United States Monetary Policy during the Financial Crisis, Credit Facilities Development and Potential

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ABSTRACT

In response to the financial crisis, the Federal Reserve developed new credit instruments during late 2008 and early 2009 for the purpose of supporting the liquidity of financial institutions, and restoration of credit flows. These instruments represented a new method of directly funding targeted financial markets. Bank credit flow, however, has been anemic during the crisis and recovery period. It is argued here that the precedent established by the Federal Reserve for direct credit market intervention is currently needed to support the substantially lagging bank loans. Specific rationales for the evolution of the suggested tools of credit easing are presented.

INTRODUCTION

The U.S. and global financial markets became illiquid and volatile after August 8, 2007. During the third quarter of 2008, the normal efficient operation of the financial markets came to a halt, private intermediation among banks, and also between banks and depositors, virtually stopped. The portfolio composition of U.S. commercial banks, dominated by agency and GSE securities, became illiquid. Banks became unable to securitize loans. Bank capital came under pressure because of the increased write-downs on securities and rising loan- loss provisions.

In the beginning of the financial crisis, banks managed by borrowing from their foreign branches. This strategy helped as internal borrowing from foreign operation contributed more than 20 percent of domestic asset growth in the second half of 2007, a portion twice as large in the previous year. An additional major source of bank liquidity came from bank borrowing from Federal Home Loan Bank. This source also contributed more than 20 percent of total bank asset-growth in the second half of 2007. The Federal Reserve also tried to provide funds through the discount window where the spread was dropped 50 basis points, and banks were explicitly invited by the Fed to use the discount window. Banks were reluctant to use the discount window, however, because of the "stigma" traditionally attached to using this source, and due to easier borrowing conditions from the Federal Home Loan Bank. Discount Window borrowing was negligible in 2007.

The deteriorating bank liquidity resulted in the Federal Reserve's bold movement of creating numerous new arrangements beyond the traditional tools of open market operations and discount loans. The Fed aggressively expanded its lending and purchasing of assets with special focus on impacting selected financial markets. The aggressive Federal Reserve lending through the nontraditional facilities

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resulted in more than doubling of its assets. In August, 2007, the Fed's assets were $869 billion, but in December 2008, these assets had grown to $2,268 billion.

Fed's assets remained at high levels during 2009 and 2010. In April, 2010, the Fed's assets were $2,357 billion, but bank excess reserves grew to over $1 trillion during this period. Money supply measures M1 and M2, however, were virtually unchanged during most of 2008 and only slightly larger beginning the third quarter of 2008 up to the present (December 2010). The massive growth of bank reserves and the monetary base, and the small growth of the money measures, indicate that bank credit and the money supply multipliers virtually collapsed. Clearly, the data show that the U.S. economy has plunged into a Keynesian type bona fide liquidity-trap.

On November 2008, the Federal Reserve began unwinding some of the nontraditional credit facilities from its balance sheet, but in the meantime, it began adding mortgage-backed securities. Bank total reserves and excess reserves, however, remained roughly constant at historically high levels.[1]

This recent history prefaces the current and important debate regarding monetary policy. The Federal Reserve faces the dilemma of how and when to unwind the extraordinary monetary accommodation and absorb the huge quantity of excess reserves that it created to combat the financial crisis. Doing this prematurely risks tipping the economy into another financial crisis, but delaying too long risks substantial inflation.

The purpose of this article is to re-examine the Fed's current options for monetary policy, especially with respect to an extension of its credit facilities rather than additional increases in the monetary base. We argue here that renewal of the specially designed credit facilities is not only feasible, but would avoid further increases in bank excess reserves. We argue that this extension of the new policy tool of credit facilities would be a more viable method of stimulating the flow of bank credit, which up to now has been the key factor in inhibiting a more robust economic recovery. In order to fully compose our argument concerning the viability of an extension and development of the Fed's credit facilities, however, we must review in more detail the recent history of the Fed's involvement in this new instrument of monetary policy.

