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Dial "M" for Monetary Policy

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Four aspects of the current situation

According to the National Bureau of Economic Research, the U.S. economy has been in recession since December 2007. Real national income held up remarkably well through the first three quarters of this recession—especially given the ongoing financial turmoil. But real output contracted rapidly in the last quarter of 2008, declining 3.8 percent at an annual rate according to preliminary estimates. Payroll employment shrank continually throughout last year, and the decline in jobs accelerated rapidly in the fourth quarter and into January of this year. At this point it seems likely that output and employment will continue to shrink in the first half of 2009.

There are several important aspects to this contraction.

First, the ongoing financial turmoil has affected a broad spectrum of financial markets and institutions around the world. The initial turmoil was associated with the downturn in the U.S. housing market and the attendant increase in defaults on a variety of mortgage products. But the onset of a sharp recession has added to difficulties in financial markets well beyond

those experienced during the first year of the crisis. In the U.S., the U.K. and the euro area, significant financial institutions have failed, been nationalized or received substantial injections of capital from the public sector. Credit markets far removed from mortgage finance, such as those for commercial paper, junk bonds, auction rate securities and credit default swaps, have faltered or collapsed.

Second, during the fall of 2008 and into early 2009, the Fed has injected an astonishing amount of liquidity into the economy. As a result, the U.S. monetary base has grown from $871 billion in August of last year to $1.73 trillion in January 2009. (1) This undertaking has supported domestic financial markets as well as domestic and international financial institutions. Support for dollar funding markets has been provided through swap operations with foreign central banksThis undertaking has supported domestic financial markets as well as domestic and international financial institutions. Support for dollar funding markets has been provided through swap operations with foreign central banks (2) —an increase of more than $400 billion from the end of September 2007 to the end of January 2009.— an increase of more than $400 billion from the end of September 2007 to the end of January 2009.

Third, the current recession is a global phenomenon. Growth has slowed appreciably or turned negative in many industrial countries, including the euro area, the U.K. and Japan. Even Chinese growth has been significantly affected as export demand from major world economies has declined. In part, this is because all economies have been impacted by the dramatic run-up of commodity and particularly energy prices in late 2007 and the first half of 2008 and by the subsequent decline in the second half of 2008.

The fourth aspect is the zero bound on nominal interest rates. Central bankers around the world have responded aggressively to the ongoing financial turmoil and the associated contraction in economic activity. The FOMC acted preemptively with a 50-basis-point reduction in the intended federal funds rate in September 2007 followed by an additional 75-basis-point reduction in January 2008. In December the Committee set a range for the federal funds rate target of zero to 25 basis points, effectively reaching the zero lower bound. Central banks of other major industrial countries

started reducing their targets for policy rates later than the FOMC did and most have not yet reached the zero lower bound. Still, policy rates have been moving lower worldwide. I believe it is fair to conclude that we are entering an extended period of exceptionally low policy rates globally. In the United States, the setting of nominal interest rate targets as a monetary policy tool will be off the table for some time. In this environment the implementation of monetary policy has to be refocused. The new focus should be on quantitative measures of policy.

In my remarks today, I will lay out a three-part thesis that takes these facts as a starting point.

In the first component, I will argue that a key near-term risk for 2009 is further disinflation and possibly deflation. Expectations of deflation for the next five years may feed into real interest rates, driving real rates higher just at the time monetary policy would like to move them lower. The zero bound is constraining ordinary policy responses to this situation, making things worse.

In the second component, I will argue that because of the special circumstances in which we find ourselves, monetary policy should focus more squarely on quantitative measures, beginning with the monetary base, to get some idea of the thrust of policy with respect to inflation. I stress that I would not recommend this approach in normal circumstances, as I think nominal interest rate targeting works well in more ordinary times. It is just that today's economy is operating far from its normal routine.

In the third component, I will consider the Fed's balance sheet. There I will stress that while the monetary base has expanded at an extraordinarily fast pace during the fall and winter, much of that expansion has been closely related to the Fed's lender-of-last-resort function, and cannot be counted on to keep expectations of disinflation and deflation at bay. Because of this, the Fed needs a more systematic method of keeping the persistent component of monetary base growth rates elevated in order to combat the risk of a deflationary trap. Two aggressive programs have been put in place that may help to meet this objective: outright open market purchases of agency debt and agency mortgage-backed securities (MBS) and an expanded Term Asset-

Backed Securities Loan Facility (TALF). But the strategies behind these programs have often been described in terms of the possible impact on specific markets. While the programs may help, we remain far from the systematic approach I would like to see.

