Order Code RL34427

CRS Report for Congress

Financial Turmoil: Federal Reserve Policy Responses

Updated October 23, 2008

Marc Labonte
Specialist in Macroeconomic Policy
Government and Finance Division

Congressional Research Service

Prepared for Members and Committees of Congress

Financial Turmoil: Federal Reserve Policy Responses

Summary

The Federal Reserve (Fed) has been central in the response to the current financial turmoil that began in August 2007. It has sharply increased reserves to the banking system through open market operations and lowered the federal funds rate and discount rate on several occasions. As the turmoil has progressed without signs of subsiding, the Fed has introduced new policy tools to try to restore normality.

In December 2007, it began to auction off reserves to member banks through the newly created Term Auction Facility (TAF), which is equivalent in economic effect to the discount window, but in practice much larger. In March 2008, it created the Primary Dealer Credit Facility (PDCF), which allowed it to temporarily lend to primary dealers directly. Unlike the TAF, the PDCF is a major departure from past policy, for it is the first time that financial institutions that are not members of the Federal Reserve System (i.e., depository institutions) have been allowed to borrow directly from the Fed on a routine basis. As a result of these programs, the Fed's loans outstanding have exceeded $100 billion in recent months. The Fed's authority and capacity to lend is bound only by fears of the inflationary consequences, which have been offset by additional debt issuance by the Treasury.

On March 16, 2008, JPMorgan Chase agreed to acquire Bear Stearns. As part of the agreement, the Fed made a $28.82 billion loan to a corporation it created to buy $30 billion of assets from Bear Stearns. In the event that the proceeds from the asset sales exceed $30 billion and the outstanding interest, the Fed will keep the profits. In the event that the loan principal and interest exceed the funds raised by the liquidation, the first $1.15 billion of losses would be borne by JPMorgan Chase, and any subsequent losses would be borne by the Fed. On September 16, 2008, the Fed announced it would lend the American International Group (AIG) up to $122.8 billion over the next two years.

The statutory authority for loans to institutions that are not member banks is based on a clause of the Federal Reserve Act to be used in "unusual or exigent circumstances" that had not been invoked in more than 70 years. All loans are backed by collateral that reduces the risk of losses. Any losses borne by the Fed from its loans or any of its new programs would reduce the profits it remits to the Treasury, making the effect on the federal budget similar to if the loans were made by Treasury. It is highly unlikely that losses would exceed its other profits and capital, and require revenues to be transferred to the Fed from the Treasury.

The primary policy issues raised by the Fed's response to financial turmoil are the issues of systemic risk and moral hazard. Moral hazard refers to the phenomenon where actors take on more risk because they are protected. The Fed's involvement in stabilizing Bear Stearns and AIG stemmed from the fear of systemic risk (that the financial system as a whole would cease to function) if either were allowed to fail. In other words, the firms were seen as "too big (or too interconnected) to fail." The Fed's regulatory structure is intended to mitigate the moral hazard that stems from access to government protections. Yet Bear Stearns and AIG were not under the Fed's regulatory structure because they were not member banks.

Contents

List of Tables

Financial Turmoil: Federal Reserve Policy Responses

Introduction

On August 9, 2007, liquidity abruptly dried up for many financial firms and securities markets. Suddenly some firms were able to borrow and investors were able to sell certain securities only at prohibitive rates and prices, if at all. The "liquidity crunch" was most extreme for firms and securities with links to subprime mortgages, but it also spread rapidly into seemingly unrelated areas.[1] The Federal Reserve (Fed) was drawn into the liquidity crunch from the start. On August 9, it injected unusually large quantities of reserves into the banking system to prevent the federal funds rate from exceeding its target.

It has been observed that the most unusual aspect of the current turmoil is its persistence for more than a year. As financial turmoil has persisted in the intervening months, the Fed has aggressively reduced the federal funds rate and the discount rate in an attempt to calm the waters. When this proved not to be enough, the Fed greatly expanded its direct lending to the financial sector through several new lending programs, some of which can be seen as adaptations of traditional tools and others which can be seen as more fundamental departures from the status quo.[2] Most controversially, in March 2008, the Fed was involved in the "bailout" of the investment bank Bear Stearns, which was not a member bank of the Federal Reserve system (because it was not a depository institution), and, therefore, not part of the regulatory regime that accompanies membership.[3] In August, Fannie Mae and Freddie Mac, the housing government-sponsored enterprises (GSEs) were taken into conservatorship by the government.[4] In September, the investment bank Lehman

---

[1] For more information see CRS Report RL34182, *Financial Crisis? The Liquidity Crunch of August 2007*, by Darryl Getter et al.

[2] Current amounts of Fed lending outstanding can be found at Federal Reserve, "Factors Affecting Reserve Balances of Depository Institutions," statistical release H.4.1, updated weekly.

[3] Many of the loans and new programs described below are operated through the Federal Reserve Bank of New York, under the authorization of the Board of Governors. This report uses the term Federal Reserve, and does not distinguish between actions taken by the Board and actions taken by the Federal Reserve Bank of New York. The Federal Reserve System is composed of the Board of Governors and twelve regional banks (one of which is the New York Fed).

[4] The Fed authorized lending to Fannie Mae and Freddie Mac on July 13, 2008, but this authority was not used, as it was soon superseded by the authority granted to Treasury to

(continued...)

Brothers filed for bankruptcy (it did not receive emergency government assistance) and the financial firm American International Group (AIG), which was also not a member bank, received a credit line from the Fed in order to meet its obligations. Lending to non-members requires emergency statutory authority that had not previously been used in more than 70 years.[5]

One of the original purposes of the Federal Reserve Act, enacted in 1913, was to prevent recurrence of financial panics. To that end, the Fed has been given broad authority over monetary policy and the payments system, including the issuance of federal reserve notes as the national currency. As with any statutory delegations of authority, the Fed's actions are subject to congressional oversight. Although the Fed has broad authority to independently execute monetary policy on a day-to-day basis, questions have arisen as to whether the unusual events of recent months raise fundamental issues about the Fed's role, and what role Congress should play in assessing those issues. This report reviews the Fed's actions since August 2007 and analyzes the policy issues raised by those actions.

Traditional Tools

The Fed, the nation's central bank, was established in 1913 by the Federal Reserve Act (38 Stat. 251). Today, its primary duty is the execution of monetary policy through open market operations to fulfill its mandate to promote stable economic growth and low and stable price inflation. Besides the conduct of monetary policy, the Federal Reserve has a number of other duties: it regulates financial institutions, issues paper currency, clears checks, collects economic data, and carries out economic research. Prominent in the current debate is one particular responsibility: to act as a lender of last resort to the financial system when capital cannot be raised in private markets in order to prevent financial panics. The next two sections explain the Fed's traditional tools, open market operations and discount window lending, and summarizes its recent use of those tools.

Open Market Operations and the Federal Funds Rate

Open market operations are carried out through the purchase and sale of U.S. Treasury securities in the secondary market in order to alter the reserves of the banking system.[6] By altering bank reserves, the Fed can influence short-term interest

---

[4] (...continued)
offer the GSEs financial assistance.

[5] Federal Reserve Bank of New York, "The Discount Window," *Fedpoint*, August 2007.

[6] Some of the Fed's purchase and sale of Treasury securities are made outright, but most are made through repurchase agreements, which can be thought of as short-term transactions that are automatically reversed at the end of a predetermined period, typically lasting a few days. Since the Fed must constantly adjust the amount of bank reserves available in order to keep the federal funds rate near its target, repurchase agreements give the Fed more flexibility to make these adjustments.

(continued...)

rates, and hence overall credit conditions. The Fed's target for open market operations is the federal funds rate, the rate at which banks lend to one another on an overnight basis. The federal funds rate is market determined, meaning the rate fluctuates as supply and demand for bank reserves change. The Fed announces a target for the federal funds rate and pushes the market rate toward the target by altering the supply of reserves in the market through the purchase and sale of Treasury securities.[7] More reserves increase the liquidity in the banking system and, in theory, should make banks more willing to lend, spreading greater liquidity throughout the financial system.

When the Fed wants to stimulate economic activity, it lowers the federal funds target, which is referred to as expansionary policy. Lower interest rates stimulate economic activity by stimulating interest-sensitive spending, which includes physical capital investment (e.g., plant and equipment) by firms, residential investment (housing construction), and consumer durable spending (e.g, automobiles and appliances) by households. Lower rates would also be expected to lead to a lower value of the dollar, all else equal. A lower dollar would stimulate exports and the output of U.S. import-competing firms. To reduce spending in the economy (called contractionary policy), the Fed raises interest rates, and the process works in reverse.

Central banks across the world, including Europe, Japan, and the United States acted quickly to restore liquidity to the financial system following August 9, 2007. On a normal day, the Fed might need to buy or sell a couple billion dollars of Treasury securities in order to keep the federal funds rate within a few one-hundredths of a percent of its target. Suddenly on August 9, the federal funds rate approached 6%, and the Fed was forced to purchase $24 billion of Treasury securities in order to add enough liquidity to bring the federal funds rate back down to its target of 5.25%. On August 10, the Fed needed to purchase an additional $38 billion to keep the rate at its target, and issued a statement that began, "The Federal Reserve is providing liquidity to facilitate the orderly functioning of financial markets." The European Central Bank provided 156 billion euros ($215 billion) of liquidity to markets on August 9 and 10. Normalcy soon returned to the federal funds market, although other parts of the financial system remained illiquid. The Fed took similar actions on March 7, 2008, when it announced that it would be injecting up to $100 billion in liquidity for at least 28 days through open market operations. It took similar actions again in September 2008.

