

**Recent Developments in U.S. Monetary Policy:
From Extraordinary Back to Ordinary**



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Introduction

Good morning. It is a privilege to join you at this event organized by the Global Interdependence Center and the Banque de France. I am proud to say that I have had an association with the GIC for many years. I have always valued the insights I've gleaned from attending GIC events, and I am very grateful that David Kotok, John Silvia, and their colleagues have invited me to participate in today's program, which is part of the GIC's Central Banking Series.

Today's topic, "New Policies for the Post-Crisis Era," is quite timely. Although policymakers in the United States and Europe face distinct economic environments, we face similar challenges in determining the most effective policies in those environments. I plan to share a few thoughts about monetary policy on my side of the pond. In particular, I want to discuss some of the FOMC's plans for policy normalization. But to put that into context, it is important to understand how we got to this point, so I will start with a review of some of the monetary policy actions the Fed took to address the financial crisis and Great Recession. As always, the views I'll present today are my own and not necessarily those of the Federal Reserve System or of my colleagues on the Federal Open Market Committee.

U.S. Monetary Policy in Extraordinary Times: Interest Rates, Asset Purchases, and Forward Guidance

In response to the financial crisis and deep recession, the Federal Reserve took some unprecedented policy actions. The Fed's policy body, the Federal Open Market Committee, or FOMC, has run an extraordinarily accommodative monetary policy to promote our goals of price stability and maximum employment. The FOMC has kept its policy rate – the federal funds rate – at essentially zero since the end of 2008 and it has used forward guidance to communicate the anticipated future path of policy. In addition, to exert downward pressure on longer-term interest rates, it purchased large volumes of longer maturity Treasury securities and mortgage-backed securities guaranteed by the housing-related U.S. government-sponsored enterprises, Fannie Mae, Freddie Mac, and Ginnie Mae.

This extraordinarily accommodative monetary policy has provided important support to the U.S. economy, helping to promote stronger labor markets and the pickup in growth that underlies my projection of a gradual return of inflation to our 2 percent goal over time. But it has also presented some challenges for the FOMC in returning to a more normal policy-setting framework. To understand those challenges, it helps to review some of the major policy developments since the crisis.

Some of the Federal Reserve's policy actions were aimed at addressing the stresses that emerged in financial markets in 2007 and 2008. Other policy actions were focused on easing monetary conditions to promote the Fed's dual mandate goals of price stability and maximum employment.

The Fed's first action in August 2007 was to cut the primary credit rate – the rate that banks pay to borrow from the Fed's discount window – by 50 basis points, to 5.75 percent. This action was taken to encourage liquidity-constrained institutions to borrow from the Fed.

The following month, the Fed began lowering the fed funds rate target, starting from 5.25 percent before the September 2007 rate-cut and ending at essentially zero in December 2008. This was an unprecedented step into a new monetary policy regime. The fed funds rate has been effectively at the zero lower bound ever since.

During this period the Fed also responded to the crisis by implementing a number of unprecedented lending and liquidity programs, but in the interest of time, I won't review them here.¹

¹ As discussed in Loretta J. Mester, "Federal Reserve Monetary Policy and Financial Stability Policy After the Crisis," presentation at the Conference on Understanding the Economic Slump: Balance Sheets and Policy Uncertainty, at the Julis-Rabinowitz Center for Public Policy and Finance, Princeton University, March 1, 2013 (http://www.princeton.edu/jrc/events_archive/repository/second-conference/), these programs differed by the types of borrower and the types of collateral on which the lending was based. Some of the programs, like the Term Auction Credit Facility for banks and the Primary Dealer Credit Facility, fell under the traditional lender-of-last-

The Fed's actions helped to stabilize financial markets. However, the real economy had suffered a lot of damage. The U.S. unemployment rate rose from about 5 percent before the recession to its peak of 10 percent in October 2009. Over the course of the recession, core inflation fell from around 2 percent to about 1 percent. Ordinarily, such conditions would warrant further reductions in the policy rate. But with the fed funds rate at its zero lower bound, the Fed engaged in nontraditional policies to support the economy. In particular, between December 2008 and October 2014, to put downward pressure on longer-term interest rates, the Fed purchased large volumes of longer maturity U.S. Treasury securities and agency mortgage-backed securities.²

