Brian P Sack: Implementing the Federal Reserve's asset purchase program

Remarks by Mr Brian P Sack, Executive Vice President of the Federal Reserve Bank of New York, at the Global Interdependence Center Central Banking Series Event, Philadelphia, 9 February 2011.

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It is a pleasure to be back in my hometown of Philadelphia and to be invited to speak tonight at this event hosted by the Global Interdependence Center (GIC) and the Federal Reserve Bank of Philadelphia. The GIC has an impressive history of promoting public dialogue about monetary policy and other topics, and it is a privilege to be able to participate in that process. Tonight I will focus my comments on the implementation of the recent monetary policy decisions of the Federal Reserve and the associated implications for its balance sheet. As always, the views I will express are my own and do not represent those of the Federal Open Market Committee (FOMC) or the Federal Reserve System.

Unconventional policy decisions

In the second half of 2010, the FOMC made two important policy decisions about the size and composition of the Federal Reserve's balance sheet. In August, it decided to begin reinvesting the principal payments from its holdings of agency debt and mortgage-backed securities into longer-term Treasury securities, thereby keeping the amount of domestic assets held in the System Open Market Account (SOMA) portfolio unchanged at about $2 trillion. In November, the FOMC announced that it intended to expand the SOMA portfolio by purchasing an additional $600 billion of longer-term Treasury securities through the end of the second quarter of 2011, bringing the intended level of domestic securities holdings to $2.6 trillion.

Those decisions were aimed at providing more monetary policy stimulus to the economy. The FOMC saw the additional stimulus as warranted because it viewed the progress toward its mandated objectives of full employment and price stability as disappointingly slow.[1] In effect, the Committee was using the size and composition of its balance sheet as a policy instrument, given that it had already employed its traditional means of easing monetary policy – decreasing short-term interest rates – to the fullest extent possible. Federal Reserve Chairman Bernanke has noted that the intention of asset purchases is similar to that associated with changes in short-term interest rates, in that they are meant to affect economic activity by influencing broader financial conditions.[2]

But while the intention of the recent policy decisions may be similar to traditional monetary policy adjustments, the implementation of them is not. These policy decisions involve what are presumably some of the largest and most rapid portfolio adjustments that have ever taken place by any single financial market participant. To put it in perspective, note that these recent policy decisions involve the Federal Reserve purchasing, over an eight-month period, more Treasury securities than the amount currently held by the entire U.S. commercial banking system.

It is therefore no small task to determine how to implement these purchases in an effective and responsible manner. That task falls to the Open Market Trading Desk (the Desk) at the

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[1] The phrase "disappointingly slow" was used in the November FOMC statement.

[2] This point has been noted by Chairman Bernanke on several occasions. For example, see his remarks at the European Central Bank on November 19, 2010.

Federal Reserve Bank of New York. Let me describe how the Desk has conducted those purchases and some of the issues that we have taken into consideration during the process.

Implementing Treasury purchase operations

A good place to start is with the distinction between the roles of the FOMC and the Desk. The FOMC is responsible for making monetary policy decisions, while the Desk is responsible for implementing those policy actions on behalf of the FOMC. Thus, decisions about the broad parameters of any asset purchase program, including the amount of securities to be purchased and the duration of those securities, reside with the FOMC, as those are the parameters that will govern the overall impact on financial conditions and, ultimately, on the economy.

The role of the Desk is to determine how best to carry out the purchase programs within those broad parameters. In doing so, the Desk seeks to meet the policy intentions of the FOMC, while taking into consideration two other objectives. The first objective is to obtain the securities at competitive and appropriate prices for the Federal Reserve, as doing so will ultimately benefit the U.S. taxpayer. The second objective is to minimize any negative effects that the purchases might have on the functioning of financial markets. As I noted in a speech in October 2010, the liquidity and efficiency of the Treasury market provide tremendous benefits to our economy, and the Desk was intent on designing a purchase program that would not diminish those benefits in any meaningful way.[3]