The risk of further disinflation and a possible deflationary trap

Let me turn now to the first part of the thesis: that the primary near-term risk for monetary policy is continued disinflation and a possible deflationary trap. Core personal consumption expenditures (PCE) inflation has been negative during each of the last three months of 2008—in December, the rate was about minus three-tenths of one percent. The readings for the core consumer price index (CPI) inflation during these three months were similar, near zero to slightly negative. It is true that measured from one year ago, core PCE and core CPI inflation have not yet turned negative, but given the sharp drop-off in real activity at the end of 2008, it may be unwise to focus solely on the measures from one year ago at this juncture. I think it is reasonable to say that core inflation is running at zero to slightly negative rates at this time.

Further, the global recession promises to carry on at least through the first half of 2009. This suggests that there is a risk that core prices may continue to stagnate or decline slightly for some time to come. Should lingering financial turmoil continue to weigh on the economy and stretch the recession out still longer, the zero or negative inflation could continue through 2009. Over that time frame, deflationary expectations could become entrenched. For this reason I think we face some risk—at this point only a risk—of sustained deflation. One important near-term goal for monetary policy is to guide the economy away from this outcome.

In some ways, our current environment parallels the Japanese experience after 1990. The Japanese banking system encountered difficulties with "troubled assets" and the intermediation system broke down. Eventually, persistent year-over-year deflation was observed in core measures of inflation, and average economic growth stagnated. In Japan, policy rates have been below 1 percent for 14 years, and deflation was observed for more than a decade. The ultra-low nominal interest rate, deflationary outcome is

sometimes referred to as a deflationary trap. That is an experience that neither we, nor the rest of the world's economies, want to repeat.

Ongoing deflation in the United States might be particularly pernicious. Household mortgages are long-term nominal contracts. Sustained deflation increases the real debt burden of leveraged homeowners and can erode their equity. With sustained deflation, the foreclosure experience that we have seen in the subprime market could generalize to a wider spectrum of homeownership. This is a significant downside risk to macroeconomic performance.

In more ordinary times, central banks would have a standard policy response to inflation rates falling substantially below desired levels: namely, lower the policy rate. However, the zero bound is constraining that response in the current environment. To the extent that the recent disinflation is reflected in the expectations of market participants, it is therefore putting upward pressure on real interest rates, right at the moment when monetary policy would prefer to drive real interest rates lower. This is counterproductive for stabilization policy. The question is: What can be done to move inflation closer to desired levels, given the zero bound?

Why monetary policy should dial "M"

Let me now turn to the second part of the thesis: that monetary policy in the current situation should put increased emphasis on quantitative measures, starting with the monetary base. Conventional monetary policy has come to be defined as a central bank establishing an effective target for a short-term nominal interest rate. This has been incorporated in the recent practice of central bankers and in textbook and academic discussions of monetary policy. In textbooks, the nominal interest rate target is derived from a relationship, or policy rule, involving the long-term inflation objective of the central bank, deviations of actual inflation—either observed or forecast—from that inflation objective, and deviations of actual economic activity from some measure of "potential output." In actual practice the FOMC has been shown to follow such rule-like behavior at least since the beginning of the Greenspan period, though notable deviations from the predicted target have occurred on occasion. After a decade and a half, the private sector has

become fully conditioned to think of monetary policy in terms of a target funds rate and predictable adjustments of the target rate in a strategic or rule-like fashion. (3)

Under ordinary macroeconomic conditions, nominal interest rate targeting can work quite well. But under conditions where inflation expectations become highly unstable, or change rapidly, this approach to monetary policy is less feasible. Difficulties in controlling inflation expectations while using a federal funds rate target provoked the October 1979 Volcker monetary policy reform. (4) Under exceptional circumstances like the present, with policy rates at or near zero, low rates of actual and expected inflation, and a sharp contraction in economic activity, central bankers lose their ability to use nominal interest rate movements to signal to the private sector. This has surely created substantial uncertainty in the economy.Under exceptional circumstances like the present, with policy rates at or near zero, low rates of actual and expected inflation, and a sharp contraction in economic activity, central bankers lose their ability to use nominal interest rate movements to signal to the private sector. This has surely created substantial uncertainty in the economy.

One danger of the current situation is that, because the interest rate signal mechanism has been turned off, medium-term inflation expectations of the private sector can begin to drift, possibly toward a deflationary trap. In particular, once the zero lower bound is encountered, there is no conventional Fed policy tool—no nominal interest rate move—that will head off inflation that is "too low."Fed policy tool—no nominal interest rate move—that will head off inflation that is "too low."