Large-scale asset purchases are thought to affect longer-term interest rates via a couple of channels. The first channel relies on segmented markets. When financial markets are segmented either because arbitrage is disrupted (as it was during the financial crisis) or because certain market participants prefer particular types of assets, then assets are not perfect substitutes. In such a situation, when the central bank reduces the supply of longer-term assets by purchasing a large volume, the prices of those assets should rise and the term premium on the assets should fall. As investors begin to replace those assets with

resort role of central banking. Other programs were targeted to particular credit markets outside of the banking system that were deemed critical, like the commercial paper market, money market mutual funds, and asset-backed securities. In addition, because of the global nature of the crisis, the Fed coordinated with other central banks to provide liquidity via swap agreements. Another set of actions was intended to avoid potential spillovers from a disorderly unwinding of contracts triggered by the failure of systemically important financial firms. This included the Fed's support in the sale of Bear Stearns to JP Morgan Chase and loans to AIG.

² Between December 2008 and August 2010, the Fed bought \$1.25 trillion of agency mortgage-backed securities; \$175 billion of agency debt, and \$300 billion of longer-term Treasury securities. From November 2010 to June 2011, the Fed bought an addition \$600 billion of longer maturity Treasuries. Between September 2011 and December 2012, the Fed implemented a program to extend the maturity of its asset holdings without changing the size of its balance sheet. Under the so-called Operation Twist, the Fed purchased longer-term Treasuries and sold an equal amount of short-term Treasuries.

In September 2012, while Operation Twist was still in place, the Fed began an open-ended purchase program of agency MBS securities. At the conclusion of Operation Twist in December 2012, longer-term Treasuries were added to the program as well. This program differed from the earlier ones in that instead of announcing a set volume of purchases over a defined time period, the Fed specified a monthly amount of longer-term securities that it would buy. The initial flow amount of longer-term MBS and Treasuries was \$85 billion a month. But as progress was made on the Fed's maximum employment goal, the pace of purchases was tapered over time until the program's conclusion in October 2014.

others, their prices will rise too, so there can be a transmission to assets beyond those being purchased by the central bank.

A second channel through which large-scale asset purchases are thought to affect longer-term interest rates is via a signaling channel. The purchases signal that the central bank intends to pursue a more accommodative policy stance than the public currently expects. Thus, the purchases can be viewed as a form of commitment for policy forward guidance, another policy tool that the Federal Reserve has used during the unusual economic circumstances of the past six years.

The formulation of the Fed's forward guidance on the future path of interest rates has changed over time, from qualitative guidance, to calendar dates, to economic thresholds, and to a blend of state-contingent and date-based guidance.³ In extraordinary economic times, like those we've experienced in recent years, forward guidance is more than a communications device. It is a tool of monetary policy that has the potential to increase the degree of monetary policy accommodation, especially when interest rates are essentially at their zero lower bound. By reducing uncertainty about the future path of policy, forward guidance can help lower interest rates by reducing the premiums investors demand to compensate them for interest-rate uncertainty.

In addition, in theory, if the central bank indicates that the future path of short-term interest rates will be low for a long time – perhaps lower and for longer than would have been consistent with the central

³ In December 2008, the FOMC began with qualitative forward guidance indicating that it anticipated that weak economic conditions were likely to warrant exceptionally low levels of the fed funds rate for “some time.” In March 2009, “some time” became “extended period.” In August 2011, the FOMC changed its qualitative forward guidance to a calendar date when it said that it anticipated an exceptionally low fed funds rate at least through mid-2013. That date was later extended to late 2014, and then to mid-2015.

