,547.76	0.72125	4,001.321
G332	17	5,036.30	0.72750	3,663.908
G331	16	4,634.23	0.75425	3,495.367
G 176	23	6,820.51	0.65875	4,493.010
G 153	22	5,155.50	0.32250	1,662.648
G 178	24	7,225.12	0.68000	4,913.081
G 177	20	6,079.10	0.67500	4,103.392
G 199	23			

		7,486.13	0.75175	5,627.698
G300	20	4,266.60	0.44875	1,914.636
G297	21	5,230.19	0.53725	2,809.919
G384	20	5,303.00	0.61675	3,270.625
G 151	23	5,580.00	0.35525	1,982.295
G 152	23	5,407.45	0.33475	1,810.143
G149	18	5,160.05	0.62750	3,237.931
G150	12	3,420.90	0.62850	2,150.035
G326	19	5,958.60	0.71550	4,263.378
G113	24	6,817.48	0.60550	4,127.984
G114	22	6,453.44	0.62425	4,028.559
G 96	27	7,778.18	0.66325	5,158.877
G394	22	4,217.74	0.04550	191.907
G108	22	6,359.65	0.63775	4,055.866
G107	20	5,959.80	0.72100	4,297.015
G393	17	4,180.10	0.57200	2,391.017
G 189	19	5,445.90	0.66025	3,595.655
G 190	19	5,453.93	0.69775	3,805.479
G 188	20	5,715.65	0.66025	3,773.757
G 193	20	4,906.65	0.37200	1,825.273
G285	22	6,759.98	0.67050	4,532.566
G282	16	4,897.85	0.74175	3,632.980
G288	20			

		4,699.49	0.29975	1,408.672
G286	22	6,668.63	0.67525	4,502.992
G322	20	6,090.30	0.70750	4,308.887
G325	20	6,105.10	0.70475	4,302.569
G 62	24	7,238.99	0.69600	5,038.337
G 63	24	7,384.65	0.69225	5,112.023
G 169	22	6,875.55	0.67400	4,634.120
G 170	21	6,129.04	0.65700	4,026.779
G207	22	6,539.54	0.67325	4,402.745
G290	20	4,707.32	0.29725	1,399.250
G105	22	6,472.47	0.67950	4,398.043
G106	20	5,851.75	0.70200	4,107.928
G104	22	6,222.87	0.65350	4,066.645
G338	24	6,741.12	0.57625	3,884.570
G294	20	4,934.30	0.54350	2,681.792
G295	28	5,163.99	0.54375	2,807.919
G205	20	5,623.40	0.65400	3,677.703
G206	22	6,078.84	0.65425	3,977.081
G 180	23	6,602.15	0.60550	3,997.601
G223	22	6,160.27	0.66425	4,091.959
G222	19	5,574.89	0.66050	3,682.214
G221	20	5,835.82	0.65925	3,847.264
G 78	22			

		6,232.55	0.66350	4,135.296
G344	23	6,076.50	0.58775	3,571.462
G 50	23	6,779.20	0.69175	4,689.511
G 49	21	5,795.75	0.66400	3,848.378
G128	21	6,485.65	0.66175	4,291.878
G127	17	5,209.38	0.70875	3,692.148
G293	20	5,226.42	0.58700	3,067.908
G296	22	5,501.18	0.53650	2,951.383
G334	20	5,452.20	0.74075	4,038.717
G335	24	6,566.70	0.63200	4,150.154
G 158	23	6,579.45	0.64025	4,212.492
G 157	21	6,023.56	0.60925	3,669.853
G148	22	6,556.17	0.64350	4,218.895
G147	22	6,412.68	0.61925	3,971.052
G 79	16	4,626.34	0.66650	3,083.455
G 59	22	5,390.59	0.48725	2,626.564
G 58	22	5,091.50	0.41950	2,135.884
G313	20	6,243.00	0.73000	4,557.390
G115	21	6,103.55	0.68625	4,188.561
G116	24	7,582.42	0.76400	5,792.968
G 89	24	7,048.68	0.66875	4,713.804
G376	18	5,432.90	0.69800	3,792.164
G 87	22			

		6,224.60	0.65275	4,063.107
G140	22	6,412.55	0.67450	4,325.264
G139	22	6,132.10	0.62875	3,855.557
G141	23	6,778.04	0.66025	4,475.200
G350	22	7,043.52	0.74275	5,231.574
G236	23	5,223.68	0.26600	1,389.498
G356	20	3,854.60	0.08450	325.713
G355	21	4,063.20	0.08475	344.356
G365	21	5,996.03	0.72825	4,366.608
G 92	21	5,581.20	0.64225	3,584.525
G143	25	7,845.79	0.71125	5,580.318
G144	21	6,357.92	0.67900	4,317.027
G237	22	6,463.45	0.68100	4,401.609
G291	20	4,508.28	0.29875	1,346.848
G289	19	4,420.15	0.29975	1,324.939
G 191	17	5,009.00	0.69800	3,496.282
G 192	22	5,110.12	0.37200	1,900.964
G258	18	5,569.36	0.74875	4,170.058
G119	20	6,479.85	0.73650	4,772.409
G120	19	5,948.67	0.73875	4,394.579
G257	19	5,571.27	0.74575	4,154.774
G361	24	5,758.35	0.40625	2,339.329
G346	21			

		6,618.25	0.73450	4,861.104
G347	22	6,445.43	0.58825	3,791.524
G345	22	6,062.71	0.59550	3,610.343
G360	19	3,812.18	0.15650	596.606
G359	20	4,056.68	0.15700	636.898
G358	20	3,871.33	0.10700	414.232
G391	24	6,465.48	0.66650	4,309.242
G265	23	6,341.28	0.63325	4,015.615
G388	20	5,178.95	0.65150	3,374.085
G389	22	5,638.53	0.63000	3,552.273
G390	22	5,605.74	0.66625	3,734.824
G226	20	6,019.72	0.71450	4,301.089
G231	20	6,190.30	0.71900	4,450.825
G225	18	5,567.08	0.73675	4,101.546
G224	23	6,652.81	0.66450	4,420.792
G 72	21	6,125.55	0.74100	4,539.032
G 69	20	4,158.88	0.47375	1,970.269
G 60	24	6,185.18	0.49350	3,052.386
G 70	16	3,915.58	0.46625	1,825.639
G310	20	6,054.09	0.73625	4,457.323
G308	22	6,650.31	0.73300	4,874.677
G307	16	4,914.28	0.73050	3,589.881
G306	18			

		5,597.27	0.75575	4,230.136
G320	20	5,348.30	0.67600	3,615.450
G321	20	6,037.75	0.71300	4,304.915
G278	19	5,864.40	0.70650	4,143.198
G275	14	4,268.65	0.70950	3,028.607
G203	20	5,712.40	0.64975	3,711.631
G204	18	5,145.60	0.64975	3,343.353
G299	23	5,129.10	0.49525	2,540.186
G298	23	5,123.75	0.49500	2,536.256
G 41	23	6,741.90	0.68775	4,636.741
G 44	24	6,877.55	0.68700	4,724.876
G 75	24	6,830.95	0.57450	3,924.380
G 74	24	6,815.70	0.59225	4,036.598
G 64	17	5,232.85	0.68625	3,591.043
G 66	22	5,665.03	0.55675	3,154.005
G 51	17	5,053.17	0.72000	3,638.282
G 84	20	5,357.13	0.70925	3,799.544
G 82	20	5,834.48	0.67475	3,936.815
G 81	22	6,179.90	0.67800	4,189.972
G117	21	6,780.26	0.75675	5,130.961
G118	19	5,912.49	0.74200	4,387.067
67	21	3,454.60	0.38225	1,320.520
35	20			

		3,002.60	0.24025	721.374
38	10	1,591.71	0.24925	396.733
128	14	2,212.90	0.30625	677.700
78	12	1,785.01	0.25900	462.317
80	27	3,991.30	0.00100	3.991
10	25	4,449.26	0.26225	1,166.818
13	21	4,177.15	0.45775	1,912.090
12	21	4,081.92	0.44600	1,820.536
3	21	4,207.13	0.47575	2,001.542
96	1	218.89	0.41825	91.550
94	1	198.50	0.38200	75.827
92	16	2,348.60	0.00100	2.348
9	23	4,624.51	0.45225	2,091.434
77	22	3,657.92	0.00200	7.315
78	19	2,557.85	0.01875	47.959
31	19	3,379.12	0.48000	1,621.977
32	15	2,232.87	0.24700	551.518
1	14	2,574.99	0.45475	1,170.976
3790	2	317.87	0.56050	178.166
3674	2	519.08	0.89225	463.149
3057	3	848.43	0.95700	811.947
3686	2	361.54	0.56700	204.993
3673	2			

		364.52	0.69600	253.705
3212	2	384.85	0.41525	159.808
3840	2	375.01	0.57300	214.880
3432	2	364.52	0.39800	145.078
493	2	302.35	0.54850	165.838
3490	1	153.14	0.54225	83.040
3561	2	304.19	0.54000	164.262
3025	2	317.91	0.79900	254.010
3059	3	849.48	0.97075	824.632
2970	3	532.29	0.40250	214.246
2898	2	380.27	0.85650	325.701
3370	2	446.49	0.46325	206.836
3894	2	328.52	0.57700	189.556
2892	3	545.60	0.35600	194.233
3474	1	159.63	0.41075	65.568
3128	2	499.47	0.88300	441.032
3060	3	789.66	0.97400	769.128
3243	3	613.37	0.55300	339.193
3058	3	850.49	0.96875	823.912
3609	2	394.53	0.58125	229.320
3033	2	444.14	0.57250	254.270
2322	2	403.73	0.47525	191.872
2487	7			

		1,795.72	0.61825	1,110.203
2560	2	388.07	0.56625	219.744
2350	2	516.12	0.78750	406.444
2381	2	346.86	0.56775	196.929
2653	2	461.19	0.57850	266.798
2660	2	370.04	0.53550	198.156
1934	1	214.10	0.51850	111.010
2434	3	741.36	0.91950	681.680
2666	3	778.96	0.91100	709.632
1495	4	1,157.08	0.84825	981.493
2697	2	337.19	0.84825	286.021
1829	3	817.48	0.97975	800.926
2832	4	807.19	0.58000	468.170
2735	2	363.38	0.47350	172.060
1830	3	826.51	0.97100	802.541
2094	2	423.50	0.56550	239.489
188	1	225.97	0.56800	128.350
2397	2	398.86	0.40675	162.236
2436	1	289.65	0.84475	244.681
2503	1	313.03	0.82950	259.658
2511	2	332.06	0.43450	144.280
MM008	21	5,408.25	0.53200	2,877.189
14	22			

		4,229.20	0.44225	1,870.363
196	1	331.55	0.00075	0.248
62	9	1,273.83	0.29625	377.372
64	18	3,092.38	0.45225	1,398.528
77	24	4,384.25	0.45550	1,997.025
65	16	2,301.58	0.23775	547.200
MM009	21	5,385.15	0.51850	2,792.200
34	17	2,913.07	0.47400	1,380.795
MM010	21	5,473.55	0.54725	2,995.400
57	5	971.78	0.00050	0.485
90	5	1,259.07	0.63050	793.843
MM012	21	5,533.35	0.55125	3,050.259
MM011	20	5,311.39	0.52500	2,788.479
23	20	4,201.80	0.44850	1,884.507
21	15	2,716.93	0.26300	714.552
20	21	4,282.33	0.43200	1,849.966
43	28	3,338.78	0.01350	45.073
186	13	2,739.85	0.00050	1.369
187	4	855.60	0.00100	0.855
185	4	793.62	0.00025	0.198
186	1	228.40	0.66925	152.856
990	2	507.14	0.90150	457.186
542	2			

		327.43	0.77450	253.594
2796	1	161.04	0.56825	91.510
2450	1	156.68	0.71225	111.595
2637	1	152.94	0.54000	82.587
2756	1	168.32	0.72250	121.611
2286	1	247.99	0.56550	140.238
1203	2	552.57	0.84875	468.993
510	2	336.45	0.44275	148.963
2677	1	151.29	0.56225	85.062
2137	1	194.18	0.51375	99.759
2698	1	290.11	0.66025	191.545
2294	1	156.95	0.54250	85.145
2325	1	156.93	0.40700	63.870
2700	1	176.08	0.56175	98.912
2289	1	185.46	0.53175	98.618
2398	1	188.76	0.63900	120.617
236	2	386.10	0.58650	226.447
3239	1	217.37	0.71200	154.767
2870	1	208.89	0.40275	84.130
3579	1	224.19	0.57250	128.348
3406	1	243.95	0.52825	128.866
3578	1	221.54	0.57475	127.330
2899	1			

		230.04	0.80900	186.102
260	2	553.60	0.85975	475.957
2404	1	204.69	0.53025	108.536
2396	1	154.06	0.56150	86.504
2392	1	225.98	0.58400	131.972
2309	1	230.08	0.53300	122.632
2667	1	204.19	0.80850	165.087
2403	1	186.04	0.54075	100.601
237	1	256.25	0.49025	125.626
3726	1	142.38	0.99250	141.312
3078	1	163.56	0.41125	67.264
467	1	194.86	0.59675	116.282
466	1	147.00	0.57275	84.194
2410	1	155.14	0.56325	87.382
2801	1	232.73	0.89975	209.398
2942	1	248.95	0.52450	130.574
3186	1	178.36	0.55900	99.703
2983	1	153.27	0.53025	81.271
3734	1	162.82	0.54425	88.614
3699	1	253.03	0.56700	143.468
3689	17	3,471.40	0.42125	1,462.327
1204	1	150.89	0.64150	96.795
2593	1			

		176.59	0.38400	67.810
2435	1	166.83	0.64225	107.146
2440	1	160.70	0.41875	67.293
3182	1	152.89	0.54050	82.637
3129	1	185.09	0.72350	133.912
202	2	406.93	0.56750	230.932
3785	1	235.76	0.42350	99.844
989	1	203.71	0.62550	127.420
423	1	253.98	0.48375	122.862
511	1	144.27	0.90475	130.528
3895	1	162.99	0.74650	121.672
3822	1	217.15	0.72700	157.868
19	1	111.75	0.26925	30.088
3854	1	174.24	0.67375	117.394
272	3	605.56	0.41800	253.124
966	1	253.21	0.44525	112.741
3164	1	255.52	0.57600	147.179
33	1	101.19	0.00100	0.101
3691	1	177.55	0.51875	92.104
1496	1	283.40	0.87600	248.258
2648	1	184.81	0.56725	104.833
1491	1	158.64	0.49100	77.892
919	1			

		167.73	0.68550	114.978
1928	1	148.02	0.57250	84.741
2133	1	258.93	0.75800	196.268
16	20	3,660.84	0.25400	929.853
46	2	321.55	0.00025	0.080
40	4	726.08	0.00075	0.544
15	15	2,976.69	0.42800	1,274.023
41	2	402.41	0.00050	0.201
64	12	3,950.17	0.85375	3,372.457
18	21	4,372.07	0.42925	1,876.711
19	22	4,668.09	0.41750	1,948.927
MM001	20	5,452.95	0.52975	2,888.700
MM015	20	5,359.15	0.52875	2,833.650
MM004	18	4,840.89	0.49500	2,396.240
MM003	20	5,515.07	0.53025	2,924.365
MM002	22	2,657.15	0.24975	663.623
MM013	20	5,342.85	0.53050	2,834.381
31	14	2,375.52	0.28250	671.084
30	27	5,038.37	0.40425	2,036.761
MM016	7	1,736.44	0.48700	845.646
0 16	5	836.23	0.21500	179.789
MM014	21	5,526.60	0.52725	2,913.899
83	11			

		1,955.73	0.00025	0.488
24	18	2,884.03	0.21725	626.555
84	23	3,915.05	0.00350	13.702
2	13	2,425.80	0.47400	1,149.829
3	12	1,819.37	0.25025	455.297
5	18	3,509.05	0.47000	1,649.253
6	15	2,733.59	0.45650	1,247.883
G331	20	6,709.93	0.88750	5,955.062
G330	20	6,528.90	0.88500	5,778.076
G329	20	6,387.76	0.87375	5,581.305
G326	20	6,630.65	0.87475	5,800.161
G306	20	6,541.02	0.87000	5,690.687
G293	20	6,531.49	0.88575	5,785.267
G291	20	6,668.88	0.86325	5,756.910
G290	20	6,636.05	0.84675	5,619.075
G283	20	6,556.02	0.85750	5,621.787
G275	20	6,556.79	0.87000	5,704.407
G268	20	6,508.69	0.84750	5,516.114
G265	20	6,504.20	0.85700	5,574.099
G325	20	6,625.29	0.87825	5,818.660
G321	20	6,490.17	0.86800	5,633.467
G314	20	6,498.63	0.87775	5,704.172
G313	20			

		6,664.20	0.89025	5,932.804
G203	20	6,676.37	0.86325	5,763.376
G202	20	6,541.20	0.84900	5,553.478
G196	20	6,800.45	0.87250	5,933.392
G83	20	6,308.99	0.87875	5,544.024
G204	20	6,718.74	0.85775	5,762.999
G205	20	6,829.05	0.86475	5,905.420
G207	20	6,610.20	0.87925	5,812.018
G208	20	6,657.38	0.87525	5,826.871
G284	20	6,720.20	0.86275	5,797.852
G287	20	6,474.69	0.85850	5,558.521
G288	20	6,658.76	0.84775	5,644.963
G289	20	6,453.15	0.85175	5,496.470
G264	20	6,432.70	0.84500	5,435.631
G262	20	6,491.30	0.85750	5,566.289
G261	20	6,508.60	0.86150	5,607.158
G252	20	6,658.50	0.88750	5,909.418
G351	20	5,111.10	0.53200	2,719.105
G350	20	5,151.35	0.54650	2,815.212
G382	22	4,252.35	0.02700	114.813
G383	22	4,151.85	0.02750	114.175
7255	1	362.29	0.38575	139.753
7224	1			

		358.94	0.37450	134.423
7047	1	397.56	0.37450	148.886
6822	1	365.14	0.30650	111.915
6399	1	333.15	0.33975	113.187
7007	1	428.09	0.35600	152.400
7221	1	342.00	0.38050	130.131
7173	1	379.06	0.39575	150.012
6861	1	355.43	0.33100	117.647
6838	1	346.44	0.32150	111.380
7182	1	420.18	0.38675	162.504
5618	1	394.42	0.32800	129.369
7175	1	359.28	0.39575	142.185
6851	1	369.53	0.29450	108.826
6858	1	359.96	0.29450	106.008
7080	1	382.83	0.36825	140.977
5614	1	442.86	0.32800	145.258
7176	1	347.99	0.38675	134.585
5910	1	373.42	0.38825	144.980
6820	1	352.17	0.30650	107.940
7252	1	291.08	0.38575	112.284
5612	1	446.31	0.32800	146.389
6801	1	329.03	0.34775	114.420
6800	1			

		373.85	0.34775	130.006
6814	1	374.65	0.30650	114.830
7218	1	364.48	0.38050	138.684
7037	1	418.92	0.36225	151.753
6797	1	372.09	0.34775	129.394
6765	1	327.87	0.39175	128.443
6743	1	336.13	0.37200	125.040
7219	1	306.26	0.38050	116.531
7005	1	383.75	0.35600	136.615
7010	1	379.85	0.35600	135.226
6792	1	360.42	0.34775	125.336
7006	1	355.70	0.35600	126.629
6755	1	378.63	0.37600	142.364
7232	1	378.52	0.37450	141.755
7035	1	355.63	0.36225	128.826
7008	1	386.17	0.35600	137.476
6791	1	443.83	0.34200	151.789
7212	1	334.21	0.38050	127.166
6784	1	346.34	0.34200	118.448
7228	1	299.49	0.37450	112.159
7050	1	352.67	0.39750	140.186
7013	1	330.47	0.35600	117.647
6736	1			

		378.77	0.35475	134.368
7268	1	343.25	0.39725	136.356
6763	1	348.25	0.39175	136.426
7233	1	362.20	0.37450	135.643
7029	1	351.67	0.36225	127.392
7033	1	311.99	0.36225	113.018
6758	1	304.16	0.37600	114.364
7250	1	344.74	0.38575	132.983
6748	1	347.50	0.37600	130.660
7211	1	332.54	0.38050	126.531
7226	1	307.89	0.37450	115.304
7041	1	358.19	0.37450	134.142
7004	1	357.41	0.35600	127.237
6842	1	346.72	0.32150	111.470
7223	1	344.78	0.37450	129.120
7220	1	365.85	0.38050	139.205
6796	1	351.41	0.34775	122.202
6863	1	335.37	0.33100	111.007
6862	1	347.48	0.33100	115.015
7247	1	402.57	0.38575	155.291
7181	1	378.74	0.38675	146.477
6843	1	351.27	0.32150	112.933
6859	1			

		361.82	0.33100	119.762
6403	1	417.56	0.33975	141.866
6750	1	358.79	0.37600	134.905
7073	1	376.47	0.40925	154.070
6779	1	345.55	0.36325	125.521
7246	1	430.21	0.38575	165.953
7230	1	408.33	0.37450	152.919
7210	1	381.89	0.38050	145.309
7214	1	361.18	0.38050	137.428
7003	1	332.46	0.35600	118.355
6753	1	350.59	0.37600	131.821
7270	1	341.46	0.39725	135.644
7225	1	357.20	0.37450	133.771
7184	1	437.63	0.38675	169.253
7028	1	370.27	0.36225	134.130
6795	1	344.24	0.34775	119.709
6776	1	376.87	0.36325	136.898
6806	1	349.89	0.30175	105.579
7178	1	291.02	0.38675	112.551
6767	1	325.09	0.39175	127.354
7592	1	461.78	0.42175	194.755
7608	1	365.58	0.40225	147.054
7571	1			

		338.60	0.44650	151.184
7596	1	385.70	0.44950	173.372
6095	1	325.57	0.42400	138.041
6001	1	355.50	0.38675	137.489
6094	1	346.50	0.42400	146.916
6003	1	379.04	0.38675	146.593
6002	1	398.77	0.38675	154.224
6096	1	376.57	0.42400	159.665
6083	1	342.67	0.38650	132.441
6079	1	348.77	0.38650	134.799
7617	1	351.50	0.40225	141.390
7626	1	349.58	0.39825	139.220
7649	1	362.99	0.44225	160.532
7633	1	343.98	0.39175	134.754
7560	1	375.20	0.42250	158.522
7645	1	376.08	0.39975	150.337
7644	1	372.91	0.39975	149.070
7627	1	358.70	0.39825	142.852
6084	1	397.82	0.38650	153.757
7602	1	331.87	0.44950	149.175
7550	1	373.85	0.37625	140.661
6090	1	306.73	0.38650	118.551
7588	1			

		336.25	0.42175	141.813
7641	1	345.00	0.39975	137.913
7642	1	328.86	0.39975	131.461
7628	1	285.15	0.39175	111.707
7637	1	509.50	0.39175	199.596
6041	1	343.64	0.44675	153.521
7575	1	351.34	0.44650	156.873
7561	1	402.58	0.42250	170.090
6085	1	348.20	0.38650	134.579
6065	1	424.13	0.39325	166.789
6089	1	295.28	0.38650	114.125
6053	1	331.66	0.34125	113.178
7616	1	368.57	0.40225	148.257
7611	1	368.70	0.40225	148.309
7623	1	360.20	0.39825	143.449
7634	1	354.96	0.39175	139.055
6054	1	337.57	0.34125	115.195
7533	1	360.92	0.42525	153.481
7658	1	464.77	0.41825	194.390
6081	1	380.51	0.38650	147.067
6063	1	393.16	0.34125	134.165
6015	1	334.27	0.38825	129.780
6093	1			

		347.77	0.42400	147.454
6056	1	318.14	0.34125	108.565
6075	1	319.95	0.39325	125.820
7632	1	327.35	0.39175	128.239
7594	1	365.40	0.44950	164.247
7555	1	382.65	0.37625	143.972
7581	1	370.11	0.44650	165.254
7640	1	360.50	0.39975	144.109
7643	1	349.83	0.39975	139.844
7653	1	361.10	0.44225	159.696
6011	1	398.87	0.38825	154.861
7531	1	293.46	0.42525	124.793
6045	1	365.44	0.43325	158.326
7589	1	334.07	0.42175	140.894
7579	1	367.33	0.44650	164.012
6055	1	308.93	0.34125	105.422
6059	1	329.68	0.34125	112.503
7630	1	307.45	0.39175	120.443
7610	1	377.44	0.40225	151.825
7557	1	342.96	0.37625	129.038
7586	1	315.72	0.42175	133.154
7631	1	330.84	0.39175	129.606
7559	1			

		356.94	0.42250	150.807
6016	1	297.66	0.38825	115.566
7587	1	361.67	0.42175	152.534
7543	1	329.73	0.42600	140.464
7530	1	337.61	0.42525	143.568
6017	1	300.65	0.38825	116.727
7624	1	368.77	0.39825	146.862
7635	1	309.55	0.39175	121.266
6037	1	334.29	0.44675	149.344
7620	1	307.19	0.39825	122.338
7582	1	337.12	0.42175	142.180
7562	1	373.23	0.42250	157.689
6019	1	350.47	0.38825	136.069
6012	1	347.53	0.38825	134.928
7553	1	383.25	0.37625	144.197
6014	1	329.82	0.38825	128.052
7622	1	378.43	0.39825	150.709
7615	1	373.71	0.40225	150.324
6006	1	405.28	0.38675	156.742
6013	1	354.25	0.38825	137.537
6047	1	350.99	0.43325	152.066
6062	1	470.58	0.34125	160.585
7527	1			

		333.95	0.42525	142.012
7556	1	391.75	0.37625	147.395
6451	1	416.80	0.34700	144.629
5392	1	409.52	0.41625	170.462
6479	1	356.45	0.35075	125.024
6036	1	349.76	0.44675	156.255
6097	1	354.07	0.42400	150.125
5042	1	289.97	0.36600	106.129
6419	1	329.10	0.38900	128.019
7537	1	316.87	0.42600	134.986
7568	1	370.79	0.42250	156.658
7539	1	381.37	0.42600	162.463
6466	1	342.69	0.42100	144.272
5153	1	360.20	0.38775	139.667
6152	1	419.71	0.37900	159.070
6070	1	412.59	0.39325	162.251
7542	1	312.85	0.42600	133.274
6447	1	338.61	0.34700	117.497
7590	1	297.55	0.42175	125.491
7573	1	375.09	0.44650	167.477
6450	1	348.19	0.34700	120.821
6445	1	374.11	0.34700	129.816
5395	1			

		419.72	0.41625	174.708
6480	1	355.86	0.35075	124.817
6453	1	379.98	0.34700	131.853
6067	1	404.41	0.39325	159.034
6098	1	368.20	0.42400	156.116
5391	1	495.90	0.41150	204.062
5075	1	381.78	0.41550	158.629
6413	1	353.50	0.38900	137.511
6087	1	373.83	0.38650	144.485
6092	1	361.74	0.42400	153.377
6050	1	402.97	0.43325	174.586
6110	1	378.78	0.42350	160.413
7563	1	360.38	0.42250	152.260
6430	1	371.98	0.36225	134.749
6423	1	437.44	0.38900	170.164
6071	1	402.75	0.39325	158.381
6442	1	359.39	0.41225	148.158
7545	1	390.67	0.42600	166.425
6482	1	349.30	0.35075	122.516
6427	1	352.78	0.36225	127.794
6051	1	395.51	0.43325	171.354
6153	1	418.61	0.37900	158.653
6485	1			

		353.68	0.35075	124.053
6449	1	350.12	0.34700	121.491
6416	1	363.40	0.38900	141.362
5401	1	340.30	0.41625	141.649
5102	1	350.66	0.40325	141.403
5141	1	464.84	0.38175	177.452
6068	1	405.88	0.39325	159.612
6418	1	367.32	0.38900	142.887
7565	1	385.91	0.42250	163.046
6123	1	394.15	0.37825	149.087
6438	1	389.87	0.41225	160.723
6474	1	351.17	0.35075	123.172
6456	1	387.74	0.34700	134.545
5054	1	311.09	0.40575	126.224
5481	1	351.68	0.41600	146.298
6072	1	401.07	0.39325	157.720
5090	1	332.17	0.38475	127.802
6405	1	379.88	0.33975	129.064
5024	1	353.37	0.38200	134.987
5396	1	383.71	0.41625	159.719
5131	1	352.67	0.38175	134.631
6411	1	368.65	0.38900	143.404
7566	1			

		370.43	0.42250	156.506
6354	1	380.13	0.36325	138.082
7570	1	357.66	0.44650	159.695
5016	1	376.62	0.37075	139.631
5386	1	330.32	0.41150	135.926
6448	1	355.79	0.34700	123.459
7541	1	324.69	0.42600	138.317
6126	1	345.23	0.37825	130.583
6468	1	368.53	0.42100	155.151
6406	1	388.11	0.33975	131.860
6422	1	372.59	0.38900	144.937
6400	1	343.95	0.33975	116.857
6066	1	416.86	0.39325	163.930
5083	1	387.36	0.41550	160.948
6058	1	333.13	0.34125	113.680
6064	1	433.69	0.39325	170.548
6154	1	357.77	0.37900	135.594
6086	1	383.98	0.38650	148.408
6082	1	371.21	0.38650	143.472
7549	1	364.76	0.37625	137.240
7593	1	477.69	0.42175	201.465
7583	1	330.05	0.42175	139.198
5969	1			

		333.27	0.38050	126.809
5901	1	336.80	0.41575	140.024
7609	1	369.44	0.40225	148.607
7528	1	341.65	0.42525	145.286
6407	1	386.31	0.33975	131.248
7607	1	356.04	0.40225	143.217
5796	1	332.84	0.39775	132.387
7567	1	363.85	0.42250	153.726
7621	1	296.55	0.39825	118.101
5909	1	391.39	0.38825	151.957
7639	1	331.72	0.39975	132.605
5961	1	366.37	0.38050	139.403
5948	1	356.64	0.38425	137.038
5795	1	410.67	0.39775	163.343
7585	1	375.03	0.42175	158.168
6402	1	416.15	0.33975	141.386
5921	1	397.72	0.44075	175.295
5892	1	474.98	0.39975	189.873
5899	1	377.52	0.41575	156.953
5894	1	386.39	0.41575	160.641
5926	1	370.65	0.44075	163.363
5891	1	473.79	0.39975	189.397
7547	1			

		628.29	0.42600	267.651
5778	1	385.22	0.39950	153.895
7591	1	338.59	0.42175	142.800
7618	1	374.08	0.39825	148.977
7552	1	398.40	0.37625	149.898
7597	1	412.59	0.44950	185.459
5794	1	423.20	0.39775	168.327
5907	1	395.37	0.38825	153.502
5949	1	377.56	0.38425	145.077
7638	1	333.28	0.39975	133.228
5906	1	357.72	0.38825	138.884
7612	1	359.46	0.40225	144.592
5923	1	398.72	0.44075	175.735
5776	1	391.93	0.39950	156.576
6803	1	352.14	0.30175	106.258
5967	1	335.07	0.38050	127.494
5758	1	391.70	0.42500	166.472
6840	1	345.20	0.32150	110.981
6813	1	403.01	0.30175	121.608
5947	1	373.85	0.38425	143.651
6807	1	342.93	0.30175	103.479
5958	1	348.07	0.38050	132.440
6821	1			

		365.22	0.30650	111.939
5944	1	351.48	0.38425	135.056
5953	1	361.07	0.38425	138.741
6812	1	364.63	0.30175	110.027
5912	1	374.20	0.38825	145.283
6401	1	386.12	0.33975	131.184
5946	1	381.40	0.38425	146.552
5962	1	334.49	0.38050	127.273
5963	1	365.22	0.38050	138.966
5971	1	466.42	0.38050	177.472
5900	1	396.90	0.41575	165.011
5968	1	355.65	0.38050	135.324
5960	1	380.65	0.38050	144.837
5964	1	363.39	0.38050	138.269
7636	1	339.92	0.39175	133.163
5790	1	427.96	0.39775	170.221
5957	1	337.37	0.38425	129.634
5783	1	366.88	0.39950	146.568
5927	1	397.70	0.44075	175.286
5970	1	366.13	0.38050	139.312
7646	1	361.10	0.39975	144.349
5959	1	371.52	0.38050	141.363
7580	1			

		459.88	0.44650	205.336
5925	1	360.21	0.44075	158.762
5965	1	329.97	0.38050	125.553
5755	1	476.44	0.42500	202.487
5914	1	405.73	0.38825	157.524
7535	1	474.60	0.42525	201.823
5918	1	395.95	0.44075	174.514
5966	1	335.93	0.38050	127.821
5893	1	410.62	0.39975	164.145
7600	1	349.79	0.44950	157.230
5890	1	374.26	0.39975	149.610
5001	1	352.22	0.42575	149.957
5081	1	388.23	0.41550	161.309
5093	1	347.72	0.38475	133.785
5062	1	358.70	0.41700	149.577
5056	1	351.45	0.40575	142.600
5021	1	340.99	0.37075	126.422
5086	1	381.66	0.38475	146.843
5012	1	370.97	0.36300	134.662
5140	1	414.20	0.38175	158.120
5163	1	351.16	0.36900	129.578
5159	1	340.95	0.38775	132.203
5055	1			

		314.46	0.40575	127.592
5080	1	345.43	0.41550	143.526
5098	1	344.40	0.40325	138.879
5064	1	366.10	0.41700	152.663
5164	1	336.09	0.36900	124.017
5038	1	284.50	0.36600	104.127
5137	1	369.72	0.38175	141.140
5139	1	361.35	0.38175	137.945
5387	1	331.65	0.41150	136.473
5066	1	367.24	0.41700	153.139
5049	1	327.45	0.37775	123.694
5091	1	315.38	0.38475	121.342
4996	1	379.13	0.42575	161.414
5036	1	281.10	0.36600	102.882
5162	1	359.92	0.36900	132.810
5133	1	346.92	0.38175	132.436
5399	1	323.64	0.41625	134.715
5398	1	318.25	0.41625	132.471
5045	1	281.08	0.37775	106.177
5079	1	346.38	0.41550	143.920
5061	1	331.33	0.40575	134.437
5074	1	385.69	0.41550	160.254
5078	1			

		377.25	0.41550	156.747
5023	1	360.98	0.38200	137.894
5158	1	346.73	0.38775	134.444
5109	1	368.49	0.44775	164.991
4988	1	366.06	0.43375	158.778
5166	1	352.22	0.36900	129.969
5138	1	326.30	0.38175	124.565
5008	1	365.87	0.36300	132.810
5072	1	364.10	0.41700	151.829
5044	1	345.90	0.37775	130.663
5017	1	388.07	0.37075	143.876
5076	1	357.18	0.41550	148.408
5068	1	395.62	0.41700	164.973
5151	1	321.15	0.38775	124.525
5168	1	368.79	0.36900	136.083
G 210	8	4,393.48	0.16800	738.104
G 211	10	6,259.85	0.89625	5,610.390
G 216	6	4,073.30	0.22075	899.180
G 213	6	2,821.72	0.00600	16.930
G 214	6	3,123.85	0.10150	317.070
G 215	9	4,450.33	0.10225	455.046
G 212	6	3,762.88	0.00575	21.636
G 209	6			

		2,974.60	0.71125	2,115.684
G 208	6	3,728.40	0.47100	1,756.076
G 233	6	3,939.40	0.09650	380.152
G 232	7	3,670.65	0.42525	1,560.943
G 205	6	2,575.60	0.55600	1,432.033
G 206	10	6,568.73	0.32375	2,126.626
G 207	8	5,609.15	0.47175	2,646.116
CS48	9	5,170.55	0.00125	6.463
CS50	9	5,386.70	0.00100	5.386
CS35	9	4,998.35	0.00600	29.990
CS51	6	3,097.55	0.00050	1.548
CS49	6	3,095.90	0.00075	2.321
CS47	9	3,930.50	0.00125	4.913
G 226	7	4,133.10	0.59525	2,460.227
G 227	9	5,409.75	0.59675	3,228.268
G 223	8	3,612.60	0.04650	167.985
G 225	9	6,956.58	0.79050	5,499.176
G 224	6	4,927.40	0.79050	3,895.109
G 219	9	5,694.25	0.19950	1,136.002
G 231	5	2,411.80	0.01725	41.603
G 229	9	4,556.08	0.01900	86.565
G 235	11	7,182.25	0.25325	1,818.904
G 236	8			

		4,621.90	0.14700	679.419
G 234	8	4,916.60	0.09625	473.222
G 237	11	7,162.25	0.15750	1,128.054
Z1	3	1,528.20	0.00875	13.371
MR2	9	4,209.91	0.00125	5.262
Z2	4	1,710.10	0.02475	42.324
MR1	7	3,561.80	0.05050	179.870
CM3	6	3,323.36	0.02950	98.039
CM2	7	3,867.31	0.02075	80.246
CM1	7	3,383.10	0.05400	182.687
CS52	5	2,577.12	0.00075	1.932
CS36	10	5,338.85	0.00250	13.347
CS39	9	4,756.95	0.00050	2.378
CS38	10	5,252.90	0.00050	2.626
CS37	9	4,457.40	0.00075	3.343
CS62	9	4,693.70	0.00425	19.948
CS63	5	2,823.26	0.00375	10.587
CS64	5	2,670.35	0.00375	10.013
CS58	5	2,677.25	0.00075	2.007
CS57	6	2,948.00	0.00075	2.211
MR1	10	5,603.05	0.14250	798.434
Z5	5	2,623.84	0.05075	133.159
Z3	5			

		2,725.11	0.10725	292.268
MR2	11	7,237.88	0.15450	1,118.252
Z4	4	1,934.37	0.08700	168.290
Z2	3	1,814.30	0.13300	241.301
4769	1	840.32	0.28675	240.961
5415	1	431.94	0.41350	178.607
4862	1	748.08	0.34375	257.152
4859	1	924.87	0.38300	354.225
4765	1	900.96	0.29450	265.332
4874	1	709.75	0.36925	262.075
4856	1	744.95	0.40375	300.773
4774	1	787.52	0.36925	290.791
4880	1	689.25	0.34325	236.585
4884	1	728.83	0.38100	277.684
4764	1	915.64	0.26825	245.620
4881	1	670.47	0.34325	230.138
4852	1	823.00	0.39525	325.290
4888	1	709.28	0.42425	300.912
4770	1	866.52	0.28675	248.474
4878	1	670.83	0.34325	230.262
4876	1	718.90	0.36925	265.453
4854	1	803.74	0.39525	317.678
4882	1			

		731.10	0.38100	278.549
4879	1	698.60	0.34325	239.794
4873	1	944.50	0.36600	345.687
4877	1	763.14	0.36925	281.789
4889	1	706.28	0.42425	299.639
4890	1	682.59	0.39525	269.793
4899	1	714.65	0.36350	259.775
5445	1	388.14	0.38775	150.501
5438	1	338.34	0.38775	131.191
5442	1	381.53	0.38775	147.938
5409	1	351.06	0.43125	151.394
5421	1	391.99	0.41350	162.087
5051	1	296.22	0.37775	111.897
5416	1	388.90	0.41350	160.810
5404	1	346.69	0.43125	149.510
5048	1	301.20	0.37775	113.778
5397	1	391.92	0.41625	163.136
5422	1	402.94	0.41350	166.615
5446	1	377.61	0.38775	146.418
5028	1	362.20	0.38200	138.360
5407	1	366.55	0.43125	158.074
5414	1	343.40	0.41350	141.995
5019	1			

		333.44	0.37075	123.622
5441	1	341.92	0.38775	132.579
5424	1	398.81	0.41350	164.907
5035	1	311.86	0.36600	114.140
5033	1	324.78	0.36600	118.869
5384	1	375.90	0.41150	154.682
5439	1	362.27	0.38775	140.470
5447	1	309.77	0.38775	120.113
5025	1	354.99	0.38200	135.606
5029	1	342.92	0.38200	130.995
5444	1	379.45	0.38775	147.131
5443	1	384.70	0.38775	149.167
5419	1	352.91	0.41350	145.928
5043	1	334.21	0.37775	126.247
5411	1	384.66	0.43125	165.884
5437	1	347.55	0.38775	134.762
5423	1	408.90	0.41350	169.080
5020	1	326.00	0.37075	120.864
5041	1	308.05	0.36600	112.746
5403	1	427.49	0.41625	177.942
5015	1	374.14	0.37075	138.712
5006	1	364.34	0.36300	132.255
5011	1			

		319.54	0.36300	115.993
5167	1	349.56	0.36900	128.987
5134	1	337.65	0.38175	128.897
4970	1	334.39	0.42500	142.115
5027	1	348.99	0.38200	133.314
5069	1	399.67	0.41700	166.662
5077	1	368.55	0.41550	153.132
4964	1	350.15	0.42500	148.813
5018	1	336.77	0.37075	124.857
5050	1	336.12	0.37775	126.969
5065	1	330.54	0.41700	137.835
5013	1	349.41	0.36300	126.835
5165	1	353.39	0.36900	130.400
5031	1	347.95	0.38200	132.916
5095	1	393.79	0.40325	158.795
5171	1	356.38	0.36900	131.504
5160	1	364.91	0.38775	141.493
5170	1	386.65	0.36900	142.673
5094	1	350.50	0.38475	134.854
5169	1	376.55	0.36900	138.946
5010	1	353.20	0.36300	128.211
4986	1	362.35	0.43375	157.169
4972	1			

		333.33	0.42500	141.665
5136	1	331.19	0.38175	126.431
5022	1	295.68	0.37075	109.623
5088	1	357.33	0.38475	137.482
5092	1	335.51	0.38475	129.087
5002	1	362.53	0.42575	154.347
5009	1	334.77	0.36300	121.521
6287	1	381.99	0.40975	156.520
5156	1	365.25	0.38775	141.625
5000	1	344.31	0.42575	146.589
5070	1	360.40	0.41700	150.286
5007	1	344.81	0.36300	125.166
5067	1	360.03	0.41700	150.132
5053	1	331.76	0.40575	134.611
5058	1	349.62	0.40575	141.858
5005	1	367.49	0.36300	133.398
5039	1	310.31	0.36600	113.573
858	1	447.20	0.41000	183.352
11082	1	453.18	0.41150	186.483
1109	1	502.99	0.41250	207.483
859 1	1	474.18	0.41025	194.532
10082	1	448.36	0.41650	186.741
902 1	1			

		387.47	0.42525	164.771
879 1	1	334.12	0.39650	132.478
1055	1	551.71	0.40800	225.097
1093	1	510.64	0.40975	209.234
880 2	1	318.44	0.40825	130.003
10922	1	382.69	0.41250	157.859
865	1	608.40	0.41125	250.204
997	1	533.95	0.40125	214.247
1042	1	498.77	0.41400	206.490
859 2	1	430.96	0.41025	176.801
999	1	515.87	0.40850	210.732
826	1	860.47	0.99250	854.016
1096	1	354.36	0.43000	152.374
993 2	1	393.08	0.39100	153.694
879 2	1	376.60	0.39650	149.321
839	1	467.00	0.41100	191.937
857 2	1	526.84	0.40050	210.999
1009	1	488.69	0.41250	201.584
857 1	1	540.79	0.40050	216.586
10921	1	438.95	0.41250	181.066
887	1	510.36	0.40875	208.609
1075	1	501.75	0.41600	208.728
864	1			

		442.73	0.41575	184.064
902 2	1	551.56	0.42525	234.550
832	1	376.58	0.41275	155.433
837	1	544.62	0.40950	223.021
998	1	502.19	0.41100	206.400
903	1	511.21	0.41250	210.874
878 1	1	454.25	0.41450	188.286
10512	1	509.31	0.40700	207.289
977	1	549.17	0.40525	222.551
10251	1	460.87	0.40950	188.726
1045	1	476.61	0.40900	194.933
994	1	464.87	0.41225	191.642
1060	1	478.52	0.41050	196.432
10531	1	573.52	0.39550	226.827
1071	1	531.28	0.41025	217.957
8	12	8,118.13	0.93800	7,614.805
4767	1	893.21	0.28675	256.127
4766	1	942.08	0.29450	277.442
4768	1	866.06	0.28675	248.342
993 1	1	441.25	0.39100	172.528
11081	1	464.66	0.41150	191.207
F37	67	7,909.25	0.10200	806.743
F46	65			

		7,484.25	0.10125	757.780
F63	72	7,356.61	0.10075	741.178
F64	74	7,432.30	0.10075	748.804
F34	77	7,950.40	0.10100	802.990
F31	71	7,826.77	0.10050	786.590
F44	69	7,450.40	0.10050	748.765
F47	67	7,418.63	0.10050	745.572
F29	73	7,901.32	0.10100	798.033
F39	72	7,854.98	0.10075	791.389
F49	70	7,395.90	0.10025	741.438
F48	71	7,413.45	0.10150	752.465
F42	70	7,934.85	0.10000	793.485
F43	76	7,966.65	0.10100	804.631
F51	70	7,412.35	0.10200	756.059
F41	81	7,889.85	0.10000	788.985
F26	76	7,911.91	0.10200	807.014
F28	73	7,862.20	0.10150	798.013
F50	71	7,520.89	0.10050	755.849
F33	74	7,860.83	0.10150	797.874
F53	75	7,397.55	0.10150	750.851
F32	70	7,871.40	0.10225	804.850
F52	73	7,489.83	0.10100	756.472
F55	77			

		7,458.73	0.10025	747.737
F60	71	7,429.15	0.10175	755.916
F24	68	7,944.49	0.10150	806.365
F35	72	7,582.55	0.10500	796.167
F38	80	7,858.70	0.10100	793.728
F57	75	7,358.90	0.10100	743.248
F36	71	7,913.15	0.10100	799.228
O3	4	772.44	0.42275	326.549
CG1	3	1,000.57	0.90080	901.313
F25	76	7,910.95	0.10075	797.028
F61	75	7,375.65	0.10050	741.252
CG2	5	2,153.48	0.89990	1,937.916
CG1	5	1,998.91	0.89970	1,798.419
1138A	2	381.62	0.69550	265.416
O2	4	1,071.27	0.54175	580.360
F56	58	7,412.20	0.10175	754.191
F54	75	7,392.85	0.10075	744.829
F30	70	7,824.28	0.10150	794.164
F40	72	7,913.24	0.10050	795.280
F62	72	7,194.00	0.10125	728.392
F65	71	7,380.32	0.10050	741.722
F27	68	7,604.33	0.10350	787.048
F45	68			

		7,441.74	0.10050	747.894
F23	82	7,856.45	0.10075	791.537
F21	80	7,927.75	0.10000	792.775
F22	73	7,803.10	0.10250	799.817
F58	73	7,431.85	0.10150	754.332
G 203	9	8,140.19	0.88375	7,193.892
G 200	9	6,584.90	0.63800	4,201.166
G 196	9	5,091.51	0.10325	525.698
G 201	6	4,153.06	0.64000	2,657.958
G 202	9	7,232.59	0.67475	4,880.190
G 238	11	6,898.55	0.07300	503.594
G 239	10	6,582.30	0.28775	1,894.056
G 240	5	3,235.50	0.30575	989.254
G 241	7	3,774.52	0.14300	539.756
G 242	9	5,081.45	0.22725	1,154.759
G 243	7	3,880.36	0.08300	322.069
CS24	8	4,204.00	0.02075	87.233
CS44	9	4,380.11	0.00100	4.380
CS45	9	4,125.81	0.00225	9.283
CS64	11	6,507.06	0.01275	82.965
CS20	8	4,431.29	0.03125	138.477
CS35	8	4,044.04	0.00825	33.363
G 195	9			

		5,194.32	0.10525	546.702	
G 197	3	1,460.95	0.10525	153.764	
G 199	6	4,696.25	0.59150	2,777.831	
G 192	6	3,411.36	0.50800	1,732.970	
G 193	8	5,575.63	0.88900	4,956.735	
G 194	4	2,695.87	0.88050	2,373.713	
G 198	6	4,540.61	0.59075	2,682.365	
CS33	8	4,597.81	0.00200	9.195	
CS36	8	4,759.91	0.01025	48.789	
CS37	8	4,316.08	0.01075	46.397	
CS34	8	4,421.45	0.00475	21.001	
CS32	8	4,806.32	0.00250	12.015	
CS39	8	4,488.49	0.00700	31.419	
G 217	9	5,158.80	0.22100	1,140.094	
G 221	9	6,763.15	0.57975	3,920.936	
G 228	6	3,220.03	0.02025	65.205	
G 222	6	3,264.78	0.04650	151.812	
G 220	6	4,056.70	0.57925	2,349.843	
G 218	6	3,636.79	0.19950	725.539	
G 230	6	3,240.93	0.01750	56.716	
CS53	9	4,345.30	-	-	-
CS54	9	4,614.97	-	-	-
CS69	7				

		3,381.55	0.00975	32.970
CS56	9	4,740.65	0.00125	5.925
CS55	9	4,640.02	0.00350	16.240
CS67	9	4,199.04	0.00075	3.149
CS48	8	4,050.65	0.00850	34.430
CS44	8	4,382.29	0.00300	13.146
CS41	8	4,726.87	0.00750	35.451
CS47	8	4,188.07	0.00875	36.645
CS46	8	3,719.66	0.01375	51.145
CS42	8	4,547.23	0.00700	31.830
CS68	9	4,549.75	0.00425	19.336
CS65	6	2,887.64	0.00075	2.165
CS66	9	4,345.62	0.00050	2.172
1112	1	480.33	0.41250	198.136
1014	1	498.70	0.40725	203.095
1076	1	484.39	0.41400	200.537
1052	1	495.64	0.41075	203.584
CS43	8	2,766.00	0.00350	9.681
CS41	9	4,872.70	0.01675	81.617
CS42	6	2,818.77	0.00550	15.503
CS46	9	4,583.75	0.00650	29.794
CM6	7	3,828.14	0.00950	36.367
CC5	8			

		4,876.25	0.02125	103.620
CC6	8	5,163.47	0.01225	63.252
CC7	8	5,199.70	0.01450	75.395
CC11	5	2,698.20	0.02175	58.685
CC8	8	5,258.60	0.01800	94.654
CC9	8	5,295.42	0.01825	96.641
CC10	8	4,983.63	0.03075	153.246
Z8	6	3,776.51	0.02400	90.636
CC4	8	4,897.94	0.02200	107.754
CM7	6	3,064.60	0.03150	96.534
CC3	8	4,296.35	0.02300	98.816
Z7	7	6,335.00	0.01675	106.111
CM5	8	3,893.75	0.01150	44.778
CC2	8	4,579.80	0.02875	131.669
G242	20	6,376.94	0.87450	5,576.634
G240	20	6,489.88	0.88625	5,751.656
G226	20	6,690.38	0.87850	5,877.498
G225	20	6,765.73	0.88475	5,985.979
G224	20	6,780.09	0.88050	5,969.869
G223	20	6,646.29	0.88700	5,895.259
G221	20	6,749.24	0.87675	5,917.396
G220	20	6,605.35	0.86300	5,700.417
G46	20			

		7,088.19	0.92800	6,577.840
G45	20	7,160.29	0.93575	6,700.241
G44	20	7,161.59	0.93650	6,706.829
G43	20	7,086.93	0.93050	6,594.388
G334	20	6,452.15	0.87875	5,669.826
G335	20	6,449.41	0.86650	5,588.413
G345	20	6,463.41	0.88550	5,723.349
G332	20	6,655.24	0.88425	5,884.895
G219	20	6,530.55	0.87825	5,735.455
G218	20	6,668.78	0.88825	5,923.543
G216	20	6,640.51	0.88200	5,856.929
G209	20	6,660.92	0.88925	5,923.223
G312	20	6,479.39	0.86950	5,633.829
G309	17	5,459.91	0.88525	4,833.385
G308	20	6,371.54	0.88100	5,613.326
G317	6	1,817.10	0.86925	1,579.514
G12	20	7,238.00	0.92025	6,660.769
G11	20	6,531.93	0.91575	5,981.614
G10	20	7,251.00	0.92325	6,694.485
G9	20	7,371.99	0.92875	6,846.735
G8	20	7,231.63	0.92800	6,710.952
G7	20	7,233.96	0.90375	6,537.691
G6	20			

		7,085.34	0.90850	6,437.031
G5	20	6,941.99	0.90375	6,273.823
G4	20	6,911.53	0.92175	6,370.702
G3	20	7,191.63	0.92900	6,681.024
G2	20	6,901.86	0.91850	6,339.358
4	13	8,226.97	0.40725	3,350.433
5	13	7,980.77	0.40500	3,232.211
2	13	8,291.28	0.40300	3,341.385
M 19	12	7,991.82	0.40350	3,224.699
M 9	12	8,050.49	0.40200	3,236.296
M 8	12	7,717.36	0.40400	3,117.813
4	13	8,344.82	0.40875	3,410.945
M 15	9	5,951.27	0.41050	2,442.996
M 7	6	3,301.48	0.41100	1,356.908
M 8	13	7,921.42	0.40925	3,241.841
M 1	14	7,856.48	0.39900	3,134.735
M 6	13	8,197.76	0.41200	3,377.477
G1	20	7,144.22	0.90825	6,488.737
G25	20	7,438.07	0.94375	7,019.678
G28	20	7,232.19	0.93125	6,734.976
G30	20	7,238.94	0.94650	6,851.656
G29	20	7,389.39	0.94300	6,968.194
G20	20			

		7,430.74	0.92525	6,875.292
G19	20	7,422.14	0.92525	6,867.335
G17	20	7,292.81	0.91075	6,641.926
G18	20	7,009.13	0.91425	6,408.097
G79	19	6,063.03	0.88850	5,387.002
G49	20	7,169.74	0.93375	6,694.744
G48	20	7,098.37	0.93575	6,642.299
G47	20	7,175.87	0.92475	6,635.885
G40	20	7,096.30	0.92200	6,542.788
G41	20	7,268.62	0.92925	6,754.365
G42	20	7,249.20	0.92575	6,710.946
G39	20	7,142.64	0.92225	6,587.299
G38	20	7,249.97	0.93250	6,760.597
G37	20	7,187.85	0.93450	6,717.045
G36	20	6,990.70	0.93425	6,531.061
G35	20	7,323.36	0.93525	6,849.172
G249	20	6,569.38	0.86225	5,664.447
G248	20	6,551.06	0.85925	5,628.998
G245	20	6,489.98	0.88325	5,732.274
G243	20	6,516.53	0.88300	5,754.095
G34	20	7,241.10	0.93300	6,755.946
G33	20	7,219.23	0.92900	6,706.664
G32	20			

		7,166.22	0.93550	6,703.998
G31	20	7,259.49	0.93675	6,800.327
G16	20	7,096.43	0.91200	6,471.944
G13	20	7,354.16	0.91850	6,754.795
G15	18	6,155.86	0.90175	5,551.046
G14	20	6,913.44	0.91175	6,303.328
G22	20	7,272.87	0.91950	6,687.403
G24	20	7,369.35	0.94200	6,941.927
G23	20	7,499.98	0.94300	7,072.481
G21	20	7,134.13	0.92325	6,586.585
M2	35	8,077.03	0.41650	3,364.082
97	29	4,293.54	0.04500	193.209
M4	35	8,043.11	0.41650	3,349.955
M3	35	7,865.37	0.41800	3,287.724
M1	37	8,352.80	0.40850	3,412.118
3	4	634.76	0.02950	18.725
2	10	1,818.66	0.05275	95.934
14	13	8,139.66	0.41350	3,365.749
75	14	5,831.51	0.00100	5.831
M6	13	8,108.83	0.41225	3,342.865
24	15	5,906.46	0.00050	2.953
15	14	8,245.77	0.40900	3,372.519
M3	14			

		8,493.75	0.40300	3,422.981
M1	14	8,228.04	0.40250	3,311.786
4	13	8,089.54	0.39625	3,205.480
3	13	8,072.39	0.40925	3,303.625
SX42	4	1,559.37	0.00625	9.746
SX41	7	3,518.84	0.00600	21.113
6	3	1,929.17	0.01940	37.425
W2	2	1,426.08	-	-
M 23	11	7,142.26	0.40200	2,871.188
1	13	8,107.77	0.39975	3,241.081
M 10	13	7,583.51	0.40925	3,103.551
M 7	13	8,272.42	0.41075	3,397.896
M 6	13	8,277.31	0.39625	3,279.884
M 5	13	8,634.82	0.40275	3,477.673
M 13	12	8,199.35	0.40450	3,316.637
M 8	13	7,993.88	0.40825	3,263.501
M 26	2	1,524.55	0.39850	607.533
M 6	13	8,410.95	0.40400	3,398.023
M 12	12	8,072.09	0.40050	3,232.872
26	13	5,419.19	0.00175	9.483
10	13	7,993.14	0.41700	3,333.139
M7	13	7,919.12	0.40825	3,232.980
M8	13			

		8,160.13	0.41550	3,390.534
13	9	7,265.05	0.39900	2,898.754
M 3	13	7,753.68	0.40350	3,128.609
M 10	13	8,382.06	0.40425	3,388.447
M 3	12	7,956.38	0.40850	3,250.181
1	15	7,970.62	0.39100	3,116.512
3	13	8,263.75	0.41250	3,408.796
2	14	7,849.64	0.40500	3,179.104
M 7	13	8,060.62	0.41000	3,304.854
M 7	12	8,275.45	0.41050	3,397.072
M 11	11	8,592.80	0.40050	3,441.416
M 14	12	8,057.88	0.40100	3,231.209
6	13	7,930.79	0.40050	3,176.281
7	13	7,558.45	0.39800	3,008.263
2	11	7,653.47	0.39700	3,038.427
M 5	12	7,974.99	0.40100	3,197.970
M 6	12	8,319.75	0.40000	3,327.900
M 4	12	7,944.32	0.40000	3,177.728
M 20	12	8,003.38	0.39350	3,149.330
M 21	12	8,083.29	0.39450	3,188.857
M 10	12	8,080.46	0.40750	3,292.787
M 9	13	8,004.29	0.41250	3,301.769
M 5	13			

		8,142.14	0.40525	3,299.602
M 11	13	8,149.18	0.39675	3,233.187
M 9	14	8,282.48	0.40400	3,346.121
	13	8,011.97	0.40825	3,270.886
	12	8,198.01	0.41400	3,393.976
M9	13	8,010.77	0.41000	3,284.415
M4	14	8,258.38	0.38600	3,187.734
	77	6,035.13	0.00100	6.035
M5	14	7,925.17	0.41100	3,257.244
	65	5,855.48	0.00450	26.349
	61	2,942.57	0.03700	108.875
	60	4,242.21	0.00975	41.361
M 22	11	7,706.75	0.40450	3,117.380
	71	5,756.84	0.00050	2.878
	11	8,192.91	0.41925	3,434.877
M2	14	8,368.65	0.41000	3,431.146
	17	7,413.39	0.42025	3,115.477
	23	5,468.01	0.00025	1.367
	2	8,159.23	0.40325	3,290.209
M 1	12	8,117.91	0.40450	3,283.694
M 2	12	7,431.39	0.40250	2,991.134
	16	1,064.81	0.00575	6.122
01756	5			

		1,204.36	0.07675	92.434
6274	1	415.98	0.38475	160.048
6288	1	425.22	0.40975	174.233
6277	1	415.35	0.38475	159.805
6273	1	405.59	0.38475	156.050
6271	1	415.43	0.38475	159.836
6279	1	404.53	0.38475	155.642
6281	1	421.79	0.38475	162.283
6286	1	404.02	0.40975	165.547
6258	1	413.82	0.39150	162.010
6262	1	430.84	0.39150	168.673
6251	1	405.46	0.38350	155.493
6257	1	397.68	0.39150	155.691
6254	1	515.74	0.38350	197.786
5	7	1,226.83	0.02400	29.443
31	4	672.75	0.13125	88.298
6275	1	388.98	0.38475	149.660
6263	1	418.16	0.39150	163.709
6241	1	343.09	0.35125	120.510
6276	1	394.22	0.38475	151.676
6242	1	311.92	0.35125	109.561
6261	1	380.13	0.39150	148.820
6268	1			

		393.72	0.39150	154.141
6267	1	398.78	0.39150	156.122
6289	1	416.09	0.40975	170.492
6246	1	426.15	0.38350	163.428
6269	1	312.65	0.39150	122.402
6250	1	362.72	0.38350	139.103
6284	1	318.70	0.38475	122.619
6260	1	457.96	0.39150	179.291
6225	1	413.24	0.39825	164.572
6243	1	399.51	0.38350	153.212
6283	1	425.52	0.38475	163.718
6265	1	400.73	0.39150	156.885
6292	1	364.08	0.40975	149.181
6244	1	355.25	0.38350	136.238
6255	1	420.48	0.38350	161.254
6248	1	383.77	0.38350	147.175
6280	1	392.94	0.38475	151.183
6252	1	411.31	0.38350	157.737
6278	1	337.89	0.38475	130.003
6264	1	379.21	0.39150	148.460
6256	1	446.17	0.38350	171.106
6238	1	408.33	0.35125	143.425
6249	1			

		358.47	0.38350	137.473
6239	1	413.78	0.35125	145.340
6253	1	391.63	0.38350	150.190
6259	1	406.92	0.39150	159.309
6282	1	419.86	0.38475	161.541
6240	1	358.09	0.35125	125.779
318	1	1,158.65	0.23000	266.489
46	23	4,942.29	0.46100	2,278.395
148	17	4,355.24	0.46650	2,031.719
149	17	4,220.85	0.47900	2,021.787
D3248	22	4,738.78	0.02200	104.253
1333	13	3,914.73	0.37275	1,459.215
1342	13	4,062.09	0.43175	1,753.807
1331	2	667.84	0.23550	157.276
1332	2	788.09	0.52325	412.368
1330	2	787.78	0.43500	342.684
722	1	190.27	0.42800	81.435
1286	3	907.89	0.20925	189.975
1334	13	4,174.74	0.46600	1,945.428
1335	13	4,076.39	0.40000	1,630.556
1336	13	4,000.46	0.41875	1,675.192
1283	14	4,432.45	0.43050	1,908.169
1284	11			

		3,346.43	0.43700	1,462.389
1274	12	3,662.30	0.43800	1,604.087
1275	12	3,940.60	0.47000	1,852.082
1174	17	4,171.69	0.45350	1,891.861
1280	12	3,538.59	0.42650	1,509.208
1281	13	4,192.91	0.43325	1,816.578
1282	10	3,286.30	0.44300	1,455.830
1170	16	4,230.34	0.46650	1,973.453
1171	15	3,712.35	0.40575	1,506.286
1172	13	4,133.00	0.47150	1,948.709
1173	17	5,005.24	0.43375	2,171.022
1343	13	4,003.87	0.41325	1,654.599
1345	15	4,644.17	0.44125	2,049.240
1344	14	4,397.95	0.43025	1,892.217
769	5	4,130.67	0.00025	1.032
718	1	452.34	0.00050	0.226
770	3	1,971.86	0.00025	0.492
713	3	2,137.66	0.00025	0.534
768	5	4,040.93	0.00025	1.010
757	4	2,800.97	0.00050	1.400
919	3	1,983.50	0.00050	0.991
Coins		1,085,537.55		991,855.139

**ATTACHMENT 5:
FEDERAL RESERVE BANK OF NEW YORK SCHEDULE OF
INVENTORY OF GOLD HELD**

Attachment #5 - FRBNY Schedule of Inventory of Gold Held.xlsx

Restricted FR				
Bars	Gross Weight	Fine Weight	# Bars	Book Value *
	13,570,159.770	13,376,961.126	34,021	564,804,728.53
Compartment	Gross Weight	Fine Weight	# Bars	Official FRBNY Book Value *
A	4,314,775.300	4,300,546.754	10,697	181,578,545.14
B	423,097.910	421,465.684	1046	17,795,208.58
C	445,261.420	443,702.079	1,110	18,734,077.93
D	549,203.540	548,144.738	1,339	23,143,876.72
E	1,082,374.700	1,075,119.746	2668	45,393,921.30
F	1,489,496.190	1,485,548.437	3600	62,723,123.16
G	1,983,843.040	1,980,998.597	4895	83,642,119.00
H	2,036,585.110	1,977,374.253	5183	83,489,091.26
I	407.090	405.747	1	17,131.53
J	1,063,895.190	968,162.424	2954	40,877,947.51
K	181,220.280	175,492.667	528	7,409,686.40
Grand Totals	13,570,159.770	13,376,961.126	34,021	564,804,728.53
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.				
Coins	Gross Weight	Fine Weight	# Bags	Official FRBNY Book Value *
	80,855.700	73,451.724	384	3,101,294.16
K	80,855.700	73,451.724	384	3,101,294.16

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	4448	24891	395.87	0.9967	394.564	1	1932	16,659.36
U.S.ASSAY	772	129	395.28	0.9982	394.569	1	1939	16,659.57
U.S.ASSAY	13974	53	429.44	0.9966	427.98	1	1941	18,070.26
U.S.ASSAY	9935		8,507.70	0.9965	8,477.92	20	1940	357,956.56
U.S.ASSAY	9936		8,590.06	0.9964	8,559.14	20	1940	361,385.55
U.S.ASSAY	M-109		8,549.75	0.9998	8,548.04	21	1944	360,917.05
U.S.ASSAY	M-110		8,567.69	0.9998	8,565.98	21	1944	361,674.35
U.S.ASSAY	M-112		8,545.74	0.9997	8,543.18	21	1944	360,711.69
U.S.ASSAY	M-113		8,495.56	0.9997	8,493.01	21	1944	358,593.61
U.S.ASSAY	M-114		8,577.90	0.9997	8,575.33	21	1944	362,069.17
U.S.ASSAY	M-115		8,645.94	0.9997	8,643.35	21	1944	364,941.08
U.S.ASSAY	M-116		8,734.42	0.9997	8,731.80	21	1944	368,675.81
U.S.ASSAY	M-117		8,568.05	0.9998	8,566.34	21	1944	361,689.55
U.S.ASSAY	M-119		8,462.65	0.9997	8,460.11	21	1944	357,204.50
U.S.ASSAY	M-120		8,424.56	0.9997	8,422.03	21	1944	355,596.76
U.S.ASSAY	D-29		7,457.91	0.9973	7,437.77	19	1941	314,039.18
U.S.ASSAY	16478		7,269.45	0.9967	7,245.46	18	1941	305,919.30
U.S.ASSAY	8462		8,665.43	0.996	8,630.77	21	1940	364,410.01
U.S.ASSAY	8461		8,659.40	0.996	8,624.76	21	1940	364,156.43
U.S.ASSAY	8460		8,842.15	0.9968	8,813.86	21	1940	372,140.35
U.S.ASSAY	8458		8,263.18	0.9959	8,229.30	20	1940	347,459.19
U.S.ASSAY	D-10		8,803.72	0.9974	8,780.83	21	1940	370,745.96
U.S.ASSAY	3729		8,294.59	0.9963	8,263.90	21	1949	348,920.04
U.S.ASSAY	3640		8,432.87	0.9961	8,399.98	21	1949	354,665.72
U.S.ASSAY	3378		8,042.12	0.9973	8,020.41	21	1949	338,639.19
U.S.ASSAY	3993		8,327.60	0.9988	8,317.61	21	1947	351,187.67
U.S.ASSAY	3703		7,894.57	0.9965	7,866.94	20	1949	332,159.47
U.S.ASSAY	12351		7,877.08	0.9974	7,856.60	19	1939	331,722.94
U.S.ASSAY	3983		8,327.57	0.9958	8,292.59	21	1947	350,131.56
U.S.ASSAY	20215		8,548.28	0.9989	8,538.88	21	1939	360,530.17
U.S.ASSAY	20217		8,537.75	0.9962	8,505.31	21	1939	359,112.77
U.S.ASSAY	21403		8,765.94	0.9964	8,734.38	21	1939	368,784.87
U.S.ASSAY	21409		8,968.44	0.9963	8,935.26	21	1939	377,266.21
U.S.ASSAY	21410		8,425.93	0.9965	8,396.44	20	1939	354,516.13
U.S.ASSAY	21418		8,390.32	0.9965	8,360.95	20	1939	353,017.87
U.S.ASSAY	21368		8,846.80	0.9966	8,816.72	22	1939	372,261.36
U.S.ASSAY	21372		8,163.60	0.9966	8,135.84	20	1939	343,513.23
U.S.ASSAY	21375		7,801.69	0.9965	7,774.38	19	1939	328,251.60
U.S.ASSAY	21378		8,422.79	0.9992	8,416.05	21	1939	355,344.23
U.S.ASSAY	21381		8,410.23	0.9969	8,384.16	21	1939	353,997.60
U.S.ASSAY	21383		8,473.28	0.9969	8,447.01	21	1939	356,651.47
U.S.ASSAY	21384		8,556.75	0.9967	8,528.51	21	1939	360,092.58
U.S.ASSAY	21388		8,436.65	0.9973	8,413.87	20	1939	355,252.14
U.S.ASSAY	21306		8,517.92	0.9998	8,516.22	21	1939	359,573.38
U.S.ASSAY	21310		8,345.78	0.9998	8,344.11	20	1939	352,306.72
U.S.ASSAY	21312		7,764.76	0.9963	7,736.03	19	1939	326,632.21
U.S.ASSAY	1868		7,597.61	0.9958	7,565.70	19	1950	319,440.50
U.S.ASSAY	1867		7,666.23	0.9961	7,636.33	19	1950	322,422.74