To avoid the risk of deflation, it is important that the Fed provide a credible nominal anchor for the economy. One way to do so is to set quantitative targets for monetary policy, beginning with the growth rate of the monetary base. This has several advantages. First and foremost, the monetary base is relatively easy to understand, fostering better communication about the thrust of monetary policy. Second, we can be fairly certain that rapid expansion of the monetary base will be sufficient to head off any incipient deflationary threat. Rapid base growth has been associated with inflation in a wide variety of times and places in economic history.

One important disadvantage is that the linkages between the growth rate of the monetary base and key macroeconomic variables are not statistically tight. It is difficult to be as precise as we would like about the impact on the economy from a given increase in the base. We know this from wide-ranging earlier debates on monetary targeting during the 1980s and 1990s. One reason the linkages are not tight is that the monetary base has been left to be determined as a residual to the interest rate policy. In part as a result, the world's central banks focused almost exclusively on nominal interest rate targeting more or less en masse beginning in the 1990s. And, to be sure, I recognize this, and I would not recommend a base targeting approach in normal times. The move toward quantitative measures of monetary policy is a consequence of the zero lower bound and the exceptionally weak state of the economy.beginning in the 1990s. And, to be sure, I recognize this, and I would not recommend a base targeting approach in normal times. The move toward quantitative measures of monetary policy is a consequence of the zero lower bound and the exceptionally weak state of the economy.

While the statistical relationships may be less precise than in the case of nominal interest rate targeting, the effects are unmistakable and every bit as powerful. The fact that short-term nominal interest rates are at zero in no way inhibits money creation and its inflationary consequences. This channel can be used to support the Committee's medium-term inflation objective and head off a possible global deflation trap and the counterproductive rise in real interest rates that would accompany that outcome.

Examining the balance sheet

Let me now turn to a discussion of the Fed's balance sheet. Astute listeners will note that I said earlier that the amount of liquidity injected into the economy since September 2008 has been astonishing, and that, in fact, the monetary base has more than doubled during this period. However, I now want to divide the increase in the size of the balance sheet into two components, one temporary and one persistent. The temporary component is presently very large and is associated with the lender-of-last-resort function of monetary policy. This component is unlikely to have important inflationary effects as currently implemented. The persistent component is

presently smaller and is associated with outright open market purchases of agency debt and agency MBS. This program may have greater inflationary consequences going forward, and; so, may help the FOMC achieve medium-term inflation objectives and avoid further disinflation or outright deflation.

First let me talk about the temporary component.

An element of conventional monetary policy that is rarely addressed in textbook and academic discussions is the lender-of-last-resort function in a time of crisis. Historically central banks have flooded the banking system with liquidity by providing massive reserves in financial crises or panics. (5) Once the crisis is past, the liquidity injection can be reversed. There are few if any inflationary consequences of this type of liquidity injection. The Federal Reserve response to the 9/11 attacks and disruption of normal financial market function is a great example of this process.Once the crisis is past, the liquidity injection can be reversed. There are few if any inflationary consequences of this type of liquidity injection. The Federal Reserve response to the 9/11 attacks and disruption of normal financial market function is a great example of this process. (6) Total reserves in the banking system nearly doubled in the weeks following the attacks, but were removed in short order. Something like the 9/11 response is going on now, but on a grand scale and for an undetermined length of time.Total reserves in the banking system nearly doubled in the weeks following the attacks, but were removed in short order. Something like the 9/11 response is going on now, but on a grand scale and for an undetermined length of time.

The current financial crisis began in earnest in early August 2007. For more than a year into the crisis, the FOMC continued to target the nominal federal funds rate in the conventional fashion. The Fed also encouraged depository institutions to use its lending facilities as appropriate. In December 2007, the Term Auction Facility (TAF) was created with the intent of encouraging bank borrowing by circumventing any "stigma" associated with the primary credit facility. Simultaneously, the Fed established temporary swap lines with some foreign central banks to help ease conditions in dollar funding markets globally. The effective federal funds rate was maintained close to the intended target rate by sterilization of the effect of increased Fed lending on the monetary base. Initially the sterilization was accomplished by open

market sales from the System Open Market Account (SOMA) portfolio and, subsequently, by substantial increases in Treasury balances at the Fed in the Supplementary Financing Account. Monetary policy proceeded in the conventional fashion—targeting a nominal interest rate—despite substantial liquidity injections.