How should the Fed's actions be characterized? The Fed's actions cannot be classified as a policy change since it left the federal funds target rate unchanged — in the August case for over a month.[8] Nor can it be considered unusual that the Fed

---

[6] (...continued)
On September 19, 2008, the Fed announced that it would also purchase (for the first time since 1981) debt obligations of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks through open market operations.

[7] For more information, see CRS Report RL30354, *Monetary Policy and the Federal Reserve: Current Policy and Conditions*, by Marc Labonte and Gail Makinen.

[8] Although no change in the targeted rate was announced, the Fed allowed the actual federal (continued...)

bought Treasury securities to keep the federal funds rate at its target — the Fed does this on a daily basis. What was unusual about the incidents was the magnitude of liquidity the Fed needed to add to keep the rate near its target.

On September 18, 2007, the Fed reduced the federal funds target rate by 0.5 percentage points to 4.75%, stating that the change was "intended to forestall some of the adverse effects on the broader economy that might otherwise arise from the disruptions in financial markets..." Since then, the Fed has aggressively lowered interest rates several times. The Fed decides whether to change its target for the federal funds rate at meetings scheduled every six weeks. In normal conditions, the Fed would typically leave the target unchanged or change it by 0.25 percentage points. From September to March, the Fed lowered the target at each regularly scheduled meeting, by an increment larger than 0.25 percentage points at most of these meetings. It also lowered the target by 0.75 percentage points at an unscheduled meeting on January 21, 2008.

As the financial turmoil persisted, the Fed became more concerned about rising inflationary pressures. Although financial conditions had not returned to normal, the Fed kept the federal funds rate steady from April 30, 2008, until October 9, 2008, when it again reduced the federal funds rate, this time by 0.5 percentage points, to 1.5%. Unusually, this rate reduction was coordinated with several foreign central banks.

The Discount Window

The Fed can also provide liquidity to member banks (depository institutions that are members of the Federal Reserve system) directly through discount window lending.[9] Discount window lending dates back to the early days of the Fed, and was originally the Fed's main policy tool. (The Fed's main policy tool shifted from the discount window to open market operations several decades ago.) Loans made at the discount window are backed by collateral in excess of the loan value. A wide array of assets can be used as collateral, but they must generally have a high credit rating. Most discount window lending is done on an overnight basis. Unlike the federal funds rate, the Fed sets the discount rate directly through fiat.

During normal market conditions, the Fed has discouraged banks from borrowing at the discount window on a routine basis, believing that banks should be able to meet their normal reserve needs through the market. Thus, the discount window has played a secondary role in policymaking to open market operations. In 2003, the Fed made that policy explicit in its pricing by changing the discount rate from 0.5 percentage points below to 1 percentage point above the federal funds rate. A majority of member banks do not access the discount window in any given year. Since the beginning of the financial turmoil, the Fed has reduced the spread between the federal funds rate and the discount rate, although it has kept the spread positive.

---

[8] (...continued)
funds rate to fall below 5% on most days over the next month.

[9] For more background, see James Clouse, "Recent Developments in Discount Window Policy," *Federal Reserve Bulletin*, November 1994, p. 965.

On August 17, 2007, the Fed took further actions to restore calm to financial markets when it reduced the discount rate from 6.25% to 5.75%. Since then, the discount rate has been lowered several times, typically at the same time as the federal funds rate. Discount window lending (in the primary credit category) increased from a daily average of $45 million outstanding in July 2007 to $1,345 million in September 2007. Lending continued to increase to more than $10 billion outstanding per day from May 2008, but was superseded in economic significance by the creation of the Term Auction Facility in December 2007 (discussed below).

New Tools

The Fed's traditional tools are aimed at the commercial banking system, but current financial turmoil has occurred outside of the banking system as well. The inability of traditional tools to calm financial markets since August 2007 has led the Fed to develop several new tools to fill perceived gaps between open market operations and the discount window.

Term Auction Facility

A stigma is thought to be attached to borrowing from the discount window. In good times, discount window lending has traditionally been discouraged on the grounds that banks should meet their reserve requirements through the marketplace (the federal funds market) rather than the Fed. Borrowing from the Fed was therefore seen as a sign of weakness, as it implied that market participants were unwilling to lend to the bank because of fears of insolvency. In the current turmoil, this perception of weakness could be particularly damaging since a bank could be undermined by a run based on unfounded, but self-fulfilling fears. Ironically, this means that although the Fed encourages discount window borrowing so that banks can avoid liquidity problems, banks are hesitant to turn to the Fed because of fears that doing so would spark a crisis of confidence. As a result, the Fed found the discount window a relatively ineffective way to deal with liquidity problems in the current turmoil. It created the supplementary Term Auction Facility (TAF) in response.[10]

Discount window lending is initiated at the behest of the requesting institution — the Fed has no control over how many requests for loans it receives. The TAF allows the Fed to determine the amount of reserves it wishes to lend out to banks, based on market conditions. The auction process determines the rate at which those funds will be lent, with all bidders receiving the lowest winning bid rate. The winning bid may not be lower than the prevailing federal funds rate. Determining the rate by bid provides the Fed with additional information on how much demand for reserves exists.

---

[10] For more information, see Olivier Armantier et al, "The Federal Reserve's Term Auction Facility," Federal Reserve Bank of New York, *Current Issues in Economics and Finance*, vol. 14, no. 5, July 2008; Charles Carlstrom and Sarah Wakefield, "The Funds Rate, Liquidity, and the Term Auction Facility," Federal Reserve Bank of Cleveland, *Economic Trends*, December 14, 2007.

Any depository institution eligible for discount window lending can participate in the TAF. Auctions through the TAF have been held twice a month beginning in December 2007. The amounts auctioned have greatly exceeded discount window lending, which averages in the hundreds of millions of dollars outstanding daily in normal times and more than $10 billion outstanding since May 2008. The TAF initially auctioned $20 billion every two weeks, but this amount was increased on several occasions to as much as $75 billion every two weeks, so that the daily loans outstanding have exceeded $100 billion since April 2008.[11] Like discount window lending, TAF loans must be fully collateralized with the same qualifying collateral. As with discount window lending, the Fed faces the risk that the value of collateral would fall below the loan amount in the event that the loan was not repaid. For that reason, the amount lent diminishes as the quality of the collateral diminishes.

Loans mature in 28 days — far longer than overnight loans in the federal funds market or the typical discount window loan. (In July 2008, the Fed began making some TAF loans that matured in 84 days.) Another motivation for the TAF may have been an attempt to reduce the unusually large divergence that had emerged between the federal funds rate and interbank lending rates for longer maturities. This divergence, which can be seen as a sign of how much liquidity had deteriorated in spite of the Fed's previous efforts, became much smaller after December. In subsequent periods of market stress, such as September 2008, the divergence reemerged. The evidence on the effectiveness of the TAF in reducing this divergence is mixed.[12]

The TAF program was announced as a temporary program that could be made permanent after assessment. Given that the discount rate is set higher than the federal funds rate to discourage its use in normal market conditions, it is unclear what role a permanent TAF would fill, unless the funds auctioned were minimal in normal market conditions. A permanent TAF would seem to run counter to the philosophy governing the discount window that financial institutions, if possible, should rely on the private sector to meet their short-term reserve needs during normal market conditions.

Term Securities Lending Facility

For many years, the Fed has allowed primary dealers (see box for definition) to swap Treasuries of different maturities or attributes with the Fed on an overnight basis through a program called the System Open Market Account Securities Lending Program to help meet the dealers' liquidity needs. (While all Treasury securities are backed by the full faith and credit of the federal government, some securities are more liquid than others, mainly because of differences in availability.) Securities lending has no effect on general interest rates or the money supply since it does not

---

[11] The dates, terms, and amounts of future TAF auctions can be accessed at [http://www.federalreserve.gov/monetarypolicy/tafschedule.htm].

[12] See James McAndrews et al, "The Effect of the Term Auction Facility on the London Inter-bank Offered Rate," Federal Reserve Bank of New York, Staff Report no. 335, July 2008; John Taylor and John Williams, "A Black Swan in the Money Market," Federal Reserve Bank of San Francisco, working paper 2008-04, April 2008.

involve cash, but can affect the liquidity premium of the securities traded. Since the loans were overnight and collateralized with other Treasury securities, there was very little risk for the Fed.

What is a Primary Dealer? Primary dealers are about 20 large financial institutions who are the counterparties with which the Fed undertakes open market operations (buying and selling of Treasury securities). In order to be a primary dealer, an institution must, among other things, meet relevant Basel or SEC capital requirements and maintain a good trading relationship with the Fed.