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	1922		7,742.06	0.9959	7,710.32	19	1950	325,546.59
U.S.ASSAY	1921		8,211.87	0.9959	8,178.20	20	1950	345,301.64
U.S.ASSAY	1920		8,041.78	0.9958	8,008.01	20	1950	338,115.59
U.S.ASSAY	1918		8,588.44	0.9959	8,553.23	21	1950	361,136.06
U.S.ASSAY	1917		7,988.84	0.9959	7,956.09	20	1950	335,923.45
U.S.ASSAY	1916		8,051.95	0.9959	8,018.94	20	1950	338,577.16
U.S.ASSAY	1915		8,349.29	0.9959	8,315.06	21	1950	351,080.04
U.S.ASSAY	1914		8,428.93	0.9959	8,394.37	21	1950	354,428.81
U.S.ASSAY	1913		8,544.87	0.9961	8,511.55	21	1950	359,376.16
U.S.ASSAY	1912		8,483.53	0.9958	8,447.90	21	1950	356,688.88
U.S.ASSAY	1900		8,040.47	0.9962	8,009.92	20	1950	338,196.28
U.S.ASSAY	1899		8,080.35	0.9961	8,048.84	20	1950	339,839.61
U.S.ASSAY	1898		8,109.17	0.9962	8,078.36	20	1950	341,085.92
U.S.ASSAY	1897		8,019.24	0.9962	7,988.77	20	1950	337,303.32
U.S.ASSAY	1896		8,066.72	0.9966	8,039.29	20	1950	339,436.64
U.S.ASSAY	1895		8,470.68	0.9963	8,439.34	21	1950	356,327.42
U.S.ASSAY	1894		8,906.80	0.9962	8,872.95	22	1950	374,635.64
U.S.ASSAY	1892		7,979.10	0.9962	7,948.78	20	1950	335,614.94
U.S.ASSAY	1888		8,076.24	0.9962	8,045.55	20	1950	339,700.82
U.S.ASSAY	47844		9,020.17	0.9974	8,996.72	22	1936	379,861.23
U.S.ASSAY	12806		8,506.04	0.9977	8,486.48	20	1940	358,317.69
U.S.ASSAY	590		7,931.41	0.9962	7,901.27	20	1947	333,609.04
U.S.ASSAY	592		7,904.48	0.996	7,872.86	20	1947	332,409.55
U.S.ASSAY	594		7,913.17	0.9963	7,883.89	20	1947	332,875.22
U.S.ASSAY	9206		8,396.90	0.996	8,363.31	22	1948	353,117.43
U.S.ASSAY	47781		8,510.02	0.9966	8,481.09	21	1936	358,090.11
U.S.ASSAY	184		8,172.03	0.997	8,147.51	20	1932	344,005.97
U.S.ASSAY	47727		7,655.33	0.9981	7,640.79	19	1936	322,610.75
U.S.ASSAY	47890		8,981.59	0.9975	8,959.14	21	1936	378,274.43
U.S.ASSAY	47728		8,559.15	0.9984	8,545.46	21	1936	360,807.91
U.S.ASSAY	47889		8,921.22	0.9973	8,897.13	21	1936	375,656.53
U.S.ASSAY	1998		7,629.86	0.9961	7,600.10	19	1946	320,893.11
U.S.ASSAY	2000		7,969.53	0.9962	7,936.26	20	1946	335,086.23
U.S.ASSAY	2002		8,273.24	0.9962	8,241.80	21	1946	347,987.01
U.S.ASSAY	2003		8,329.43	0.9962	8,297.78	21	1946	350,350.44
U.S.ASSAY	2004		8,214.40	0.9963	8,184.01	21	1946	345,546.78
U.S.ASSAY	2005		8,549.23	0.9963	8,517.60	21	1946	359,631.73
U.S.ASSAY	3005		8,044.16	0.9961	8,012.79	21	1947	338,317.54
U.S.ASSAY	3006		8,434.17	0.9961	8,401.28	22	1947	354,720.40
U.S.ASSAY	222		7,846.66	0.9973	7,825.47	19	1953	330,408.73
U.S.ASSAY	223		7,848.57	0.9973	7,827.38	19	1953	330,489.12
U.S.ASSAY	224		7,736.78	0.9969	7,712.80	19	1953	325,651.17
U.S.ASSAY	227		7,226.50	0.9971	7,205.54	18	1953	304,233.88
U.S.ASSAY	880		8,608.55	0.9971	8,583.59	21	1953	362,417.84
U.S.ASSAY	883		8,253.67	0.9972	8,230.56	20	1953	347,512.31
U.S.ASSAY	884		7,921.58	0.9973	7,900.19	19	1953	333,563.44
U.S.ASSAY	885		7,302.11	0.9973	7,282.39	18	1953	307,478.70
U.S.ASSAY	886		8,354.27	0.9973	8,331.71	21	1953	351,783.25

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	887		8,399.60	0.9974	8,377.76	21	1953	353,727.50
U.S.ASSAY	1186		8,312.53	0.9974	8,290.92	21	1947	350,060.76
U.S.ASSAY	9274		8,283.26	0.9961	8,250.96	21	1948	348,373.47
U.S.ASSAY	9278		8,498.00	0.9962	8,465.71	22	1948	357,440.82
U.S.ASSAY	15309		3,007.90	0.9998	3,007.30	8	1939	126,974.74
U.S.ASSAY	9283		8,620.75	0.996	8,586.27	22	1948	362,531.08
U.S.ASSAY	9284		8,604.21	0.996	8,569.79	22	1948	361,835.51
U.S.ASSAY	9285		8,649.50	0.9961	8,615.77	22	1948	363,776.64
U.S.ASSAY	9286		8,181.61	0.9958	8,147.25	21	1948	343,994.69
U.S.ASSAY	9287		8,272.52	0.9961	8,240.26	21	1948	347,921.78
U.S.ASSAY	6902		8,604.82	0.996	8,570.40	21	1938	361,861.19
U.S.ASSAY	6901		8,678.90	0.9959	8,643.32	21	1938	364,939.86
U.S.ASSAY	4860		8,656.85	0.9959	8,621.36	21	1939	364,012.66
U.S.ASSAY	5714		8,041.58	0.9962	8,011.02	20	1949	338,242.97
U.S.ASSAY	1028		8,075.60	0.9959	8,042.49	21	1946	339,571.62
U.S.ASSAY	552		7,316.20	0.9971	7,294.98	18	1939	308,010.23
U.S.ASSAY	2015		8,522.93	0.996	8,488.84	21	1950	358,417.42
U.S.ASSAY	2020		8,418.47	0.9961	8,385.64	21	1950	354,060.08
U.S.ASSAY	6629		8,413.43	0.9961	8,380.62	21	1949	353,848.13
U.S.ASSAY	5747		8,526.82	0.996	8,492.71	21	1949	358,581.03
U.S.ASSAY	5716		8,475.16	0.9962	8,442.95	21	1949	356,480.09
U.S.ASSAY	5717		7,572.04	0.9963	7,544.02	19	1949	318,525.25
U.S.ASSAY	14949		6,058.64	0.9963	6,036.22	15	1939	254,862.61
U.S.ASSAY	17199		5,131.34	0.9983	5,122.62	13	1939	216,288.16
U.S.ASSAY	14021		8,466.14	0.9961	8,433.12	20	1938	356,064.96
U.S.ASSAY	14022		8,306.49	0.9964	8,276.59	20	1941	349,455.71
U.S.ASSAY	14023		8,587.15	0.9973	8,563.97	20	1941	361,589.44
U.S.ASSAY	14024		8,656.70	0.9971	8,631.60	20	1941	364,444.97
U.S.ASSAY	2686		7,782.35	0.9962	7,752.78	19	1941	327,339.30
U.S.ASSAY	4750		4,925.62	0.9982	4,916.75	12	1941	207,596.17
U.S.ASSAY	4038		7,522.74	0.9967	7,497.92	19	1947	316,578.47
U.S.ASSAY	4037		7,865.10	0.9955	7,829.71	20	1947	330,587.45
U.S.ASSAY	4036		7,874.51	0.9956	7,839.86	20	1947	331,016.22
U.S.ASSAY	4035		7,964.88	0.9959	7,932.22	20	1947	334,915.95
U.S.ASSAY	4034		7,753.02	0.9969	7,728.99	19	1947	326,334.79
U.S.ASSAY	4033		7,666.12	0.9968	7,641.59	19	1947	322,644.66
U.S.ASSAY	4030		8,013.23	0.9979	7,996.40	20	1947	337,625.68
U.S.ASSAY	202		7,669.95	0.997	7,646.94	19	1953	322,870.63
U.S.ASSAY	203		7,618.51	0.9971	7,596.42	19	1953	320,737.40
U.S.ASSAY	204		8,015.04	0.997	7,990.99	20	1953	337,397.35
U.S.ASSAY	205		7,859.90	0.997	7,836.32	20	1953	330,866.67
U.S.ASSAY	206		8,030.80	0.9971	8,007.51	20	1953	338,094.69
U.S.ASSAY	207		7,976.16	0.9971	7,953.03	20	1953	335,794.38
U.S.ASSAY	208		8,184.35	0.997	8,159.80	20	1953	344,524.54
U.S.ASSAY	209		8,115.12	0.997	8,090.77	20	1953	341,610.28
U.S.ASSAY	210		8,300.04	0.997	8,275.14	20	1953	349,394.57
U.S.ASSAY	211		8,267.97	0.997	8,243.17	20	1953	348,044.60
U.S.ASSAY	212		8,205.37	0.9972	8,182.39	20	1953	345,478.68

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	213		8,247.72	0.9972	8,224.63	20	1953	347,261.80
U.S.ASSAY	214		7,837.68	0.9974	7,817.30	19	1953	330,063.69
U.S.ASSAY	1254		7,663.56	0.9962	7,634.44	20	1952	322,342.77
U.S.ASSAY	215		7,842.86	0.9974	7,822.47	19	1953	330,281.81
U.S.ASSAY	216		7,756.18	0.9973	7,735.24	19	1953	326,598.77
U.S.ASSAY	217		7,278.61	0.9973	7,258.96	18	1953	306,489.13
U.S.ASSAY	218		7,672.05	0.9972	7,650.57	19	1953	323,023.81
U.S.ASSAY	219		7,644.25	0.9971	7,622.08	19	1953	321,821.03
U.S.ASSAY	220		7,795.76	0.9971	7,773.15	19	1953	328,199.58
U.S.ASSAY	221		7,672.46	0.9971	7,650.21	19	1953	323,008.65
U.S.ASSAY	9280		8,376.95	0.9959	8,342.61	22	1948	352,243.14
U.S.ASSAY	6644		8,851.73	0.9965	8,820.75	21	1938	372,431.43
U.S.ASSAY	5268		8,627.53	0.9961	8,593.88	21	1938	362,852.65
U.S.ASSAY	5611		8,186.93	0.9959	8,153.36	20	1938	344,252.97
U.S.ASSAY	5618		8,679.26	0.9962	8,646.28	21	1938	365,064.92
U.S.ASSAY	5886		8,560.00	0.9958	8,524.05	21	1938	359,904.06
U.S.ASSAY	7968		9,140.23	0.996	9,103.67	22	1938	384,376.93
U.S.ASSAY	849		7,800.16	0.9973	7,779.10	20	1936	328,450.72
U.S.ASSAY	4066		8,485.76	0.9978	8,467.09	21	1947	357,499.21
U.S.ASSAY	15955		8,732.68	0.9959	8,696.88	21	1941	367,201.24
U.S.ASSAY	6431		8,413.60	0.9973	8,390.88	21	1947	354,281.54
U.S.ASSAY	6433		8,324.22	0.9973	8,301.75	21	1947	350,517.94
U.S.ASSAY	6434		8,151.84	0.9975	8,131.46	21	1947	343,328.13
U.S.ASSAY	6437		8,323.98	0.9964	8,294.01	21	1947	350,191.52
U.S.ASSAY	6438		8,341.68	0.9964	8,311.65	21	1947	350,936.15
U.S.ASSAY	6439		8,230.42	0.9971	8,206.55	21	1947	346,498.68
U.S.ASSAY	6441		8,365.35	0.9963	8,334.40	21	1947	351,896.62
U.S.ASSAY	6442		8,546.45	0.9971	8,521.67	21	1947	359,803.44
U.S.ASSAY	6443		8,570.65	0.9968	8,543.22	21	1947	360,713.71
U.S.ASSAY	6444		8,432.09	0.9967	8,404.26	21	1947	354,846.52
U.S.ASSAY	6447		8,608.32	0.9972	8,584.22	21	1947	362,444.53
U.S.ASSAY	6448		8,677.93	0.9971	8,652.76	22	1947	365,338.73
U.S.ASSAY	6449		8,694.53	0.9971	8,669.32	22	1947	366,037.59
U.S.ASSAY	6457		8,544.92	0.9975	8,523.56	21	1947	359,883.37
U.S.ASSAY	6461		8,314.42	0.9972	8,291.14	21	1947	350,070.17
U.S.ASSAY	3186		7,537.00	0.9979	7,521.17	19	1957	317,560.43
U.S.ASSAY	6194		9,255.65	0.9964	9,222.33	22	1939	389,867.06
U.S.ASSAY	6176		8,315.55	0.9964	8,285.61	20	1939	349,836.85
U.S.ASSAY	6173		7,702.20	0.9963	7,673.70	19	1939	324,000.58
U.S.ASSAY	1962		6,369.37	0.9972	6,351.54	16	1937	268,175.82
U.S.ASSAY	1963		9,987.95	0.998	9,967.97	24	1965	420,869.79
U.S.ASSAY	2369		7,873.78	0.9958	7,840.71	20	1950	331,052.03
U.S.ASSAY	2370		7,997.97	0.9959	7,965.18	20	1950	336,307.34
U.S.ASSAY	7454		7,861.89	0.9979	7,845.38	20	1948	331,249.20
U.S.ASSAY	3842		8,012.47	0.996	7,980.42	20	1947	336,950.89
U.S.ASSAY	2367		8,577.99	0.9959	8,542.82	21	1950	360,696.65
U.S.ASSAY	2365		8,387.30	0.9958	8,352.07	21	1950	352,642.90
U.S.ASSAY	2364		8,229.75	0.9958	8,195.19	21	1950	346,018.74

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	2363		8,482.39	0.9959	8,447.61	21	1950	356,676.76
U.S.ASSAY	2052		8,373.17	0.9962	8,341.35	21	1950	352,190.23
U.S.ASSAY	5571		8,234.09	0.9978	8,215.98	21	1947	346,896.54
U.S.ASSAY	14669		8,215.82	0.9978	8,197.75	20	1939	346,126.83
U.S.ASSAY	12360		8,407.83	0.9969	8,381.77	21	1939	353,896.60
U.S.ASSAY	391		7,247.75	0.9958	7,217.31	18	1952	304,730.66
U.S.ASSAY	5550		8,652.04	0.9963	8,620.03	22	1949	363,956.50
U.S.ASSAY	8798		8,314.60	0.9967	8,287.16	21	1942	349,902.21
U.S.ASSAY	4594		7,868.94	0.9969	7,844.55	20	1947	331,213.99
U.S.ASSAY	22939		7,920.36	0.9987	7,910.06	19	1939	333,980.30
U.S.ASSAY	5556		8,466.86	0.9965	8,437.23	21	1949	356,238.24
U.S.ASSAY	5555		8,557.32	0.9965	8,527.37	21	1949	360,044.28
U.S.ASSAY	5552		8,231.53	0.9964	8,201.90	21	1949	346,302.09
U.S.ASSAY	5554		8,410.50	0.9965	8,381.06	21	1949	353,866.92
U.S.ASSAY	3868		8,345.48	0.9963	8,314.60	21	1947	351,060.79
U.S.ASSAY	5543		7,836.93	0.9965	7,809.50	20	1949	329,734.31
U.S.ASSAY	6585		8,327.01	0.997	8,302.03	21	1948	350,529.93
U.S.ASSAY	6687		8,736.82	0.9975	8,714.98	22	1948	367,965.54
U.S.ASSAY	6685		8,320.90	0.9971	8,296.77	21	1948	350,307.84
U.S.ASSAY	6645		8,280.22	0.9976	8,260.35	21	1948	348,770.02
U.S.ASSAY	6647		8,389.66	0.9973	8,367.01	21	1948	353,273.49
U.S.ASSAY	6571		8,100.13	0.9978	8,082.31	21	1948	341,252.91
U.S.ASSAY	6575		8,404.50	0.9971	8,380.13	21	1948	353,827.40
U.S.ASSAY	6676		8,441.04	0.9985	8,428.38	21	1948	355,864.66
U.S.ASSAY	733		8,144.68	0.9961	8,112.92	20	1957	342,545.12
U.S.ASSAY	734		8,136.48	0.9963	8,106.38	20	1957	342,268.99
U.S.ASSAY	736		7,628.68	0.9959	7,597.40	19	1957	320,779.03
U.S.ASSAY	4221		8,664.65	0.9968	8,636.92	21	1939	364,669.89
U.S.ASSAY	4208		8,768.28	0.9975	8,746.36	21	1939	369,290.52
U.S.ASSAY	4202		8,812.86	0.998	8,795.23	21	1939	371,354.13
U.S.ASSAY	94		9,855.79	0.9977	9,833.12	24	1961	415,176.00
U.S.ASSAY	93		9,987.61	0.9974	9,961.64	24	1961	420,602.44
U.S.ASSAY	86		9,605.11	0.9987	9,592.62	24	1961	405,021.65
U.S.ASSAY	4142		8,285.75	0.9959	8,251.78	20	1938	348,408.22
U.S.ASSAY	7776		8,371.19	0.9974	8,349.43	20	1936	352,531.09
U.S.ASSAY	16290		8,895.03	0.9964	8,863.01	22	1935	374,215.70
U.S.ASSAY	17341		7,921.50	0.9966	7,894.57	20	1937	333,325.99
U.S.ASSAY	26475		8,267.52	0.9961	8,235.28	20	1935	347,711.51
U.S.ASSAY	M-147		7,903.42	0.9994	7,898.68	20	1961	333,499.52
U.S.ASSAY	RM-291		9,134.98	0.9955	9,093.87	22	1937	383,963.32
U.S.ASSAY	M-341		7,881.02	0.9977	7,862.89	20	1960	331,988.64
U.S.ASSAY	M-1382		7,953.14	0.9978	7,935.64	20	1961	335,060.31
U.S.ASSAY	M-1313		7,832.07	0.9981	7,817.19	20	1961	330,058.92
U.S.ASSAY	M-1312		7,943.55	0.9981	7,928.46	20	1961	334,756.90
U.S.ASSAY	15862		8,506.87	0.9959	8,471.99	20	1941	357,706.14
U.S.ASSAY	15861		8,504.90	0.996	8,470.88	20	1941	357,659.19
U.S.ASSAY	15860		8,571.23	0.9959	8,536.09	20	1941	360,412.41
U.S.ASSAY	15858		8,386.14	0.9959	8,351.76	20	1941	352,629.55

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	15857		7,946.95	0.9957	7,912.78	19	1941	334,094.90
U.S.ASSAY	15854		8,558.06	0.996	8,523.83	20	1941	359,894.77
U.S.ASSAY	15853		8,501.15	0.996	8,467.15	20	1941	357,501.49
U.S.ASSAY	15852		8,506.72	0.9959	8,471.84	20	1941	357,699.81
U.S.ASSAY	15850		8,412.03	0.9959	8,377.54	20	1941	353,718.21
U.S.ASSAY	15849		8,249.86	0.9959	8,216.04	20	1941	346,899.12
U.S.ASSAY	15848		8,520.63	0.9959	8,485.70	21	1941	358,284.71
U.S.ASSAY	1696		8,403.62	0.9962	8,371.69	21	1950	353,471.00
U.S.ASSAY	1669		8,553.19	0.9962	8,520.69	21	1950	359,762.19
U.S.ASSAY	254		7,396.02	0.9981	7,381.97	18	1958	311,682.89
U.S.ASSAY	249		7,411.58	0.9965	7,385.64	18	1958	311,837.93
U.S.ASSAY	2253		8,398.40	0.996	8,364.81	21	1963	353,180.51
U.S.ASSAY	15297		7,310.70	0.9965	7,285.11	18	1940	307,593.50
U.S.ASSAY	M-1038		8,039.91	0.9979	8,023.03	20	1961	338,749.81
U.S.ASSAY	17		9,093.31	0.9965	9,061.48	22	1960	382,595.75
U.S.ASSAY	16		9,114.59	0.9975	9,091.80	22	1960	383,875.92
U.S.ASSAY	15		9,060.72	0.9969	9,032.63	22	1960	381,377.55
U.S.ASSAY	8		9,045.22	0.997	9,018.08	22	1960	380,763.35
U.S.ASSAY	7		9,027.51	0.997	9,000.43	22	1960	380,017.83
U.S.ASSAY	6		9,123.79	0.997	9,096.42	22	1960	384,070.78
U.S.ASSAY	3		8,776.89	0.9971	8,751.44	22	1960	369,504.92
U.S.ASSAY	5		8,633.81	0.9971	8,608.77	21	1960	363,481.25
U.S.ASSAY	7505		7,866.20	0.996	7,834.74	19	1940	330,799.75
U.S.ASSAY	29178		6,004.92	0.995	5,974.90	15	1935	252,273.21
U.S.ASSAY	34063		8,022.00	0.9976	8,002.75	20	1935	337,893.58
U.S.ASSAY	4930		8,155.32	0.9959	8,121.88	21	1947	342,923.77
U.S.ASSAY	7501		8,370.20	0.9971	8,345.93	20	1940	352,383.36
U.S.ASSAY	7500		8,220.09	0.9956	8,183.92	20	1940	345,543.19
U.S.ASSAY	285		7,451.75	0.996	7,421.94	19	1949	313,370.76
U.S.ASSAY	7117		8,339.17	0.9962	8,307.48	22	1942	350,760.12
U.S.ASSAY	16815		6,297.85	0.996	6,272.66	16	1939	264,845.46
U.S.ASSAY	16645		7,674.74	0.9976	7,656.32	19	1939	323,266.72
U.S.ASSAY	4071		8,754.35	0.9971	8,728.96	22	1947	368,555.98
U.S.ASSAY	4050		8,786.25	0.9976	8,765.16	22	1947	370,084.47
U.S.ASSAY	14224		8,558.38	0.9958	8,522.44	21	1937	359,835.96
U.S.ASSAY	14226		8,949.16	0.996	8,913.36	22	1937	376,341.80
U.S.ASSAY	14230		8,169.35	0.9961	8,137.49	20	1937	343,582.73
U.S.ASSAY	14200		8,261.66	0.9959	8,227.79	20	1937	347,395.27
U.S.ASSAY	14219		8,423.48	0.996	8,389.79	21	1937	354,235.22
U.S.ASSAY	14221		8,399.56	0.9957	8,363.44	21	1937	353,122.92
U.S.ASSAY	14225		7,514.89	0.9959	7,484.08	19	1937	315,994.28
U.S.ASSAY	5445		7,956.77	0.9957	7,922.56	20	1942	334,507.74
U.S.ASSAY	1591		8,470.18	0.9957	8,433.76	22	1949	356,091.82
U.S.ASSAY	29133		7,990.87	0.9965	7,962.90	20	1935	336,211.24
U.S.ASSAY	5281		8,206.53	0.9958	8,172.06	20	1938	345,042.48
U.S.ASSAY	14197		9,134.20	0.9958	9,095.84	22	1937	384,046.21
U.S.ASSAY	9972		7,794.95	0.9976	7,776.24	19	1936	328,330.04
U.S.ASSAY	12834		8,257.70	0.9968	8,231.28	20	1939	347,542.54

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	13011		8,785.50	0.9974	8,762.66	21	1939	369,978.70
U.S.ASSAY	689		7,797.35	0.998	7,781.76	19	1947	328,562.82
U.S.ASSAY	4928		8,072.13	0.996	8,039.84	21	1947	339,459.77
U.S.ASSAY	2060		8,046.82	0.9965	8,018.66	20	1957	338,565.30
U.S.ASSAY	2053		8,106.40	0.9968	8,080.46	20	1957	341,174.76
U.S.ASSAY	2050		8,028.83	0.9966	8,001.53	20	1957	337,842.24
U.S.ASSAY	2046		8,116.36	0.9967	8,089.58	20	1957	341,559.70
U.S.ASSAY	8475		8,919.69	0.9976	8,898.28	22	1936	375,705.08
U.S.ASSAY	8476		8,562.18	0.997	8,536.49	21	1936	360,429.51
U.S.ASSAY	8477		9,056.18	0.9971	9,029.92	22	1936	381,262.96
U.S.ASSAY	8478		8,851.67	0.9973	8,827.77	22	1936	372,727.87
U.S.ASSAY	8462		7,622.38	0.9979	7,606.37	19	1936	321,157.80
U.S.ASSAY	8472		9,054.05	0.9962	9,019.65	22	1936	380,829.26
U.S.ASSAY	8473		8,955.37	0.997	8,928.50	22	1936	376,981.08
U.S.ASSAY	8474		8,838.23	0.9966	8,808.18	22	1936	371,900.74
U.S.ASSAY	8458		7,747.95	0.9985	7,736.33	19	1936	326,644.79
U.S.ASSAY	8459		7,892.60	0.9985	7,880.76	19	1936	332,743.07
U.S.ASSAY	8461		7,836.60	0.9983	7,823.28	19	1936	330,316.01
U.S.ASSAY	8452		8,738.04	0.9965	8,707.46	22	1936	367,647.99
U.S.ASSAY	8453		9,031.57	0.9963	8,998.15	22	1936	379,921.82
U.S.ASSAY	8454		8,205.05	0.9971	8,181.26	21	1936	345,430.58
U.S.ASSAY	8457		7,784.18	0.9988	7,774.84	19	1936	328,270.81
U.S.ASSAY	8437		7,422.87	0.9971	7,401.34	18	1936	312,501.03
U.S.ASSAY	8443		8,903.60	0.9977	8,883.12	22	1936	375,064.95
U.S.ASSAY	8415		7,604.83	0.998	7,589.62	19	1936	320,450.45
U.S.ASSAY	8382		8,907.55	0.997	8,880.83	22	1936	374,968.05
U.S.ASSAY	8435		7,403.87	0.9967	7,379.44	18	1936	311,576.06
U.S.ASSAY	8436		7,514.70	0.9965	7,488.40	18	1936	316,176.68
U.S.ASSAY	8411		8,122.83	0.9979	8,105.77	19	1936	342,243.53
U.S.ASSAY	8412		7,914.76	0.9987	7,904.47	19	1936	333,744.16
U.S.ASSAY	8413		7,972.79	0.9976	7,953.66	19	1936	335,820.81
U.S.ASSAY	8410		8,442.16	0.9977	8,422.74	21	1936	355,626.74
U.S.ASSAY	8409		8,783.72	0.9977	8,763.52	22	1936	370,014.97
U.S.ASSAY	8408		8,879.13	0.998	8,861.37	22	1936	374,146.62
U.S.ASSAY	8407		8,900.85	0.9979	8,882.16	22	1936	375,024.25
U.S.ASSAY	2120		7,953.92	0.9978	7,936.42	20	1957	335,093.15
U.S.ASSAY	45287		8,475.28	0.997	8,449.85	20	1936	356,771.43
U.S.ASSAY	9935		8,234.25	0.9989	8,225.19	21	1948	347,285.70
U.S.ASSAY	16476		7,037.24	0.9971	7,016.83	17	1941	296,266.08
U.S.ASSAY	2072		7,097.20	0.996	7,068.81	18	1946	298,460.75
U.S.ASSAY	2066		7,614.55	0.9972	7,593.23	19	1946	320,602.83
U.S.ASSAY	2058		8,026.26	0.9961	7,994.96	20	1957	337,564.67
U.S.ASSAY	4016		8,127.79	0.9976	8,108.28	20	1956	342,349.55
U.S.ASSAY	23008		4,776.08	0.9954	4,754.11	13	1939	200,728.98
U.S.ASSAY	34607		8,901.22	0.9976	8,879.86	21	1935	374,927.10
U.S.ASSAY	34603		7,148.68	0.9979	7,133.67	18	1935	301,199.16
U.S.ASSAY	34601		7,898.45	0.9977	7,880.28	19	1935	332,722.93
U.S.ASSAY	34599		7,961.66	0.9975	7,941.76	19	1935	335,318.41

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	15376		4,447.84	0.9961	4,430.49	11	1937	187,065.16
U.S.ASSAY	M-1939		7,911.00	0.9965	7,883.31	20	1960	332,850.73
U.S.ASSAY	M-1938		7,967.39	0.9965	7,939.50	20	1960	335,223.33
U.S.ASSAY	M-1934		8,136.22	0.9992	8,129.71	20	1960	343,254.28
U.S.ASSAY	M-1322		8,016.70	0.9971	7,993.45	20	1960	337,501.09
U.S.ASSAY	M-1318		8,012.44	0.9968	7,986.80	20	1960	337,220.27
U.S.ASSAY	M-1312		8,135.31	0.9975	8,114.97	20	1960	342,631.93
U.S.ASSAY	M-1310		8,123.21	0.9978	8,105.34	20	1960	342,225.20
U.S.ASSAY	13002		6,868.04	0.9968	6,846.06	17	1939	289,055.80
U.S.ASSAY	29181		9,131.48	0.996	9,094.95	23	1935	384,008.97
U.S.ASSAY	29169		8,974.77	0.9968	8,946.05	22	1935	377,721.95
U.S.ASSAY	29168		8,982.90	0.9965	8,951.46	22	1935	377,920.33
U.S.ASSAY	29167		9,128.82	0.9965	9,096.87	23	1935	384,089.82
U.S.ASSAY	29160		8,753.12	0.9959	8,717.23	21	1935	368,060.71
U.S.ASSAY	29158		9,209.28	0.9973	9,184.42	22	1935	387,786.21
U.S.ASSAY	29156		6,713.50	0.9975	6,696.72	17	1935	282,750.08
U.S.ASSAY	29154		7,068.25	0.9976	7,051.29	17	1935	297,720.81
U.S.ASSAY	29151		7,592.87	0.9961	7,563.26	19	1935	319,337.39
U.S.ASSAY	14757		7,356.94	0.996	7,327.51	18	1939	309,383.68
U.S.ASSAY	5645		8,755.97	0.9972	8,731.45	22	1946	368,661.15
U.S.ASSAY	473		8,502.50	0.9965	8,472.74	21	1947	357,737.77
U.S.ASSAY	5848		8,008.90	0.9957	7,974.46	20	1949	336,699.33
U.S.ASSAY	1520		8,085.93	0.9959	8,052.78	20	1949	340,006.00
U.S.ASSAY	1521		8,650.02	0.996	8,615.42	22	1949	363,761.99
U.S.ASSAY	1515		8,713.98	0.9958	8,677.38	22	1949	366,378.12
U.S.ASSAY	1516		8,823.90	0.9959	8,787.72	22	1949	371,036.96
U.S.ASSAY	2989		7,202.90	0.998	7,188.49	18	1947	303,514.03
U.S.ASSAY	7938		8,538.48	0.9956	8,500.91	20	1940	358,927.16
U.S.ASSAY	9643		7,196.38	0.9965	7,171.19	18	1938	302,783.55
U.S.ASSAY	842		8,506.93	0.9973	8,483.96	21	1936	358,211.50
U.S.ASSAY	863		8,123.05	0.9962	8,092.18	20	1936	341,669.73
U.S.ASSAY	19711		8,657.82	0.9967	8,629.25	21	1939	364,345.88
U.S.ASSAY	19646		8,297.16	0.9963	8,266.46	20	1939	349,028.17
U.S.ASSAY	19716		8,185.68	0.9967	8,158.67	20	1939	344,476.87
U.S.ASSAY	5035		9,005.25	0.9969	8,977.33	22	1939	379,042.79
U.S.ASSAY	9440		8,328.81	0.9961	8,296.33	19	1940	350,289.22
U.S.ASSAY	19719		8,130.35	0.9963	8,100.27	20	1939	342,011.14
U.S.ASSAY	19720		8,016.77	0.9967	7,990.32	20	1939	337,368.68
U.S.ASSAY	853		7,229.37	0.9969	7,206.96	18	1936	304,293.66
U.S.ASSAY	19713		8,648.83	0.9969	8,622.02	21	1939	364,040.61
U.S.ASSAY	2705		7,265.30	0.9958	7,234.79	19	1922	305,468.58
U.S.ASSAY	19715		8,087.09	0.9974	8,066.06	20	1939	340,566.97
U.S.ASSAY	183		8,469.92	0.9972	8,446.20	21	1932	356,617.31
U.S.ASSAY	10604		8,840.90	0.9968	8,812.61	22	1933	372,087.74
U.S.ASSAY	887		8,527.75	0.9974	8,505.58	20	1936	359,124.22
U.S.ASSAY	D-70		7,451.40	0.9964	7,424.58	18	1937	313,481.89
U.S.ASSAY	19592		8,623.55	0.996	8,589.06	22	1941	362,648.84
U.S.ASSAY	694		6,887.63	0.9966	6,864.21	17	1939	289,822.13

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	1319		8,586.84	0.9959	8,551.63	21	1950	361,068.80
U.S.ASSAY	1240		8,298.70	0.9959	8,264.68	20	1950	348,952.76
U.S.ASSAY	1237		8,615.92	0.9959	8,580.60	21	1950	362,291.60
U.S.ASSAY	1239		8,121.35	0.9957	8,086.43	20	1950	341,426.78
U.S.ASSAY	1236		8,508.45	0.9958	8,472.72	21	1950	357,736.67
U.S.ASSAY	1238		7,684.07	0.9958	7,651.80	19	1950	323,075.70
U.S.ASSAY	2624		8,253.78	0.9958	8,219.11	21	1950	347,029.08
U.S.ASSAY	2627		8,532.70	0.9959	8,497.72	22	1950	358,792.26
U.S.ASSAY	2623		8,300.63	0.9957	8,264.94	21	1950	348,963.82
U.S.ASSAY	2626		8,276.12	0.9959	8,242.19	21	1950	348,003.31
U.S.ASSAY	2781		7,551.79	0.9966	7,526.11	19	1950	317,769.09
U.S.ASSAY	2783		7,363.30	0.9961	7,334.58	19	1950	309,682.23
U.S.ASSAY	2780		7,970.98	0.9963	7,941.49	20	1950	335,307.05
U.S.ASSAY	2782		7,834.40	0.9963	7,805.41	20	1950	329,561.71
U.S.ASSAY	6680		7,854.98	0.9962	7,825.13	20	1949	330,394.25
U.S.ASSAY	1235		8,455.67	0.9959	8,421.00	21	1950	355,553.23
U.S.ASSAY	6679		7,881.30	0.9963	7,852.14	20	1949	331,534.58
U.S.ASSAY	1234		8,557.78	0.9959	8,522.69	21	1950	359,846.85
U.S.ASSAY	1192		7,642.51	0.9962	7,613.47	19	1950	321,457.37
U.S.ASSAY	2718		7,928.32	0.9961	7,897.40	20	1950	333,445.60
U.S.ASSAY	2715		7,890.80	0.9963	7,861.60	20	1950	331,934.22
U.S.ASSAY	2717		7,533.92	0.9959	7,503.03	19	1950	316,794.48
U.S.ASSAY	2714		8,456.45	0.9971	8,431.93	21	1950	356,014.47
U.S.ASSAY	2716		7,895.52	0.9965	7,867.89	20	1950	332,199.46
U.S.ASSAY	2791		7,490.60	0.9958	7,459.14	19	1950	314,941.26
U.S.ASSAY	2790		7,910.32	0.9959	7,877.89	20	1950	332,621.76
U.S.ASSAY	2792		7,834.12	0.9958	7,801.22	20	1950	329,384.54
U.S.ASSAY	6662		8,560.77	0.9963	8,529.10	21	1949	360,117.15
U.S.ASSAY	6659		8,176.95	0.9958	8,142.61	21	1949	343,798.78
U.S.ASSAY	6661		8,476.22	0.9964	8,445.71	21	1949	356,596.29
U.S.ASSAY	6658		8,180.14	0.9957	8,144.97	21	1949	343,898.34
U.S.ASSAY	6660		8,446.62	0.9963	8,415.37	21	1949	355,315.35
U.S.ASSAY	1617		7,200.94	0.9978	7,185.10	18	1951	303,370.64
U.S.ASSAY	3878		7,837.47	0.9975	7,817.88	20	1947	330,087.92
U.S.ASSAY	3879		7,759.50	0.998	7,743.98	20	1947	326,967.91
U.S.ASSAY	3882		8,622.67	0.996	8,588.18	22	1947	362,611.81
U.S.ASSAY	3880		8,665.51	0.9961	8,631.72	22	1947	364,450.00
U.S.ASSAY	3871		7,960.69	0.997	7,936.81	20	1947	335,109.49
U.S.ASSAY	3869		8,286.26	0.9958	8,251.46	21	1947	348,394.71
U.S.ASSAY	3870		8,329.18	0.9962	8,297.53	21	1947	350,339.93
U.S.ASSAY	4019		8,700.30	0.9973	8,676.81	22	1947	366,353.96
U.S.ASSAY	4016		8,656.48	0.9972	8,632.24	22	1947	364,472.25
U.S.ASSAY	4017		7,856.74	0.9964	7,828.46	20	1947	330,534.63
U.S.ASSAY	765		7,938.60	0.9957	7,904.46	19	1952	333,743.86
U.S.ASSAY	86		8,149.25	0.9967	8,122.36	21	1945	342,943.78
U.S.ASSAY	7132		7,925.91	0.9964	7,897.38	20	1948	333,444.63
U.S.ASSAY	7131		8,278.10	0.9964	8,248.30	21	1948	348,261.33
U.S.ASSAY	7130		8,813.16	0.9978	8,793.77	22	1948	371,292.36

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	2985		8,624.33	0.9966	8,595.01	21	1947	362,900.10
U.S.ASSAY	2980		8,730.22	0.9965	8,699.66	22	1947	367,318.95
U.S.ASSAY	2973		7,783.62	0.9958	7,750.93	20	1947	327,261.27
U.S.ASSAY	2972		8,396.58	0.996	8,362.99	21	1947	353,104.01
U.S.ASSAY	2971		8,382.14	0.9965	8,352.80	21	1947	352,673.72
U.S.ASSAY	20222		8,684.06	0.9974	8,661.48	21	1939	365,706.78
U.S.ASSAY	20253		8,382.00	0.9985	8,369.43	21	1939	353,375.62
U.S.ASSAY	10744		8,630.00	0.9966	8,600.66	20	1940	363,138.70
U.S.ASSAY	2974		7,930.27	0.9959	7,897.76	20	1947	333,460.63
U.S.ASSAY	10726		8,556.27	0.9965	8,526.32	20	1940	360,000.11
U.S.ASSAY	5278		8,693.86	0.996	8,659.09	21	1938	365,605.62
U.S.ASSAY	10727		8,392.05	0.9966	8,363.52	20	1940	353,126.09
U.S.ASSAY	10712		7,940.82	0.9974	7,920.17	19	1940	334,407.17
U.S.ASSAY	5842		7,498.03	0.9974	7,478.54	18	1938	315,760.20
U.S.ASSAY	5856		8,553.15	0.9957	8,516.37	21	1938	359,579.92
U.S.ASSAY	5779		8,568.35	0.997	8,542.65	21	1938	360,689.27
U.S.ASSAY	10743		8,548.89	0.9972	8,524.95	20	1940	359,942.27
U.S.ASSAY	10734		8,478.24	0.9971	8,453.65	20	1940	356,931.83
U.S.ASSAY	10735		8,058.91	0.997	8,034.73	19	1940	339,244.10
U.S.ASSAY	13952		8,637.75	0.9976	8,617.02	20	1941	363,829.50
U.S.ASSAY	10741		8,030.51	0.9968	8,004.81	19	1940	337,980.77
U.S.ASSAY	10736		8,444.75	0.9966	8,416.04	20	1940	355,343.64
U.S.ASSAY	2988		8,069.09	0.9962	8,038.43	20	1947	339,400.07
U.S.ASSAY	2986		8,504.77	0.9965	8,475.00	21	1947	357,833.27
U.S.ASSAY	21380		8,412.92	0.9962	8,380.95	21	1939	353,862.19
U.S.ASSAY	21408		8,634.33	0.9969	8,607.56	21	1939	363,430.29
U.S.ASSAY	21311		8,400.43	0.9973	8,377.75	20	1939	353,726.99
U.S.ASSAY	2979		8,843.65	0.9975	8,821.54	22	1947	372,464.87
U.S.ASSAY	2978		8,300.20	0.9976	8,280.28	21	1947	349,611.64
U.S.ASSAY	2203		8,241.63	0.9958	8,207.02	21	1949	346,518.23
U.S.ASSAY	2206		8,220.05	0.9959	8,186.35	21	1949	345,645.62
U.S.ASSAY	2207		8,210.82	0.9958	8,176.34	21	1949	345,222.85
U.S.ASSAY	2204		8,259.39	0.9957	8,223.88	21	1949	347,230.10
U.S.ASSAY	2205		7,821.70	0.996	7,790.41	20	1949	328,928.38
U.S.ASSAY	2164		7,929.40	0.9959	7,896.89	21	1949	333,424.03
U.S.ASSAY	2161		8,128.45	0.9958	8,094.31	21	1949	341,759.62
U.S.ASSAY	2162		8,531.06	0.9957	8,494.38	22	1949	358,651.24
U.S.ASSAY	2165		8,599.20	0.9958	8,563.08	22	1949	361,552.20
U.S.ASSAY	1129		8,500.83	0.9963	8,469.38	22	1949	357,595.73
U.S.ASSAY	1132		8,550.25	0.9959	8,515.19	22	1949	359,530.22
U.S.ASSAY	1133		8,563.27	0.996	8,529.02	22	1949	360,113.86
U.S.ASSAY	1130		8,478.24	0.9965	8,448.57	22	1949	356,717.04
U.S.ASSAY	1131		8,609.03	0.9959	8,573.73	22	1949	362,001.87
U.S.ASSAY	2186		8,599.45	0.9959	8,564.19	22	1949	361,599.03
U.S.ASSAY	2183		7,978.28	0.9962	7,947.96	20	1949	335,580.48
U.S.ASSAY	2187		8,718.90	0.996	8,684.02	22	1949	366,658.60
U.S.ASSAY	2185		8,222.94	0.996	8,190.05	21	1949	345,801.84
U.S.ASSAY	2176		8,254.60	0.9958	8,219.93	21	1949	347,063.57

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	2179		8,200.23	0.9957	8,164.97	21	1949	344,742.95
U.S.ASSAY	2180		8,131.98	0.9957	8,097.01	21	1949	341,873.66
U.S.ASSAY	2177		8,078.68	0.9958	8,044.75	21	1949	339,667.04
U.S.ASSAY	2178		8,156.75	0.9961	8,124.94	21	1949	343,052.80
U.S.ASSAY	2193		8,678.10	0.996	8,643.39	22	1949	364,942.86
U.S.ASSAY	2196		7,852.98	0.996	7,821.57	20	1949	330,243.81
U.S.ASSAY	2197		8,324.73	0.9959	8,290.60	21	1949	350,047.33
U.S.ASSAY	2194		8,629.55	0.996	8,595.03	22	1949	362,901.16
U.S.ASSAY	2195		8,274.44	0.996	8,241.34	21	1949	347,967.59
U.S.ASSAY	2188		8,691.45	0.9959	8,655.82	22	1949	365,467.55
U.S.ASSAY	2191		8,347.23	0.9959	8,313.01	21	1949	350,993.40
U.S.ASSAY	2192		8,643.50	0.996	8,608.93	22	1949	363,487.80
U.S.ASSAY	2189		8,147.18	0.996	8,114.59	21	1949	342,615.88
U.S.ASSAY	2190		8,341.04	0.996	8,307.68	21	1949	350,768.36
U.S.ASSAY	592		8,481.45	0.9961	8,448.37	22	1946	356,708.85
U.S.ASSAY	593		8,530.25	0.9961	8,496.98	22	1946	358,761.27
U.S.ASSAY	595		7,989.65	0.9961	7,958.49	21	1946	336,024.96
U.S.ASSAY	596		8,056.18	0.9961	8,024.76	22	1946	338,823.06
U.S.ASSAY	597		7,631.34	0.9962	7,602.34	21	1946	320,987.56
U.S.ASSAY	601		8,291.42	0.9962	8,259.91	21	1946	348,751.70
U.S.ASSAY	604		8,137.93	0.9962	8,107.01	21	1946	342,295.63
U.S.ASSAY	605		8,532.98	0.9961	8,499.70	22	1946	358,876.08
U.S.ASSAY	713		8,426.54	0.9961	8,393.68	22	1946	354,399.47
U.S.ASSAY	714		8,310.80	0.9961	8,278.39	22	1946	349,531.75
U.S.ASSAY	715		8,009.80	0.9958	7,976.16	21	1946	336,770.98
U.S.ASSAY	9424		8,228.70	0.9966	8,200.72	20	1940	346,252.52
U.S.ASSAY	9428		8,673.58	0.9977	8,653.63	20	1940	365,375.34
U.S.ASSAY	8834		8,784.68	0.9973	8,760.96	21	1940	369,907.05
U.S.ASSAY	1916		8,158.95	0.9965	8,130.39	20	1946	343,283.12
U.S.ASSAY	1921		8,306.17	0.9965	8,277.10	21	1946	349,477.29
U.S.ASSAY	5455		8,235.60	0.9955	8,198.54	20	1938	346,160.40
U.S.ASSAY	4695		8,309.73	0.9957	8,274.00	20	1938	349,346.40
U.S.ASSAY	6218		8,723.71	0.9959	8,687.94	22	1949	366,824.07
U.S.ASSAY	6124		8,506.97	0.9968	8,479.75	21	1949	358,033.62
U.S.ASSAY	2006		8,229.82	0.9963	8,199.37	20	1946	346,195.44
U.S.ASSAY	15873		8,449.68	0.996	8,415.88	20	1941	355,337.01
U.S.ASSAY	15875		8,344.35	0.996	8,310.97	20	1941	350,907.56
U.S.ASSAY	1585		8,605.82	0.9959	8,570.54	21	1950	361,866.89
U.S.ASSAY	3916		8,645.48	0.9958	8,609.17	22	1947	363,498.06
U.S.ASSAY	5509		8,677.35	0.9968	8,649.58	21	1938	365,204.38
U.S.ASSAY	186		8,259.79	0.9971	8,235.84	21	1932	347,735.16
U.S.ASSAY	182		8,258.15	0.9971	8,234.20	20	1932	347,666.08
U.S.ASSAY	3905		8,700.70	0.9958	8,664.16	22	1947	365,819.77
U.S.ASSAY	3908		8,042.12	0.9956	8,006.74	20	1947	338,061.97
U.S.ASSAY	3906		8,424.90	0.9959	8,390.36	21	1947	354,259.37
U.S.ASSAY	6867		8,631.50	0.9958	8,595.25	21	1938	362,910.28
U.S.ASSAY	12585		8,300.43	0.9961	8,268.06	21	1933	349,095.60
U.S.ASSAY	4505		8,456.89	0.9973	8,434.06	21	1947	356,104.40

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
Compartment Sub Totals			4,314,775.300		4,300,546.754	10,697		181,578,545.14
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-3221	404.64	0.9961	403.062	1		17,018.16
RAND		BG-3220	403.37	0.9961	401.797	1		16,964.75
RAND		BG-3219	404.51	0.9961	402.932	1		17,012.68
RAND		BG-3218	403.35	0.9961	401.777	1		16,963.91
RAND		BG-3187	403.37	0.995	401.353	1		16,946.01
RAND		BG-3186	408.18	0.995	406.139	1		17,148.08
RAND		BG-3185	407.68	0.995	405.642	1		17,127.10
RAND		BG-3184	401.5	0.995	399.493	1		16,867.47
RAND		BG-3183	406.01	0.995	403.98	1		17,056.92
RAND		BG-3182	403.6	0.995	401.582	1		16,955.68
RAND		BG-3175	403.69	0.9952	401.752	1		16,962.85
RAND		BG-3174	404.1	0.9952	402.16	1		16,980.08
RAND		BG-3173	403.92	0.9952	401.981	1		16,972.52
RAND		BG-3172	400.78	0.9952	398.856	1		16,840.58
RAND		BG-3171	403.98	0.9952	402.041	1		16,975.06
RAND		BG-3170	405.62	0.9952	403.673	1		17,043.96
RAND		BG-3323	403.73	0.995	401.711	1		16,961.12
RAND		BG-3322	405.4	0.995	403.373	1		17,031.30
RAND		BG-3321	404.85	0.995	402.826	1		17,008.20
RAND		BG-3320	406.13	0.995	404.099	1		17,061.95
RAND		BG-3319	405.65	0.995	403.622	1		17,041.81
RAND		BG-3318	404.25	0.995	402.229	1		16,982.99
RAND		BG-3305	405.66	0.9958	403.956	1		17,055.91
RAND		BG-3304	402.37	0.9958	400.68	1		16,917.59
RAND		BG-3303	404.58	0.9958	402.881	1		17,010.52
RAND		BG-1226	405	0.9965	403.583	1		17,040.16
RAND		BG-1225	406.53	0.9965	405.107	1		17,104.51
MOCKBA		D-12515	413.44	0.9996	413.275	1		17,449.38
MOCKBA		D-12449	415.58	0.9997	415.455	1		17,541.42
MOCKBA		D-12540	416.91	0.9999	416.868	1		17,601.08
MOCKBA		D-12529	401.9	0.9999	401.86	1		16,967.41
MOCKBA		D-12528	408.8	0.9999	408.759	1		17,258.70
MOCKBA		D-12519	410.23	0.9995	410.025	1		17,312.16
MOCKBA		D-12518	395.63	0.9997	395.511	1		16,699.34
MOCKBA		D-12517	419.86	0.9997	419.734	1		17,722.09
MOCKBA		D-12516	385.84	0.9997	385.724	1		16,286.12
MOCKBA		Z-12005	415.8	0.9998	415.717	1		17,552.49
MOCKBA		Z-12004	421.78	0.9999	421.738	1		17,806.71
MOCKBA		V-12602	395.43	0.9997	395.311	1		16,690.90
ROTHSCHILD		R-4092	130.18	0.9968	129.763	1		5,478.88
ROTHSCHILD		L-10290	399.19	0.997	397.992	1		16,804.10
RAND		AV-8267	403.03	0.9964	401.579	1		16,955.55
RAND		AV-8266	402.36	0.9964	400.912	1		16,927.39
RAND		AV-8265	402.58	0.9964	401.131	1		16,936.63
RAND		AV-8264	402.15	0.9957	400.421	1		16,906.66
RAND		AV-8263	402.13	0.9957	400.401	1		16,905.81
RAND		AV-8262	403.34	0.9957	401.606	1		16,956.69
RAND		AV-8261	405.55	0.9957	403.806	1		17,049.58

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		AV-8260	405.35	0.9957	403.607	1		17,041.18
RAND		AV-8259	402.9	0.9957	401.168	1		16,938.20
RAND		AV-8258	405.78	0.9955	403.954	1		17,055.83
RAND		AV-8257	400.15	0.9955	398.349	1		16,819.17
RAND		AV-8256	405.45	0.9955	403.625	1		17,041.94
RAND		AV-8255	402.83	0.9955	401.017	1		16,931.82
RAND		AV-8254	403.22	0.9955	401.406	1		16,948.24
RAND		AV-8253	401.95	0.9955	400.141	1		16,894.83
RAND		AV-8252	406.96	0.9955	405.129	1		17,105.44
RAND		AV-8251	407.53	0.9955	405.696	1		17,129.38
RAND		AV-8250	405.28	0.9955	403.456	1		17,034.80
RAND		AV-8249	405.2	0.9955	403.377	1		17,031.46
RAND		AV-8248	402.93	0.9955	401.117	1		16,936.04
RAND		AV-8247	406.1	0.9955	404.273	1		17,069.30
RAND		AV-8246	404.65	0.9961	403.072	1		17,018.59
RAND		AV-8245	403.08	0.9961	401.508	1		16,952.55
RAND		AV-8244	401.69	0.9961	400.123	1		16,894.07
RAND		AV-8243	401.73	0.9961	400.163	1		16,895.76
RAND		BM-708	406.07	0.9963	404.568	1		17,081.75
RAND		BM-707	406.21	0.9963	404.707	1		17,087.62
RAND		BM-706	405.22	0.9963	403.721	1		17,045.99
RAND		BM-705	401.35	0.9963	399.865	1		16,883.18
RAND		BM-704	406.1	0.9963	404.597	1		17,082.98
RAND		BM-703	407.85	0.9963	406.341	1		17,156.61
RAND		BM-702	408.76	0.9963	407.248	1		17,194.91
RAND		BM-701	405.69	0.9963	404.189	1		17,065.75
RAND		BM-700	407.15	0.9958	405.44	1		17,118.57
RAND		BM-699	406.15	0.9958	404.444	1		17,076.52
RAND		BM-698	405.5	0.9958	403.797	1		17,049.20
RAND		BM-697	407.62	0.9958	405.908	1		17,138.33
RAND		BM-696	403.77	0.9958	402.074	1		16,976.45
RAND		BM-695	403.25	0.9958	401.556	1		16,954.58
RAND		BM-688	407.45	0.9964	405.983	1		17,141.50
RAND		BM-687	403.57	0.9964	402.117	1		16,978.26
RAND		BM-686	405.5	0.9964	404.04	1		17,059.46
RAND		BM-685	407.57	0.9964	406.103	1		17,146.56
RAND		BM-684	403.87	0.9964	402.416	1		16,990.89
RAND		BM-683	406.24	0.9964	404.778	1		17,090.62
RAND		BM-676	404.62	0.9966	403.244	1		17,025.85
RAND		BM-675	405.44	0.9966	404.062	1		17,060.39
RAND		BM-674	405.49	0.9966	404.111	1		17,062.46
RAND		BM-673	404.7	0.9966	403.324	1		17,029.23
RAND		BM-672	404.25	0.9966	402.876	1		17,010.31
MOCKBA		V-12604	411.43	0.9997	411.307	1		17,366.29
MOCKBA		V-12603	420.38	0.9997	420.254	1		17,744.05
MOCKBA		V-12601	378.8	0.9997	378.686	1		15,988.96
RAND		BG-2748	408.25	0.9961	406.658	1		17,170.00
RAND		BG-2746	405.02	0.9956	403.238	1		17,025.60

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-2745	406.89	0.9956	405.1	1		17,104.21
RAND		BG-2742	406.73	0.9956	404.94	1		17,097.46
RAND		BG-2738	405.21	0.9956	403.427	1		17,033.58
RAND		BG-2735	405.73	0.9953	403.823	1		17,050.30
RAND		BG-2729	405.65	0.9955	403.825	1		17,050.38
RAND		BG-2727	405.15	0.9955	403.327	1		17,029.35
RAND		BG-1320	406.94	0.9964	405.475	1		17,120.05
RAND		BG-1317	408.12	0.9964	406.651	1		17,169.70
RAND		BG-1316	402.2	0.9964	400.752	1		16,920.63
ROTHSCHILD		XM-531	429.03	0.9993	428.73	1		18,101.92
ROTHSCHILD		XM-530	428.91	0.9994	428.653	1		18,098.67
ROTHSCHILD		XM-529	429.17	0.9994	428.912	1		18,109.61
ROTHSCHILD		XM-528	429.12	0.9994	428.863	1		18,107.54
ROTHSCHILD		XM-527	428.25	0.9993	427.95	1		18,068.99
ROTHSCHILD		XM-526	428.5	0.9993	428.2	1		18,079.55
ROTHSCHILD		XM-525	428.92	0.9994	428.663	1		18,099.09
ROTHSCHILD		XM-524	412.1	0.9967	410.74	1		17,342.35
ROTHSCHILD		XM-523	410.6	0.9967	409.245	1		17,279.22
ROTHSCHILD		XM-522	410.58	0.9967	409.225	1		17,278.38
RAND		XL-064	404.29	0.996	402.673	1		17,001.74
RAND		XL-50	404.69	0.9963	403.193	1		17,023.70
RAND		XL-49	403.8	0.9963	402.306	1		16,986.24
RAND		XL-48	404.97	0.996	403.35	1		17,030.32
RAND		XL-47	403.27	0.996	401.657	1		16,958.84
RAND		XL-46	408.62	0.996	406.986	1		17,183.84
RAND		XL-45	404.87	0.996	403.251	1		17,026.14
RAND		XL-44	402.53	0.996	400.92	1		16,927.72
RAND		XL-43	407.17	0.996	405.541	1		17,122.83
RAND		XL-42	405.05	0.996	403.43	1		17,033.70
RAND		XL-41	404.47	0.996	402.852	1		17,009.30
RAND		XL-40	402.92	0.996	401.308	1		16,944.11
RAND		BL-8818	406.85	0.9952	404.897	1		17,095.64
RAND		BL-8817	408.69	0.9952	406.728	1		17,172.95
RAND		BL-8816	403.98	0.9952	402.041	1		16,975.06
RAND		BL-8815	404.16	0.9952	402.22	1		16,982.61
RAND		BL-8814	401.78	0.9952	399.851	1		16,882.59
RAND		BL-8813	404.62	0.9952	402.678	1		17,001.95
RAND		BL-8812	404.02	0.9952	402.081	1		16,976.74
RAND		BL-8811	407.7	0.9952	405.743	1		17,131.36
RAND		BL-8810	406.95	0.9952	404.997	1		17,099.86
RAND		BL-8809	404.87	0.9952	402.927	1		17,012.46
RAND		BL-8808	408.7	0.9952	406.738	1		17,173.37
RAND		BL-8807	405.35	0.9952	403.404	1		17,032.60
RAND		BL-8788	401.95	0.9956	400.181	1		16,896.52
RAND		BL-8787	405.12	0.9956	403.337	1		17,029.78
RAND		BL-8786	401.32	0.9956	399.554	1		16,870.05
RAND		BL-8785	405.1	0.9956	403.318	1		17,028.97
RAND		BL-8784	407.57	0.9956	405.777	1		17,132.80

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8783	403.87	0.9956	402.093	1		16,977.25
RAND		BL-8770	405.28	0.9961	403.699	1		17,045.06
RAND		BL-8769	405.27	0.9961	403.689	1		17,044.64
RAND		BL-8768	405.02	0.9961	403.44	1		17,034.12
RAND		BL-8767	407.27	0.9961	405.682	1		17,128.79
RAND		BL-8766	409.07	0.9961	407.475	1		17,204.49
RAND		BL-8765	402.17	0.9962	400.642	1		16,915.99
RAND		BL-8764	405.57	0.9962	404.029	1		17,058.99
RAND		BL-8627	401.87	0.995	399.861	1		16,883.01
RAND		BL-8626	405.3	0.995	403.274	1		17,027.12
RAND		BL-8624	405.47	0.995	403.443	1		17,034.25
RAND		BL-8623	404.62	0.995	402.597	1		16,998.53
RAND		BL-8622	402.85	0.995	400.836	1		16,924.18
RAND		BL-8621	405.83	0.995	403.801	1		17,049.37
RAND		BL-8620	403.7	0.995	401.682	1		16,959.90
RAND		BL-8619	404.9	0.9964	403.442	1		17,034.21
RAND		BL-8618	403.75	0.9964	402.297	1		16,985.86
RAND		BL-8617	406.3	0.9964	404.837	1		17,093.11
RAND		BL-8616	402.6	0.9964	401.151	1		16,937.48
RAND		BL-8615	402.49	0.9964	401.041	1		16,932.83
RAND		BL-8614	406.47	0.9964	405.007	1		17,100.29
RAND		BL-8606	404.03	0.9957	402.293	1		16,985.70
RAND		BL-8605	402.9	0.9957	401.168	1		16,938.20
RAND		BL-8604	404.08	0.9957	402.342	1		16,987.76
RAND		BL-8603	404.25	0.9957	402.512	1		16,994.94
RAND		BL-8602	403.91	0.9957	402.173	1		16,980.63
RAND		BL-8601	403	0.9957	401.267	1		16,942.38
RAND		BL-8600	404.65	0.9957	402.91	1		17,011.75
RAND		BL-8599	402.1	0.9957	400.371	1		16,904.54
RAND		BL-8598	405.32	0.9957	403.577	1		17,039.91
RAND		BL-8597	405.2	0.9957	403.458	1		17,034.88
RAND		BL-8596	402.12	0.9957	400.391	1		16,905.39
RAND		BL-8583	404.45	0.9957	402.711	1		17,003.34
RAND		BF-1710	404.05	0.9967	402.717	1		17,003.60
RAND		BF-1709	405.4	0.9967	404.062	1		17,060.39
RAND		BF-1708	403.55	0.9966	402.178	1		16,980.84
RAND		BF-1707	403.52	0.9966	402.148	1		16,979.57
RAND		BF-1706	407.85	0.9966	406.463	1		17,161.76
RAND		BF-1705	407.78	0.9966	406.394	1		17,158.85
RAND		BF-1704	406.95	0.9966	405.566	1		17,123.89
RAND		BF-1703	407.17	0.9966	405.786	1		17,133.18
RAND		BF-1702	404.3	0.9966	402.925	1		17,012.38
RAND		BF-1701	404.2	0.9966	402.826	1		17,008.20
RAND		BF-1700	405.17	0.9966	403.792	1		17,048.99
RAND		BF-1699	405.77	0.9966	404.39	1		17,074.24
RAND		BF-1698	404.45	0.9966	403.075	1		17,018.71
RAND		BF-1696	404.3	0.9965	402.885	1		17,010.69
RAND		BF-1695	405	0.9965	403.583	1		17,040.16

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BF-1694	401.55	0.9965	400.145	1		16,895.00
RAND		BF-1693	402.9	0.9965	401.49	1		16,951.79
RAND		BF-1692	404.05	0.9965	402.636	1		17,000.18
RAND		BF-1691	401.37	0.9965	399.965	1		16,887.40
RAND		BF-1690	405.75	0.9959	404.086	1		17,061.40
RAND		BF-1689	407.82	0.9959	406.148	1		17,148.46
RAND		BF-1688	406.22	0.9959	404.554	1		17,081.16
RAND		BF-1687	402.75	0.9959	401.099	1		16,935.28
RAND		BF-1686	407.35	0.9959	405.68	1		17,128.70
RAND		BF-1685	403.47	0.9959	401.816	1		16,965.56
RAND		BL-8763	405.96	0.9962	404.417	1		17,075.38
RAND		BL-8762	403.35	0.9962	401.817	1		16,965.60
RAND		BL-8761	403.25	0.9962	401.718	1		16,961.42
RAND		BL-8760	405.2	0.995	403.174	1		17,022.89
RAND		BL-8759	405.82	0.995	403.791	1		17,048.94
RAND		BL-8758	403.4	0.995	401.383	1		16,947.27
RAND		BL-8757	407.87	0.995	405.831	1		17,135.08
RAND		BL-8756	403.62	0.995	401.602	1		16,956.52
RAND		BL-8755	402.95	0.9951	400.976	1		16,930.09
RAND		BL-8754	403.45	0.9951	401.473	1		16,951.07
RAND		BL-8753	406.75	0.9951	404.757	1		17,089.73
RAND		BL-8752	404.8	0.9951	402.816	1		17,007.78
RAND		BL-8655	406.6	0.9962	405.055	1		17,102.31
RAND		BL-8654	403.37	0.9962	401.837	1		16,966.44
RAND		BL-8653	407.15	0.9962	405.603	1		17,125.45
RAND		BL-8651	404.17	0.9962	402.634	1		17,000.09
RAND		BL-8650	404.77	0.9963	403.272	1		17,027.03
RAND		BL-8649	406.17	0.9963	404.667	1		17,085.93
RAND		BL-8648	405.62	0.9963	404.119	1		17,062.79
RAND		BL-8647	404.9	0.9963	403.402	1		17,032.52
RAND		BL-8646	402.54	0.9963	401.051	1		16,933.26
RAND		BL-8645	403.82	0.9963	402.326	1		16,987.09
RAND		BL-8630	405.22	0.995	403.194	1		17,023.74
RAND		BL-8629	405.45	0.995	403.423	1		17,033.41
RAND		BL-8628	404.52	0.995	402.497	1		16,994.31
RAND		BF-1735	403.45	0.9963	401.957	1		16,971.51
RAND		BF-1734	406.97	0.9963	405.464	1		17,119.58
RAND		BF-1733	404.47	0.9963	402.973	1		17,014.41
RAND		BF-1732	402.85	0.9965	401.44	1		16,949.68
RAND		BF-1731	403.35	0.9965	401.938	1		16,970.71
RAND		BF-1730	403.52	0.9965	402.108	1		16,977.88
RAND		BF-1729	402.42	0.9965	401.012	1		16,931.61
RAND		BF-1728	404.22	0.9965	402.805	1		17,007.31
RAND		BF-1727	406.5	0.9965	405.077	1		17,103.24
RAND		BF-1726	406.2	0.9966	404.819	1		17,092.35
RAND		BF-1725	403.55	0.9966	402.178	1		16,980.84
RAND		BF-1724	406.02	0.9966	404.64	1		17,084.79
RAND		BF-1723	404.95	0.9966	403.573	1		17,039.74

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BF-1722	405.35	0.9966	403.972	1		17,056.59
RAND		BF-1721	407.92	0.9966	406.533	1		17,164.72
RAND		BF-1720	403.9	0.9967	402.567	1		16,997.26
RAND		BF-1719	404.32	0.9967	402.986	1		17,014.96
RAND		BF-1718	401.94	0.9967	400.614	1		16,914.80
RAND		BF-1717	403.5	0.9967	402.168	1		16,980.42
RAND		BF-1716	404.17	0.9967	402.836	1		17,008.62
RAND		BF-1715	403.6	0.9967	402.268	1		16,984.64
RAND		BF-1714	403.47	0.9967	402.139	1		16,979.19
RAND		BF-1713	405.47	0.9967	404.132	1		17,063.34
RAND		BF-1712	406.52	0.9967	405.178	1		17,107.51
RAND		BF-1711	405.4	0.9967	404.062	1		17,060.39
RAND		BF-1760	403.2	0.9965	401.789	1		16,964.42
RAND		BF-1759	402.35	0.9965	400.942	1		16,928.65
RAND		BF-1758	406.25	0.9965	404.828	1		17,092.73
RAND		BF-1757	401.15	0.9965	399.746	1		16,878.16
RAND		BF-1756	404.05	0.9964	402.595	1		16,998.45
RAND		BF-1755	403.45	0.9964	401.998	1		16,973.24
RAND		BF-1754	404.67	0.9964	403.213	1		17,024.54
RAND		BF-1753	404.05	0.9964	402.595	1		16,998.45
RAND		BF-1752	408.67	0.9964	407.199	1		17,192.84
RAND		BF-1751	407.5	0.9964	406.033	1		17,143.61
RAND		BF-1750	404.2	0.9966	402.826	1		17,008.20
RAND		BF-1749	405.3	0.9966	403.922	1		17,054.48
RAND		BF-1748	405.75	0.9966	404.37	1		17,073.39
RAND		BF-1747	405.1	0.9966	403.723	1		17,046.07
RAND		BF-1746	405.4	0.9966	404.022	1		17,058.70
RAND		BF-1745	407.85	0.9966	406.463	1		17,161.76
RAND		BF-1744	404.2	0.9966	402.826	1		17,008.20
RAND		BF-1743	405.4	0.9966	404.022	1		17,058.70
RAND		BF-1742	401.6	0.9966	400.235	1		16,898.80
RAND		BF-1741	403.6	0.9966	402.228	1		16,982.95
RAND		BF-1740	407.35	0.9966	405.965	1		17,140.74
RAND		BF-1739	405.52	0.9966	404.141	1		17,063.72
RAND		BF-1738	404.3	0.9963	402.804	1		17,007.27
RAND		BF-1737	404.95	0.9963	403.452	1		17,034.63
RAND		BF-1736	402.9	0.9963	401.409	1		16,948.37
RAND		XL-39	404.31	0.996	402.693	1		17,002.58
RAND		XL-38	403.03	0.996	401.418	1		16,948.75
RAND		XL-37	404.3	0.996	402.683	1		17,002.16
RAND		XL-36	404.62	0.9958	402.921	1		17,012.21
RAND		XL-35	408.65	0.9958	406.934	1		17,181.65
RAND		XL-34	401.15	0.9958	399.465	1		16,866.29
RAND		XL-33	405.02	0.9958	403.319	1		17,029.02
RAND		XL-32	403.26	0.9958	401.566	1		16,955.00
RAND		XL-31	404.59	0.9958	402.891	1		17,010.94
RAND		XL-30	406.01	0.9958	404.305	1		17,070.65
RAND		XL-29	404.66	0.9958	402.96	1		17,013.86

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		XL-28	406.49	0.9958	404.783	1		17,090.83
RAND		XL-27	403.58	0.9958	401.885	1		16,968.47
RAND		XL-25	406.77	0.9958	405.062	1		17,102.61
RAND		XL-24	402.21	0.9963	400.722	1		16,919.36
RAND		XL-22	404	0.9963	402.505	1		16,994.65
RAND		XL-21	401.21	0.9963	399.726	1		16,877.31
RAND		XL-20	403.18	0.9963	401.688	1		16,960.15
RAND		XL-19	403	0.9963	401.509	1		16,952.59
RAND		XL-18	404.74	0.9961	403.162	1		17,022.39
RAND		XL-17	403.06	0.9961	401.488	1		16,951.71
RAND		XL-16	408.43	0.9961	406.837	1		17,177.55
RAND		XL-15	403.43	0.9961	401.857	1		16,967.29
RAND		XL-14	405.19	0.9961	403.61	1		17,041.30
RAND		AV-8116	401.73	0.9955	399.922	1		16,885.59
RAND		AV-8115	403.4	0.9955	401.585	1		16,955.80
RAND		AV-8114	404.3	0.9955	402.481	1		16,993.63
RAND		AV-8113	402.55	0.9955	400.739	1		16,920.08
RAND		AV-8112	403.53	0.9955	401.714	1		16,961.25
RAND		AV-8110	404.08	0.996	402.464	1		16,992.92
RAND		AV-8109	403.58	0.996	401.966	1		16,971.89
RAND		AV-8107	400.35	0.996	398.749	1		16,836.06
RAND		AV-8106	407.38	0.996	405.75	1		17,131.66
RAND		AV-8105	401.05	0.996	399.446	1		16,865.49
RAND		AV-8104	405.18	0.9966	403.802	1		17,049.41
RAND		AV-8103	405.26	0.9966	403.882	1		17,052.79
RAND		AV-8102	406.1	0.9966	404.719	1		17,088.13
RAND		AV-8101	402.72	0.9966	401.351	1		16,945.92
RAND		AV-8100	402.85	0.9966	401.48	1		16,951.37
RAND		AV-8099	408.93	0.9966	407.54	1		17,207.24
RAND		AV-8098	406.85	0.996	405.223	1		17,109.41
RAND		AV-8097	406.4	0.996	404.774	1		17,090.45
RAND		AV-8096	405.73	0.996	404.107	1		17,062.29
RAND		AV-8095	407.53	0.996	405.9	1		17,137.99
RAND		AV-8094	406.53	0.996	404.904	1		17,095.94
RAND		AV-8093	405.3	0.996	403.679	1		17,044.22
RAND		AV-8092	404.46	0.9961	402.883	1		17,010.61
RAND		AV-8091	404.58	0.9961	403.002	1		17,015.63
RAND		BW-3985	401.25	0.9963	399.765	1		16,878.96
RAND		BW-3984	404.82	0.9963	403.322	1		17,029.14
RAND		BW-3983	402.72	0.9963	401.23	1		16,940.81
RAND		BW-3982	405.45	0.9963	403.95	1		17,055.66
RAND		BW-3981	402.1	0.9966	400.733	1		16,919.83
RAND		BW-3980	403.35	0.9966	401.979	1		16,972.44
RAND		BW-3979	406.18	0.9966	404.799	1		17,091.50
RAND		BW-3978	401.47	0.9966	400.105	1		16,893.31
RAND		BW-3977	402.05	0.9966	400.683	1		16,917.72
RAND		BW-3976	404.8	0.9966	403.424	1		17,033.45
RAND		BW-3185	402.95	0.9955	401.137	1		16,936.89