COLLAPSE OF THE MONEY SUPPLY PROCESS

Beginning in August, 2007, the rise in delinquencies on subprime mortgages triggered cascading effects that led to the collapse of the financial markets. As would be expected, the Federal Reserve responded to the crisis by employing traditional monetary tools. The Fed cut the discount rate in August of that year, followed by the Federal Open Market Committee easing monetary policy in September by reducing the target for the federal funds rate by 50 basis points. The continued financial turbulence led the Committee to reduce its target for the federal funds rate by a cumulative 325 basis points by the Spring of 2008. Though this policy response was rapid and bold and may have slowed down the financial turmoil and the deteriorating economy unfortunately, the intensification of the financial instability led to further deterioration in the economic outlook. The Committee responded by further cuts in the target for the federal funds rate to 0-25 basis points in December.[2]

The exceptional circumstances of 2007-2008 interfered with the Open Market Desk's ability to implement monetary policy. Credit spreads widened, lending standards became more restrictive, and credit market led to tighter financial conditions overall. In particular, many traditional funding sources for financial institutions and markets vanished, and banks and other lenders found their ability to securitize mortgages, auto loans, credit card receivables, student loans, and other forms of credit greatly curtailed. As extensions of credit came to a halt, the normal money supply process collapsed, and the money supply measures of M1 and M2 remained virtually unchanged despite bank reserves and the monetary base drastically increasing. This is to say that the money supply multipliers with respect to the monetary base collapsed. Any reserves that were added to the banking system were held as excess reserves.

The process of additional bank lending has necessary prerequisites:

- The central bank must create additions to the monetary base.
- The required reserve ratio against deposits must be less than 1. (This allows the possibility of excess reserves.)
- Banks desire to lend their excess reserves.
- There is a demand for new loans.

Post the initiation of the financial crisis; the first two of these conditions were clearly met by the Fed. There has, however, been some debate about the roles of the latter two. Bank reserves, excess reserves and the monetary base all drastically increased since August 2008. The money supply, however, remained virtually unchanged. This indicates the collapse in bank credit and the money supply multipliers for M1 and M2. The consensus, however, is that banks' unwillingness to lend caused the collapse of the money-supply transmission process. (See Carpenter and Demiralp, 2010, and Berrospide and Edge, 2010.) Figures 1, 2 and 3 illustrate this phenomenon.[1]