On March 11, 2008, the Fed set up a more expansive securities lending program for the primary dealers called the Term Securities Lending Facility (TSLF). Under this program, up to $200 billion of Treasury securities could be lent for 28 days instead of overnight (as of September 2008). Initially, loans could be collateralized with U.S. Treasuries, government "agency" debt (including debt issued by Fannie Mae and Freddie Mac), mortgage-backed securities (MBS) issued by government agencies or private labels with an AAA/Aaa rating, agency commercial mortgage-backed securities, and agency collateralized mortgage obligations. On September 14, 2008, the Fed expanded acceptable collateral to include all investment-grade debt securities. Given the recent drop in MBS and other asset prices, this made the new lending program considerably more risky than the old one. But the scope for losses is limited by the fact that the loans are fully collateralized with a "haircut" (i.e., less money is loaned than the value of the collateral), and if the collateral loses value before the loan is due, the Fed can call for substitute collateral. The first auction on March 27 involved $75 billion of securities. In August 2008, the program was expanded to allow the primary dealers to purchase up to $50 billion of options (with prices set by auction) to swap for Treasuries through the TSLF. The TSLF was announced as a temporary facility. On July 30, 2008, the Fed announced that it would be extended through the end of January 2009.

By allowing the primary dealers to temporarily swap illiquid assets such as MBS for highly liquid Treasuries, "[t]he TSLF is intended to promote liquidity in the financing markets for Treasury and other collateral and thus to foster the functioning of financial markets more generally," according to the Fed.[13] Given the timing of the announcement — less than a week before the failure of one of its primary dealers, Bear Stearns — critics have alleged that the program was created, in effect, in an attempt to rescue Bear Stearns from its liquidity problems. But it should be noted that the new program did not involve Bear Stearns' most illiquid and devalued assets. As will be discussed below, the Fed would take much larger steps to aid Bear Stearns later the same week.

Primary Dealer Credit Facility

On March 16 — a day too late to help Bear Stearns — the Fed announced the creation of the Primary Dealer Credit Facility (PDCF), a new direct lending program

[13] Board of Governors of the Federal Reserve System, press release, March 11, 2008.

for primary dealers very similar to the discount window program for depository institutions. Loans are made through the PDCF on an overnight basis at the discount rate, limiting their riskiness. Acceptable collateral initially included Treasuries, government agency debt, and investment grade corporate, mortgage-backed, asset-backed, and municipal securities. Borrowing from the facility has been sporadic, with borrowing above $10 billion in the first three months and zero borrowing in August 2008. On September 14, 2008, the Fed expanded acceptable collateral to include certain classes of equities. Many of the classes of eligible assets can and have fluctuated significantly in value. Fees will be charged to frequent users.

The program was announced as lasting six months, or longer if events warrant. The program is authorized under paragraph 3 of Section 13 of the Federal Reserve Act, which suggests it could not be made permanent under existing authorization. On July 30, 2008, the Fed announced that it would be extended through the end of January 2009.

Although the program shares some characteristics with the discount window and the Term Securities Lending Facility, the fact that the program was authorized under paragraph 3 of Section 13 of the Federal Reserve Act suggests that there is a fundamental difference between this program and the Fed's normal operations. The Fed is referred to as the nation's central bank because it is at the center of the banking system — providing reserves and credit, and acting as a regulator, clearinghouse, and lender of last resort to the banking system. The privileges for banks that come from belonging to the Federal Reserve system — access to Fed credit — come with the costs of regulation to ensure that banks do not take excessive risks. Although the primary dealers are subject to certain capital requirements, they are not necessarily part of the banking system, and do not fall under the same regulatory structure as the banks.

Emergency Authority Under Section 13(3) of the Federal Reserve Act. The Fed has limited authority to assist non-member banks under the Federal Reserve Act. One exception where authority is granted is under paragraph 3 of Section 13 of the Federal Reserve Act. It reads,

> In unusual and exigent circumstances, the Board of Governors of the Federal Reserve System, by the affirmative vote of not less than five members, may authorize any Federal reserve bank...to discount for any individual, partnership, or corporation, notes, drafts, and bills of exchange.... Provided, that before discounting any such note, draft, or bill exchange...the Federal reserve bank shall obtain evidence that such individual, partnership, or corporation is unable to secure adequate credit accommodations from other banking institutions...

It is noteworthy that this text allows emergencies to be identified by the Board of Governors and places few limits on what type of institution can receive financial assistance from the Fed or what form that assistance can take. As will be discussed below, on at least two occasions in 2008, Section 13(3) has been invoked to lend to an entity that the Fed created.

According to the New York Fed, this authority had not been used in about 70 years prior to the Bear Stearns incident. It has been invoked numerous times in 2008, including to authorize the Primary Dealer Credit Facility, the Fed's role in the Bear Stearns merger, and the Fed's extension of credit to AIG. Financial crises can spread quickly, and Section 13(3) makes a prompt response possible. But recent events have demonstrated that it vests the Fed with the ability to take large, wide-ranging actions without Congressional approval. (It has voluntarily sought and received Treasury approval in each instance.)

Section 13(3) was amended in October 2008. P.L. 110-343 requires the Fed to report to Congress on its justification for exercising Section 13(3), the terms of the assistance provided, and regular updates on the status of the loan.

For more information, see Federal Reserve Bank of New York, "The Discount Window," *Fedpoint*, Aug. 2007; David Fettig, "The History of a Powerful Paragraph," Federal Reserve Bank of Minneapolis, *The Region*, June 2008.

Swap Lines with Foreign Central Banks

In December 2007, the Fed announced the creation of temporary reciprocal currency agreements, known as swap lines, with the European Central Bank and the Swiss central bank. These agreements let the Fed swap dollars for euros or Swiss francs for a fixed period of time. In September 2008, the Fed expanded the swap lines to central banks in seven additional countries. In October 2008, it made the swap lines unlimited in size. The swap lines are currently authorized through the end of January 2009.

The swap lines are intended to provide liquidity to banks in non-domestic denominations. For example, many European banks have borrowed in dollars to finance dollar-denominated transactions, such as the purchase of U.S. assets. Normally, foreign banks could finance their dollar-denominated borrowing through the private inter-bank lending market. As banks have become reluctant to lend to each other through this market, central banks at home and abroad have taken a much larger role in providing banks with liquidity directly. But through normal lending channels, central banks can only provide liquidity in their own currency. The swap lines allow central banks to provide needed liquidity in other currencies.

Intervention in the Commercial Paper Market

Many large firms routinely issue commercial paper, which is short-term debt purchased directly by investors that matures in less than 270 days, with an average maturity of 30 days. There are three broad categories of commercial paper issuers: financial firms, non-financial firms, and pass-through entities that issue paper backed by assets. The commercial paper issued directly by firms tends not to be backed by collateral, as these firms are viewed as large and creditworthy and the paper matures quickly.

Individual investors are major purchasers of commercial paper through money market mutual funds and money market accounts. The Securities and Exchange Commission regulates the holdings of money market mutual funds, limiting their holdings to highly rated, short-term debt; thus, investors widely perceived money market mutual funds as safe and low risk. On September 16, the Reserve Fund, which is a money market mutual fund, "broke the buck," meaning that the value of its shares had fallen below face value. This occurred because of losses it had taken on short-term debt issued by Lehman Brothers, which filed for bankruptcy on September 15. Money market investors had perceived "breaking the buck" to be highly unlikely, and its occurrence set off a run on money market funds, as many investors simultaneously attempted to withdraw their investments. This run greatly decreased the demand for new commercial paper. Firms rely on the ability to issue new debt to roll over maturing debt in order to meet their liquidity needs.

Fearing that disruption in the commercial paper markets could make overall problems in financial markets more severe, the Fed announced on September 19 that it would create the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF). This facility would make non-recourse loans to banks to purchase asset-backed commercial paper. Because the loans were non-recourse, the banks would have no further liability to repay any losses on the commercial paper collateralizing the loan. In its first week of operation, there were daily loans of $152 billion outstanding through the AMLF.

Although the creation of the AMLF and the Treasury's temporary guarantee of money market mutual fund deposits had eased conditions in the commercial paper market, the market remained strained. For example, commercial paper outstanding fell from more than $2 trillion outstanding in August 2007 to $1.8 trillion on September 7, 2008, to $1.6 trillion on October 1, 2008. The yield on 30-day, AA-rated asset-backed commercial paper rose from 2.7% on September 8, 2008, to 5.5% on October 7, 2008.

Because of the importance of commercial paper for meeting firms' liquidity needs, the Fed decided to take stronger action to ensure that the market was not disrupted.[14] On October 7, it announced the creation of the Commercial Paper Funding Facility (CPFF), a special purpose vehicle (SPV) that would borrow from the Fed to purchase all types of three-month, highly rated U.S. commercial paper, secured and unsecured, from issuers. The interest rate charged by the CPFF was set at the three month overnight index swap plus 1 percentage point for secured corporate debt, 2 percentage points for unsecured corporate debt, and 3 percentage points for asset-backed paper. The CPFF can buy as much commercial paper from any individual issuer as that issuer had outstanding in the year to date. Any losses borne by the CPFF would ultimately be borne by the Fed. The Fed has hired the private company PIMCO to manage the SPV's assets. The facility is authorized under Section 13 (3) of the Federal Reserve Act, its emergency authority. It will operate until April 2009, subject to renewal by the Fed. The Fed argued that the assurance that firms will be able to roll over commercial paper at the CPFF will encourage private investors to buy commercial paper again.