In March 2014, the thresholds were replaced with guidance that linked the path of policy to the Committee's assessment of both realized and expected progress toward its dual-mandate objectives. The guidance continued to provide a time element by indicating that based on the FOMC's assessment, the funds rate target range would likely remain 0-to-¼ percent for “a considerable time after the asset purchase program ends, especially if projected inflation continues to run below the Committee's 2 percent longer-run goal, and provided that longer-term inflation expectations remain well anchored.”

bank's past behavior – this can also put downward pressure on longer-term interest rates, thereby spurring current economic activity. According to the theory, if people believe that the central bank is committed to keeping rates very low, they will expect higher economic activity and higher inflation in the future.

When households, businesses, and market participants are assured of better economic prospects in the future, they should be more willing to make investments in capital and labor today rather than delaying them, and this will help the current economy.⁴

There has been considerable study of the effectiveness of these extraordinary policy tools, especially the Fed's large-scale asset purchase programs. Federal Reserve Board Vice Chairman Stanley Fischer recently reviewed the empirical evidence on how effective the Fed's purchase programs have been in lowering longer-term interest rates, and discussed the results of a recent Board of Governors staff study on the effectiveness of the purchase programs along with forward guidance on the macroeconomy.⁵ In general, the studies find that the Fed's various asset purchase programs have lowered longer-term yields and the staff study finds that purchases and forward guidance have had an impact on the macroeconomy. But as the Vice Chair pointed out, estimated magnitudes vary quite a bit across studies and are surrounded by wide bands of uncertainty.

⁴ Note, though, that for forward guidance to have this effect, the public must believe that the central bank is setting policy differently than it has in the past and also that the central bank is committed to implementing this particular policy. If, instead, the public believes that the central bank is behaving as usual, it could misinterpret a very low policy rate as suggesting a gloomier outlook, and this would work to depress current activity – the exact opposite of the intended effect. In addition, before they will change their behavior and start spending today, households and firms have to believe that the central bank is committed to behaving in this unusual way. How to increase the credibility of such a commitment continues to be a subject of economic research. The literature has suggested different mechanisms for increasing the credibility of this commitment, including temporarily increasing the inflation target, targeting nominal GDP instead of inflation, and targeting the price level instead of inflation. For an excellent discussion of forward guidance, as well as other policies at the zero lower bound, see Michael Woodford, "Methods of Policy Accommodation at the Interest-Rate Lower Bound," Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, WY, 2012 (http://www.kansascityfed.org/publicat/sympos/2012/Woodford_final.pdf).

⁵ See Stanley Fischer, "Conducting Monetary Policy with a Large Balance Sheet," remarks at the 2015 U.S. Monetary Policy Forum, sponsored by the University of Chicago Booth School of Business, New York, NY, February 27, 2015 (<http://www.federalreserve.gov/newsevents/speech/fischer20150227a.pdf>).

There is, however, no uncertainty about the dramatic change in the size and composition of the Federal Reserve's balance sheet as a result of the purchase programs. Assets on the Fed's balance sheet have increased five-fold, from less than \$900 billion in July 2007 to about \$4.5 trillion today. On the liability side, banks have more than \$2.5 trillion in reserves at the Fed, most of it in excess of that required to meet reserve requirements. In terms of composition, before the actions taken to combat the crisis, about 90 percent of the Fed's assets were Treasuries and none were agency securities; now about 55 percent of the Fed's assets are Treasuries and almost 40 percent are agency MBS. And of the Fed's Treasury holdings, over 50 percent have a maturity of more than 5 years compared to about 20 percent before the crisis. Today, the Fed holds very few short-term Treasury securities.

The changes in the Fed's balance sheet as well as the evolution of the Fed's forward guidance have raised some challenges about how to move back from extraordinary monetary policy to ordinary monetary policy, what the Fed has called normalization. In my remaining minutes, I would like to discuss some of the Fed's plans for addressing those challenges.

Moving from Extraordinary Back to Ordinary

The FOMC has been preparing for policy normalization for quite some time. The FOMC first laid out exit strategy principles in June 2011; these were updated last September to take into account the changes in the Fed's balance sheet. Just as it did before the Great Recession, the FOMC plans to implement monetary policy by adjusting short-term interest rates. It will communicate changes in the stance of policy by changing the target range for the fed funds rate.