When financial market turmoil intensified in September 2008, the Fed response—hardly unconventional—was to flood the banking system with reserves. In fact, as I have stressed, this is the normal central bank response to severe financial market distress such as that experienced in 1998 or 2001. However, the scale of the response this past fall dwarfed that of these earlier events, and the crisis has persisted much longer than in earlier episodes.

These events have left the Fed with an expanded balance sheet. The question is, how much of the balance sheet expansion is temporary, being merely associated with the lender-of-last-resort function in this time of extraordinary crisis?

To keep the discussion simple, let us consider just three programs that are currently some of the largest contributors to the increased size of the balance sheet. These are the CPFF at $251 billion, the TAF at $413 billion and the swap lines at $391 billion, a total of more than $1 trillion. (7)

A critical element to the current liquidity injections is reversibility: How quickly and easily can programs be reversed or phased out, as is normal in the lender-of-last-resort function of monetary policy? The CPFF and TAF programs score high marks on this criterion. Outstanding TAF lending is under direct Fed control: The maturity of the outstanding loans is 84 days at a maximum, and the size and timing of future auctions are policy parameters. This facility can be phased out quickly at any time it is deemed appropriate. The Commercial Paper Funding Facility deals in short-term money market instruments and can also be phased out, if desired, in a short period of time. Indeed, as elevated risk aversion recedes and market functioning improves, the use of this facility may atrophy naturally. The duration of swap-line programs is somewhat more problematic. While all temporary swap lines have sunset dates, phasing them out cannot

realistically be done unilaterally by the Fed, but will require discussion with the foreign central banks involved. Still, the swap lines are clearly intended for temporary use.

Now suppose that the especially severe market stress of the past several months was to recede in such a way that the size of these three programs falls to zero, without any other effects on the remainder of the balance sheet. That would actually leave the size of the Fed balance sheet below the level of July 2007, before the crisis began in earnest, and before any special programs were introduced. It would be as if the FOMC had reacted to the financial crisis by shrinking the monetary base. From the perspective of maintaining an expansion of the monetary base to ward off a deflationary risk, these programs seem to be a thin reed on which to balance medium-term inflation objectives.

Now let me turn to the persistent components of the balance sheet. To keep the discussion simple, I will discuss just three items: The Fed's holdings of Treasury securities, the agency MBS purchase program and the TALF program.

Fed holdings of Treasury securities in July 2007 were about $800 billion. As liquidity programs were introduced during the crisis, this portfolio was sold off, and it now stands at $475 billion. This creates some room on the balance sheet.

In November 2008 the Federal Reserve announced a program to purchase direct obligations of housing-related government-sponsored enterprises (GSEs) and MBS backed by those GSEs. The ultimate goal of the program is to purchase up to $100 billion in GSE direct obligations and $500 billion in MBS. The purchase of agency debt is not unprecedented: Historically the SOMA portfolio contained agency debt, though these assets were allowed to mature and were not replaced. (8) These outright purchases could be viewed as, in part, a replacement for the Treasury securities that were sold off earlier. Still, the targets for these purchases indicate that the total purchases are expected to exceed the earlier decline in Treasuries. Thus, once these purchases are carried out, the balance sheet would have expanded relative to the $800 billion, July 2007 level. The future liquidity of

secondary markets for longer-term agency debt and agency MBS has yet to be determined, and it is not completely clear that large holdings of these securities could be readily sold back to the market before maturity.These outright purchases could be viewed as, in part, a replacement for the Treasury securities that were sold off earlier. Still, the targets for these purchases indicate that the total purchases are expected to exceed the earlier decline in Treasuries. Thus, once these purchases are carried out, the balance sheet would have expanded relative to the $800 billion, July 2007 level. The future liquidity of secondary markets for longer-term agency debt and agency MBS has yet to be determined, and it is not completely clear that large holdings of these securities could be readily sold back to the market before maturity.

The remaining program is the Term Asset-Backed Securities Loan Facility (TALF). Maturities of assets that will be purchased under the TALF will extend up to several years, and the current sunset date for new purchases under this program is the end of 2009. This program is not operational yet. The intent is to provide support to the securitization process, which has broken down, and the sunset clause indicates the temporary nature of the program. The multi-year maturities of the loans and the potential size of the program—up to $1 trillion—make the impact on the monetary base more persistent than for some of the other liquidity programs.