The CPFF is notable on several grounds. First, it is the first Fed standing facility in modern times with an ongoing commitment to purchase assets, as opposed to lending against assets. Technically, the Fed is lending against the assets of the SPV, but the SPV was created by the Fed and is controlled by the Fed. (The arrangement is similar to the Fed's creation of Maiden Lane, a limited liability corporation, to purchase Bear Stearns' assets, but that involved a one-time purchase.) Second, in the case of non-financial commercial paper, it is the first time in several decades that the Fed is providing financial assistance to non-financial firms.[15] Third, in the case of commercial paper that is not asset backed, it is unusual for the Fed (through the SPV) to purchase uncollateralized debt.

On October 21, 2008, the Fed announced the creation of the Money Market Investor Funding Facility (MMIFF), and pledged to lend it up to $540 billion. The MMIFF will lend to private sector SPVs that invest in commercial paper issued by highly rated financial institutions. Each SPV will be owned by a group of financial firms and can only purchase commercial paper issued by that group. These SPVs can purchase commercial paper from money market mutual funds facing redemption requests to help avoid runs such as the run on the Reserve Fund. (The Treasury has already guaranteed existing money market deposits in order to avoid further runs.) Financial firms have an incentive to participate in these SPVs since mutual funds will be more willing to purchase an institution's commercial paper if it is able to sell it back to an SPV. To reduce the risk to the Fed, its lending will be equal to 90% of the value of the commercial paper the SPV purchases (the other 10% of financing will be provided by the money market fund), and done with recourse on an overnight basis at the discount rate. Since the SPVs are not member banks of the Federal Reserve System, the Fed authorized the MMIFF under Section 13(3) of the Federal Reserve Act. The MMIFF is scheduled to wind down by the end of April 2009.

---

[14] Financial firms experiencing any disruption to their liquidity needs in the commercial paper market were already eligible to borrow from the Fed on a collateralized basis.

[15] See David Fettig, "Lender of More Than Last Resort," Federal Reserve Bank of Minneapolis, *The Region*, December 2002.

Upon winding down, the SPVs will receive a fixed profit, with any additional profits accruing to the Fed.

Payment of Interest on Bank Reserves

Banks hold reserves to meet daily cash-flow needs and requirements imposed by the Fed. At times over the past year, the Fed has faced conflicting goals — it seeks to ensure that banks have enough reserves to remain liquid, but it also seeks to maintain its target for the federal funds rate to meet its economic goals. The federal funds rate is the market rate in the private market where a bank with excess reserves lends them overnight to other banks. At times, ensuring that all banks have adequate reserves has resulted in an overall level of reserves in the market that has pushed the federal funds rate below its target. In other words, the only way for the Fed to make sure that each bank has enough reserves has been to oversupply the banking system as a whole with liquidity at the given federal funds target.

To avoid this problem, Congress authorized the Fed to pay interest on bank reserves in the Emergency Economic Stabilization Act of 2008 (H.R. 1424/P.L. 110-343). By setting an interest rate on bank reserves close to the federal funds rate, the Fed would in effect place a floor on the rate. In theory, the federal funds rate would not fall below the interest rate on reserves because banks would rather hold excess reserves to earn interest than lend them out to other banks at a lower interest rate.[16] Paying interest on reserves may also encourage banks to hold more reserves overall, which may somewhat reduce banks' liquidity problems during the current period of heightened uncertainty.

The interest rate on excess reserves was initially set at 0.75 percentage points less than the federal funds rate. Immediately after the Fed began paying interest, the federal funds rate was still falling below the target, and some days was even below the interest rate on reserves. In response, the Fed subsequently changed the interest rate to 0.35 percentage points less than the federal funds rate.

Paying interest on reserves does not encourage banks to increase overall lending to firms and households, however, because it increases the attractiveness of holding reserves. Thus, it is not a policy that stimulates the economy, at least in any direct sense; on the contrary, it prevents the increase in liquidity to banks from stimulating the economy by preventing the federal funds rate from falling.

P.L.110-343 gave the Fed permanent authority to pay interest on reserves. Once financial conditions return to normal, the liquidity benefits from paying interest will be less important (since banks will again be able to meet reserve needs through the federal funds market), and the primary remaining benefit would be a reduction in the volatility of the federal funds rate. The Fed previously intervened in the federal funds market on a daily basis to keep the market rate close to the target, sometimes unsuccessfully. The volatility partly resulted from banks devoting resources to activities that minimize reserves, such as "sweep accounts."

---

[16] See Todd Keister et al, "Divorcing Money From Monetary Policy, Federal Reserve Bank of New York, *Economic Policy Review*, September 2008.

Paying interest on reserves reduces the Fed's profits, and thus reduces its remittances to the Treasury, thereby increasing the budget deficit, all else equal. It can be viewed as a transfer from the federal government to the banks, although in the long run, competition makes it likely that the banks will pass on the benefit to depositors in the form of higher interest paid on deposits. From Congress's perspective, the benefit of a less volatile target rate and less resources spent minimizing reserves would have to be weighed against the lost federal revenue, over time. The decision to pay interest on required, as well as excess, reserves also increases the cost of the policy without any additional benefit to liquidity or reduced volatility (because banks must keep required reserves even if no incentive is offered).

The Fed's Role in the JPMorgan Chase Acquisition of Bear Stearns

The investment bank Bear Stearns came under severe liquidity pressures in early March, in what many observers have coined a non-bank run.[17] On Friday, March 14, JPMorgan Chase announced that, in conjunction with the Federal Reserve, it had agreed to provide secured funding to Bear Stearns, as necessary. Through its discount window, the Fed agreed to provide $13 billion of back-to-back financing to Bear Stearns via JPMorgan Chase. It was a non-recourse loan, meaning that the Fed had no general claim against JPMorgan Chase in the event that the loan was not repaid and the outstanding balance exceeded the value of the collateral. Bear Stearns could not access the discount window directly because, at that point, only member banks could borrow directly from the Fed. This loan was superseded by the events of March 16, and the loan was repaid in full on March 17.

On Sunday, March 16, after negotiations between the two companies, the Fed and the Treasury, JPMorgan Chase agreed to acquire Bear Stearns. As part of the agreement, the Fed will purchase up to $30 billion of Bear Stearns' assets through Maiden Lane, a new Limited Liability Corporation (LLC) based in Delaware that it has created and controls. After the merger was completed, the loan was finalized on June 26, 2008. Two loans were made to the LLC: the Fed lent the LLC $28.82 billion, and JPMorgan Chase made a subordinate loan to the LLC worth $1.15 billion.[18] The Fed's loan will be made at an interest rate set equal to the discount rate (2.5% when the terms were announced, but fluctuating over time) for a term of 10

---

[17] For more information, see CRS Report RL34420, *Bear Stearns: Crisis and 'Rescue' for a Major Provider of Mortgage-Related Products*, by Gary Shorter.

[18] Federal Reserve Bank of New York, "New York Fed Completes Financing Arrangement Related to JPMorgan Chase's Acquisition of Bear Stearns," press release, June 26, 2008. A subordinate loan is one where the principal and interest are not repaid until after the primary loan is repaid. The originally announced terms of the loans were for up to $29 billion from the New York Fed and $1 billion from JPMorgan Chase. After more thoroughly reviewing the assets the LLC would receive, the Fed changed the terms of the loan.

years, renewable by the Fed.[19] JPMorgan Chase's loan will have an interest rate 4.5 percentage points above the discount rate.

Using the proceeds from that loan, the LLC will purchase assets from Bear Stearns worth $30 billion at marked to market prices by Bear Stearns on March 14. On September 11, 2008, the Fed reported the assets to be currently worth $29.3 billion.[20] The Fed reported that

> The portfolio supporting the credit extensions consists largely of mortgage-related assets. In particular, it includes cash assets as well as related hedges. The cash assets consist of investment grade securities (i.e. securities rated BBB- or higher by at least one of the three principal credit rating agencies and no lower than that by the others) and residential or commercial mortgage loans classified as "performing". All of the assets are current as to principal and interest (as of March 14, 2008). All securities are domiciled and issued in the U.S. and denominated in U.S. dollars. The portfolio consists of collateralized mortgage obligations (CMOs), the majority of which are obligations of government-sponsored entities (GSEs), such as the Federal Home Loan Mortgage Corporation ("Freddie Mac"), as well as asset-backed securities, adjustable-rate mortgages, commercial mortgage-backed securities, non-GSE CMOs, collateralized bond obligations, and various other loan obligations.[21]

The CEO of JPMorgan Chase testified that JPMorgan Chase "kept the riskier and more complex securities in the Bear Stearns portfolio...We did not cherry pick the assets in the collateral pool (for the LLC)."[22] These assets are owned by the LLC, which will eventually liquidate them to pay back the principal and interest owed to the Fed and JPMorgan Chase. The LLC's assets (purchased from Bear Stearns) are the collateral backing the loans from the Fed and JPMorgan Chase. A private company, BlackRock Financial Management, has been hired to manage the portfolio. Neither Bear Stearns nor JPMorgan Chase owes the Fed any principal or interest, nor are they liable if the LLC is unable to pay back the money the Fed lent it. The New York Fed explained that the LLC was created to "ease administration of the portfolio and will remove constraints on the money manager that might arise from retaining

---

[19] Federal Reserve Bank of New York, "Summary of Terms and Conditions Regarding the JPMorgan Chase Facility," press release, March 24, 2008. Many of the details of the loan, including the size, were not announced on March 16.