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-3184	406.61	0.9955	404.78	1		17,090.70
RAND		BW-3183	405.77	0.9955	403.944	1		17,055.40
RAND		BW-3182	406.7	0.9955	404.87	1		17,094.50
RAND		BW-3181	406.67	0.9961	405.084	1		17,103.54
RAND		BW-3180	406.82	0.9961	405.233	1		17,109.83
RAND		BW-3179	404.97	0.9961	403.391	1		17,032.06
RAND		BW-3178	402.75	0.9961	401.179	1		16,938.66
RAND		BW-3177	404.87	0.9961	403.291	1		17,027.83
RAND		BW-3176	402.18	0.9961	400.611	1		16,914.68
RAND		BW-3175	404.82	0.9957	403.079	1		17,018.88
RAND		BW-3174	406.25	0.9957	404.503	1		17,079.01
RAND		BW-3173	403.07	0.9957	401.337	1		16,945.33
RAND		BW-3172	404.77	0.9957	403.029	1		17,016.77
RAND		BW-3171	403.72	0.9957	401.984	1		16,972.65
RAND		BW-3170	402.35	0.9957	400.62	1		16,915.06
RAND		BW-4412	401.07	0.9958	399.386	1		16,862.96
RAND		BW-4411	400.97	0.996	399.366	1		16,862.11
RAND		BW-4410	407.67	0.996	406.039	1		17,143.86
RAND		BW-4409	404.78	0.996	403.161	1		17,022.34
RAND		BW-4408	400.66	0.996	399.057	1		16,849.06
RAND		BW-4407	401.45	0.996	399.844	1		16,882.29
RAND		BW-4406	404.97	0.996	403.35	1		17,030.32
RAND		BW-4405	404.5	0.9961	402.922	1		17,012.25
RAND		BW-4404	406.32	0.9961	404.735	1		17,088.80
RAND		BW-4403	402.57	0.9961	401	1		16,931.10
RAND		BW-4402	404.68	0.9961	403.102	1		17,019.85
RAND		BW-4401	406.85	0.9961	405.263	1		17,111.10
RAND		BW-4400	405.4	0.9961	403.819	1		17,050.13
RAND		BW-4399	404.66	0.9961	403.082	1		17,019.01
RAND		BW-4398	402.1	0.9961	400.532	1		16,911.34
RAND		BW-4397	405.77	0.9961	404.187	1		17,065.66
RAND		BW-4396	403.53	0.9961	401.956	1		16,971.47
RAND		BW-4395	403.12	0.9961	401.548	1		16,954.24
RAND		BW-4394	405.56	0.9961	403.978	1		17,056.84
RAND		BW-4393	404.65	0.9961	403.072	1		17,018.59
RAND		BW-4392	404.28	0.9961	402.703	1		17,003.01
RAND		BW-4391	405.95	0.9961	404.367	1		17,073.26
RAND		BW-4390	404.5	0.9961	402.922	1		17,012.25
RAND		BW-4389	403.13	0.9961	401.558	1		16,954.66
RAND		BG-1237	403.02	0.9969	401.771	1		16,963.66
RAND		BG-1236	406.57	0.9969	405.31	1		17,113.08
RAND		BG-1235	401.65	0.9969	400.405	1		16,905.98
RAND		BG-1234	404.37	0.9962	402.833	1		17,008.50
RAND		BG-1233	407.37	0.9962	405.822	1		17,134.70
RAND		BG-1232	403.8	0.9962	402.266	1		16,984.56
RAND		BG-1231	401.95	0.9962	400.423	1		16,906.74
RAND		BG-1230	406.25	0.9962	404.706	1		17,087.58
RAND		BG-1229	406.64	0.9962	405.095	1		17,104.00

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1228	405.02	0.9965	403.602	1		17,040.96
RAND		BG-1224	405.1	0.9965	403.682	1		17,044.34
RAND		BG-1223	409.3	0.9965	407.867	1		17,221.04
RAND		BG-1222	405.18	0.9961	403.6	1		17,040.88
RAND		BG-1221	406.08	0.9961	404.496	1		17,078.71
RAND		BG-1220	401.67	0.9961	400.103	1		16,893.23
RAND		BG-1219	401.75	0.9961	400.183	1		16,896.61
RAND		BG-1218	405.15	0.9961	403.57	1		17,039.61
RAND		BG-1217	403.82	0.9961	402.245	1		16,983.67
RAND		BG-1216	403.64	0.9962	402.106	1		16,977.80
RAND		BG-1215	406.17	0.9962	404.627	1		17,084.24
RAND		BG-1214	401.85	0.9962	400.323	1		16,902.52
RAND		BG-1213	406.7	0.9962	405.155	1		17,106.54
RAND		BG-1212	406.07	0.9962	404.527	1		17,080.02
RAND		BW-4011	405.98	0.9962	404.437	1		17,076.22
RAND		BW-4010	404.93	0.9962	403.391	1		17,032.06
RAND		BW-4009	402.38	0.9962	400.851	1		16,924.81
RAND		BW-4008	401.92	0.9962	400.393	1		16,905.47
RAND		BW-4007	406.87	0.9962	405.324	1		17,113.67
RAND		BW-4006	404.4	0.9962	402.863	1		17,009.76
RAND		BW-4005	400.02	0.9961	398.46	1		16,823.86
RAND		BW-4004	403.47	0.9961	401.896	1		16,968.93
RAND		BW-4003	401.2	0.9961	399.635	1		16,873.47
RAND		BW-4002	403.5	0.9961	401.926	1		16,970.20
RAND		BW-4001	401.33	0.9961	399.765	1		16,878.96
RAND		BW-4000	403	0.9961	401.428	1		16,949.17
RAND		BW-3999	404.8	0.9965	403.383	1		17,031.72
RAND		BW-3998	405.47	0.9965	404.051	1		17,059.92
RAND		BW-3997	404.25	0.9965	402.835	1		17,008.58
RAND		BW-3996	402.12	0.9965	400.713	1		16,918.98
RAND		BW-3995	405.06	0.9965	403.642	1		17,042.65
RAND		BW-3994	407.9	0.9965	406.472	1		17,162.14
RAND		BW-3992	403.02	0.9964	401.569	1		16,955.13
RAND		BW-3991	404.82	0.9964	403.363	1		17,030.87
RAND		BW-3990	403.25	0.9964	401.798	1		16,964.80
RAND		BW-3989	402.15	0.9964	400.702	1		16,918.52
RAND		BW-3988	407.13	0.9964	405.664	1		17,128.03
RAND		BW-3987	400.82	0.9963	399.337	1		16,860.89
RAND		BW-3986	403.4	0.9963	401.907	1		16,969.40
RAND		BG-1262	403.35	0.9964	401.898	1		16,969.02
RAND		BG-1261	405.52	0.9969	404.263	1		17,068.87
RAND		BG-1260	406.02	0.9969	404.761	1		17,089.90
RAND		BG-1259	403.48	0.9969	402.229	1		16,982.99
RAND		BG-1258	403.15	0.9969	401.9	1		16,969.10
RAND		BG-1257	407.1	0.9969	405.838	1		17,135.37
RAND		BG-1256	401.18	0.997	399.976	1		16,887.87
RAND		BG-1255	401.1	0.997	399.897	1		16,884.53
RAND		BG-1254	404.42	0.997	403.207	1		17,024.29

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1253	406	0.997	404.782	1		17,090.79
RAND		BG-1252	404.89	0.9965	403.473	1		17,035.52
RAND		BG-1251	400.36	0.9965	398.959	1		16,844.93
RAND		BG-1250	408.07	0.9965	406.642	1		17,169.32
RAND		BG-1249	408.15	0.9965	406.721	1		17,172.66
RAND		BG-1248	402.15	0.9965	400.742	1		16,920.21
RAND		BG-1247	405.75	0.9965	404.33	1		17,071.70
RAND		BG-1246	405.35	0.9965	403.931	1		17,054.86
RAND		BG-1245	402.25	0.9965	400.842	1		16,924.43
RAND		BG-1244	403.82	0.9965	402.407	1		16,990.51
RAND		BG-1243	405.09	0.9965	403.672	1		17,043.92
RAND		BG-1242	405.09	0.9965	403.672	1		17,043.92
RAND		BG-1241	407.51	0.9965	406.084	1		17,145.76
RAND		BG-1240	404.46	0.9969	403.206	1		17,024.24
RAND		BG-1239	405.15	0.9969	403.894	1		17,053.29
RAND		BG-1238	403.29	0.9969	402.04	1		16,975.01
RAND		BM-1120	405.1	0.9963	403.601	1		17,040.92
RAND		BM-1119	403.17	0.9963	401.678	1		16,959.73
RAND		BM-1118	401.4	0.9963	399.915	1		16,885.29
RAND		BM-1117	402.55	0.997	401.342	1		16,945.54
RAND		BM-1116	400.76	0.997	399.558	1		16,870.22
RAND		BM-1115	403.5	0.997	402.29	1		16,985.57
RAND		BM-1114	400.5	0.997	399.299	1		16,859.28
RAND		BM-1113	402.13	0.997	400.924	1		16,927.89
RAND		BM-1112	400.2	0.997	398.999	1		16,846.62
RAND		BM-1111	401.72	0.9965	400.314	1		16,902.14
RAND		BM-1110	407	0.9965	405.576	1		17,124.31
RAND		BM-1109	404.82	0.9965	403.403	1		17,032.56
RAND		BM-1108	401.37	0.9965	399.965	1		16,887.40
RAND		BM-1107	404.82	0.9965	403.403	1		17,032.56
RAND		BM-1105	405.42	0.9969	404.163	1		17,064.65
RAND		BM-1104	409.3	0.9969	408.031	1		17,227.97
RAND		BM-1103	403.55	0.9969	402.299	1		16,985.95
RAND		BM-1102	404.2	0.9969	402.947	1		17,013.31
RAND		BM-1100	403.77	0.9969	402.518	1		16,995.20
RAND		BM-1099	404.18	0.9967	402.846	1		17,009.04
RAND		BM-1098	402.09	0.9967	400.763	1		16,921.10
RAND		BM-1097	404.66	0.9967	403.325	1		17,029.27
RAND		BM-1096	400.15	0.9967	398.83	1		16,839.48
RAND		BM-1095	401.75	0.9967	400.424	1		16,906.78
RAND		BM-1094	402.17	0.9967	400.843	1		16,924.47
RAND		BG-3078	403.6	0.9961	402.026	1		16,974.42
RAND		BG-3077	402.2	0.9961	400.631	1		16,915.52
RAND		BG-3076	405.54	0.9961	403.958	1		17,056.00
RAND		BG-3075	401.37	0.9961	399.805	1		16,880.65
RAND		BG-3073	404.75	0.9961	403.171	1		17,022.77
RAND		BG-3072	403.3	0.9961	401.727	1		16,961.80
RAND		BG-3071	404.46	0.9961	402.883	1		17,010.61

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-3070	403.6	0.9961	402.026	1		16,974.42
RAND		BG-3069	402.68	0.9961	401.11	1		16,935.75
RAND		BG-3068	406.57	0.996	404.944	1		17,097.63
RAND		BG-3067	403.58	0.996	401.966	1		16,971.89
RAND		BG-3066	403.09	0.996	401.478	1		16,951.28
RAND		BG-3065	403.3	0.996	401.687	1		16,960.11
RAND		BG-3064	404.22	0.996	402.603	1		16,998.78
RAND		BG-3063	402.78	0.996	401.169	1		16,938.24
RAND		BG-3062	404.4	0.9956	402.621	1		16,999.54
RAND		BG-3061	402.45	0.9956	400.679	1		16,917.55
RAND		BG-3060	402.43	0.9956	400.659	1		16,916.70
RAND		BG-3059	402.48	0.9956	400.709	1		16,918.82
RAND		BG-3058	404.39	0.9956	402.611	1		16,999.12
RAND		BG-3057	403.58	0.9956	401.804	1		16,965.05
RAND		BG-3056	403.1	0.9957	401.367	1		16,946.60
RAND		BG-3055	404.18	0.9957	402.442	1		16,991.99
RAND		BG-3054	403.41	0.9957	401.675	1		16,959.60
RAND		BG-3053	405.76	0.9957	404.015	1		17,058.40
RAND		BG-3228	403.32	0.9959	401.666	1		16,959.22
RAND		BG-3227	407.08	0.9959	405.411	1		17,117.34
RAND		BG-3226	400.95	0.9959	399.306	1		16,859.58
RAND		BG-3225	405.18	0.996	403.559	1		17,039.15
RAND		BG-3224	403.3	0.996	401.687	1		16,960.11
RAND		BG-3223	405.22	0.996	403.599	1		17,040.84
RAND		BG-3222	404.4	0.996	402.782	1		17,006.34
RAND		BG-3205	403.9	0.9956	402.123	1		16,978.52
RAND		BG-3204	406.75	0.9956	404.96	1		17,098.30
RAND		BG-3203	402.28	0.9956	400.51	1		16,910.41
RAND		BG-3202	403.3	0.9956	401.525	1		16,953.27
RAND		BG-3201	403.89	0.9956	402.113	1		16,978.10
RAND		BG-3200	403.7	0.9956	401.924	1		16,970.12
RAND		BG-3199	402.08	0.9956	400.311	1		16,902.01
RAND		BG-3198	404.97	0.9956	403.188	1		17,023.48
RAND		BG-3197	404	0.9956	402.222	1		16,982.70
RAND		BG-3196	404.75	0.9956	402.969	1		17,014.24
RAND		BG-3195	405.61	0.9956	403.825	1		17,050.38
RAND		BG-3194	401.6	0.9956	399.833	1		16,881.83
RAND		BG-3193	403.89	0.996	402.274	1		16,984.89
RAND		BG-3192	405.53	0.996	403.908	1		17,053.88
RAND		BG-3191	404.2	0.996	402.583	1		16,997.94
RAND		BG-3190	403.56	0.996	401.946	1		16,971.04
RAND		BG-3189	405.19	0.996	403.569	1		17,039.57
RAND		BG-3188	404.67	0.996	403.051	1		17,017.70
RAND		BG-2905	405.91	0.996	404.286	1		17,069.84
RAND		BG-2904	403.05	0.996	401.438	1		16,949.60
RAND		BG-2903	402.56	0.996	400.95	1		16,928.99
RAND		BG-2902	405.02	0.996	403.4	1		17,032.44
RAND		BG-2901	405.82	0.996	404.197	1		17,066.09

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-2900	402.53	0.9953	400.638	1		16,915.82
RAND		BG-2899	405.11	0.9953	403.206	1		17,024.24
RAND		BG-2898	402.34	0.9953	400.449	1		16,907.84
RAND		BG-2897	403.92	0.9953	402.022	1		16,974.25
RAND		BG-2896	402.95	0.9953	401.056	1		16,933.47
RAND		BG-2895	404.9	0.9953	402.997	1		17,015.42
RAND		BG-2894	404.36	0.9953	402.466	1		16,992.75
RAND		BG-2893	402.98	0.9953	401.086	1		16,934.73
RAND		BG-2892	402.51	0.9953	400.618	1		16,914.97
RAND		BG-2891	401.83	0.9953	399.941	1		16,886.39
RAND		BG-2890	405.6	0.9953	403.694	1		17,044.85
RAND		BG-2889	404.37	0.9953	402.469	1		16,993.13
RAND		BG-2888	401.66	0.9956	399.893	1		16,884.36
RAND		BG-2887	403.57	0.9956	401.794	1		16,964.63
RAND		BG-2886	405.46	0.9956	403.676	1		17,044.09
RAND		BG-2884	404.14	0.9956	402.362	1		16,988.61
RAND		BG-2883	406.45	0.9956	404.662	1		17,085.72
RAND		BG-2882	402.26	0.9956	400.49	1		16,909.57
RAND		BG-2881	405.82	0.9956	404.034	1		17,059.20
RAND		BG-2880	403.84	0.9956	402.063	1		16,975.98
RAND		BG-3302	403.4	0.9958	401.706	1		16,960.91
RAND		BG-3301	404.2	0.9958	402.502	1		16,994.52
RAND		BG-3300	403.2	0.9957	401.466	1		16,950.78
RAND		BG-3299	403.45	0.9957	401.715	1		16,961.29
RAND		BG-3298	404.5	0.9957	402.761	1		17,005.46
RAND		BG-3297	401.65	0.9957	399.923	1		16,885.63
RAND		BG-3296	402.95	0.9957	401.217	1		16,940.26
RAND		BG-3282	404.63	0.995	402.607	1		16,998.95
RAND		BG-3281	404.65	0.995	402.627	1		16,999.80
RAND		BG-3280	402.48	0.995	400.468	1		16,908.64
RAND		BG-3279	404.03	0.995	402.01	1		16,973.75
RAND		BG-3278	403.9	0.995	401.881	1		16,968.30
RAND		BG-3277	405.51	0.995	403.482	1		17,035.90
RAND		BG-3276	403.15	0.995	401.134	1		16,936.76
RAND		BG-3275	405.03	0.995	403.005	1		17,015.76
RAND		BG-3274	403.2	0.995	401.184	1		16,938.87
RAND		BG-3273	402.37	0.995	400.358	1		16,904.00
RAND		BG-3272	405.95	0.995	403.92	1		17,054.39
RAND		BG-3271	404.03	0.995	402.01	1		16,973.75
RAND		BG-3234	405.98	0.996	404.356	1		17,072.80
RAND		BG-3233	402.19	0.996	400.581	1		16,913.41
RAND		BG-3232	404.98	0.996	403.36	1		17,030.75
RAND		BG-3231	403.48	0.996	401.866	1		16,967.67
RAND		BG-3230	405.05	0.9959	403.389	1		17,031.97
RAND		BG-3229	402.03	0.9959	400.382	1		16,905.01
RAND		BG-1343	404.62	0.9952	402.678	1		17,001.95
RAND		BG-1342	406.05	0.9952	404.101	1		17,062.03
RAND		BG-1341	406.07	0.9952	404.121	1		17,062.88

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1340	403.77	0.9951	401.792	1		16,964.54
RAND		BG-1339	403.6	0.9951	401.622	1		16,957.36
RAND		BG-1338	405.77	0.9951	403.782	1		17,048.56
RAND		BG-1337	402.63	0.9951	400.657	1		16,916.62
RAND		BG-1336	405.7	0.9951	403.712	1		17,045.61
RAND		BG-1335	402.65	0.9951	400.677	1		16,917.46
RAND		BG-1333	402.47	0.9971	401.303	1		16,943.90
RAND		BG-1332	404.15	0.9971	402.978	1		17,014.62
RAND		BG-1331	404.85	0.9971	403.676	1		17,044.09
RAND		BG-1330	404.71	0.9971	403.536	1		17,038.18
RAND		BG-1327	404.17	0.9957	402.432	1		16,991.56
RAND		BG-1326	406.45	0.9957	404.702	1		17,087.41
RAND		BG-1325	403.07	0.9957	401.337	1		16,945.33
RAND		BG-1324	403.54	0.9957	401.805	1		16,965.09
RAND		BG-1323	400.58	0.9957	398.858	1		16,840.66
RAND		BG-1322	403.85	0.9964	402.396	1		16,990.04
RAND		BG-1321	403.87	0.9964	402.416	1		16,990.89
RAND		BG-1319	402.87	0.9964	401.42	1		16,948.84
RAND		BG-1318	403.98	0.9964	402.526	1		16,995.53
RAND		BM-730	405.95	0.9966	404.57	1		17,081.84
RAND		BM-729	408.5	0.9965	407.07	1		17,187.39
RAND		BM-728	403.6	0.9965	402.187	1		16,981.22
RAND		BM-727	401.72	0.9965	400.314	1		16,902.14
RAND		BM-726	407.01	0.9965	405.585	1		17,124.69
RAND		BM-724	405.9	0.9965	404.479	1		17,077.99
RAND		BM-718	403.52	0.9965	402.108	1		16,977.88
RAND		BM-717	404.25	0.9965	402.835	1		17,008.58
RAND		BM-716	404.45	0.9965	403.034	1		17,016.98
RAND		BM-715	404.52	0.9965	403.104	1		17,019.94
RAND		BM-714	406.16	0.9965	404.738	1		17,088.93
RAND		BM-713	406.5	0.9965	405.077	1		17,103.24
RAND		BM-712	404.17	0.9963	402.675	1		17,001.82
RAND		BM-711	407.95	0.9963	406.441	1		17,160.83
RAND		BM-710	404.5	0.9963	403.003	1		17,015.67
RAND		BM-709	407.75	0.9963	406.241	1		17,152.39
RAND		XL-172	403.02	0.9957	401.287	1		16,943.22
RAND		XL-171	405.69	0.9957	403.946	1		17,055.49
RAND		XL-170	402.59	0.9957	400.859	1		16,925.15
RAND		XL-169	405.41	0.9958	403.707	1		17,045.40
RAND		XL-168	407.79	0.9958	406.077	1		17,145.46
RAND		XL-167	405.92	0.9958	404.215	1		17,066.85
RAND		XL-166	404.77	0.9958	403.07	1		17,018.50
RAND		XL-165	407.75	0.9958	406.037	1		17,143.78
RAND		XL-164	404.62	0.9958	402.921	1		17,012.21
RAND		XL-163	403.66	0.9958	401.965	1		16,971.85
RAND		XL-162	402.6	0.9958	400.909	1		16,927.26
RAND		XL-161	408.47	0.9958	406.754	1		17,174.05
RAND		XL-160	403.75	0.9958	402.054	1		16,975.60

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		XL-159	406.51	0.9958	404.803	1		17,091.67
RAND		XL-158	404.52	0.9958	402.821	1		17,007.99
RAND		XL-157	407.87	0.9961	406.279	1		17,153.99
RAND		XL-156	402.03	0.9961	400.462	1		16,908.39
RAND		XL-155	406.42	0.9961	404.835	1		17,093.02
RAND		XL-154	403.89	0.9961	402.315	1		16,986.62
RAND		XL-153	406.12	0.9961	404.536	1		17,080.40
RAND		XL-152	404.88	0.9961	403.301	1		17,028.26
RAND		XL-151	402.07	0.9958	400.381	1		16,904.97
RAND		XL-150	406.78	0.9958	405.072	1		17,103.03
RAND		XL-149	408.19	0.9958	406.476	1		17,162.31
RAND		XL-148	407.53	0.9958	405.818	1		17,134.53
RAND		BF-1878	404.82	0.9969	403.565	1		17,039.40
RAND		BF-1876	407.95	0.9963	406.441	1		17,160.83
RAND		BF-1875	402.92	0.9963	401.429	1		16,949.22
RAND		BF-1874	406.75	0.9963	405.245	1		17,110.34
RAND		BF-1873	405.4	0.9963	403.9	1		17,053.55
RAND		BF-1866	402.4	0.9959	400.75	1		16,920.55
RAND		BF-1865	405.15	0.9959	403.489	1		17,036.19
RAND		BF-1864	403.02	0.9959	401.368	1		16,946.64
RAND		BF-1863	402.75	0.9959	401.099	1		16,935.28
RAND		BF-1862	405.42	0.9959	403.758	1		17,047.55
RAND		BF-1861	404.97	0.9959	403.31	1		17,028.64
RAND		BF-1860	406.12	0.9963	404.617	1		17,083.82
RAND		BF-1859	406.37	0.9963	404.866	1		17,094.33
RAND		BF-1858	405.95	0.9963	404.448	1		17,076.68
RAND		BF-1857	403	0.9963	401.509	1		16,952.59
RAND		BF-1856	404.35	0.9963	402.854	1		17,009.38
RAND		BF-1855	406.97	0.9962	405.424	1		17,117.89
RAND		BF-1854	405.79	0.9962	404.248	1		17,068.24
RAND		BF-1853	406.72	0.9962	405.174	1		17,107.34
RAND		BF-1852	401.17	0.9962	399.646	1		16,873.93
RAND		BF-1851	404.67	0.9962	403.132	1		17,021.12
RAND		BF-1850	409.6	0.9962	408.044	1		17,228.52
RAND		BG-1265	408.92	0.9964	407.448	1		17,203.35
RAND		BG-1264	407.57	0.9964	406.103	1		17,146.56
RAND		BG-1263	407.52	0.9964	406.053	1		17,144.45
RAND		AV-8293	402.05	0.9966	400.683	1		16,917.72
RAND		AV-8292	404.3	0.9966	402.925	1		17,012.38
RAND		AV-8291	402.6	0.9966	401.231	1		16,940.86
RAND		AV-8290	402.78	0.9961	401.209	1		16,939.93
RAND		AV-8289	404.88	0.9961	403.301	1		17,028.26
RAND		AV-8288	406.6	0.9961	405.014	1		17,100.58
RAND		AV-8287	403.51	0.9968	402.219	1		16,982.57
RAND		AV-8286	405.3	0.9968	404.003	1		17,057.90
RAND		AV-8285	401.58	0.9968	400.295	1		16,901.34
RAND		AV-8283	404.9	0.9962	403.361	1		17,030.79
RAND		AV-8282	403.65	0.9962	402.116	1		16,978.22

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		AV-8281	403.25	0.9962	401.718	1		16,961.42
RAND		AV-8280	403.23	0.9962	401.698	1		16,960.57
RAND		AV-8279	402.9	0.9962	401.369	1		16,946.68
RAND		AV-8278	401.93	0.9958	400.242	1		16,899.10
RAND		AV-8277	405.05	0.9958	403.349	1		17,030.28
RAND		AV-8276	405.65	0.9958	403.946	1		17,055.49
RAND		AV-8275	405.15	0.9958	403.448	1		17,034.46
RAND		AV-8274	404.1	0.9956	402.322	1		16,986.92
RAND		AV-8273	401.55	0.9956	399.783	1		16,879.72
RAND		AV-8272	406.35	0.9956	404.562	1		17,081.50
RAND		AV-8271	405.6	0.9956	403.815	1		17,049.96
RAND		AV-8270	404.18	0.9964	402.725	1		17,003.94
RAND		AV-8269	405.8	0.9964	404.339	1		17,072.08
RAND		AV-8268	404.53	0.9964	403.074	1		17,018.67
RAND		BG-2723	402.5	0.9957	400.769	1		16,921.35
RAND		BG-2722	404.17	0.9957	402.432	1		16,991.56
RAND		BG-2721	403.71	0.9957	401.974	1		16,972.23
RAND		BG-2720	405.6	0.9957	403.856	1		17,051.69
RAND		BG-2719	403.41	0.9957	401.675	1		16,959.60
RAND		BG-2718	404.4	0.9959	402.742	1		17,004.65
RAND		BG-2717	403.75	0.9959	402.095	1		16,977.34
RAND		BG-2716	405.47	0.9959	403.808	1		17,049.66
RAND		BG-2715	405.47	0.9959	403.808	1		17,049.66
RAND		BG-2714	402.08	0.9959	400.431	1		16,907.08
RAND		BG-2713	406.12	0.9955	404.292	1		17,070.10
RAND		BG-2712	405.91	0.9955	404.083	1		17,061.27
RAND		BG-2711	401.74	0.9955	399.932	1		16,886.01
RAND		BG-2710	404.75	0.9955	402.929	1		17,012.55
RAND		BG-2709	405.52	0.9955	403.695	1		17,044.89
RAND		BG-2708	401.92	0.9955	400.111	1		16,893.57
RAND		BG-2707	402.82	0.9954	400.967	1		16,929.71
RAND		BG-2706	405.22	0.9954	403.356	1		17,030.58
RAND		BG-2705	401.5	0.9954	399.653	1		16,874.23
RAND		BG-2704	402.97	0.9954	401.116	1		16,936.00
RAND		BG-2703	405.2	0.9954	403.336	1		17,029.73
RAND		BG-2702	402.56	0.9954	400.708	1		16,918.77
RAND		BG-2701	405.09	0.9962	403.551	1		17,038.81
RAND		BG-2700	405.67	0.9962	404.128	1		17,063.17
RAND		BG-2699	403.37	0.9962	401.837	1		16,966.44
RAND		BL-9650	405.55	0.9957	403.806	1		17,049.58
RAND		BL-9649	402.82	0.9957	401.088	1		16,934.82
RAND		BL-9648	405.4	0.9957	403.657	1		17,043.29
RAND		BL-9647	404.35	0.9957	402.611	1		16,999.12
RAND		BL-9646	402.08	0.9955	400.271	1		16,900.32
RAND		BL-9645	403.26	0.9955	401.445	1		16,949.89
RAND		BL-9644	405.42	0.9955	403.596	1		17,040.71
RAND		BL-9643	402.9	0.9955	401.087	1		16,934.78
RAND		BL-9642	403.03	0.9955	401.216	1		16,940.22

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9641	403.05	0.9955	401.236	1		16,941.07
RAND		BL-9640	405.47	0.9955	403.645	1		17,042.78
RAND		BL-9623	403.33	0.9953	401.434	1		16,949.43
RAND		BL-9622	405.16	0.9953	403.256	1		17,026.36
RAND		BL-9584	402.6	0.996	400.99	1		16,930.68
RAND		BL-9583	406.97	0.996	405.342	1		17,114.43
RAND		BL-9580	403.42	0.9963	401.927	1		16,970.24
RAND		BL-9579	401.1	0.9963	399.616	1		16,872.67
RAND		BL-9578	402.62	0.9963	401.13	1		16,936.59
RAND		BL-9577	400.87	0.9963	399.387	1		16,863.00
RAND		BL-9576	405.7	0.9963	404.199	1		17,066.17
RAND		BL-9575	404.9	0.9965	403.483	1		17,035.94
RAND		BL-9574	405.15	0.9965	403.732	1		17,046.45
RAND		BL-9573	401.85	0.9965	400.444	1		16,907.63
RAND		BL-9565	402.16	0.996	400.551	1		16,912.14
RAND		BL-9564	407.7	0.996	406.069	1		17,145.13
RAND		BL-8582	406.5	0.9957	404.752	1		17,089.52
RAND		BL-8581	403.65	0.9957	401.914	1		16,969.69
RAND		BL-8580	406.7	0.9957	404.951	1		17,097.92
RAND		BL-8579	403.1	0.9957	401.367	1		16,946.60
RAND		BL-8578	403.91	0.9957	402.173	1		16,980.63
RAND		BL-8577	404.81	0.9952	402.867	1		17,009.93
RAND		BL-8576	404.57	0.9952	402.628	1		16,999.84
RAND		BL-8575	405.25	0.9952	403.305	1		17,028.42
RAND		BL-8574	404.33	0.9952	402.389	1		16,989.75
RAND		BL-8573	402.77	0.9952	400.837	1		16,924.22
RAND		BL-8572	409.23	0.9952	407.266	1		17,195.67
RAND		BL-8553	403.46	0.9952	401.523	1		16,953.18
RAND		BL-8552	405.9	0.9952	403.952	1		17,055.74
RAND		BL-8551	405.52	0.9952	403.574	1		17,039.78
RAND		BL-8550	402.25	0.9952	400.319	1		16,902.35
RAND		BL-8549	403.57	0.9952	401.633	1		16,957.83
RAND		BL-8548	404.55	0.9952	402.608	1		16,999.00
RAND		BL-8547	405.58	0.995	403.552	1		17,038.85
RAND		BL-8546	407.8	0.995	405.761	1		17,132.12
RAND		BL-8545	403.93	0.995	401.91	1		16,969.52
RAND		BL-8544	403.84	0.995	401.821	1		16,965.77
RAND		BL-8543	407.15	0.995	405.114	1		17,104.80
RAND		BL-8542	402.88	0.995	400.866	1		16,925.44
RAND		BL-8541	406.2	0.9959	404.535	1		17,080.36
RAND		BL-8540	406.22	0.9959	404.554	1		17,081.16
RAND		BL-8869	401.27	0.9956	399.504	1		16,867.94
RAND		BL-8868	405.5	0.9956	403.716	1		17,045.78
RAND		BL-8867	406.79	0.9956	405	1		17,099.99
RAND		BL-8866	407.92	0.9956	406.125	1		17,147.49
RAND		BL-8865	407.57	0.9956	405.777	1		17,132.80
RAND		BL-8864	406.66	0.9956	404.871	1		17,094.54
RAND		BL-8863	405.21	0.9956	403.427	1		17,033.58

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8862	409.52	0.9956	407.718	1		17,214.75
RAND		BL-8861	407.77	0.9956	405.976	1		17,141.20
RAND		BL-8860	404.5	0.9956	402.72	1		17,003.72
RAND		BL-8840	404.9	0.9962	403.361	1		17,030.79
RAND		BL-8839	404.3	0.9962	402.764	1		17,005.58
RAND		BL-8838	408.01	0.9962	406.46	1		17,161.64
RAND		BL-8837	408.05	0.9962	406.499	1		17,163.28
RAND		BL-8836	407.95	0.9962	406.4	1		17,159.10
RAND		BL-8835	408.27	0.9963	406.759	1		17,174.26
RAND		BL-8834	404	0.9963	402.505	1		16,994.65
RAND		BL-8833	405.97	0.9963	404.468	1		17,077.53
RAND		BL-8832	406.8	0.9963	405.295	1		17,112.45
RAND		BL-8831	405.92	0.9963	404.418	1		17,075.42
RAND		BL-8830	401.6	0.9963	400.114	1		16,893.69
RAND		BL-8823	404.92	0.995	402.895	1		17,011.11
RAND		BL-8822	404.8	0.995	402.776	1		17,006.09
RAND		BL-8821	404.17	0.995	402.149	1		16,979.62
RAND		BL-8820	403.35	0.995	401.333	1		16,945.16
RAND		BW-4038	405.48	0.9964	404.02	1		17,058.61
RAND		BW-4037	402.77	0.9964	401.32	1		16,944.61
RAND		BW-4036	404.02	0.9964	402.566	1		16,997.22
RAND		BW-4035	405.55	0.9964	404.09	1		17,061.57
RAND		BW-4034	405.12	0.9964	403.662	1		17,043.50
RAND		BW-4033	402.43	0.9964	400.981	1		16,930.30
RAND		BW-4032	407.42	0.9964	405.953	1		17,140.23
RAND		BW-4031	405.83	0.9964	404.369	1		17,073.35
RAND		BW-4030	402.6	0.9964	401.151	1		16,937.48
RAND		BW-4029	404.96	0.9964	403.502	1		17,036.74
RAND		BW-4028	407.41	0.9964	405.943	1		17,139.81
RAND		BW-4025	402.5	0.9966	401.132	1		16,936.68
RAND		BW-4024	405.1	0.9966	403.723	1		17,046.07
RAND		BW-4023	402.65	0.9966	401.281	1		16,942.97
RAND		BW-4022	404.6	0.9965	403.184	1		17,023.32
RAND		BW-4021	403.32	0.9965	401.908	1		16,969.44
RAND		BW-4020	401.7	0.9965	400.294	1		16,901.29
RAND		BW-4019	402.4	0.9965	400.992	1		16,930.76
RAND		BW-4018	406.55	0.9965	405.127	1		17,105.35
RAND		BW-4017	405.83	0.9965	404.41	1		17,075.08
RAND		BW-4016	402.62	0.9962	401.09	1		16,934.90
RAND		BW-4015	401.7	0.9962	400.174	1		16,896.23
RAND		BW-4014	404.85	0.9962	403.312	1		17,028.72
RAND		BW-4013	405.51	0.9962	403.969	1		17,056.46
RAND		BW-4012	403.6	0.9962	402.066	1		16,976.11
RAND		BW-4599	406.45	0.9957	404.702	1		17,087.41
RAND		BW-4598	404.82	0.9958	403.12	1		17,020.61
RAND		BW-4597	405.56	0.9958	403.857	1		17,051.73
RAND		BW-4596	402.82	0.9958	401.128	1		16,936.51
RAND		BW-4595	403.4	0.9958	401.706	1		16,960.91

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-4594	401.85	0.9958	400.162	1		16,895.72
RAND		BW-4593	403.65	0.9958	401.955	1		16,971.42
RAND		BW-4592	403.18	0.9952	401.245	1		16,941.45
RAND		BW-4591	403.17	0.9952	401.235	1		16,941.02
RAND		BW-4590	401.9	0.9952	399.971	1		16,887.66
RAND		BW-4589	402.3	0.9952	400.369	1		16,904.46
RAND		BW-4588	404.01	0.9952	402.071	1		16,976.32
RAND		BW-4587	400.32	0.9952	398.398	1		16,821.24
RAND		BW-4586	405.3	0.9966	403.922	1		17,054.48
RAND		BW-4585	405.21	0.9966	403.832	1		17,050.68
RAND		BW-4584	403.77	0.9966	402.397	1		16,990.09
RAND		BW-4583	407.31	0.9966	405.925	1		17,139.05
RAND		BW-4582	403.03	0.9966	401.66	1		16,958.97
RAND		BW-4581	404.66	0.9966	403.284	1		17,027.54
RAND		BW-4580	404.3	0.9966	402.925	1		17,012.38
RAND		BW-4578	402.8	0.9965	401.39	1		16,947.57
RAND		BW-4577	403.08	0.9965	401.669	1		16,959.35
RAND		BW-4576	400.06	0.9965	398.66	1		16,832.30
RAND		BW-4574	402.4	0.9965	400.992	1		16,930.76
RAND		BW-4573	407.27	0.9965	405.845	1		17,135.67
RAND		BW-4572	405.52	0.9965	404.101	1		17,062.03
RAND		BW-4571	403.35	0.9965	401.938	1		16,970.71
RAND		BW-4570	407.46	0.9965	406.034	1		17,143.65
RAND		BW-4569	405.75	0.9965	404.33	1		17,071.70
RAND		BW-4568	404.6	0.9961	403.022	1		17,016.48
RAND		BW-4567	405.15	0.9961	403.57	1		17,039.61
RAND		BW-4566	402.2	0.9961	400.631	1		16,915.52
RAND		BW-4565	402.77	0.9961	401.199	1		16,939.50
RAND		BW-4564	403.5	0.9961	401.926	1		16,970.20
RAND		BW-4563	403.6	0.9961	402.026	1		16,974.42
RAND		BW-4562	404.52	0.9964	403.064	1		17,018.25
RAND		BW-4561	403.69	0.9964	402.237	1		16,983.33
RAND		BW-4560	403.7	0.9964	402.247	1		16,983.75
RAND		BW-4559	401.45	0.9964	400.005	1		16,889.09
RAND		BW-4558	402.72	0.9964	401.27	1		16,942.50
RAND		BW-4557	404.17	0.9964	402.715	1		17,003.51
RAND		BW-4556	402.52	0.9964	401.071	1		16,934.10
RAND		BW-4555	404.07	0.9964	402.615	1		16,999.29
RAND		BW-4554	404.5	0.9964	403.044	1		17,017.40
RAND		BW-4553	400.67	0.9964	399.228	1		16,856.28
RAND		BF-1924	404.55	0.9963	403.053	1		17,017.78
RAND		BF-1923	404.82	0.9963	403.322	1		17,029.14
RAND		BF-1922	401.55	0.9963	400.064	1		16,891.58
RAND		BF-1921	402.77	0.9963	401.28	1		16,942.92
RAND		BF-1920	401.22	0.9963	399.735	1		16,877.69
RAND		BF-1919	404.4	0.9971	403.227	1		17,025.13
RAND		BF-1918	406.67	0.9971	405.491	1		17,120.72
RAND		BF-1917	407.3	0.9971	406.119	1		17,147.24

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BF-1916	407.47	0.9971	406.288	1		17,154.37
RAND		BF-1915	407.02	0.9971	405.84	1		17,135.46
RAND		BF-1914	407.27	0.9971	406.089	1		17,145.97
RAND		BF-1913	406.42	0.9967	405.079	1		17,103.33
RAND		BF-1912	407.17	0.9967	405.826	1		17,134.87
RAND		BF-1911	406.02	0.9967	404.68	1		17,086.48
RAND		BF-1910	406.32	0.9967	404.979	1		17,099.10
RAND		BF-1909	404.85	0.9967	403.514	1		17,037.25
RAND		BF-1908	405.1	0.9967	403.763	1		17,047.76
RAND		BF-1907	405.62	0.9961	404.038	1		17,059.37
RAND		BF-1906	405.15	0.9961	403.57	1		17,039.61
RAND		BF-1905	402	0.9961	400.432	1		16,907.12
RAND		BF-1904	402.85	0.9961	401.279	1		16,942.88
RAND		BM-671	404.41	0.9966	403.035	1		17,017.02
RAND		BM-670	404	0.9958	402.303	1		16,986.12
RAND		BM-669	407.12	0.9958	405.41	1		17,117.30
RAND		BM-668	405.46	0.9958	403.757	1		17,047.51
RAND		BM-667	404.29	0.9958	402.592	1		16,998.32
RAND		BM-666	404.77	0.9958	403.07	1		17,018.50
RAND		BM-665	405.6	0.9958	403.896	1		17,053.38
RAND		BM-658	409.32	0.9961	407.724	1		17,215.00
RAND		BM-657	404.99	0.9961	403.411	1		17,032.90
RAND		BM-656	401.85	0.9961	400.283	1		16,900.83
RAND		BM-655	402.09	0.9961	400.522	1		16,910.92
RAND		BM-654	404.32	0.9961	402.743	1		17,004.70
RAND		BM-653	404.55	0.9961	402.972	1		17,014.36
RAND		BM-646	407.95	0.997	406.726	1		17,172.87
RAND		BM-645	405.6	0.997	404.383	1		17,073.94
RAND		BM-644	404.45	0.997	403.237	1		17,025.55
RAND		BM-643	405.97	0.997	404.752	1		17,089.52
RAND		BM-642	404.65	0.997	403.436	1		17,033.96
RAND		BM-641	403.27	0.997	402.06	1		16,975.86
RAND		BM-640	405.59	0.9963	404.089	1		17,061.53
RAND		BM-639	405.5	0.9963	404	1		17,057.77
RAND		BM-638	403.25	0.9963	401.758	1		16,963.11
RAND		BM-637	402.55	0.9963	401.061	1		16,933.68
RAND		BM-636	404.43	0.9963	402.934	1		17,012.76
RAND		BM-635	403.05	0.9963	401.559	1		16,954.70
RAND		BF-1903	406.15	0.9961	404.566	1		17,081.67
RAND		BF-1902	405.12	0.9961	403.54	1		17,038.35
RAND		BF-1901	403.42	0.9967	402.089	1		16,977.08
RAND		BF-1900	405.45	0.9967	404.112	1		17,062.50
RAND		BF-1899	406.67	0.9967	405.328	1		17,113.84
RAND		BF-1898	405.6	0.9967	404.262	1		17,068.83
RAND		BF-1897	407.07	0.9967	405.727	1		17,130.69
RAND		BF-1896	407.6	0.9967	406.255	1		17,152.98
RAND		BF-1895	407.9	0.9968	406.595	1		17,167.34
RAND		BF-1894	406.15	0.9968	404.85	1		17,093.66

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BF-1893	406.77	0.9968	405.468	1		17,119.75
RAND		BF-1892	407.62	0.9968	406.316	1		17,155.56
RAND		BF-1891	402.9	0.9968	401.611	1		16,956.90
RAND		BF-1890	406.65	0.9968	405.349	1		17,114.73
RAND		BF-1889	403.45	0.9965	402.038	1		16,974.93
RAND		BF-1888	402.6	0.9965	401.191	1		16,939.17
RAND		BF-1887	406.55	0.9965	405.127	1		17,105.35
RAND		BF-1886	403.05	0.9965	401.639	1		16,958.08
RAND		BF-1885	406.45	0.9965	405.027	1		17,101.13
RAND		BF-1884	401.3	0.9965	399.895	1		16,884.45
RAND		BF-1883	409	0.9969	407.732	1		17,215.34
RAND		BF-1882	408.1	0.9969	406.835	1		17,177.47
RAND		BF-1881	404	0.9969	402.748	1		17,004.91
RAND		BF-1880	406.27	0.9969	405.011	1		17,100.46
RAND		BF-1879	403.72	0.9969	402.468	1		16,993.08
RAND		BL-8896	405.05	0.9956	403.268	1		17,026.86
RAND		BL-8895	402.77	0.996	401.159	1		16,937.82
RAND		BL-8894	403.52	0.996	401.906	1		16,969.36
RAND		BL-8893	404.63	0.996	403.011	1		17,016.01
RAND		BL-8892	406.12	0.996	404.496	1		17,078.71
RAND		BL-8891	404.37	0.996	402.753	1		17,005.12
RAND		BL-8890	403.55	0.996	401.936	1		16,970.62
RAND		BL-8889	402.87	0.9959	401.218	1		16,940.31
RAND		BL-8888	402.16	0.9959	400.511	1		16,910.46
RAND		BL-8887	405.9	0.9959	404.236	1		17,067.73
RAND		BL-8886	407.8	0.9959	406.128	1		17,147.62
RAND		BL-8885	404.17	0.9959	402.513	1		16,994.98
RAND		BL-8884	407.06	0.9959	405.391	1		17,116.50
RAND		BL-8883	405.4	0.996	403.778	1		17,048.40
RAND		BL-8882	401.92	0.996	400.312	1		16,902.05
RAND		BL-8881	404.4	0.996	402.782	1		17,006.34
RAND		BL-8880	403.2	0.996	401.587	1		16,955.89
RAND		BL-8878	405.55	0.996	403.928	1		17,054.73
RAND		BL-8877	404.94	0.9957	403.199	1		17,023.95
RAND		BL-8876	403.38	0.9957	401.645	1		16,958.34
RAND		BL-8875	403.85	0.9957	402.113	1		16,978.10
RAND		BL-8874	403.88	0.9957	402.143	1		16,979.36
RAND		BL-8873	405.45	0.9957	403.707	1		17,045.40
RAND		BL-8872	405.46	0.9957	403.717	1		17,045.82
RAND		BL-8870	405.55	0.9956	403.766	1		17,047.89
RAND		AV-8144	404.13	0.9955	402.311	1		16,986.46
RAND		AV-8143	408.35	0.9968	407.043	1		17,186.25
RAND		AV-8142	406.77	0.9968	405.468	1		17,119.75
RAND		AV-8141	408.6	0.9968	407.292	1		17,196.76
RAND		AV-8140	408.88	0.9965	407.449	1		17,203.39
RAND		AV-8139	402.05	0.9965	400.643	1		16,916.03
RAND		AV-8137	409.1	0.9965	407.668	1		17,212.64
RAND		AV-8136	403.5	0.9965	402.088	1		16,977.04

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		AV-8135	408.38	0.9965	406.951	1		17,182.37
RAND		AV-8134	404.75	0.9954	402.888	1		17,010.82
RAND		AV-8133	405.6	0.9954	403.734	1		17,046.54
RAND		AV-8132	403.75	0.9954	401.893	1		16,968.81
RAND		AV-8131	402.6	0.9954	400.748	1		16,920.46
RAND		AV-8130	402.68	0.9954	400.828	1		16,923.84
RAND		AV-8129	403.6	0.9954	401.743	1		16,962.47
RAND		AV-8127	407.4	0.9965	405.974	1		17,141.12
RAND		AV-8124	407.48	0.9965	406.054	1		17,144.49
RAND		AV-8123	407.6	0.9965	406.173	1		17,149.52
RAND		AV-8122	404.08	0.9964	402.625	1		16,999.71
RAND		AV-8121	403.58	0.9964	402.127	1		16,978.69
RAND		AV-8120	407.8	0.9964	406.332	1		17,156.23
RAND		AV-8119	407.43	0.9964	405.963	1		17,140.65
RAND		AV-8118	403.95	0.9964	402.496	1		16,994.27
RAND		AV-8117	405	0.9964	403.542	1		17,038.43
RAND		BG-1211	401.87	0.9962	400.343	1		16,903.36
RAND		BG-1210	403.27	0.9962	401.738	1		16,962.26
RAND		BG-1209	405.05	0.9962	403.511	1		17,037.12
RAND		BG-1208	404.55	0.9962	403.013	1		17,016.10
RAND		BG-1207	406	0.9962	404.457	1		17,077.06
RAND		BG-1206	409.6	0.9962	408.044	1		17,228.52
RAND		BG-1205	407.1	0.9962	405.553	1		17,123.34
RAND		BG-1204	405.51	0.9962	403.969	1		17,056.46
RAND		BG-1203	406.82	0.9962	405.274	1		17,111.56
RAND		BG-1202	404.7	0.9962	403.162	1		17,022.39
RAND		BG-1201	403.6	0.9962	402.066	1		16,976.11
RAND		BG-1200	409.92	0.9962	408.362	1		17,241.94
RAND		BG-1199	405.57	0.9962	404.029	1		17,058.99
RAND		BG-1198	406.1	0.9962	404.557	1		17,081.29
RAND		BG-1197	407.52	0.9962	405.971	1		17,140.99
RAND		BG-1196	401.72	0.9962	400.193	1		16,897.03
RAND		BG-1195	400.06	0.9962	398.54	1		16,827.24
RAND		BG-1194	403.15	0.9962	401.618	1		16,957.20
RAND		BG-1193	406.35	0.9962	404.806	1		17,091.80
RAND		BG-1192	402.79	0.9962	401.259	1		16,942.04
RAND		BG-1191	405.65	0.9962	404.109	1		17,062.37
RAND		BG-1190	400.37	0.9962	398.849	1		16,840.28
RAND		BG-1189	402.3	0.9962	400.771	1		16,921.43
RAND		BG-1188	405.5	0.9962	403.959	1		17,056.04
RAND		BG-1187	401.57	0.9962	400.044	1		16,890.74
RAND		BF-1849	405.29	0.9958	403.588	1		17,040.37
RAND		BF-1848	404.95	0.9958	403.249	1		17,026.06
RAND		BF-1847	403.9	0.9958	402.204	1		16,981.94
RAND		BF-1846	402.87	0.9958	401.178	1		16,938.62
RAND		BF-1845	405.97	0.9958	404.265	1		17,068.96
RAND		BF-1844	402.17	0.9958	400.481	1		16,909.19
RAND		BF-1813	404.5	0.9957	402.761	1		17,005.46

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BF-1812	400.92	0.9957	399.196	1		16,854.93
RAND		BF-1811	404.22	0.9957	402.482	1		16,993.68
RAND		BF-1810	408.55	0.9957	406.793	1		17,175.70
RAND		BF-1809	402.67	0.9967	401.341	1		16,945.50
RAND		BF-1808	404.25	0.9967	402.916	1		17,012.00
RAND		BF-1807	405.77	0.9967	404.431	1		17,075.97
RAND		BF-1806	402.75	0.9967	401.421	1		16,948.88
RAND		BF-1794	409.5	0.996	407.862	1		17,220.83
RAND		BF-1792	404.4	0.996	402.782	1		17,006.34
RAND		BF-1791	407.27	0.996	405.641	1		17,127.06
RAND		BF-1790	404.6	0.996	402.982	1		17,014.79
RAND		BF-1789	401.57	0.996	399.964	1		16,887.36
RAND		BF-1788	401.87	0.9968	400.584	1		16,913.54
RAND		BF-1787	403.62	0.9968	402.328	1		16,987.17
RAND		BF-1786	403.37	0.9968	402.079	1		16,976.66
RAND		BF-1785	406.67	0.9968	405.369	1		17,115.57
RAND		BF-1784	407.45	0.9968	406.146	1		17,148.38
RAND		BF-1783	403.12	0.9968	401.83	1		16,966.15
RAND		BF-1780	402.29	0.9967	400.962	1		16,929.50
RAND		BF-1779	402.72	0.9967	401.391	1		16,947.61
RAND		BF-1778	406.67	0.997	405.45	1		17,118.99
RAND		BF-1777	402.95	0.997	401.741	1		16,962.39
RAND		BF-1776	408.52	0.997	407.294	1		17,196.85
RAND		BF-1775	404.85	0.997	403.635	1		17,042.36
RAND		BF-1774	407.14	0.9957	405.389	1		17,116.42
RAND		BF-1773	407.72	0.9957	405.967	1		17,140.82
RAND		BF-1772	406.82	0.9957	405.071	1		17,102.99
RAND		BF-1771	406.57	0.9957	404.822	1		17,092.48
RAND		BF-1770	403.4	0.9957	401.665	1		16,959.18
RAND		BF-1769	403.47	0.9957	401.735	1		16,962.14
RAND		BF-1768	402.06	0.9965	400.653	1		16,916.45
RAND		BF-1767	401.09	0.9965	399.686	1		16,875.62
RAND		BF-1766	403.45	0.9965	402.038	1		16,974.93
RAND		BF-1765	406.72	0.9965	405.296	1		17,112.49
RAND		BF-1764	402.84	0.9965	401.43	1		16,949.26
RAND		BF-1763	402.72	0.9965	401.31	1		16,944.19
RAND		BF-1762	404.12	0.9965	402.706	1		17,003.13
RAND		BF-1761	405.25	0.9965	403.832	1		17,050.68
Compartment Sub Totals			423,097.910		421,465.684	1,046		17,795,208.58
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	4713		8,359.63	0.9961	8,327.03	21	1939	351,585.40
U.S.ASSAY	3150		7,325.23	0.9953	7,290.80	19	1922	307,833.66
U.S.ASSAY	2068		7,671.79	0.9973	7,651.08	19	1946	323,045.26
U.S.ASSAY	2071		7,570.95	0.9968	7,546.72	19	1946	318,639.25
U.S.ASSAY	2094		8,075.40	0.996	8,043.10	20	1946	339,597.29
U.S.ASSAY	2097		7,724.02	0.9961	7,693.90	20	1946	324,853.22
U.S.ASSAY	2098		8,174.78	0.996	8,142.08	21	1946	343,776.57
U.S.ASSAY	2099		8,267.46	0.9962	8,236.04	21	1946	347,743.90
U.S.ASSAY	2100		7,758.72	0.9961	7,728.46	20	1946	326,312.63
U.S.ASSAY	2101		7,698.07	0.9961	7,668.05	20	1946	323,761.86
U.S.ASSAY	2102		8,219.50	0.9962	8,188.27	21	1946	345,726.60
U.S.ASSAY	2103		8,238.35	0.9962	8,207.04	21	1946	346,519.45
U.S.ASSAY	2104		8,387.54	0.9961	8,354.83	21	1946	352,759.26
U.S.ASSAY	2105		7,897.15	0.996	7,865.56	20	1946	332,101.29
U.S.ASSAY	2106		7,816.71	0.9961	7,786.23	20	1946	328,751.55
U.S.ASSAY	2107		8,253.06	0.9962	8,221.70	21	1946	347,138.18
U.S.ASSAY	2108		8,149.39	0.996	8,116.79	21	1946	342,708.82
U.S.ASSAY	2109		8,135.79	0.9959	8,102.43	21	1946	342,102.55
U.S.ASSAY	2110		8,205.46	0.996	8,172.64	21	1946	345,066.76
U.S.ASSAY	851		8,569.44	0.9966	8,540.30	21	1936	360,590.42
U.S.ASSAY	10529		9,018.90	0.997	8,991.84	22	1939	379,655.39
U.S.ASSAY	852		8,110.45	0.9967	8,083.69	20	1936	341,311.01
U.S.ASSAY	860		8,520.18	0.996	8,486.10	21	1936	358,301.77
U.S.ASSAY	14514		8,515.70	0.9974	8,493.56	20	1941	358,616.75
U.S.ASSAY	220		8,339.87	0.9967	8,312.35	21	1942	350,965.62
U.S.ASSAY	19398		8,514.33	0.996	8,480.27	21	1941	358,055.78
U.S.ASSAY	10537		9,091.80	0.9969	9,063.62	21	1939	382,685.77
U.S.ASSAY	6897		8,711.57	0.9959	8,675.85	21	1938	366,313.60
U.S.ASSAY	12368		8,346.02	0.9956	8,309.30	20	1940	350,836.84
U.S.ASSAY	14515		8,454.45	0.9976	8,434.16	20	1941	356,108.75
U.S.ASSAY	2111		8,119.07	0.9962	8,088.22	21	1946	341,502.36
U.S.ASSAY	9925		8,565.63	0.9956	8,527.94	22	1948	360,068.43
U.S.ASSAY	9782		8,585.18	0.9957	8,548.26	22	1948	360,926.51
U.S.ASSAY	9777		8,586.36	0.9957	8,549.44	22	1948	360,976.12
U.S.ASSAY	M-1720		8,278.55	0.9999	8,277.72	20	1959	349,503.63
U.S.ASSAY	M-3037		8,218.38	0.9998	8,216.74	20	1961	346,928.67
U.S.ASSAY	890		8,163.93	0.9974	8,142.70	20	1953	343,802.83
U.S.ASSAY	2984		8,118.50	0.9958	8,084.40	20	1957	341,341.24
U.S.ASSAY	2983		8,226.30	0.9967	8,199.15	21	1957	346,186.28
U.S.ASSAY	2974		8,279.32	0.9961	8,247.03	20	1957	348,207.75
U.S.ASSAY	2973		8,115.46	0.9962	8,084.62	20	1957	341,350.48
U.S.ASSAY	2972		8,138.07	0.9959	8,104.70	20	1957	342,198.39
U.S.ASSAY	2971		8,129.87	0.9958	8,095.72	20	1957	341,819.28
U.S.ASSAY	2969		8,269.53	0.996	8,236.45	20	1957	347,761.08
U.S.ASSAY	7491		8,652.83	0.996	8,618.22	22	1948	363,880.17
U.S.ASSAY	D-295		8,308.58	0.9967	8,281.16	21	1951	349,648.88
U.S.ASSAY	6450		8,361.91	0.9961	8,329.30	21	1949	351,681.33
U.S.ASSAY	15565		9,051.41	0.9973	9,026.97	22	1940	381,138.57

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	M-1904		7,989.12	0.9998	7,987.52	20	1961	337,250.75
U.S.ASSAY	13643		7,461.35	0.9966	7,435.98	18	1937	313,963.48
U.S.ASSAY	67		8,344.48	0.9965	8,315.27	21	1958	351,089.16
U.S.ASSAY	29150		8,613.59	0.9961	8,580.00	21	1935	362,266.35
U.S.ASSAY	5544		8,576.67	0.9966	8,547.51	21	1947	360,894.63
U.S.ASSAY	23394		7,985.62	0.9972	7,963.26	20	1934	336,226.36
Compartment Sub Totals			445,261.420		443,702.079	1,110		18,734,077.93

* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	2057		8,458.84	0.9959	8,424.16	21	1950	355,686.53
U.S.ASSAY	1302		8,512.30	0.9958	8,476.55	21	1950	357,898.50
U.S.ASSAY	14523		8,562.90	0.9989	8,553.48	20	1941	361,146.79
U.S.ASSAY	1877		7,861.05	0.9965	7,833.54	20	1946	330,749.12
U.S.ASSAY	15407		3,719.21	0.9998	3,718.47	9	1941	157,001.82
U.S.ASSAY	6820		8,499.80	0.9971	8,475.15	21	1938	357,839.52
U.S.ASSAY	10716		8,409.50	0.9974	8,387.64	20	1940	354,144.40
U.S.ASSAY	6415		8,719.98	0.9964	8,688.59	22	1948	366,851.30
U.S.ASSAY	M-196		8,517.18	0.9999	8,516.33	21	1941	359,578.10
U.S.ASSAY	M-197		8,427.04	0.9998	8,425.36	21	1941	355,737.02
U.S.ASSAY	M-198		8,451.50	0.9998	8,449.81	21	1941	356,769.57
U.S.ASSAY	M-199		8,408.86	0.9998	8,407.18	21	1941	354,969.55
U.S.ASSAY	M-201		8,444.45	0.9998	8,442.76	21	1941	356,471.94
U.S.ASSAY	M-202		8,373.47	0.9998	8,371.80	21	1941	353,475.60
U.S.ASSAY	2807		7,885.45	0.9958	7,852.33	19	1938	331,542.69
U.S.ASSAY	M-166		9,541.65	0.9999	9,540.70	23	1940	402,829.17
U.S.ASSAY	M-177A		9,408.75	0.9998	9,406.87	23	1941	397,178.66
U.S.ASSAY	M-193A		9,617.77	0.9998	9,615.85	23	1941	406,002.17
U.S.ASSAY	M-206A		9,365.95	0.9998	9,364.08	23	1941	395,371.93
U.S.ASSAY	M-224		9,605.04	0.9998	9,603.12	23	1941	405,464.81
U.S.ASSAY	M-228		9,470.70	0.9999	9,469.75	23	1941	399,833.81
U.S.ASSAY	4944		8,774.42	0.9957	8,736.69	21	1938	368,882.27
U.S.ASSAY	M-219		8,406.10	0.9998	8,404.42	21	1941	354,853.06
U.S.ASSAY	M-217		8,441.91	0.9998	8,440.22	21	1941	356,364.74
U.S.ASSAY	M-216		8,460.80	0.9998	8,459.11	21	1941	357,162.15
U.S.ASSAY	M-215		8,480.62	0.9998	8,478.92	21	1941	357,998.82
U.S.ASSAY	M-214		8,318.55	0.9998	8,316.89	21	1941	351,157.27
U.S.ASSAY	M-213		8,479.65	0.9998	8,477.95	21	1941	357,957.87
U.S.ASSAY	M-212		8,526.70	0.9998	8,525.00	21	1941	359,944.04
U.S.ASSAY	M-211		8,408.84	0.9998	8,407.16	21	1941	354,968.71
U.S.ASSAY	M-210		8,464.14	0.9998	8,462.45	21	1941	357,303.13
U.S.ASSAY	16028		8,477.23	0.9959	8,442.47	20	1941	356,459.78
U.S.ASSAY	17302		8,340.77	0.9964	8,310.74	20	1941	350,897.85
U.S.ASSAY	17303		8,403.95	0.9966	8,375.38	20	1941	353,626.84
U.S.ASSAY	17304		9,196.10	0.9966	9,164.83	22	1941	386,959.41
U.S.ASSAY	17305		8,631.24	0.9964	8,600.17	21	1941	363,118.01
U.S.ASSAY	17306		8,468.50	0.9963	8,437.17	21	1941	356,235.75
U.S.ASSAY	17307		8,557.18	0.9972	8,533.22	21	1941	360,291.32
U.S.ASSAY	17308		8,064.75	0.9967	8,038.14	20	1941	339,387.79
U.S.ASSAY	17309		8,526.72	0.9969	8,500.29	21	1941	358,900.82
U.S.ASSAY	17310		8,780.62	0.9966	8,750.77	22	1941	369,476.59
U.S.ASSAY	310		9,866.83	0.9998	9,864.86	24	1942	416,515.92
U.S.ASSAY	307		9,848.36	0.9998	9,846.39	24	1942	415,736.25
U.S.ASSAY	34		9,471.47	0.9997	9,468.63	23	1961	399,786.31
U.S.ASSAY	31		9,533.18	0.9999	9,532.23	23	1961	402,471.55
U.S.ASSAY	29		9,597.61	0.9999	9,596.65	23	1961	405,191.68
U.S.ASSAY	25		9,847.69	0.9998	9,845.72	24	1961	415,707.96
U.S.ASSAY	10174		7,453.67	0.9965	7,427.58	18	1940	313,608.85

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	13961		8,432.72	0.9971	8,408.27	20	1941	355,015.45
U.S.ASSAY	20674		7,317.60	0.9955	7,284.67	18	1940	307,574.84
U.S.ASSAY	20675		8,814.39	0.9979	8,795.88	21	1940	371,381.40
U.S.ASSAY	20676		8,869.90	0.9979	8,851.27	21	1940	373,720.22
U.S.ASSAY	20677		8,479.90	0.9968	8,452.76	20	1940	356,894.29
U.S.ASSAY	20678		8,396.94	0.9966	8,368.39	20	1940	353,331.84
U.S.ASSAY	20679		8,444.92	0.9961	8,411.99	20	1940	355,172.51
U.S.ASSAY	20680		7,285.98	0.9971	7,264.85	18	1940	306,737.99
U.S.ASSAY	20681		8,886.93	0.9973	8,862.94	22	1940	374,212.61
U.S.ASSAY	20682		8,451.27	0.9978	8,432.68	21	1940	356,046.17
U.S.ASSAY	20683		8,564.37	0.9978	8,545.53	21	1940	360,810.99
U.S.ASSAY	20507		8,272.43	0.996	8,239.34	20	1940	347,883.06
U.S.ASSAY	20508		8,445.52	0.9955	8,407.52	20	1940	354,983.78
U.S.ASSAY	20509		8,872.35	0.9963	8,839.52	21	1940	373,224.07
U.S.ASSAY	20510		8,738.98	0.9963	8,706.65	21	1940	367,613.75
U.S.ASSAY	20506		8,840.35	0.996	8,804.99	21	1940	371,766.01
Compartment Sub Totals			549,203.540		548,144.738	1,339		23,143,876.72
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
ROYAL CANADIAN MINT		D-12514	404.88	0.9963	403.382	1		17,031.68
U.S. VAR.		D-12513	355.76	0.9973	354.799	1		14,980.39
RAND		D-12446	406.65	0.996	405.023	1		17,100.96
HOBOKEN		D-12442	402.85	0.9996	402.689	1		17,002.42
U.S. VAR.		YA-539	376.03	0.9978	375.203	1		15,841.90
U.S. VAR.		YA-538	369.05	0.9978	368.238	1		15,547.82
RAND		L-10355	407.32	0.9958	405.609	1		17,125.70
RAND		L-10354	405.1	0.9958	403.399	1		17,032.39
JOHNSON MATTHEY		L-10352	403.05	0.9966	401.68	1		16,959.81
ROTHSCHILD		L-10347	403.25	0.995	401.234	1		16,940.98
ROTHSCHILD		L-10288	401.38	0.997	400.176	1		16,896.31
ROTHSCHILD		L-10287	402.5	0.997	401.293	1		16,943.47
ROTHSCHILD		L-10286	401.68	0.997	400.475	1		16,908.94
RAND		L-10285	403.09	0.9955	401.276	1		16,942.76
RAND		L-10284	405.9	0.9955	404.073	1		17,060.85
JOHNSON MATTHEY		L-10283	402.58	0.9991	402.218	1		16,982.53
JOHNSON MATTHEY		L-10282	403.81	0.9968	402.518	1		16,995.20
JOHNSON MATTHEY		L-10281	404.83	0.9967	403.494	1		17,036.40
JOHNSON MATTHEY		L-10280	403.09	0.9978	402.203	1		16,981.90
MARRET-BONNIN		YR-324	442.18	0.8997	397.829	1		16,797.22
MUNZE		L-10353	435.68	0.9002	392.199	1		16,559.50
MARRET-BONNIN		L-10351	459.41	0.9	413.469	1		17,457.57
MARRET-BONNIN		D-12527	443.95	0.8997	399.422	1		16,864.48
C. & L.		D-12456	452.58	0.8999	407.277	1		17,196.13
C. & L.		D-12455	452.45	0.8998	407.115	1		17,189.29
C. & L.		D-12452	453.48	0.8997	407.996	1		17,226.49
MARRET-BONNIN		D-12451	460.5	0.8998	414.358	1		17,495.11
MARRET-BONNIN		D-12450	460.1	0.8999	414.044	1		17,481.85
ROTHSCHILD		D-12448	433.66	0.8999	390.251	1		16,477.26
MARRET-BONNIN		D-12444	443.56	0.8995	398.982	1		16,845.90
MARRET-BONNIN		L-10350	459.53	0.8999	413.531	1		17,460.19
MARRET-BONNIN		L-10349	459.62	0.9	413.658	1		17,465.55
MARRET-BONNIN		L-10348	459.74	0.8999	413.72	1		17,468.17
ROTHSCHILD		L-10346	449.43	0.8998	404.397	1		17,074.53
ROTHSCHILD		L-10345	450.35	0.8997	405.18	1		17,107.59
ROTHSCHILD		L-10344	451.24	0.8997	405.981	1		17,141.41
ROTHSCHILD		L-10343	443.91	0.8998	399.43	1		16,864.81
ROTHSCHILD		L-10342	443.58	0.8998	399.133	1		16,852.27

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
MARRET-BONNIN		L-12079	440.63	0.8995	396.347	1		16,734.64
MARRET-BONNIN		L-10278	440.8	0.8995	396.5	1		16,741.10
MARRET-BONNIN		L-10277	441.25	0.8995	396.904	1		16,758.16
ROTHSCHILD		XM-545	437.18	0.8999	393.418	1		16,610.97
ROTHSCHILD		D-12447	438.33	0.8999	394.453	1		16,654.67
ROTHSCHILD		XM-546	438.79	0.8998	394.823	1		16,670.30
ROTHSCHILD		XM-544	438.15	0.8999	394.291	1		16,647.83
ROTHSCHILD		XM-543	438.59	0.8999	394.687	1		16,664.55
ROTHSCHILD		XM-542	437.86	0.8997	393.943	1		16,633.14
ROTHSCHILD		XM-541	438.35	0.8997	394.383	1		16,651.72
ROTHSCHILD		XM-540	437.15	0.8999	393.391	1		16,609.83
ROTHSCHILD		XM-539	438.5	0.8999	394.606	1		16,661.13
ROTHSCHILD		XM-538	438.86	0.8999	394.93	1		16,674.81
ROTHSCHILD		XM-537	438.51	0.8999	394.615	1		16,661.51
ROTHSCHILD		XM-536	439.06	0.8999	395.11	1		16,682.41
ROTHSCHILD		XM-535	438.04	0.8999	394.192	1		16,643.65
COMPTOIR-LYON C.L.A.		V-12610	456.05	0.8997	410.308	1		17,324.11
COMPTOIR-LYON C.L.A.		V-12609	452.42	0.8995	406.952	1		17,182.41
COMPTOIR-LYON C.L.A.		V-12608	452.65	0.8995	407.159	1		17,191.15
COMPTOIR-LYON C.L.A.		V-12607	452.75	0.8997	407.339	1		17,198.75
COMPTOIR-LYON C.L.A.		V-12606	453.18	0.8995	407.635	1		17,211.25
COMPTOIR-LYON C.L.A.		V-12605	453.23	0.8996	407.726	1		17,215.09
ROTHSCHILD		D-12454	439.46	0.9166	402.809	1		17,007.48
ROTHSCHILD		D-12453	447.96	0.9168	410.69	1		17,340.24
ROYAL CANADIAN MINT		D-12562	449.48	0.9166	411.993	1		17,395.25
ROYAL CANADIAN MINT		D-12561	448.77	0.9165	411.298	1		17,365.91
ROYAL CANADIAN MINT		D-12560	448.51	0.9166	411.104	1		17,357.72
ROYAL CANADIAN MINT		D-12559	448.54	0.9166	411.132	1		17,358.90
ROYAL CANADIAN MINT		D-12558	448.35	0.9165	410.913	1		17,349.65
ROYAL CANADIAN MINT		D-12557	448.1	0.9166	410.728	1		17,341.84
ROYAL CANADIAN MINT		D-12556	449.04	0.9166	411.59	1		17,378.24
ROYAL CANADIAN MINT		D-12555	448.86	0.9165	411.38	1		17,369.37
ROYAL CANADIAN MINT		D-12554	449.11	0.9166	411.654	1		17,380.94
ROYAL CANADIAN MINT		D-12553	449.18	0.9164	411.629	1		17,379.88
ROYAL CANADIAN MINT		D-12552	449.3	0.9166	411.828	1		17,388.28