To achieve these objectives, the Desk relies on a system in which it purchases securities through reverse auctions with a set of established counterparties called the primary dealers.[4] The securities that are eligible for each operation and an indication of the total size of the operation are announced in advance.[5] Dealers then submit offers to sell those securities, either for their own accounts or on behalf of their customers, over a 45-minute period on the morning of the operation. Those offers are assessed by the Desk based on two criteria: their proximity to market prices at that time, and an internal methodology for comparing the relative value of the securities at the offered prices.[6] This process occurs over a proprietary trading system called Fedtrade under the oversight of Desk staff, and the results are typically finalized and published within a few minutes of the close of the operation.

With this infrastructure, the Desk has been able to purchase large volumes of securities in a rapid manner, as required by the policy decisions made by the FOMC. Indeed, over the period since the FOMC's decision to expand the SOMA portfolio, the Desk has purchased about $300 billion of Treasury securities.[7] That total includes about $220 billion of purchases out of the intended $600 billion expansion of the portfolio, and another $80 billion of purchases associated with the reinvestment of principal payments on agency debt and mortgage-backed securities.[8] In terms of the monthly pace, the purchases so far have been

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3 See Brian Sack. 2010. "Managing the Federal Reserve's Balance Sheet." Remarks at the 2010 CFA Institute Fixed Income Management Conference, Newport Beach, California, October 4.

4 The list of primary dealers.

5 This information is included in a monthly purchase schedule published by the Desk.

6 The methodology for comparing the relative value of the securities at the offered prices is based on a spline fitted through the prices of Treasury securities.

7 These changes are measured since the November schedule published by the Desk, which was the first schedule of operations to come out after the FOMC decision. All data on policy operations are through Friday, February 4, 2011.

8 The purchases associated with these two components are combined in the monthly schedule. To arrive at the totals reported in the text, we allocate the purchases so far this month proportionally across the two components.

running at about $105 billion per month, consisting of roughly $75 billion in new investments and $30 billion of reinvestments. To meet this pace, the Desk has been operating in the market on nearly every available day.[9]

The operations to date have gone well. Participation by the dealers has been strong, with an average offer-to-cover ratio of about 3.5, and the accepted offers have been allocated across a number of dealers and a wide range of securities. Given the robust participation in the operations, the Desk has received competitive and appropriate prices for the securities obtained.[10]

Moreover, our purchases do not appear to be causing significant strains on the liquidity or functioning of the Treasury market. It is unusual for the market to have such a large, persistent, and one-sided participant, and we had to worry about how it would adjust to our presence. However, the available evidence suggests that market liquidity is decent at this time. Measures of liquidity, such as trading volumes, bid-ask spreads, or quote sizes, worsened in December, but that pattern appears to have been driven by year-end effects rather than our presence in the market. These measures have recovered since the year-end, moving back toward the levels observed before the start of the purchases.

In addition, we do not see signs that the market is facing unusual scarcity of particular Treasury securities. To monitor this, we look at the number of issues trading on special in the repo market and at the amount and composition of the securities that the market borrows from our securities lending facility. Both measures have increased some, but we do not see their current levels as indicating notable strains. Moreover, it does not appear that these patterns are more acute in securities for which the SOMA portfolio holds a larger proportion of the supply.

Our success at purchasing such large volumes of securities without causing significant market strains reflects some of the operational decisions that were made in the design of the program. One key issue was determining an appropriate speed for purchasing assets. The pace of purchases under the announced plan reflected a judgment by the Desk that it could purchase as much as $100 billion to $125 billion per month without significantly disrupting the functioning and liquidity of the Treasury market. So far, that appears to be the case, given the evidence just described.[11]

Another important aspect of the operations is the flexibility in terms of the securities that we purchase. As noted earlier, our selection of the specific offers to accept at a given operation depends on our assessment of their relative attractiveness. This process should support market functioning. In particular, it allows the market to determine which securities it is willing to sell on the most favorable terms for us. If a particular security is scarce in the market, we will presumably not be shown offers at attractive terms, and hence we will not end up removing additional supply of that security.