[20] Federal Reserve, *Factors Affecting Reserve Balances of Depository Institutions*, press release H.4.1, September 11, 2008. Information on the portfolio will be updated quarterly and announced through this press release.

[21] Timothy Geithner, "Testimony Before the Senate Committee for Banking, Housing and Urban Affairs," April 3, 2008, Annex II.

[22] Jamie Dimon, *Testimony Before the Senate Committee on Banking, Housing, and Urban Affairs*, April 3, 2008.

the assets on the books of Bear Stearns."[23] JPMorgan Chase and Bear Stearns did not receive the $28.82 billion from the LLC until the merger was completed.[24]

It was announced that the Fed is planning to begin liquidating the assets after two years. The assets will be sold off gradually, "to minimize disruption to financial markets and maximize recovery value."[25] As the assets are liquidated, interest will continue to accrue on the remaining amount of the loan outstanding. Thus, in order for the principal and interest to be paid off, the assets will need to appreciate enough or generate enough income so that the rate of return on the assets exceeds the weighted interest rate on the loans (plus the operating costs of the LLC). **Table 1** shows how the funds raised through the liquidation will be used. Any difference between the proceeds and the amount of the loans is profit or loss for the Fed, not JPMorgan Chase. Because JPMorgan Chase's $1.15 billion loan was subordinate to the Fed's $28.82 billion loan, if there are losses on the $30 billion assets, the first $1 billion of losses will be borne, in effect, by JPMorgan Chase, however. The interest on the loan will be repaid out of the asset sales, not by JPMorgan Chase.

Table 1. Use of Funds Raised by Liquidation of Bear Stearns Assets

Payments from the liquidation will be made in the following order:
(1) operating expenses of the limited liability corporation
(2) $29 billion principal owed to the Federal Reserve
(3) interest due to the Federal Reserve on the $29 billion loan
(4) $1 billion principal owed to JPMorgan Chase
(5) interest due to JPMorgan Chase on $1 billion subordinated note
(6) non-operating expenses of the limited liability corporation
(7) remaining funds accrue to Federal Reserve

Source: Federal Reserve Bank of New York.

Note: Each category must be fully paid before proceeding to the next category.

[23] Federal Reserve Bank of New York, "Summary of Terms and Conditions Regarding the JPMorgan Chase Facility," press release, March 24, 2008.

[24] Timothy Geithner, "Testimony Before the Senate Committee for Banking, Housing and Urban Affairs," April 3, 2008, p. 17.

[25] Federal Reserve Bank of New York, "Statement on Financing Arrangement of JPMorgan Chase's Acquisition of Bear Stearns," press release, March 24, 2008.

The CEO of JPMorgan Chase testified that "we could not and would not have assumed the substantial risks of acquiring Bear Stearns without the $30 billion facility provided by the Fed."[26] The primary risk was presumably that the value of mortgage-related assets would continue to decline. Had the transaction been crafted as a typical discount window loan directly to JPMorgan Chase, JPMorgan Chase would have been required to pay back the principal and interest, and it (rather than the Fed) would have borne the full risk of any depreciation in value of Bear Stearns' assets.[27]

The Fed's statutory authority for its role in both Bear Stearns transactions comes from paragraph 3 of Section 13 of the Federal Reserve Act. In his testimony, New York Fed President Timothy Geithner stated that the Fed did not have authority to acquire an equity interest in Bear Stearns or JPMorgan Chase.[28] Yet the LLC controlled by the Fed acquired assets from Bear Stearns, and the profits or losses from that acquisition will ultimately accrue to the Fed. It is unclear why the Fed decided to create and lend to a LLC to complete the transaction, rather than engaging in the transaction directly. Although the Fed did not buy Bear Stearns' assets directly, there are certainly important policy questions raised by the Fed's creation and financing of an LLC in order to buy Bear Stearns' assets. Typically, the Fed lends money to institutions and receives collateral in return to reduce the risk of suffering a loss. When the loan is repaid, the collateral is returned to the institution. In this case, the Fed made a loan, but to a LLC they created and controlled, not to a financial institution. From the perspective of JPMorgan Chase or Bear Stearns, the transaction was a sale (to the LLC), not a loan, regardless of whether the Fed or the LLC was the principal.

Loan to American International Group (AIG)

On September 16, 2008, the Fed announced, after consultation with the Treasury Department, that it would lend up to $85 billion to the financial institution American International Group. AIG had experienced a significant decline in its stock price and was facing immediate demands for $14 billion to $15 billion in collateral payments due to recent downgrades by credit rating agencies, according to press reports.[29] The

---

[26] Jamie Dimon, *Testimony Before the Senate Committee on Banking, Housing, and Urban Affairs*, April 3, 2008.

[27] In addition to the $28.82 billion that Bear Stearns received from the Fed, both Bear Stearns (before the merger) and JPMorgan Chase are eligible to borrow from the Fed through its lending facilities. Since financial institutions access these lending institutions on a confidential basis, it is unknown how much the two have borrowed. In April, the CEO of JPMorgan Chase testified to Congress that Bear Stearns had borrowed an additional $25 billion from the Fed. Kara Scannell and Sudeep Reddy, "Officials Say They Sought to Avoid Bear Bailout," *Wall Street Journal*, April 4, 2008, p. A1.

[28] Timothy Geithner, "Testimony Before the Senate Committee for Banking, Housing and Urban Affairs," April 3, 2008, p. 13.

[29] See, for example, "U.S. to Take Over AIG in $85 Billion Bailout; Central Banks Inject (continued...)

Fed and Treasury feared that AIG was also "too big to fail" because of the potential for widespread disruption to financial markets that would result.

The Fed announced that AIG could borrow up to $85 billion from the Fed over the next two years. On September 18, the Fed announced that it had initially lent $28 billion to AIG.[30] The interest rate on the funds drawn is 8.5 percentage points above the London Interbank Offered Rate (LIBOR), a rate that banks charge to lend to each other. AIG will also have to pay a (lower) interest rate on any funds that it is does not draw from the facility. In return, the government will receive warrants that, if exercised, would give the government a 79.9% ownership stake in AIG. The Fed will name three independent trustees to oversee the firm for the duration of the loan.

The lending facility is backed by the assets of AIG's non-regulated subsidiaries (but not the assets of its insurance company). In other words, the Fed can seize AIG's assets if the firm fails to honor the terms of the loan. This reduces the risk that the Fed (and ultimately, taxpayers) will suffer a loss. The risk still remains that if AIG turned out to be insolvent, its assets would be insufficient to cover the amount it had borrowed from the Fed. In addition, some would argue that by identifying AIG as "too big to fail," the government has taken on a more open-ended financial commitment than the terms of the loan would suggest.

On October 8, the Fed announced that it was expanding its assistance to AIG and swapping cash for up to $37.8 billion of AIG's investment-grade, fixed-income securities. These securities, belonging to AIG's insurance subsidiaries, had been previously lent out and unavailable as collateral at the time of the original agreement. It has been reported that as AIG's loans matured, AIG realized losses on investments it had made with the collateral and some counterparties stopped participating in the lending program.[31] As a result, AIG needed liquidity from the Fed to cover these losses and counterparty withdrawals.

Although this assistance resembles a typical collateralized loan (the Fed receives assets as collateral, and the borrower receives cash), the Fed characterized the agreement as a loan of securities from AIG to the Fed in exchange for cash collateral. It appears the arrangement was structured this way because New York insurance law prevents AIG from using the securities as collateral in a loan.[32] The terms of the agreement are unavailable at this time.

The assistance is authorized under Section 13 (3) of the Federal Reserve Act, the same emergency authorization used for the Bear Stearns loan. This authorization

---

[29] (...continued)
Cash as Credit Dries Up," *Wall Street Journal*, September 17, 2008, pp. A1-A6.

[30] Federal Reserve, "Factors Affecting Reserve Balances," press release H.4.1, September 18, 2008.

[31] Liam Pleven et al, "AIG Bailout Hit By New Cash Woes," *Wall Street Journal*, October 9, 2008, p. A1.

[32] N.Y. Ins. Law, Sec. 1410.

was needed because the Fed cannot normally lend to a financial firm that is neither a depository institution nor a primary dealer.