Figure 1: M1 and M2 Multipliers

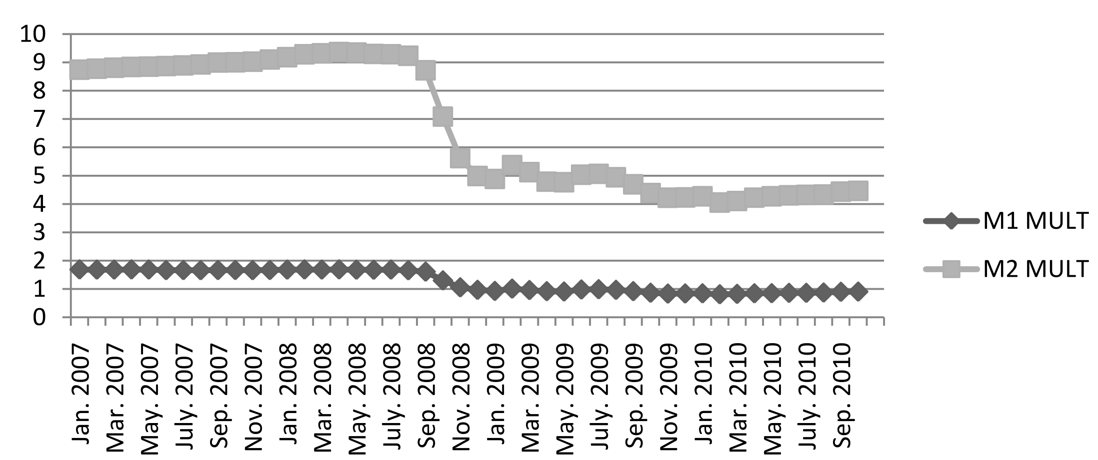


Figure 2: Excess Reserve Ratio= Excess Reserves/checkable Deposits

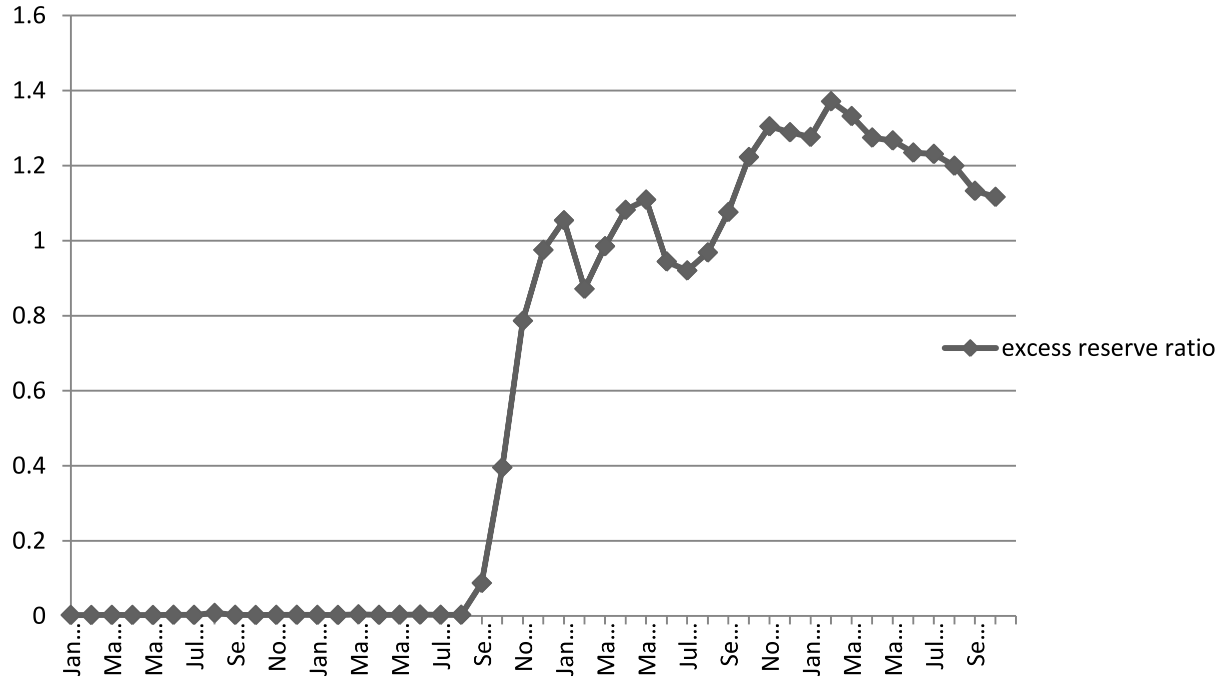
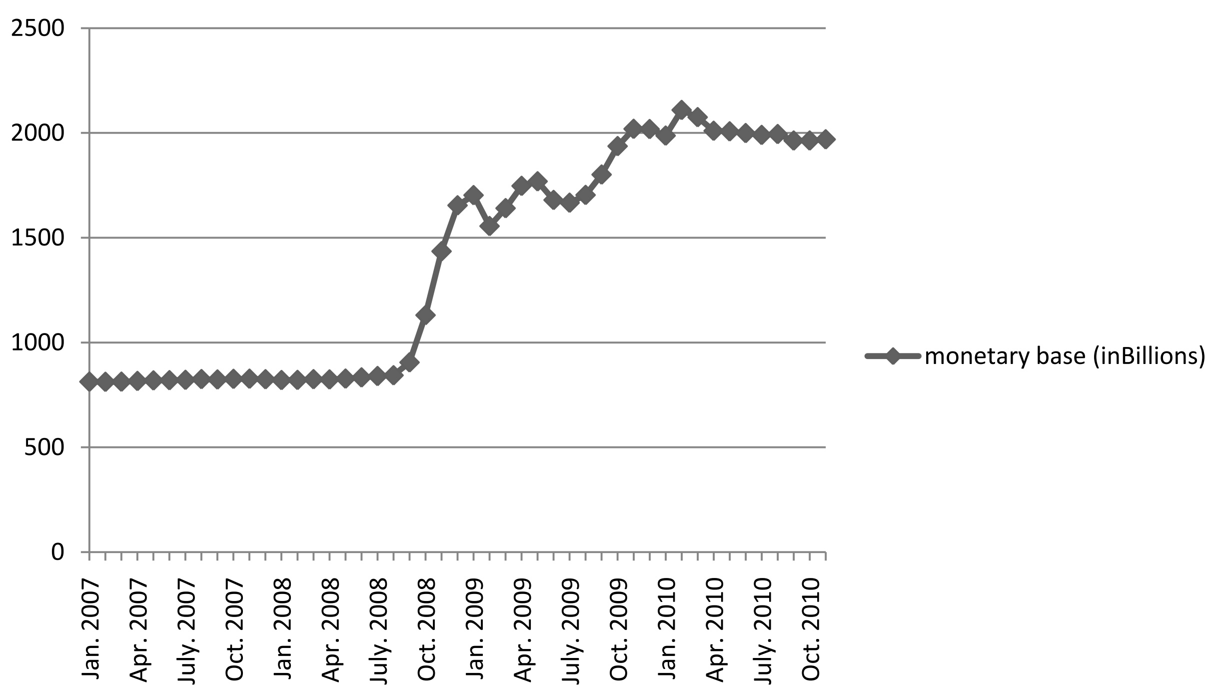