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[9] The Desk tends to avoid conducting operations on days that coincide with FOMC announcements and on days that are known to have lighter liquidity conditions.

[10] The Desk has begun publishing additional information from its operations, including information about the prices paid for each security, on a monthly basis. In addition, under the Dodd–Frank Wall Street Reform and Consumer Protection Act, the Federal Reserve will publish additional information about its open market operations, including the individual securities purchased, the transaction prices and the counterparty, with a two-year lag for all transactions subsequent to the legislation.

[11] Implementing the program over an eight-month period would not be expected to significantly reduce the speed or magnitude of its effects on financial conditions and, ultimately, on the real economy under the view that the program's effects arise from the expected stock of our holdings rather than the flow of our purchases. Under this view, financial conditions react immediately to the announcement of the program, bringing forward its effects on financial conditions. This view provides policymakers with some flexibility regarding the amount of time to implement the total amount of purchases.

The flexibility of this procedure can be seen in the patterns of our purchases over time. Earlier in the program, we ended up purchasing a large concentration of off-the-run securities, including bonds that were issued 15 to 25 years ago. Given their age, these bonds are generally less liquid and less valuable to market participants, and hence dealers were willing to sell them to us at cheaper prices relative to other securities. At more recent operations, however, we have received a greater share of offers to sell more recently issued Treasury securities, including on-the-run issues, and our purchases have shifted accordingly. This suggests that older, off-the-run securities may have become harder for dealers to obtain, and that they have increasingly found it appealing to offer more recent issues, which are available in greater supply and are generally more liquid. Our procedure allows this shift to take place, as long as the more recent issues are offered to us on generally favorable terms.

Overall, the Desk has endeavored to implement the FOMC's policy decisions in a manner that ensures competitive and appropriate prices for the securities obtained and that maintains the efficient functioning of financial markets. I believe that we have managed to accomplish these objectives with our operations to date.

Market developments during the purchase programs

Of course, the operational objectives discussed above do not speak to the broader policy objectives of the asset purchase programs. The policy decisions made by the FOMC in August and November were intended to influence financial conditions in a manner that would support the economic recovery and return employment and inflation, over time, to levels consistent with the FOMC's objectives. One way that this might occur is through a portfolio balance channel.[12] Under this view, removing duration risk from the market would tend to keep longer-term real interest rates lower than they otherwise would be and would encourage investors to move into other types of assets, thereby making broader financial conditions more accommodative.

These intended effects were apparent in financial markets from mid-August to early November, when investors increasingly anticipated the Federal Reserve's decision to expand its balance sheet. Over that period, longer-term real interest rates declined, breakeven inflation rates moved up toward more normal levels, equity prices rose notably and risk spreads on many credit instruments narrowed. This configuration of asset price movements is the pattern that is typically associated with additional monetary policy easing.

Since early November, one of the notable developments in financial markets has been the sharp increase in longer-term interest rates. At first glance, this change may seem at odds with the portfolio balance channel. However, it is important to understand the factors that led to the increase in interest rates in the current circumstances.

The upward movement in longer-term interest rates in large part reflects the greater optimism among investors about the outlook for economic growth. Investors revised up their baseline forecasts for the economy and reduced the perceived downside risks that they see around that outlook. This shift in the outlook led the market to price in the possibility of earlier increases in short-term interest rates and to scale back the size of asset purchases that they expect from the Federal Reserve. Both of those developments contributed to the significant rise in yields.

In contrast, the rise in yields does not appear to be driven by the concerns expressed by some that the asset purchase program would unleash a considerable rise in U.S. inflation and inflation expectations to levels well above those consistent with the Federal Reserve's

[12] The portfolio balance channel was discussed by Chairman Bernanke in a speech at the Jackson Hole Symposium in August 2010.

mandate. Such an outcome would be detrimental to the economic outlook, leading to downward pressure on risky asset prices and a substantial weakening in the value of the dollar. However, what has taken place in U.S. markets to date does not resemble this outcome. Indeed, over the period since the November FOMC meeting, longer-term inflation expectations have remained at levels consistent with the Federal Reserve's mandate, risky asset prices have advanced and the dollar has held its ground.