Policy Issues

Cost to the Treasury

Unlike all other institutions, currency (Federal Reserve notes) is the Fed's primary liability. Along with its holdings of Treasury securities, its assets are the loans it makes (through the discount window, the new programs detailed above, and for AIG and the Bear Stearns takeover). Making loans increases its assets and liabilities (if not offset), and does not inherently impose any cost to the Treasury. Indeed, if the loans are repaid, they would increase the profits of the Fed, which in turn would increase the Fed's remittances to the Treasury.[33] Even if the loans are not repaid, they are fully collateralized (in some cases, overcollateralized), so the Fed would not suffer losses unless the collateral had lost value. In addition, some of the loans discussed above are made with recourse, which means that the firms are liable if the collateral loses value.

The Fed had net income of $38.4 billion and remitted $34.6 billion to the Treasury in 2007. In the past, most of the Fed's net income has derived from the interest on its Treasury securities holdings, not its loans. The earnings and any losses the Fed took on its loans would increase or reduce its net income, respectively. If loan losses caused an overall net loss, the Fed's capital (the excess of its assets compared to its liabilities) would be reduced. The Fed had capital of $36.9 billion at end of 2007, half of which was paid-in capital of member banks and the other half was surplus. The Fed has not had an annual net operating loss since 1915. However, the Fed's assets became more risky in 2008 due to the shift in its assets from U.S. Treasuries to direct loans and due to the increase in its assets and liabilities relative to its capital.

Thus, any potential losses on loans to the Fed would not involve taxpayer dollars unless the losses exceeded the sum of its other earnings and its capital. For example, in October 2008, the Fed's capital would be depleted if its realized net losses were equal in value to 3.5% of its holdings of securities (U.S. Treasuries and loans). However, any losses could result in a smaller remittance of earnings to the Treasury than would have occurred had the Fed not made the loans. Therefore, the ultimate cost to the government is the same whether loans to the financial sector are made through the Fed or the Treasury. Although the Fed has taken steps to minimize the risk that recent activities will result in losses, Members of Congress have raised the question of whether taxpayers should be exposed to additional fiscal risks without congressional approval.

---

[33] Assuming that the interest rate on the loans exceeded the rate of return on the Treasuries that the Fed would have purchased if the loans had not occurred.

How Much Can the Fed Lend? Will the Fed Run Out of Money?

As direct loans from the Fed have multiplied, some observers have questioned at what point the Fed's lending power will be exhausted. The Fed cannot "run out of money" to lend because it controls the monetary base, through which it expands or contracts the amount of money outstanding to suit its needs. There are no statutory limits on the size of the money supply (and, thus, how much it can loan); the ultimate constraint on the monetary base, and thus its willingness to lend, comes from the part of its congressional mandate requiring stable prices (i.e., a low and stable rate of price inflation.) If the Fed allows the money supply to become too large, then price inflation will become uncomfortably high (discussed in the section below on stagflation). In the 12 months ending in August 2008, inflation (as measured by the consumer price index) had risen 5.4% — significantly higher than the Fed's self-identified "comfort zone." Thus, the Fed is reluctant to allow its loans to result in a significant expansion in the money supply.[34]

When the Fed makes loans to private financial firms, it increases the money supply unless offset by open market operations, namely, the sale of Treasury securities. In practice, over the past year, the Fed has kept the monetary base relatively constant by selling enough Treasury securities to offset the additional loans it makes. (When the Fed sells Treasury securities, it removes the money it receives from circulation.) On the Fed's balance sheet, both Treasury securities and loans outstanding are assets. Thus, as loans outstanding have risen, its holdings of Treasury securities have declined. For example, in September 2007, 88% of its assets were Treasury securities held outright and less than 1% were loans. In May 2008, 54% of its assets were Treasury securities and 20% were loans.

Some have worried that, if this trend continued, the Fed would eventually hold too few Treasury securities to be able to conduct open market operations.[35] This scenario is not imminent — as of October 2008, the Fed still held about $480 billion in Treasury securities (although some of those are lent through the TSLF). Nevertheless, to safeguard against any risk of this eventuality, the Treasury announced the Supplementary Financing Program on September 17, 2008. Under this program, the Treasury will temporarily auction more new securities than it needs to finance government operations and will deposit the proceeds at the Fed. As of October 2008, about $500 billion had been borrowed by the Treasury and deposited at the Fed through this program. Congress authorized this borrowing only indirectly by raising the statutory debt limit, most recently in P.L. 110-343.

---

[34] Were the amount of loans to increase significantly because financial conditions became significantly worse, it is unlikely that the Fed would continue to fear that a larger money supply would have unacceptable consequences for inflation. If so, the Fed could become less concerned about taking steps to offset the loans' effects on the money supply.

[35] It should be noted that a portfolio of Treasury securities is only needed to tighten monetary policy. Expansionary monetary policy involves the purchase of Treasury securities.

This program has two effects. First, it supplies more Treasuries to investors when there is excess demand because of a "flight to quality." (The Treasuries issued under the program are indistinguishable to investors from regularly-issued securities.) Second, it allows the Fed to take on more loans without requiring a reduction to its Treasury holdings in order to offset the effects on the money supply. (The increase in the money supply is offset because the money received by the Treasury is held at the Fed and not allowed to circulate.) Ultimately, the program will not affect the Treasury's fiscal position, however, because it will increase the profits of the Fed, which are then remitted to the Treasury.

The fact that the Fed has been "sterilizing" the effects of its loans on the money supply may be limiting the effects of those loans on financial conditions. In essence, the Fed has two methods for providing the financial system with liquidity — open market operations or direct loans. The Fed has increased the role of direct loans in order to directly meet individual financial institutions' liquidity needs. But the Fed has to offset the effects of the direct loans on the money supply to meet its goals for inflation. Thus, the loans do not provide additional overall monetary stimulus to the economy. Since the Fed is sterilizing the loans because of its concerns with inflation, the utility of the program is fundamentally a question of whether the Fed has achieved the proper balance between stabilizing the financial sector and providing price stability, two topics that are discussed below.

Why the Fed's Actions Have Not Successfully Restored Financial Normalcy?

The Fed's actions since 2007 have been focused on restoring liquidity to the financial system — lending to financial firms to convert their illiquid assets into cash or U.S. Treasury securities. But as financial conditions have deteriorated in spite of increasing Fed intervention, it has become apparent that the problems facing financial firms are not exclusively related to liquidity.

The crux of the firms' problem stems from the large losses on some of their assets, particularly mortgage-related assets.[36] This has caused a number of problems for the firms related to *capital adequacy*, which is the difference between the value of their assets and the value of their liabilities. First, losses and write-downs associated with those assets have reduced the firms' existing capital. According to Bloomberg, financial firms had written down losses of $501 billion on mortgage-related assets and raised $353 billion in capital to compensate as of August 2008.[37] Second, in the current environment, investors and creditors are demanding that firms hold more capital relative to assets than before so that firms can better withstand any future losses.

---

[36] For more information, see CRS Report RS22963, *Financial Market Intervention*, by Edward V. Murphy.

[37] Yalman Onaran, "Banks' Subprime Losses Top $500 Billion on Writedowns," *Bloomberg*, August 12, 2008.

Third, the losses to date have impaired the firms' ability to raise enough new capital. Firms can raise new capital through retained earnings, which have been greatly reduced for many firms by the poor performance of their assets, or by issuing new capital (equity) and selling it to new investors. But in current market conditions, investors have been reluctant to inject new capital into struggling firms. Part of the the explanation for this is that current losses have made the firms less profitable. But another part of the reason is that investors fear that there will be further losses in the future that would reduce the value of their investment, and perhaps even cause the firm to become insolvent. Uncertainty about future losses is partly caused by the opacity surrounding the assets that have been declining in value, which makes it hard for investors to determine which assets remain overvalued and which are undervalued. The result for companies such as Bear Stearns, Lehman Brothers, AIG, Washington Mutual, and Wachovia was a downward spiral in their stock price, which had two self-reinforcing characteristics. First, there was little demand for existing stock since its worth would either be diluted by new capital (raised privately or through government intervention) or lost in insolvency. Second, new capital could not be attracted because the fall in stock value had left the market capitalization of the firms so low. If a firm's capital is completely depleted, there is no longer a buffer between its assets and liabilities, and it becomes insolvent.

Many large financial firms, including the firms that have failed, are heavily dependent on short-term borrowing to meet their current obligations. As financial conditions have worsened, some of the firms that have had the problems described above have had problems accessing short-term borrowing markets that in normal conditions could be taken for granted. In an atmosphere where creditors cannot perceive which firms have insufficient capital, they become unwilling to lend for even short intervals. This is the essence of the *liquidity* problem — although the firms' assets may exceed their liabilities, without access to short-term borrowing, the firm cannot meet its current obligations because it cannot convert its assets into cash quickly enough (at least not if it wishes to avoid "fire sale" prices).

The Fed has always been the "lender of last resort" in order for banks to avoid liquidity problems during financial turmoil. To borrow from the Fed, a financial firm must post collateral. In essence, this allows the firm to temporarily convert its illiquid assets into cash, enabling the firm to meet its short-term obligations without sacrificing its assets. The Fed has always lent to commercial banks (depository institutions) through the discount window.[38] As discussed above, it has extended liquidity to non-bank financial firms in 2008 through new lending facilities.