Figure 3: Monetary Base (in Billions) Jan 2007-Non. 2010



THE FEDERAL RESERVE'S RESPONSE TO THE FINANCIAL CRISIS

Bank creation of money came to a halt after the start of the financial crisis because of bank unwillingness to lend. The immediate challenge to policy makers was to reestablish the channels for bank credit, and to induce banks to lend the mountainous amount of excess reserves that the Fed supplied to the banking system.

The Fed's reduction in the target federal funds rate from 5-1/4 percent to effectively zero was an extraordinarily rapid easing in the stance of monetary policy.[2] In addition, however, the Fed implemented a number of programs designed to support the liquidity of financial institutions and foster improved conditions in financial markets. These new programs led to a significant change to the Fed's balance sheet.

The Federal Reserve explicitly identified two policy approaches to support credit markets: *quantitative easing* measures and *credit easing* measures.[2] Both approaches are similar in that they involve expanding the Federal Reserve balance sheet. However, the focus of the *quantitative easing* approach is on the expansion of bank reserves or the monetary base. The focus is on the liabilities side of the central bank balance sheet without regard to how the liabilities are created on the asset side. This policy approach was used by the Bank of Japan from 2001 to 2006. In contrast, the *credit easing* approach focuses on the type of loans and securities that the Fed holds, and on the importance of the mix of assets in improving credit conditions. The Federal Reserve focused its *credit easing* policies on reducing credit spreads and improving the functioning of credit markets. This approach bypassed the traditional gauges of the stance of monetary policy, i.e. the *quantitative easing* approach. This change in policies was necessary because the existence of large amounts of excess reserves indicates the ineffectiveness of *quantitative easing* because its link to money expansion has malfunctioned.

For this reason, the Federal Reserve created or redesigned many new lending facilities or tools.[1] The purpose of the new lending facilities was to address the funding difficulties of financial intermediaries and to improve market efficiency in short-term money markets. The new lending facilities were intended to strengthen the effectiveness of monetary policy.

The first set of tools consisted of enhancing or modifying the central bank's traditional role as the lender of last resort. This involves the provision of short-term liquidity to depository institutions. A second set of tools involve the provision of liquidity directly to key credit markets. The new facilities under this category include Commercial Paper Funding Facility, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, the Money Market Investor Funding Facility, and the Term Asset-Backed Securities Loan. Each of these facilities is reviewed below. The third set of instruments includes the change in implementing the open-market operations. On November 25, 2008 the Fed initiated the outright purchases of Agency and Agency MBS debt. On March 2009 the Fed initiated the outright purchases of longer term Treasury Securities. For example, on November 25, 2008, the Federal Reserve announced plans to purchase up to $100 billion in government-sponsored enterprise (GSE) debt and up to $500 billion in mortgage-backed securities. On March 18, 2009, the Fed announced plans to purchase up to

$300 billion of longer-term Treasury securities in addition to increasing its total purchases of GSE debt and mortgage-backed securities up to $200 billion and $1.25 trillion, respectively.[3]

THE FED'S NEW POLICY TOOLS AND CREDIT FACILITIES

The new credit facilities were aimed at:

1. Broadening the eligible set of borrowers and/or expanding the types of collateral accepted against extensions of Federal Reserve credit.
2. Directing credit directly to particular markets that are under severe stress.
3. Purchasing assets directly so as to influence key longer-term interest rates such as mortgage rates.

The following presents a listing of the nine new credit facilities and policy tools created by the Fed in response to the credit market collapse:

(1) Term Auction Facility (TAF): On December 12, 2007, in view of the serious illiquidity of term bank-funding markets, and the hesitation of banks to use the discount window because of the associated stigma, the Federal Reserve announced the creation of the TAF. Under this program, the Fed auctions term funds of either one-month or three-months, up to $150 billion per auction for depository institutions. All depository institutions that are eligible for discount loans are eligible to participate in TAF auctions. All advances are fully collateralized.

(2) Term Auction Facility (TAF): The TSLF was initiated by the Fed to deal with the illiquid repo markets.

(3) Primary Dealer Credit Facility (PDCF): The PDCF provides an alternative source of financing for dealers, and has proven useful in the wake of the takeover of Bear Stearns and the bankruptcy of Lehman Brothers. Its future in normal times is an important policy issue that has not yet been fully resolved.