But because the level of excess reserves held by banks is now much larger, the tools the FOMC will use to move the funds rate into the target range will be different than before the crisis. In particular, in October 2008 Congress gave the Fed the authority to pay interest on the reserve balances that banks and other depository institutions hold at the Fed. The Fed will use the interest rate it pays on excess reserves,

the IOER rate, as the main tool for moving the funds rate into the target range. Raising the IOER rate will put upward pressure on the fed funds rate because banks will be unlikely to accept a rate in the market lower than the one they could get by depositing their funds at the Fed. We expect that while reserves are so plentiful and because not all financial institutions holding reserves are eligible to receive interest, the fed funds rate will trade somewhat below the IOER rate.

In addition to IOER, the Fed will use other tools, as needed, to ensure adequate control of the policy rate. One of these tools is an overnight reverse repurchase agreement facility. Overnight reverse repos, or ONRRPs, involve the Fed selling securities from its large portfolio of assets with an agreement to buy them back the next day at a pre-determined price from eligible counterparties, including banks, primary dealers, money funds, and government-sponsored enterprises. By offering a safe overnight asset for a broader array of money market participants, some of whom are not eligible to receive interest on reserves, overnight reverse repos should help put a firmer floor on the fed funds rate. These counterparties should be reluctant to lend their liquidity in the market at rates lower than what they could get at the Fed via this facility. The Fed has been testing overnight reverse repos, and the results to date suggest that they have been helpful in firming the floor on money market rates.

The FOMC has indicated that the overnight reverse repo facility will be used only to the extent necessary and will be phased out when no longer needed to help control short-term interest rates. This will help to ensure that the facility doesn't lead financial institutions to permanently change the way they do financial intermediation. In addition, the Fed has been testing usage caps on overnight reverse repos and other design features. These would help mitigate the possibility that during times of financial stress the facility would attract liquidity from the market, thereby increasing the level of stress in the market. And the Fed is considering other tools, like term deposits and term RRP, that could absorb some of the excess reserves in the banking system.

The Fed's ability to pay interest on excess reserves, along with supplementary tools like overnight reverse repos, will allow the Fed to move interest rates up to target when it is appropriate to do so, despite the large size of the Fed's balance sheet.

Over the longer run, the Fed's balance sheet will return to a more normal size and composition. The FOMC intends to reduce security holdings in a gradual and predictable way, primarily through ending reinvestment of principal payments on securities it holds and letting the securities mature and run off the balance sheet. At this point, the FOMC doesn't anticipate selling the agency mortgage-backed securities on its balance sheet as part of the normalization process, although it might engage in limited sales in the longer run to reduce or eliminate residual holdings.

The evolution of the language in the FOMC's statement, in particular its forward rate guidance, also poses some challenges for the FOMC. While explicit forward guidance was used as a policy tool during the recession and earlier in the recovery, in more normal times, away from the zero lower bound, I believe forward guidance should be viewed more as a communications device. As such, I would like to see the forward guidance evolve over time to give more information about the conditions we systematically assess in calibrating the stance of policy to the economy's actual progress and anticipated progress toward our dual-mandate goals. It would articulate the considerations the Committee would take into account when determining future changes in policy, as well as information to help the public anticipate how policy is likely to change in response to changes in economic developments that affect the economic outlook. To the extent that households and businesses understand policymakers' reaction function, their policy expectations will better align with those of policymakers, thereby making policy more effective. As normalization proceeds, I expect we will be able to make more progress along these lines.

Conclusion

In summary, the Federal Reserve took some unprecedented policy actions in response to the financial crisis and deep recession. These extraordinary actions helped support progress toward the Fed's goals of price stability and maximum employment. At the same time, they present some challenges for the return to ordinary monetary policymaking. But the FOMC has plans to address those challenges. It has laid out how it anticipates conducting monetary policy during normalization. In addition, the FOMC's forward guidance on the future path of policy has been evolving. Most times in life, moving from extraordinary to ordinary is considered a bad thing. In the case of monetary policy, such a move should be viewed as a good thing – because it means conditions are in place for a sustainable economic expansion with maximum employment and price stability.