Borrowing from the Fed increases liquidity but it does not change a firm's capital position since it now has a liability outstanding to the Fed. So borrowing from the Fed cannot solve the problems of undercapitalization that some firms currently face. Indeed, the Fed will generally not lend to firms that are not

---

[38] In normal conditions, borrowing from the discount window is allowed but discouraged, and banks are expected to meet their liquidity needs through private markets. Soon after the financial turmoil began, the Fed began to encourage discount window borrowing.

creditworthy because it wants to provide liquidity only to firms that are solvent, and thus able to repay.[39]

H.R. 1424, which was signed into law on October 3 (P.L.110-343), created the Troubled Assets Relief Program (TARP). Under TARP, the federal government is authorized to purchase up to $700 billion in unwanted mortgage-related assets from the balance sheets of financial firms. Proponents argue that removing the unwanted assets from the balance sheets would remove uncertainty about future losses and allow the firms to raise capital in private markets again. From this perspective, the program's success will depend on whether it restores confidence to financial markets so that investors become willing to invest in financial firms. In addition, proponents argue that providing a buyer might restore liquidity to the market for these assets, boosting the prices of all similar assets, including the ones that remain on the firms' balance sheets. Whether the latter occurs would partly depend on what price the government is willing to pay for the assets, a matter which is left to the discretion of the Treasury. In addition to purchasing assets, on October 14, the Treasury announced it would provide $250 billion in capital to banks directly through preferred share purchases by TARP.[40]

If TARP proves insufficient to restore financial calm, some have asked whether there is any program that the Fed could operate to address the financial firms' capital adequacy problems. All of the Fed's standing lending facilities involve collateralized lending, and as discussed above, any program involving collateralized lending would not change a firm's capital position. According to one legal analysis, there is no express statutory authority for the Fed to purchase corporate bonds, mortgages, or equity.[41] But the Fed's assistance in the Bear Stearns merger with JPMorgan Chase took a form that has some similarities to the TARP proposal. In the case of Bear Stearns, the Fed created a limited liability corporation called Maiden Lane, and lent Maiden Lane $28.82 billion. Maiden Lane used the proceeds of that loan and another loan from JPMorgan Chase to purchase mortgage-related assets from Bear Stearns. Thus, although the Fed created and controlled Maiden Lane, the assets were purchased and held by Maiden Lane, not the Fed. Similar to TARP, Maiden Lane plans to hold the assets until markets recover, and then sell the assets to repay its loans to the Fed and JPMorgan Chase. Maiden Lane was created under the Fed's Section 13(3) emergency authority.

The Fed was presumably granted broad emergency powers under Section 13(3) so that it had the flexibility to deal with unforeseen circumstances. Nonetheless, too broad of a reading of its powers could provoke displeasure in Congress or legal challenges. Creating TARP within the Treasury through legislation rather than the

---

[39] In addition, the Fed faces some statutory limitations on lending to undercapitalized banks under normal circumstances. See, for example, Section 10B of the Federal Reserve Act.

[40] For more information, see CRS Report RS22957, *Proposal to Allow Treasury to Buy Mortgage- Related Assets to Address Financial Instability*, by Edward V. Murphy and Baird Webel.

[41] David Small and James Clouse, "The Scope of Monetary Policy Actions Authorized under the Federal Reserve Act," Federal Reserve, FEDS working paper no. 2004-40, July 2004, p. 29.

Fed through emergency powers avoided the argument whether such a program extended beyond the Fed's intended role.

Lender of Last Resort, Systemic Risk, and Moral Hazard

Since its early days, one of the Fed's main roles has been to act as a lender of last resort to the banking system when private sources of credit become unavailable. The lender of last resort function can be seen from the perspective of an individual institution or the financial system as a whole.[42] From the perspective of the individual institution, discount window lending is meant to provide funds to institutions that are illiquid (cannot meet current obligations out of current cash flow) but still solvent (assets exceed liabilities) when they cannot access funds from the private market. Discount window lending was unable to end bank runs, however — bank runs did not cease until the creation of federal deposit insurance. The experience of the Great Depression suggested that bank runs placed intolerably high costs on the financial system as a whole, as they led to widespread bank failures.[43] Discount window lending is not meant to help insolvent institutions, with one exception explained below.

Access to discount window lending and deposit insurance creates *moral hazard* for financial institutions — they can take on more risk than the market would otherwise permit because of the government safety net. In order to limit moral hazard, institutions with depository insurance and access to the discount window are subject to a safety and soundness regulatory regime that includes capital requirements, reserve requirements, bank examinations, and so on.

The exception to the rule that insolvent institutions cannot access the discount window is when the institution is deemed "too big to fail." Institutions that are too big to fail are ones that are deemed to be big enough that their failure could create *systemic risk*, the risk that the financial system as a whole would cease to function smoothly.[44] A systemic risk episode could impose heavy costs on the overall economy, as the bank panics of the Great Depression demonstrated. Although too big to fail institutions are not offered explicit guarantees, it can be argued that they have implicit guarantees since the government would not be willing to allow a systemic risk episode. This accentuates the moral hazard problem described above. There is no official governmental classification of which financial institutions are too big to fail, presumably since maintaining uncertainty over which institutions are too big to fail could help reduce the moral hazard problem. But the lack of official designation arguably creates a vacuum in terms of policy preparedness. (Making the

---

[42] For more information, see CRS Report RS21986, *Federal Reserve: Lender of Last Resort Functions*, by Marc Labonte.

[43] In this context, it is interesting to note that the Bear Stearns failure has been described as a non-bank run, meaning Bear Stearns was undermined because it was shunned by its counterparties and investors, analogous to a bank being shunned by its depositors. The defining characteristic of a run is that the fear of failure becomes self-fulfilling since it deprives an institution of the resources it needs to avoid failure.

[44] For more information, see CRS Report RL34412, *Averting Financial Crisis*, by Mark Jickling.

problem more complex, as one report described the situation, "Officials grimly concluded that while Bear Stearns isn't too big to fail, it was too interconnected to be allowed to fail in just one day." It is unclear how to judge which institutions are too interconnected to fail.)[45]

As the cases of Bear Stearns, Fannie Mae and Freddie Mac, and AIG illustrate, some of the modern-day financial institutions that are too big to fail are not depository institutions that fall under the strict regulatory umbrella that accompanies membership in the Federal Reserve system. This highlights the shift in financial activity from a bank-dominated financial system at the time of the Fed's creation to a system whose health now depends on many types of institutions. The Fed was set up to be a lender of last resort to only the banking system. In the current crisis, it has been able to extend its lender of last resort functions to non-bank financial institutions only because of its Section 13 (3) emergency powers. A policy issue going forward is whether the extension of these functions should be made permanent, and if so, what types of regulatory safeguards should accompany it.

It is possible that part of the reason these institutions failed is because they took on excessive risks in the belief that they were too big to fail. Although that theory can be debated, it is clearer that the precedent of the Fed's role in the Bear Stearns acquisition may strengthen the perception of other institutions and investors that any financial firm, regardless of whether it is a depository institution, will be bailed out in the future if it is too big to fail, or merely too interconnected to fail. If so, it could be argued that the Bear Stearns episode may have increased moral hazard going forward. The government's decision not to intervene to prevent the failure of the investment bank Lehman Brothers in September 2008 may have reversed that perception, to an extent. Lehman Brothers was larger than Bear Stearns and involved in similar business activities. Others have argued that the decision to let Lehman Brothers fail proves that Lehman Brothers was too big to fail, since it set off a wave of unrest in money markets (see above), interbank lending markets, and the market for credit default swaps.[46]

The government assistance to Bear Stearns, Fannie Mae and Freddie Mac, and AIG all include clauses that significantly reduced the value of existing shareholder equity. This was partly justified in terms of reducing moral hazard — investors would be reluctant to buy equity in too big to fail companies that were taking excessive risks if the government demanded a reduction in existing shareholder value. But government assistance in all of these cases made creditors and other counterparties whole. In these cases, the moral hazard problem manifests itself in a willingness of creditors to lend to, and counterparties to transact with, a firm they

---

[45] Greg Ip, "Central Bank Offers Loans to Brokers, Cuts Key Rate," *Wall Street Journal*, March 17, 2008, p. A1.

[46] Chairman Bernanke argued that the Fed did not have the authority to assist Lehman Brothers because Lehman Brothers could not offer the Fed adequate collateral for a loan of the size needed, which according to Bernanke, would have been much larger than the assistance for Bear Stearns. See Ben Bernanke, "Current Economic and Financial Conditions," speech at the National Association for Business Economic Annual Meeting, October 7, 2008.

know to be taking excessive risks, thereby potentially allowing the firm to take more risks.