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
ROYAL CANADIAN MINT		D-12551	448.38	0.9167	411.03	1		17,354.59
ROYAL CANADIAN MINT		D-12550	449.04	0.9166	411.59	1		17,378.24
ROYAL CANADIAN MINT		D-12549	449.25	0.9166	411.783	1		17,386.38
ROYAL CANADIAN MINT		D-12548	449.19	0.9166	411.728	1		17,384.06
ROYAL CANADIAN MINT		D-12547	449.11	0.9166	411.654	1		17,380.94
ROYAL CANADIAN MINT		D-12546	449.47	0.9165	411.939	1		17,392.97
ROYAL CANADIAN MINT		D-12545	449.65	0.9166	412.149	1		17,401.84
ROYAL CANADIAN MINT		D-12544	449.45	0.9166	411.966	1		17,394.11
ROYAL CANADIAN MINT		D-12543	449.24	0.9165	411.728	1		17,384.06
ROYAL CANADIAN MINT		D-12542	449.3	0.9165	411.783	1		17,386.38
ROTHSCHILD		D-12969	448.5	0.9165	411.05	1		17,355.44
ROTHSCHILD		V-12600	442.6	0.9167	405.731	1		17,130.86
ROTHSCHILD		V-12599	444.2	0.9167	407.198	1		17,192.80
ROTHSCHILD		V-12598	444.78	0.9167	407.73	1		17,215.26
ROTHSCHILD		V-12597	448.9	0.9169	411.596	1		17,378.49
ROTHSCHILD		V-12596	448.5	0.9169	411.23	1		17,363.04
ROTHSCHILD		V-12595	447.3	0.9169	410.129	1		17,316.55
ROTHSCHILD		V-12594	447.9	0.917	410.724	1		17,341.67
ROTHSCHILD		V-12593	447.88	0.917	410.706	1		17,340.91
ROTHSCHILD		XM-534	368.73	0.9997	368.619	1		15,563.91
RAND		BL-9596	402.77	0.996	401.159	1		16,937.82
RAND		BL-9595	404.8	0.996	403.181	1		17,023.19
RAND		BL-9594	406.12	0.996	404.496	1		17,078.71
RAND		BL-9593	403.55	0.9961	401.976	1		16,972.31
RAND		BL-9592	405.27	0.9961	403.689	1		17,044.64
RAND		BL-9591	406.57	0.9961	404.984	1		17,099.32
RAND		BL-9590	404.06	0.9961	402.484	1		16,993.76
RAND		BL-9589	402.75	0.9961	401.179	1		16,938.66
RAND		BL-9588	404.75	0.9961	403.171	1		17,022.77
RAND		BL-9587	404.52	0.996	402.902	1		17,011.41
RAND		BL-9586	406.12	0.996	404.496	1		17,078.71
RAND		BL-9585	402.92	0.996	401.308	1		16,944.11
RAND		BL-9582	405.6	0.996	403.978	1		17,056.84
RAND		BL-9581	403.55	0.9963	402.057	1		16,975.73
RAND		BL-9572	402.4	0.9965	400.992	1		16,930.76
RAND		BM-1606	404.35	0.9961	402.773	1		17,005.96
RAND		BM-1605	405.45	0.9964	403.99	1		17,057.35
RAND		BM-1604	407.05	0.9964	405.585	1		17,124.69
RAND		BM-1603	405.28	0.9964	403.821	1		17,050.21
RAND		BM-1602	409.29	0.9964	407.817	1		17,218.93
RAND		BM-1601	405.45	0.9964	403.99	1		17,057.35

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1600	402.54	0.9964	401.091	1		16,934.94
RAND		BM-1599	402.33	0.9967	401.002	1		16,931.19
RAND		BM-1598	403.84	0.9967	402.507	1		16,994.73
RAND		BM-1597	405.15	0.9967	403.813	1		17,049.87
RAND		BM-1596	403.83	0.9967	402.497	1		16,994.31
RAND		BM-1595	405.54	0.9967	404.202	1		17,066.30
RAND		BM-1594	404.38	0.9967	403.046	1		17,017.49
RAND		BM-1593	404.28	0.9963	402.784	1		17,006.43
RAND		BM-1592	407.58	0.9963	406.072	1		17,145.25
RAND		BM-1591	407.75	0.9963	406.241	1		17,152.39
RAND		BM-1590	405.12	0.9963	403.621	1		17,041.77
RAND		BM-1589	403.8	0.9963	402.306	1		16,986.24
RAND		BM-1588	404.28	0.9963	402.784	1		17,006.43
RAND		BM-1587	405.35	0.9963	403.85	1		17,051.44
RAND		BW-4216	409.92	0.9956	408.116	1		17,231.56
RAND		BL-9106	409.17	0.9965	407.738	1		17,215.60
RAND		BW-4244	407.6	0.9962	406.051	1		17,144.37
RAND		BW-4237	407.27	0.9956	405.478	1		17,120.17
RAND		BL-9288	406.05	0.9959	404.385	1		17,074.02
RAND		BL-9287	406.32	0.9959	404.654	1		17,085.38
RAND		BL-9286	401.32	0.9959	399.675	1		16,875.16
RAND		BL-9285	408.25	0.9959	406.576	1		17,166.53
RAND		BL-9283	402.3	0.9959	400.651	1		16,916.37
RAND		BL-9282	405.89	0.9959	404.226	1		17,067.31
RAND		BL-9281	404	0.9959	402.344	1		16,987.85
RAND		BL-9280	402.32	0.9961	400.751	1		16,920.59
RAND		BL-9279	401.7	0.9961	400.133	1		16,894.50
RAND		BL-9278	407.65	0.9961	406.06	1		17,144.75
RAND		BL-9277	405.19	0.9961	403.61	1		17,041.30
RAND		BL-9276	406.35	0.9961	404.765	1		17,090.07
RAND		BL-9275	403.97	0.9961	402.395	1		16,990.00
RAND		BL-9274	405.8	0.9961	404.217	1		17,066.93
RAND		BL-9273	402.17	0.9961	400.602	1		16,914.30
RAND		BL-9272	402.07	0.9961	400.502	1		16,910.08
RAND		BL-9271	404.92	0.9961	403.341	1		17,029.94
RAND		BL-9270	404.2	0.9961	402.624	1		16,999.67
RAND		BL-9269	403.08	0.9961	401.508	1		16,952.55
RAND		BL-9268	403.78	0.9958	402.084	1		16,976.87
RAND		BL-9267	402.02	0.9958	400.332	1		16,902.90
RAND		BL-9266	405.82	0.9958	404.116	1		17,062.67
RAND		BL-9265	406.15	0.9958	404.444	1		17,076.52
RAND		BL-9264	402.1	0.9958	400.411	1		16,906.23
RAND		BL-9263	405.77	0.9958	404.066	1		17,060.56
RAND		BL-9954	405.8	0.9959	404.136	1		17,063.51
RAND		BL-9953	402.8	0.9959	401.149	1		16,937.39
RAND		BL-9952	406.95	0.9959	405.282	1		17,111.90
RAND		BL-9951	404.25	0.9959	402.593	1		16,998.36

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9950	406.17	0.9959	404.505	1		17,079.09
RAND		BL-9949	406.1	0.9959	404.435	1		17,076.14
RAND		BL-9948	407.7	0.9961	406.11	1		17,146.86
RAND		BL-9947	405.05	0.9961	403.47	1		17,035.39
RAND		BL-9946	406.82	0.9961	405.233	1		17,109.83
RAND		BL-9945	403.7	0.9961	402.126	1		16,978.64
RAND		BL-9944	405.65	0.9961	404.068	1		17,060.64
RAND		BL-9943	404.37	0.9961	402.793	1		17,006.81
RAND		BL-9942	405.82	0.9961	404.237	1		17,067.78
RAND		BL-9941	406.7	0.9961	405.114	1		17,104.80
RAND		BL-9940	405.22	0.9961	403.64	1		17,042.57
RAND		BL-9939	406.75	0.9961	405.164	1		17,106.92
RAND		BL-9938	404.8	0.9961	403.221	1		17,024.88
RAND		BL-9937	404.4	0.9961	402.823	1		17,008.07
RAND		BL-9936	404.42	0.9954	402.56	1		16,996.97
RAND		BL-9935	408.25	0.9954	406.372	1		17,157.92
JOHNSON MATTHEY		D-12990	400.98	0.9971	399.817	1		16,881.15
JOHNSON MATTHEY		D-12989	405.2	0.9971	404.025	1		17,058.82
JOHNSON MATTHEY		D-12988	405.3	0.9975	404.287	1		17,069.89
JOHNSON MATTHEY		D-12987	404.9	0.9975	403.888	1		17,053.04
JOHNSON MATTHEY		D-12986	407.98	0.9975	406.96	1		17,182.75
JOHNSON MATTHEY		D-12985	402.33	0.9975	401.324	1		16,944.78
JOHNSON MATTHEY		D-12984	408.38	0.9975	407.359	1		17,199.59
JOHNSON MATTHEY		D-12983	402.3	0.9968	401.013	1		16,931.65
JOHNSON MATTHEY		D-12982	404.03	0.9968	402.737	1		17,004.44
JOHNSON MATTHEY		D-12981	402.65	0.9968	401.362	1		16,946.39
JOHNSON MATTHEY		D-12980	403.15	0.9968	401.86	1		16,967.41
JOHNSON MATTHEY		D-12979	402.15	0.9968	400.863	1		16,925.32
JOHNSON MATTHEY		D-12978	404.1	0.9968	402.807	1		17,007.40
JOHNSON MATTHEY		D-12977	403.2	0.9967	401.869	1		16,967.79
JOHNSON MATTHEY		D-12976	402.05	0.9967	400.723	1		16,919.41
JOHNSON MATTHEY		D-12975	401.27	0.9967	399.946	1		16,886.60
JOHNSON MATTHEY		D-12974	402.2	0.9967	400.873	1		16,925.74
JOHNSON MATTHEY		D-12973	402.2	0.9967	400.873	1		16,925.74
JOHNSON MATTHEY		D-12971	403.14	0.9967	401.81	1		16,965.30

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
JOHNSON MATTHEY		D-12970	402	0.9967	400.673	1		16,917.30
ROTHSCHILD		D-12968	401.53	0.9995	401.329	1		16,944.99
ROTHSCHILD		D-12967	402.88	0.9995	402.679	1		17,001.99
RAND		BM-1533	407.42	0.9962	405.872	1		17,136.81
RAND		BM-1532	404.59	0.9962	403.053	1		17,017.78
RAND		BM-1531	402.2	0.9962	400.672	1		16,917.25
RAND		BM-1530	407.13	0.9962	405.583	1		17,124.61
RAND		BM-1529	406.55	0.9962	405.005	1		17,100.20
RAND		BM-1528	404.33	0.9962	402.794	1		17,006.85
RAND		BM-1527	407.53	0.9963	406.022	1		17,143.14
RAND		BM-1526	403.13	0.9963	401.638	1		16,958.04
RAND		BM-1525	403.24	0.9963	401.748	1		16,962.68
RAND		BM-1524	403.34	0.9963	401.848	1		16,966.91
RAND		BM-1523	404.75	0.9963	403.252	1		17,026.19
RAND		BM-1522	407.04	0.9963	405.534	1		17,122.54
RAND		BM-1521	405.73	0.9962	404.188	1		17,065.71
RAND		BM-1519	403.55	0.9962	402.017	1		16,974.04
RAND		BM-1518	405.43	0.9962	403.889	1		17,053.08
RAND		BM-1517	406.83	0.9962	405.284	1		17,111.98
RAND		BM-1516	402.08	0.9962	400.552	1		16,912.19
RAND		BM-1515	405.15	0.9963	403.651	1		17,043.03
RAND		BM-1514	404.48	0.9963	402.983	1		17,014.83
RAND		BM-1513	406.05	0.9963	404.548	1		17,080.91
RAND		BM-1512	405.85	0.9963	404.348	1		17,072.46
RAND		BM-1511	409.1	0.9963	407.586	1		17,209.18
RAND		BM-1510	405.79	0.9963	404.289	1		17,069.97
RAND		BM-1509	406.38	0.9962	404.836	1		17,093.07
RAND		BM-1508	402.85	0.9962	401.319	1		16,944.57
RAND		BL-9235	405.2	0.9957	403.458	1		17,034.88
RAND		BL-9234	408.09	0.9957	406.335	1		17,156.36
RAND		BL-9233	407.17	0.9957	405.419	1		17,117.68
RAND		BL-9232	406.39	0.9962	404.846	1		17,093.49
RAND		BL-9231	406.69	0.9962	405.145	1		17,106.11
RAND		BL-9230	405.86	0.9962	404.318	1		17,071.20
RAND		BL-9229	403.87	0.9962	402.335	1		16,987.47
RAND		BL-9228	409.62	0.9962	408.063	1		17,229.32
RAND		BL-9227	407.32	0.9962	405.772	1		17,132.59
RAND		BL-9226	407.78	0.9963	406.271	1		17,153.66
RAND		BL-9225	407.19	0.9963	405.683	1		17,128.83
RAND		BL-9224	404.37	0.9963	402.874	1		17,010.23
RAND		BL-9223	407.25	0.9963	405.743	1		17,131.36
RAND		BL-9222	406.92	0.9963	405.414	1		17,117.47
RAND		BL-9221	403.27	0.9963	401.778	1		16,963.95
RAND		BL-9214	403.22	0.9965	401.809	1		16,965.26
RAND		BL-9213	402.6	0.9965	401.191	1		16,939.17
RAND		BL-9212	405.87	0.9965	404.449	1		17,076.73
RAND		BL-9211	403.45	0.9965	402.038	1		16,974.93

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9210	404.52	0.9965	403.104	1		17,019.94
RAND		BL-9209	408.25	0.9965	406.821	1		17,176.88
RAND		BL-9207	405.35	0.9965	403.931	1		17,054.86
RAND		BL-9206	408.6	0.9965	407.17	1		17,191.61
RAND		BL-9205	404.6	0.9965	403.184	1		17,023.32
RAND		BL-9204	407.37	0.9965	405.944	1		17,139.85
RAND		BM-228	403.7	0.9957	401.964	1		16,971.80
RAND		BM-227	406.29	0.9957	404.543	1		17,080.70
RAND		BM-226	404.92	0.9957	403.179	1		17,023.10
RAND		BM-225	403.32	0.9957	401.586	1		16,955.84
RAND		BM-224	405.1	0.9959	403.439	1		17,034.08
RAND		BM-223	402.71	0.9959	401.059	1		16,933.59
RAND		BM-222	408.8	0.9959	407.124	1		17,189.67
RAND		BM-221	405.93	0.9959	404.266	1		17,069.00
RAND		BM-220	404.55	0.9959	402.891	1		17,010.94
RAND		BM-219	406.48	0.9959	404.813	1		17,092.10
RAND		BM-218	406.28	0.9959	406.606	1		17,167.80
RAND		BM-217	402.83	0.9959	401.178	1		16,938.62
RAND		BM-216	407.4	0.9959	405.73	1		17,130.81
RAND		BM-215	405.78	0.9959	404.116	1		17,062.67
RAND		BM-214	406.3	0.9959	404.634	1		17,084.54
RAND		BM-213	404.85	0.9963	403.352	1		17,030.41
RAND		BM-212	404.35	0.9963	402.854	1		17,009.38
RAND		BM-210	404.35	0.9963	402.854	1		17,009.38
RAND		BM-209	403.05	0.9963	401.559	1		16,954.70
RAND		BM-208	406.87	0.9963	405.365	1		17,115.40
RAND		BM-207	405.25	0.9961	403.67	1		17,043.84
RAND		BM-206	404.9	0.9961	403.321	1		17,029.10
RAND		BM-205	402.4	0.9961	400.831	1		16,923.97
RAND		BM-204	402.7	0.9961	401.129	1		16,936.55
RAND		BM-203	404.57	0.9961	402.992	1		17,015.21
RAND		BL-8929	405.15	0.9961	403.57	1		17,039.61
RAND		BL-8928	404.42	0.9961	402.843	1		17,008.92
RAND		BL-8927	403.85	0.9961	402.275	1		16,984.94
RAND		BL-8926	405.12	0.9961	403.54	1		17,038.35
RAND		BL-8925	403.11	0.9962	401.578	1		16,955.51
RAND		BL-8924	403.67	0.9962	402.136	1		16,979.07
RAND		BL-8923	403.65	0.9962	402.116	1		16,978.22
RAND		BL-8922	405	0.9962	403.461	1		17,035.01
RAND		BL-8921	404.95	0.9962	403.411	1		17,032.90
RAND		BL-8920	403.85	0.9962	402.315	1		16,986.62
RAND		BL-8913	406.62	0.9957	404.872	1		17,094.59
RAND		BL-8910	403.5	0.9957	401.765	1		16,963.40
RAND		BL-8909	405.66	0.9957	403.916	1		17,054.22
RAND		BL-8908	401.65	0.9957	399.923	1		16,885.63
RAND		BL-8907	403.3	0.9956	401.525	1		16,953.27
RAND		BL-8906	405.8	0.9956	404.014	1		17,058.36

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8905	403.55	0.9956	401.774	1		16,963.78
RAND		BL-8904	404.25	0.9956	402.471	1		16,993.21
RAND		BL-8903	406.51	0.9956	404.721	1		17,088.21
RAND		BL-8902	401.9	0.9956	400.132	1		16,894.45
RAND		BL-8901	404.35	0.9956	402.571	1		16,997.43
RAND		BL-8900	402.77	0.9956	400.998	1		16,931.02
RAND		BL-8899	403.92	0.9956	402.143	1		16,979.36
RAND		BL-8898	404.05	0.9956	402.272	1		16,984.81
RAND		BL-8897	402.17	0.9956	400.4	1		16,905.77
RAND		BL-8915	405.18	0.9958	403.478	1		17,035.73
RAND		BL-8914	405.92	0.9958	404.215	1		17,066.85
RAND		BL-9103	405.05	0.9962	403.511	1		17,037.12
RAND		BL-9102	404.6	0.9962	403.063	1		17,018.21
RAND		BL-9101	404.25	0.9962	402.714	1		17,003.47
RAND		BL-9100	405.37	0.9962	403.83	1		17,050.59
RAND		BL-9099	406.05	0.9962	404.507	1		17,079.18
RAND		BL-9098	405.05	0.9963	403.551	1		17,038.81
RAND		BL-9097	406.7	0.9963	405.195	1		17,108.22
RAND		BL-9096	403.9	0.9963	402.406	1		16,990.47
RAND		BL-9095	407.22	0.9963	405.713	1		17,130.10
RAND		BL-9094	405.3	0.9963	403.8	1		17,049.32
RAND		BL-9093	404.2	0.9963	402.704	1		17,003.05
RAND		BL-9092	403.35	0.9961	401.777	1		16,963.91
RAND		BL-9091	401.17	0.9961	399.605	1		16,872.20
RAND		BL-9090	407.8	0.9961	406.21	1		17,151.08
RAND		BL-9089	401.82	0.9961	400.253	1		16,899.56
RAND		BL-9088	404.4	0.9961	402.823	1		17,008.07
RAND		BL-9086	405.02	0.996	403.4	1		17,032.44
RAND		BL-9085	406.68	0.996	405.053	1		17,102.23
RAND		BL-9084	402.17	0.996	400.561	1		16,912.57
RAND		BL-9083	405	0.996	403.38	1		17,031.59
RAND		BL-9082	402.9	0.996	401.288	1		16,943.26
RAND		BL-9081	403.7	0.996	402.085	1		16,976.91
RAND		BL-9074	405.83	0.9957	404.085	1		17,061.36
RAND		BL-9061	401.77	0.9962	400.243	1		16,899.14
RAND		BL-9060	405.52	0.9962	403.979	1		17,056.88
RAND		BL-9059	405.51	0.9962	403.969	1		17,056.46
RAND		BL-9058	408.02	0.9962	406.47	1		17,162.06
RAND		BL-9057	403.78	0.9962	402.246	1		16,983.71
RAND		BL-9056	404.15	0.9962	402.614	1		16,999.25
RAND		BL-8975	405.62	0.9957	403.876	1		17,052.53
RAND		BL-8974	405.92	0.9957	404.175	1		17,065.16
RAND		BL-8973	406.9	0.9957	405.15	1		17,106.32
RAND		BL-8972	404.07	0.9957	402.332	1		16,987.34
RAND		BL-8961	402.7	0.9969	401.452	1		16,950.19
RAND		BL-8960	405.49	0.9969	404.233	1		17,067.61
RAND		BL-8959	407.3	0.9969	406.037	1		17,143.78

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8958	404.45	0.9969	403.196	1		17,023.82
RAND		BL-8957	402.82	0.9969	401.571	1		16,955.21
RAND		BL-8956	406.35	0.9969	405.09	1		17,103.79
RAND		BL-8949	400.5	0.9959	398.858	1		16,840.66
RAND		BL-8948	404.62	0.9959	402.961	1		17,013.90
RAND		BL-8947	406.2	0.9959	404.535	1		17,080.36
RAND		BL-8946	401.37	0.9959	399.724	1		16,877.23
RAND		BL-8945	403.55	0.9959	401.895	1		16,968.89
RAND		BL-8919	407.4	0.9958	405.689	1		17,129.08
RAND		BL-8918	402.97	0.9958	401.278	1		16,942.84
RAND		BL-8917	402.95	0.9958	401.258	1		16,942.00
RAND		BL-8916	406.55	0.9958	404.842	1		17,093.32
RAND		BL-8524	401.17	0.9951	399.204	1		16,855.27
RAND		BL-8523	402.67	0.9951	400.697	1		16,918.31
RAND		BL-8522	404.63	0.9951	402.647	1		17,000.64
RAND		BL-8521	405.75	0.9951	403.762	1		17,047.72
RAND		BL-8520	406.52	0.9951	404.528	1		17,080.06
RAND		BL-8519	404.75	0.9951	402.767	1		17,005.71
RAND		BL-8518	407.05	0.9951	405.055	1		17,102.31
RAND		BL-8517	402.07	0.9951	400.1	1		16,893.10
RAND		BL-8516	404.57	0.9951	402.588	1		16,998.15
RAND		BL-8515	407.13	0.9951	405.135	1		17,105.69
RAND		BL-8514	404.17	0.9951	402.19	1		16,981.35
RAND		BL-8513	403.65	0.9951	401.672	1		16,959.48
RAND		BL-8512	402.3	0.9951	400.329	1		16,902.77
RAND		BL-8511	404.85	0.9956	403.069	1		17,018.46
RAND		BL-8510	406.32	0.9956	404.532	1		17,080.23
RAND		BL-8509	405.95	0.9956	404.164	1		17,064.69
RAND		BL-8508	405.05	0.9956	403.268	1		17,026.86
RAND		BL-8507	404.15	0.9956	402.372	1		16,989.03
RAND		BL-8506	403.47	0.9956	401.695	1		16,960.45
RAND		BL-8505	403.12	0.9955	401.306	1		16,944.02
RAND		BL-8504	405.05	0.9955	403.227	1		17,025.13
RAND		BL-8503	406.45	0.9955	404.621	1		17,083.99
RAND		BL-8502	405	0.9955	403.178	1		17,023.06
RAND		BL-8501	404.87	0.9955	403.048	1		17,017.57
RAND		BL-8500	403.77	0.9955	401.953	1		16,971.34
RAND		BW-4422	404.6	0.9958	402.901	1		17,011.37
RAND		BW-4421	402.42	0.9958	400.73	1		16,919.70
RAND		BW-4420	403.52	0.9958	401.825	1		16,965.94
RAND		BW-4419	404.88	0.9958	403.18	1		17,023.15
RAND		BW-4418	404.43	0.9958	402.731	1		17,004.19
RAND		BW-4417	402.85	0.9958	401.158	1		16,937.77
RAND		BW-4416	404.76	0.9958	403.06	1		17,018.08
RAND		BW-4415	404.8	0.9958	403.1	1		17,019.77
RAND		BW-4414	400.9	0.9958	399.216	1		16,855.78
RAND		BW-4413	408.47	0.9958	406.754	1		17,174.05

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8539	404.42	0.9959	402.762	1		17,005.50
RAND		BL-8538	402.77	0.9959	401.119	1		16,936.13
RAND		BL-8537	407.71	0.9959	406.038	1		17,143.82
RAND		BL-8536	406.08	0.9959	404.415	1		17,075.29
RAND		BL-8535	403.07	0.996	401.458	1		16,950.44
RAND		BL-8534	405.52	0.996	403.898	1		17,053.46
RAND		BL-8533	405.33	0.996	403.709	1		17,045.48
RAND		BL-8532	403.8	0.996	402.185	1		16,981.14
RAND		BL-8531	406.65	0.996	405.023	1		17,100.96
RAND		BL-8530	408.02	0.996	406.388	1		17,158.60
RAND		BL-8529	403.82	0.9951	401.841	1		16,966.61
RAND		BL-8528	404.85	0.9951	402.866	1		17,009.89
RAND		BL-8527	404.47	0.9951	402.488	1		16,993.93
RAND		BL-8526	405.4	0.9951	403.414	1		17,033.03
RAND		BL-8525	406.9	0.9951	404.906	1		17,096.02
RAND		BL-9626	403.55	0.9966	402.178	1		16,980.84
RAND		BL-9625	404.6	0.9966	403.224	1		17,025.00
RAND		BL-9624	404.42	0.9966	403.045	1		17,017.45
RAND		BL-9617	403.95	0.996	402.334	1		16,987.43
RAND		BL-9616	405.75	0.996	404.127	1		17,063.13
RAND		BL-9615	405.47	0.996	403.848	1		17,051.35
RAND		BL-9614	403.12	0.996	401.508	1		16,952.55
RAND		BL-9613	404.55	0.996	402.932	1		17,012.68
RAND		BL-9612	404.61	0.996	402.992	1		17,015.21
RAND		BL-9611	405.36	0.9959	403.698	1		17,045.02
RAND		BL-9609	402.3	0.9959	400.651	1		16,916.37
RAND		BL-9607	402.55	0.9959	400.9	1		16,926.88
RAND		BL-9606	402.15	0.9959	400.501	1		16,910.03
RAND		BL-9604	403.38	0.996	401.766	1		16,963.44
RAND		BL-9603	404.07	0.996	402.454	1		16,992.49
RAND		BL-9602	403.92	0.996	402.304	1		16,986.16
RAND		BL-9601	401.84	0.996	400.233	1		16,898.72
RAND		BL-9600	405	0.996	403.38	1		17,031.59
RAND		BL-9599	405.15	0.996	403.529	1		17,037.88
RAND		BL-9598	403.22	0.996	401.607	1		16,956.73
RAND		BL-9597	406.87	0.996	405.243	1		17,110.25
RAND		BL-9667	403.89	0.9954	402.032	1		16,974.68
RAND		BL-9666	405.85	0.9954	403.983	1		17,057.05
RAND		BL-9665	403.45	0.9953	401.554	1		16,954.49
RAND		BL-9664	402.5	0.9953	400.608	1		16,914.55
RAND		BL-9663	405.34	0.9953	403.435	1		17,033.91
RAND		BL-9662	406.37	0.9953	404.46	1		17,077.19
RAND		BL-9661	402.02	0.9953	400.131	1		16,894.41
RAND		BL-9659	403.63	0.9957	401.894	1		16,968.85
RAND		BL-9658	403.12	0.9957	401.387	1		16,947.44
RAND		BL-9657	402.17	0.9957	400.441	1		16,907.50
RAND		BL-9656	406.27	0.9957	404.523	1		17,079.85

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9655	404.07	0.9957	402.332	1		16,987.34
RAND		BL-9654	403.38	0.9957	401.645	1		16,958.34
RAND		BL-9638	405.97	0.9955	404.143	1		17,063.81
RAND		BL-9637	405.25	0.9955	403.426	1		17,033.53
RAND		BL-9636	403.58	0.9955	401.764	1		16,963.36
RAND		BL-9635	402.59	0.9966	401.221	1		16,940.43
RAND		BL-9634	406.27	0.9966	404.889	1		17,095.30
RAND		BL-9633	404.03	0.9966	402.656	1		17,001.02
RAND		BL-9631	404.2	0.9966	402.826	1		17,008.20
RAND		BL-9630	404.1	0.9966	402.726	1		17,003.98
RAND		BL-9629	404.46	0.9966	403.085	1		17,019.14
RAND		BM-680	405.2	0.9963	403.701	1		17,045.14
RAND		BM-679	405.27	0.9963	403.771	1		17,048.10
RAND		BM-678	401.42	0.9963	399.935	1		16,886.14
RAND		BM-663	404.8	0.9963	403.302	1		17,028.30
RAND		BM-662	404.22	0.9963	402.724	1		17,003.89
RAND		BM-661	403.75	0.9963	402.256	1		16,984.13
RAND		BM-660	403.65	0.9963	402.156	1		16,979.91
RAND		BL-9712	403	0.9968	401.71	1		16,961.08
RAND		BL-9711	405.27	0.9968	403.973	1		17,056.63
RAND		BL-9710	402.81	0.9968	401.521	1		16,953.10
RAND		BL-9709	403.74	0.9968	402.448	1		16,992.24
RAND		BL-9707	402.75	0.9968	401.461	1		16,950.57
RAND		BL-9706	404.02	0.9968	402.727	1		17,004.02
RAND		BL-9705	403.65	0.9968	402.358	1		16,988.44
RAND		BL-9675	403.92	0.9953	402.022	1		16,974.25
RAND		BL-9674	406.87	0.9953	404.958	1		17,098.22
RAND		BL-9672	405.52	0.9953	403.614	1		17,041.47
RAND		BL-9671	406.85	0.9953	404.938	1		17,097.37
RAND		BL-9670	403.3	0.9954	401.445	1		16,949.89
RAND		BL-9668	401.65	0.9954	399.802	1		16,880.52
RAND		BM-750	400.92	0.9958	399.236	1		16,856.62
RAND		BM-749	404.12	0.9958	402.423	1		16,991.18
RAND		BM-743	403.25	0.9958	401.556	1		16,954.58
RAND		BM-742	403.9	0.9958	402.204	1		16,981.94
RAND		BM-740	404.62	0.9962	403.082	1		17,019.01
RAND		BM-738	403.8	0.9962	402.266	1		16,984.56
RAND		BM-737	405.3	0.9962	403.76	1		17,047.64
RAND		BM-736	403.74	0.9962	402.206	1		16,982.02
RAND		BM-735	401.47	0.9962	399.944	1		16,886.52
RAND		BM-723	403.65	0.9966	402.278	1		16,985.06
RAND		BM-722	405.77	0.9966	404.39	1		17,074.24
RAND		BM-721	405.92	0.9966	404.54	1		17,080.57
RAND		BM-720	402.55	0.9966	401.181	1		16,938.74
RAND		BM-719	403.92	0.9966	402.547	1		16,996.42
RAND		BM-694	405.64	0.9957	403.896	1		17,053.38
RAND		BM-693	406.02	0.9957	404.274	1		17,069.34

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-692	405.4	0.9957	403.657	1		17,043.29
RAND		BM-691	405.47	0.9957	403.726	1		17,046.20
RAND		BM-690	403.35	0.9957	401.616	1		16,957.11
RAND		BM-689	404.62	0.9957	402.88	1		17,010.48
RAND		BM-682	402.6	0.9963	401.11	1		16,935.75
RAND		BM-792	405.3	0.9962	403.76	1		17,047.64
RAND		BM-791	405.81	0.9962	404.268	1		17,069.08
RAND		BM-790	404.02	0.9962	402.485	1		16,993.80
RAND		BM-789	403.71	0.9962	402.176	1		16,980.76
RAND		BM-788	405.95	0.9961	404.367	1		17,073.26
RAND		BM-787	402.77	0.9961	401.199	1		16,939.50
RAND		BM-786	406.75	0.9961	405.164	1		17,106.92
RAND		BM-785	405.59	0.9961	404.008	1		17,058.11
RAND		BM-784	403.89	0.9951	401.911	1		16,969.57
RAND		BM-783	405.9	0.9951	403.911	1		17,054.01
RAND		BM-782	407.02	0.9951	405.026	1		17,101.09
RAND		BM-781	407.82	0.9951	405.822	1		17,134.70
RAND		BM-780	402.4	0.9951	400.428	1		16,906.95
RAND		BM-779	403.22	0.9951	401.244	1		16,941.40
RAND		BM-778	406.87	0.9951	404.876	1		17,094.76
RAND		BM-775	403.02	0.9955	401.206	1		16,939.80
RAND		BM-774	405.17	0.9955	403.347	1		17,030.20
RAND		BM-764	403.25	0.9957	401.516	1		16,952.89
RAND		BM-763	406.62	0.9957	404.872	1		17,094.59
RAND		BM-760	407.82	0.9957	406.066	1		17,145.00
RAND		BM-759	404.15	0.9957	402.412	1		16,990.72
RAND		BM-756	401.74	0.996	400.133	1		16,894.50
RAND		BM-755	405.14	0.996	403.519	1		17,037.46
RAND		BM-752	403.14	0.9958	401.447	1		16,949.98
RAND		BM-751	405.86	0.9958	404.155	1		17,064.31
RAND		BM-811	404.95	0.996	403.33	1		17,029.48
RAND		BM-810	405.49	0.996	403.868	1		17,052.20
RAND		BM-809	405.7	0.996	404.077	1		17,061.02
RAND		BM-808	403.37	0.996	401.757	1		16,963.06
RAND		BM-807	406.82	0.996	405.193	1		17,108.14
RAND		BM-806	406.7	0.996	405.073	1		17,103.07
RAND		BM-805	403.4	0.996	401.786	1		16,964.29
RAND		BL-9739	404.7	0.9965	403.284	1		17,027.54
RAND		BL-9737	405.42	0.9965	404.001	1		17,057.81
RAND		BL-9736	402.35	0.9963	400.861	1		16,925.23
RAND		BL-9735	408.95	0.9963	407.437	1		17,202.89
RAND		BL-9734	403.17	0.9963	401.678	1		16,959.73
RAND		BL-9733	403.32	0.9963	401.828	1		16,966.06
RAND		BL-9732	407.05	0.9963	405.544	1		17,122.96
RAND		BL-9731	402.7	0.9963	401.21	1		16,939.97
RAND		BL-9730	409.3	0.9963	407.786	1		17,217.62
RAND		BL-9729	408.55	0.9963	407.038	1		17,186.04

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	
RAND		BL-9728	401.53	0.9963	400.044	1		16,890.74
RAND		BL-9727	404.5	0.9963	403.003	1		17,015.67
RAND		BL-9726	402.87	0.9963	401.379	1		16,947.10
RAND		BL-9725	404.6	0.9963	403.103	1		17,019.90
RAND		BL-9724	401.04	0.9964	399.596	1		16,871.82
RAND		BL-9723	404.42	0.9964	402.964	1		17,014.03
RAND		BL-9722	406.02	0.9964	404.558	1		17,081.33
RAND		BL-9721	406.87	0.9964	405.405	1		17,117.09
RAND		BL-9720	408.35	0.9965	406.921	1		17,181.10
RAND		BL-9719	405.78	0.9965	404.36	1		17,072.97
RAND		BL-9718	403	0.9965	401.59	1		16,956.01
RAND		BL-9717	402.57	0.9965	401.161	1		16,937.90
RAND		BL-9716	407.67	0.9965	406.243	1		17,152.47
RAND		BL-9715	408.57	0.9965	407.14	1		17,190.35
RAND		BL-9713	404.87	0.9968	403.574	1		17,039.78
RAND		BW-3024	402.67	0.9958	400.979	1		16,930.22
RAND		BW-3023	404.65	0.9955	402.829	1		17,008.33
RAND		BW-3022	404.02	0.9955	402.202	1		16,981.85
RAND		BW-3021	405.25	0.9955	403.426	1		17,033.53
RAND		BW-3020	405.05	0.9955	403.227	1		17,025.13
RAND		BW-3019	407.02	0.9955	405.188	1		17,107.93
RAND		BW-3018	405.65	0.9955	403.825	1		17,050.38
RAND		BW-3011	406.65	0.9959	404.983	1		17,099.27
RAND		BW-3010	403.52	0.9959	401.866	1		16,967.67
RAND		BW-3009	402.8	0.9959	401.149	1		16,937.39
RAND		BW-3008	404.82	0.9959	403.16	1		17,022.30
RAND		BW-3007	408.9	0.9959	407.224	1		17,193.89
RAND		BW-3006	407.97	0.9959	406.297	1		17,154.75
RAND		BW-3005	403.43	0.9956	401.655	1		16,958.76
RAND		BW-3004	402.27	0.9956	400.5	1		16,909.99
RAND		BW-3003	402.7	0.9956	400.928	1		16,928.06
RAND		BW-3002	404.27	0.9956	402.491	1		16,994.06
RAND		BW-3001	403.8	0.9956	402.023	1		16,974.30
RAND		BW-3000	403.45	0.9956	401.675	1		16,959.60
RAND		BW-2999	407.12	0.996	405.492	1		17,120.76
RAND		BW-2998	402.93	0.996	401.318	1		16,944.53
RAND		BW-2997	402.5	0.996	400.89	1		16,926.46
RAND		BW-2996	403.8	0.996	402.185	1		16,981.14
RAND		BW-2995	403.88	0.996	402.264	1		16,984.47
RAND		BW-2994	405.85	0.996	404.227	1		17,067.35
RAND		BW-3056	403.5	0.996	401.886	1		16,968.51
RAND		BW-3055	405.72	0.996	404.097	1		17,061.86
RAND		BW-3047	404.92	0.9964	403.462	1		17,035.05
RAND		BW-3046	405.25	0.9964	403.791	1		17,048.94
RAND		BW-3045	407.71	0.9964	406.242	1		17,152.43
RAND		BW-3044	405.42	0.9964	403.96	1		17,056.08
RAND		BW-3043	406.07	0.9964	404.608	1		17,083.44

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-3042	404.3	0.9964	402.845	1		17,009.00
RAND		BW-3041	403.58	0.996	401.966	1		16,971.89
RAND		BW-3040	405.73	0.996	404.107	1		17,062.29
RAND		BW-3039	406.5	0.996	404.874	1		17,094.67
RAND		BW-3038	403.17	0.996	401.557	1		16,954.62
RAND		BW-3037	405.4	0.996	403.778	1		17,048.40
RAND		BW-3036	401.85	0.996	400.243	1		16,899.14
RAND		BW-3035	401.26	0.9959	399.615	1		16,872.62
RAND		BW-3034	405.18	0.9959	403.519	1		17,037.46
RAND		BW-3033	403.1	0.9959	401.447	1		16,949.98
RAND		BW-3032	403.02	0.9959	401.368	1		16,946.64
RAND		BW-3031	403.55	0.9959	401.895	1		16,968.89
RAND		BW-3030	403.82	0.9959	402.164	1		16,980.25
RAND		BW-3029	404.22	0.9958	402.522	1		16,995.36
RAND		BW-3028	403.67	0.9958	401.975	1		16,972.27
RAND		BW-3027	401.65	0.9958	399.963	1		16,887.32
RAND		BW-3026	403.72	0.9958	402.024	1		16,974.34
RAND		BW-3025	403.12	0.9958	401.427	1		16,949.13
RAND		BL-9847	407.65	0.9955	405.816	1		17,134.44
RAND		BL-9846	408.27	0.9955	406.433	1		17,160.50
RAND		BL-9845	407.52	0.9955	405.686	1		17,128.96
RAND		BL-9844	403.65	0.9955	401.834	1		16,966.32
RAND		BL-9836	408.8	0.9951	406.797	1		17,175.86
RAND		BL-9835	404.01	0.9951	402.03	1		16,974.59
RAND		BL-9834	403.7	0.9951	401.722	1		16,961.59
RAND		BL-9833	406.91	0.9951	404.916	1		17,096.44
RAND		BL-9832	404.72	0.9951	402.737	1		17,004.44
RAND		BL-9831	403.32	0.9952	401.384	1		16,947.32
RAND		BL-9830	404.25	0.9952	402.31	1		16,986.41
RAND		BL-9829	401.47	0.9952	399.543	1		16,869.58
RAND		BL-9828	402.15	0.9952	400.22	1		16,898.17
RAND		BL-9827	405.6	0.9952	403.653	1		17,043.12
RAND		BL-9826	402.99	0.9952	401.056	1		16,933.47
RAND		BL-9825	402.62	0.9956	400.848	1		16,924.68
RAND		BL-9824	403.79	0.9956	402.013	1		16,973.87
RAND		BL-9823	404.34	0.9956	402.561	1		16,997.01
RAND		BL-9822	403.43	0.9956	401.655	1		16,958.76
RAND		BL-9821	404.28	0.9956	402.501	1		16,994.48
RAND		BL-9819	403.05	0.9955	401.236	1		16,941.07
RAND		BL-9818	405.1	0.9955	403.277	1		17,027.24
RAND		BL-9817	403.59	0.9955	401.774	1		16,963.78
RAND		BL-9816	402.87	0.9955	401.057	1		16,933.51
RAND		BL-9815	403.85	0.9955	402.033	1		16,974.72
RAND		BL-9875	404.77	0.9958	403.07	1		17,018.50
RAND		BL-9874	404.92	0.9956	403.138	1		17,021.37
RAND		BL-9873	405.9	0.9956	404.114	1		17,062.58
RAND		BL-9872	404.82	0.9956	403.039	1		17,017.19

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	
RAND		BL-9871	402.85	0.9956	401.077	1		16,934.35
RAND		BL-9870	406.25	0.9956	404.463	1		17,077.32
RAND		BL-9869	406.15	0.9956	404.363	1		17,073.10
RAND		BL-9868	404.8	0.995	402.776	1		17,006.09
RAND		BL-9867	401.3	0.995	399.294	1		16,859.07
RAND		BL-8966	403.97	0.995	401.95	1		16,971.21
RAND		BL-9865	404.74	0.995	402.716	1		17,003.56
RAND		BL-9864	407.02	0.995	404.985	1		17,099.36
RAND		BL-9863	403.85	0.995	401.831	1		16,966.19
RAND		BL-9862	404.72	0.995	402.696	1		17,002.71
RAND		BL-9861	406.3	0.995	404.269	1		17,069.13
RAND		BL-9860	401.92	0.995	399.91	1		16,885.08
RAND		BL-9857	406.17	0.995	404.139	1		17,063.64
RAND		BL-9856	405.67	0.995	403.642	1		17,042.65
RAND		BL-9855	402.59	0.9957	400.859	1		16,925.15
RAND		BL-9854	403.92	0.9957	402.183	1		16,981.05
RAND		BL-9853	407.15	0.9957	405.399	1		17,116.84
RAND		BL-9851	405.97	0.9957	404.224	1		17,067.23
RAND		BL-9850	402.6	0.9957	400.869	1		16,925.57
RAND		BL-9849	405.2	0.9955	403.377	1		17,031.46
RAND		BL-9848	403.72	0.9955	401.903	1		16,969.23
RAND		BL-9900	403.22	0.9957	401.486	1		16,951.62
RAND		BL-9899	403.9	0.9957	402.163	1		16,980.21
RAND		BL-9898	406.1	0.9957	404.354	1		17,072.72
RAND		BL-9897	404.3	0.9957	402.562	1		16,997.05
RAND		BL-9896	405.9	0.9957	404.155	1		17,064.31
RAND		BL-9895	401.35	0.9957	399.624	1		16,873.00
RAND		BL-9894	403.7	0.9952	401.762	1		16,963.28
RAND		BL-9893	404.15	0.9952	402.21	1		16,982.19
RAND		BL-9892	401.92	0.9952	399.991	1		16,888.50
RAND		BL-9891	404.2	0.9952	402.26	1		16,984.30
RAND		BL-9890	403.22	0.9952	401.285	1		16,943.14
RAND		BL-9889	406.35	0.9952	404.4	1		17,074.66
RAND		BL-9888	404.52	0.9952	402.578	1		16,997.73
RAND		BL-9887	404.17	0.9952	402.23	1		16,983.04
RAND		BL-9886	403.05	0.9952	401.115	1		16,935.96
RAND		BL-9885	405.97	0.9952	404.021	1		17,058.66
RAND		BL-9884	405.2	0.9952	403.255	1		17,026.31
RAND		BL-9883	401.82	0.995	399.811	1		16,880.90
RAND		BL-9882	403.52	0.995	401.502	1		16,952.30
RAND		BL-9881	402.87	0.995	400.856	1		16,925.02
RAND		BL-9880	403.56	0.9958	401.865	1		16,967.62
RAND		BL-9879	404.67	0.9958	402.97	1		17,014.28
RAND		BL-9878	403.54	0.9958	401.845	1		16,966.78
RAND		BL-9877	403.77	0.9958	402.074	1		16,976.45
RAND		BL-9876	406.4	0.9958	404.693	1		17,087.03
RAND		BL-9934	402.87	0.9954	401.017	1		16,931.82

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BL-9933	409.8	0.9954	407.915	1		17,223.07
RAND		BL-9932	404.37	0.9954	402.51	1		16,994.86
RAND		BL-9931	404.12	0.9954	402.261	1		16,984.34
RAND		BL-9924	403.57	0.9953	401.673	1		16,959.52
RAND		BL-9923	402.07	0.9953	400.18	1		16,896.48
RAND		BL-9922	402.1	0.9953	400.21	1		16,897.75
RAND		BL-9921	405.75	0.9953	403.843	1		17,051.14
RAND		BL-9920	405.12	0.9953	403.216	1		17,024.67
RAND		BL-9919	405.92	0.9951	403.931	1		17,054.86
RAND		BL-9918	406.5	0.9951	404.508	1		17,079.22
RAND		BL-9917	405.05	0.9951	403.065	1		17,018.29
RAND		BL-9916	405.95	0.9951	403.961	1		17,056.12
RAND		BL-9915	406.05	0.9951	404.06	1		17,060.30
RAND		BL-9914	407.25	0.9951	405.254	1		17,110.72
RAND		BL-9913	403.97	0.9951	401.991	1		16,972.94
RAND		BL-9909	405.45	0.9952	403.504	1		17,036.83
RAND		BL-9908	405.95	0.9952	404.001	1		17,057.81
RAND		BL-9907	404.8	0.9952	402.857	1		17,009.51
RAND		BL-9906	402.07	0.9953	400.18	1		16,896.48
RAND		BL-9905	406.45	0.9953	404.54	1		17,080.57
RAND		BL-9904	404.2	0.9953	402.3	1		16,985.99
RAND		BL-9903	402.7	0.9953	400.807	1		16,922.95
RAND		BL-9902	402.65	0.9953	400.758	1		16,920.88
RAND		BL-9901	406.65	0.9953	404.739	1		17,088.97
RAND		BL-8966	407.2	0.9967	405.856	1		17,136.13
RAND		BL-8965	403.52	0.9967	402.188	1		16,981.26
RAND		BL-8964	406.37	0.9967	405.029	1		17,101.22
RAND		BL-8963	404.09	0.9967	402.757	1		17,005.29
RAND		BL-8962	403.8	0.9967	402.467	1		16,993.04
RAND		BL-8955	401.97	0.9956	400.201	1		16,897.37
RAND		BL-8954	407.4	0.9956	405.607	1		17,125.62
RAND		BL-8953	405.37	0.9956	403.586	1		17,040.29
RAND		BL-8952	404.9	0.9956	403.118	1		17,020.53
RAND		BL-8951	401.52	0.9956	399.753	1		16,878.45
RAND		BL-8950	403.2	0.9956	401.426	1		16,949.09
RAND		BL-8943	403.82	0.9959	402.164	1		16,980.25
RAND		BL-8942	403.43	0.9959	401.776	1		16,963.87
RAND		BL-8941	407.44	0.9959	405.769	1		17,132.46
RAND		BL-8940	404.51	0.9959	402.852	1		17,009.30
RAND		BL-8939	403.76	0.9959	402.105	1		16,977.76
RAND		BL-8938	405.37	0.9959	403.708	1		17,045.44
RAND		BL-8937	405.8	0.9959	404.136	1		17,063.51
RAND		BL-8936	401.2	0.9959	399.555	1		16,870.09
RAND		BL-8935	405.15	0.9959	403.489	1		17,036.19
RAND		BL-8934	405.27	0.9959	403.608	1		17,041.22
RAND		BL-8933	405.5	0.9959	403.837	1		17,050.89
RAND		BL-8932	401.42	0.9959	399.774	1		16,879.34

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-8931	407	0.9961	405.413	1		17,117.43
RAND		BL-8930	407.25	0.9961	405.662	1		17,127.94
RAND		BL-9764	402.45	0.9963	400.961	1		16,929.46
RAND		BL-9763	404.27	0.9961	402.693	1		17,002.58
RAND		BL-9762	403.77	0.9961	402.195	1		16,981.56
RAND		BL-9761	400.07	0.9961	398.51	1		16,825.97
RAND		BL-9760	404.9	0.9961	403.321	1		17,029.10
RAND		BL-9759	404.5	0.9961	402.922	1		17,012.25
RAND		BL-9758	403.02	0.996	401.408	1		16,948.33
RAND		BL-9757	406.85	0.996	405.223	1		17,109.41
RAND		BL-9756	403.35	0.996	401.737	1		16,962.22
RAND		BL-9755	406.04	0.996	404.416	1		17,075.33
RAND		BL-9754	404.25	0.996	402.633	1		17,000.05
RAND		BL-9753	403.7	0.996	402.085	1		16,976.91
RAND		BL-9752	404.12	0.9965	402.706	1		17,003.13
RAND		BL-9751	404.45	0.9965	403.034	1		17,016.98
RAND		BL-9750	404.37	0.9965	402.955	1		17,013.65
RAND		BL-9749	401.32	0.9965	399.915	1		16,885.29
RAND		BL-9748	404.47	0.9965	403.054	1		17,017.83
RAND		BL-9747	404.1	0.9965	402.686	1		17,002.29
RAND		BL-9746	405.05	0.9961	403.47	1		17,035.39
RAND		BL-9745	404	0.9961	402.424	1		16,991.23
RAND		BL-9744	406.07	0.9961	404.486	1		17,078.29
RAND		BL-9743	403.92	0.9961	402.345	1		16,987.89
RAND		BL-9742	401.85	0.9961	400.283	1		16,900.83
RAND		BL-9741	405.7	0.9961	404.118	1		17,062.75
RAND		BL-9740	403.15	0.9965	401.739	1		16,962.30
RAND		BL-9789	403.62	0.9961	402.046	1		16,975.27
RAND		BL-9788	401.65	0.9961	400.084	1		16,892.43
RAND		BL-9787	403.34	0.9961	401.767	1		16,963.49
RAND		BL-9786	405.12	0.9961	403.54	1		17,038.35
RAND		BL-9785	404.42	0.9961	402.843	1		17,008.92
RAND		BL-9784	402.9	0.996	401.288	1		16,943.26
RAND		BL-9783	404.4	0.996	402.782	1		17,006.34
RAND		BL-9782	406.22	0.996	404.595	1		17,082.89
RAND		BL-9781	401.47	0.996	399.864	1		16,883.14
RAND		BL-9780	403.1	0.996	401.488	1		16,951.71
RAND		BL-9779	405.6	0.996	403.978	1		17,056.84
RAND		BL-9778	403.92	0.9961	402.345	1		16,987.89
RAND		BL-9777	405.05	0.9961	403.47	1		17,035.39
RAND		BL-9776	403.35	0.9961	401.777	1		16,963.91
RAND		BL-9775	405.35	0.9961	403.769	1		17,048.02
RAND		BL-9774	404.1	0.9961	402.524	1		16,995.45
RAND		BL-9773	402.45	0.9961	400.88	1		16,926.04
RAND		BL-9772	404.4	0.9961	402.823	1		17,008.07
RAND		BL-9771	404.22	0.9961	402.644	1		17,000.52
RAND		BL-9770	401.27	0.9961	399.705	1		16,876.42

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	
RAND		BL-9769	405.12	0.9961	403.54	1		17,038.35
RAND		BL-9768	402.35	0.9961	400.781	1		16,921.86
RAND		BL-9767	406.7	0.9963	405.195	1		17,108.22
RAND		BL-9766	404.07	0.9963	402.575	1		16,997.60
RAND		BL-9765	402.65	0.9963	401.16	1		16,937.86
RAND		BL-9814	406.05	0.9955	404.223	1		17,067.18
RAND		BL-9813	405.3	0.9952	403.355	1		17,030.54
RAND		BL-9812	404.92	0.9952	402.976	1		17,014.53
RAND		BL-9811	405.96	0.9952	404.011	1		17,058.23
RAND		BL-9810	404.15	0.9952	402.21	1		16,982.19
RAND		BL-9809	404.75	0.9952	402.807	1		17,007.40
RAND		BL-9808	401.77	0.9952	399.842	1		16,882.21
RAND		BL-9807	404.77	0.9955	402.949	1		17,013.39
RAND		BL-9806	403.62	0.9955	401.804	1		16,965.05
RAND		BL-9805	405.4	0.9955	403.576	1		17,039.87
RAND		BL-9804	403.82	0.9955	402.003	1		16,973.45
RAND		BL-9803	406.97	0.9955	405.139	1		17,105.86
RAND		BL-9802	403.2	0.9955	401.386	1		16,947.40
RAND		BL-9801	405.92	0.996	404.296	1		17,070.27
RAND		BL-9800	403.3	0.996	401.687	1		16,960.11
RAND		BL-9799	402.22	0.996	400.611	1		16,914.68
RAND		BL-9798	404.67	0.996	403.051	1		17,017.70
RAND		BL-9797	404.6	0.996	402.982	1		17,014.79
RAND		BL-9796	407.2	0.996	405.571	1		17,124.10
RAND		BL-9795	406.82	0.9962	405.274	1		17,111.56
RAND		BL-9794	407.43	0.9962	405.882	1		17,137.23
RAND		BL-9793	400.85	0.9962	399.327	1		16,860.46
RAND		BL-9792	404.75	0.9962	403.212	1		17,024.50
RAND		BL-9791	408.82	0.9962	407.266	1		17,195.67
RAND		BL-9790	403.1	0.9962	401.568	1		16,955.08
RAND		BW-3081	403.57	0.9958	401.875	1		16,968.05
RAND		BW-3080	404.78	0.9958	403.08	1		17,018.92
RAND		BW-3079	401.45	0.9963	399.965	1		16,887.40
RAND		BW-3078	403.5	0.9963	402.007	1		16,973.62
RAND		BW-3077	403.47	0.9963	401.977	1		16,972.35
RAND		BW-3076	405.15	0.9963	403.651	1		17,043.03
RAND		BW-3075	406.57	0.9963	405.066	1		17,102.78
RAND		BW-3074	403.77	0.9963	402.276	1		16,984.98
RAND		BW-3073	406.66	0.9961	405.074	1		17,103.12
RAND		BW-3072	405.25	0.9961	403.67	1		17,043.84
RAND		BW-3071	405.93	0.9961	404.347	1		17,072.42
RAND		BW-3070	407.07	0.9961	405.482	1		17,120.34
RAND		BW-3069	402.12	0.9961	400.552	1		16,912.19
RAND		BW-3068	404.53	0.9961	402.952	1		17,013.52
RAND		BW-3067	405.2	0.9961	403.62	1		17,041.72
RAND		BW-3066	402.62	0.9961	401.05	1		16,933.21
RAND		BW-3065	405.1	0.996	403.48	1		17,035.81

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BW-3064	403.15	0.996	401.537	1		16,953.78
RAND		BW-3063	401.75	0.996	400.143	1		16,894.92
RAND		BW-3062	406.82	0.996	405.193	1		17,108.14
RAND		BW-3061	404.95	0.996	403.33	1		17,029.48
RAND		BW-3060	402.67	0.996	401.059	1		16,933.59
RAND		BW-3059	404.17	0.996	402.553	1		16,996.67
RAND		BW-3058	402.72	0.996	401.109	1		16,935.70
RAND		BW-3057	403.48	0.996	401.866	1		16,967.67
RAND		BW-3106	407.2	0.996	405.571	1		17,124.10
RAND		BW-3105	404.9	0.996	403.28	1		17,027.37
RAND		BW-3104	406.55	0.996	404.924	1		17,096.78
RAND		BW-3103	406.45	0.9961	404.865	1		17,094.29
RAND		BW-3102	401.77	0.9961	400.203	1		16,897.45
RAND		BW-3101	404.35	0.9961	402.773	1		17,005.96
RAND		BW-3100	402.92	0.9961	401.349	1		16,945.84
RAND		BW-3099	405.3	0.9961	403.719	1		17,045.90
RAND		BW-3098	403.68	0.9961	402.106	1		16,977.80
RAND		BW-3097	406.4	0.9961	404.815	1		17,092.18
RAND		BW-3096	404	0.9961	402.424	1		16,991.23
RAND		BW-3095	405.08	0.9961	403.5	1		17,036.66
RAND		BW-3094	407.05	0.9961	405.463	1		17,119.54
RAND		BW-3093	405.08	0.9961	403.5	1		17,036.66
RAND		BW-3092	400.06	0.9961	398.5	1		16,825.55
RAND		BW-3091	404.72	0.996	403.101	1		17,019.81
RAND		BW-3090	405.33	0.996	403.709	1		17,045.48
RAND		BW-3089	401.4	0.996	399.794	1		16,880.18
RAND		BW-3088	405.08	0.996	403.46	1		17,034.97
RAND		BW-3087	404.58	0.996	402.962	1		17,013.94
RAND		BW-3086	404.69	0.996	403.071	1		17,018.54
RAND		BW-3085	404.67	0.9958	402.97	1		17,014.28
RAND		BW-3084	409.38	0.9958	407.661	1		17,212.34
RAND		BW-3083	402.8	0.9958	401.108	1		16,935.66
RAND		BW-3082	405.47	0.9958	403.767	1		17,047.93
RAND		BW-3131	402.5	0.9954	400.649	1		16,916.28
RAND		BW-3130	403.62	0.9954	401.763	1		16,963.32
RAND		BW-3129	404.6	0.9954	402.739	1		17,004.53
RAND		BW-3128	403.3	0.9954	401.445	1		16,949.89
RAND		BW-3127	407.1	0.9954	405.227	1		17,109.58
RAND		BW-3126	404.47	0.9954	402.609	1		16,999.04
RAND		BW-3125	402.69	0.9954	400.838	1		16,924.26
RAND		BW-3124	408.32	0.9954	406.442	1		17,160.88
RAND		BW-3123	404.05	0.9954	402.191	1		16,981.39
RAND		BW-3122	405.57	0.9954	403.704	1		17,045.27
RAND		BW-3121	404.6	0.9958	402.901	1		17,011.37
RAND		BW-3120	402.6	0.9958	400.909	1		16,927.26
RAND		BW-3119	402.6	0.9958	400.909	1		16,927.26
RAND		BW-3118	403.97	0.9958	402.273	1		16,984.85

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-3117	403.67	0.9958	401.975	1		16,972.27
RAND		BW-3116	401.35	0.9958	399.664	1		16,874.69
RAND		BW-3115	405.9	0.996	404.276	1		17,069.42
RAND		BW-3114	403.8	0.996	402.185	1		16,981.14
RAND		BW-3113	404.5	0.996	402.882	1		17,010.56
RAND		BW-3112	405.63	0.996	404.007	1		17,058.06
RAND		BW-3111	404.25	0.996	402.633	1		17,000.05
RAND		BW-3110	403.47	0.996	401.856	1		16,967.24
RAND		BW-3109	400.87	0.996	399.267	1		16,857.93
RAND		BW-3108	405.55	0.996	403.928	1		17,054.73
RAND		BW-3107	401.75	0.996	400.143	1		16,894.92
RAND		BW-3169	404.6	0.9958	402.901	1		17,011.37
RAND		BW-3168	405.97	0.9958	404.265	1		17,068.96
RAND		BW-3167	403.2	0.9958	401.507	1		16,952.51
RAND		BW-3166	403.6	0.9958	401.905	1		16,969.31
RAND		BW-3165	408.65	0.9958	406.934	1		17,181.65
RAND		BW-3164	402.35	0.9958	400.66	1		16,916.75
RAND		BW-3157	402.02	0.9964	400.573	1		16,913.07
RAND		BW-3156	404.35	0.9964	402.894	1		17,011.07
RAND		BW-3155	400.07	0.9964	398.63	1		16,831.04
RAND		BW-3154	405.8	0.9964	404.339	1		17,072.08
RAND		BW-3153	403.97	0.9964	402.516	1		16,995.11
RAND		BW-3152	404.72	0.9964	403.263	1		17,026.65
RAND		BW-3151	403.87	0.9964	402.416	1		16,990.89
RAND		BW-3150	404.65	0.9964	403.193	1		17,023.70
RAND		BW-3149	402.32	0.9964	400.872	1		16,925.70
RAND		BW-3148	406.4	0.9964	404.937	1		17,097.33
RAND		BW-3147	402.85	0.9964	401.4	1		16,947.99
RAND		BW-3146	404.82	0.9964	403.363	1		17,030.87
RAND		BW-3133	405.42	0.9954	403.555	1		17,038.98
RAND		BW-3132	405.3	0.9954	403.436	1		17,033.96
RAND		BW-4360	403.23	0.9958	401.536	1		16,953.73
RAND		BW-4359	405.7	0.9958	403.996	1		17,057.60
RAND		BW-4358	402.35	0.9958	400.66	1		16,916.75
RAND		BW-4357	407.2	0.9959	405.53	1		17,122.37
RAND		BW-4356	409.6	0.9959	407.921	1		17,223.32
RAND		BW-4355	401.82	0.9959	400.173	1		16,896.18
RAND		BW-4354	404.98	0.9959	403.32	1		17,029.06
RAND		BW-4353	406.47	0.9959	404.803	1		17,091.67
RAND		BW-4352	403.18	0.9959	401.527	1		16,953.35
RAND		BW-4351	403.37	0.9959	401.716	1		16,961.33
RAND		BW-4350	405.03	0.9959	403.369	1		17,031.13
RAND		BW-4349	403.75	0.9959	402.095	1		16,977.34
RAND		BW-4348	405.12	0.9959	403.459	1		17,034.93
RAND		BW-4347	405.4	0.9959	403.738	1		17,046.71
RAND		BW-4346	404.05	0.9959	402.393	1		16,989.92
RAND		BW-4343	406.82	0.9965	405.396	1		17,116.71

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-4342	404.58	0.9965	403.164	1		17,022.47
RAND		BW-4341	402.3	0.9965	400.892	1		16,926.54
RAND		BW-4340	401.15	0.9966	399.786	1		16,879.84
RAND		BW-4338	405.62	0.9966	404.241	1		17,067.94
RAND		BW-4337	400.3	0.9966	398.939	1		16,844.08
RAND		BW-4336	400.87	0.9966	399.507	1		16,868.06
RAND		BW-4335	407.52	0.9966	406.134	1		17,147.87
RAND		BW-4334	404.05	0.9966	402.676	1		17,001.87
RAND		BW-4332	404.1	0.9966	402.726	1		17,003.98
RAND		BW-4388	404	0.9961	402.424	1		16,991.23
RAND		BW-4387	403.1	0.9961	401.528	1		16,953.40
RAND		BW-4386	401.77	0.9963	400.283	1		16,900.83
RAND		BW-4385	404.72	0.9963	403.223	1		17,024.96
RAND		BW-4384	407.6	0.9963	406.092	1		17,146.10
RAND		BW-4383	404.6	0.9963	403.103	1		17,019.90
RAND		BW-4382	402.25	0.9963	400.762	1		16,921.05
RAND		BW-4381	405.15	0.9963	403.651	1		17,043.03
RAND		BW-4380	405.07	0.9964	403.612	1		17,041.39
RAND		BW-4379	407.44	0.9964	405.973	1		17,141.07
RAND		BW-4378	407.12	0.9964	405.654	1		17,127.60
RAND		BW-4377	406	0.9964	404.538	1		17,080.48
RAND		BW-4376	407.13	0.9964	405.664	1		17,128.03
RAND		BW-4375	402.68	0.9964	401.23	1		16,940.81
RAND		BW-4373	404.27	0.9964	402.815	1		17,007.74
RAND		BW-4372	401.73	0.9964	400.284	1		16,900.87
RAND		BW-4370	405.23	0.9964	403.771	1		17,048.10
RAND		BW-4369	407	0.9964	405.535	1		17,122.58
RAND		BW-4368	402.42	0.9965	401.012	1		16,931.61
RAND		BW-4367	409.58	0.9965	408.146	1		17,232.82
RAND		BW-4366	402.72	0.9965	401.31	1		16,944.19
RAND		BW-4365	406.96	0.9965	405.536	1		17,122.62
RAND		BW-4363	403.92	0.9965	402.506	1		16,994.69
RAND		BW-4362	404.87	0.9958	403.17	1		17,022.72
RAND		BW-4361	403.92	0.9958	402.224	1		16,982.78
RAND		BW-4475	404.99	0.9966	403.613	1		17,041.43
RAND		BW-4473	401.97	0.997	400.764	1		16,921.14
RAND		BW-4472	408.05	0.997	406.826	1		17,177.09
RAND		BW-4471	402.82	0.997	401.612	1		16,956.94
RAND		BW-4470	402.81	0.997	401.602	1		16,956.52
RAND		BW-4469	407.8	0.997	406.577	1		17,166.58
RAND		BW-4468	401.72	0.997	400.515	1		16,910.62
RAND		BW-4467	403.8	0.997	402.589	1		16,998.19
RAND		BW-4466	403.46	0.997	402.25	1		16,983.88
RAND		BW-4465	403.45	0.997	402.24	1		16,983.46
RAND		BW-4464	405.05	0.997	403.835	1		17,050.80
RAND		BW-4463	408.6	0.997	407.374	1		17,200.23
RAND		BW-4462	403.62	0.997	402.409	1		16,990.59

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-4461	403.5	0.9958	401.805	1		16,965.09
RAND		BW-4459	401.97	0.9958	400.282	1		16,900.79
RAND		BW-4458	405.07	0.9958	403.369	1		17,031.13
RAND		BW-4457	407.4	0.9958	405.689	1		17,129.08
RAND		BW-4456	403.6	0.9958	401.905	1		16,969.31
RAND		BW-4455	406.9	0.9959	405.232	1		17,109.79
RAND		BW-4454	403.45	0.9959	401.796	1		16,964.71
RAND		BW-4453	403.72	0.9959	402.065	1		16,976.07
RAND		BW-4451	401.52	0.9959	399.874	1		16,883.56
RAND		BW-4450	405.67	0.9959	404.007	1		17,058.06
RAND		BW-4449	409.12	0.9958	407.402	1		17,201.41
RAND		BW-4448	401.07	0.9958	399.386	1		16,862.96
RAND		BW-4500	404.41	0.9967	403.075	1		17,018.71
RAND		BW-4499	408.27	0.9967	406.923	1		17,181.18
RAND		BW-4498	404.02	0.9967	402.687	1		17,002.33
RAND		BW-4497	404.22	0.9967	402.886	1		17,010.73
RAND		BW-4496	406.52	0.9967	405.178	1		17,107.51
RAND		BW-4495	402.7	0.9967	401.371	1		16,946.77
RAND		BW-4494	402.15	0.9967	400.823	1		16,923.63
RAND		BW-4493	406.12	0.9967	404.78	1		17,090.70
RAND		BW-4492	403.49	0.9967	402.158	1		16,980.00
RAND		BW-4491	404.3	0.9966	402.925	1		17,012.38
RAND		BW-4490	405.05	0.9966	403.673	1		17,043.96
RAND		BW-4489	401.27	0.9966	399.906	1		16,884.91
RAND		BW-4488	404.72	0.9966	403.344	1		17,030.07
RAND		BW-4487	406.27	0.9966	404.889	1		17,095.30
RAND		BW-4486	402.6	0.9966	401.231	1		16,940.86
RAND		BW-4485	406.43	0.9965	405.007	1		17,100.29
RAND		BW-4484	405.13	0.9965	403.712	1		17,045.61
RAND		BW-4483	406.5	0.9965	405.077	1		17,103.24
RAND		BW-4482	403.7	0.9965	402.287	1		16,985.44
RAND		BW-4481	407.57	0.9965	406.144	1		17,148.29
RAND		BW-4480	402.35	0.9965	400.942	1		16,928.65
RAND		BW-4479	405.98	0.9966	404.6	1		17,083.10
RAND		BW-4478	404.37	0.9966	402.995	1		17,015.34
RAND		BW-4477	402.5	0.9966	401.132	1		16,936.68
RAND		BW-4476	405.47	0.9966	404.091	1		17,061.61
RAND		BW-4525	401.48	0.9962	399.954	1		16,886.94
RAND		BW-4524	403.96	0.9962	402.425	1		16,991.27
RAND		BW-4523	403.52	0.9962	401.987	1		16,972.78
RAND		BW-4522	406.06	0.9962	404.517	1		17,079.60
RAND		BW-4521	404.5	0.9969	403.246	1		17,025.93
RAND		BW-4520	403.51	0.9969	402.259	1		16,984.26
RAND		BW-4519	405.82	0.9969	404.562	1		17,081.50
RAND		BW-4518	407.5	0.9969	406.237	1		17,152.22
RAND		BW-4517	405.66	0.997	404.443	1		17,076.47
RAND		BW-4516	400.77	0.997	399.568	1		16,870.64

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-4515	404.33	0.997	403.117	1		17,020.49
RAND		BW-4514	403.33	0.997	402.12	1		16,978.39
RAND		BW-4513	402.29	0.997	401.083	1		16,934.61
RAND		BW-4512	401.61	0.997	400.405	1		16,905.98
RAND		BW-4511	403.38	0.9969	402.13	1		16,978.81
RAND		BW-4510	408.57	0.9969	407.303	1		17,197.23
RAND		BW-4509	401.35	0.9969	400.106	1		16,893.36
RAND		BW-4508	400.12	0.9969	398.88	1		16,841.59
RAND		BW-4507	404.37	0.9969	403.116	1		17,020.44
RAND		BW-4506	407.12	0.9969	405.858	1		17,136.22
RAND		BW-4505	405.83	0.9964	404.369	1		17,073.35
RAND		BW-4504	404.44	0.9964	402.984	1		17,014.87
RAND		BW-4503	406.74	0.9964	405.276	1		17,111.64
RAND		BW-4502	404.59	0.9964	403.133	1		17,021.16
RAND		BW-4501	404.23	0.9967	402.896	1		17,011.16
RAND		BW-4552	406.75	0.9964	405.286	1		17,112.07
RAND		BW-4551	404.28	0.9964	402.825	1		17,008.16
RAND		BW-4550	401.82	0.9965	400.414	1		16,906.36
RAND		BW-4549	402.8	0.9965	401.39	1		16,947.57
RAND		BW-4548	402.61	0.9965	401.201	1		16,939.59
RAND		BW-4547	403.57	0.9965	402.158	1		16,980.00
RAND		BW-4546	401.43	0.9965	400.025	1		16,889.94
RAND		BW-4545	405.68	0.9965	404.26	1		17,068.75
RAND		BW-4544	404.56	0.9966	403.184	1		17,023.32
RAND		BW-4543	402.02	0.9966	400.653	1		16,916.45
RAND		BW-4542	402.21	0.9966	400.842	1		16,924.43
RAND		BW-4541	401.65	0.9966	400.284	1		16,900.87
RAND		BW-4540	404.51	0.9966	403.135	1		17,021.25
RAND		BW-4539	407.96	0.9966	406.573	1		17,166.41
RAND		BW-4538	403.02	0.9966	401.65	1		16,958.55
RAND		BW-4537	401.08	0.9966	399.716	1		16,876.89
RAND		BW-4536	403.3	0.9966	401.929	1		16,970.33
RAND		BW-4534	400.51	0.9966	399.148	1		16,852.91
RAND		BW-4533	404.97	0.9961	403.391	1		17,032.06
RAND		BW-4531	400.53	0.9961	398.968	1		16,845.31
RAND		BW-4530	406.8	0.9961	405.213	1		17,108.98
RAND		BW-4529	404.34	0.9961	402.763	1		17,005.54
RAND		BW-4528	402.68	0.9961	401.11	1		16,935.75
RAND		BW-4527	402.05	0.9962	400.522	1		16,910.92
RAND		BW-4526	404.65	0.9962	403.112	1		17,020.28
RAND		BW-2811	407.35	0.9961	405.761	1		17,132.12
RAND		BW-2810	404.53	0.9961	402.952	1		17,013.52
RAND		BW-2809	402.22	0.9959	400.571	1		16,912.99
RAND		BW-2808	403.2	0.9959	401.547	1		16,954.20
RAND		BW-2807	404.45	0.9959	402.792	1		17,006.76
RAND		BW-2806	404.48	0.9959	402.822	1		17,008.03
RAND		BW-2805	407.17	0.9959	405.501	1		17,121.14