Overall, the broad improvement in financial conditions since last summer has been an important and encouraging development. Risky asset prices such as equities have risen at a rapid pace, and credit spreads and measures of credit availability have continued to ease. These changes have been driven to a large extent by the improvement in the economic outlook and, in turn, will help to promote the economic recovery going forward.

The decisions taken in the second half of 2010 affecting the size of the Federal Reserve's portfolio have provided support to that process. To be sure, economic fundamentals will ultimately exert the strongest force on financial conditions, as can be seen by the rise in Treasury yields even as the Federal Reserve expanded its balance sheet. But the Federal Reserve's balance sheet actions have helped to make broader financial conditions more accommodative.

Characteristics of the SOMA portfolio

The set of asset purchase programs launched by the Federal Reserve, including those initiated at the peak of the financial crisis and the more recent actions, have changed some of the basic characteristics of the SOMA portfolio. I thought it would be useful to review those changes and to discuss their implications for the conduct of monetary policy.

The most obvious effect of the purchase programs has been on the size of the SOMA portfolio. If the intended asset purchases announced in November are completed, the size of the domestic portfolio will reach approximately $2.6 trillion by mid-year – considerably larger than the $1 trillion portfolio that would be in place in the absence of the asset purchase programs.

In addition, the purchase programs have affected the duration of the portfolio. The securities that have been purchased by the Desk since November have had an average duration of about 5.5 years. With those purchases and the adjustments from the earlier purchase programs, the duration of the overall SOMA portfolio has reached about 4.5 years, which is somewhat higher than the typical level of between 2 and 3 years that was observed before the financial crisis.

This combination of its larger size and longer duration results in a greater amount of interest rate risk embedded in the SOMA portfolio.[13] Of course, under the view that the asset purchase programs operate through a portfolio balance channel, this is precisely how the programs have an effect on the economy – by transferring risk away from private investors and onto the Fed's books.

The risks to the portfolio arise because the characteristics of the assets that have been purchased differ from those of the liabilities that have been created by those purchases. The assets held in the SOMA portfolio have fixed coupon rates that reflect longer-term interest rates. However, the purchases of those assets create reserves in the banking system, and the Federal Reserve pays interest on those reserves at a short-term interest rate that it

[13] Note that the securities purchased under these programs involve no credit risk, given that they are issued by the Treasury or are guaranteed by government sponsored enterprises. The relevant risk for the SOMA portfolio instead has to do with movements in interest rates at different maturities.

controls. The interest paid on reserves can be thought of as the "funding cost" of the portfolio.

Today, because short-term interest rates are low relative to longer-term interest rates, this mismatch produces a very elevated stream of net income. In particular, the SOMA portfolio has a weighted average coupon yield of about 3.5 percent, which, if applied to a $2.6 trillion portfolio, produces about $90 billion of income at an annualized rate.[14] In contrast, the annualized funding cost of the portfolio at this time is only around $4 billion. This cost is relatively low because of the near-zero level of the interest rate paid on reserves. In addition, the private sector holds nearly $1 trillion of currency, which are liabilities of the Federal Reserve that bear no interest.[15] Thus, the SOMA portfolio should produce a considerable amount of net income over the near term.[16]

Beyond the near term, though, the income that will be produced by the SOMA portfolio is uncertain. If short-term interest rates were to rise, the funding cost of the portfolio would increase relative to the fairly steady yield earned on the assets held, reducing the amount of net income from the portfolio. In addition, if longer-term yields were to shift higher, the Federal Reserve could realize capital losses if it were to begin selling assets.