(4) Swap Line (SL): This facility was created to deal with illiquid money markets that became segmented across countries and time zones. Under the swap agreements with various central banks, the Federal Reserve lends money to other central banks, collateralized by the other countries currency, where those central banks lend to commercial banks in their jurisdictions.

(5) Commercial Paper Funding Facility (CPFF): The Federal Reserve created the CPFF to deal with illiquidity in the short-term commercial paper funding markets. Under the CPFF, the Federal Reserve Bank of New York, through its primary dealers, financed the purchase of both unsecured and asset-backed commercial paper from eligible issuers. The CPFF financed only highly rated, U.S. dollar-denominated, three-month commercial paper.

(6) Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (ABCPMMMFLF): The Federal Reserve initiated this facility to help money market funds that hold asset –backed commercial paper to meet demands for redemptions by investors. This facility provided funding to

U.S. depository institutions and bank holding companies to finance their purchases of high-quality asset-backed commercial paper from money market mutual funds.

(7) *Money Market Investor Funding Facility (MMIFF):* As money market mutual funds and other investors increased their liquidity positions by investing in shorter-term (frequently overnight) assets, short-term debt markets became under considerable strain. In response to easing the short-term debt strain, the Federal Reserve created the MMIFF. Under this facility, the Federal Reserve Bank of New York provided senior secured funding to finance the purchase of certain money market instruments from eligible investors. Eligible assets included U.S. dollar-denominated certificates of deposit, bank notes and commercial paper issued by highly rated financial institutions. By facilitating sales of money market instruments in the secondary market, the MMIFF gave money-market mutual-funds the confidence that they could extend the terms of their investments and still maintain appropriate liquidity positions.

(8) *Term Asset Backed Securities Loan facility (TALF)**:*** The TALF is a funding facility that helped market participants meet the credit needs of households and small businesses by supporting the issuance of asset-backed securities collateralized by loans of various types. Under the TALF, the Federal Reserve Bank of New York loaned $200 billion on a non-recourse basis to holders of AAA-rated loans backed by newly originated consumers and small businesses. The U.S. Treasury Department, under the Troubled Assets Relief Program (TARP) of the Emergency Economic Stabilization Act of 2008, provided $20 billion of credit protection to the Fed in connection with the TALF.

(9) *Agency Mortgage-Backed Securities Purchase Program:* On November 25, 2008, the Fed announced plans for the outright purchases of Agency and Agency MBS debt. It purchased direct obligations of Fannie Mae, Freddie Mac, and the Federal Home Loan Banks, and mortgage-backed securities (MBS) guaranteed by Fannie Mae, Freddie Mac, and Ginnie Mae. The Agency and Agency MBS purchase phase was completed on March 31, 2010. As of May12, 2010, the Fed’s holdings of MBS were $1.068 trillion, and $168 billion of Federal Agency Debt.[3]

THE EFFECT OF NEW NONTRADITIONAL TOOLS ON THE FEDERAL RESERVE BALANCE SHEET

Extending Federal Reserve credit through the new lending facilities expanded the Federal Reserve balance sheet. The factors supplying reserve more than doubled from $902,993 on August 8, 2007 to $2.3 trillion on September 1, 2010. Almost all of the expansion in reserves occurred in excess reserves. Bank reserves, together with currency, make up the monetary base which increased significantly as the Fed's balance sheet expanded. However, bank credit declined or remained stationary as the money multiplier collapsed because banks chose to leave the great bulk of their reserves as idle excess reserves.

The bloated total assets of the Federal Reserve and the more than one trillion dollars in bank excess reserves present two important issues:

1. The longer-term issue concerns the Fed exit strategy of reducing excess reserves to normal levels so as to avoid inflationary bursts. Robinson and El Nasser (October, 2009), Robinson and El Nasser (Summer, 2010), and Wheelock (September, 2010) concerned this potential difficulty.
2. The shorter-term issue concerns the persistently almost stagnant or slow economic recovery with high rate of unemployment in the face of the dormant huge excess reserves. This is the subject of our current examination in this paper.

LOAN MARKET COLLAPS AND DIRECT INTERVENTION

The financial crisis and consequent recession was particularly marked by a collapse of loan markets. Table 1 presents the supporting data for this claim. Although economic recovery began in 2009, it continued at an anemic rate through 2010, at least anemic relative to historical growth rates for recoveries.