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-2804	404.87	0.9959	403.21	1		17,024.41
RAND		BW-2803	403.97	0.996	402.354	1		16,988.27
RAND		BW-2802	403.65	0.996	402.035	1		16,974.80
RAND		BW-2801	405.52	0.996	403.898	1		17,053.46
RAND		BW-2800	408.75	0.996	407.115	1		17,189.29
RAND		BW-2799	404.47	0.996	402.852	1		17,009.30
RAND		BW-2798	401.83	0.996	400.223	1		16,898.30
RAND		BW-2797	403.62	0.996	402.006	1		16,973.58
RAND		BW-2796	407.83	0.996	406.199	1		17,150.62
RAND		BW-2795	405.17	0.996	403.549	1		17,038.73
RAND		BW-2794	403.18	0.996	401.567	1		16,955.04
RAND		BW-2793	402.4	0.996	400.79	1		16,922.24
RAND		BW-2792	401.7	0.996	400.093	1		16,892.81
RAND		BW-2791	405.76	0.996	404.137	1		17,063.55
RAND		BW-2790	401.42	0.996	399.814	1		16,881.03
RAND		BW-2789	405.85	0.996	404.227	1		17,067.35
RAND		BW-2788	403.33	0.996	401.717	1		16,961.38
RAND		BW-2787	403.12	0.996	401.508	1		16,952.55
RAND		BW-2836	404.52	0.9962	402.983	1		17,014.83
RAND		BW-2835	404.55	0.9962	403.013	1		17,016.10
RAND		BW-2834	403.03	0.9962	401.498	1		16,952.13
RAND		BW-2833	404.45	0.9962	402.913	1		17,011.87
RAND		BW-2832	407.45	0.9962	405.902	1		17,138.08
RAND		BW-2831	403.16	0.9962	401.628	1		16,957.62
RAND		BW-2830	404.65	0.9962	403.112	1		17,020.28
RAND		BW-2829	405.92	0.9962	404.378	1		17,073.73
RAND		BW-2828	403.6	0.9962	402.066	1		16,976.11
RAND		BW-2827	403.42	0.995	401.403	1		16,948.12
RAND		BW-2826	408.58	0.995	406.537	1		17,164.89
RAND		BW-2825	405.02	0.995	402.995	1		17,015.34
RAND		BW-2824	403.9	0.995	401.881	1		16,968.30
RAND		BW-2823	404.2	0.995	402.179	1		16,980.88
RAND		BW-2822	405.45	0.995	403.423	1		17,033.41
RAND		BW-2821	406.7	0.9952	404.748	1		17,089.35
RAND		BW-2820	406.6	0.9952	404.648	1		17,085.13
RAND		BW-2819	402.87	0.9952	400.936	1		16,928.40
RAND		BW-2818	403.5	0.9952	401.563	1		16,954.87
RAND		BW-2817	403.35	0.9952	401.414	1		16,948.58
RAND		BW-2816	405.38	0.9952	403.434	1		17,033.87
RAND		BW-2815	405.82	0.9961	404.237	1		17,067.78
RAND		BW-2814	406.53	0.9961	404.945	1		17,097.67
RAND		BW-2813	404.85	0.9961	403.271	1		17,026.99
RAND		BW-2812	401.82	0.9961	400.253	1		16,899.56
RAND		BM-1752	405.57	0.9956	403.785	1		17,048.69
RAND		BM-1751	407.42	0.9956	405.627	1		17,126.46
RAND		BM-1750	405.62	0.9956	403.835	1		17,050.80
RAND		BM-1749	405.45	0.9956	403.666	1		17,043.67

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1748	406.37	0.9956	404.582	1		17,082.34
RAND		BM-1747	403.4	0.9956	401.625	1		16,957.49
RAND		BM-1746	401.98	0.9965	400.573	1		16,913.07
RAND		BM-1745	405.75	0.9965	404.33	1		17,071.70
RAND		BM-1744	404.07	0.9965	402.656	1		17,001.02
RAND		BM-1743	404.4	0.9965	402.985	1		17,014.91
RAND		BM-1742	403.2	0.9965	401.789	1		16,964.42
RAND		BM-1741	403.92	0.9965	402.506	1		16,994.69
RAND		BM-1740	403.2	0.9963	401.708	1		16,961.00
RAND		BM-1739	406.35	0.9963	404.847	1		17,093.53
RAND		BM-1738	401.17	0.9963	399.686	1		16,875.62
RAND		BM-1737	404.65	0.9963	403.153	1		17,022.01
RAND		BM-1736	403.12	0.9963	401.628	1		16,957.62
RAND		BM-1735	403.57	0.9963	402.077	1		16,976.58
RAND		BM-1734	409.97	0.9962	408.412	1		17,244.05
RAND		BM-1733	409.17	0.9962	407.615	1		17,210.40
RAND		BW-2924	404.08	0.9954	402.221	1		16,982.66
RAND		BW-2923	408.27	0.9954	406.392	1		17,158.76
RAND		BW-2922	403.9	0.9954	402.042	1		16,975.10
RAND		BW-2921	406.12	0.9951	404.13	1		17,063.26
RAND		BW-2920	408.76	0.9951	406.757	1		17,174.18
RAND		BW-2919	402.13	0.9951	400.16	1		16,895.64
RAND		BW-2918	408	0.9951	406.001	1		17,142.26
RAND		BW-2917	405.28	0.9951	403.294	1		17,027.96
RAND		BW-2916	405.87	0.9951	403.881	1		17,052.74
RAND		BW-2915	407.88	0.9952	405.922	1		17,138.92
RAND		BW-2914	405.15	0.9952	403.205	1		17,024.20
RAND		BW-2913	403.85	0.9952	401.912	1		16,969.61
RAND		BW-2912	404.25	0.9952	402.31	1		16,986.41
RAND		BW-2911	402.92	0.9952	400.986	1		16,930.51
RAND		BW-2910	404.2	0.9952	402.26	1		16,984.30
RAND		BW-2909	402.68	0.9964	401.23	1		16,940.81
RAND		BW-2908	408.75	0.9964	407.279	1		17,196.22
RAND		BW-2907	400.22	0.9964	398.779	1		16,837.33
RAND		BW-2906	403.66	0.9964	402.207	1		16,982.06
RAND		BW-2905	406	0.9964	404.538	1		17,080.48
RAND		BW-2904	408.72	0.9964	407.249	1		17,194.95
RAND		BW-2903	403.95	0.9954	402.092	1		16,977.21
RAND		BW-2902	406.85	0.9954	404.978	1		17,099.06
RAND		BW-2901	404.36	0.9954	402.5	1		16,994.44
RAND		BW-2900	404.35	0.9954	402.49	1		16,994.01
RAND		BW-2950	405.48	0.995	403.453	1		17,034.67
RAND		BW-2949	403.24	0.995	401.224	1		16,940.56
RAND		BW-2948	405.19	0.995	403.164	1		17,022.47
RAND		BW-2947	404.31	0.995	402.288	1		16,985.48
RAND		BW-2946	405.67	0.995	403.642	1		17,042.65
RAND		BW-2945	407.92	0.995	405.88	1		17,137.15

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-2944	403.27	0.995	401.254	1		16,941.83
RAND		BW-2943	403.05	0.995	401.035	1		16,932.58
RAND		BW-2942	403.5	0.995	401.483	1		16,951.50
RAND		BW-2941	408.63	0.995	406.587	1		17,167.00
RAND		BW-2940	401.09	0.995	399.085	1		16,850.25
RAND		BW-2939	402.67	0.9961	401.1	1		16,935.32
RAND		BW-2938	403.7	0.9961	402.126	1		16,978.64
RAND		BW-2937	400.5	0.9961	398.938	1		16,844.04
RAND		BW-2936	404.32	0.9961	402.743	1		17,004.70
RAND		BW-2935	405.97	0.9961	404.387	1		17,074.11
RAND		BW-2934	403.67	0.9961	402.096	1		16,977.38
RAND		BW-2933	401.25	0.9962	399.725	1		16,877.27
RAND		BW-2932	407.43	0.9962	405.882	1		17,137.23
RAND		BW-2931	407.65	0.9962	406.101	1		17,146.48
RAND		BW-2929	405.2	0.9962	403.66	1		17,043.41
RAND		BW-2928	405.45	0.9962	403.909	1		17,053.93
RAND		BW-2927	403.27	0.9954	401.415	1		16,948.62
RAND		BW-2926	403.13	0.9954	401.276	1		16,942.76
RAND		BW-2925	406.16	0.9954	404.292	1		17,070.10
RAND		BW-4331	403.4	0.9966	402.028	1		16,974.51
RAND		BW-4330	408.37	0.9966	406.982	1		17,183.68
RAND		BW-4329	403.85	0.9961	402.275	1		16,984.94
RAND		BW-4328	408.05	0.9961	406.459	1		17,161.59
RAND		BW-4327	405.2	0.9961	403.62	1		17,041.72
RAND		BW-4326	406.2	0.9961	404.616	1		17,083.78
RAND		BW-4325	404.5	0.9961	402.922	1		17,012.25
RAND		BW-4324	402.55	0.9961	400.98	1		16,930.26
RAND		BW-4323	404.47	0.9962	402.933	1		17,012.72
RAND		BW-4322	405.47	0.9962	403.929	1		17,054.77
RAND		BW-4321	403.65	0.9962	402.116	1		16,978.22
RAND		BW-4320	403.32	0.9962	401.787	1		16,964.33
RAND		BG-4319	405.08	0.9962	403.541	1		17,038.39
RAND		BW-4318	402.8	0.9962	401.269	1		16,942.46
RAND		BW-4317	403.57	0.9963	402.077	1		16,976.58
RAND		BW-4316	406.82	0.9963	405.315	1		17,113.29
RAND		BW-4315	401.97	0.9963	400.483	1		16,909.27
RAND		BW-4314	403.05	0.9963	401.559	1		16,954.70
RAND		BW-4312	403	0.9963	401.509	1		16,952.59
RAND		BW-4311	402.2	0.9964	400.752	1		16,920.63
RAND		BW-4310	405.27	0.9964	403.811	1		17,049.79
RAND		BG-1862	405.03	0.9959	403.369	1		17,031.13
RAND		BG-1861	403.97	0.9959	402.314	1		16,986.58
RAND		BG-1860	406.15	0.9959	404.485	1		17,078.25
RAND		BG-1859	401.55	0.9959	399.904	1		16,884.83
RAND		BG-1858	404.8	0.9959	403.14	1		17,021.46
RAND		BG-1857	405.75	0.9959	404.086	1		17,061.40
RAND		BG-1856	403.5	0.9959	401.846	1		16,966.82

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1855	405.13	0.9959	403.469	1		17,035.35
RAND		BG-1854	402.1	0.9959	400.451	1		16,907.92
RAND		BG-1853	404.12	0.997	402.908	1		17,011.66
RAND		BG-1852	402.87	0.997	401.661	1		16,959.01
RAND		BG-1851	408.11	0.997	406.886	1		17,179.62
RAND		BG-1843	404.92	0.9957	403.179	1		17,023.10
RAND		BG-1842	404.03	0.9957	402.293	1		16,985.70
RAND		BG-1841	403.25	0.9957	401.516	1		16,952.89
RAND		BG-1840	404.45	0.9957	402.711	1		17,003.34
RAND		BG-1839	405.26	0.9957	403.517	1		17,037.38
RAND		BG-1838	403.57	0.9957	401.835	1		16,966.36
RAND		BG-1837	405.02	0.9966	403.643	1		17,042.70
RAND		BG-1836	403.75	0.9966	402.377	1		16,989.24
RAND		BG-1835	406.25	0.9966	404.869	1		17,094.46
RAND		BG-1834	407.23	0.9966	405.845	1		17,135.67
RAND		BG-1833	403.55	0.9966	402.178	1		16,980.84
RAND		BG-1832	404.82	0.9964	403.363	1		17,030.87
RAND		BG-1831	406.05	0.9964	404.588	1		17,082.60
RAND		BG-2673	403.22	0.9958	401.526	1		16,953.31
RAND		BG-2672	406.83	0.9958	405.121	1		17,105.10
RAND		BG-2671	403.28	0.9962	401.748	1		16,962.68
RAND		BG-2879	403.3	0.9956	401.525	1		16,953.27
RAND		BG-2878	404.02	0.9953	402.121	1		16,978.43
RAND		BG-2877	403.59	0.9953	401.693	1		16,960.36
RAND		BG-2876	402.34	0.9953	400.449	1		16,907.84
RAND		BG-2875	403.74	0.9953	401.842	1		16,966.65
RAND		BG-2874	406.02	0.9953	404.112	1		17,062.50
RAND		BG-2873	400.65	0.9953	398.767	1		16,836.82
RAND		BG-2872	404.91	0.9955	403.088	1		17,019.26
RAND		BG-2871	402.45	0.9955	400.639	1		16,915.86
RAND		BG-2870	405.3	0.9955	403.476	1		17,035.64
RAND		BG-2869	403.87	0.9955	402.053	1		16,975.56
RAND		BG-2868	406.1	0.9955	404.273	1		17,069.30
RAND		BG-2867	403.12	0.9955	401.306	1		16,944.02
RAND		BG-2866	404.12	0.9955	402.301	1		16,986.03
RAND		BG-2865	406.37	0.9955	404.541	1		17,080.61
RAND		BG-2864	400.35	0.9955	398.548	1		16,827.57
RAND		BG-2863	403.8	0.9955	401.983	1		16,972.61
RAND		BG-2862	403.75	0.9955	401.933	1		16,970.50
RAND		BG-2861	402.42	0.9955	400.609	1		16,914.59
RAND		BG-2860	406.11	0.9958	404.404	1		17,074.83
RAND		BG-2859	405.67	0.9958	403.966	1		17,056.33
RAND		BG-2858	403.22	0.9958	401.526	1		16,953.31
RAND		BG-2698	404.77	0.9962	403.232	1		17,025.34
RAND		BG-2697	404.82	0.9962	403.282	1		17,027.45
RAND		BG-2696	403.08	0.9962	401.548	1		16,954.24
RAND		BG-2695	404.56	0.9961	402.982	1		17,014.79

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-2694	405.57	0.9961	403.988	1		17,057.26
RAND		BG-2693	405.44	0.9961	403.859	1		17,051.82
RAND		BG-2692	405.34	0.9961	403.759	1		17,047.59
RAND		BG-2691	406.82	0.9961	405.233	1		17,109.83
RAND		BG-2690	403.58	0.9961	402.006	1		16,973.58
RAND		BG-2689	403.65	0.9956	401.874	1		16,968.00
RAND		BG-2688	406.18	0.9956	404.393	1		17,074.36
RAND		BG-2687	402.02	0.9956	400.251	1		16,899.48
RAND		BG-2686	402.29	0.9956	400.52	1		16,910.84
RAND		BG-2685	408.67	0.9956	406.872	1		17,179.03
RAND		BG-2684	401.26	0.9956	399.494	1		16,867.52
RAND		BG-2683	404.72	0.9956	402.939	1		17,012.97
RAND		BG-2682	409.1	0.9956	407.3	1		17,197.10
RAND		BG-2681	402.62	0.9956	400.848	1		16,924.68
RAND		BG-2680	403.07	0.9956	401.296	1		16,943.60
RAND		BG-2679	407.72	0.9956	405.926	1		17,139.09
RAND		BG-2678	401.2	0.9956	399.435	1		16,865.02
RAND		BG-2677	404.03	0.9958	402.333	1		16,987.38
RAND		BG-2676	405.5	0.9958	403.797	1		17,049.20
RAND		BG-2675	402.37	0.9958	400.68	1		16,917.59
RAND		BG-2674	402.74	0.9958	401.048	1		16,933.13
RAND		XL-197	405.63	0.9958	403.926	1		17,054.64
RAND		XL-196	405.32	0.9958	403.618	1		17,041.64
RAND		XL-195	406.66	0.9958	404.952	1		17,097.96
RAND		XL-194	408.57	0.9958	406.854	1		17,178.27
RAND		XL-193	405.75	0.9958	404.046	1		17,059.71
RAND		XL-192	405.83	0.9962	404.288	1		17,069.93
RAND		XL-191	404.16	0.9962	402.624	1		16,999.67
RAND		XL-190	406.03	0.9962	404.487	1		17,078.33
RAND		XL-189	402.16	0.9962	400.632	1		16,915.56
RAND		XL-188	408.95	0.9962	407.396	1		17,201.16
RAND		XL-187	407.73	0.9962	406.181	1		17,149.86
RAND		XL-186	404.35	0.9963	402.854	1		17,009.38
RAND		XL-185	407.49	0.9963	405.982	1		17,141.45
RAND		XL-184	404.92	0.9963	403.422	1		17,033.36
RAND		XL-183	405.95	0.9963	404.448	1		17,076.68
RAND		XL-182	405.73	0.9963	404.229	1		17,067.44
RAND		XL-181	403.87	0.9963	402.376	1		16,989.20
RAND		XL-180	403.33	0.9958	401.636	1		16,957.96
RAND		XL-179	407.08	0.9958	405.37	1		17,115.61
RAND		XL-178	404.28	0.9958	402.582	1		16,997.90
RAND		XL-177	404.59	0.9958	402.891	1		17,010.94
RAND		XL-176	405.14	0.9958	403.438	1		17,034.04
RAND		XL-175	405.17	0.9958	403.468	1		17,035.31
RAND		XL-174	405.41	0.9957	403.667	1		17,043.71
RAND		XL-173	403.75	0.9957	402.014	1		16,973.92
RAND		D-12445	407.13	0.9962	405.583	1		17,124.61

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
HOBOKEN		D-12443	404.23	0.9992	403.907	1		17,053.84
U.S. VAR.		YA-537	375.43	0.9978	374.604	1		15,816.61
RAND		C-9179	406.42	0.9964	404.957	1		17,098.18
RAND		C-9178	406.33	0.9964	404.867	1		17,094.38
RAND		C-9177	403.92	0.9964	402.466	1		16,993.00
RAND		C-9176	405.38	0.9964	403.921	1		17,054.43
RAND		C-9175	403.38	0.9964	401.928	1		16,970.28
RAND		C-9174	402.25	0.9964	400.802	1		16,922.74
RAND		C-9172	403.53	0.9964	402.077	1		16,976.58
RAND		C-9171	404.87	0.9964	403.412	1		17,032.94
RAND		C-9170	404.1	0.9962	402.564	1		16,997.14
RAND		C-9169	405.77	0.9962	404.228	1		17,067.40
RAND		C-9168	406.2	0.9962	404.656	1		17,085.47
RAND		C-9167	402.03	0.9962	400.502	1		16,910.08
RAND		C-9166	406.88	0.9961	405.293	1		17,112.36
RAND		C-9165	402.65	0.9961	401.08	1		16,934.48
RAND		C-9164	407.48	0.9961	405.891	1		17,137.61
RAND		C-9163	405.4	0.9961	403.819	1		17,050.13
RAND		C-9162	406.85	0.9961	405.263	1		17,111.10
RAND		C-9161	404.77	0.9962	403.232	1		17,025.34
RAND		C-9158	404.35	0.9962	402.813	1		17,007.65
RAND		C-9156	404.72	0.9962	403.182	1		17,023.23
RAND		BG-1734	404.55	0.9957	402.81	1		17,007.52
RAND		BG-1733	409.13	0.9957	407.371	1		17,200.10
RAND		BG-1731	404.92	0.9957	403.179	1		17,023.10
RAND		BG-1703	405.92	0.9965	404.499	1		17,078.84
RAND		BG-1702	406.92	0.9965	405.496	1		17,120.93
RAND		BG-1701	401.69	0.9965	400.284	1		16,900.87
RAND		BG-1700	407.26	0.9965	405.835	1		17,135.25
RAND		BG-1699	402.29	0.9965	400.882	1		16,926.12
RAND		BG-1698	404	0.9965	402.586	1		16,998.07
RAND		BG-1730	400.02	0.9957	398.3	1		16,817.10
RAND		BG-1729	405.5	0.9957	403.756	1		17,047.47
RAND		BG-1728	406.91	0.9957	405.16	1		17,106.75
RAND		BG-1727	401.67	0.9957	399.943	1		16,886.47
RAND		BG-1726	402.59	0.9966	401.221	1		16,940.43
RAND		BG-1725	404.88	0.9966	403.503	1		17,036.78
RAND		BG-1724	408.55	0.9966	407.161	1		17,191.23
RAND		BG-1723	407.7	0.9966	406.314	1		17,155.47
RAND		BG-1722	402.62	0.9966	401.251	1		16,941.70
RAND		BG-1721	404.34	0.9966	402.965	1		17,014.07
RAND		BG-1720	406.63	0.9966	405.247	1		17,110.42
RAND		BG-1713	407.47	0.9954	405.596	1		17,125.16
RAND		BG-1712	402.43	0.9954	400.579	1		16,913.33
RAND		BG-1711	401.5	0.9954	399.653	1		16,874.23
RAND		BG-1710	401.84	0.9954	399.992	1		16,888.54
RAND		BG-1709	401.94	0.9966	400.573	1		16,913.07

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BG-1759	408	0.9958	406.286	1		17,154.29
RAND		BG-1758	406.52	0.9958	404.813	1		17,092.10
RAND		BG-1757	407.38	0.9958	405.669	1		17,128.24
RAND		BG-1756	403.97	0.9958	402.273	1		16,984.85
RAND		BG-1755	405.98	0.9958	404.275	1		17,069.38
RAND		BG-1754	404.51	0.9959	402.852	1		17,009.30
RAND		BG-1753	406.9	0.9959	405.232	1		17,109.79
RAND		BG-1752	401.17	0.9959	399.525	1		16,868.82
RAND		BG-1751	406.58	0.9959	404.913	1		17,096.32
RAND		BG-1750	403.55	0.9959	401.895	1		16,968.89
RAND		BG-1749	403.77	0.9959	402.115	1		16,978.18
RAND		BG-1748	405.8	0.9958	404.096	1		17,061.82
RAND		BG-1747	405.33	0.9958	403.628	1		17,042.06
RAND		BG-1746	401.85	0.9958	400.162	1		16,895.72
RAND		BG-1745	405.95	0.9958	404.245	1		17,068.11
RAND		BG-1744	404.3	0.9958	402.602	1		16,998.74
RAND		BG-1743	401.25	0.9958	399.565	1		16,870.51
RAND		BG-1742	402.03	0.9957	400.301	1		16,901.59
RAND		BG-1741	405.2	0.9957	403.458	1		17,034.88
RAND		BG-1740	403.75	0.9957	402.014	1		16,973.92
RAND		BG-1739	406.85	0.9957	405.101	1		17,104.26
RAND		BG-1738	407.83	0.9957	406.076	1		17,145.42
RAND		BG-1737	401.55	0.9957	399.823	1		16,881.41
RAND		BG-1736	408.02	0.9957	406.266	1		17,153.44
RAND		BG-1735	404.83	0.9957	403.089	1		17,019.30
RAND		BG-1784	405.68	0.9957	403.936	1		17,055.07
RAND		BG-1783	403	0.9957	401.267	1		16,942.38
RAND		BG-1782	404.34	0.9957	402.601	1		16,998.70
RAND		BG-1781	405.93	0.9957	404.185	1		17,065.58
RAND		BG-1780	405.3	0.9957	403.557	1		17,039.06
RAND		BG-1779	406.43	0.9957	404.682	1		17,086.56
RAND		BG-1778	402.9	0.9959	401.248	1		16,941.57
RAND		BG-1777	402.42	0.9959	400.77	1		16,921.39
RAND		BG-1776	409.68	0.9959	408	1		17,226.66
RAND		BG-1775	405.12	0.9959	403.459	1		17,034.93
RAND		BG-1774	406.4	0.9959	404.734	1		17,088.76
RAND		BG-1773	405.97	0.9959	404.306	1		17,070.69
RAND		BG-1772	403.34	0.9959	401.686	1		16,960.07
RAND		BG-1771	405.54	0.9959	403.877	1		17,052.58
RAND		BG-1770	403	0.9959	401.348	1		16,945.80
RAND		BG-1769	402.53	0.9959	400.88	1		16,926.04
RAND		BG-1768	403.69	0.9959	402.035	1		16,974.80
RAND		BG-1767	404.35	0.9959	402.692	1		17,002.54
RAND		BG-1766	405.5	0.9958	403.797	1		17,049.20
RAND		BG-1765	405.62	0.9958	403.916	1		17,054.22
RAND		BG-1764	405.88	0.9958	404.175	1		17,065.16
RAND		BG-1763	408.77	0.9958	407.053	1		17,186.67

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1762	405.36	0.9958	403.657	1		17,043.29
RAND		BG-1761	403	0.9958	401.307	1		16,944.06
RAND		BG-1760	404.99	0.9958	403.289	1		17,027.75
RAND		BG-1805	407.71	0.9952	405.753	1		17,131.78
RAND		BG-1804	405.57	0.9952	403.623	1		17,041.85
RAND		BG-1803	406.63	0.9952	404.678	1		17,086.40
RAND		BG-1802	404.88	0.9956	403.099	1		17,019.73
RAND		BG-1801	407.43	0.9956	405.637	1		17,126.89
RAND		BG-1800	403.54	0.9956	401.764	1		16,963.36
RAND		BG-1799	402.85	0.9956	401.077	1		16,934.35
RAND		BG-1798	405.73	0.9956	403.945	1		17,055.45
RAND		BG-1797	408.09	0.9956	406.294	1		17,154.63
RAND		BG-1796	404.71	0.9956	402.929	1		17,012.55
RAND		BG-1795	405.83	0.9956	404.044	1		17,059.63
RAND		BG-1794	403.22	0.9956	401.446	1		16,949.93
RAND		BG-1793	404.9	0.9956	403.118	1		17,020.53
RAND		BG-1792	405.35	0.9956	403.566	1		17,039.44
RAND		BG-1791	401.58	0.9956	399.813	1		16,880.98
RAND		BG-1790	406.5	0.9954	404.63	1		17,084.37
RAND		BG-1789	406.23	0.9954	404.361	1		17,073.01
RAND		BG-1788	401.49	0.9954	399.643	1		16,873.81
RAND		BG-1787	405.9	0.9954	404.033	1		17,059.16
RAND		BG-1786	405.85	0.9954	403.983	1		17,057.05
RAND		BG-1785	405.34	0.9954	403.475	1		17,035.60
RAND		BG-1677	405.14	0.9953	403.236	1		17,025.51
RAND		BG-1676	403.97	0.9953	402.071	1		16,976.32
RAND		BG-1675	405.55	0.9958	403.847	1		17,051.31
RAND		BG-1674	403.45	0.9958	401.756	1		16,963.02
RAND		BG-1673	406.77	0.9958	405.062	1		17,102.61
RAND		BG-1672	405.68	0.9958	403.976	1		17,056.76
RAND		BG-1671	407.57	0.9958	405.858	1		17,136.22
RAND		BG-1670	403.32	0.9958	401.626	1		16,957.53
RAND		BG-1661	404.67	0.995	402.647	1		17,000.64
RAND		BG-1660	406.61	0.995	404.577	1		17,082.13
RAND		BG-1659	402.79	0.995	400.776	1		16,921.64
RAND		BG-1658	404.77	0.995	402.746	1		17,004.82
RAND		BG-1657	404.22	0.995	402.199	1		16,981.73
RAND		BG-1656	407.88	0.995	405.841	1		17,135.50
RAND		BG-1655	405.02	0.9961	403.44	1		17,034.12
RAND		BG-1654	408.5	0.9961	406.907	1		17,180.51
RAND		BG-1653	403.47	0.9961	401.896	1		16,968.93
RAND		BG-1652	405.25	0.9961	403.67	1		17,043.84
RAND		BG-1651	407.44	0.9961	405.851	1		17,135.92
RAND		BG-1650	401.6	0.9961	400.034	1		16,890.32
RAND		BG-1649	400.91	0.9962	399.387	1		16,863.00
RAND		BG-1648	405.17	0.9962	403.63	1		17,042.15
RAND		BG-1647	404.05	0.9962	402.515	1		16,995.07

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1646	405.12	0.9962	403.581	1		17,040.08
RAND		BG-1645	406.28	0.996	404.655	1		17,085.42
RAND		BG-1708	402.95	0.9966	401.58	1		16,955.59
RAND		BG-1707	406.8	0.9966	405.417	1		17,117.60
RAND		BG-1706	404.62	0.9966	403.244	1		17,025.85
RAND		BG-1705	402.13	0.9966	400.763	1		16,921.10
RAND		BG-1704	406.24	0.9966	404.859	1		17,094.04
RAND		BG-1697	404.74	0.9959	403.081	1		17,018.97
RAND		BG-1696	407.85	0.9959	406.178	1		17,149.73
RAND		BG-1695	402.05	0.9959	400.402	1		16,905.85
RAND		BG-1694	403.85	0.9959	402.194	1		16,981.52
RAND		BG-1693	408.3	0.9959	406.626	1		17,168.64
RAND		BG-1692	402.95	0.9959	401.298	1		16,943.68
RAND		BG-1691	404.54	0.9962	403.003	1		17,015.67
RAND		BG-1690	406.72	0.9962	405.174	1		17,107.34
RAND		BG-1689	402.05	0.9962	400.522	1		16,910.92
RAND		BG-1688	401.12	0.9962	399.596	1		16,871.82
RAND		BG-1687	406.89	0.9962	405.344	1		17,114.52
RAND		BG-1686	401.2	0.9962	399.675	1		16,875.16
RAND		BG-1685	403.78	0.9956	402.003	1		16,973.45
RAND		BG-1684	405.55	0.9956	403.766	1		17,047.89
RAND		BG-1683	406.22	0.9956	404.433	1		17,076.05
RAND		BG-1682	405.25	0.9956	403.467	1		17,035.26
RAND		BG-1681	404.3	0.9953	402.4	1		16,990.21
RAND		BG-1680	407.7	0.9953	405.784	1		17,133.09
RAND		BG-1679	404.47	0.9953	402.569	1		16,997.35
RAND		BG-1678	404.55	0.9953	402.649	1		17,000.73
RAND		BG-1369	404.15	0.9951	402.17	1		16,980.50
RAND		BG-1368	405.22	0.9951	403.234	1		17,025.43
RAND		BG-1367	406.12	0.9951	404.13	1		17,063.26
RAND		BG-1366	407	0.9951	405.006	1		17,100.24
RAND		BG-1365	402.4	0.9955	400.589	1		16,913.75
RAND		BG-1364	405.2	0.9955	403.377	1		17,031.46
RAND		BG-1363	404.22	0.9955	402.401	1		16,990.26
RAND		BG-1362	402.55	0.9955	400.739	1		16,920.08
RAND		BG-1361	403.1	0.9955	401.286	1		16,943.18
RAND		BG-1360	404.2	0.9955	402.381	1		16,989.41
RAND		BG-1359	404.44	0.9968	403.146	1		17,021.71
RAND		BG-1358	406.05	0.9968	404.751	1		17,089.48
RAND		BG-1357	405.77	0.9968	404.472	1		17,077.70
RAND		BG-1356	403.77	0.9968	402.478	1		16,993.51
RAND		BG-1355	406	0.9968	404.701	1		17,087.37
RAND		BG-1354	404.05	0.9968	402.757	1		17,005.29
RAND		BG-1353	405.16	0.9968	403.863	1		17,051.98
RAND		BG-1352	404.69	0.9968	403.395	1		17,032.22
RAND		BG-1351	401.82	0.9968	400.534	1		16,911.43
RAND		BG-1350	403.02	0.9968	401.73	1		16,961.92

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-1349	403.72	0.9959	402.065	1		16,976.07
RAND		BG-1347	401.47	0.9959	399.824	1		16,881.45
RAND		BG-1346	403.72	0.9959	402.065	1		16,976.07
RAND		BG-1345	407.37	0.9959	405.7	1		17,129.55
RAND		BG-1344	403.73	0.9959	402.075	1		16,976.49
RAND		BG-1623	405.57	0.9968	404.272	1		17,069.25
RAND		BG-1622	404.9	0.9968	403.604	1		17,041.05
RAND		BG-1621	403.82	0.9968	402.528	1		16,995.62
RAND		BG-1620	405.24	0.9968	403.943	1		17,055.36
RAND		BG-1619	400.67	0.9968	399.388	1		16,863.04
RAND		BG-1618	406.17	0.9968	404.87	1		17,094.50
RAND		BG-1617	401.39	0.996	399.784	1		16,879.76
RAND		BG-1616	407.22	0.996	405.591	1		17,124.94
RAND		BG-1615	404.02	0.996	402.404	1		16,990.38
RAND		BG-1613	402.15	0.996	400.541	1		16,911.72
RAND		BG-1612	405.52	0.996	403.898	1		17,053.46
RAND		BG-1611	403.87	0.9958	402.174	1		16,980.67
RAND		BG-1610	406.51	0.9958	404.803	1		17,091.67
RAND		BG-1609	404.1	0.9958	402.403	1		16,990.34
RAND		BG-1608	402.26	0.9958	400.571	1		16,912.99
RAND		BG-1607	402.26	0.9958	400.571	1		16,912.99
RAND		BG-1606	405.74	0.9958	404.036	1		17,059.29
RAND		BG-1605	405.36	0.9964	403.901	1		17,053.59
RAND		BG-1604	401.3	0.9964	399.855	1		16,882.76
RAND		BG-1603	402.4	0.9964	400.951	1		16,929.03
RAND		BG-1602	405.35	0.9964	403.891	1		17,053.17
RAND		BG-1601	401.05	0.9964	399.606	1		16,872.24
RAND		BG-1600	404.05	0.9964	402.595	1		16,998.45
RAND		BG-1599	404.22	0.9969	402.967	1		17,014.15
RAND		BG-1370	405.08	0.9951	403.095	1		17,019.56
RAND		BG-1644	405.3	0.996	403.679	1		17,044.22
RAND		BG-1643	401.73	0.996	400.123	1		16,894.07
RAND		BG-1642	400.07	0.996	398.47	1		16,824.28
RAND		BG-1641	403.24	0.996	401.627	1		16,957.58
RAND		BG-1640	400.96	0.996	399.356	1		16,861.69
RAND		BG-1639	407.59	0.9959	405.919	1		17,138.79
RAND		BG-1638	403.09	0.9959	401.437	1		16,949.55
RAND		BG-1637	404.2	0.9959	402.543	1		16,996.25
RAND		BG-1636	403.67	0.9959	402.015	1		16,973.96
RAND		BG-1635	405.17	0.9953	403.266	1		17,026.78
RAND		BG-1634	401.27	0.9953	399.384	1		16,862.87
RAND		BG-1633	405.95	0.9953	404.042	1		17,059.54
RAND		BG-1632	401.62	0.9953	399.732	1		16,877.56
RAND		BG-1631	404.42	0.9953	402.519	1		16,995.24
RAND		BG-1630	403.42	0.9953	401.524	1		16,953.23
RAND		BG-1629	402.85	0.9968	401.561	1		16,954.79
RAND		BG-1628	404.17	0.9968	402.877	1		17,010.35

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BG-1627	404.52	0.9968	403.226	1		17,025.09
RAND		BG-1626	408.45	0.9968	407.143	1		17,190.47
RAND		BG-1625	404.42	0.9968	403.126	1		17,020.87
RAND		BG-1624	401.34	0.9968	400.056	1		16,891.24
RAND		BG-1830	406.05	0.9964	404.588	1		17,082.60
RAND		BG-1829	403.12	0.9964	401.669	1		16,959.35
RAND		BG-1828	407.48	0.9964	406.013	1		17,142.76
RAND		BG-1827	402.68	0.9964	401.23	1		16,940.81
RAND		BG-1826	403.64	0.9955	401.824	1		16,965.89
RAND		BG-1825	405.27	0.9955	403.446	1		17,034.38
RAND		BG-1824	406.5	0.9955	404.671	1		17,086.10
RAND		BG-1823	403.17	0.9955	401.356	1		16,946.13
RAND		BG-1822	402.65	0.9955	400.838	1		16,924.26
RAND		BG-1821	407.27	0.9955	405.437	1		17,118.44
RAND		BG-1820	403.52	0.9955	401.704	1		16,960.83
RAND		BG-1819	405.99	0.9955	404.163	1		17,064.65
RAND		BG-1818	404.4	0.9955	402.58	1		16,997.81
RAND		BG-1817	403.94	0.9955	402.122	1		16,978.48
RAND		BG-1816	407.85	0.9955	406.015	1		17,142.85
RAND		BG-1815	404.95	0.9955	403.128	1		17,020.95
RAND		BG-1814	407.9	0.9952	405.942	1		17,139.76
RAND		BG-1813	405.97	0.9952	404.021	1		17,058.66
RAND		BG-1812	405.17	0.9952	403.225	1		17,025.05
RAND		BG-1811	405.02	0.9952	403.076	1		17,018.76
RAND		BG-1810	402.19	0.9952	400.259	1		16,899.82
RAND		BG-1809	404.99	0.9952	403.046	1		17,017.49
RAND		BG-1808	409.54	0.9952	407.574	1		17,208.67
RAND		BG-1807	405.3	0.9952	403.355	1		17,030.54
RAND		BG-1806	403.38	0.9952	401.444	1		16,949.85
RAND		BM-181	404.07	0.996	402.454	1		16,992.49
RAND		BM-180	404.45	0.996	402.832	1		17,008.45
RAND		BM-179	405.3	0.996	403.679	1		17,044.22
RAND		BM-178	401.92	0.996	400.312	1		16,902.05
RAND		BM-177	402.95	0.9958	401.258	1		16,942.00
RAND		BM-176	409.35	0.9958	407.631	1		17,211.08
RAND		BM-175	402.88	0.9958	401.188	1		16,939.04
RAND		BM-174	403.02	0.9958	401.327	1		16,944.91
RAND		BM-173	405.83	0.9958	404.126	1		17,063.09
RAND		BM-172	402.87	0.9958	401.178	1		16,938.62
RAND		BM-171	406.88	0.996	405.252	1		17,110.63
RAND		BM-170	408.2	0.996	406.567	1		17,166.15
RAND		BM-169	405.75	0.996	404.127	1		17,063.13
RAND		BM-168	406.07	0.996	404.446	1		17,076.60
RAND		BM-167	406.3	0.996	404.675	1		17,086.27
RAND		BM-166	406.35	0.996	404.725	1		17,088.38
RAND		BM-165	401.6	0.9961	400.034	1		16,890.32
RAND		BM-164	406.6	0.9961	405.014	1		17,100.58

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-163	404.28	0.9961	402.703	1		17,003.01
RAND		BM-162	402.67	0.9961	401.1	1		16,935.32
RAND		BM-161	405.48	0.9961	403.899	1		17,053.50
RAND		BM-160	405.1	0.9961	403.52	1		17,037.50
RAND		BM-159	406.5	0.9958	404.793	1		17,091.25
RAND		BM-158	408.33	0.9958	406.615	1		17,168.18
RAND		BM-157	405.12	0.9958	403.418	1		17,033.20
RAND		BM-202	404.05	0.9961	402.474	1		16,993.34
RAND		BM-201	402.62	0.9959	400.969	1		16,929.79
RAND		BM-199	404.18	0.9959	402.523	1		16,995.41
RAND		BM-198	405.13	0.9959	403.469	1		17,035.35
RAND		BM-197	405.5	0.9959	403.837	1		17,050.89
RAND		BM-196	404.45	0.9959	402.792	1		17,006.76
RAND		BM-195	403.92	0.9958	402.224	1		16,982.78
RAND		BM-194	405.05	0.9958	403.349	1		17,030.28
RAND		BM-193	403.27	0.9958	401.576	1		16,955.42
RAND		BM-192	405.33	0.9958	403.628	1		17,042.06
RAND		BM-191	403.42	0.9958	401.726	1		16,961.76
RAND		BM-190	406.45	0.9958	404.743	1		17,089.14
RAND		BM-189	404.15	0.9958	402.453	1		16,992.45
RAND		BM-188	403.67	0.9958	401.975	1		16,972.27
RAND		BM-187	403.38	0.9958	401.686	1		16,960.07
RAND		BM-186	406.62	0.9958	404.912	1		17,096.28
RAND		BM-185	408.43	0.9958	406.715	1		17,172.40
RAND		BM-184	404.75	0.9958	403.05	1		17,017.66
RAND		BM-183	404.23	0.996	402.613	1		16,999.21
RAND		BM-182	406.9	0.996	405.272	1		17,111.48
RAND		BL-9571	404.52	0.9965	403.104	1		17,019.94
RAND		BL-9569	402.37	0.996	400.761	1		16,921.01
RAND		BL-9568	402.62	0.996	401.01	1		16,931.52
RAND		BL-9567	404.48	0.996	402.862	1		17,009.72
RAND		BL-9566	404.67	0.996	403.051	1		17,017.70
RAND		BL-9563	403.1	0.996	401.488	1		16,951.71
RAND		BL-9562	406.32	0.996	404.695	1		17,087.11
RAND		BL-9561	401.1	0.996	399.496	1		16,867.60
RAND		BL-9560	406.7	0.996	405.073	1		17,103.07
RAND		BL-9559	404.1	0.996	402.484	1		16,993.76
RAND		BL-9558	406.77	0.996	405.143	1		17,106.03
RAND		BL-9557	405.1	0.9966	403.723	1		17,046.07
RAND		BL-9556	405.83	0.9966	404.45	1		17,076.77
RAND		BL-9555	401.05	0.9966	399.686	1		16,875.62
RAND		BL-9554	405.32	0.9966	403.942	1		17,055.32
RAND		BL-9553	406.35	0.9966	404.968	1		17,098.64
RAND		BL-9552	407.35	0.9966	405.965	1		17,140.74
RAND		BL-9551	406.92	0.9965	405.496	1		17,120.93
RAND		BL-9550	403.7	0.9965	402.287	1		16,985.44
RAND		BL-9549	404.1	0.9965	402.686	1		17,002.29

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9548	403.94	0.9965	402.526	1		16,995.53
RAND		BL-9547	403.35	0.9965	401.938	1		16,970.71
RAND		BL-9546	401.9	0.9965	400.493	1		16,909.70
RAND		BM-587	406.12	0.9951	404.13	1		17,063.26
RAND		BM-585	404.5	0.9951	402.518	1		16,995.20
RAND		BM-584	405.37	0.9951	403.384	1		17,031.76
RAND		BM-583	409.7	0.9951	407.692	1		17,213.65
RAND		BM-582	404.88	0.9951	402.896	1		17,011.16
RAND		BM-581	405.2	0.9952	403.255	1		17,026.31
RAND		BM-580	406.29	0.9952	404.34	1		17,072.12
RAND		BM-579	404.55	0.9952	402.608	1		16,999.00
RAND		BM-578	407.74	0.9952	405.783	1		17,133.05
RAND		BM-577	404.13	0.9952	402.19	1		16,981.35
RAND		BM-575	401.6	0.9961	400.034	1		16,890.32
RAND		BM-574	401.69	0.9961	400.123	1		16,894.07
RAND		BM-573	404.37	0.9961	402.793	1		17,006.81
RAND		BM-572	409.15	0.9961	407.554	1		17,207.83
RAND		BM-571	404.35	0.9961	402.773	1		17,005.96
RAND		BM-570	404.35	0.9953	402.45	1		16,992.32
RAND		BM-569	406.65	0.9953	404.739	1		17,088.97
RAND		BM-568	404.39	0.9953	402.489	1		16,993.97
RAND		BM-567	403.1	0.9953	401.205	1		16,939.76
RAND		BM-566	404.7	0.9953	402.798	1		17,007.02
RAND		BM-565	403.81	0.9953	401.912	1		16,969.61
RAND		BM-564	402.67	0.9957	400.939	1		16,928.53
RAND		BM-563	406.75	0.9957	405.001	1		17,100.03
RAND		BM-562	405.34	0.9957	403.597	1		17,040.75
RAND		BM-561	403.45	0.9957	401.715	1		16,961.29
RAND		BM-612	401.72	0.9955	399.912	1		16,885.16
RAND		BM-611	406.35	0.9955	404.521	1		17,079.77
RAND		BM-610	405.12	0.9955	403.297	1		17,028.09
RAND		BM-609	404.57	0.9955	402.749	1		17,004.95
RAND		BM-608	405.7	0.9955	403.874	1		17,052.45
RAND		BM-607	406.75	0.9955	404.92	1		17,096.61
RAND		BM-606	402.92	0.9955	401.107	1		16,935.62
RAND		BM-605	405	0.9966	403.623	1		17,041.85
RAND		BM-604	405.15	0.9966	403.772	1		17,048.14
RAND		BM-603	408.4	0.9966	407.011	1		17,184.90
RAND		BM-602	405.47	0.9966	404.091	1		17,061.61
RAND		BM-601	405.97	0.9966	404.59	1		17,082.68
RAND		BM-600	405.1	0.9961	403.52	1		17,037.50
RAND		BM-599	408.97	0.9961	407.375	1		17,200.27
RAND		BM-598	402.73	0.9961	401.159	1		16,937.82
RAND		BM-597	402.97	0.9961	401.398	1		16,947.91
RAND		BM-596	409.18	0.9961	407.584	1		17,209.09
RAND		BM-595	403.42	0.9961	401.847	1		16,966.86
RAND		BM-594	402.15	0.9952	400.22	1		16,898.17

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-593	406.35	0.9952	404.4	1		17,074.66
RAND		BM-592	403.85	0.9952	401.912	1		16,969.61
RAND		BM-591	403.69	0.9952	401.752	1		16,962.85
RAND		BM-590	403.7	0.9952	401.762	1		16,963.28
RAND		BM-589	402.84	0.9952	400.906	1		16,927.13
RAND		BM-588	403.1	0.9951	401.125	1		16,936.38
RAND		BM-634	404.82	0.9957	403.079	1		17,018.88
RAND		BM-633	404.62	0.9957	402.88	1		17,010.48
RAND		BM-632	406	0.9957	404.254	1		17,068.49
RAND		BM-631	406.82	0.9957	405.071	1		17,102.99
RAND		BM-630	402	0.9957	400.271	1		16,900.32
RAND		BM-629	403.72	0.9964	402.267	1		16,984.60
RAND		BM-628	403.09	0.9964	401.639	1		16,958.08
RAND		BM-627	407.47	0.9964	406.003	1		17,142.34
RAND		BM-626	405.4	0.9964	403.941	1		17,055.28
RAND		BM-625	403.17	0.9964	401.719	1		16,961.46
RAND		BM-624	404.11	0.9964	402.655	1		17,000.98
RAND		BM-623	404.67	0.9963	403.173	1		17,022.85
RAND		BM-622	407.4	0.9963	405.893	1		17,137.70
RAND		BM-621	404.17	0.9963	402.675	1		17,001.82
RAND		BM-620	402.3	0.9963	400.811	1		16,923.12
RAND		BM-619	407.32	0.9963	405.813	1		17,134.32
RAND		BM-618	407.47	0.9963	405.962	1		17,140.61
RAND		BM-617	404.07	0.9955	402.252	1		16,983.96
RAND		BM-616	402.89	0.9955	401.077	1		16,934.35
RAND		BM-615	402.86	0.9955	401.047	1		16,933.09
RAND		BM-614	401.95	0.9955	400.141	1		16,894.83
RAND		BM-613	404.27	0.9955	402.451	1		16,992.37
RAND		BM-1299	404.6	0.996	402.982	1		17,014.79
RAND		BM-1298	406.87	0.996	405.243	1		17,110.25
RAND		BM-1297	406.37	0.996	404.745	1		17,089.22
RAND		BM-1296	407.47	0.996	405.84	1		17,135.46
RAND		BM-1283	405.8	0.9965	404.38	1		17,073.81
RAND		BM-1282	402.92	0.9965	401.51	1		16,952.64
RAND		BM-1281	406.67	0.9965	405.247	1		17,110.42
RAND		BM-1280	403.87	0.9965	402.456	1		16,992.58
RAND		BM-1279	406.15	0.9965	404.728	1		17,088.51
RAND		BM-1278	406.75	0.9965	405.326	1		17,113.76
RAND		BM-1277	403.8	0.9958	402.104	1		16,977.72
RAND		BM-1276	405.35	0.9958	403.648	1		17,042.91
RAND		BM-1275	402.17	0.9958	400.481	1		16,909.19
RAND		BM-1274	405.72	0.9958	404.016	1		17,058.44
RAND		BM-1273	400.55	0.9958	398.868	1		16,841.08
RAND		BM-1272	402.42	0.9958	400.73	1		16,919.70
RAND		BM-1271	403.92	0.9967	402.587	1		16,998.11
RAND		BM-1270	402.1	0.9967	400.773	1		16,921.52
RAND		BM-1269	405.05	0.9967	403.713	1		17,045.65

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1268	405.6	0.9967	404.262	1		17,068.83
RAND		BM-1267	408.15	0.9967	406.803	1		17,176.12
RAND		BM-1266	403.17	0.9967	401.84	1		16,966.57
RAND		BM-1265	402.17	0.9965	400.762	1		16,921.05
RAND		BM-1264	404.37	0.9965	402.955	1		17,013.65
RAND		BM-1263	405.22	0.9965	403.802	1		17,049.41
RAND		BM-1318	402.25	0.9963	400.762	1		16,921.05
RAND		BM-1316	405.87	0.997	404.652	1		17,085.30
RAND		BM-1315	406.62	0.997	405.4	1		17,116.88
RAND		BM-1313	403.52	0.997	402.309	1		16,986.37
RAND		BM-1312	408.52	0.997	407.294	1		17,196.85
RAND		BM-1311	405.37	0.9969	404.113	1		17,062.54
RAND		BM-1310	404.32	0.9969	403.067	1		17,018.38
RAND		BM-1309	402.52	0.9969	401.272	1		16,942.59
RAND		BM-1308	405.87	0.9969	404.612	1		17,083.61
RAND		BM-1307	407.6	0.9969	406.336	1		17,156.40
RAND		BM-1306	405.95	0.9969	404.692	1		17,086.99
RAND		BM-1301	403.27	0.996	401.657	1		16,958.84
RAND		BM-1300	404.85	0.996	403.231	1		17,025.30
RAND		BM-1343	406.27	0.9958	404.564	1		17,081.58
RAND		BM-1342	403.18	0.9958	401.487	1		16,951.66
RAND		BM-1341	402.27	0.9961	400.701	1		16,918.48
RAND		BM-1340	401.86	0.9961	400.293	1		16,901.25
RAND		BM-1339	401.27	0.9961	399.705	1		16,876.42
RAND		BM-1338	400.45	0.9961	398.888	1		16,841.93
RAND		BM-1337	402.4	0.9961	400.831	1		16,923.97
RAND		BM-1336	404.05	0.9961	402.474	1		16,993.34
RAND		BM-1335	400.62	0.9968	399.338	1		16,860.93
RAND		BM-1334	401.07	0.9968	399.787	1		16,879.89
RAND		BM-1333	402.75	0.9968	401.461	1		16,950.57
RAND		BM-1332	403.02	0.9968	401.73	1		16,961.92
RAND		BM-1331	401.97	0.9968	400.684	1		16,917.76
RAND		BM-1330	404.25	0.9968	402.956	1		17,013.69
RAND		BM-1329	404.72	0.9963	403.223	1		17,024.96
RAND		BM-1328	406.94	0.9963	405.434	1		17,118.32
RAND		BM-1327	402.42	0.9963	400.931	1		16,928.19
RAND		BM-1326	403.72	0.9963	402.226	1		16,982.87
RAND		BM-1325	404.29	0.9963	402.794	1		17,006.85
RAND		BM-1324	407.2	0.9963	405.693	1		17,129.25
RAND		BM-1323	402.95	0.9963	401.459	1		16,950.48
RAND		BM-1322	401.52	0.9963	400.034	1		16,890.32
RAND		BM-1321	403.82	0.9963	402.326	1		16,987.09
RAND		BM-1320	406.22	0.9963	404.717	1		17,088.04
RAND		BM-1319	409.27	0.9963	407.756	1		17,216.36
RAND		BM-1370	407.92	0.996	406.288	1		17,154.37
RAND		BM-1369	403.15	0.996	401.537	1		16,953.78
RAND		BM-1368	406.12	0.9963	404.617	1		17,083.82

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1367	406.42	0.9963	404.916	1		17,096.44
RAND		BM-1366	409.5	0.9963	407.985	1		17,226.02
RAND		BM-1365	402.02	0.9963	400.533	1		16,911.38
RAND		BM-1364	404.4	0.9962	402.863	1		17,009.76
RAND		BM-1363	407.5	0.9962	405.952	1		17,140.19
RAND		BM-1362	405.85	0.9962	404.308	1		17,070.77
RAND		BM-1361	404.6	0.9962	403.063	1		17,018.21
RAND		BM-1360	406.82	0.9962	405.274	1		17,111.56
RAND		BM-1358	403.22	0.9961	401.647	1		16,958.42
RAND		BM-1357	402.37	0.9961	400.801	1		16,922.70
RAND		BM-1356	404.72	0.9961	403.142	1		17,021.54
RAND		BM-1355	401.02	0.9961	399.456	1		16,865.91
RAND		BM-1354	404	0.9961	402.424	1		16,991.23
RAND		BM-1353	404.63	0.9958	402.931	1		17,012.63
RAND		BM-1352	404.42	0.9958	402.721	1		17,003.77
RAND		BM-1351	406.8	0.9958	405.091	1		17,103.83
RAND		BM-1350	401.42	0.9958	399.734	1		16,877.65
RAND		BM-1348	403.5	0.9958	401.805	1		16,965.09
RAND		BM-1347	405.67	0.9958	403.966	1		17,056.33
RAND		BM-1346	405.52	0.9958	403.817	1		17,050.04
RAND		BM-1345	404.67	0.9958	402.97	1		17,014.28
RAND		BM-1344	404.35	0.9958	402.652	1		17,000.85
RAND		BM-1387	405.2	0.996	403.579	1		17,039.99
RAND		BM-1386	408.27	0.996	406.637	1		17,169.11
RAND		BM-1384	401.57	0.996	399.964	1		16,887.36
RAND		BM-1383	400.45	0.996	398.848	1		16,840.24
RAND		BM-1382	403.42	0.996	401.806	1		16,965.13
RAND		BM-1381	404.22	0.996	402.603	1		16,998.78
RAND		BM-1380	403.72	0.996	402.105	1		16,977.76
RAND		BM-1379	400.15	0.996	398.549	1		16,827.62
RAND		BM-1378	405.55	0.9962	404.009	1		17,058.15
RAND		BM-1377	401.5	0.9962	399.974	1		16,887.78
RAND		BM-1376	400.88	0.9962	399.357	1		16,861.73
RAND		BM-1375	404.03	0.9962	402.495	1		16,994.22
RAND		BM-1374	406.37	0.9962	404.826	1		17,092.64
RAND		BM-1373	406.3	0.996	404.675	1		17,086.27
RAND		BM-1372	405.62	0.996	403.998	1		17,057.68
RAND		BM-1371	404.17	0.996	402.553	1		16,996.67
RAND		BG-3471	403.11	0.9954	401.256	1		16,941.91
RAND		BG-3470	403.71	0.9954	401.853	1		16,967.12
RAND		BG-3469	404.06	0.9954	402.201	1		16,981.81
RAND		BG-3468	402.57	0.9956	400.799	1		16,922.62
RAND		BG-3467	406.1	0.9956	404.313	1		17,070.98
RAND		BG-3466	403.7	0.9956	401.924	1		16,970.12
RAND		BG-3465	404.17	0.9956	402.392	1		16,989.88
RAND		BG-3464	407.03	0.9956	405.239	1		17,110.08
RAND		BG-3463	404.36	0.9956	402.581	1		16,997.86

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BG-3462	405.95	0.9968	404.651	1		17,085.26
RAND		BG-3461	408.95	0.9968	407.641	1		17,211.50
RAND		BG-3460	404.27	0.9968	402.976	1		17,014.53
RAND		BG-3459	405.48	0.9968	404.182	1		17,065.45
RAND		BG-3458	405.75	0.9968	404.452	1		17,076.85
RAND		BG-3457	401.34	0.9968	400.056	1		16,891.24
RAND		BG-3456	405.89	0.9956	404.104	1		17,062.16
RAND		BG-3455	405.35	0.9956	403.566	1		17,039.44
RAND		BG-3454	405.29	0.9956	403.507	1		17,036.95
RAND		BG-3453	402.73	0.9956	400.958	1		16,929.33
RAND		BG-3452	402.12	0.9956	400.351	1		16,903.70
RAND		BG-3451	404.32	0.9956	402.541	1		16,996.17
RAND		BG-3450	406.09	0.9957	404.344	1		17,072.29
RAND		BG-3449	403.62	0.9957	401.884	1		16,968.43
RAND		BG-3448	402.87	0.9957	401.138	1		16,936.93
RAND		BG-3447	405.59	0.9957	403.846	1		17,051.27
RAND		BG-3497	402.56	0.9957	400.829	1		16,923.88
RAND		BG-3496	404.83	0.9957	403.089	1		17,019.30
RAND		BG-3495	404.95	0.9957	403.209	1		17,024.37
RAND		BG-3494	406.01	0.9957	404.264	1		17,068.92
RAND		BG-3493	404.37	0.9957	402.631	1		16,999.97
RAND		BG-3492	402.16	0.9957	400.431	1		16,907.08
RAND		BG-3490	407.4	0.9968	406.096	1		17,146.27
RAND		BG-3489	402.09	0.9968	400.803	1		16,922.78
RAND		BG-3488	404.36	0.9968	403.066	1		17,018.33
RAND		BG-3487	402.08	0.9968	400.793	1		16,922.36
RAND		BG-3486	405.49	0.9967	404.152	1		17,064.19
RAND		BG-3485	406.19	0.9967	404.85	1		17,093.66
RAND		BG-3484	406.02	0.9967	404.68	1		17,086.48
RAND		BG-3483	404.24	0.9967	402.906	1		17,011.58
RAND		BG-3482	404.91	0.9967	403.574	1		17,039.78
RAND		BG-3481	401.48	0.9967	400.155	1		16,895.42
RAND		BG-3480	403.52	0.9959	401.866	1		16,967.67
RAND		BG-3479	405.68	0.9959	404.017	1		17,058.49
RAND		BG-3478	405.09	0.9959	403.429	1		17,033.66
RAND		BG-3477	402.51	0.9959	400.86	1		16,925.19
RAND		BG-3476	402.97	0.9959	401.318	1		16,944.53
RAND		BG-3475	404.41	0.9959	402.752	1		17,005.08
RAND		BG-3474	403.34	0.9954	401.485	1		16,951.58
RAND		BG-3473	407.5	0.9954	405.626	1		17,126.42
RAND		BG-3472	403.73	0.9954	401.873	1		16,967.96
RAND		BG-3519	405.06	0.9958	403.359	1		17,030.70
RAND		BG-3518	401.77	0.9958	400.083	1		16,892.38
RAND		BG-3517	404.03	0.9956	402.252	1		16,983.96
RAND		BG-3516	406.05	0.9956	404.263	1		17,068.87
RAND		BG-3515	405.72	0.9956	403.935	1		17,055.02
RAND		BG-3514	401.14	0.9956	399.375	1		16,862.49

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-3513	403.27	0.9955	401.455	1		16,950.31
RAND		BG-3512	405.97	0.9955	404.143	1		17,063.81
RAND		BG-3511	404.39	0.9955	402.57	1		16,997.39
RAND		BG-3510	402.88	0.9955	401.067	1		16,933.93
RAND		BG-3509	406.12	0.9955	404.292	1		17,070.10
RAND		BG-3508	404.7	0.9955	402.879	1		17,010.44
RAND		BG-3507	407.09	0.9967	405.747	1		17,131.53
RAND		BG-3506	402.43	0.9967	401.102	1		16,935.41
RAND		BG-3505	405.73	0.9967	404.391	1		17,074.28
RAND		BG-3504	405.92	0.9967	404.58	1		17,082.26
RAND		BG-3503	401.94	0.9967	400.614	1		16,914.80
RAND		BG-3502	405.46	0.9956	403.676	1		17,044.09
RAND		BG-3500	402.67	0.9956	400.898	1		16,926.80
RAND		BG-3499	403.98	0.9956	402.202	1		16,981.85
RAND		BG-3498	403.86	0.9956	402.083	1		16,976.83
RAND		BM-1201	400.25	0.9951	398.289	1		16,816.64
RAND		BM-1200	405.36	0.9966	403.982	1		17,057.01
RAND		BM-1199	406.6	0.9966	405.218	1		17,109.20
RAND		BM-1198	402.78	0.9966	401.411	1		16,948.46
RAND		BM-1197	406.15	0.9966	404.769	1		17,090.24
RAND		BM-1196	402.86	0.9966	401.49	1		16,951.79
RAND		BM-1195	402.15	0.9966	400.783	1		16,921.94
RAND		BM-1194	402.85	0.996	401.239	1		16,941.19
RAND		BM-1193	405.82	0.996	404.197	1		17,066.09
RAND		BM-1192	403.28	0.996	401.667	1		16,959.26
RAND		BM-1191	403.1	0.996	401.488	1		16,951.71
RAND		BM-1190	404.72	0.996	403.101	1		17,019.81
RAND		BM-1189	405.41	0.996	403.788	1		17,048.82
RAND		BM-1188	401	0.9954	399.155	1		16,853.20
RAND		BM-1187	408.43	0.9954	406.551	1		17,165.48
RAND		BM-1185	403.85	0.9954	401.992	1		16,972.99
RAND		BM-1184	402.55	0.9954	400.698	1		16,918.35
RAND		BM-1183	400.7	0.9954	398.857	1		16,840.62
RAND		BM-1182	406.7	0.9967	405.358	1		17,115.11
RAND		BM-1181	402.52	0.9967	401.192	1		16,939.21
RAND		BM-1180	401.26	0.9967	399.936	1		16,886.18
RAND		BM-1178	404.33	0.9967	402.996	1		17,015.38
RAND		BM-1177	403.31	0.9967	401.979	1		16,972.44
RAND		BM-1176	407.38	0.9964	405.913	1		17,138.54
RAND		BM-1175	405.13	0.9964	403.672	1		17,043.92
RAND		BM-2418	406.19	0.9963	404.687	1		17,086.78
RAND		BM-1210	404.6	0.995	402.577	1		16,997.69
RAND		BM-1209	402.37	0.995	400.358	1		16,904.00
RAND		BM-1208	406.35	0.995	404.318	1		17,071.20
RAND		BM-1207	400.38	0.995	398.378	1		16,820.40
RAND		BM-1206	406.03	0.9951	404.04	1		17,059.46
RAND		BM-1205	405.55	0.9951	403.563	1		17,039.32

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1204	404.93	0.9951	402.946	1		17,013.27
RAND		BM-1203	408.88	0.9951	406.876	1		17,179.20
RAND		BM-1202	407	0.9951	405.006	1		17,100.24
RAND		BG-3545	403.45	0.9951	401.473	1		16,951.07
RAND		BG-3544	406.65	0.9951	404.657	1		17,085.51
RAND		BG-3542	402.95	0.9951	400.976	1		16,930.09
RAND		BG-3541	406.74	0.9952	404.788	1		17,091.04
RAND		BG-3540	408.2	0.9952	406.241	1		17,152.39
RAND		BG-3539	405.92	0.9952	403.972	1		17,056.59
RAND		BG-3538	404.5	0.9952	402.558	1		16,996.88
RAND		BG-3537	406.02	0.9952	404.071	1		17,060.77
RAND		BG-3536	404.2	0.9952	402.26	1		16,984.30
RAND		BG-3535	405.7	0.9957	403.955	1		17,055.87
RAND		BG-3534	404.66	0.9957	402.92	1		17,012.17
RAND		BG-3533	403.68	0.9957	401.944	1		16,970.96
RAND		BG-3532	403.95	0.9957	402.213	1		16,982.32
RAND		BG-3531	406.2	0.9954	404.331	1		17,071.74
RAND		BG-3530	404.05	0.9954	402.191	1		16,981.39
RAND		BG-3529	407.86	0.9954	405.984	1		17,141.54
RAND		BG-3528	405.44	0.9954	403.575	1		17,039.82
RAND		BG-3527	402.05	0.9955	400.241	1		16,899.06
RAND		BG-3526	403.59	0.9955	401.774	1		16,963.78
RAND		BG-3525	405.82	0.9955	403.994	1		17,057.52
RAND		BG-3524	404.41	0.9955	402.59	1		16,998.24
RAND		BG-3523	404.44	0.9958	402.741	1		17,004.61
RAND		BG-3522	402.82	0.9958	401.128	1		16,936.51
RAND		BG-3521	402.84	0.9958	401.148	1		16,937.35
RAND		BG-3520	403.38	0.9958	401.686	1		16,960.07
RAND		BG-3577	403.93	0.9955	402.112	1		16,978.05
RAND		BG-3576	409.58	0.9955	407.737	1		17,215.55
RAND		BG-3575	404.5	0.9955	402.68	1		17,002.04
RAND		BG-3574	404.76	0.9955	402.939	1		17,012.97
RAND		BG-3573	404.33	0.9955	402.511	1		16,994.90
RAND		BG-3572	403.73	0.9955	401.913	1		16,969.65
RAND		BG-3565	404.45	0.9952	402.509	1		16,994.82
RAND		BG-3564	404.02	0.9952	402.081	1		16,976.74
RAND		BG-3562	402.93	0.9952	400.996	1		16,930.93
RAND		BG-3561	405.73	0.9952	403.782	1		17,048.56
RAND		BG-3560	404.2	0.9952	402.26	1		16,984.30
RAND		BG-3559	403.75	0.9953	401.852	1		16,967.08
RAND		BG-3558	404.79	0.9953	402.887	1		17,010.78
RAND		BG-3557	405	0.9953	403.097	1		17,019.64
RAND		BG-3556	407.37	0.9953	405.455	1		17,119.20
RAND		BG-3555	404.44	0.9953	402.539	1		16,996.08
RAND		BG-3554	403.17	0.9953	401.275	1		16,942.71
RAND		BG-3553	405.03	0.9955	403.207	1		17,024.29
RAND		BG-3552	406.39	0.9955	404.561	1		17,081.46

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BG-3551	406.96	0.9955	405.129	1		17,105.44
RAND		BG-3550	404.67	0.9955	402.849	1		17,009.17
RAND		BG-3549	406.19	0.9955	404.362	1		17,073.05
RAND		BG-3548	403.7	0.9955	401.883	1		16,968.38
RAND		BG-3547	405.5	0.9951	403.513	1		17,037.21
RAND		BG-3546	408.7	0.9951	406.697	1		17,171.64
RAND		BG-3602	403.4	0.9955	401.585	1		16,955.80
RAND		BG-3601	402.95	0.9955	401.137	1		16,936.89
RAND		BG-3600	406.32	0.9955	404.492	1		17,078.54
RAND		BG-3599	405.22	0.9955	403.397	1		17,032.31
RAND		BG-3598	403.6	0.9955	401.784	1		16,964.20
RAND		BG-3597	406.92	0.9955	405.089	1		17,103.75
RAND		BG-3596	403.5	0.9955	401.684	1		16,959.98
RAND		BG-3595	406.7	0.9955	404.87	1		17,094.50
RAND		BG-3594	405.87	0.9955	404.044	1		17,059.63
RAND		BG-3393	405.03	0.9955	403.207	1		17,024.29
RAND		BG-3592	405.03	0.9955	403.207	1		17,024.29
RAND		BG-3591	402.23	0.9955	400.42	1		16,906.61
RAND		BG-3590	406.38	0.9955	404.551	1		17,081.03
RAND		BG-3589	405.58	0.9953	403.674	1		17,044.00
RAND		BG-3588	405.1	0.9953	403.196	1		17,023.82
RAND		BG-3587	403.27	0.9953	401.375	1		16,946.94
RAND		BG-3586	403.92	0.9953	402.022	1		16,974.25
RAND		BG-3585	403.78	0.9953	401.882	1		16,968.34
RAND		BG-3584	405.46	0.9953	403.554	1		17,038.94
RAND		BG-3583	405.83	0.9957	404.085	1		17,061.36
RAND		BG-3582	406.8	0.9957	405.051	1		17,102.14
RAND		BG-3581	403.68	0.9957	401.944	1		16,970.96
RAND		BG-3580	405.07	0.9957	403.328	1		17,029.40
RAND		BG-3579	405.83	0.9957	404.085	1		17,061.36
RAND		BG-3578	405.75	0.9957	404.005	1		17,057.98
RAND		BG-3607	405.23	0.9955	403.406	1		17,032.69
RAND		BG-3606	405.52	0.9955	403.695	1		17,044.89
RAND		BG-3605	402.42	0.9955	400.609	1		16,914.59
RAND		BG-3604	404.45	0.9955	402.63	1		16,999.92
RAND		BG-3603	405.42	0.9955	403.596	1		17,040.71
RAND		BM-553	407.11	0.9961	405.522	1		17,122.03
RAND		BM-552	404.77	0.9961	403.191	1		17,023.61
RAND		BM-551	401.99	0.9961	400.422	1		16,906.70
RAND		BM-550	407.15	0.9961	405.562	1		17,123.72
RAND		BM-549	407.07	0.9961	405.482	1		17,120.34
RAND		BM-548	403.47	0.9961	401.896	1		16,968.93
RAND		BM-547	408.97	0.9959	407.293	1		17,196.81
RAND		BM-546	406.05	0.9959	404.385	1		17,074.02
RAND		BM-545	404.37	0.9959	402.712	1		17,003.39
RAND		BM-543	401.72	0.9959	400.073	1		16,891.96
RAND		BM-542	404.45	0.9959	402.792	1		17,006.76