In general, if we are willing to think of the TALF as a temporary liquidity program, then we are left with the outright purchases of agency debt and MBS as the persistent components of the increase in the monetary base. These purchases are occurring on a sufficient scale to replace the previous sell-off of Treasuries and to also add about $275 billion to the size of the balance sheet. Unlike other items, this seems like a credible, persistent increase in the monetary base, likely to feed into inflation. Whether this increase in the persistent component of the monetary base is of a proper size to mitigate deflation risk is an open question. But one bottom line is that much depends on how the various pieces of the balance sheet are viewed.

Let me turn now to some brief conclusions.

Conclusions

Presently, macroeconomic expectations are very fluid and volatile. We know that expectations influence macroeconomic performance to a great degree, and that providing a solid anchor for expectations is an essential ingredient for any policy that will help resolve the current stress. The fact that the target federal funds rate has hit the zero bound has taken away the Fed's ability to signal its intentions for monetary policy at a critical time. And in particular, the Fed cannot lower interest rates further in response to incoming information that suggests inflation may be uncomfortably low. This makes the "M" part of monetary policy more important at this juncture. By expanding the monetary base at an appropriate rate, the FOMC can signal that it intends to avoid the risk of further deflation and the possibility of a deflation trap.

As I have discussed, the Fed's balance sheet has grown at an astounding rate since September of last year, and the monetary base has more than doubled. But the new, temporary, lender-of-last-resort programs are blurring the meaning of this picture. A temporary increase in the monetary base, by itself, would not normally be considered inflationary. The increase would have to be expected to be sustained in the future in order to have an impact. Much, but not all, of the recent increase in the balance sheet can reasonably be viewed as temporary. The outright purchases of agency debt and MBS are likely to be more persistent, however, and it is these purchases that may provide enough expansion in the monetary base to offset the risk of further disinflation and possible deflation. The quantitative effects of policy actions in this new environment are more uncertain than normal, but nevertheless these less-conventional policies can have every bit as powerful an impact on the economy as changes in the intended federal funds rate.

Footnotes
1. These figures are for the FRB-St. Louis adjusted monetary base monthly series.
2. See Chairman Bernanke's testimony before the Committee on Financial Services, U.S. House of Representatives, Washington, D.C. "Federal Reserve programs to strengthen credit markets and the economy." Feb. 10, 2009. [http://www.federalreserve.gov/newsevents/testimony/bernanke20090210a.htm](http://www.federalreserve.gov/newsevents/testimony/bernanke200902

10a.htm)
3. Various studies have shown that after 1999 financial market participants were rarely surprised by changes in the funds rate target that occurred at regularly scheduled FOMC meetings. See Poole and Rasche (2003) "The Impact of Changes in FOMC Disclosure Practices on the Transparency of Monetary Policy: Are the Markets and the FOMC Better 'Synched'?" FRB-St. Louis Review 85(1): 1-10.85(1): 1-10.
http://research.stlouisfed.org/publications/review/03/01/PooleRasche.pdf Intermeeting changes in the funds rate target frequently caught financial market participants by surprise.Intermeeting changes in the funds rate target frequently caught financial market participants by surprise.
4. See Lindsey, Orphanides, and Rasche (2005) "The Reform of 1979: How it Happened and Why," Federal Reserve Bank of St. Louis Review , 87(2, part 2) March/April, pp. 187-236., 87(2, part 2) March/April, pp. 187-236.
http://research.stlouisfed.org/publications/review/05/03/part2/Lindsey.pdf
5. See for example Richard G. Anderson, " [Bagehot on the Financial Crises of 1825...and
2008](http://research.stlouisfed.org/publications/es/09/ES0907.pdf) "," Economic Synopsis, 2009(7).
research.stlouisfed.org/publications/es/09/ES0907.pdf.2009(7).
research.stlouisfed.org/publications/es/09/ES0907.pdf.
6. Jeffrey M. Lacker (2004), "Payment system disruptions and the federal reserve following September 11, 2001," Journal of Monetary Economics, 51(5), July, pp. 935-65.51(5), July, pp. 935-65.
7. As of Feb. 12, 2009.
8. On Dec. 31, 1970, the SOMA portfolio contained no GSE debt. By Dec. 31, 1979, it had built up to $8,709 million. It gradually ran down in the 1980s and 1990s. On Dec. 31, 2000, it was down to $130 million and by Dec. 31, 2003, it was zero.

- **February 5, 2009**. Speech. "Monetary Policy Tools in an Environment of Low Interest Rates," (cfa_bullard4feb2009finalpdf) delivered at the CFA Society of St. Louis.
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