Table 1: Percentage Change in Loans (Seasonally Adjusted) Generated by US Commercial Banks 2005-November 2010*

Time Period	Commercial & Industrial	Real Estate	Consumer
2005	13.9%	15.4%	8.2%
2006	13.7	10.4	.8
2007	18.3	6.8	9.6
2008	14.3	.2	7.1
2009	-18.6	-5.4	-3.9
2009-I	-12.7	-1.0	7.9
2009-II	-16.4	-2.3	-9.5
2009-III	-27.3	-8.7	-4.8
2009-IV	-23.7	-9.9	-9.0
2010-I	-19.5	-8.1	-18.3
2010-II	-15.6	-6.5	-3.3
2010 April	-21.2	-5.9	.6
2010 May	-9.9	-4.9	-9.0
2010 June	-7.0	-5.9	-1.1
2010 July	-2.0	-8.3	-.1
2010 August	-1.5	-2.7	-5.1
2010 September	-5.5	-4.5	-17.1
2010 October	1.3	-5.2	-6.2
2010 November	2.3	-1.1	-9.1

*Series H8 Federal Reserve Bank Release, Board of Governors of the Federal Reserve.

In his Jackson Hole address, Chairman Bernanke cites the increased risk aversion of financial intermediaries as the cause of the collapse of these loan markets. He cites the continuation of this collapse as due to both the increased risk aversion and the decrease in loan demand on the part of business and consumers. Note that the savings rate is currently 6% as compared to an expected 4% as pointed out by the Chairman. The anemic economic recovery cannot be rectified without a resolution of this business and consumer loan collapse.

Under Term Asset-Backed Securities Loan Facility (TALF*)* and the Commercial Paper Funding Facility, the Fed funded short-term loans originated by dealers. Through these intermediaries, the Fed purchased securities that were collateralized by high credit-worthy loans. In essence, the Fed provided loanable funds to targeted credit worthy customers through intermediaries. We suggest that this process could be utilized again with commercial banks being the intermediaries, and credit worthy consumer and businesses being the targeted customers.

THE FUTURE USE OF CREDIT FACILITIES

The Fed is currently paying extremely low interest rates on reserves (approximately 15 basis points). The excess reserves certainly provide a long-term problem for control of the money supply as cited by Robinson and El Nasser (2009 and 2010) and Wheelock (2010). Directly providing more funds to the loan market would theoretically exacerbate this longer-term monetary control problem, i.e. longer-term inflation rates are a concern. The Fed, however, currently holds approximately $.8 trillion in Treasury securities which could be used to counteract any direct loan-market facility intervention. The Fed could simply sell at least some of these Treasury securities to fund purchases of securities from commercial banks, securities which are backed by (1) commercial and industrial loans, (2) real estate loans, and (3) consumer loans, the three loan areas that particularly collapsed and are continuing at subpar levels. The precedent for this sort of program was established for commercial paper and other asset markets during 2008-09. A similar program for the proposed targeted credit-worthy consumer, commercial, industrial and real estate loans which are clearly inhibiting recovery due to their low levels is currently warranted. Furthermore, such a program could not only be instituted by the Fed, but conducted in such a way as to be neutral with respect to the monetary base, i.e. leave the base unchanged and hence not exacerbate any future problem of inflation control.

This sort of program was established for commercial paper and other asset markets during 2008-09. A similar program for the proposed targeted credit-worthy consumer, commercial, industrial and real estate loans, which are clearly inhibiting recovery due to their low levels, may currently be warranted. This would be an extension of a newly created tool of monetary policy, i.e. the use of credit facilities rather than traditional quantitative easing. Furthermore, such a program could not only be instituted by the Fed, but conducted in such a way as to be neutral with respect to the monetary base, i.e. leave the base unchanged and hence not exacerbate any future problem of inflation control.

ENDNOTES

1. Credit and Liquidity Programs, and the Balance Sheet, Monetary Policy, Board Of Governors of the Federal Reserve, http://www.federalreserve.gov/monetarypolicy/bst.htm
2. Ben S. Bernanke. "Chairman of the Federal Reserve Board, the Crisis and the Policy Response," At the Stamp Lecture, London School of Economics, London, England, January 13, 2009 http://www.federalreserve.gov/newsevents/speech/bernanke20090113a.htm

3. Detailed information about the Federal Reserve's balance sheet is published weekly as part of the H.4.1 release. For a summary of Fed lending programs, see *Forms of Federal Reserve Lending to Financial Institutions* (229 KB PDF).

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