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-541	402.99	0.9959	401.338	1		16,945.37
RAND		BM-540	404.6	0.9959	402.941	1		17,013.06
RAND		BM-539	406	0.9959	404.335	1		17,071.91
RAND		BM-538	402.85	0.9959	401.198	1		16,939.46
RAND		BM-537	405.67	0.9959	404.007	1		17,058.06
RAND		BM-536	406.65	0.9951	404.657	1		17,085.51
RAND		BM-535	402.02	0.9951	400.05	1		16,890.99
RAND		BM-534	404.2	0.9951	402.219	1		16,982.57
RAND		BM-533	403.82	0.9951	401.841	1		16,966.61
RAND		BM-532	401.65	0.9951	399.682	1		16,875.45
RAND		BM-531	405.65	0.9952	403.703	1		17,045.23
RAND		BM-530	401.35	0.9952	399.424	1		16,864.56
RAND		BM-529	402.04	0.9952	400.11	1		16,893.52
RAND		BM-528	403.22	0.9952	401.285	1		16,943.14
RAND		BM-560	408.67	0.9957	406.913	1		17,180.76
RAND		BM-559	404	0.9957	402.263	1		16,984.43
RAND		BM-558	405.15	0.9961	403.57	1		17,039.61
RAND		BM-557	404.62	0.9961	403.042	1		17,017.32
RAND		BM-556	404.33	0.9961	402.753	1		17,005.12
RAND		BM-555	406.8	0.9961	405.213	1		17,108.98
RAND		BM-554	406.3	0.9961	404.715	1		17,087.96
RAND		BM-1148	404.41	0.9969	403.156	1		17,022.13
RAND		BM-1147	403.3	0.9969	402.05	1		16,975.44
RAND		BM-1146	402.98	0.9969	401.731	1		16,961.97
RAND		BM-1145	403.52	0.9969	402.269	1		16,984.68
RAND		BM-1143	401.36	0.9969	400.116	1		16,893.78
RAND		BM-1142	403.5	0.9969	402.249	1		16,983.84
RAND		BM-1141	402.9	0.9969	401.651	1		16,958.59
RAND		BM-1139	403.57	0.9968	402.279	1		16,985.10
RAND		BM-1138	403.38	0.9968	402.089	1		16,977.08
RAND		BM-1137	402.27	0.9968	400.983	1		16,930.38
RAND		BM-1136	404.58	0.9968	403.285	1		17,027.58
RAND		BM-1134	402.3	0.9968	401.013	1		16,931.65
RAND		BM-1133	405.26	0.9968	403.963	1		17,056.21
RAND		BM-1132	403.7	0.9968	402.408	1		16,990.55
RAND		BM-1131	404.98	0.9968	403.684	1		17,044.43
RAND		BM-1130	406.82	0.9968	405.518	1		17,121.86
RAND		BM-1129	404.02	0.9962	402.485	1		16,993.80
RAND		BM-1128	405.92	0.9962	404.378	1		17,073.73
RAND		BM-1127	401.97	0.9962	400.443	1		16,907.58
RAND		BM-1126	405.23	0.9962	403.69	1		17,044.68
RAND		BM-1125	404.07	0.9962	402.535	1		16,995.91
RAND		BM-1124	400.5	0.9962	398.978	1		16,845.73
RAND		BM-1123	405.18	0.9963	403.681	1		17,044.30
RAND		BM-1122	402.22	0.9963	400.732	1		16,919.79
RAND		BM-1121	404.97	0.9963	403.472	1		17,035.48
RAND		BM-1174	405.28	0.9964	403.821	1		17,050.21

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Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1173	402.8	0.9964	401.35	1		16,945.88
RAND		BM-1172	404.53	0.9964	403.074	1		17,018.67
RAND		BM-1171	408.43	0.9964	406.96	1		17,182.75
RAND		BM-1170	403.12	0.9965	401.709	1		16,961.04
RAND		BM-1169	405.3	0.9965	403.881	1		17,052.74
RAND		BM-1168	400.57	0.9965	399.168	1		16,853.75
RAND		BM-1167	401.62	0.9965	400.214	1		16,897.92
RAND		BM-1166	406.45	0.9965	405.027	1		17,101.13
RAND		BM-1164	407	0.9959	405.331	1		17,113.97
RAND		BM-1165	405.08	0.9965	403.662	1		17,043.50
RAND		BM-1162	401.71	0.9959	400.063	1		16,891.54
RAND		BM-1161	406.43	0.9959	404.764	1		17,090.03
RAND		BM-1160	403.03	0.9959	401.378	1		16,947.06
RAND		BM-1159	402.81	0.9959	401.158	1		16,937.77
RAND		BM-1158	403.08	0.9959	401.427	1		16,949.13
RAND		BM-1157	401.4	0.9959	399.754	1		16,878.49
RAND		BM-1156	400.84	0.9959	399.197	1		16,854.98
RAND		BM-1155	409.87	0.9959	408.19	1		17,234.68
RAND		BM-1154	405.28	0.9959	403.618	1		17,041.64
RAND		BM-1153	404.5	0.9959	402.842	1		17,008.88
RAND		BM-1152	405.15	0.9969	403.894	1		17,053.29
RAND		BM-1150	403	0.9969	401.751	1		16,962.81
RAND		BM-1149	403.82	0.9969	402.568	1		16,997.31
RAND		BM-1236	404.92	0.9962	403.381	1		17,031.63
RAND		BM-1235	403.3	0.9962	401.767	1		16,963.49
RAND		BM-1234	404.15	0.9962	402.614	1		16,999.25
RAND		BM-1233	401.17	0.9962	399.646	1		16,873.93
RAND		BM-1232	408.07	0.9962	406.519	1		17,164.13
RAND		BM-1231	405.32	0.9962	403.78	1		17,048.48
RAND		BM-1230	403.65	0.9962	402.116	1		16,978.22
RAND		BM-1229	401.4	0.9962	399.875	1		16,883.60
RAND		BM-1228	401.55	0.9966	400.185	1		16,896.69
RAND		BM-1227	404.15	0.9966	402.776	1		17,006.09
RAND		BM-1226	406.35	0.9966	404.968	1		17,098.64
RAND		BM-1225	403.55	0.9966	402.178	1		16,980.84
RAND		BM-1224	403.27	0.9966	401.899	1		16,969.06
RAND		BM-1223	401.62	0.9966	400.254	1		16,899.60
RAND		BM-1222	403.15	0.9966	401.779	1		16,963.99
RAND		BM-1221	402.35	0.9966	400.982	1		16,930.34
RAND		BM-1220	403.07	0.9966	401.7	1		16,960.66
RAND		BM-1219	405.82	0.9966	404.44	1		17,076.35
RAND		BM-1218	404.87	0.9966	403.493	1		17,036.36
RAND		BM-1217	405.15	0.9968	403.854	1		17,051.60
RAND		BM-1216	403.09	0.9968	401.8	1		16,964.88
RAND		BM-1214	403.87	0.9968	402.578	1		16,997.73
RAND		BM-1213	403.65	0.9968	402.358	1		16,988.44
RAND		BM-1212	404.69	0.995	402.667	1		17,001.49

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1211	406.52	0.995	404.487	1		17,078.33
RAND		BM-1262	403.6	0.9965	402.187	1		16,981.22
RAND		BM-1261	403.02	0.9965	401.609	1		16,956.82
RAND		BM-1260	403.25	0.9965	401.839	1		16,966.53
RAND		BM-1259	403.27	0.9965	401.859	1		16,967.37
RAND		BM-1258	404.97	0.9965	403.553	1		17,038.90
RAND		BM-1257	406.9	0.9965	405.476	1		17,120.09
RAND		BM-1255	401.37	0.9965	399.965	1		16,887.40
RAND		BM-1254	402.77	0.9965	401.36	1		16,946.30
RAND		BM-1253	407	0.9967	405.657	1		17,127.73
RAND		BM-1252	402.7	0.9967	401.371	1		16,946.77
RAND		BM-1251	403.97	0.9967	402.637	1		17,000.22
RAND		BM-1250	405.45	0.9967	404.112	1		17,062.50
RAND		BM-1249	405.02	0.9967	403.683	1		17,044.38
RAND		BM-1248	402.15	0.9967	400.823	1		16,923.63
RAND		BM-1247	401.27	0.9968	399.986	1		16,888.29
RAND		BM-1246	407.3	0.9968	405.997	1		17,142.09
RAND		BM-1245	404.6	0.9968	403.305	1		17,028.42
RAND		BM-1244	401.12	0.9968	399.836	1		16,881.96
RAND		BM-1243	406.15	0.9968	404.85	1		17,093.66
RAND		BM-1242	400.55	0.9968	399.268	1		16,857.97
RAND		BM-1241	402.75	0.9962	401.22	1		16,940.39
RAND		BM-1240	401.62	0.9962	400.094	1		16,892.85
RAND		BM-1239	403.24	0.9962	401.708	1		16,961.00
RAND		BM-1238	409.15	0.9962	407.595	1		17,209.56
RAND		BM-1237	402.12	0.9962	400.592	1		16,913.88
RAND		BM-397	408.92	0.9961	407.325	1		17,198.16
RAND		BM-396	405.77	0.9961	404.187	1		17,065.66
RAND		BM-395	406.52	0.9961	404.935	1		17,097.25
RAND		BM-394	401.59	0.9961	400.024	1		16,889.89
RAND		BM-393	404.25	0.9959	402.593	1		16,998.36
RAND		BM-391	403.67	0.9959	402.015	1		16,973.96
RAND		BM-390	405.07	0.9959	403.409	1		17,032.82
RAND		BM-389	405.25	0.9959	403.588	1		17,040.37
RAND		BM-388	402.12	0.9959	400.471	1		16,908.77
RAND		BM-387	404.65	0.9964	403.193	1		17,023.70
RAND		BM-386	406.42	0.9964	404.957	1		17,098.18
RAND		BM-385	403.15	0.9964	401.699	1		16,960.62
RAND		BM-384	402.3	0.9964	400.852	1		16,924.85
RAND		BM-383	406.22	0.9964	404.758	1		17,089.77
RAND		BM-382	405.1	0.9957	403.358	1		17,030.66
RAND		BM-381	407.17	0.9957	405.419	1		17,117.68
RAND		BM-380	405.27	0.9957	403.527	1		17,037.80
RAND		BM-379	403.2	0.9957	401.466	1		16,950.78
RAND		BM-378	403.09	0.9957	401.357	1		16,946.18
RAND		BM-377	402.3	0.9957	400.57	1		16,912.95
RAND		BM-376	401.97	0.9963	400.483	1		16,909.27

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-375	403.87	0.9963	402.376	1		16,989.20
RAND		BM-374	406.65	0.9963	405.145	1		17,106.11
RAND		BM-373	409.95	0.9963	408.433	1		17,244.94
RAND		BM-372	404.62	0.9963	403.123	1		17,020.74
RAND		BM-413	403.1	0.9954	401.246	1		16,941.49
RAND		BM-412	403.85	0.9954	401.992	1		16,972.99
RAND		BM-411	401.65	0.9954	399.802	1		16,880.52
RAND		BM-410	404.75	0.9954	402.888	1		17,010.82
RAND		BM-409	401.95	0.9952	400.021	1		16,889.77
RAND		BM-407	403.12	0.9952	401.185	1		16,938.91
RAND		BM-406	404.27	0.9952	402.33	1		16,987.26
RAND		BM-403	403.92	0.9952	401.981	1		16,972.52
RAND		BM-402	407.25	0.9952	405.295	1		17,112.45
RAND		BM-399	404.05	0.9952	402.111	1		16,978.01
RAND		BM-398	404.57	0.9952	402.628	1		16,999.84
RAND		BM-408	406.2	0.9952	404.25	1		17,068.32
RAND		BM-405	406.27	0.9952	404.32	1		17,071.28
RAND		BM-404	406.22	0.9952	404.27	1		17,069.17
RAND		BM-401	406.3	0.9952	404.35	1		17,072.55
RAND		BM-400	406.6	0.9952	404.648	1		17,085.13
RAND		BM-445	405	0.995	402.975	1		17,014.49
RAND		BM-444	404.8	0.995	402.776	1		17,006.09
RAND		BM-443	407.22	0.995	405.184	1		17,107.76
RAND		BM-442	405.1	0.995	403.075	1		17,018.71
RAND		BM-435	409.5	0.9957	407.739	1		17,215.64
RAND		BM-434	402.62	0.9957	400.889	1		16,926.42
RAND		BM-433	407.87	0.9957	406.116	1		17,147.11
RAND		BM-432	406.95	0.9957	405.2	1		17,108.44
RAND		BM-431	404.45	0.9957	402.711	1		17,003.34
RAND		BM-430	405.47	0.9957	403.726	1		17,046.20
RAND		BM-429	404.67	0.9957	402.93	1		17,012.59
RAND		BM-428	404.35	0.9957	402.611	1		16,999.12
RAND		BM-427	406.85	0.9957	405.101	1		17,104.26
RAND		BM-426	405.65	0.9957	403.906	1		17,053.80
RAND		BM-425	403	0.9957	401.267	1		16,942.38
RAND		BM-424	407.67	0.9957	405.917	1		17,138.71
RAND		BM-422	401.72	0.9957	399.993	1		16,888.58
RAND		BM-421	403.5	0.9954	401.644	1		16,958.29
RAND		BM-420	405.27	0.9954	403.406	1		17,032.69
RAND		BM-419	403.85	0.9954	401.992	1		16,972.99
RAND		BM-418	405.8	0.9954	403.933	1		17,054.94
RAND		BM-417	402.22	0.9954	400.37	1		16,904.50
RAND		BM-416	404.17	0.9954	402.311	1		16,986.46
RAND		BM-415	404.27	0.9954	402.41	1		16,990.64
RAND		BM-414	405.85	0.9954	403.983	1		17,057.05
RAND		BM-476	404.85	0.996	403.231	1		17,025.30
RAND		BM-475	403.77	0.996	402.155	1		16,979.87

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-474	404.77	0.996	403.151	1		17,021.92
RAND		BM-473	405.94	0.996	404.316	1		17,071.11
RAND		BM-472	405.7	0.996	404.077	1		17,061.02
RAND		BM-471	406.37	0.9959	404.704	1		17,087.49
RAND		BM-470	406.97	0.9959	405.301	1		17,112.70
RAND		BM-469	406.7	0.9959	405.033	1		17,101.38
RAND		BM-468	409.57	0.9959	407.891	1		17,222.06
RAND		BM-467	406.64	0.9959	404.973	1		17,098.85
RAND		BM-466	406.5	0.9959	404.833	1		17,092.94
RAND		BM-465	404.47	0.996	402.852	1		17,009.30
RAND		BM-464	406.95	0.996	405.322	1		17,113.59
RAND		BM-463	401.42	0.996	399.814	1		16,881.03
RAND		BM-462	403.87	0.996	402.255	1		16,984.09
RAND		BM-461	404.45	0.996	402.832	1		17,008.45
RAND		BM-460	403.35	0.996	401.737	1		16,962.22
RAND		BM-459	409.2	0.9955	407.359	1		17,199.59
RAND		BM-458	407.1	0.9955	405.268	1		17,111.31
RAND		BM-457	405.67	0.9955	403.844	1		17,051.18
RAND		BM-456	402.66	0.9955	400.848	1		16,924.68
RAND		BM-455	405.82	0.9955	403.994	1		17,057.52
RAND		BM-454	406.25	0.9955	406.413	1		17,159.65
RAND		BM-447	404.95	0.995	402.925	1		17,012.38
RAND		BM-446	403.55	0.995	401.532	1		16,953.56
RAND		BM-493	407.05	0.9962	405.503	1		17,121.23
RAND		BM-492	403.77	0.9962	402.236	1		16,983.29
RAND		BM-491	405.92	0.9962	404.378	1		17,073.73
RAND		BM-490	405.15	0.9962	403.61	1		17,041.30
RAND		BM-489	402.5	0.9959	400.85	1		16,924.77
RAND		BM-488	403.35	0.9959	401.696	1		16,960.49
RAND		BM-486	401.62	0.9959	399.973	1		16,887.74
RAND		BM-485	400.12	0.9959	398.48	1		16,824.70
RAND		BM-484	403.8	0.9959	402.144	1		16,979.40
RAND		BM-483	404.07	0.9955	402.252	1		16,983.96
RAND		BM-482	408.17	0.9955	406.333	1		17,156.27
RAND		BM-481	405.85	0.9955	404.024	1		17,058.78
RAND		BM-480	403.89	0.9955	402.072	1		16,976.36
RAND		BM-479	405.85	0.9955	404.024	1		17,058.78
RAND		BM-478	405.85	0.9955	404.024	1		17,058.78
RAND		BM-477	404.95	0.996	403.33	1		17,029.48
RAND		BM-502	403.4	0.9954	401.544	1		16,954.07
RAND		BM-501	404.92	0.996	403.3	1		17,028.21
RAND		BM-500	403.17	0.996	401.557	1		16,954.62
RAND		BM-499	405.62	0.996	403.998	1		17,057.68
RAND		BM-498	405.05	0.996	403.43	1		17,033.70
RAND		BM-497	406.7	0.996	405.073	1		17,103.07
RAND		BM-496	404.57	0.996	402.952	1		17,013.52
RAND		BM-495	406.95	0.9962	405.404	1		17,117.05

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-494	406.32	0.9962	404.776	1		17,090.53
RAND		BM-527	403.59	0.9952	401.653	1		16,958.67
RAND		BM-526	402.32	0.9952	400.389	1		16,905.30
RAND		BM-525	402.57	0.9959	400.919	1		16,927.68
RAND		BM-524	402.91	0.9959	401.258	1		16,942.00
RAND		BM-523	406.97	0.9959	405.301	1		17,112.70
RAND		BM-522	405.77	0.9959	404.106	1		17,062.24
RAND		BM-521	405.9	0.9959	404.236	1		17,067.73
RAND		BM-520	403.3	0.9959	401.646	1		16,958.38
RAND		BM-519	404.7	0.9961	403.122	1		17,020.70
RAND		BM-518	404	0.9961	402.424	1		16,991.23
RAND		BM-517	405.85	0.9961	404.267	1		17,069.04
RAND		BM-516	401.55	0.9961	399.984	1		16,888.20
RAND		BM-515	402.6	0.9961	401.03	1		16,932.37
RAND		BM-514	406.52	0.9961	404.935	1		17,097.25
RAND		BM-513	403.7	0.9959	402.045	1		16,975.22
RAND		BM-512	405.4	0.9959	403.738	1		17,046.71
RAND		BM-511	403.15	0.9959	401.497	1		16,952.09
RAND		BM-510	405.52	0.9959	403.857	1		17,051.73
RAND		BM-509	405.17	0.9959	403.509	1		17,037.04
RAND		BM-508	404.47	0.9959	402.812	1		17,007.61
RAND		BM-507	405.97	0.9954	404.103	1		17,062.12
RAND		BM-506	406	0.9954	404.132	1		17,063.34
RAND		BM-505	405.12	0.9954	403.256	1		17,026.36
RAND		BM-504	403.75	0.9954	401.893	1		16,968.81
RAND		BM-503	401.35	0.9954	399.504	1		16,867.94
RAND		BM-13	405.35	0.996	403.729	1		17,046.33
RAND		BM-12	401.57	0.9959	399.924	1		16,885.67
RAND		BM-11	404.25	0.9959	402.593	1		16,998.36
RAND		BM-10	403.6	0.9959	401.945	1		16,971.00
RAND		BM-09	404.5	0.9959	402.842	1		17,008.88
RAND		BM-08	405.92	0.9959	404.256	1		17,068.58
RAND		BM-07	407.12	0.996	405.492	1		17,120.76
RAND		BM-06	404.15	0.996	402.533	1		16,995.83
RAND		BM-05	406.92	0.996	405.292	1		17,112.32
RAND		BM-04	407.92	0.996	406.288	1		17,154.37
RAND		BM-03	405.8	0.996	404.177	1		17,065.24
RAND		BM-02	405.2	0.996	403.579	1		17,039.99
RAND		BM-01	406.35	0.996	404.725	1		17,088.38
RAND		BL-10000	403	0.996	401.388	1		16,947.48
RAND		BL-9999	401.72	0.996	400.113	1		16,893.65
RAND		BL-9998	407.1	0.996	405.472	1		17,119.92
RAND		BL-9997	402.46	0.996	400.85	1		16,924.77
RAND		BL-9996	405.2	0.9962	403.66	1		17,043.41
RAND		BL-9995	405.9	0.9962	404.358	1		17,072.88
RAND		BL-9994	403.4	0.9962	401.867	1		16,967.71
RAND		BL-9993	402.12	0.9962	400.592	1		16,913.88

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BL-9992	405.5	0.9962	403.959	1		17,056.04
RAND		BL-9991	405.45	0.9962	403.909	1		17,053.93
RAND		BL-9990	405.57	0.9957	403.826	1		17,050.42
RAND		BL-9989	405.97	0.9957	404.224	1		17,067.23
RAND		BM-47	403.51	0.9958	401.815	1		16,965.51
RAND		BM-46	403.94	0.9958	402.243	1		16,983.58
RAND		BM-45	403.6	0.9958	401.905	1		16,969.31
RAND		BM-44	405.98	0.9958	404.275	1		17,069.38
RAND		BM-43	406.3	0.9958	404.594	1		17,082.85
RAND		BM-38	406.89	0.9962	405.344	1		17,114.52
RAND		BM-37	403.36	0.9962	401.827	1		16,966.02
RAND		BM-36	402.87	0.9962	401.339	1		16,945.42
RAND		BM-35	404.47	0.9962	402.933	1		17,012.72
RAND		BM-34	403.65	0.9962	402.116	1		16,978.22
RAND		BM-33	404.35	0.9962	402.813	1		17,007.65
RAND		BM-32	401.95	0.9962	400.423	1		16,906.74
RAND		BM-31	402.3	0.9962	400.771	1		16,921.43
RAND		BM-30	403.8	0.9966	402.427	1		16,991.35
RAND		BM-29	404.78	0.9966	403.404	1		17,032.60
RAND		BM-28	409.19	0.9966	407.799	1		17,218.17
RAND		BM-27	402.12	0.9966	400.753	1		16,920.67
RAND		BM-26	406.22	0.9967	404.879	1		17,094.88
RAND		BM-25	403.77	0.9967	402.438	1		16,991.82
RAND		BM-23	408.4	0.9967	407.052	1		17,186.63
RAND		BM-22	406.65	0.9967	405.308	1		17,113.00
RAND		BM-21	406.4	0.9967	405.059	1		17,102.48
RAND		BM-16	405.07	0.996	403.45	1		17,034.55
RAND		BM-15	403.67	0.996	402.055	1		16,975.65
RAND		BM-14	404.75	0.996	403.131	1		17,021.08
RAND		BM-79	406.67	0.996	405.043	1		17,101.81
RAND		BM-78	405.17	0.9957	403.428	1		17,033.62
RAND		BM-77	408.21	0.9957	406.455	1		17,161.42
RAND		BM-76	402.2	0.9957	400.471	1		16,908.77
RAND		BM-75	400.6	0.9957	398.877	1		16,841.46
RAND		BM-74	405.67	0.9957	403.926	1		17,054.64
RAND		BM-73	401.6	0.9957	399.873	1		16,883.52
RAND		BM-66	405.8	0.9957	404.055	1		17,060.09
RAND		BM-65	405.41	0.9957	403.667	1		17,043.71
RAND		BM-64	404.33	0.9957	402.591	1		16,998.28
RAND		BM-63	400.02	0.9957	398.3	1		16,817.10
RAND		BM-61	408.98	0.9957	407.221	1		17,193.77
RAND		BM-60	403.97	0.9956	402.193	1		16,981.47
RAND		BM-59	407.9	0.9956	406.105	1		17,146.65
RAND		BM-58	403.92	0.9956	402.143	1		16,979.36
RAND		BM-57	402.2	0.9956	400.43	1		16,907.04
RAND		BM-56	404.92	0.9956	403.138	1		17,021.37
RAND		BM-55	405.86	0.9956	404.074	1		17,060.89

Restricted FR								Official FRBNY Book Value *
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	
RAND		BM-54	405.2	0.9957	403.458	1		17,034.88
RAND		BM-53	405.05	0.9957	403.308	1		17,028.55
RAND		BM-52	402.57	0.9957	400.839	1		16,924.30
RAND		BM-51	404.18	0.9957	402.442	1		16,991.99
RAND		BM-50	407.32	0.9957	405.569	1		17,124.02
RAND		BM-49	403.08	0.9957	401.347	1		16,945.75
RAND		BM-48	405.42	0.9958	403.717	1		17,045.82
RAND		BM-106	403.58	0.9959	401.925	1		16,970.16
RAND		BM-105	402.3	0.9959	400.651	1		16,916.37
RAND		BM-104	408.5	0.9959	406.825	1		17,177.05
RAND		BM-103	407.93	0.9959	406.257	1		17,153.06
RAND		BM-101	404.82	0.9959	403.16	1		17,022.30
RAND		BM-100	406.6	0.9959	404.933	1		17,097.16
RAND		BM-99	403.07	0.9959	401.417	1		16,948.71
RAND		BM-98	406.79	0.9959	405.122	1		17,105.14
RAND		BM-97	402.12	0.9959	400.471	1		16,908.77
RAND		BM-96	403.53	0.9959	401.876	1		16,968.09
RAND		BM-95	405.22	0.9959	403.559	1		17,039.15
RAND		BM-94	403.33	0.9959	401.676	1		16,959.64
RAND		BM-93	403.32	0.9959	401.666	1		16,959.22
RAND		BM-92	405	0.9959	403.34	1		17,029.90
RAND		BM-90	403.61	0.996	401.996	1		16,973.16
RAND		BM-89	404.04	0.996	402.424	1		16,991.23
RAND		BM-88	407.73	0.996	406.099	1		17,146.39
RAND		BM-87	405.02	0.996	403.4	1		17,032.44
RAND		BM-86	406.28	0.996	404.655	1		17,085.42
RAND		BM-85	405.95	0.996	404.326	1		17,071.53
RAND		BM-84	404.32	0.996	402.703	1		17,003.01
RAND		BM-83	405.22	0.996	403.599	1		17,040.84
RAND		BM-82	406.1	0.996	404.476	1		17,077.87
RAND		BM-81	403.77	0.996	402.155	1		16,979.87
RAND		BM-80	407.51	0.996	405.88	1		17,137.15
RAND		BM-131	404.83	0.9958	403.13	1		17,021.04
RAND		BM-130	403.99	0.9958	402.293	1		16,985.70
RAND		BM-129	406.65	0.9958	404.942	1		17,097.54
RAND		BM-128	404.17	0.9958	402.472	1		16,993.25
RAND		BM-127	403.1	0.9958	401.407	1		16,948.29
RAND		BM-126	405.03	0.9958	403.329	1		17,029.44
RAND		BM-125	406.6	0.9958	404.892	1		17,095.43
RAND		BM-124	404.07	0.9958	402.373	1		16,989.07
RAND		BM-123	405.1	0.9958	403.399	1		17,032.39
RAND		BM-122	403.9	0.9958	402.204	1		16,981.94
RAND		BM-121	403.42	0.9958	401.726	1		16,961.76
RAND		BM-120	407.85	0.9958	406.137	1		17,148.00
RAND		BM-119	408.4	0.9958	406.685	1		17,171.14
RAND		BM-118	407.32	0.9958	405.609	1		17,125.70
RAND		BM-117	402.92	0.9958	401.228	1		16,940.73

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-116	404.59	0.9958	402.891	1		17,010.94
RAND		BM-115	405.72	0.9958	404.016	1		17,058.44
RAND		BM-114	403.77	0.9958	402.074	1		16,976.45
RAND		BM-113	406.42	0.9958	404.713	1		17,087.87
RAND		BM-112	404.5	0.9958	402.801	1		17,007.14
RAND		BM-111	403.16	0.9958	401.467	1		16,950.82
RAND		BM-110	404.32	0.9958	402.622	1		16,999.59
RAND		BM-109	407.06	0.9958	405.35	1		17,114.77
RAND		BM-108	402.17	0.9959	400.521	1		16,910.88
RAND		BM-107	406.7	0.9959	405.033	1		17,101.38
RAND		BM-156	405.85	0.9958	404.145	1		17,063.89
RAND		BM-155	406.03	0.9958	404.325	1		17,071.49
RAND		BM-154	404.28	0.9958	402.582	1		16,997.90
RAND		BM-153	405.7	0.9957	403.955	1		17,055.87
RAND		BM-152	405.35	0.9957	403.607	1		17,041.18
RAND		BM-151	402.45	0.9957	400.719	1		16,919.24
RAND		BM-150	404.62	0.9957	402.88	1		17,010.48
RAND		BM-149	406.65	0.9957	404.901	1		17,095.81
RAND		BM-148	404.99	0.9957	403.249	1		17,026.06
RAND		BM-147	404.65	0.9958	402.95	1		17,013.44
RAND		BM-146	406.85	0.9958	405.141	1		17,105.94
RAND		BM-145	404.75	0.9958	403.05	1		17,017.66
RAND		BM-144	404.5	0.9958	402.801	1		17,007.14
RAND		BM-143	404.69	0.9958	402.99	1		17,015.12
RAND		BM-142	404.55	0.9958	402.851	1		17,009.26
RAND		BM-141	401.6	0.9957	399.873	1		16,883.52
RAND		BM-140	402.02	0.9957	400.291	1		16,901.17
RAND		BM-139	401.78	0.9957	400.052	1		16,891.08
RAND		BM-138	403.17	0.9957	401.436	1		16,949.51
RAND		BM-137	403.95	0.9957	402.213	1		16,982.32
RAND		BM-136	402.85	0.9957	401.118	1		16,936.08
RAND		BM-135	404.27	0.9956	402.491	1		16,994.06
RAND		BM-134	407.36	0.9956	405.568	1		17,123.97
RAND		BM-133	404.1	0.9956	402.322	1		16,986.92
RAND		BM-132	404.8	0.9956	403.019	1		17,016.35
RAND		BW-2896	404.61	0.9954	402.749	1		17,004.95
RAND		BW-2895	403.48	0.9954	401.624	1		16,957.45
RAND		BW-2894	402.85	0.9954	400.997	1		16,930.98
RAND		BW-2893	404.67	0.9954	402.809	1		17,007.48
RAND		BW-2892	406.63	0.9954	404.76	1		17,089.86
RAND		BW-2874	403.17	0.9955	401.356	1		16,946.13
RAND		BW-2873	404.29	0.9955	402.471	1		16,993.21
RAND		BW-2872	406.32	0.9955	404.492	1		17,078.54
RAND		BW-2871	402.3	0.9955	400.49	1		16,909.57
RAND		BW-2870	402.36	0.9955	400.549	1		16,912.06
RAND		BW-2869	407.15	0.9955	405.318	1		17,113.42
RAND		BW-2868	402.8	0.9963	401.31	1		16,944.19

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BW-2867	407.9	0.9963	406.391	1		17,158.72
RAND		BW-2866	404.77	0.9963	403.272	1		17,027.03
RAND		BW-2865	406.97	0.9963	405.464	1		17,119.58
RAND		BW-2864	406.95	0.9963	405.444	1		17,118.74
RAND		BW-2863	401.65	0.9963	400.164	1		16,895.80
RAND		BW-2862	402.8	0.9963	401.31	1		16,944.19
RAND		BW-2861	403.5	0.9963	402.007	1		16,973.62
RAND		BW-2860	402.42	0.9963	400.931	1		16,928.19
RAND		BW-2859	403.43	0.9963	401.937	1		16,970.66
RAND		BW-2858	406.9	0.9963	405.394	1		17,116.63
RAND		BW-2857	402.95	0.9963	401.459	1		16,950.48
RAND		BW-2838	403.27	0.9962	401.738	1		16,962.26
RAND		BW-2837	404.65	0.9962	403.112	1		17,020.28
RAND		BM-1628	403.32	0.9966	401.949	1		16,971.17
RAND		BM-1627	401.82	0.9966	400.454	1		16,908.05
RAND		BM-1626	403.02	0.9966	401.65	1		16,958.55
RAND		BM-1625	403	0.9966	401.63	1		16,957.70
RAND		BM-1624	401.8	0.9966	400.434	1		16,907.20
RAND		BM-1623	403.72	0.9959	402.065	1		16,976.07
RAND		BM-1622	409.62	0.9959	407.941	1		17,224.17
RAND		BM-1621	405.72	0.9959	404.057	1		17,060.18
RAND		BM-1620	403.55	0.9959	401.895	1		16,968.89
RAND		BM-1619	407.05	0.9959	405.381	1		17,116.08
RAND		BM-1618	402.92	0.9959	401.268	1		16,942.42
RAND		BM-1617	406.21	0.9954	404.341	1		17,072.17
RAND		BM-1616	403.92	0.9954	402.062	1		16,975.94
RAND		BM-1615	407.65	0.9954	405.775	1		17,132.71
RAND		BM-1614	405.97	0.9954	404.103	1		17,062.12
RAND		BM-1613	407.67	0.9954	405.795	1		17,133.56
RAND		BM-1612	403.4	0.9954	401.544	1		16,954.07
RAND		BM-1611	403.4	0.9961	401.827	1		16,966.02
RAND		BM-1610	402.45	0.9961	400.88	1		16,926.04
RAND		BM-1609	404.85	0.9961	403.271	1		17,026.99
RAND		BM-1608	405.07	0.9961	403.49	1		17,036.24
RAND		BM-1607	406.47	0.9961	404.885	1		17,095.14
RAND		BW-2899	407.24	0.9954	405.367	1		17,115.49
RAND		BW-2898	403.75	0.9954	401.893	1		16,968.81
RAND		BW-2897	407.37	0.9954	405.496	1		17,120.93
RAND		BM-1653	407.22	0.996	405.591	1		17,124.94
RAND		BM-1652	408.1	0.996	406.468	1		17,161.97
RAND		BM-1651	400.78	0.996	399.177	1		16,854.13
RAND		BM-1650	403.82	0.996	402.205	1		16,981.98
RAND		BM-1649	404.85	0.996	403.231	1		17,025.30
RAND		BM-1648	404.02	0.996	402.404	1		16,990.38
RAND		BM-1647	408.37	0.9955	406.532	1		17,164.68
RAND		BM-1646	407.2	0.9955	405.368	1		17,115.53
RAND		BM-1645	406	0.9955	404.173	1		17,065.07

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1644	402.02	0.9955	400.211	1		16,897.79
RAND		BM-1643	405.8	0.9955	403.974	1		17,056.67
RAND		BM-1642	402.88	0.9955	401.067	1		16,933.93
RAND		BM-1641	403.05	0.9966	401.68	1		16,959.81
RAND		BM-1640	404.92	0.9966	403.543	1		17,038.47
RAND		BM-1639	403.42	0.9966	402.048	1		16,975.35
RAND		BM-1638	406.95	0.9966	405.566	1		17,123.89
RAND		BM-1637	405.32	0.9966	403.942	1		17,055.32
RAND		BM-1636	402.22	0.9966	400.852	1		16,924.85
RAND		BM-1635	403.55	0.9966	402.178	1		16,980.84
RAND		BM-1634	408.85	0.9966	407.46	1		17,203.86
RAND		BM-1633	401.6	0.9966	400.235	1		16,898.80
RAND		BM-1632	405.35	0.9966	403.972	1		17,056.59
RAND		BM-1631	407.1	0.9966	405.716	1		17,130.22
RAND		BM-1630	402.97	0.9966	401.6	1		16,956.44
RAND		BM-1629	403.45	0.9966	402.078	1		16,976.62
RAND		BM-1680	403.82	0.996	402.205	1		16,981.98
RAND		BM-1679	403.27	0.996	401.657	1		16,958.84
RAND		BM-1678	407	0.9961	405.413	1		17,117.43
RAND		BM-1676	404.17	0.9961	402.594	1		16,998.40
RAND		BM-1675	401.25	0.9961	399.685	1		16,875.58
RAND		BM-1674	404.28	0.9961	402.703	1		17,003.01
RAND		BM-1673	402.8	0.9961	401.229	1		16,940.77
RAND		BM-1672	405.15	0.9955	403.327	1		17,029.35
RAND		BM-1671	408.92	0.9955	407.08	1		17,187.81
RAND		BM-1670	405.3	0.9955	403.476	1		17,035.64
RAND		BM-1669	403.27	0.9955	401.455	1		16,950.31
RAND		BM-1668	405.32	0.9955	403.496	1		17,036.49
RAND		BM-1667	403.03	0.9955	401.216	1		16,940.22
RAND		BM-1666	404.02	0.9963	402.525	1		16,995.49
RAND		BM-1664	404.02	0.9963	402.525	1		16,995.49
RAND		BM-1663	402.95	0.9963	401.459	1		16,950.48
RAND		BM-1662	404.97	0.9963	403.472	1		17,035.48
RAND		BM-1661	406.55	0.9963	405.046	1		17,101.93
RAND		BM-1660	403.55	0.9963	402.057	1		16,975.73
RAND		BM-1659	408.61	0.9958	406.894	1		17,179.96
RAND		BM-1658	402.22	0.9958	400.531	1		16,911.30
RAND		BM-1657	405.72	0.9958	404.016	1		17,058.44
RAND		BM-1656	405.2	0.9958	403.498	1		17,036.57
RAND		BM-1655	403.2	0.9958	401.507	1		16,952.51
RAND		BM-1654	400.45	0.9958	398.768	1		16,836.86
RAND		BM-1706	402.25	0.9958	400.561	1		16,912.57
RAND		BM-1704	408.87	0.9958	407.153	1		17,190.90
RAND		BM-1703	403.7	0.995	401.682	1		16,959.90
RAND		BM-1702	406.48	0.995	404.448	1		17,076.68
RAND		BM-1701	406.9	0.995	404.866	1		17,094.33
RAND		BM-1700	402.45	0.995	400.438	1		16,907.37

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1699	403.82	0.995	401.801	1		16,964.92
RAND		BM-1698	407.2	0.9961	405.612	1		17,125.83
RAND		BM-1697	404.2	0.9961	402.624	1		16,999.67
RAND		BM-1696	406.4	0.9961	404.815	1		17,092.18
RAND		BM-1695	406.45	0.9961	404.865	1		17,094.29
RAND		BM-1694	405.25	0.996	403.629	1		17,042.10
RAND		BM-1693	405.8	0.996	404.177	1		17,065.24
RAND		BM-1692	407.02	0.996	405.392	1		17,116.54
RAND		BM-1691	402.15	0.996	400.541	1		16,911.72
RAND		BM-1690	404.25	0.995	402.229	1		16,982.99
RAND		BM-1689	404.77	0.995	402.746	1		17,004.82
RAND		BM-1688	404.57	0.995	402.547	1		16,996.42
RAND		BM-1687	405.62	0.995	403.592	1		17,040.54
RAND		BM-1686	402.22	0.995	400.209	1		16,897.70
RAND		BM-1685	404.22	0.995	402.199	1		16,981.73
RAND		BM-1684	402.75	0.996	401.139	1		16,936.97
RAND		BM-1683	401.42	0.996	399.814	1		16,881.03
RAND		BM-1682	401.57	0.996	399.964	1		16,887.36
RAND		BM-1681	406.87	0.996	405.243	1		17,110.25
RAND		BM-1391	401.88	0.9961	400.313	1		16,902.10
RAND		BM-1390	403.36	0.9961	401.787	1		16,964.33
RAND		BM-1389	404.52	0.9961	402.942	1		17,013.10
RAND		BM-1388	403.93	0.9961	402.355	1		16,988.31
RAND		BM-258	405.51	0.9961	403.929	1		17,054.77
RAND		BM-257	404.81	0.9961	403.231	1		17,025.30
RAND		BM-256	402.55	0.9961	400.98	1		16,930.26
RAND		BM-255	406.26	0.996	404.635	1		17,084.58
RAND		BM-254	402.7	0.996	401.089	1		16,934.86
RAND		BM-253	400.8	0.996	399.197	1		16,854.98
RAND		BM-252	401.6	0.996	399.994	1		16,888.63
RAND		BM-251	402.95	0.996	401.338	1		16,945.37
RAND		BM-250	408.2	0.996	406.567	1		17,166.15
RAND		BM-249	403.45	0.996	401.836	1		16,966.40
RAND		BM-248	403.91	0.996	402.294	1		16,985.74
RAND		BM-247	405.51	0.996	403.888	1		17,053.04
RAND		BM-246	404.44	0.996	402.822	1		17,008.03
RAND		BM-245	404.05	0.996	402.434	1		16,991.65
RAND		BM-244	404.01	0.996	402.394	1		16,989.96
RAND		BM-243	402.38	0.996	400.77	1		16,921.39
RAND		BM-242	402.01	0.996	400.402	1		16,905.85
RAND		BM-241	402.62	0.996	401.01	1		16,931.52
RAND		BM-240	405.38	0.996	403.758	1		17,047.55
RAND		BM-230	403.9	0.9957	402.163	1		16,980.21
RAND		BM-229	401.45	0.9957	399.724	1		16,877.23
RAND		BM-1418	401.8	0.9952	399.871	1		16,883.43
RAND		BM-1417	403.3	0.9952	401.364	1		16,946.47
RAND		BM-1416	403.18	0.9952	401.245	1		16,941.45

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1415	403.35	0.9952	401.414	1		16,948.58
RAND		BM-1414	407.22	0.9961	405.632	1		17,126.68
RAND		BM-1413	404.35	0.9961	402.773	1		17,005.96
RAND		BM-1412	404.86	0.9961	403.281	1		17,027.41
RAND		BM-1411	406.63	0.9961	405.044	1		17,101.85
RAND		BM-1410	401.15	0.9961	399.586	1		16,871.40
RAND		BM-1409	401.85	0.9962	400.323	1		16,902.52
RAND		BM-1407	405.4	0.9962	403.859	1		17,051.82
RAND		BM-1406	401.85	0.9962	400.323	1		16,902.52
RAND		BM-1405	404.69	0.9962	403.152	1		17,021.96
RAND		BM-1404	404.8	0.9962	403.262	1		17,026.61
RAND		BM-1403	403.48	0.9962	401.947	1		16,971.09
RAND		BM-1402	405.41	0.9962	403.869	1		17,052.24
RAND		BM-1401	406.83	0.9962	405.284	1		17,111.98
RAND		BM-1400	406.8	0.9962	405.254	1		17,110.72
RAND		BM-1399	404.09	0.9961	402.514	1		16,995.03
RAND		BM-1397	405.28	0.9961	403.699	1		17,045.06
RAND		BM-1396	401.81	0.9961	400.243	1		16,899.14
RAND		BM-1395	408.69	0.9961	407.096	1		17,188.49
RAND		BM-1394	404.46	0.9961	402.883	1		17,010.61
RAND		BM-1393	404.1	0.9961	402.524	1		16,995.45
RAND		BM-1392	405.99	0.9961	404.407	1		17,074.95
RAND		BM-1444	402.3	0.9958	400.61	1		16,914.64
RAND		BM-1443	405.15	0.9958	403.448	1		17,034.46
RAND		BM-1442	407.6	0.9958	405.888	1		17,137.48
RAND		BM-1441	405.57	0.996	403.948	1		17,055.57
RAND		BM-1440	407.35	0.996	405.721	1		17,130.43
RAND		BM-1439	406.65	0.996	405.023	1		17,100.96
RAND		BM-1438	400.55	0.996	398.948	1		16,844.46
RAND		BM-1437	406.42	0.9959	404.754	1		17,089.60
RAND		BM-1436	405.6	0.9959	403.937	1		17,055.11
RAND		BM-1435	402.93	0.9959	401.278	1		16,942.84
RAND		BM-1434	404.5	0.9959	402.842	1		17,008.88
RAND		BM-1433	403.87	0.9959	402.214	1		16,982.36
RAND		BM-1432	402.05	0.9959	400.402	1		16,905.85
RAND		BM-1431	408.2	0.9952	406.241	1		17,152.39
RAND		BM-1430	404.68	0.9952	402.738	1		17,004.48
RAND		BM-1429	406.15	0.9952	404.2	1		17,066.21
RAND		BM-1428	408.2	0.9952	406.241	1		17,152.39
RAND		BM-1427	407.81	0.9952	405.853	1		17,136.01
RAND		BM-1425	403.33	0.9953	401.434	1		16,949.43
RAND		BM-1424	403.56	0.9953	401.663	1		16,959.10
RAND		BM-1423	404.77	0.9953	402.868	1		17,009.97
RAND		BM-1422	402.8	0.9953	400.907	1		16,927.18
RAND		BM-1421	406.16	0.9953	404.251	1		17,068.37
RAND		BM-1420	403.8	0.9952	401.862	1		16,967.50
RAND		BM-1419	404.35	0.9952	402.409	1		16,990.59

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Finesness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1507	408.9	0.9962	407.346	1		17,199.04
RAND		BM-1506	401.28	0.9962	399.755	1		16,878.54
RAND		BM-1505	403.2	0.9962	401.668	1		16,959.31
RAND		BM-1504	405.15	0.9962	403.61	1		17,041.30
RAND		BM-1503	404.23	0.9962	402.694	1		17,002.63
RAND		BM-1502	403.1	0.9962	401.568	1		16,955.08
RAND		BM-1501	402.5	0.9962	400.971	1		16,929.88
RAND		BM-1500	401.25	0.9962	399.725	1		16,877.27
RAND		BM-1499	403.64	0.9962	402.106	1		16,977.80
RAND		BM-1498	403.17	0.9963	401.678	1		16,959.73
RAND		BM-1497	404.75	0.9963	403.252	1		17,026.19
RAND		BM-1496	404.28	0.9963	402.784	1		17,006.43
RAND		BM-1495	403.65	0.9963	402.156	1		16,979.91
RAND		BM-1494	407.35	0.9963	405.843	1		17,135.58
RAND		BM-1493	403.8	0.9963	402.306	1		16,986.24
RAND		BM-1492	406.98	0.9963	405.474	1		17,120.00
RAND		BM-1491	406.95	0.9963	405.444	1		17,118.74
RAND		BM-1490	405.1	0.9963	403.601	1		17,040.92
RAND		BM-1489	404.95	0.9963	403.452	1		17,034.63
RAND		BM-1488	404.25	0.9963	402.754	1		17,005.16
RAND		BM-1487	406.35	0.9963	404.847	1		17,093.53
RAND		BM-1486	406.14	0.9962	404.597	1		17,082.98
RAND		BM-1485	406.35	0.9962	404.806	1		17,091.80
RAND		BM-1484	404.62	0.9962	403.082	1		17,019.01
RAND		BM-1483	407.89	0.9962	406.34	1		17,156.57
RAND		BM-1560	405.55	0.9963	404.049	1		17,059.84
RAND		BM-1557	402.73	0.9961	401.159	1		16,937.82
RAND		BM-1556	404.75	0.9961	403.171	1		17,022.77
RAND		BM-1555	405.78	0.9961	404.197	1		17,066.09
RAND		BM-1554	406.45	0.9961	404.865	1		17,094.29
RAND		BM-1553	406.21	0.9961	404.626	1		17,084.20
RAND		BM-1552	403.63	0.9962	402.096	1		16,977.38
RAND		BM-1551	404.6	0.9962	403.063	1		17,018.21
RAND		BM-1550	402.4	0.9962	400.871	1		16,925.66
RAND		BM-1549	409.1	0.9962	407.545	1		17,207.45
RAND		BM-1548	406.85	0.9962	405.304	1		17,112.83
RAND		BM-1547	402.03	0.9962	400.502	1		16,910.08
RAND		BM-1546	402.85	0.9962	401.319	1		16,944.57
RAND		BM-1545	404.1	0.9962	402.564	1		16,997.14
RAND		BM-1544	403.66	0.9962	402.126	1		16,978.64
RAND		BM-1543	404.06	0.9962	402.525	1		16,995.49
RAND		BM-1542	407.12	0.9962	405.573	1		17,124.18
RAND		BM-1541	404.55	0.9962	403.013	1		17,016.10
RAND		BM-1540	404.26	0.9962	402.724	1		17,003.89
RAND		BM-1539	407.1	0.9962	405.553	1		17,123.34
RAND		BM-1538	406.05	0.9962	404.507	1		17,079.18
RAND		BM-1537	404.45	0.9962	402.913	1		17,011.87

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		BM-1536	406.66	0.9962	405.115	1		17,104.85
RAND		BM-1535	404.15	0.9962	402.614	1		16,999.25
RAND		BM-1534	407.1	0.9962	405.553	1		17,123.34
RAND		BM-1586	403.05	0.9963	401.559	1		16,954.70
RAND		BM-1585	403.49	0.9963	401.997	1		16,973.20
RAND		BM-1584	406.9	0.9963	405.394	1		17,116.63
RAND		BM-1583	402.82	0.9963	401.33	1		16,945.04
RAND		BM-1582	407.9	0.9962	406.35	1		17,156.99
RAND		BM-1581	409.28	0.9962	407.725	1		17,215.05
RAND		BM-1580	401.95	0.9962	400.423	1		16,906.74
RAND		BM-1579	404.65	0.9962	403.112	1		17,020.28
RAND		BM-1578	401.94	0.9962	400.413	1		16,906.32
RAND		BM-1577	402.15	0.9962	400.622	1		16,915.14
RAND		BM-1576	404.53	0.9966	403.155	1		17,022.09
RAND		BM-1575	404.28	0.9966	402.905	1		17,011.54
RAND		BM-1574	403.58	0.9966	402.208	1		16,982.11
RAND		BM-1573	406.38	0.9966	404.998	1		17,099.91
RAND		BM-1572	403.9	0.9966	402.527	1		16,995.58
RAND		BM-1571	401.55	0.9966	400.185	1		16,896.69
RAND		BM-1570	405.5	0.9964	404.04	1		17,059.46
RAND		BM-1569	405.3	0.9964	403.841	1		17,051.06
RAND		BM-1568	406.7	0.9964	405.236	1		17,109.96
RAND		BM-1567	405.55	0.9964	404.09	1		17,061.57
RAND		BM-1566	407.28	0.9964	405.814	1		17,134.36
RAND		BM-1565	406.28	0.9964	404.817	1		17,092.26
RAND		BM-1563	408.15	0.9963	406.64	1		17,169.24
RAND		BM-1562	405.25	0.9963	403.751	1		17,047.26
RAND		BM-1561	404.4	0.9963	402.904	1		17,011.49
Compartment Sub Totals			1,082,374.700		1,075,119.746	2,668		45,393,921.30
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	10380	11495	397.55	0.9959	395.92	1	1933	16,716.61
U.S.ASSAY	7397	31	412.56	0.9966	411.157	1	1936	17,359.95
U.S.ASSAY	D-12		477.44	0.9979	476.437	2	1936	20,116.22
U.S.ASSAY	7512	40	396.63	0.9961	395.083	1	1940	16,681.27
U.S.ASSAY	10450	12453	403.23	0.996	401.617	1	1933	16,957.15
U.S.ASSAY	22989	257	426.7	0.9975	425.633	1	1939	17,971.16
U.S.ASSAY	3128	54	393.03	0.9963	391.576	1	1947	16,533.20
U.S.ASSAY	4449	24910	421.58	0.9967	420.189	1	1932	17,741.30
U.S.ASSAY	R-226		8,493.13	0.9997	8,490.58	20	1971	358,491.05
U.S.ASSAY	8150		7,636.12	0.996	7,605.58	18	1940	321,124.15
U.S.ASSAY	9842		7,859.95	0.997	7,836.37	20	1940	330,868.78
U.S.ASSAY	9841		8,409.90	0.9969	8,383.83	21	1940	353,983.70
U.S.ASSAY	9840		8,438.80	0.9966	8,410.11	21	1940	355,093.26
U.S.ASSAY	9839		8,444.80	0.9972	8,421.16	21	1940	355,559.69
U.S.ASSAY	9838		8,335.50	0.9973	8,312.99	21	1940	350,992.90
U.S.ASSAY	9837		8,300.18	0.997	8,275.28	20	1940	349,400.48
U.S.ASSAY	9836		7,973.73	0.9968	7,948.21	19	1940	335,591.08
U.S.ASSAY	9835		7,953.70	0.9967	7,927.45	19	1940	334,714.51
U.S.ASSAY	9834		8,003.60	0.9963	7,973.99	19	1940	336,679.27
U.S.ASSAY	9757		8,615.90	0.997	8,590.05	21	1940	362,690.89
U.S.ASSAY	9756		8,428.13	0.9968	8,401.16	21	1940	354,715.46
U.S.ASSAY	9832		6,938.05	0.9972	6,918.62	17	1940	292,119.48
U.S.ASSAY	9831		8,182.70	0.9976	8,163.06	20	1940	344,662.44
U.S.ASSAY	9830		8,250.55	0.9971	8,226.62	20	1940	347,346.12
U.S.ASSAY	9829		8,108.75	0.9968	8,082.80	20	1940	341,273.68
U.S.ASSAY	9828		8,174.53	0.9971	8,150.82	20	1940	344,145.72
U.S.ASSAY	15080		9,004.10	0.9966	8,973.49	21	1941	378,880.32
U.S.ASSAY	12150		8,547.38	0.9962	8,514.90	21	1940	359,517.81
U.S.ASSAY	12153		8,834.90	0.9957	8,796.91	21	1940	371,424.89
U.S.ASSAY	14854		9,011.51	0.9974	8,988.08	21	1941	379,496.51
U.S.ASSAY	14882		8,534.14	0.9975	8,512.81	20	1941	359,429.36
U.S.ASSAY	14883		8,544.05	0.9976	8,523.54	20	1941	359,882.78
U.S.ASSAY	14885		8,506.74	0.9978	8,488.03	20	1941	358,383.09
U.S.ASSAY	14887		8,558.46	0.9974	8,536.21	20	1941	360,417.48
U.S.ASSAY	14888		8,532.48	0.9976	8,512.00	20	1941	359,395.45
U.S.ASSAY	14889		8,513.95	0.9972	8,490.11	20	1941	358,471.16
U.S.ASSAY	14891		8,485.27	0.9974	8,463.21	20	1941	357,335.26
U.S.ASSAY	9827		8,248.88	0.9964	8,219.18	20	1940	347,032.03
U.S.ASSAY	14892		8,404.22	0.9971	8,379.85	20	1941	353,815.62
U.S.ASSAY	14886		8,104.91	0.9976	8,085.46	19	1941	341,385.82
U.S.ASSAY	14884		8,447.74	0.9976	8,427.47	20	1941	355,826.11
U.S.ASSAY	14881		9,015.02	0.9971	8,988.88	21	1941	379,530.12
U.S.ASSAY	14880		8,349.06	0.9975	8,328.19	20	1941	351,634.38
U.S.ASSAY	14879		8,511.23	0.9969	8,484.85	20	1941	358,248.82
U.S.ASSAY	14878		8,646.16	0.9968	8,618.49	20	1941	363,891.69
U.S.ASSAY	14877		8,533.69	0.9971	8,508.94	20	1941	359,266.25
U.S.ASSAY	14876		8,352.50	0.9966	8,324.10	20	1941	351,461.90

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	14875		8,425.75	0.9977	8,406.37	20	1941	354,935.48
U.S.ASSAY	14874		7,569.58	0.9974	7,549.90	18	1941	318,773.35
U.S.ASSAY	14873		8,557.36	0.9976	8,536.82	20	1941	360,443.41
U.S.ASSAY	14872		8,481.50	0.9965	8,451.82	20	1941	356,854.22
U.S.ASSAY	14871		8,594.78	0.9963	8,562.98	20	1941	361,547.81
U.S.ASSAY	14869		8,550.75	0.9975	8,529.37	20	1941	360,128.89
U.S.ASSAY	14868		8,581.59	0.9979	8,563.57	20	1941	361,572.72
U.S.ASSAY	14866		8,461.28	0.997	8,435.90	20	1941	356,182.09
U.S.ASSAY	14865		8,492.60	0.9966	8,463.73	20	1941	357,357.09
U.S.ASSAY	14864		8,477.89	0.9981	8,461.78	20	1941	357,275.05
U.S.ASSAY	14863		8,530.41	0.9972	8,506.53	20	1941	359,164.20
U.S.ASSAY	14862		8,588.49	0.9973	8,565.30	20	1941	361,645.85
U.S.ASSAY	14861		8,061.99	0.9972	8,039.42	19	1941	339,441.83
U.S.ASSAY	14860		8,022.88	0.9974	8,002.02	19	1941	337,862.93
U.S.ASSAY	14859		8,380.72	0.9979	8,363.12	20	1941	353,109.33
U.S.ASSAY	14858		8,641.89	0.997	8,615.96	20	1941	363,784.96
U.S.ASSAY	14857		8,527.01	0.9966	8,498.02	20	1941	358,805.02
U.S.ASSAY	14856		8,929.44	0.9968	8,900.87	21	1941	375,814.14
U.S.ASSAY	14855		7,994.54	0.9981	7,979.35	19	1941	336,905.71
U.S.ASSAY	14853		8,935.85	0.9971	8,909.94	21	1941	376,197.10
U.S.ASSAY	14852		8,946.58	0.9971	8,920.64	21	1941	376,648.84
U.S.ASSAY	14851		8,954.85	0.9968	8,926.19	21	1941	376,883.55
U.S.ASSAY	14870		8,156.05	0.9965	8,127.50	20	1941	343,161.10
U.S.ASSAY	14867		8,084.26	0.9975	8,064.05	19	1941	340,481.89
U.S.ASSAY	10401		7,810.14	0.9968	7,785.15	19	1940	328,706.08
U.S.ASSAY	10400		7,826.90	0.9966	7,800.29	19	1940	329,345.36
U.S.ASSAY	10399		8,273.55	0.9966	8,245.42	20	1940	348,139.77
U.S.ASSAY	10398		8,265.54	0.9965	8,236.61	20	1940	347,767.84
U.S.ASSAY	10397		8,306.70	0.9972	8,283.44	20	1940	349,745.10
U.S.ASSAY	10293		8,506.07	0.9975	8,484.81	20	1940	358,247.13
U.S.ASSAY	10292		8,318.27	0.9966	8,289.99	20	1940	350,021.53
U.S.ASSAY	14900		8,514.20	0.997	8,488.66	20	1941	358,409.77
U.S.ASSAY	7721		5,797.20	0.9997	5,795.46	14	1940	244,697.11
U.S.ASSAY	6341		4,909.53	0.9975	4,897.26	12	1931	206,772.92
U.S.ASSAY	12152		8,854.14	0.9957	8,816.07	21	1940	372,233.74
U.S.ASSAY	12151		9,040.56	0.9962	9,006.21	21	1940	380,261.83
U.S.ASSAY	15262		7,550.84	0.9973	7,530.45	18	1941	317,952.29
U.S.ASSAY	15261		8,674.03	0.9972	8,649.74	21	1941	365,211.18
U.S.ASSAY	15260		8,968.02	0.9971	8,942.01	21	1941	377,551.46
U.S.ASSAY	15259		9,004.00	0.9972	8,978.79	21	1941	379,104.22
U.S.ASSAY	15258		8,928.46	0.9974	8,905.25	21	1941	375,999.08
U.S.ASSAY	15257		8,759.23	0.9975	8,737.33	21	1941	368,909.38
U.S.ASSAY	15079		8,529.41	0.9966	8,500.41	20	1941	358,906.01
U.S.ASSAY	15083		8,555.05	0.9967	8,526.82	20	1941	360,021.01
U.S.ASSAY	15077		8,511.45	0.9969	8,485.07	20	1941	358,258.11
U.S.ASSAY	15071		8,608.07	0.9969	8,581.39	20	1941	362,324.95
U.S.ASSAY	15070		8,643.19	0.9968	8,615.53	20	1941	363,766.72

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	15069		8,554.27	0.997	8,528.61	20	1941	360,096.55
U.S.ASSAY	14912		8,863.94	0.9977	8,843.55	21	1941	373,394.26
U.S.ASSAY	14911		8,828.26	0.9974	8,805.31	21	1941	371,779.43
U.S.ASSAY	14908		8,905.32	0.9951	8,861.68	21	1941	374,159.79
U.S.ASSAY	14906		8,969.18	0.9974	8,945.86	21	1941	377,713.89
U.S.ASSAY	14905		8,970.15	0.9961	8,935.17	21	1941	377,262.37
U.S.ASSAY	14901		8,513.33	0.9967	8,485.24	20	1941	358,265.33
U.S.ASSAY	14897		8,514.88	0.9967	8,486.78	20	1941	358,330.56
U.S.ASSAY	14894		8,590.37	0.997	8,564.60	20	1941	361,616.21
U.S.ASSAY	14893		8,615.29	0.9966	8,586.00	20	1941	362,519.72
U.S.ASSAY	19951		3,211.73	0.9988	3,207.88	8	1939	135,443.58
U.S.ASSAY	M-134		9,537.15	0.9998	9,535.24	23	1939	402,598.94
U.S.ASSAY	275		8,075.80	0.9957	8,041.07	20	1947	339,511.83
U.S.ASSAY	276		7,969.28	0.9957	7,935.01	20	1947	335,033.66
U.S.ASSAY	17769		7,668.03	0.9957	7,635.06	19	1940	322,368.90
U.S.ASSAY	17668		7,629.92	0.9956	7,596.35	19	1940	320,734.52
U.S.ASSAY	35794		8,842.82	0.9978	8,823.37	21	1936	372,541.92
U.S.ASSAY	35796		8,398.59	0.9974	8,376.75	20	1936	353,684.98
U.S.ASSAY	35795		8,781.57	0.9977	8,761.37	21	1936	369,924.40
U.S.ASSAY	20196		6,701.86	0.998	6,688.46	16	1939	282,401.33
U.S.ASSAY	6854		8,570.03	0.996	8,535.75	21	1938	360,398.14
U.S.ASSAY	6853		8,497.90	0.9959	8,463.06	21	1938	357,328.97
U.S.ASSAY	6852		8,480.17	0.9958	8,444.55	21	1938	356,547.61
U.S.ASSAY	6851		8,420.29	0.9959	8,385.77	21	1938	354,065.53
U.S.ASSAY	6828		8,199.47	0.9974	8,178.15	20	1938	345,299.53
U.S.ASSAY	6821		8,440.45	0.9975	8,419.35	21	1938	355,483.44
U.S.ASSAY	22784		3,845.63	0.9998	3,844.86	10	1939	162,338.49
U.S.ASSAY	21300		3,981.48	0.9975	3,971.53	10	1939	167,686.57
U.S.ASSAY	6827		8,540.62	0.9974	8,518.41	21	1938	359,666.18
U.S.ASSAY	6823		8,622.10	0.996	8,587.61	21	1938	362,587.87
U.S.ASSAY	6826		8,603.70	0.9973	8,580.47	21	1938	362,286.32
U.S.ASSAY	6206		2,268.00	0.998	2,263.46	6	1916	95,568.43
U.S.ASSAY	6909		7,911.70	0.9997	7,909.33	20	1938	333,949.14
U.S.ASSAY	6908		7,516.90	0.9958	7,485.33	20	1938	316,047.06
U.S.ASSAY	17990		8,340.45	0.9975	8,319.60	21	1939	351,271.77
U.S.ASSAY	17988		7,569.13	0.9974	7,549.45	19	1939	318,754.39
U.S.ASSAY	17985		8,268.68	0.9971	8,244.70	20	1939	348,109.41
U.S.ASSAY	17983		8,297.55	0.9969	8,271.83	20	1939	349,254.78
U.S.ASSAY	6905		7,476.55	0.9959	7,445.90	19	1938	314,382.11
U.S.ASSAY	17963		5,913.89	0.9998	5,912.71	14	1939	249,647.50
U.S.ASSAY	17982		7,916.42	0.9965	7,888.71	19	1939	333,078.82
U.S.ASSAY	17981		8,403.35	0.9969	8,377.30	20	1939	353,708.04
U.S.ASSAY	17979		8,396.31	0.997	8,371.12	20	1939	353,447.15
U.S.ASSAY	17978		8,461.42	0.9968	8,434.34	20	1939	356,116.52
U.S.ASSAY	17970		7,298.23	0.9973	7,278.53	18	1939	307,315.34
U.S.ASSAY	17969		7,569.30	0.9967	7,544.32	19	1939	318,537.83
U.S.ASSAY	17968		7,284.65	0.9977	7,267.90	18	1939	306,866.52

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	17967		5,498.63	0.9998	5,497.53	14	1939	232,117.81
U.S.ASSAY	17966		5,414.98	0.9999	5,414.44	13	1939	228,609.53
U.S.ASSAY	17965		6,224.33	0.9998	6,223.09	15	1939	262,752.34
U.S.ASSAY	17964		5,938.20	0.9998	5,937.01	14	1939	250,673.71
U.S.ASSAY	17960		6,484.75	0.9969	6,464.65	16	1939	272,951.62
U.S.ASSAY	17959		6,374.97	0.9974	6,358.40	16	1939	268,465.43
U.S.ASSAY	17950		8,456.46	0.9988	8,446.31	21	1939	356,621.87
U.S.ASSAY	17949		8,321.69	0.9992	8,315.03	20	1939	351,078.99
U.S.ASSAY	17948		7,972.74	0.9989	7,967.97	19	1939	336,425.05
U.S.ASSAY	17947		7,829.65	0.9989	7,821.04	19	1939	330,221.39
U.S.ASSAY	17946		7,912.70	0.9991	7,905.58	19	1939	333,790.94
U.S.ASSAY	17945		8,255.82	0.9992	8,249.22	20	1939	348,300.01
U.S.ASSAY	17944		8,301.00	0.9992	8,294.36	20	1939	350,206.08
U.S.ASSAY	17943		8,240.58	0.9992	8,233.99	20	1939	347,657.09
U.S.ASSAY	17934		8,656.74	0.9992	8,649.82	21	1939	365,214.22
U.S.ASSAY	17933		8,194.39	0.9995	8,190.29	20	1939	345,812.19
U.S.ASSAY	17922		8,622.71	0.9975	8,601.15	22	1939	363,159.60
U.S.ASSAY	17921		7,520.54	0.9986	7,510.01	19	1939	317,089.19
U.S.ASSAY	17920		7,416.33	0.9975	7,397.79	18	1939	312,350.93
U.S.ASSAY	17919		7,315.12	0.9979	7,299.76	18	1939	308,211.84
U.S.ASSAY	17918		8,051.47	0.9987	8,041.00	20	1939	339,508.84
U.S.ASSAY	17917		8,228.10	0.9979	8,210.82	20	1939	346,678.93
U.S.ASSAY	17908		6,453.89	0.9982	6,442.27	16	1939	272,006.94
U.S.ASSAY	17961		6,489.97	0.9973	6,472.45	17	1939	273,280.95
U.S.ASSAY	17935		8,128.77	0.9991	8,121.45	20	1939	342,905.66
U.S.ASSAY	17883		8,467.63	0.9969	8,441.38	21	1939	356,413.63
U.S.ASSAY	17858		4,516.35	0.998	4,507.32	11	1939	190,308.84
U.S.ASSAY	17857		4,977.22	0.9973	4,963.78	12	1939	209,581.80
U.S.ASSAY	17962		8,469.04	0.9966	8,440.25	21	1939	356,365.71
U.S.ASSAY	17942		7,575.65	0.9989	7,567.32	19	1939	319,508.77
U.S.ASSAY	17941		8,158.47	0.9985	8,146.23	20	1939	343,951.84
U.S.ASSAY	17940		8,568.47	0.9986	8,556.47	21	1939	361,273.16
U.S.ASSAY	17939		8,550.40	0.9989	8,541.00	21	1939	360,619.60
U.S.ASSAY	17938		8,608.77	0.9993	8,602.74	21	1939	363,226.78
U.S.ASSAY	17937		8,641.66	0.9991	8,633.88	21	1939	364,541.53
U.S.ASSAY	17936		8,633.62	0.9985	8,620.67	21	1939	363,983.65
U.S.ASSAY	17932		8,313.70	0.9996	8,310.38	21	1939	350,882.32
U.S.ASSAY	17931		8,555.30	0.9995	8,551.02	21	1939	361,042.96
U.S.ASSAY	17930		8,529.36	0.9989	8,519.98	21	1939	359,732.22
U.S.ASSAY	2683		6,931.87	0.9962	6,905.53	17	1938	291,566.63
U.S.ASSAY	5434		7,595.56	0.9998	7,594.04	19	1943	320,637.12
U.S.ASSAY	M-200		8,480.87	0.9998	8,479.17	21	1941	358,009.38
U.S.ASSAY	621		7,998.89	0.9966	7,971.69	20	1936	336,582.46
U.S.ASSAY	622		7,973.12	0.9962	7,942.82	20	1936	335,363.42
U.S.ASSAY	2237		8,072.73	0.9966	8,045.28	20	1932	339,689.55
U.S.ASSAY	1740		7,066.73	0.9966	7,042.70	18	1932	297,358.41
U.S.ASSAY	1742		8,015.75	0.9964	7,986.89	21	1932	337,224.19

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	4173		8,490.33	0.9955	8,452.12	22	1931	356,867.27
U.S.ASSAY	6907		7,928.30	0.9958	7,895.00	20	1938	333,344.31
U.S.ASSAY	6621		8,576.65	0.9961	8,543.20	21	1938	360,712.74
U.S.ASSAY	6904		8,563.62	0.9958	8,527.65	21	1938	360,056.27
U.S.ASSAY	6906		8,025.77	0.9959	7,992.86	20	1938	337,476.30
Compartment Sub Totals			1,489,496.190		1,485,548.437	3,600		62,723,123.16

* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	R-88		8,127.57	0.9997	8,125.13	20	1970	343,060.91
U.S.ASSAY	4899		8,434.55	0.996	8,400.81	21	1949	354,700.76
U.S.ASSAY	848		9,356.55	0.9997	9,353.74	22	1959	394,935.61
U.S.ASSAY	847		9,465.06	0.9998	9,463.17	22	1959	399,555.69
U.S.ASSAY	845		9,496.35	0.9996	9,492.55	22	1959	400,796.39
U.S.ASSAY	844		9,405.42	0.9998	9,403.54	22	1959	397,038.06
U.S.ASSAY	843		9,442.12	0.9997	9,439.29	22	1959	398,547.46
U.S.ASSAY	842		9,418.38	0.9998	9,416.50	22	1959	397,585.18
U.S.ASSAY	841		9,503.34	0.9997	9,500.49	22	1959	401,131.50
U.S.ASSAY	DC-692		8,118.98	0.9997	8,116.54	20	1955	342,698.34
U.S.ASSAY	DC-522		7,893.06	0.9998	7,891.48	20	1955	333,195.69
U.S.ASSAY	3985		8,571.15	0.9956	8,533.44	21	1962	360,300.44
U.S.ASSAY	3984		7,929.13	0.9957	7,895.03	20	1962	333,345.70
U.S.ASSAY	M-665		8,043.90	0.9998	8,042.29	20	1959	339,563.22
U.S.ASSAY	M-661		7,984.52	0.9998	7,982.92	20	1959	337,056.57
U.S.ASSAY	M-1750		7,851.27	0.9979	7,834.78	20	1960	330,801.73
U.S.ASSAY	M-1739		7,909.49	0.9982	7,895.25	20	1960	333,354.91
U.S.ASSAY	M-1736		8,024.90	0.9985	8,012.86	20	1960	338,320.66
U.S.ASSAY	M-1229		7,964.33	0.9999	7,963.53	20	1959	336,237.88
U.S.ASSAY	M-1227		8,213.34	0.9998	8,211.70	20	1959	346,715.91
U.S.ASSAY	M-1226		8,138.50	0.9998	8,136.87	20	1959	343,556.64
U.S.ASSAY	M-1225		8,024.53	0.9998	8,022.93	20	1959	338,745.54
U.S.ASSAY	M-1224		8,169.56	0.9998	8,167.93	20	1959	344,867.81
U.S.ASSAY	M-1223		8,146.85	0.9998	8,145.22	20	1959	343,909.11
U.S.ASSAY	M-1222		8,033.34	0.9999	8,032.54	20	1959	339,151.34
U.S.ASSAY	646		8,107.54	0.9998	8,105.92	20	1959	342,249.69
U.S.ASSAY	647		8,105.37	0.9998	8,103.75	20	1959	342,158.07
U.S.ASSAY	648		7,817.06	0.9998	7,815.50	20	1959	329,987.44
U.S.ASSAY	649		7,864.52	0.9999	7,863.73	20	1959	332,024.11
U.S.ASSAY	650		8,165.11	0.9998	8,163.48	20	1959	344,679.92
U.S.ASSAY	651		8,073.88	0.9998	8,072.27	20	1959	340,828.79
U.S.ASSAY	652		8,002.94	0.9998	8,001.34	20	1959	337,834.14
U.S.ASSAY	653		7,837.43	0.9999	7,836.65	20	1959	330,880.43
U.S.ASSAY	40		9,053.97	0.9963	9,020.47	22	1960	380,864.09
U.S.ASSAY	42		9,001.02	0.9971	8,974.92	22	1960	378,940.74
U.S.ASSAY	43		8,970.49	0.9974	8,947.17	22	1960	377,769.03
U.S.ASSAY	47		9,025.63	0.9968	8,996.75	22	1960	379,862.45
U.S.ASSAY	2020		8,758.98	0.9973	8,735.33	21	1939	368,824.89
U.S.ASSAY	2023		8,893.52	0.9973	8,869.51	21	1939	374,490.10
U.S.ASSAY	2024		8,226.35	0.9969	8,200.85	20	1939	346,257.84
U.S.ASSAY	2029		8,127.64	0.997	8,103.26	20	1939	342,137.34
U.S.ASSAY	2031		8,252.28	0.9968	8,225.87	20	1939	347,314.45
U.S.ASSAY	2032		7,605.64	0.9983	7,592.71	19	1939	320,580.92
U.S.ASSAY	2033		8,228.10	0.9952	8,188.61	20	1939	345,740.92
U.S.ASSAY	2034		7,913.37	0.997	7,889.63	19	1939	333,117.54
U.S.ASSAY	2035		7,909.84	0.9978	7,892.44	19	1939	333,236.10
U.S.ASSAY	1987		5,275.25	0.9961	5,254.68	13	1939	221,864.02