Going forward, policymakers must determine whether new regulation is needed to limit moral hazard since there may be no credible way to maintain a policy that prohibits the rescue of future institutions that are too big to fail even if such a policy were desired. The current situation raises three broad points about systemic risk. First, risk is at the foundation of all financial intermediation. Policymakers may wish to curb excessive risk taking when it leads to systemic risk, but too little financial risk would also be counterproductive for the economy. (Indeed, some would argue that part of the underlying problem for the financial system as a whole at present is that investors are currently too risk averse.) Second, many analysts have argued that part of the reason that so much financial intermediation has left the commercial banking system is to avoid the costs of regulation.[47] This point applies to future regulatory changes as well. An attempt to increase regulation on banks could lead more business to move to hedge funds, for example. Third, financial markets have become significantly more complex and fast-moving in recent years. Many of the financial instruments with which Bear Stearns, Lehman Brothers, and AIG were involved did not exist until recently. For regulation to be effective in this environment, it faces the challenge of trying to keep up with innovation. If used prudently, many of these innovations can reduce risk for individual investors. Yet the Bear Stearns example implies that innovation may also lead to more interconnectivity, which increases systemic risk.

Effects on the Allocation of Capital

In normal conditions, the Fed primarily influences economic conditions through the purchase and sale of U.S. Treasury securities on the secondary market. This enables the Fed to influence overall economic conditions without favoring any particular financial firm or asset, thus minimizing its effect on the market allocation of capital.

As the Fed has shifted to an increasing reliance on more direct intervention in the financial system in 2008, its actions have had growing consequences for the allocation of private capital. By purchasing commercial paper and Bear Stearns' assets (via pass-through entities), the Fed has increased the relative demand for those assets. In a time when liquidity is scarce, access to Fed borrowing confers an advantage on banks and primary dealers over other types of institutions. It may also arguably retard the process of weeding out bad institutions, since reputation is needed to access private liquidity, but not Fed liquidity. On the other hand, during a panic both good and bad firms can be shut out of credit markets.

---

[47] This problem in relation to investment banking has to some degree been overtaken by events, as none of the five largest investment banks still exist in their original form. Lehman Brothers has entered bankruptcy, Bear Stearns and Merrill Lynch have merged with commercial banks, and Goldman Sachs and Morgan Stanley have reorganized as bank holding companies that are regulated by the Fed.

Other Fed programs adopted in 2008 also affect the allocation of capital. As discussed above, assisting Bear Stearns and AIG after their mistakes may encourage inefficiently high risk taking by other firms that are deemed "too big to fail." Punitive conditions attached to the assistance mitigate but do not eliminate these effects.[48] Allowing primary dealers to temporarily swap their illiquid assets for Treasuries protects those who invested poorly. Assistance to the commercial paper market confers and advantage to those firms that access that market, which are generally large and have high credit ratings.

The Fed's short term goal is to avoid the downward spiral in conditions that could lead to a panic, causing serious disruptions to the credit intermediation process for all firms, prudent or otherwise. But in the long run, once financial stability has been restored, these distortions to the market allocation of capital could result in economic inefficiencies. There is also a risk that the Fed's activities could "crowd out" private lenders and investors in the market for bank reserves and commercial paper, leading to less robust private markets. Even if some of the Fed's current programs are allowed to expire, if investors believed that they would be revived during the next downturn, capital allocation would be altered.

Liquidity Trap?

Some economists have argued that the Fed's recent string of newly created programs points to increasing desperation on its part to "right the ship." Although monetary policy is credited with having contributed to an unusual degree of economic stability since at least the mid-1980s, some argue that it has been rendered ineffective by the current outlook. The argument is that lower interest rates will not boost spending because the economy is stuck in a credit crunch in which financial institutions are unwilling to lend to creditworthy borrowers because of balance sheet concerns. The capital of financial firms has been depleted by investment losses. In turn, financial firms are said to be hoarding capital and unable to access credit markets because of fears of future losses. Borrower demand may increase in response to lower rates, but as long as institutions are trying to rebuild their balance sheets, they will remain reluctant to extend credit. This problem is sometimes referred to as a "liquidity trap." Liquidity traps are rare in modern times, but the decade of economic stagnation suffered by Japan in the 1990s after the bursting of its financial bubble is cited as an example. Interest rates were lowered to almost zero in Japan, and the economy still did not recover quickly.[49]

There are some problems with this line of reasoning at present. First, liquidity traps are seen as an extreme form of recession, but while the U.S. economy had slowed (as of early 2008), it had not yet officially entered a recession and had not experienced even one quarter of economic contraction. Second, liquidity traps are

---

[48] For example, the decision to make creditors whole in the case of Bear Stearns and AIG reduces incentives for creditors to curb lending to other institutions deemed "too big to fail."

[49] While the term liquidity trap was often applied to Japan, it is theoretically defined as a situation where household demand for money becomes so great that normal sized changes in the money supply do not affect interest rates. Under this strict definition, it is not clear that Japan, or any other economy, has experienced a liquidity trap.

most likely to occur when overall prices of goods and services are falling (called *deflation*). The Fed cannot reduce the federal funds rate below zero. When prices are falling, real interest rates are higher than nominal interest rates, so it is more likely that a very low nominal interest rate would still be too high in real terms to stimulate economic activity. But inflation has been rising, not falling, recently.[50] Inflation would not be expected to rise persistently if the economy were in a liquidity trap. Third, there is a more benign, well-documented explanation for why the Fed's expansionary policy has not yet stimulated economic activity — monetary policy always suffers lags between a reduction in interest rates and corresponding increases in economic activity. While a liquidity trap cannot be ruled out, it is premature to conclude the economy is stuck in one at this point in time.

Stagflation?

Other critics have argued that the Fed has created the opposite problem of a liquidity trap — rising inflation due to excessive liquidity. They argue that the economy has entered a period of stagflation, where falling or negative economic growth is accompanied by high or rising inflation.[51]

Typically, one would expect an economic slowdown to be accompanied by a decline in the inflation rate. Excess capacity in the capital stock and rising unemployment would force firms and workers to lower their prices and wage demands, respectively. But critics believe the economy is in a situation where a modest but persistent increase in inflation in recent years has led individuals to come to expect higher inflation, and factor that expectation into their price and wage demands. Couple those higher inflation expectations with rising commodity prices and the recent unusual large liquidity injections by the Fed, and critics argue that inflation will rise even if the economy slows. They point to the experience of the 1970s, when inflationary expectations became so ingrained that inflation continued to rise despite a fairly deep recession, as a potential parallel to the current situation.

Data suggest that the fear of stagflation is premature — both unemployment and inflation remain relatively low at present. It is true that in the long run inflation is primarily a monetary phenomenon, and if the Fed's recent monetary stance were maintained for too long, it would not be consistent with stable inflation. But in the near term, if unemployment and excess capacity rose and commodity prices decline, that would be expected to take much of the pressure off of the inflation rate. Ironically, if the Fed's actions succeed in reviving the economy, then the probability that its actions would boost inflation would increase. The key to maintaining a stable inflation rate is finding the proper balance between the disinflationary pressures of the slowdown and the inflationary pressures of expansionary monetary policy, rising commodity prices, and a falling exchange rate. The large amounts of liquidity that the Fed has added to the system must be removed soon enough that inflation does not rise, but not so soon that a nascent financial recovery is stubbed out. Given the

---

[50] Asset prices have been falling lately, but they are not included in standard measures of inflation, which measures the prices of goods and services.

[51] See CRS Report RL34428, *Understanding Stagflation and the Risk of Its Recurrence*, by Brian W. Cashell and Marc Labonte.

uncertainty facing policymakers at present, finding the proper balance is extremely difficult.[52]

Concluding Thoughts

Although turmoil plagues financial markets periodically, the current episode is notable for its breadth and persistence. It is difficult to make the case that the Fed has not responded to the current turmoil with alacrity and creativity. But its response has raised statutory issues that Congress may wish to consider in its oversight capacity. Namely, the Fed's role in the Bear Stearns acquisition, the AIG loan, the creation of the Primary Dealer Credit Facility (a sort of discount window for a group of non-member banks), and its intervention in the commercial paper market involved emergency authorities that had not been used in more than 70 years. This authority was needed because the actions involved financial institutions that were not member banks of the Federal Reserve System (i.e., depository institutions). The authority allows lending to non-member banks, but the loan in the Bear Stearns agreement is to a LLC that the Fed created and controls, and is being used to purchase Bear Stearns' assets. These actions raise an important issue — if financial institutions can receive some of the benefits of Fed protection, in some cases because they are "too big to fail," should they also be subject to the costs that member banks bear in terms of safety and soundness regulations, imposed to limit the moral hazard that inevitably results from Fed and FDIC (Federal Deposit Insurance Corporation) protections?

Some policymakers have begun to question whether an institution largely independent from the elected branches of government should be able to (indirectly) place significant taxpayer funds at risk by assisting the financial sector through use of its emergency powers. Furthermore, hundreds of billions of dollars of borrowing by the Treasury (through the Treasury Supplementary Financing Program) has allowed the Fed to increase its lending capacity without detrimental effects on inflation. But as long as there is no government program to systematically manage financial difficulties at too big to fail institutions, the Fed is the only institution that can step in quickly enough to cope with problems on a case-by-case basis. While some had believed TARP provided the type of systematic approach that would allow the Fed to return to a more traditional role, the Fed's subsequent creation of lending facilities to support the commercial paper market suggests that TARP cannot cover all unforeseen contingencies

[52] For more information, see CRS Report RL34562, *Slow Growth or Inflation? The Federal Reserve's Dilemma*, by Brian W. Cashell and Marc Labonte.