However, even if interest rates did move up abruptly and the SOMA portfolio experienced realized losses, it would have no meaningful operational consequences for the Federal Reserve's ability to implement monetary policy. These losses would not impair the FOMC's ability to control short-term interest rates by paying interest on reserves or by draining reserves as needed. Accordingly, the Federal Reserve would continue to operate in the same manner that it otherwise would have in pursuing its economic mandate.

What would be affected by unexpectedly large realized losses on the SOMA portfolio would be our remittances to the Treasury. All Federal Reserve earnings in excess of those needed to cover operating costs, pay dividends and maintain necessary capital levels are remitted to the U.S. Treasury on a weekly basis. Accordingly, any change to the income on the SOMA portfolio directly affects the amount of funds that the Federal Reserve remits to the Treasury. The unusually large amount of portfolio income realized of late has boosted those remittances considerably. If portfolio income were to decline going forward, whether toward more normal levels or toward unusually low levels, the amount of those remittances would adjust lower.[17]

Ensuring our ability to remove policy accommodation

While the potential risks around the SOMA portfolio will not hamper the implementation of monetary policy, the size and duration of the portfolio will have to be taken into account when considering the appropriate policy strategy. In that regard, it is worth noting that, even as the

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[14] The weighted average coupon rate is closer to 4 percent. However, to get to the reported income stream on these assets, we have to adjust for the amortization of any premium that we paid at our operations. I am referring to this adjusted measure as the average coupon yield.

[15] Factors other than currency held also affect the amount of reserves in the financial system, as reported in the Federal Reserve's H.4.1 Statistical Release.

[16] Indeed, the SOMA portfolio has already produced a large flow of income for the Federal Reserve for these same reasons. Over 2009 and 2010, the SOMA portfolio produced $46 billion and $76 billion of interest income, respectively, while the interest expense on reserve balances was $2 billion and $3 billion, respectively, in those years. Over the preceding 10 years, the average SOMA income was about $30 billion. The excess income in recent years has already been remitted to the Treasury.

[17] In the most extreme case, the Federal Reserve would have to cease remittances to the Treasury for a time. Of course, one might also want to take into consideration the additional tax revenue to the government that could be generated by the more robust economic recovery supported by the asset purchase programs.

Federal Reserve has been expanding its balance sheet, it has not lost any momentum in the preparation of its exit tools.

When the FOMC eventually determines that the time to begin reducing policy accommodation has come, the critical tool will be the ability to pay interest on reserves. As has been discussed on many occasions, paying interest on reserves will allow the FOMC to control the cost of short-term credit even with an enlarged Federal Reserve balance sheet.

In addition, we continue to make considerable progress increasing our capacity to drain reserves if necessary. At this time, more than 500 depository institutions have registered for the term deposit facility. Those firms, in aggregate, hold nearly $600 billion of the reserve balances that are currently in the financial system. We also have added 58 money market funds as counterparties for reverse repurchase agreements, in addition to the 20 primary dealers that are our regular counterparties. Those money funds currently hold more than $1.5 trillion of assets, with a good portion of those assets in the type of short-term repurchase agreements that we would be offering. In short, we have already established considerable capacity to drain reserves with these two tools, and we will continue to advance them in productive directions.

Lastly, the FOMC could also remove policy accommodation by halting the reinvestment of maturing assets or by selling securities that are held in the SOMA portfolio, as noted by Chairman Bernanke at last week's press conference.

Conclusions

My purpose today was to provide information on the manner in which the Desk has conducted the asset purchases that the FOMC has decided to pursue and the associated implications for financial markets and the Federal Reserve's balance sheet.

On the whole, I believe that the recent asset purchases by the Federal Reserve have had helpful effects on financial conditions and have been implemented in a manner that has been flexible enough to avoid any significant negative consequences for the functioning of financial markets. Moreover, while the programs have resulted in significant changes to the characteristics of the SOMA portfolio, those changes will not impede the ability of the Federal Reserve to adjust the degree of policy accommodation when judged appropriate by the FOMC.