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	1996		8,266.20	0.997	8,241.40	20	1939	347,970.08
U.S.ASSAY	4224		8,172.86	0.996	8,140.17	21	1950	343,695.84
U.S.ASSAY	M-809		8,056.87	0.9975	8,036.73	20	1960	339,328.29
U.S.ASSAY	19525		8,515.87	0.9959	8,480.96	21	1941	358,084.58
U.S.ASSAY	3975		7,669.80	0.9955	7,635.29	19	1962	322,378.53
U.S.ASSAY	3976		7,655.88	0.9954	7,620.66	19	1962	321,761.12
U.S.ASSAY	3977		7,722.23	0.9956	7,688.25	19	1962	324,614.91
U.S.ASSAY	3978		8,034.36	0.9957	7,999.81	20	1962	337,769.66
U.S.ASSAY	3979		7,944.38	0.9956	7,909.42	20	1962	333,953.28
U.S.ASSAY	3980		7,728.11	0.9955	7,693.33	19	1962	324,829.44
U.S.ASSAY	3981		7,553.90	0.9956	7,520.66	19	1962	317,538.90
U.S.ASSAY	3982		7,918.95	0.9956	7,884.11	20	1962	332,884.30
U.S.ASSAY	3983		7,905.00	0.9955	7,869.43	20	1962	332,264.52
U.S.ASSAY	1056		9,860.30	0.9993	9,853.40	24	1961	416,032.10
U.S.ASSAY	1057		9,778.43	0.9992	9,770.61	24	1961	412,536.52
U.S.ASSAY	1058		9,755.15	0.9992	9,747.35	24	1961	411,554.35
U.S.ASSAY	1059		9,763.15	0.999	9,753.39	24	1961	411,809.41
U.S.ASSAY	1060		9,704.26	0.999	9,694.56	24	1961	409,325.44
U.S.ASSAY	1061		9,666.43	0.999	9,656.76	24	1961	407,729.78
U.S.ASSAY	1146		9,779.05	0.9975	9,754.60	24	1961	411,860.76
U.S.ASSAY	1147		9,796.66	0.9982	9,779.03	24	1961	412,891.99
U.S.ASSAY	1148		9,388.34	0.9975	9,364.87	23	1961	395,405.37
U.S.ASSAY	61		10,085.59	0.9999	10,084.58	24	1949	425,793.20
U.S.ASSAY	274		9,767.04	0.9999	9,766.06	24	1961	412,344.67
U.S.ASSAY	278		9,792.44	0.9997	9,789.50	24	1961	413,334.31
U.S.ASSAY	277		9,798.81	0.9998	9,796.85	24	1961	413,644.56
U.S.ASSAY	688		9,718.07	0.9998	9,716.13	24	1961	410,236.22
U.S.ASSAY	DC-581		7,160.95	0.9977	7,144.48	18	1954	301,655.62
U.S.ASSAY	140		9,837.09	0.9998	9,835.12	24	1961	415,260.49
U.S.ASSAY	353		8,321.10	0.9967	8,293.64	21	1924	350,175.73
U.S.ASSAY	7254		7,804.74	0.9981	7,789.91	19	1936	328,907.18
U.S.ASSAY	16880		9,330.89	0.9957	9,290.77	23	1935	392,276.62
U.S.ASSAY	7364		8,695.10	0.9966	8,665.54	21	1936	365,878.04
U.S.ASSAY	1444		8,626.42	0.9959	8,591.05	22	1949	362,733.12
U.S.ASSAY	3449		8,698.50	0.9962	8,665.45	22	1949	365,874.19
U.S.ASSAY	4113		8,192.85	0.9961	8,160.90	20	1949	344,571.07
U.S.ASSAY	M-3982		8,283.72	0.9997	8,281.23	20	1961	349,651.92
U.S.ASSAY	M-3036		8,219.59	0.9998	8,217.95	20	1961	346,979.76
U.S.ASSAY	M-3035		8,118.51	0.9998	8,116.89	20	1961	342,712.78
U.S.ASSAY	M-3031		8,179.67	0.9998	8,178.03	20	1961	345,294.59
U.S.ASSAY	2977		7,828.62	0.9967	7,802.79	19	1957	329,450.75
U.S.ASSAY	2978		8,108.97	0.9967	8,082.21	20	1957	341,248.69
U.S.ASSAY	2980		7,877.60	0.9976	7,858.69	20	1957	331,811.31
U.S.ASSAY	2981		7,904.02	0.9957	7,870.03	20	1957	332,290.07
U.S.ASSAY	2982		8,241.97	0.9957	8,206.53	21	1957	346,497.71
U.S.ASSAY	6311		6,222.25	0.9976	6,207.32	16	1934	262,086.58
U.S.ASSAY	22904		7,409.81	0.9965	7,383.88	18	1939	311,763.49

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	DC-603		3,541.12	0.9973	3,531.56	9	1957	149,110.15
U.S.ASSAY	DC-593		2,698.52	0.997	2,690.42	7	1957	113,595.62
U.S.ASSAY	R-180		8,152.38	0.9996	8,149.12	20	1970	344,073.73
U.S.ASSAY	R-181		7,908.45	0.9996	7,905.29	20	1970	333,778.57
U.S.ASSAY	R-182		8,277.35	0.9997	8,274.87	20	1970	349,383.05
U.S.ASSAY	R-183		8,187.38	0.9996	8,184.11	20	1970	345,550.92
U.S.ASSAY	R-184		8,208.60	0.9996	8,205.32	20	1970	346,446.49
U.S.ASSAY	R-185		7,953.43	0.9997	7,951.04	20	1970	335,710.53
U.S.ASSAY	R-186		8,076.30	0.9997	8,073.88	20	1970	340,896.85
U.S.ASSAY	R-187		7,942.11	0.9997	7,939.73	20	1970	335,232.74
U.S.ASSAY	R-188		7,897.37	0.9997	7,895.00	20	1970	333,344.27
U.S.ASSAY	R-189		7,700.16	0.9997	7,697.85	20	1970	325,020.12
U.S.ASSAY	R-190		8,086.69	0.9997	8,084.26	20	1970	341,335.37
U.S.ASSAY	R-191		5,543.36	0.9997	5,541.70	14	1970	233,982.60
U.S.ASSAY	R-192		8,028.10	0.9996	8,024.89	20	1970	338,828.43
U.S.ASSAY	R-109		8,116.89	0.9996	8,113.64	20	1970	342,575.86
U.S.ASSAY	R-110		8,077.97	0.9996	8,074.74	20	1970	340,933.20
U.S.ASSAY	R-111		7,816.38	0.9996	7,813.25	20	1970	329,892.73
U.S.ASSAY	R-112		8,200.80	0.9997	8,198.34	20	1970	346,151.91
U.S.ASSAY	R-113		7,883.29	0.9996	7,880.14	20	1970	332,716.68
U.S.ASSAY	R-114		7,928.20	0.9997	7,925.82	20	1970	334,645.60
U.S.ASSAY	R-115		8,538.99	0.9997	8,536.43	21	1970	360,426.77
U.S.ASSAY	R-116		8,220.42	0.9996	8,217.13	20	1970	346,945.35
U.S.ASSAY	R-117		7,712.74	0.9996	7,709.65	19	1970	325,518.55
U.S.ASSAY	R-119		8,152.17	0.9997	8,149.72	20	1970	344,099.28
U.S.ASSAY	R-120		8,228.53	0.9997	8,226.06	20	1970	347,322.39
U.S.ASSAY	R-121		8,233.15	0.9997	8,230.68	20	1970	347,517.42
U.S.ASSAY	R-122		8,383.90	0.9997	8,381.38	20	1970	353,880.47
U.S.ASSAY	R-123		8,210.86	0.9997	8,208.40	20	1970	346,576.54
U.S.ASSAY	R-124		8,315.69	0.9997	8,313.20	20	1970	351,001.38
U.S.ASSAY	R-125		8,183.50	0.9997	8,181.04	20	1970	345,421.68
U.S.ASSAY	R-126		8,172.98	0.9997	8,170.53	20	1970	344,977.67
U.S.ASSAY	R-127		8,072.48	0.9998	8,070.87	20	1970	340,769.68
U.S.ASSAY	R-128		8,025.23	0.9997	8,022.82	20	1970	338,741.20
U.S.ASSAY	R-129		8,090.29	0.9998	8,088.67	20	1970	341,521.48
U.S.ASSAY	R-130		8,152.28	0.9997	8,149.83	20	1970	344,103.92
U.S.ASSAY	R-131		8,152.27	0.9997	8,149.82	20	1970	344,103.50
U.S.ASSAY	R-132		7,979.26	0.9997	7,976.87	20	1970	336,800.83
U.S.ASSAY	R-133		7,985.09	0.9997	7,982.69	20	1970	337,046.90
U.S.ASSAY	R-134		7,978.41	0.9998	7,976.81	20	1970	336,798.64
U.S.ASSAY	R-135		8,056.95	0.9997	8,054.53	20	1970	340,080.06
U.S.ASSAY	R-136		8,087.73	0.9997	8,085.30	20	1970	341,379.28
U.S.ASSAY	R-138		8,067.43	0.9997	8,065.01	20	1970	340,522.42
U.S.ASSAY	R-139		7,937.26	0.9998	7,935.67	20	1970	335,061.53
U.S.ASSAY	R-140		7,915.27	0.9998	7,913.69	20	1970	334,133.23
U.S.ASSAY	R-141		8,242.80	0.9997	8,240.33	20	1970	347,924.73
U.S.ASSAY	R-142		8,194.26	0.9997	8,191.80	20	1970	345,875.86

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	R-143		8,246.25	0.9998	8,244.60	20	1970	348,105.15
U.S.ASSAY	R-144		8,294.60	0.9998	8,292.94	20	1970	350,146.21
U.S.ASSAY	R-145		8,273.69	0.9997	8,271.21	20	1970	349,228.56
U.S.ASSAY	R-146		8,103.08	0.9997	8,100.65	20	1970	342,027.22
U.S.ASSAY	R-147		8,212.79	0.9998	8,211.15	20	1970	346,692.69
U.S.ASSAY	R-148		8,299.60	0.9997	8,297.11	20	1970	350,322.24
U.S.ASSAY	R-149		8,333.55	0.9998	8,331.88	20	1970	351,790.43
U.S.ASSAY	R-150		8,394.64	0.9997	8,392.12	20	1970	354,333.81
U.S.ASSAY	R-151		8,338.07	0.9997	8,335.57	20	1970	351,946.02
U.S.ASSAY	R-152		8,210.33	0.9997	8,207.87	20	1970	346,554.16
U.S.ASSAY	R-153		8,153.94	0.9997	8,151.49	20	1970	344,173.97
U.S.ASSAY	R-154		8,157.88	0.9997	8,155.43	20	1970	344,340.28
U.S.ASSAY	R-155		8,168.83	0.9997	8,166.38	20	1970	344,802.49
U.S.ASSAY	R-156		8,207.25	0.9998	8,205.61	20	1970	346,458.82
U.S.ASSAY	R-157		8,291.18	0.9998	8,289.52	20	1970	350,001.81
U.S.ASSAY	R-158		8,198.00	0.9997	8,195.54	20	1970	346,033.73
U.S.ASSAY	R-159		8,262.06	0.9996	8,258.76	20	1970	348,702.81
U.S.ASSAY	R-160		8,135.14	0.9998	8,133.51	20	1970	343,414.77
U.S.ASSAY	R-161		8,044.95	0.9997	8,042.54	20	1970	339,573.56
U.S.ASSAY	R-162		7,963.25	0.9997	7,960.86	20	1970	336,125.07
U.S.ASSAY	R-163		8,111.02	0.9998	8,109.40	20	1970	342,396.58
U.S.ASSAY	R-164		8,039.90	0.9997	8,037.49	20	1970	339,360.43
U.S.ASSAY	R-165		8,122.76	0.9996	8,119.51	20	1970	342,823.58
U.S.ASSAY	R-166		8,148.37	0.9997	8,145.93	20	1970	343,938.87
U.S.ASSAY	R-91		8,212.47	0.9997	8,210.01	20	1970	346,644.52
U.S.ASSAY	R-90		8,127.25	0.9998	8,125.62	20	1970	343,081.72
U.S.ASSAY	R-89		8,234.81	0.9997	8,232.34	20	1970	347,587.46
U.S.ASSAY	R-87		8,170.95	0.9997	8,168.50	20	1970	344,891.96
U.S.ASSAY	R-86		8,178.28	0.9997	8,175.83	20	1970	345,201.36
U.S.ASSAY	R-85		8,100.10	0.9997	8,097.67	20	1970	341,901.40
U.S.ASSAY	R-84		8,130.74	0.9997	8,128.30	20	1970	343,194.71
U.S.ASSAY	R-83		8,095.52	0.9997	8,093.09	20	1970	341,708.11
U.S.ASSAY	R-82		8,198.65	0.9997	8,196.19	20	1970	346,061.17
U.S.ASSAY	R-81		8,082.24	0.9997	8,079.82	20	1970	341,147.56
U.S.ASSAY	R-80		8,063.52	0.9997	8,061.10	20	1970	340,357.38
U.S.ASSAY	R-79		8,193.58	0.9998	8,191.94	20	1970	345,881.77
U.S.ASSAY	R-78		8,239.91	0.9998	8,238.26	20	1970	347,837.55
U.S.ASSAY	R-77		8,172.30	0.9997	8,169.85	20	1970	344,948.96
U.S.ASSAY	R-76		8,254.57	0.9998	8,252.92	20	1970	348,456.40
U.S.ASSAY	R-75		8,192.37	0.9997	8,189.91	20	1970	345,796.10
U.S.ASSAY	R-74		7,942.97	0.9997	7,940.59	20	1970	335,269.05
U.S.ASSAY	R-73		8,165.95	0.9997	8,163.50	20	1970	344,680.93
U.S.ASSAY	R-72		8,044.23	0.9997	8,041.82	20	1970	339,543.16
U.S.ASSAY	R-71		8,149.37	0.9997	8,146.93	20	1970	343,981.10
U.S.ASSAY	R-70		8,262.17	0.9997	8,259.69	20	1970	348,742.33
U.S.ASSAY	R-69		8,220.18	0.9997	8,217.71	20	1970	346,969.92
U.S.ASSAY	R-68		8,060.89	0.9997	8,058.47	20	1970	340,246.37

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	R-67		7,983.28	0.9997	7,980.89	20	1970	336,970.52
U.S.ASSAY	R-66		8,190.66	0.9997	8,188.20	20	1970	345,723.90
U.S.ASSAY	R-65		8,101.70	0.9997	8,099.27	20	1970	341,968.96
U.S.ASSAY	R-64		8,347.92	0.9997	8,345.42	20	1970	352,361.78
U.S.ASSAY	R-63		7,974.71	0.9998	7,973.12	20	1970	336,642.46
U.S.ASSAY	R-62		7,997.17	0.9998	7,995.57	20	1970	337,590.56
U.S.ASSAY	R-61		8,031.23	0.9997	8,028.82	20	1970	338,994.44
U.S.ASSAY	R-60		7,935.55	0.9997	7,933.17	20	1970	334,955.85
U.S.ASSAY	R-30		8,032.74	0.9998	8,031.13	20	1969	339,092.10
U.S.ASSAY	R-28		8,170.64	0.9998	8,169.01	20	1969	344,913.36
U.S.ASSAY	R-27		8,195.80	0.9998	8,194.16	20	1969	345,975.46
U.S.ASSAY	R-26		8,196.67	0.9998	8,195.03	20	1969	346,012.20
U.S.ASSAY	R-25		8,120.38	0.9998	8,118.76	20	1969	342,791.70
U.S.ASSAY	R-22		8,049.95	0.9998	8,048.34	20	1969	339,818.62
U.S.ASSAY	R-21		8,077.12	0.9998	8,075.50	20	1969	340,965.54
U.S.ASSAY	1394		8,366.25	0.9958	8,331.11	21	1949	351,757.88
U.S.ASSAY	1398		8,245.89	0.9958	8,211.26	21	1949	346,697.34
U.S.ASSAY	1399		8,266.04	0.9957	8,230.50	21	1949	347,509.65
U.S.ASSAY	3401		8,624.24	0.9968	8,596.64	21	1947	362,969.14
U.S.ASSAY	3392		8,615.75	0.9968	8,588.18	22	1947	362,611.85
U.S.ASSAY	7748		8,242.82	0.9962	8,211.50	21	1948	346,707.47
U.S.ASSAY	2254		8,577.37	0.9961	8,543.92	21	1947	360,743.01
U.S.ASSAY	2259		8,581.71	0.9964	8,550.82	21	1947	361,034.26
U.S.ASSAY	2263		8,575.05	0.9962	8,542.47	21	1947	360,681.67
U.S.ASSAY	2251		8,601.03	0.996	8,566.63	21	1947	361,701.80
U.S.ASSAY	2264		8,584.25	0.9959	8,549.06	21	1947	360,959.91
U.S.ASSAY	1266		8,005.53	0.9961	7,974.31	20	1950	336,692.83
U.S.ASSAY	3560		7,483.41	0.9969	7,460.21	19	1947	314,986.52
U.S.ASSAY	2268		8,450.49	0.996	8,416.69	21	1947	355,371.08
U.S.ASSAY	5615		8,259.23	0.9959	8,225.37	20	1938	347,293.09
U.S.ASSAY	9585		8,236.33	0.996	8,203.39	21	1948	346,364.96
U.S.ASSAY	3867		7,923.29	0.9968	7,897.94	20	1947	333,468.19
U.S.ASSAY	6746		8,243.77	0.9963	8,213.27	21	1948	346,782.24
U.S.ASSAY	558		7,059.50	0.9985	7,048.91	18	1947	297,620.53
U.S.ASSAY	4899		7,334.86	0.9962	7,306.99	18	1939	308,517.11
U.S.ASSAY	6751		8,308.83	0.9961	8,276.43	21	1948	349,448.91
U.S.ASSAY	6758		8,271.10	0.996	8,238.02	21	1948	347,827.16
U.S.ASSAY	6753		8,135.87	0.9964	8,106.58	21	1948	342,277.68
U.S.ASSAY	23249		6,509.48	0.9983	6,498.41	16	1939	274,377.34
U.S.ASSAY	5106		8,016.34	0.9962	7,985.88	20	1949	337,181.34
U.S.ASSAY	5677		7,450.82	0.9997	7,448.59	18	1938	314,495.65
U.S.ASSAY	5774		7,558.28	0.9971	7,536.36	19	1938	318,201.74
U.S.ASSAY	6748		8,714.33	0.9961	8,680.34	22	1948	366,503.22
U.S.ASSAY	6565		8,292.66	0.9973	8,270.27	21	1948	349,188.99
U.S.ASSAY	5676		7,502.95	0.9998	7,501.45	18	1938	316,727.68
U.S.ASSAY	6740		7,878.46	0.9963	7,849.31	20	1948	331,415.14
U.S.ASSAY	6561		7,911.12	0.9977	7,892.92	20	1948	333,256.62

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	6563		8,002.86	0.9979	7,986.05	20	1948	337,188.77
U.S.ASSAY	6564		8,352.97	0.9977	8,333.76	21	1948	351,869.60
U.S.ASSAY	2580		8,806.08	0.9965	8,775.26	22	1949	370,510.74
U.S.ASSAY	1196		8,484.40	0.9972	8,460.64	21	1947	357,227.00
U.S.ASSAY	212		8,161.64	0.9962	8,130.63	20	1947	343,292.92
U.S.ASSAY	4094		8,252.07	0.9961	8,219.89	21	1949	347,061.71
U.S.ASSAY	2141		8,088.89	0.9959	8,055.73	21	1949	340,130.47
Compartment Sub Totals			1,983,843.040		1,980,998.597	4,895		83,642,119.00

* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		AM-5472	405.58	0.9962	404.039	1		17,059.42
RAND		AM-5477	408.43	0.9961	406.837	1		17,177.55
RAND		AM-5476	407.78	0.9961	406.19	1		17,150.24
ROTHSCHILD		L-10305	406.51	0.9975	405.494	1	1932	17,120.85
ROTHSCHILD		XM-533	421.47	0.9994	421.217	1	1935	17,784.71
ROTHSCHILD		L-10302	406.35	0.9975	405.334	1		17,114.09
ROTHSCHILD		L-10304	408.15	0.9975	407.13	1		17,189.92
ROTHSCHILD		XM-514	409.96	0.9959	408.279	1		17,238.44
ROTHSCHILD		XM-532	428.45	0.9994	428.193	1		18,079.25
RAND		XL-004	408.21	0.9957	406.455	1		17,161.42
RAND		XL-006	408.52	0.9956	406.723	1		17,172.74
RAND		XL-002	407.09	0.9957	405.34	1		17,114.35
RAND		AV-8299	407.09	0.9962	405.543	1		17,122.92
RAND		AV-8304	406.96	0.9961	405.373	1		17,115.74
RAND		XL-013	406.55	0.9961	404.964	1		17,098.47
RAND		C-9189	406.35	0.9964	404.887	1		17,095.22
RAND		C-9183	408.79	0.9964	407.318	1		17,197.86
RAND		C-9187	407.35	0.9964	405.884	1		17,137.32
RAND		C-9180	407.35	0.9964	405.884	1		17,137.32
RAND		C-9159	409.23	0.9962	407.675	1		17,212.94
RAND		C-9160	409.5	0.9962	407.944	1		17,224.29
RAND		C-9182	409.05	0.9964	407.577	1		17,208.80
RAND		C-9157	408.18	0.9962	406.629	1		17,168.77
RAND		C-9186	406.01	0.9964	404.548	1		17,080.91
RAND		C-9184	407.03	0.9964	405.565	1		17,123.85
RAND		C-9191	404.47	0.9964	403.014	1		17,016.14
RAND		C-9196	405	0.9961	403.421	1		17,033.32
RAND		C-9188	405	0.9964	403.542	1		17,038.43
RAND		C-9190	405.9	0.9964	404.439	1		17,076.30
ROTHSCHILD		R-2756	404.53	0.9971	403.357	1		17,030.62
RAND		C-9181	404.9	0.9964	403.442	1		17,034.21
RAND		AM-5430	406.21	0.9965	404.788	1		17,091.04
RAND		AM-5417	405.7	0.9959	404.037	1		17,059.33
RAND		AM-5431	405.56	0.9965	404.141	1		17,063.72
RAND		AM-5422	406.45	0.9971	405.271	1		17,111.43
RAND		AM-5424	405.45	0.9971	404.274	1		17,069.34
RAND		AM-5421	405.24	0.9971	404.065	1		17,060.51
RAND		AM-5419	406.61	0.9959	404.943	1		17,097.58
RAND		AM-5410	405.65	0.9959	403.987	1		17,057.22
RAND		AM-5412	405.87	0.9959	404.206	1		17,066.47
RAND		AM-5423	407.12	0.9971	405.939	1		17,139.64
RAND		AM-5425	402.48	0.9971	401.313	1		16,944.32
RAND		AM-5413	404.49	0.9959	402.832	1		17,008.45
RAND		AM-5415	403.45	0.9959	401.796	1		16,964.71
RAND		AM-5411	404.73	0.9959	403.071	1		17,018.54
RAND		AM-5429	404.9	0.9965	403.483	1		17,035.94
RAND		AM-5426	403.97	0.9965	402.556	1		16,996.80
RAND		AM-5418	403.61	0.9959	401.955	1		16,971.42

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
RAND		AM-5428	404.85	0.9965	403.433	1		17,033.83
RAND		AM-5420	403.65	0.9971	402.479	1		16,993.55
RAND		XL-026	404.43	0.9958	402.731	1		17,004.19
RAND		AM-5489	405.95	0.9964	404.489	1		17,078.42
RAND		AM-5490	406.25	0.9964	404.788	1		17,091.04
RAND		AM-5491	406.28	0.9961	404.696	1		17,087.16
RAND		AM-5495	406.68	0.9961	405.094	1		17,103.96
RAND		AM-5487	407.26	0.9964	405.794	1		17,133.52
RAND		YJ-500	404.3	0.9964	402.845	1		17,009.00
RAND		YJ-607	407.01	0.9953	405.097	1		17,104.09
RAND		AM-5488	405.3	0.9964	403.841	1		17,051.06
RAND		AV-8086	402.87	0.9952	400.936	1		16,928.40
RAND		AM-5494	405.99	0.9961	404.407	1		17,074.95
RAND		AM-5492	404.41	0.9961	402.833	1		17,008.50
RAND		AV-8085	405.18	0.9952	403.235	1		17,025.47
RAND		AM-5493	403.81	0.9961	402.235	1		16,983.25
RAND		AV-8088	404.88	0.9961	403.301	1		17,028.26
RAND		AV-8089	404.72	0.9961	403.142	1		17,021.54
RAND		AV-8090	402.53	0.9961	400.96	1		16,929.41
RAND		YJ-471	402.6	0.9965	401.191	1		16,939.17
ROTHSCHILD		L-10292	403.1	0.9966	401.729	1	1939	16,961.88
ROTHSCHILD		L-10291	402.83	0.997	401.622	1	1933	16,957.36
ROTHSCHILD		L-10300	402.67	0.9972	401.543	1	1939	16,954.03
ROTHSCHILD		L-10289	402.73	0.997	401.522	1	1933	16,953.14
ROTHSCHILD		L-10296	402.35	0.9966	400.982	1	1939	16,930.34
ROTHSCHILD		L-10294	404.03	0.9966	402.656	1	1939	17,001.02
ROTHSCHILD		L-10295	404.83	0.9966	403.454	1	1939	17,034.72
RAND		UP-1000	404.64	0.9966	403.264	1	1939	17,026.69
ROTHSCHILD		L-10293	404.74	0.9966	403.364	1	1939	17,030.92
ROTHSCHILD		L-10298	402.58	0.9972	401.453	1	1939	16,950.23
ROYAL CANADIAN MINT		675	405.18	0.9977	404.248	1	1939	17,068.24
JOHNSON MATTHEY		L-10252	405.45	0.9971	404.274	1	1939	17,069.34
JOHNSON MATTHEY		L-10253	404.32	0.9963	402.824	1	1939	17,008.12
ROTHSCHILD		L-10303	405.23	0.9975	404.217	1	1932	17,066.93
ROTHSCHILD		L-10301	404.88	0.9978	403.989	1	1932	17,057.30
RAND		L-10261	403.55	0.9958	401.855	1		16,967.20
JOHNSON MATTHEY		L-10259	402.04	0.9981	401.276	1		16,942.76
RAND		L-10263	404.98	0.9952	403.036	1		17,017.07
JOHNSON MATTHEY		L-10260	402.11	0.998	401.306	1		16,944.02
JOHNSON MATTHEY		L-10265	401.93	0.9967	400.604	1		16,914.38
RAND		L-10264	401.79	0.9964	400.344	1		16,903.40
RAND		L-10266	405.76	0.9958	404.056	1		17,060.13
RAND		L-10267	405.53	0.9958	403.827	1		17,050.46

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
JOHNSON MATTHEY		L-10269	401.08	0.9969	399.837	1		16,882.00
JOHNSON MATTHEY		L-10270	404.43	0.9969	403.176	1		17,022.98
JOHNSON MATTHEY		L-10255	403.52	0.9963	402.027	1		16,974.46
JOHNSON MATTHEY		L-10268	402.98	0.9969	401.731	1		16,961.97
JOHNSON MATTHEY		L-10257	406.6	0.9963	405.096	1		17,104.04
JOHNSON MATTHEY		L-10258	403.66	0.9983	402.974	1		17,014.45
JOHNSON MATTHEY		L-10256	404.25	0.9963	402.754	1		17,005.16
JOHNSON MATTHEY		L-10254	405.12	0.9963	403.621	1		17,041.77
ROTHSCHILD		L-10274	403.9	0.9976	402.931	1		17,012.63
ROTHSCHILD		L-10275	403.38	0.9976	402.412	1		16,990.72
ROTHSCHILD		L-10271	404.2	0.9978	403.311	1		17,028.68
ROTHSCHILD		L-10273	404.15	0.9976	403.18	1		17,023.15
ROTHSCHILD		L-10272	404.2	0.9976	403.23	1		17,025.26
ROTHSCHILD		L-10276	401.73	0.9976	400.766	1		16,921.22
RAND		BM-1709	407.52	0.9958	405.808	1		17,134.11
RAND		BM-1727	408.25	0.9971	407.066	1		17,187.22
RAND		BM-1730	406.7	0.9962	405.155	1		17,106.54
RAND		BM-1731	407.4	0.9962	405.852	1		17,135.96
RAND		BM-1722	407.62	0.9958	405.908	1		17,138.33
RAND		BM-1720	406.4	0.9958	404.693	1		17,087.03
RAND		BM-1719	406.67	0.9958	404.962	1		17,098.39
RAND		BM-1718	408.98	0.9958	407.262	1		17,195.50
RAND		BM-1707	405.37	0.9958	403.667	1		17,043.71
RAND		BM-1716	407.8	0.9958	406.087	1		17,145.89
RAND		BM-1712	409.25	0.9958	407.531	1		17,206.86
RAND		BM-1721	408.2	0.9958	406.486	1		17,162.73
RAND		BM-1723	405.2	0.9971	404.025	1		17,058.82
RAND		BM-1725	405.31	0.9971	404.135	1		17,063.47
RAND		BM-1726	402.82	0.9971	401.652	1		16,958.63
RAND		BM-1724	409.56	0.9971	408.372	1		17,242.36
RAND		BM-1729	405.92	0.9962	404.378	1		17,073.73
RAND		BM-1714	404.8	0.9958	403.1	1		17,019.77
RAND		BM-1713	408.02	0.9958	406.306	1		17,155.13
RAND		BM-1711	405.45	0.9958	403.747	1		17,047.09
RAND		BM-1710	405.22	0.9958	403.518	1		17,037.42
RAND		BM-1708	403.75	0.9958	402.054	1		16,975.60
RAND		BM-1717	403.55	0.9958	401.855	1		16,967.20
RAND		BM-1732	403.5	0.9962	401.967	1		16,971.93
RAND		BM-1728	403.22	0.9971	402.051	1		16,975.48
U.S.ASSAY	4938		7,472.05	0.9166	6,848.88	21	1940	289,174.82
U.S.ASSAY	5483		7,719.92	0.9165	7,075.31	21	1940	298,735.03
U.S.ASSAY	5486		7,745.28	0.9166	7,099.32	21	1940	299,749.08
U.S.ASSAY	5487		7,733.00	0.9165	7,087.30	21	1940	299,241.19

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	5488		7,880.00	0.9166	7,222.81	21	1940	304,962.84
U.S.ASSAY	5497		8,075.59	0.9166	7,402.09	22	1940	312,532.36
U.S.ASSAY	1991		8,098.48	0.8994	7,283.77	23	1937	307,536.92
U.S.ASSAY	3130		7,825.90	0.9167	7,174.00	21	1940	302,902.19
U.S.ASSAY	3050		7,076.88	0.8993	6,364.24	20	1947	268,712.13
U.S.ASSAY	5239		5,794.33	0.8994	5,211.42	17	1937	220,037.62
U.S.ASSAY	5238		6,317.97	0.8993	5,681.75	18	1937	239,895.98
U.S.ASSAY	5237		6,278.10	0.8992	5,645.27	18	1937	238,355.63
U.S.ASSAY	3049		6,526.94	0.8991	5,868.37	19	1947	247,775.58
U.S.ASSAY	3048		6,448.38	0.8993	5,799.03	19	1947	244,847.72
U.S.ASSAY	3047		6,407.00	0.8991	5,760.53	19	1947	243,222.42
U.S.ASSAY	3046		6,488.30	0.8993	5,834.93	19	1947	246,363.50
U.S.ASSAY	5211		6,373.90	0.8996	5,733.96	19	1937	242,100.41
U.S.ASSAY	2629		5,287.78	0.8998	4,757.94	15	1937	200,890.86
U.S.ASSAY	5731		3,886.50	0.8999	3,497.46	11	1937	147,670.50
U.S.ASSAY	5258		7,768.90	0.8998	6,990.46	23	1937	295,152.43
U.S.ASSAY	5257		7,315.02	0.8993	6,578.40	21	1937	277,754.39
U.S.ASSAY	5247		6,309.68	0.9	5,678.71	18	1937	239,767.71
U.S.ASSAY	601		6,499.70	0.9162	5,955.03	19	1945	251,434.26
U.S.ASSAY	724		6,714.54	0.8999	6,042.42	20	1949	255,124.05
U.S.ASSAY	726		6,869.96	0.8997	6,180.90	20	1949	260,971.32
U.S.ASSAY	755		7,121.39	0.8993	6,404.27	21	1949	270,402.20
U.S.ASSAY	757		7,629.90	0.8993	6,861.57	22	1949	289,710.54
U.S.ASSAY	758		7,049.45	0.8992	6,338.87	21	1949	267,640.83
U.S.ASSAY	763		6,775.60	0.8993	6,093.30	20	1949	257,272.40
U.S.ASSAY	765		7,011.00	0.8992	6,304.29	21	1949	266,181.04
U.S.ASSAY	767		6,425.57	0.8992	5,777.87	19	1949	243,954.51
U.S.ASSAY	3181		8,206.02	0.9166	7,521.64	22	1940	317,580.10
U.S.ASSAY	4982		8,067.60	0.9166	7,394.76	22	1940	312,223.12
U.S.ASSAY	3094		7,970.00	0.9166	7,305.30	23	1940	308,445.92
U.S.ASSAY	5713		7,198.77	0.9166	6,598.39	20	1946	278,598.67
U.S.ASSAY	2325		6,676.60	0.9166	6,119.77	19	1940	258,390.24
U.S.ASSAY	4896		7,895.30	0.9166	7,236.83	22	1940	305,554.97
U.S.ASSAY	4903		7,848.50	0.9166	7,193.94	21	1940	303,743.76
U.S.ASSAY	4936		7,589.38	0.9166	6,956.43	21	1940	293,715.61
U.S.ASSAY	3129		7,775.90	0.9166	7,127.39	21	1940	300,934.09
U.S.ASSAY	3123		7,591.02	0.9166	6,957.93	21	1940	293,779.07
U.S.ASSAY	3122		7,574.34	0.9166	6,942.64	21	1940	293,133.53
U.S.ASSAY	3119		7,591.60	0.9166	6,958.46	21	1940	293,801.53
U.S.ASSAY	919		7,403.91	0.9	6,663.52	20	1937	281,348.43
U.S.ASSAY	H-918		7,453.05	0.8998	6,706.26	20	1937	283,152.84
U.S.ASSAY	G-918		7,263.20	0.8999	6,536.15	20	1937	275,970.76
U.S.ASSAY	E-918		7,465.70	0.9	6,719.13	20	1937	283,696.45
U.S.ASSAY	D-918		7,269.15	0.8998	6,540.78	20	1937	276,166.16
U.S.ASSAY	1252		7,570.38	0.8995	6,809.56	22	1937	287,514.48
U.S.ASSAY	3095		8,559.70	0.9166	7,845.82	24	1940	331,267.82
U.S.ASSAY	2298		7,085.96	0.9166	6,494.99	19	1940	274,232.81
U.S.ASSAY	2315		6,910.54	0.9166	6,334.20	19	1940	267,443.90

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	J-918		7,670.84	0.8999	6,902.99	21	1937	291,459.38
U.S.ASSAY	C-918		7,405.15	0.8998	6,663.15	20	1937	281,333.02
U.S.ASSAY	A-918		7,288.92	0.8999	6,559.30	20	1937	276,948.08
U.S.ASSAY	3128		7,793.60	0.9166	7,143.61	21	1940	301,619.10
U.S.ASSAY	3107		6,808.04	0.9166	6,240.25	19	1940	263,477.04
U.S.ASSAY	3106		7,889.30	0.9165	7,230.54	22	1940	305,289.43
U.S.ASSAY	3996		6,935.92	0.8996	6,239.55	21	1916	263,447.65
U.S.ASSAY	D-920		7,410.90	0.9	6,669.81	20	1937	281,614.05
U.S.ASSAY	B-920		7,466.02	0.8998	6,717.93	20	1937	283,645.57
U.S.ASSAY	920		7,445.08	0.8999	6,699.83	20	1937	282,881.48
U.S.ASSAY	L-919		7,581.10	0.9	6,822.99	20	1937	288,081.65
U.S.ASSAY	H-919		7,503.86	0.8999	6,752.72	20	1937	285,114.82
U.S.ASSAY	G-919		7,388.41	0.9001	6,650.31	20	1937	280,790.63
U.S.ASSAY	F-919		7,037.11	0.8999	6,332.70	19	1937	267,380.36
U.S.ASSAY	D-919		7,369.75	0.9	6,632.78	20	1937	280,050.35
U.S.ASSAY	C-919		7,441.54	0.8999	6,696.64	20	1937	282,746.96
U.S.ASSAY	B-919		7,225.66	0.8999	6,502.37	20	1937	274,544.41
U.S.ASSAY	E-919		7,015.10	0.8999	6,312.89	19	1937	266,544.02
U.S.ASSAY	2321		6,538.94	0.9166	5,993.59	19	1940	253,062.64
U.S.ASSAY	2310		6,984.03	0.9166	6,401.56	19	1940	270,288.03
U.S.ASSAY	2309		6,890.23	0.9166	6,315.59	19	1940	266,657.89
U.S.ASSAY	2307		6,893.97	0.9166	6,319.01	19	1940	266,802.63
U.S.ASSAY	2295		6,918.62	0.9167	6,342.30	19	1940	267,785.82
U.S.ASSAY	3111		7,776.65	0.9166	7,128.08	21	1940	300,963.09
U.S.ASSAY	2304		6,985.52	0.9166	6,402.93	19	1940	270,345.71
U.S.ASSAY	2301		6,832.21	0.9166	6,262.40	19	1940	264,412.47
U.S.ASSAY	5712		7,234.33	0.9166	6,630.99	20	1946	279,974.86
U.S.ASSAY	2346		6,606.05	0.9166	6,055.11	18	1940	255,659.85
U.S.ASSAY	2347		6,604.80	0.9166	6,053.96	18	1940	255,611.51
U.S.ASSAY	2344		6,180.53	0.9166	5,665.07	17	1940	239,191.89
U.S.ASSAY	2341		6,395.30	0.9166	5,861.93	18	1940	247,503.67
U.S.ASSAY	5743		6,889.43	0.8994	6,196.35	20	1947	261,623.66
U.S.ASSAY	1194		8,543.78	0.9962	8,511.31	21	1940	359,366.40
U.S.ASSAY	1179		8,095.75	0.9961	8,064.18	20	1940	340,487.29
U.S.ASSAY	13212		6,658.42	0.9963	6,633.78	18	1920	280,092.95
U.S.ASSAY	14533		7,406.52	0.9973	7,386.52	18	1938	311,875.21
U.S.ASSAY	14423		7,349.83	0.9962	7,321.90	18	1938	309,146.77
U.S.ASSAY	1288		8,227.63	0.9957	8,192.25	20	1940	345,894.86
U.S.ASSAY	1289		8,607.92	0.9958	8,571.77	20	1940	361,918.86
U.S.ASSAY	1291		8,630.15	0.9963	8,598.22	20	1940	363,035.68
U.S.ASSAY	1292		8,125.47	0.9964	8,096.22	19	1940	341,840.14
U.S.ASSAY	1293		8,095.29	0.9965	8,066.96	19	1940	340,604.63
U.S.ASSAY	1294		8,448.63	0.9968	8,421.59	20	1940	355,578.23
U.S.ASSAY	1295		8,248.37	0.9964	8,218.68	20	1940	347,010.58
U.S.ASSAY	1296		8,210.85	0.9961	8,178.83	20	1940	345,328.11
U.S.ASSAY	1297		9,117.54	0.9957	9,078.34	22	1940	383,307.28
U.S.ASSAY	1298		8,367.38	0.9957	8,331.40	20	1940	351,770.04
U.S.ASSAY	1299		8,299.30	0.996	8,266.10	20	1940	349,013.05

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U.S.ASSAY	1300		8,624.30	0.9961	8,590.67	21	1940	362,716.78
U.S.ASSAY	1301		8,111.74	0.9958	8,077.67	20	1940	341,057.04
U.S.ASSAY	1302		8,384.44	0.9956	8,347.55	20	1940	352,451.84
U.S.ASSAY	1303		8,384.49	0.9958	8,349.28	20	1940	352,524.76
U.S.ASSAY	1304		8,729.50	0.9956	8,691.09	21	1940	366,956.94
U.S.ASSAY	1214		7,569.05	0.9968	7,544.83	19	1940	318,559.28
U.S.ASSAY	1307		8,699.10	0.9955	8,659.95	21	1940	365,642.31
U.S.ASSAY	1306		8,820.11	0.9956	8,781.30	21	1940	370,765.89
U.S.ASSAY	1305		8,657.17	0.9956	8,619.08	21	1940	363,916.44
U.S.ASSAY	1308		7,742.22	0.9953	7,705.83	19	1940	325,357.18
U.S.ASSAY	1309		8,497.73	0.9954	8,458.64	20	1940	357,142.39
U.S.ASSAY	1215		7,638.65	0.9969	7,614.97	19	1940	321,520.79
U.S.ASSAY	1216		7,872.30	0.997	7,848.68	19	1940	331,388.66
U.S.ASSAY	1310		8,473.48	0.9958	8,437.89	20	1940	356,266.32
U.S.ASSAY	1417		8,185.75	0.997	8,161.19	20	1940	344,583.52
U.S.ASSAY	1416		8,161.52	0.997	8,137.04	20	1940	343,563.52
U.S.ASSAY	1415		8,154.82	0.9969	8,129.54	20	1940	343,247.06
U.S.ASSAY	1486		8,809.68	0.9975	8,787.66	21	1940	371,034.17
U.S.ASSAY	1485		8,743.76	0.9976	8,722.78	21	1940	368,294.75
U.S.ASSAY	1419		7,409.20	0.9972	7,388.45	18	1940	311,956.78
U.S.ASSAY	1418		8,104.76	0.9969	8,079.64	20	1940	341,139.96
U.S.ASSAY	1490		8,655.84	0.9973	8,632.47	21	1940	364,481.83
U.S.ASSAY	1489		8,794.80	0.9975	8,772.81	21	1940	370,407.47
U.S.ASSAY	1488		8,824.93	0.9977	8,804.63	21	1940	371,750.98
U.S.ASSAY	1487		8,785.17	0.9974	8,762.33	21	1940	369,964.81
U.S.ASSAY	1494		8,599.45	0.9973	8,576.23	21	1940	362,107.34
U.S.ASSAY	1492		8,131.55	0.9972	8,108.78	20	1940	342,370.62
U.S.ASSAY	1491		8,689.93	0.9976	8,669.07	21	1940	366,027.38
U.S.ASSAY	1498		8,596.46	0.9974	8,574.11	21	1940	362,017.75
U.S.ASSAY	1501		8,662.65	0.9977	8,642.73	21	1940	364,914.91
U.S.ASSAY	1500		8,335.40	0.9973	8,312.89	20	1940	350,988.67
U.S.ASSAY	1499		8,522.60	0.9976	8,502.15	21	1940	358,979.31
U.S.ASSAY	1506		8,310.40	0.9976	8,290.46	20	1940	350,041.25
U.S.ASSAY	1504		8,584.05	0.9974	8,561.73	21	1940	361,495.12
U.S.ASSAY	1503		8,581.75	0.9977	8,562.01	21	1940	361,506.98
U.S.ASSAY	1313		7,606.45	0.9968	7,582.11	18	1940	320,133.32
U.S.ASSAY	1315		8,244.35	0.9962	8,213.02	20	1940	346,771.82
U.S.ASSAY	M-3428		8,075.43	0.9996	8,072.20	20	1961	340,826.00
U.S.ASSAY	M-3902		7,991.12	0.9987	7,980.73	20	1961	336,964.02
U.S.ASSAY	M-3660		8,235.57	0.9993	8,229.81	20	1961	347,480.47
U.S.ASSAY	M-3659		8,257.30	0.9996	8,254.00	20	1961	348,501.91
U.S.ASSAY	M-3658		7,968.02	0.9995	7,964.04	20	1961	336,259.08
U.S.ASSAY	M-3657		8,007.66	0.9995	8,003.66	20	1961	337,931.96
U.S.ASSAY	M-3655		8,146.14	0.9997	8,143.70	20	1961	343,844.76
U.S.ASSAY	M-3654		8,179.47	0.9981	8,163.93	20	1961	344,699.04
U.S.ASSAY	M-3653		8,159.25	0.9982	8,144.56	20	1961	343,881.37
U.S.ASSAY	M-3650		8,089.87	0.9989	8,080.97	20	1961	341,196.37
U.S.ASSAY	M-3648		8,126.27	0.9969	8,101.08	20	1961	342,045.34

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	M-3647		8,148.10	0.9964	8,118.77	20	1961	342,792.16
U.S.ASSAY	M-3646		8,124.42	0.9988	8,114.67	20	1961	342,619.22
U.S.ASSAY	M-3645		8,167.39	0.9987	8,156.77	20	1961	344,396.86
U.S.ASSAY	M-3644		8,053.27	0.9961	8,021.86	20	1961	338,700.66
U.S.ASSAY	M-3643		8,089.36	0.9961	8,057.81	20	1961	340,218.51
U.S.ASSAY	M-3642		8,146.77	0.9991	8,139.44	20	1961	343,664.94
U.S.ASSAY	3776		7,406.25	0.9998	7,404.77	18	1939	312,645.64
U.S.ASSAY	RM-298		9,096.39	0.9964	9,063.64	22	1937	382,686.95
U.S.ASSAY	14236		8,210.43	0.9981	8,194.83	20	1940	346,003.75
U.S.ASSAY	7362		8,951.26	0.9973	8,927.09	22	1936	376,921.46
U.S.ASSAY	6657		8,585.28	0.9957	8,548.36	21	1938	360,930.69
U.S.ASSAY	7805		8,111.85	0.9962	8,081.03	20	1948	341,198.65
U.S.ASSAY	M-1751		8,234.05	0.9997	8,231.58	20	1959	347,555.37
U.S.ASSAY	8001		8,469.10	0.9961	8,436.07	20	1940	356,189.48
U.S.ASSAY	M-3901		8,095.40	0.9987	8,084.88	20	1961	341,361.21
U.S.ASSAY	D-49		9,079.44	0.9968	9,050.39	22	1939	382,127.21
U.S.ASSAY	27287		8,072.40	0.9952	8,033.65	20	1935	339,198.46
U.S.ASSAY	M-329		7,904.43	0.9976	7,885.46	20	1960	332,941.43
U.S.ASSAY	M-3602		8,217.00	0.9989	8,207.96	20	1961	346,558.17
U.S.ASSAY	M-3852		8,304.63	0.9997	8,302.14	20	1961	350,534.53
U.S.ASSAY	M-3859		8,252.20	0.9998	8,250.55	20	1961	348,356.33
U.S.ASSAY	M-3860		8,242.05	0.9998	8,240.40	20	1961	347,927.86
U.S.ASSAY	M-3861		8,127.87	0.9998	8,126.24	20	1961	343,107.90
U.S.ASSAY	M-3844		8,165.20	0.9997	8,162.75	20	1961	344,649.26
U.S.ASSAY	M-3856		8,039.81	0.9998	8,038.20	20	1961	339,390.57
U.S.ASSAY	23765		8,104.30	0.9973	8,082.42	19	1937	341,257.47
U.S.ASSAY	23328		8,061.60	0.9963	8,031.77	20	1937	339,119.08
U.S.ASSAY	34115		8,074.35	0.9965	8,046.09	20	1935	339,723.62
U.S.ASSAY	34129		8,397.97	0.9977	8,378.66	20	1935	353,765.25
U.S.ASSAY	23341		7,559.61	0.9971	7,537.69	19	1937	318,257.73
U.S.ASSAY	23644		7,025.11	0.9965	7,000.52	17	1937	295,577.44
U.S.ASSAY	23198		8,759.67	0.9974	8,736.90	21	1937	368,890.93
U.S.ASSAY	23505		8,466.84	0.9961	8,433.82	21	1937	356,094.39
U.S.ASSAY	23504		8,140.25	0.9969	8,115.02	20	1937	342,633.79
U.S.ASSAY	23503		8,135.12	0.9968	8,109.09	20	1937	342,383.54
U.S.ASSAY	5674		8,334.83	0.9962	8,303.16	20	1940	350,577.60
U.S.ASSAY	M-1732		8,207.26	0.9999	8,206.44	20	1961	346,493.91
U.S.ASSAY	M-1729		7,961.10	0.9998	7,959.51	20	1961	336,067.90
U.S.ASSAY	M-1733		8,061.97	0.9999	8,061.16	20	1961	340,360.04
U.S.ASSAY	M-1734		8,184.66	0.9999	8,183.84	20	1961	345,539.77
U.S.ASSAY	5721		6,681.38	0.9966	6,658.66	17	1934	281,143.40
U.S.ASSAY	6060		8,365.03	0.9966	8,336.59	21	1934	351,989.13
U.S.ASSAY	4880		5,776.42	0.9978	5,763.71	15	1934	243,356.60
U.S.ASSAY	34899		8,497.22	0.9966	8,468.33	20	1935	357,551.48
U.S.ASSAY	34898		8,336.07	0.9966	8,307.73	20	1935	350,770.51
U.S.ASSAY	34900		8,523.00	0.9966	8,494.02	20	1935	358,636.30
RAND		BW-2967	402.81	0.9968	401.521	1		16,953.10
RAND		AM-5466	404.9	0.996	403.28	1		17,027.37

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	6321		1,973.98	0.997	1,968.06	5	1948	83,095.74
U.S.ASSAY	34901		8,559.46	0.9966	8,530.36	20	1935	360,170.48
U.S.ASSAY	34903		8,838.39	0.9966	8,808.34	21	1935	371,907.45
U.S.ASSAY	34905		8,822.07	0.997	8,795.60	21	1935	371,369.75
U.S.ASSAY	34908		8,817.67	0.9961	8,783.28	21	1935	370,849.45
U.S.ASSAY	34915		8,975.01	0.9964	8,942.70	21	1935	377,580.47
U.S.ASSAY	929		8,482.30	0.9981	8,466.18	21	1936	357,460.91
U.S.ASSAY	M-1728		7,945.50	0.9998	7,943.91	20	1961	335,409.36
U.S.ASSAY	48		9,852.33	0.9996	9,848.39	24	1947	415,820.65
U.S.ASSAY	16106		9,387.69	0.9964	9,353.89	22	1940	394,941.98
U.S.ASSAY	M-1726		8,126.31	0.9998	8,124.68	20	1961	343,042.03
U.S.ASSAY	4072		8,861.40	0.9971	8,835.70	22	1947	373,062.78
U.S.ASSAY	5842		8,489.17	0.9959	8,454.36	21	1949	356,961.85
U.S.ASSAY	1223		8,114.14	0.9958	8,080.06	20	1965	341,157.91
U.S.ASSAY	318		9,727.22	0.9996	9,723.33	24	1942	410,540.34
U.S.ASSAY	24		9,676.90	0.9975	9,652.71	24	1962	407,558.53
U.S.ASSAY	1480		9,772.51	0.9973	9,746.12	24	1961	411,502.80
U.S.ASSAY	8676		8,133.00	0.9964	8,103.72	21	1948	342,156.93
U.S.ASSAY	15921		8,266.78	0.997	8,241.98	19	1940	347,994.53
U.S.ASSAY	30722		7,214.30	0.9973	7,194.82	18	1935	303,781.17
U.S.ASSAY	30720		8,072.33	0.9972	8,049.73	20	1935	339,877.18
U.S.ASSAY	428		9,357.79	0.9997	9,354.98	22	1959	394,987.92
U.S.ASSAY	5252		7,742.97	0.9965	7,715.87	19	1934	325,781.01
U.S.ASSAY	3629		8,715.93	0.9974	8,693.27	21	1939	367,048.94
U.S.ASSAY	10770		8,596.14	0.9975	8,574.65	21	1940	362,040.59
U.S.ASSAY	10318		8,690.95	0.997	8,664.88	21	1939	365,850.17
U.S.ASSAY	10385		8,345.55	0.9975	8,324.69	20	1939	351,486.56
U.S.ASSAY	10406		7,932.99	0.9979	7,916.33	19	1939	334,244.91
U.S.ASSAY	10408		7,322.72	0.9985	7,311.74	18	1939	308,717.58
U.S.ASSAY	10451		7,399.45	0.997	7,377.25	18	1939	311,483.81
U.S.ASSAY	10454		8,303.82	0.9997	8,301.33	20	1939	350,500.37
U.S.ASSAY	10455		7,789.40	0.9998	7,787.84	19	1939	328,819.82
U.S.ASSAY	10456		7,801.67	0.9998	7,800.11	19	1939	329,337.80
U.S.ASSAY	10457		8,121.52	0.9957	8,086.60	20	1939	341,433.92
U.S.ASSAY	10458		8,188.72	0.996	8,155.97	20	1939	344,362.79
U.S.ASSAY	10459		8,165.77	0.996	8,133.11	20	1939	343,397.67
U.S.ASSAY	10460		8,140.45	0.9965	8,111.96	20	1939	342,504.71
U.S.ASSAY	10461		8,277.28	0.9969	8,251.62	20	1939	348,401.55
U.S.ASSAY	10463		8,163.33	0.9977	8,144.55	20	1939	343,880.99
U.S.ASSAY	10452		7,492.60	0.9976	7,474.62	18	1939	315,594.82
U.S.ASSAY	10465		7,847.00	0.9971	7,824.24	19	1939	330,356.80
U.S.ASSAY	10466		7,932.03	0.997	7,908.23	19	1939	333,903.04
U.S.ASSAY	10467		7,589.07	0.9971	7,567.06	18	1939	319,498.01
U.S.ASSAY	10468		7,601.62	0.9976	7,583.38	18	1939	320,186.82
U.S.ASSAY	10470		7,518.95	0.9985	7,507.67	18	1939	316,990.43
U.S.ASSAY	155		9,251.37	0.9996	9,247.67	22	1959	390,456.93
U.S.ASSAY	M-609		7,903.76	0.9998	7,902.18	20	1959	333,647.38
U.S.ASSAY	M-613		8,172.71	0.9999	8,171.89	20	1959	345,035.26

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	4560		6,391.50	0.9966	6,369.77	17	1916	268,945.66
U.S.ASSAY	36424		6,236.45	0.9968	6,216.49	16	1936	262,474.01
U.S.ASSAY	17921		7,289.45	0.9981	7,275.60	19	1924	307,191.84
U.S.ASSAY	12678		7,146.90	0.9962	7,119.74	19	1924	300,611.17
U.S.ASSAY	4799		7,674.30	0.9958	7,642.07	21	1916	322,664.92
U.S.ASSAY	5166		6,789.23	0.9968	6,767.50	17	1938	285,738.91
U.S.ASSAY	4715		7,242.85	0.9972	7,222.57	18	1938	304,952.80
U.S.ASSAY	16616		8,456.58	0.997	8,431.21	21	1937	355,984.23
U.S.ASSAY	18061		3,538.93	0.9988	3,534.68	9	1940	149,242.09
U.S.ASSAY	4731		3,557.87	0.9998	3,557.16	9	1938	150,191.04
U.S.ASSAY	4823		3,631.47	0.9968	3,619.85	9	1940	152,837.99
U.S.ASSAY	8414		2,994.12	0.9957	2,981.25	7	1940	125,874.72
U.S.ASSAY	9668		5,699.54	0.9963	5,678.45	14	1933	239,756.74
U.S.ASSAY	4229		5,461.45	0.9961	5,440.15	15	1932	229,695.10
U.S.ASSAY	6326		2,836.50	0.9966	2,826.86	7	1948	119,356.04
Compartment Sub Totals			2,036,585.110		1,977,374.253	5,183		83,489,091.26
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

Restricted FR								
Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
JOHNSON MATTHEY		JB-782	407.09	0.9967	405.747	1		17,131.53

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	88	36	409.52	0.9165	375.325	1	1971	15,847.05
U.S.ASSAY	88	35	431.73	0.9165	395.681	1	1971	16,706.52
U.S.ASSAY	88	34	420.44	0.9165	385.333	1	1971	16,269.61
U.S.ASSAY	88	33	409.16	0.9165	374.995	1	1971	15,833.11
U.S.ASSAY	88	32	414.74	0.9165	380.109	1	1971	16,049.04
U.S.ASSAY	88	31	423.23	0.9165	387.89	1	1971	16,377.57
U.S.ASSAY	88	30	421.39	0.9165	386.204	1	1971	16,306.38
U.S.ASSAY	88	25	410.73	0.9165	376.434	1	1971	15,893.87
U.S.ASSAY	2052	76	342.98	0.8998	308.613	1	1946	13,030.32
U.S.ASSAY	2052	72	358.32	0.8998	322.416	1	1946	13,613.11
U.S.ASSAY	2052	64	343.33	0.8998	308.928	1	1946	13,043.62
U.S.ASSAY	761		7,108.56	0.8993	6,392.73	21	1949	269,915.04
U.S.ASSAY	756		7,236.83	0.8992	6,507.36	21	1949	274,754.97
U.S.ASSAY	727		5,793.55	0.8998	5,213.04	17	1949	220,105.85
U.S.ASSAY	791		6,356.65	0.8992	5,715.90	19	1949	241,337.87
U.S.ASSAY	9816		3,529.60	0.9164	3,234.53	10	1940	136,568.76
U.S.ASSAY	8624		6,523.87	0.9166	5,979.78	18	1940	252,479.42
U.S.ASSAY	722		7,118.02	0.8997	6,404.08	21	1949	270,394.47
U.S.ASSAY	12527		7,781.05	0.9166	7,132.11	22	1940	301,133.37
U.S.ASSAY	12528		7,590.18	0.9166	6,957.16	21	1940	293,746.56
U.S.ASSAY	12529		7,473.80	0.9167	6,851.23	21	1940	289,274.09
U.S.ASSAY	12530		7,482.62	0.9166	6,858.57	21	1940	289,583.87
U.S.ASSAY	12534		7,629.35	0.9166	6,993.06	21	1940	295,262.46
U.S.ASSAY	12533		7,607.05	0.9166	6,972.62	21	1940	294,399.44
U.S.ASSAY	12532		7,558.75	0.9165	6,927.59	21	1940	292,498.26
U.S.ASSAY	12531		7,926.72	0.9166	7,265.63	22	1940	306,770.97
U.S.ASSAY	12535		7,922.33	0.9165	6,958.37	21	1940	293,797.69
U.S.ASSAY	12536		7,754.20	0.9165	7,106.72	21	1940	300,061.52
U.S.ASSAY	12537		7,785.07	0.9165	7,135.02	21	1940	301,256.11
U.S.ASSAY	12538		7,821.12	0.9165	7,168.06	21	1940	302,651.09
U.S.ASSAY	12540		7,789.90	0.9165	7,139.44	21	1940	301,442.99
U.S.ASSAY	12539		7,812.55	0.9166	7,160.98	21	1940	302,352.46
U.S.ASSAY	12541		6,680.72	0.9166	6,123.55	18	1940	258,549.67
U.S.ASSAY	12542		7,527.13	0.9166	6,899.37	21	1940	291,306.45
U.S.ASSAY	12546		7,759.00	0.9166	7,111.90	21	1940	300,280.02
U.S.ASSAY	12545		7,834.10	0.9166	7,180.74	21	1940	303,186.47
U.S.ASSAY	12544		7,722.10	0.9165	7,077.31	21	1940	298,819.39
U.S.ASSAY	12543		7,735.55	0.9166	7,090.41	21	1940	299,372.50
U.S.ASSAY	12547		7,014.65	0.9166	6,429.63	19	1940	271,473.04
U.S.ASSAY	12548		7,622.77	0.9166	6,987.03	21	1940	295,007.82
U.S.ASSAY	12549		7,624.65	0.9166	6,988.75	21	1940	295,080.57
U.S.ASSAY	12550		7,312.93	0.9167	6,703.76	20	1940	283,047.62
U.S.ASSAY	12551		6,945.32	0.9165	6,365.39	19	1940	268,760.60
U.S.ASSAY	10818		3,005.78	0.8995	2,703.70	9	1940	114,156.12
U.S.ASSAY	12373		5,140.12	0.9	4,626.11	15	1940	195,324.46
U.S.ASSAY	12686		7,146.92	0.8993	6,427.23	20	1940	271,371.58
U.S.ASSAY	11591		5,279.30	0.8997	4,749.79	15	1940	200,546.41

Restricted FR

Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	12027		3,089.75	0.8993	2,778.61	9	1940	117,319.11
U.S.ASSAY	13215		6,291.37	0.8994	5,658.46	18	1940	238,912.55
U.S.ASSAY	13216		6,068.00	0.8994	5,457.56	18	1940	230,430.15
U.S.ASSAY	13221		6,316.30	0.8996	5,682.14	18	1940	239,912.58
U.S.ASSAY	13222		6,471.67	0.8996	5,821.91	18	1940	245,814.02
U.S.ASSAY	13223		6,605.07	0.8996	5,941.92	18	1940	250,880.98
U.S.ASSAY	13224		6,297.35	0.8995	5,664.47	18	1940	239,166.22
U.S.ASSAY	13229		5,315.60	0.8996	4,781.91	15	1940	201,902.93
U.S.ASSAY	13218		6,392.53	0.8996	5,750.72	18	1940	242,808.05
U.S.ASSAY	13214		5,528.77	0.8993	4,972.02	16	1940	209,929.75
U.S.ASSAY	13217		6,164.17	0.8997	5,545.90	18	1940	234,160.27
U.S.ASSAY	13219		6,391.95	0.8995	5,749.56	18	1940	242,759.03
U.S.ASSAY	13220		6,410.93	0.8997	5,767.91	18	1940	243,534.02
U.S.ASSAY	13225		6,579.47	0.8995	5,918.23	18	1940	249,880.82
U.S.ASSAY	13226		6,546.70	0.8996	5,889.41	18	1940	248,663.89
U.S.ASSAY	13231		4,928.77	0.8997	4,434.41	14	1940	187,230.71
U.S.ASSAY	13227		5,811.43	0.8995	5,227.38	17	1940	220,711.53
U.S.ASSAY	13228		6,447.89	0.8998	5,801.81	18	1940	244,965.22
U.S.ASSAY	13230		6,425.22	0.8998	5,781.41	18	1940	244,103.98
U.S.ASSAY	13232		6,063.10	0.8996	5,454.37	17	1940	230,295.29
U.S.ASSAY	13234		6,623.55	0.8995	5,957.88	18	1940	251,554.93
U.S.ASSAY	13359		6,312.25	0.8996	5,678.50	18	1940	239,758.76
U.S.ASSAY	13233		6,223.42	0.8996	5,598.59	17	1940	236,384.74
U.S.ASSAY	13360		6,330.03	0.8996	5,694.50	18	1940	240,434.11
U.S.ASSAY	13361		6,376.45	0.8997	5,736.89	18	1940	242,224.20
U.S.ASSAY	13362		6,254.57	0.8994	5,625.36	18	1940	237,515.07
U.S.ASSAY	13363		5,819.25	0.8995	5,234.42	17	1940	221,008.52
U.S.ASSAY	13364		6,214.10	0.8996	5,590.20	17	1940	236,030.71
U.S.ASSAY	13365		6,481.80	0.8996	5,831.03	18	1940	246,198.79
U.S.ASSAY	13366		6,471.39	0.8996	5,821.66	18	1940	245,803.38
U.S.ASSAY	13367		6,455.30	0.8997	5,807.83	18	1940	245,219.49
U.S.ASSAY	13368		6,412.43	0.8996	5,768.62	18	1940	243,563.91
U.S.ASSAY	13369		6,341.32	0.8996	5,704.65	18	1940	240,862.92
U.S.ASSAY	13370		6,314.85	0.8994	5,679.58	18	1940	239,804.19
U.S.ASSAY	13371		6,264.28	0.8997	5,635.97	18	1940	237,963.18
U.S.ASSAY	13372		6,287.18	0.8996	5,655.95	18	1940	238,806.53
U.S.ASSAY	13373		5,859.88	0.8996	5,271.55	17	1940	222,576.35
U.S.ASSAY	13374		6,404.53	0.8996	5,761.52	18	1940	243,263.84
U.S.ASSAY	13375		5,691.74	0.8995	5,119.72	16	1940	216,165.84
U.S.ASSAY	13376		3,149.80	0.8995	2,833.25	9	1940	119,625.84
U.S.ASSAY	D-106		7,744.88	0.8996	6,967.29	22	1940	294,174.48
U.S.ASSAY	D-107		7,802.55	0.8996	7,019.17	22	1940	296,364.97
U.S.ASSAY	D-108		6,911.31	0.8996	6,217.41	20	1940	262,512.90
U.S.ASSAY	12552		6,965.35	0.9166	6,384.44	19	1940	269,565.10
U.S.ASSAY	12553		5,870.80	0.9165	5,380.59	16	1940	227,180.26
U.S.ASSAY	12554		7,050.92	0.9166	6,462.87	20	1940	272,876.72
U.S.ASSAY	12555		7,173.32	0.9166	6,575.07	20	1940	277,613.71

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	17065		6,352.41	0.8995	5,713.99	18	1940	241,257.36
U.S.ASSAY	17066		6,608.80	0.8997	5,945.94	19	1940	251,050.54
U.S.ASSAY	17067		5,294.64	0.8995	4,762.53	15	1940	201,084.45
U.S.ASSAY	17068		5,310.83	0.8996	4,777.62	15	1940	201,721.75
U.S.ASSAY	17176		7,159.27	0.8999	6,442.63	20	1940	272,021.89
U.S.ASSAY	17177		6,674.40	0.8997	6,004.96	19	1940	253,542.54
U.S.ASSAY	17178		6,665.46	0.8996	5,996.25	19	1940	253,174.78
U.S.ASSAY	17395		5,310.28	0.8994	4,776.07	15	1940	201,656.01
U.S.ASSAY	17397		5,369.13	0.8997	4,830.61	15	1940	203,958.81
U.S.ASSAY	17396		5,274.12	0.8994	4,743.54	15	1940	200,282.86
U.S.ASSAY	D-110		7,466.53	0.8995	6,716.14	21	1940	283,570.38
U.S.ASSAY	D-111		7,570.14	0.8997	6,810.86	21	1940	287,569.28
U.S.ASSAY	20797		7,312.33	0.9165	6,701.75	20	1940	282,962.63
U.S.ASSAY	20798		7,274.00	0.9166	6,667.35	20	1940	281,510.10
U.S.ASSAY	20799		7,064.18	0.9166	6,475.03	19	1940	273,389.88
U.S.ASSAY	20800		7,255.05	0.9166	6,649.98	20	1940	280,776.74
U.S.ASSAY	20801		7,294.05	0.9165	6,685.00	20	1940	282,255.28
U.S.ASSAY	20802		6,953.93	0.9166	6,373.97	19	1940	269,123.12
U.S.ASSAY	20803		7,334.58	0.9166	6,722.88	20	1940	283,854.62
U.S.ASSAY	20804		6,982.84	0.9166	6,400.47	19	1940	270,241.97
U.S.ASSAY	20805		7,025.17	0.9166	6,439.27	19	1940	271,880.19
U.S.ASSAY	20806		7,114.84	0.9166	6,521.46	20	1940	275,350.47
U.S.ASSAY	20807		6,918.81	0.9167	6,342.47	19	1940	267,793.16
U.S.ASSAY	20808		7,309.40	0.9166	6,699.80	20	1940	282,880.13
U.S.ASSAY	20809		7,018.59	0.9166	6,433.24	19	1940	271,625.55
U.S.ASSAY	20810		7,431.37	0.9167	6,812.34	20	1940	287,631.86
U.S.ASSAY	20831		7,289.37	0.9166	6,681.44	20	1940	282,104.97
U.S.ASSAY	20832		7,396.95	0.9166	6,780.04	20	1940	286,268.37
U.S.ASSAY	20833		7,326.48	0.9166	6,715.45	20	1940	283,541.16
U.S.ASSAY	20834		7,258.40	0.9166	6,653.05	20	1940	280,906.37
U.S.ASSAY	20835		7,322.29	0.9166	6,711.61	20	1940	283,378.98
U.S.ASSAY	20836		6,479.10	0.9166	5,938.74	18	1940	250,746.79
U.S.ASSAY	20837		6,110.80	0.9166	5,601.16	17	1940	236,493.26
U.S.ASSAY	20838		7,671.00	0.9166	7,031.24	21	1940	296,874.38
U.S.ASSAY	20839		7,561.53	0.9166	6,930.90	21	1940	292,637.76
U.S.ASSAY	20840		7,214.20	0.9166	6,612.54	20	1940	279,195.82
U.S.ASSAY	20841		7,240.67	0.9166	6,636.80	20	1940	280,220.21
U.S.ASSAY	20842		7,060.05	0.9166	6,471.24	20	1940	273,230.07
U.S.ASSAY	20843		7,183.68	0.9166	6,584.56	20	1940	278,014.65
U.S.ASSAY	20844		7,407.72	0.9166	6,789.92	20	1940	286,685.19
U.S.ASSAY	20845		7,352.12	0.9166	6,738.95	20	1940	284,533.42
U.S.ASSAY	20846		7,347.30	0.9166	6,734.54	20	1940	284,346.88
U.S.ASSAY	20847		7,157.98	0.9166	6,561.00	20	1940	277,020.02
U.S.ASSAY	20848		6,485.79	0.9166	5,944.88	18	1940	251,005.70
U.S.ASSAY	20849		7,244.69	0.9166	6,640.48	20	1940	280,375.80
U.S.ASSAY	20850		7,424.00	0.9166	6,804.84	20	1940	287,315.23
U.S.ASSAY	20851		6,604.15	0.9166	6,053.36	18	1940	255,586.35

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	20811		7,263.30	0.9166	6,657.54	20	1940	281,096.03
U.S.ASSAY	20812		7,315.42	0.9166	6,705.31	20	1940	283,113.11
U.S.ASSAY	20813		7,228.57	0.9166	6,625.71	20	1940	279,751.93
U.S.ASSAY	20814		7,189.97	0.9165	6,589.61	20	1940	278,227.75
U.S.ASSAY	20815		6,843.27	0.9166	6,272.54	19	1940	264,840.48
U.S.ASSAY	20816		7,364.40	0.9165	6,749.47	20	1940	284,977.60
U.S.ASSAY	20817		7,374.80	0.9166	6,759.74	20	1940	285,411.18
U.S.ASSAY	20818		6,959.20	0.9166	6,378.80	19	1940	269,327.10
U.S.ASSAY	20819		7,370.58	0.9166	6,755.87	20	1940	285,247.86
U.S.ASSAY	20820		7,291.93	0.9166	6,683.78	20	1940	282,204.02
U.S.ASSAY	20821		7,062.39	0.9166	6,473.39	19	1940	273,320.64
U.S.ASSAY	20822		7,463.62	0.9166	6,841.15	20	1940	288,848.57
U.S.ASSAY	20823		6,977.46	0.9166	6,395.54	19	1940	270,033.77
U.S.ASSAY	20824		7,397.64	0.9165	6,779.94	20	1940	286,263.86
U.S.ASSAY	20825		6,976.30	0.9166	6,394.48	19	1940	269,988.89
U.S.ASSAY	20826		7,435.85	0.9165	6,814.96	20	1940	287,742.48
U.S.ASSAY	20827		7,090.67	0.9165	6,498.60	19	1940	274,385.15
U.S.ASSAY	20828		7,457.50	0.9165	6,834.80	20	1940	288,580.25
U.S.ASSAY	20829		7,023.64	0.9166	6,437.87	19	1940	271,820.95
U.S.ASSAY	20830		7,144.94	0.9166	6,549.05	19	1940	276,515.38
U.S.ASSAY	20852		7,283.45	0.9165	6,675.28	20	1940	281,845.09
U.S.ASSAY	20853		7,218.05	0.9166	6,616.07	20	1940	279,344.82
U.S.ASSAY	20854		7,316.48	0.9166	6,706.29	20	1940	283,154.15
U.S.ASSAY	20855		7,234.19	0.9165	6,630.14	20	1940	279,938.89
U.S.ASSAY	432		7,711.25	0.8992	6,933.96	22	1945	292,766.88
U.S.ASSAY	434		7,455.23	0.8993	6,704.49	21	1945	283,078.23
Compartment Sub Totals			1,063,895.19		968,162.42	2,954.00		40,877,947.51
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	4	1176	25.52	0.9998	25.515	1	1944	1,077.30
U.S.ASSAY	32	5088	25.03	0.9996	25.02	1	1944	1,056.40
U.S.ASSAY	M-259	116	49.49	0.9998	49.48	1	1938	2,089.15
U.S.ASSAY	R-50	4249	54.27	0.9997	54.254	1	1957	2,290.72
U.S.ASSAY	478	13335	26.47	0.9998	26.465	1	1943	1,117.41
U.S.ASSAY	16	17940	11.13	0.9997	11.127	1	1933	469.81
U.S.ASSAY	M-418	9977	24.6	0.9997	24.593	1	1955	1,038.37
U.S.ASSAY	318	36306	52.56	0.9997	52.544	1	1950	2,218.52
U.S.ASSAY	478	13384	26.53	0.9998	26.525	1	1943	1,119.94
U.S.ASSAY	37	6756	25.54	0.9997	25.532	1	1944	1,078.02
U.S.ASSAY	M-313	8939	49.62	0.9997	49.605	1	1954	2,094.43
U.S.ASSAY	R-46	11976	56.14	0.9996	56.118	1	1961	2,369.43
U.S.ASSAY	M-259	53	52.55	0.9998	52.539	1	1938	2,218.31
U.S.ASSAY	172	25358	22.53	0.9996	22.521	1	1950	950.89
U.S.ASSAY	172	25499	22.28	0.9996	22.271	1	1950	940.33
U.S.ASSAY	318	36452	51.56	0.9997	51.545	1	1950	2,176.34
U.S.ASSAY	318	36450	52.66	0.9997	52.644	1	1950	2,222.75
U.S.ASSAY	1	143	26.11	0.9998	26.105	1	1944	1,102.21
U.S.ASSAY	R-119	758	53.3	0.9998	53.289	1	1958	2,249.98
U.S.ASSAY	60	5746	53.58	0.9996	53.559	1	1949	2,261.38
U.S.ASSAY	R-50	4167	51.34	0.9997	51.325	1	1957	2,167.05
U.S.ASSAY	M-259	47	51.28	0.9998	51.27	1	1938	2,164.73
U.S.ASSAY	M-255	2070	53.71	0.9997	53.694	1	1954	2,267.08
U.S.ASSAY	M-250	855	54.64	0.9997	54.624	1	1954	2,306.35
U.S.ASSAY	M-259	3730	27.86	0.9998	27.855	1	1942	1,176.10
U.S.ASSAY	M-259	27	53.71	0.9998	53.699	1	1938	2,267.29
U.S.ASSAY	18	18484	26.79	0.9998	26.784	1	1933	1,130.88
U.S.ASSAY	18	18654	24.27	0.9998	24.265	1	1933	1,024.52
U.S.ASSAY	M-250	853	51.06	0.9997	51.045	1	1954	2,155.23
U.S.ASSAY	18	18466	27.83	0.9998	27.824	1	1933	1,174.79
U.S.ASSAY	R-74	16746	48.22	0.9997	48.206	1	1961	2,035.36
U.S.ASSAY	144	8744	24.41	0.9995	24.398	1	1944	1,030.14
U.S.ASSAY	117	22173	28.46	0.9999	28.457	1	1934	1,201.52
U.S.ASSAY	M-365	122	50.15	0.9998	50.14	1	1935	2,117.02
U.S.ASSAY	146	8869	26.64	0.9998	26.635	1	1933	1,124.59
U.S.ASSAY	17	18367	22.65	0.9997	22.643	1	1933	956.04
U.S.ASSAY	M-365	148	49.41	0.9998	49.4	1	1935	2,085.78
U.S.ASSAY	1182	453	407.07	0.9978	406.174	1	1947	17,149.56
U.S.ASSAY	20236	375	417.54	0.9963	415.995	1	1939	17,564.22
U.S.ASSAY	R-63	23443	24.16	0.9998	24.155	1	1961	1,019.88
U.S.ASSAY	74	7335	53.18	0.9997	53.164	1	1950	2,244.70
U.S.ASSAY	R-17	12744	53.16	0.9998	53.149	1	1962	2,244.07
U.S.ASSAY	16	17897	11.85	0.9997	11.846	1	1933	500.16
U.S.ASSAY	R-44	11467	56.18	0.9998	56.169	1	1961	2,371.58
U.S.ASSAY	16	17900	11.94	0.9997	11.936	1	1933	503.96
U.S.ASSAY	R-18	5948	24	0.9998	23.995	1	1961	1,013.12
U.S.ASSAY	327	3459	23.45	0.9998	23.446	1	1943	989.94
U.S.ASSAY	R-104	18855	22.64	0.9997	22.633	1	1959	955.62

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	144	8451	27.01	0.9995	26.996	1	1935	1,139.83
U.S.ASSAY	3145		2,046.11	0.9994	2,044.88	5	1960	86,339.42
U.S.ASSAY	322	4330	28.35	0.9998	28.345	1	1943	1,196.79
U.S.ASSAY	D-01	14940	10.84	0.9998	10.838	1	1943	457.6
U.S.ASSAY	M-259	22	51.45	0.9998	51.44	1	1933	2,171.91
U.S.ASSAY	10450	12463	385.15	0.996	383.609	1	1933	16,196.82
U.S.ASSAY	10456	12598	404.71	0.9958	403.01	1	1933	17,015.97
U.S.ASSAY	2581	118	397.43	0.9	357.687	1	1959	15,102.33
U.S.ASSAY	2581	107	410.29	0.9	369.261	1	1959	15,591.01
U.S.ASSAY	2581	115	402.43	0.9	362.187	1	1959	15,292.33
U.S.ASSAY	2581	116	407.76	0.9	366.984	1	1959	15,494.87
U.S.ASSAY	2581	117	391.79	0.9	352.611	1	1959	14,888.01
U.S.ASSAY	2581	112	403.34	0.9	363.006	1	1959	15,326.91
U.S.ASSAY	2581	109	398.33	0.9	358.497	1	1959	15,136.53
U.S.ASSAY	F-916	41	378.23	0.9	340.407	1	1937	14,372.73
U.S.ASSAY	F-916	40	377.67	0.9	339.903	1	1937	14,351.45
U.S.ASSAY	F-916	39	367.3	0.9	330.57	1	1937	13,957.39
U.S.ASSAY	F-916	38	365.18	0.9	328.662	1	1937	13,876.83
U.S.ASSAY	F-916	37	371.07	0.9	333.963	1	1937	14,100.65
U.S.ASSAY	F-916	34	362.37	0.9	326.133	1	1937	13,770.05
U.S.ASSAY	F-916	35	377.09	0.9	339.381	1	1937	14,329.41
U.S.ASSAY	F-916	33	379.09	0.9	341.181	1	1937	14,405.41
U.S.ASSAY	F-916	32	366.61	0.9	329.949	1	1937	13,931.17
U.S.ASSAY	F-916	31	389.85	0.9	350.865	1	1937	14,814.29
U.S.ASSAY	F-916	30	378.45	0.9	340.605	1	1937	14,381.09
U.S.ASSAY	F-916	29	383.72	0.9	345.348	1	1937	14,581.35
U.S.ASSAY	F-916	27	367.29	0.9	330.561	1	1937	13,957.01
U.S.ASSAY	F-916	24	371.08	0.9	333.972	1	1937	14,101.03
U.S.ASSAY	F-916	23	376.05	0.9	338.445	1	1937	14,289.89
U.S.ASSAY	F-916	22	383.9	0.9	345.51	1	1937	14,588.19
U.S.ASSAY	2582	130	410.28	0.8999	369.211	1	1959	15,588.90
U.S.ASSAY	2582	136	398.24	0.8999	358.376	1	1959	15,131.42
U.S.ASSAY	2582	134	405.74	0.8999	365.125	1	1959	15,416.38
U.S.ASSAY	2582	129	394.43	0.8999	354.947	1	1959	14,986.64
U.S.ASSAY	2582	127	412.37	0.8999	371.092	1	1959	15,668.32
U.S.ASSAY	2582	126	354.19	0.8999	318.736	1	1959	13,457.74
U.S.ASSAY	2582	124	404.74	0.8999	364.226	1	1959	15,378.42
U.S.ASSAY	2582	123	403.4	0.8999	363.02	1	1959	15,327.50
U.S.ASSAY	2582	122	413.8	0.8999	372.379	1	1959	15,722.66
U.S.ASSAY	2582	119	408.05	0.8999	367.204	1	1959	15,504.16
U.S.ASSAY	2582	121	405.16	0.8999	364.603	1	1959	15,394.34
U.S.ASSAY	D-203	118	343.34	0.9112	312.851	1	1942	13,209.26
U.S.ASSAY	D-203	112	356.65	0.9112	324.979	1	1942	13,721.33
U.S.ASSAY	D-203	110	344.51	0.9112	313.918	1	1942	13,254.31
U.S.ASSAY	D-203	108	357.14	0.9112	325.426	1	1942	13,740.20
U.S.ASSAY	D-203	107	339.55	0.9112	309.398	1	1942	13,063.46
U.S.ASSAY	D-203	109	339.06	0.9112	308.951	1	1942	13,044.59
U.S.ASSAY	1322	727	404.46	0.9988	403.975	1	1961	17,056.71

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	1319	677	413.36	0.9988	412.864	1	1961	17,432.03
U.S.ASSAY	1319	674	408.3	0.9988	407.81	1	1961	17,218.64
U.S.ASSAY	1319	676	416.66	0.9988	416.16	1	1961	17,571.19
U.S.ASSAY	R-04	5859	55.82	0.9998	55.809	1	1963	2,356.38
U.S.ASSAY	M-15	4585	25.23	0.9998	25.225	1	1963	1,065.05
U.S.ASSAY	M-46	6389	52.16	0.9998	52.15	1	1963	2,201.89
U.S.ASSAY	M-21	3070	61.6	0.9998	61.588	1	1963	2,600.38
U.S.ASSAY	M-11	1685	52.81	0.9998	52.799	1	1963	2,229.29
U.S.ASSAY	R-04	5877	56.9	0.9998	56.889	1	1963	2,401.98
U.S.ASSAY	R-34	31006	24.38	0.9998	24.375	1	1962	1,029.17
U.S.ASSAY	117	4370	18.13	0.9998	18.126	1	1933	765.32
U.S.ASSAY	R-134	2151	49.45	0.9999	49.445	1	1958	2,087.68
U.S.ASSAY	R-134	2098	49.8	0.9999	49.795	1	1958	2,102.45
U.S.ASSAY	3167	101	387.95	0.9962	386.476	1	1949	16,317.87
U.S.ASSAY	3695	236	405.63	0.9998	405.549	1	1943	17,123.17
U.S.ASSAY	9423	128	425.49	0.998	424.639	1	1940	17,929.19
U.S.ASSAY	235	418	411.69	0.9965	410.249	1	1939	17,321.62
U.S.ASSAY	10455	12582	403.46	0.9959	401.806	1	1933	16,965.13
U.S.ASSAY	102	201	405.62	0.9998	405.539	1	1952	17,122.75
U.S.ASSAY	53	106	406.7	0.9999	406.659	1	1956	17,170.04
U.S.ASSAY	85	1326	403.27	0.9998	403.189	1	1952	17,023.53
U.S.ASSAY	53	1253	400.19	0.9999	400.15	1	1956	16,895.21
U.S.ASSAY	85	1336	406.88	0.9998	406.799	1	1952	17,175.95
U.S.ASSAY	85	1332	406.64	0.9998	406.559	1	1952	17,165.82
U.S.ASSAY	267	15	414.5	0.9998	414.417	1	1960	17,497.60
U.S.ASSAY	85	1337	401.45	0.9998	401.37	1	1952	16,946.72
U.S.ASSAY	2052	70	351.76	0.8998	316.514	1	1946	13,363.92
U.S.ASSAY	2052	79	329.81	0.8998	296.763	1	1946	12,529.99
U.S.ASSAY	2052	71	336.42	0.8998	302.711	1	1946	12,781.12
U.S.ASSAY	2052	80	336.25	0.8998	302.558	1	1946	12,774.66
U.S.ASSAY	2052	66	338.27	0.8998	304.375	1	1946	12,851.38
U.S.ASSAY	2052	67	327.23	0.8998	294.441	1	1946	12,431.95
U.S.ASSAY	2052	63	337.19	0.8998	303.404	1	1946	12,810.38
U.S.ASSAY	2052	69	346.09	0.8998	311.412	1	1946	13,148.50
U.S.ASSAY	2052	73	336.97	0.8998	303.206	1	1946	12,802.02
U.S.ASSAY	2052	68	334.8	0.8998	301.253	1	1946	12,719.56
U.S.ASSAY	2052	75	325.79	0.8998	293.146	1	1946	12,377.27
U.S.ASSAY	2052	65	332.17	0.8998	298.887	1	1946	12,619.67
U.S.ASSAY	2052	74	337.27	0.8998	303.475	1	1946	12,813.38
U.S.ASSAY	7545	77	400.11	0.995	398.109	1	1936	16,809.04
U.S.ASSAY	10450	12454	406.08	0.996	404.456	1	1933	17,077.02
U.S.ASSAY	29	1913	406.05	0.9998	405.969	1	1952	17,140.90
U.S.ASSAY	7226		8,233.59	0.9962	8,202.30	21	1948	346,319.24
U.S.ASSAY	4449	24912	400.31	0.9967	398.989	1	1932	16,846.19
U.S.ASSAY	M-599	503	410.09	0.9963	408.573	1	1961	17,250.85
U.S.ASSAY	1932	7	403.22	0.9998	403.139	1	1959	17,021.42
U.S.ASSAY	M-1512	832	398.12	0.9962	396.607	1	1960	16,745.62
U.S.ASSAY	4928		7,705.95	0.9166	7,063.27	21	1940	298,226.97

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	M-14	2407	24.17	0.9998	24.165	1	1963	1,020.30
U.S.ASSAY	R-110	25695	52.03	0.9998	52.02	1	1962	2,196.40
U.S.ASSAY	R-14	12167	53.3	0.9998	53.289	1	1962	2,249.98
U.S.ASSAY	R-28	9494	24.89	0.9998	24.885	1	1961	1,050.70
U.S.ASSAY	R-111	27198	60.27	0.9998	60.258	1	1962	2,544.23
U.S.ASSAY	D-203	119	350.38	0.9112	319.266	1	1942	13,480.11
U.S.ASSAY	D-203	122	350.73	0.9112	319.585	1	1942	13,493.58
U.S.ASSAY	1675	84	395.83	0.9962	394.326	1	1950	16,649.31
U.S.ASSAY	6188	125	399.88	0.9958	398.2	1	1938	16,812.88
U.S.ASSAY	20565	19	409.74	0.9971	408.552	1	1939	17,249.96
U.S.ASSAY	12267	20511	402.91	0.9957	401.177	1	1933	16,938.58
U.S.ASSAY	2989	19	399.86	0.996	398.261	1	1957	16,815.46
U.S.ASSAY	1833	373	398.38	0.9965	396.986	1	1947	16,761.62
U.S.ASSAY	21136	41	412.44	0.9963	410.914	1	1939	17,349.69
U.S.ASSAY	1833	360	400.09	0.9965	398.69	1	1947	16,833.57
U.S.ASSAY	9943		8,504.76	0.9981	8,488.60	22	1948	358,407.41
U.S.ASSAY	9432	151	408.59	0.9979	407.732	1	1940	17,215.34
U.S.ASSAY	897	165	409.75	0.9962	408.193	1	1963	17,234.81
U.S.ASSAY	58	5360	48.57	0.9997	48.555	1	1949	2,050.10
U.S.ASSAY	M-420	10644	22.85	0.9997	22.843	1	1955	964.48
U.S.ASSAY	45	6989	49.57	0.9997	49.555	1	1952	2,092.32
U.S.ASSAY	52	14810	28.71	0.9996	28.699	1	1951	1,211.73
U.S.ASSAY	58	10242	26.59	0.9997	26.582	1	1952	1,122.35
U.S.ASSAY	191	20657	23.14	0.9997	23.133	1	1951	976.73
U.S.ASSAY	M-259	71	52.75	0.9998	52.739	1	1938	2,226.76
U.S.ASSAY	M-61	167	5.15	0.9997	5.148	1	1956	217.36
U.S.ASSAY	R-32	10315	24.99	0.9997	24.982	1	1961	1,054.80
U.S.ASSAY	327	24099	25.54	0.9997	25.532	1	1947	1,078.02
U.S.ASSAY	M-55	6160	51.76	0.9997	51.744	1	1962	2,184.75
U.S.ASSAY	M-238	3180	24.6	0.9998	24.595	1	1954	1,038.46
U.S.ASSAY	224	25048	49.48	0.9997	49.465	1	1950	2,088.52
U.S.ASSAY	91	79	438.26	0.9165	401.665	1	1971	16,959.18
U.S.ASSAY	91	78	432.51	0.9165	396.395	1	1971	16,736.67
U.S.ASSAY	91	77	429.86	0.9165	393.967	1	1971	16,634.15
U.S.ASSAY	91	82	423.03	0.9165	387.707	1	1971	16,369.84
U.S.ASSAY	91	80	425.46	0.9165	389.934	1	1971	16,463.87
U.S.ASSAY	91	81	449.59	0.9165	412.049	1	1971	17,397.62
U.S.ASSAY	91	83	441.9	0.9165	405.001	1	1971	17,100.03
U.S.ASSAY	D-203	116	348.68	0.9112	317.717	1	1942	13,414.71
U.S.ASSAY	D-203	120	345.16	0.9112	314.51	1	1942	13,279.30
U.S.ASSAY	34710		8,242.37	0.997	8,217.64	21	1935	346,966.97
U.S.ASSAY	34719		8,253.15	0.9983	8,239.12	21	1935	347,873.77
U.S.ASSAY	15895		8,469.90	0.9966	8,441.10	21	1940	356,401.90
U.S.ASSAY	5545		8,445.35	0.9971	8,420.86	21	1947	355,547.15
U.S.ASSAY	346		7,904.94	0.9969	7,880.44	20	1949	332,729.30
U.S.ASSAY	2215		8,545.18	0.9959	8,510.15	22	1946	359,317.04
U.S.ASSAY	10176		8,212.85	0.9966	8,184.93	21	1926	345,585.58
U.S.ASSAY	91	90	446.35	0.9165	409.08	1	1971	17,272.26

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	91	84	434.09	0.9165	397.844	1	1971	16,797.85
U.S.ASSAY	91	85	443.77	0.9165	406.715	1	1971	17,172.40
U.S.ASSAY	91	86	425.23	0.9165	389.723	1	1971	16,454.96
U.S.ASSAY	91	87	428.76	0.9165	392.959	1	1971	16,591.59
U.S.ASSAY	91	88	445.82	0.9165	408.594	1	1971	17,251.74
U.S.ASSAY	91	89	450	0.9165	412.425	1	1971	17,413.49
U.S.ASSAY	92	95	416.47	0.8992	374.49	1	1971	15,811.79
U.S.ASSAY	92	98	405.09	0.8992	364.257	1	1971	15,379.73
U.S.ASSAY	92	97	420.56	0.8992	378.168	1	1971	15,967.08
U.S.ASSAY	92	96	417.02	0.8992	374.984	1	1971	15,832.65
U.S.ASSAY	91	91	439.82	0.9165	403.095	1	1971	17,019.56
U.S.ASSAY	91	94	429.53	0.9165	393.664	1	1971	16,621.36
U.S.ASSAY	91	93	418.03	0.9165	383.125	1	1971	16,176.38
U.S.ASSAY	91	92	438.09	0.9165	401.509	1	1971	16,952.59
U.S.ASSAY	92	104	407.74	0.8992	366.64	1	1971	15,480.35
U.S.ASSAY	92	106	426.73	0.8992	383.716	1	1971	16,201.33
U.S.ASSAY	92	105	411.86	0.8992	370.344	1	1971	15,636.74
U.S.ASSAY	92	103	419.72	0.8992	377.412	1	1971	15,935.16
U.S.ASSAY	92	102	386.45	0.8992	347.496	1	1971	14,672.05
U.S.ASSAY	92	101	420.65	0.8992	378.248	1	1971	15,970.46
U.S.ASSAY	92	100	431.4	0.8992	387.915	1	1971	16,378.62
U.S.ASSAY	92	99	424.8	0.8992	381.98	1	1971	16,128.04
U.S.ASSAY	92	110	428.53	0.8992	385.334	1	1971	16,269.65
U.S.ASSAY	92	109	420.14	0.8992	377.79	1	1971	15,951.12
U.S.ASSAY	92	108	440.38	0.8992	395.99	1	1971	16,719.57
U.S.ASSAY	92	107	418.24	0.8992	376.081	1	1971	15,878.97
U.S.ASSAY	220	323	391.51	0.9962	390.022	1	1947	16,467.59
U.S.ASSAY	6441	183	399.66	0.9957	397.942	1	1949	16,801.99
U.S.ASSAY	6441	191	399.96	0.9957	398.24	1	1949	16,814.57
U.S.ASSAY	6441	174	403.1	0.9957	401.367	1	1949	16,946.60
U.S.ASSAY	2989	11	399.22	0.996	397.623	1	1957	16,788.52
U.S.ASSAY	1833	361	404.46	0.9965	403.044	1	1947	17,017.40
U.S.ASSAY	4847	89	404.08	0.9961	402.504	1	1939	16,994.60
U.S.ASSAY	6437	143	391.17	0.9959	389.566	1	1949	16,448.33
U.S.ASSAY	12267	20504	404.25	0.9957	402.512	1	1933	16,994.94
U.S.ASSAY	1757	408	398.42	0.9963	396.946	1	1947	16,759.93
U.S.ASSAY	12176	20403	422.03	0.9954	420.089	1	1933	17,737.08
U.S.ASSAY	9343	103	399.1	0.9959	397.464	1	1940	16,781.80
U.S.ASSAY	M-125	48	410.66	0.9996	410.496	1	1944	17,332.04
U.S.ASSAY	27083	154	345.38	0.9974	344.482	1	1935	14,544.79
U.S.ASSAY	217	265	399.95	0.9963	398.47	1	1947	16,824.28
U.S.ASSAY	13973	32	410.7	0.9982	409.961	1	1941	17,309.46
U.S.ASSAY	6443	170	404.37	0.996	402.753	1	1949	17,005.12
U.S.ASSAY	1695	110	411.71	0.9963	410.187	1	1950	17,319.00
U.S.ASSAY	1695	97	403.6	0.9963	402.107	1	1950	16,977.84
U.S.ASSAY	5552	380	391.04	0.9974	390.023	1	1947	16,467.63
U.S.ASSAY	11895		7,979.44	0.9976	7,960.29	20	1939	336,100.91
U.S.ASSAY	20227	345	412.44	0.9976	411.45	1	1939	17,372.32

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Assayer	Melt	Bar No.	Gross Wt	Fineness	Fine Wt	# Bars	Year	Official FRBNY Book Value *
U.S.ASSAY	10456	12595	410.53	0.9958	408.806	1	1933	17,260.69
U.S.ASSAY	M-1773	12	395.72	0.9974	394.691	1	1959	16,664.72
U.S.ASSAY	6574		8,248.88	0.997	8,224.13	21	1937	347,240.99
U.S.ASSAY	7882	609	411.85	0.9958	410.12	1	1940	17,316.17
U.S.ASSAY	7882	603	405.21	0.9958	403.508	1	1940	17,037.00
U.S.ASSAY	7882	607	405.42	0.9958	403.717	1	1940	17,045.82
U.S.ASSAY	90	59	437.33	0.9166	400.857	1	1971	16,925.06
U.S.ASSAY	90	64	428.04	0.9166	392.341	1	1971	16,565.50
U.S.ASSAY	90	63	432.72	0.9166	396.631	1	1971	16,746.63
U.S.ASSAY	90	62	426.68	0.9166	391.095	1	1971	16,512.89
U.S.ASSAY	90	61	430.9	0.9166	394.963	1	1971	16,676.21
U.S.ASSAY	90	60	433.64	0.9166	397.474	1	1971	16,782.23
U.S.ASSAY	90	58	427.2	0.9166	391.572	1	1971	16,533.03
U.S.ASSAY	89	52	418.57	0.9166	383.661	1	1971	16,199.01
U.S.ASSAY	89	57	407.96	0.9166	373.936	1	1971	15,788.40
U.S.ASSAY	89	56	419.95	0.9166	384.926	1	1971	16,252.42
U.S.ASSAY	89	55	407.89	0.9166	373.872	1	1971	15,785.70
U.S.ASSAY	89	54	419.09	0.9166	384.138	1	1971	16,219.15
U.S.ASSAY	89	53	417.39	0.9166	382.58	1	1971	16,153.37
U.S.ASSAY	90	75	431.47	0.9166	395.485	1	1971	16,698.25
U.S.ASSAY	90	65	446.95	0.9166	409.674	1	1971	17,297.34
U.S.ASSAY	90	66	423.06	0.9166	387.777	1	1971	16,372.80
U.S.ASSAY	90	67	437.22	0.9166	400.756	1	1971	16,920.80
U.S.ASSAY	90	68	443.28	0.9166	406.31	1	1971	17,155.30
U.S.ASSAY	90	69	432.52	0.9166	396.448	1	1971	16,738.91
U.S.ASSAY	90	70	411.85	0.9166	377.502	1	1971	15,938.96
U.S.ASSAY	90	71	428.12	0.9166	392.415	1	1971	16,568.62
U.S.ASSAY	90	73	422.51	0.9166	387.273	1	1971	16,351.52
U.S.ASSAY	90	72	423.04	0.9166	387.758	1	1971	16,372.00
U.S.ASSAY	90	74	425.1	0.9166	389.647	1	1971	16,451.75
U.S.ASSAY	90	76	421.77	0.9166	386.594	1	1971	16,322.85
U.S.ASSAY	89	40	430.39	0.9166	394.495	1	1971	16,656.45
U.S.ASSAY	89	51	406.37	0.9166	372.479	1	1971	15,726.88
U.S.ASSAY	89	50	410.89	0.9166	376.622	1	1971	15,901.81
U.S.ASSAY	89	49	417.43	0.9166	382.616	1	1971	16,154.89
U.S.ASSAY	89	48	414.6	0.9166	380.022	1	1971	16,045.36
U.S.ASSAY	89	47	418.9	0.9166	383.964	1	1971	16,211.80
U.S.ASSAY	89	46	411.15	0.9166	376.86	1	1971	15,911.86
U.S.ASSAY	89	45	421.37	0.9166	386.228	1	1971	16,307.40
U.S.ASSAY	89	44	409.7	0.9166	375.531	1	1971	15,855.74
U.S.ASSAY	89	43	412.41	0.9166	378.015	1	1971	15,960.62
U.S.ASSAY	89	42	417.13	0.9166	382.341	1	1971	16,143.28
U.S.ASSAY	89	41	417.05	0.9166	382.268	1	1971	16,140.20
U.S.ASSAY	89	39	427.89	0.9166	392.204	1	1971	16,559.72
Compartment Sub Totals			181,220.28		175,492.67	528.00		7,409,686.40
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

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Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		10	33.34	0.9	30.006	1		1,266.92
COINS (NO ASSAYER)		9	106.72	0.9	96.048	1		4,055.36
COINS (NO ASSAYER)		8	78.08	0.9	70.272	1		2,967.04
COINS (NO ASSAYER)		7	123.71	0.9	111.339	1		4,700.98
COINS (NO ASSAYER)		6	206.95	0.9	186.255	1		7,864.10
COINS (NO ASSAYER)		5	206.94	0.9	186.246	1		7,863.72
COINS (NO ASSAYER)		4	206.89	0.9	186.201	1		7,861.82
COINS (NO ASSAYER)		3	207	0.9	186.3	1		7,866.00
COINS (NO ASSAYER)		2	206.89	0.9	186.201	1		7,861.82
COINS (NO ASSAYER)		1	207.03	0.9	186.327	1		7,867.14
COINS (NO ASSAYER)		34	174.32	0.9167	159.793	1		6,746.81
COINS (NO ASSAYER)		33	256.32	0.9167	234.96	1		9,920.53
COINS (NO ASSAYER)		32	256.43	0.9167	235.061	1		9,924.79
COINS (NO ASSAYER)		31	256.42	0.9167	235.052	1		9,924.41
COINS (NO ASSAYER)		30	256.37	0.9167	235.006	1		9,922.47
COINS (NO ASSAYER)		29	256.38	0.9167	235.015	1		9,922.85
COINS (NO ASSAYER)		28	256.33	0.9167	234.969	1		9,920.91
COINS (NO ASSAYER)		27	256.29	0.9167	234.932	1		9,919.35
COINS (NO ASSAYER)		26	256.39	0.9167	235.024	1		9,923.23
COINS (NO ASSAYER)		25	256.39	0.9167	235.024	1		9,923.23
COINS (NO ASSAYER)		24	89.81	0.9	80.829	1		3,412.78
COINS (NO ASSAYER)		23	207.02	0.9	186.318	1		7,866.76
COINS (NO ASSAYER)		22	207	0.9	186.3	1		7,866.00
COINS (NO ASSAYER)		21	206.92	0.9	186.228	1		7,862.96
COINS (NO ASSAYER)		20	207.25	0.9	186.525	1		7,875.50
COINS (NO ASSAYER)		19	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		18	206.96	0.9	186.264	1		7,864.48
COINS (NO ASSAYER)		17	207.09	0.9	186.381	1		7,869.42
COINS (NO ASSAYER)		16	207.03	0.9	186.327	1		7,867.14

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		15	206.96	0.9	186.264	1		7,864.48
COINS (NO ASSAYER)		14	207.03	0.9	186.327	1		7,867.14
COINS (NO ASSAYER)		13	206.94	0.9	186.246	1		7,863.72
COINS (NO ASSAYER)		12	207.06	0.9	186.354	1		7,868.28
COINS (NO ASSAYER)		11	207.09	0.9	186.381	1		7,869.42
COINS (NO ASSAYER)		112	255.97	0.9167	234.639	1		9,906.97
COINS (NO ASSAYER)		111	256.73	0.9167	235.336	1		9,936.40
COINS (NO ASSAYER)		110	256	0.9167	234.667	1		9,908.16
COINS (NO ASSAYER)		109	256.36	0.9167	234.997	1		9,922.09
COINS (NO ASSAYER)		108	256	0.9167	234.667	1		9,908.16
COINS (NO ASSAYER)		107	255.92	0.9167	234.593	1		9,905.03
COINS (NO ASSAYER)		106	255.81	0.9167	234.492	1		9,900.77
COINS (NO ASSAYER)		105	256.28	0.9167	234.923	1		9,918.97
COINS (NO ASSAYER)		104	255.9	0.9167	234.575	1		9,904.27
COINS (NO ASSAYER)		103	255.95	0.9167	234.621	1		9,906.21
COINS (NO ASSAYER)		102	256.4	0.9167	235.033	1		9,923.61
COINS (NO ASSAYER)		124	227.82	0.9167	208.835	1		8,817.47
COINS (NO ASSAYER)		123	255.96	0.9167	234.63	1		9,906.59
COINS (NO ASSAYER)		122	256.37	0.9167	235.006	1		9,922.47
COINS (NO ASSAYER)		121	255.88	0.9167	234.557	1		9,903.51
COINS (NO ASSAYER)		120	256.13	0.9167	234.786	1		9,913.18
COINS (NO ASSAYER)		119	255.87	0.9167	234.547	1		9,903.09
COINS (NO ASSAYER)		118	256.12	0.9167	234.777	1		9,912.80
COINS (NO ASSAYER)		117	256.18	0.9167	234.832	1		9,915.12
COINS (NO ASSAYER)		116	256.31	0.9167	234.951	1		9,920.15
COINS (NO ASSAYER)		115	255.84	0.9167	234.52	1		9,901.95
COINS (NO ASSAYER)		114	255.98	0.9167	234.648	1		9,907.35
COINS (NO ASSAYER)		113	256	0.9167	234.667	1		9,908.16
COINS (NO ASSAYER)		101	255.94	0.9167	234.612	1		9,905.83

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		100	255.75	0.9167	234.437	1		9,898.45
COINS (NO ASSAYER)		99	256.09	0.9167	234.749	1		9,911.62
COINS (NO ASSAYER)		8	206.45	0.9	185.805	1		7,845.10
COINS (NO ASSAYER)		7	206.42	0.9	185.778	1		7,843.96
COINS (NO ASSAYER)		6	206.43	0.9	185.787	1		7,844.34
COINS (NO ASSAYER)		5	206.32	0.9	185.688	1		7,840.16
COINS (NO ASSAYER)		4	206.37	0.9	185.733	1		7,842.06
COINS (NO ASSAYER)		3	206.38	0.9	185.742	1		7,842.44
COINS (NO ASSAYER)		2	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		1	206.43	0.9	185.787	1		7,844.34
COINS (NO ASSAYER)		20	206.43	0.9	185.787	1		7,844.34
COINS (NO ASSAYER)		19	206.47	0.9	185.823	1		7,845.86
COINS (NO ASSAYER)		18	206.44	0.9	185.796	1		7,844.72
COINS (NO ASSAYER)		17	206.37	0.9	185.733	1		7,842.06
COINS (NO ASSAYER)		16	206.33	0.9	185.697	1		7,840.54
COINS (NO ASSAYER)		15	206.45	0.9	185.805	1		7,845.10
COINS (NO ASSAYER)		14	206.44	0.9	185.796	1		7,844.72
COINS (NO ASSAYER)		12	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		11	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		10	206.87	0.9	186.183	1		7,861.06
COINS (NO ASSAYER)		9	207.43	0.9	186.687	1		7,882.34
COINS (NO ASSAYER)		33	206.69	0.9	186.021	1		7,854.22
COINS (NO ASSAYER)		32	206.85	0.9	186.165	1		7,860.30
COINS (NO ASSAYER)		31	206.58	0.9	185.922	1		7,850.04
COINS (NO ASSAYER)		30	206.39	0.9	185.751	1		7,842.82
COINS (NO ASSAYER)		29	207.38	0.9	186.642	1		7,880.44
COINS (NO ASSAYER)		28	206.91	0.9	186.219	1		7,862.58
COINS (NO ASSAYER)		27	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		26	206.77	0.9	186.093	1		7,857.26

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		25	206.38	0.9	185.742	1		7,842.44
COINS (NO ASSAYER)		24	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		23	206.47	0.9	185.823	1		7,845.86
COINS (NO ASSAYER)		22	206.92	0.9	186.228	1		7,862.96
COINS (NO ASSAYER)		21	206.8	0.9	186.12	1		7,858.40
COINS (NO ASSAYER)		46	206.84	0.9	186.156	1		7,859.92
COINS (NO ASSAYER)		45	206.76	0.9	186.084	1		7,856.88
COINS (NO ASSAYER)		44	207.39	0.9	186.651	1		7,880.82
COINS (NO ASSAYER)		43	206.82	0.9	186.138	1		7,859.16
COINS (NO ASSAYER)		42	206.74	0.9	186.066	1		7,856.12
COINS (NO ASSAYER)		41	206.73	0.9	186.057	1		7,855.74
COINS (NO ASSAYER)		40	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		39	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		38	206.4	0.9	185.76	1		7,843.20
COINS (NO ASSAYER)		37	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		36	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		35	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		34	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		59	206.81	0.9	186.129	1		7,858.78
COINS (NO ASSAYER)		58	206.73	0.9	186.057	1		7,855.74
COINS (NO ASSAYER)		57	206.84	0.9	186.156	1		7,859.92
COINS (NO ASSAYER)		56	206.95	0.9	186.255	1		7,864.10
COINS (NO ASSAYER)		55	206.91	0.9	186.219	1		7,862.58
COINS (NO ASSAYER)		54	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		53	206.79	0.9	186.111	1		7,858.02
COINS (NO ASSAYER)		52	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		51	206.68	0.9	186.012	1		7,853.84
COINS (NO ASSAYER)		50	206.73	0.9	186.057	1		7,855.74
COINS (NO ASSAYER)		49	206.75	0.9	186.075	1		7,856.50

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		48	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		47	206.73	0.9	186.057	1		7,855.74
COINS (NO ASSAYER)		72	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		71	206.87	0.9	186.183	1		7,861.06
COINS (NO ASSAYER)		70	206.72	0.9	186.048	1		7,855.36
COINS (NO ASSAYER)		69	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		68	206.76	0.9	186.084	1		7,856.88
COINS (NO ASSAYER)		67	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		66	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		65	207.21	0.9	186.489	1		7,873.98
COINS (NO ASSAYER)		64	206.71	0.9	186.039	1		7,854.98
COINS (NO ASSAYER)		63	206.67	0.9	186.003	1		7,853.46
COINS (NO ASSAYER)		62	206.83	0.9	186.147	1		7,859.54
COINS (NO ASSAYER)		61	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		60	206.72	0.9	186.048	1		7,855.36
COINS (NO ASSAYER)		85	207.42	0.9	186.678	1		7,881.96
COINS (NO ASSAYER)		84	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		83	206.72	0.9	186.048	1		7,855.36
COINS (NO ASSAYER)		82	206.78	0.9	186.102	1		7,857.64
COINS (NO ASSAYER)		81	206.81	0.9	186.129	1		7,858.78
COINS (NO ASSAYER)		80	207.33	0.9	186.597	1		7,878.54
COINS (NO ASSAYER)		79	207.25	0.9	186.525	1		7,875.50
COINS (NO ASSAYER)		78	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		77	206.8	0.9	186.12	1		7,858.40
COINS (NO ASSAYER)		76	206.73	0.9	186.057	1		7,855.74
COINS (NO ASSAYER)		75	206.76	0.9	186.084	1		7,856.88
COINS (NO ASSAYER)		74	206.75	0.9	186.075	1		7,856.50
COINS (NO ASSAYER)		73	206.78	0.9	186.102	1		7,857.64
COINS (NO ASSAYER)		98	64.05	0.9	57.645	1		2,433.90

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		97	206.8	0.9	186.12	1		7,858.40
COINS (NO ASSAYER)		96	207.24	0.9	186.516	1		7,875.12
COINS (NO ASSAYER)		95	206.7	0.9	186.03	1		7,854.60
COINS (NO ASSAYER)		94	206.7	0.9	186.03	1		7,854.60
COINS (NO ASSAYER)		93	206.79	0.9	186.111	1		7,858.02
COINS (NO ASSAYER)		92	206.77	0.9	186.093	1		7,857.26
COINS (NO ASSAYER)		91	206.79	0.9	186.111	1		7,858.02
COINS (NO ASSAYER)		90	206.66	0.9	185.994	1		7,853.08
COINS (NO ASSAYER)		89	206.81	0.9	186.129	1		7,858.78
COINS (NO ASSAYER)		88	206.82	0.9	186.138	1		7,859.16
COINS (NO ASSAYER)		87	206.79	0.9	186.111	1		7,858.02
COINS (NO ASSAYER)		86	206.85	0.9	186.165	1		7,860.30
COINS (NO ASSAYER)		69	256.67	0.9167	235.281	1		9,934.08
COINS (NO ASSAYER)		68	256.57	0.9167	235.189	1		9,930.20
COINS (NO ASSAYER)		67	256.77	0.9167	235.373	1		9,937.97
COINS (NO ASSAYER)		66	256.54	0.9167	235.162	1		9,929.06
COINS (NO ASSAYER)		65	256.82	0.9167	235.418	1		9,939.87
COINS (NO ASSAYER)		64	256.74	0.9167	235.345	1		9,936.78
COINS (NO ASSAYER)		63	256.72	0.9167	235.327	1		9,936.02
COINS (NO ASSAYER)		62	256.37	0.9167	235.006	1		9,922.47
COINS (NO ASSAYER)		81	256.83	0.9167	235.427	1		9,940.25
COINS (NO ASSAYER)		80	256.69	0.9167	235.299	1		9,934.84
COINS (NO ASSAYER)		79	256.63	0.9167	235.244	1		9,932.52
COINS (NO ASSAYER)		78	256.77	0.9167	235.373	1		9,937.97
COINS (NO ASSAYER)		77	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		76	256.61	0.9167	235.226	1		9,931.76
COINS (NO ASSAYER)		75	256.79	0.9167	235.391	1		9,938.73
COINS (NO ASSAYER)		74	256.74	0.9167	235.345	1		9,936.78
COINS (NO ASSAYER)		73	256.77	0.9167	235.373	1		9,937.97

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		72	256.59	0.9167	235.208	1		9,931.00
COINS (NO ASSAYER)		71	256.82	0.9167	235.418	1		9,939.87
COINS (NO ASSAYER)		70	256.68	0.9167	235.29	1		9,934.46
COINS (NO ASSAYER)		93	256.82	0.9167	235.418	1		9,939.87
COINS (NO ASSAYER)		92	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		91	256.34	0.9167	234.978	1		9,921.29
COINS (NO ASSAYER)		90	256.44	0.9167	235.07	1		9,925.17
COINS (NO ASSAYER)		89	256.46	0.9167	235.088	1		9,925.93
COINS (NO ASSAYER)		88	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		87	256.85	0.9167	235.446	1		9,941.05
COINS (NO ASSAYER)		86	256.82	0.9167	235.418	1		9,939.87
COINS (NO ASSAYER)		85	256.79	0.9167	235.391	1		9,938.73
COINS (NO ASSAYER)		84	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		83	256.48	0.9167	235.107	1		9,926.73
COINS (NO ASSAYER)		82	256.82	0.9167	235.418	1		9,939.87
COINS (NO ASSAYER)		105	256.5	0.9167	235.125	1		9,927.49
COINS (NO ASSAYER)		104	256.31	0.9167	234.951	1		9,920.15
COINS (NO ASSAYER)		103	256.83	0.9167	235.427	1		9,940.25
COINS (NO ASSAYER)		102	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		101	256.65	0.9167	235.262	1		9,933.28
COINS (NO ASSAYER)		100	256.25	0.9167	234.896	1		9,917.83
COINS (NO ASSAYER)		99	256.77	0.9167	235.373	1		9,937.97
COINS (NO ASSAYER)		98	256.77	0.9167	235.373	1		9,937.97
COINS (NO ASSAYER)		97	256.53	0.9167	235.152	1		9,928.63
COINS (NO ASSAYER)		96	256.66	0.9167	235.272	1		9,933.70
COINS (NO ASSAYER)		95	256.53	0.9167	235.152	1		9,928.63
COINS (NO ASSAYER)		94	256.3	0.9167	234.942	1		9,919.77
COINS (NO ASSAYER)		117	256.42	0.9167	235.052	1		9,924.41
COINS (NO ASSAYER)		116	256.74	0.9167	235.345	1		9,936.78

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		115	256.53	0.9167	235.153	1		9,928.68
COINS (NO ASSAYER)		114	240.6	0.9167	220.55	1		9,312.11
COINS (NO ASSAYER)		113	256.46	0.9167	235.088	1		9,925.93
COINS (NO ASSAYER)		112	256.83	0.9167	235.427	1		9,940.25
COINS (NO ASSAYER)		111	256.7	0.9167	235.308	1		9,935.22
COINS (NO ASSAYER)		110	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		109	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		108	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		107	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		106	256.68	0.9167	235.29	1		9,934.46
COINS (NO ASSAYER)		129	256.38	0.9167	235.015	1		9,922.85
COINS (NO ASSAYER)		128	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		127	256.75	0.9167	235.354	1		9,937.16
COINS (NO ASSAYER)		126	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		125	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		124	256.81	0.9167	235.409	1		9,939.49
COINS (NO ASSAYER)		123	256.77	0.9167	235.373	1		9,937.97
COINS (NO ASSAYER)		122	256.65	0.9167	235.262	1		9,933.28
COINS (NO ASSAYER)		121	256.83	0.9167	235.428	1		9,940.29
COINS (NO ASSAYER)		120	256.63	0.9167	235.244	1		9,932.52
COINS (NO ASSAYER)		119	256.22	0.9167	234.868	1		9,916.64
COINS (NO ASSAYER)		118	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		141	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		140	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		139	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		138	256.75	0.9167	235.354	1		9,937.16
COINS (NO ASSAYER)		137	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		136	256.79	0.9167	235.391	1		9,938.73
COINS (NO ASSAYER)		135	256.8	0.9167	235.4	1		9,939.11

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		134	256.81	0.9167	235.409	1		9,939.49
COINS (NO ASSAYER)		133	256.74	0.9167	235.345	1		9,936.78
COINS (NO ASSAYER)		132	256.73	0.9167	235.336	1		9,936.40
COINS (NO ASSAYER)		131	256.76	0.9167	235.363	1		9,937.54
COINS (NO ASSAYER)		130	256.43	0.9167	235.061	1		9,924.79
COINS (NO ASSAYER)		153	148.12	0.9167	135.777	1		5,732.80
COINS (NO ASSAYER)		152	256.77	0.9167	235.372	1		9,937.92
COINS (NO ASSAYER)		151	256.67	0.9167	235.281	1		9,934.08
COINS (NO ASSAYER)		150	256.63	0.9167	235.244	1		9,932.52
COINS (NO ASSAYER)		149	256.62	0.9167	235.235	1		9,932.14
COINS (NO ASSAYER)		148	256.65	0.9167	235.262	1		9,933.28
COINS (NO ASSAYER)		147	256.75	0.9167	235.354	1		9,937.16
COINS (NO ASSAYER)		146	256.73	0.9167	235.336	1		9,936.40
COINS (NO ASSAYER)		145	256.37	0.9167	235.006	1		9,922.47
COINS (NO ASSAYER)		144	256.62	0.9167	235.235	1		9,932.14
COINS (NO ASSAYER)		143	256.83	0.9167	235.427	1		9,940.25
COINS (NO ASSAYER)		142	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		40	310.07	0.9	279.063	1		11,782.65
COINS (NO ASSAYER)		39	157.67	0.9	141.903	1		5,991.46
COINS (NO ASSAYER)		38	159.23	0.9	143.307	1		6,050.74
COINS (NO ASSAYER)		37	158.77	0.9	142.893	1		6,033.26
COINS (NO ASSAYER)		36	158.79	0.9	142.911	1		6,034.02
COINS (NO ASSAYER)		35	158.14	0.9	142.326	1		6,009.32
COINS (NO ASSAYER)		34	237.93	0.9	214.137	1		9,041.34
COINS (NO ASSAYER)		33	603.05	0.9	542.745	1		22,915.89
COINS (NO ASSAYER)		32	221.18	0.9	199.062	1		8,404.84
COINS (NO ASSAYER)		31	385.4	0.9	346.86	1		14,645.19
COINS (NO ASSAYER)		30	317.34	0.9	285.606	1		12,058.91
COINS (NO ASSAYER)		29	317.53	0.9	285.777	1		12,066.13

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		28	199.06	0.9	179.154	1		7,564.28
COINS (NO ASSAYER)		27	190.36	0.9	171.324	1		7,233.68
COINS (NO ASSAYER)		26	190.3	0.9	171.27	1		7,231.40
COINS (NO ASSAYER)		25	207.35	0.9	186.615	1		7,879.30
COINS (NO ASSAYER)		24	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		23	207.48	0.9	186.732	1		7,884.24
COINS (NO ASSAYER)		22	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		21	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		161	302.13	0.9	271.917	1		11,480.93
COINS (NO ASSAYER)		160	377.87	0.9167	346.381	1		14,624.97
COINS (NO ASSAYER)		120	71.42	0.9001	64.286	1		2,714.30
COINS (NO ASSAYER)		119	65.56	0.9	59.004	1		2,491.28
COINS (NO ASSAYER)		118	156.52	0.9	140.868	1		5,947.76
COINS (NO ASSAYER)		117	207.23	0.9	186.507	1		7,874.74
COINS (NO ASSAYER)		116	207.11	0.9	186.399	1		7,870.18
COINS (NO ASSAYER)		115	207.12	0.9	186.408	1		7,870.56
COINS (NO ASSAYER)		114	52.78	0.9166	48.382	1		2,042.79
COINS (NO ASSAYER)		113	256.3	0.9166	234.942	1		9,919.77
COINS (NO ASSAYER)		112	256.31	0.9166	234.951	1		9,920.15
COINS (NO ASSAYER)		111	256.37	0.9166	235.006	1		9,922.47
COINS (NO ASSAYER)		110	256.29	0.9166	234.932	1		9,919.35
COINS (NO ASSAYER)		24	0.72	0.9	0.648	1		27.36
COINS (NO ASSAYER)		23	232.07	0.9167	212.731	1		8,981.97
COINS (NO ASSAYER)		22	229.51	0.9167	210.384	1		8,882.88
COINS (NO ASSAYER)		21	41.78	0.9	37.602	1		1,587.64
COINS (NO ASSAYER)		20	204.75	0.9	184.275	1		7,780.50
COINS (NO ASSAYER)		19	98.16	0.9167	89.98	1		3,799.15
COINS (NO ASSAYER)		18	255	0.9167	233.75	1		9,869.44
COINS (NO ASSAYER)		17	255.31	0.9167	234.034	1		9,881.43

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		16	255.55	0.9167	234.254	1		9,890.72
COINS (NO ASSAYER)		15	44.39	0.9	39.951	1		1,686.82
COINS (NO ASSAYER)		14	207.38	0.9	186.642	1		7,880.44
COINS (NO ASSAYER)		13	207	0.9	186.3	1		7,866.00
COINS (NO ASSAYER)		12	56.01	0.9167	51.342	1		2,167.77
COINS (NO ASSAYER)		11	256.8	0.9167	235.4	1		9,939.11
COINS (NO ASSAYER)		10	256.84	0.9167	235.437	1		9,940.67
COINS (NO ASSAYER)		13	207.3	0.9	186.57	1		7,877.40
COINS (NO ASSAYER)		12	207.35	0.9	186.615	1		7,879.30
COINS (NO ASSAYER)		11	206.39	0.9	185.751	1		7,842.82
COINS (NO ASSAYER)		10	206.37	0.9	185.733	1		7,842.06
COINS (NO ASSAYER)		9	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		8	206.42	0.9	185.778	1		7,843.96
COINS (NO ASSAYER)		14	207.36	0.9	186.624	1		7,879.68
COINS (NO ASSAYER)		20	207.48	0.9	186.732	1		7,884.24
COINS (NO ASSAYER)		19	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		18	207.33	0.9	186.597	1		7,878.54
COINS (NO ASSAYER)		7	207.33	0.9	186.597	1		7,878.54
COINS (NO ASSAYER)		6	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		5	206.43	0.9	185.787	1		7,844.34
COINS (NO ASSAYER)		4	207.29	0.9	186.561	1		7,877.02
COINS (NO ASSAYER)		17	207.31	0.9	186.579	1		7,877.78
COINS (NO ASSAYER)		16	207.2	0.9	186.48	1		7,873.60
COINS (NO ASSAYER)		15	207.32	0.9	186.588	1		7,878.16
COINS (NO ASSAYER)		3	207.41	0.9	186.669	1		7,881.58
COINS (NO ASSAYER)		2	317.45	0.9	285.705	1		12,063.09
COINS (NO ASSAYER)		1	634.89	0.9	571.401	1		24,125.81
COINS (NO ASSAYER)		61	207.69	0.9	186.921	1		7,892.22
COINS (NO ASSAYER)		60	6.41	0.9	5.769	1		243.58

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		59	15.89	0.9	14.301	1		603.82
COINS (NO ASSAYER)		58	23.75	0.9	21.375	1		902.5
COINS (NO ASSAYER)		57	23.74	0.9	21.366	1		902.12
COINS (NO ASSAYER)		56	31.8	0.9	28.62	1		1,208.40
COINS (NO ASSAYER)		55	36.74	0.9	33.066	1		1,396.12
COINS (NO ASSAYER)		54	45.44	0.9	40.896	1		1,726.72
COINS (NO ASSAYER)		53	63.6	0.9	57.24	1		2,416.80
COINS (NO ASSAYER)		52	79.4	0.9	71.46	1		3,017.20
COINS (NO ASSAYER)		51	78.98	0.9	71.082	1		3,001.24
COINS (NO ASSAYER)		50	79.48	0.9	71.532	1		3,020.24
COINS (NO ASSAYER)		49	92.53	0.9	83.277	1		3,516.14
COINS (NO ASSAYER)		48	95.38	0.9	85.842	1		3,624.44
COINS (NO ASSAYER)		47	103.73	0.9	93.357	1		3,941.74
COINS (NO ASSAYER)		46	111.07	0.9	99.963	1		4,220.66
COINS (NO ASSAYER)		45	126.93	0.9	114.237	1		4,823.34
COINS (NO ASSAYER)		44	38.6	0.9	34.74	1		1,466.80
COINS (NO ASSAYER)		43	31.73	0.9	28.557	1		1,205.74
COINS (NO ASSAYER)		42	31.79	0.9	28.611	1		1,208.02
COINS (NO ASSAYER)		41	15.91	0.9	14.319	1		604.58
COINS (NO ASSAYER)		346	206.44	0.9	185.796	1		7,844.72
COINS (NO ASSAYER)		1187	256.75	0.9167	235.354	1		9,937.16
COINS (NO ASSAYER)		1188	256.81	0.9167	235.409	1		9,939.49
COINS (NO ASSAYER)		1190	256.81	0.9167	235.409	1		9,939.49
COINS (NO ASSAYER)		1189	256.83	0.9167	235.427	1		9,940.25
COINS (NO ASSAYER)		1195	256.78	0.9167	235.382	1		9,938.35
COINS (NO ASSAYER)		1151	256.72	0.9167	235.327	1		9,936.02
COINS (NO ASSAYER)		1150	256.79	0.9167	235.391	1		9,938.73
COINS (NO ASSAYER)		350	206.44	0.9	185.796	1		7,844.72
COINS (NO ASSAYER)		349	206.42	0.9	185.778	1		7,843.96

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		348	206.48	0.9	185.832	1		7,846.24
COINS (NO ASSAYER)		347	206.48	0.9	185.832	1		7,846.24
COINS (NO ASSAYER)		1194	256.79	0.9167	235.391	1		9,938.73
COINS (NO ASSAYER)		1191	256.84	0.9167	235.437	1		9,940.67
COINS (NO ASSAYER)		1192	256.77	0.9167	235.372	1		9,937.92
COINS (NO ASSAYER)		501	78.07	0.9167	71.564	1		3,021.59
COINS (NO ASSAYER)		344	206.42	0.9	185.778	1		7,843.96
COINS (NO ASSAYER)		342	206.41	0.9	185.769	1		7,843.58
COINS (NO ASSAYER)		338	206.41	0.9	185.769	1		7,843.58
COINS (NO ASSAYER)		37	47.19	0.9167	43.257	1		1,826.41
COINS (NO ASSAYER)		38	51.6	0.9167	47.3	1		1,997.11
COINS (NO ASSAYER)		2	108.11	0.9167	99.101	1		4,184.26
COINS (NO ASSAYER)		1	218.92	0.9	197.028	1		8,318.96
COINS (NO ASSAYER)		202	39.31	0.9	35.393	1		1,494.37
COINS (NO ASSAYER)		201	55.79	0.9	50.211	1		2,120.02
COINS (NO ASSAYER)		200	76.32	0.9	68.688	1		2,900.16
COINS (NO ASSAYER)		19184	19.01	0.9167	17.426	1		735.76
COINS (NO ASSAYER)		2013	22.07	0.9167	20.231	1		854.2
COINS (NO ASSAYER)		89106	0.26	0.9167	0.238	1		10.05
COINS (NO ASSAYER)		1933	92.97	0.9167	85.222	1		3,598.26
COINS (NO ASSAYER)		343	58.4	0.9	52.56	1		2,219.20
COINS (NO ASSAYER)		1944	44.15	0.9167	40.471	1		1,708.77
COINS (NO ASSAYER)		19184A	148.23	0.9167	135.877	1		5,737.03
COINS (NO ASSAYER)		329	206.46	0.9	185.814	1		7,845.48
COINS (NO ASSAYER)		28	207.47	0.9	186.723	1		7,883.86
COINS (NO ASSAYER)		19196A	202.7	0.9167	185.808	1		7,845.22
COINS (NO ASSAYER)		1	19.22	0.9167	17.618	1		743.87
COINS (NO ASSAYER)		1	207.36	0.9	186.624	1		7,879.68
COINS (NO ASSAYER)		78	114.02	0.9	102.618	1		4,332.76

Restricted FR

Assayer	Melt	Bag No.	Gross Wt	Fineness	Fine Wt	# Bags	Year	Official FRBNY Book Value *
COINS (NO ASSAYER)		19183	256.89	0.9167	235.482	1		9,942.57
COINS (NO ASSAYER)		19189	256.93	0.9167	235.519	1		9,944.13
COINS (NO ASSAYER)		19144	256.93	0.9167	235.519	1		9,944.13
COINS (NO ASSAYER)		19191	256.9	0.9167	235.492	1		9,942.99
COINS (NO ASSAYER)		431	96.5	0.9	86.85	1		3,667.00
COINS (NO ASSAYER)		19192	256.94	0.9167	235.528	1		9,944.51
COINS (NO ASSAYER)		500	256.47	0.9167	235.097	1		9,926.31
Compartment Sub Totals			80,855.70		73,451.72	384.00		3,101,294.16
* FRBNY books gold holdings at \$42.2222 per troy ounce of fine gold.								

**ATTACHMENT 6:
U.S. MINT LETTER TO CHAIRMAN PAUL**



DEPARTMENT OF THE TREASURY
WASHINGTON, D.C. 20220

The Honorable Ron Paul
Chairman
Subcommittee on Monetary Policy and Technology
Committee on Financial Services
United States House of Representatives
Washington, D.C. 20515

Dear Chairman Paul:

I appreciate the opportunity to provide this statement for the record and to describe the role the United States Mint might have in carrying out the requirements of H.R. 1495, the Gold Reserve Transparency Act, upon its enactment. As of July 6, 2011, H.R. 1495 proposes, among other things, that the Secretary of the Treasury conduct and complete a full assay, inventory, and audit of the gold reserves of the United States within six months of the date of enactment.

Both the United States Mint and the Federal Reserve Bank of New York have physical custody of the gold reserves of the United States. The attached table shows that the Treasury Department maintains gold reserves totaling **261,498,899.316 fine troy ounces**.¹ Almost all of these reserves are held at three United States Mint sites across the country and at the Federal Reserve Bank of New York. The United States Mint maintains custody of **248,046,115.696 ounces**,² and the Federal Reserve Bank of New York maintains custody of 13,452,783.620 ounces.³ The statutory value of the gold is \$42.22 per ounce, as established in

¹ All references to "ounces" are to "fine troy ounces."

² This includes 245,262,897.040 ounces in deep storage, and 2,783,218.656 ounces available as working stock (the portion of the gold reserve that the United States Mint is authorized to use as the raw material for minting legislatively-mandated coins).

³ This figure includes gold not only held in the vault at the Federal Reserve Bank of New York, but also 2,013.515 ounces in the form of gold bars and gold coins held by Federal Reserve Banks for display purposes.

1976.⁴ Accordingly, the aggregate statutory value of the gold in the reserves is \$11,041,058,821.09. At a prevailing market gold price of \$1500 per ounce, the value of the gold reserves is \$392,248,348,974.00.

As the legal custodian of 95 percent of America's gold reserves, the United States Mint is absolutely confident in the security, accountability, and integrity of these significant national financial assets. The United States Mint recognizes that the gold reserves are owned by the United States Government, and serve as collateral for gold certificates issued to the Federal Reserve Banks. Accordingly, we believe that the United States Mint's responsibility with respect to commenting on H.R. 1495 is limited to making the Committee aware of the impact it would have on the United States taxpayer and United States Mint operations.

Audit

The gold in the custody of the United States Mint is in the form of 699,515 gold bullion bars (including 94,828 unparted bars containing both gold and silver), gold coins, gold coin blanks, and gold in miscellaneous forms. Based on the United States Mint's experience in 2008 and earlier audits, inventories, and assays, we anticipate that the time required to move, weigh, obtain assay samples, and restore bars averages six minutes per bar, assuming a team of 19 people. Expanding that to 699,515 bars would require nearly 1.3 million man-hours of incremental labor. Therefore, to complete the inventory of just the gold bullion bars within the six months, as H.R. 1495 specifies, would require approximately 1,280 individuals.

It is not physically possible to accommodate 1,280 individuals inside the small vaults and balance rooms at the three United States Mint sites. However, if the United States Mint was provided with sufficient funds and staffing that the space would reasonably accommodate, it would take three to four years to complete the inventory of all 699,515 bars. Based on these assumptions, we estimate the personnel cost to move, weigh, obtain assay samples, and restore the bars would total approximately \$53 million.⁵

⁴ 31 U.S.C. § 5117(b) ("The amount of outstanding certificates may be not more than the value (for the purpose of issuing those certificates, of 42 and two-ninths dollars a fine troy ounce) of the gold held against gold certificates").

⁵ These assumptions contemplate a 100-percent inventory and assay of each gold bullion bar. An alternative approach would be to inventory 100 percent of the bars but assay only 10 percent of them. Potential savings due to reduced samples and loss in gold from assay tests would be substantial.

Assay

The cost of assaying services is about \$230 per bar;⁶ therefore, the total cost of assaying services for the 699,515 gold bars in the reserves would be about \$161 million.⁷ Moreover, the process of assaying a gold bar requires the removal and destructive testing of a portion of a one-tenth-ounce sample of the gold. Consequently, assaying all of the bars would consume about 14,000 ounces of gold at a present market value of about \$21 million (assuming a market value of \$1,500 per ounce).⁸ Based on these figures, the United States Mint estimates a total cost to conduct and complete a full assay, inventory, and audit of the gold reserves held by the United States Mint of approximately \$235 million.⁹ This figure does not include travel and per diem costs for individuals involved in the process.

Concerns over the significant cost of conducting a full assay, inventory, and audit of the gold reserves held by the United States Mint are not unprecedented. As you may be aware, in 1979, Representative Larry McDonald of Georgia introduced H.R. 555, "A bill to provide for an audit by the General Accounting Office of all gold owned by the United States." In response to Representative McDonald's proposal, the Chief of the United States Mint's Internal Audit Staff prepared the following estimate of the resources that would be needed for a 100-percent audit of the gold in the bureau's custody:

From 1974 through 1978 during which 50 percent of the gold stock was audited--an estimated 2900 direct staff days were required for the work. About three-fourths of this time was provided by Mint resources other than auditors. If the GAO was required to perform a 100 percent audit each year, I presume that the Mint would probably be called upon to provide the same support which would amount to about 4400 staff days annually.¹⁰ The Mint would still have to establish committees including security

⁶ These assumptions contemplate a 100-percent inventory and assay of each gold bullion bar. An alternative approach would be to inventory 100 percent of the bars but assay only 10 percent of them. Potential savings due to reduced samples and loss in gold from assay tests would be substantial.

⁷ With a ten-percent assay, we estimate that the cost of assaying services would be approximately \$16 million.

⁸ With a ten-percent assay, the loss of 1400 ounces of gold to assay at the market rate of \$1500 would be approximately \$2.1 million.

⁹ For a full inventory and audit, with a ten-percent assay, we estimate that the total cost would be slightly over \$71 million.

¹⁰ This figure was based on the Chief of the United States Mint's Internal Audit Staffs assumption that only a two-percent assay would be performed.

personnel, technicians experienced in taking assay samples from bars, assaying, weighing and bar handling.¹¹

Similarly, the Department of the Treasury's Fiscal Assistant Secretary at the time stated the following about a 100 percent inventory of the gold reserves:

[A]udits contemplated by the proposed legislation would be extremely disruptive of operations at the Bureau of the Mint, would be very costly, and would require extra personnel at a time when efforts are being made not to increase Federal employment.¹²

Finally, the Deputy General Counsel of the Department of the Treasury reported the following about H.R. 555 to Representative Jack Brooks, then-Chairman of the House Committee on Government Operations:

The testing and inventory requirements of the bill would overwhelm the Bureau of the Mint laboratories and staff. Further, space limitations in vault areas are restricted as they were designed for security reasons. Therefore, the number of personnel required to conduct the proposed audit could not be accommodated. Thus, an attempt to make the audits contemplated by the proposed legislation would be extremely disruptive of operations at the Bureau of the Mint. Further, at a time when efforts are being made to reduce the Federal expenditures, the proposed audits would be very costly because of the extra personnel and testing procedures that would be required.¹³

The physical requirements for such an audit at the three locations where the United States Mint holds gold reserves have not changed appreciably in the past three decades since United States Mint and Treasury officials made these statements.

Therefore, the statements made by the Chief of the United States Mint's Internal Audit Staff, the Fiscal Assistant Secretary, and the Deputy General Counsel-that such an audit would require significant additional staffing and would be extremely disruptive of operations of the United States Mint-are as accurate today as

¹¹ Memorandum from Chief, Internal Audit Staff, United States Mint, to Counsel to the Mint, subject: Request for Input for Treasury Proposing Gold Audits by GAO (Feb. 16, 1979).

¹² Memorandum from Fiscal Assistant Secretary, Department of the Treasury, to Chief, Legislative Section, Office of the General Counsel, Department of the Treasury, subject: H.R. 555, 96th Congress, 1st Session, Requiring Audit of Gold Held by the United States (Feb. 21, 1979).

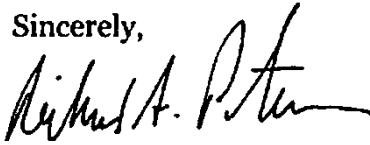
¹³ Letter from Deputy General Counsel, Department of the Treasury, to Chairman, Committee on Government Operations, U.S. House of Representatives (May 18, 1979).

they were in 1979. Indeed, the heightened vigilance required in today's post-9/11 environment would exacerbate the significant costs involved, as well as the disruptive effect on bureau operations-particularly at the United States Mints at Denver and West Point.

The United States Mint estimates that H.R. 1495 would cost taxpayers approximately \$235 million and be of little benefit. As the Treasury Inspector General testified on June 23, 2010, "One hundred percent of the U.S. government's gold reserves in the custody of the Mint has been inventoried and audited. Furthermore, these audits found no exceptions of any consequence."

However, should the bill be enacted, you have my assurance that the United States Mint will dutifully and cooperatively facilitate the assay, inventory, and audit of the gold reserves to the best of its ability.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard A. Peterson". The signature is fluid and cursive, with a long horizontal stroke at the end.

Richard A. Peterson
Acting Director
United States Mint

Attachment:
Table of Treasury-Owned Gold Holdings

**Department of the
Treasury**

STATUS REPORT OF U.S. TREASURY-OWNED
GOLD

Source: Financial
Management Service

May 31, 2011

Summary	Fine Troy Ounces	Book Value
Gold Bullion	258,641,851.485	10,920,427,976.14
Gold Coins, Blanks, Miscellaneous	2,857,047.831	120,630,844.95
Total	261,498,899.316	11,041,058,821.090
<u>United States Mint-Held Gold in Deep Storage</u>		
Denver, CO	43,853,707.279	1,851,599,995.81
Fort Knox, KY	147,341,858.382	6,221,097,412.78
West Point, NY	54,067,331.379	2,282,841,677.17
Subtotal - Deep Storage Gold	245,262,897.040	10,355,539,085.76
<u>United States Mint-Held Gold - Working Stock</u>		
All locations - Coins, blanks, miscellaneous	2,783,218.656	117,513,614.74
Subtotal - Working Stock Gold	2,783,218.656	117,513,614.74
Grand Total of United States Mint-Held Gold	248,046,115.696	10,473,052,700.50
<u>Federal Reserve Bank-Held Gold</u>		
Gold Bullion:		
Federal Reserve Banks - NY Vault	13,376,961.126	564,804,727.98
Federal Reserve Banks - display	1,993.319	84,162.40
Subtotal - Gold Bullion	13,378,954.445	564,888,890.38
Gold Coins:		
Federal Reserve Banks - NY Vault	73,808.979	3,116,377.47
Federal Reserve Banks - display	20.196	852.74
Subtotal - Gold Coins	73,829.175	3,117,230.21
Grand Total - Federal Reserve Bank-Held Gold	13,452,783.620	568,006,120.59
Grand Total of Treasury- Owned Gold	261,498,899.316	11,041,058,821.09