Monetary Policy and the Federal Reserve: Current Policy and Conditions

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January 28, 2016

Congressional Research Service
7-5700
www.crs.gov
RL30354

CRS REPORT
Prepared for Members and
Committees of Congress

Summary

The Federal Reserve (the Fed) defines monetary policy as its actions to influence the availability and cost of money and credit. Because the expectations of market participants play an important role in determining prices and economic growth, monetary policy can also be defined to include the directives, policies, statements, and actions of the Fed that influence future perceptions. Congress has delegated responsibility for monetary policy to the Fed but retains oversight responsibilities for ensuring that the Fed is adhering to its statutory mandate of "maximum employment, stable prices, and moderate long-term interest rates." To meet its price stability mandate, the Fed has set a longer-run goal of 2% inflation.

Normally, the Fed conducts monetary policy by setting a target for the *federal funds rate*, the rate at which banks borrow and lend reserves on an overnight basis. It meets its target through open market operations, financial transactions traditionally involving U.S. Treasury securities. Beginning in September 2007, the federal funds target was reduced from 5.25% to a range of 0% to 0.25% in December 2008, which economists call the *zero lower bound*. By historical standards, rates were kept unusually low for an unusually long time. In December 2015, the Fed began raising interest rates and expects to gradually raise rates further. The Fed "anticipates that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run." Thus, although rates are being raised, the Fed plans to maintain an unusually stimulative monetary policy.

The Fed influences interest rates to affect interest-sensitive spending, such as business capital spending on plant and equipment, household spending on consumer durables, and residential investment. When interest rates diverge between countries, as is the case now, it causes capital flows that affect the exchange rate, which in turn affects spending on exports and imports. Through these channels, monetary policy can be used to stimulate or slow aggregate spending in the short run. In the long run, monetary policy mainly affects inflation. A low and stable rate of inflation promotes price transparency and, thereby, sounder economic decisions.

While the federal funds target was at the zero lower bound, the Fed attempted to provide additional stimulus through unsterilized purchases of Treasury and mortgage-backed securities (MBS), a practice popularly referred to as *quantitative easing* (QE). Between 2009 and 2014, the Fed undertook three rounds of QE. The third round was completed in October 2014, at which point the Fed's balance sheet was $4.5 trillion—five times its pre-crisis size. Although QE has ended, the Fed has announced that it intends to maintain the balance sheet at its current level for the time being. In September 2014, the Fed announced a framework for normalizing monetary policy after QE, explaining that it will raise interest rates in the presence of a large balance sheet mainly by raising the rate of interest paid to banks on reserves and by engaging in reverse repurchase agreements (*reverse repos*).

The Fed projects that unemployment will reach the rate that it considers consistent with maximum employment in 2016 (although other labor market indicators suggest more slack), although inflation has remained below the Fed's 2% goal since 2013 by the Fed's preferred measure. Debate is currently focused on how quickly the Fed should raise rates. Some contend the greater risk is that raising rates too slowly will cause inflation to become too high or cause financial instability, whereas others contend that raising rates too quickly will cause inflation to remain too low and choke off the expansion.

For an overview of legislation, see CRS Report R44273, *Federal Reserve: Legislation in the 114th Congress*, by Marc Labonte.

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Introduction

Congress has delegated responsibility for monetary policy to the Federal Reserve (the Fed), but retains oversight responsibilities to ensure that the Fed is adhering to its statutory mandate of "maximum employment, stable prices, and moderate long-term interest rates."[1] The Fed has defined stable prices as a longer-run goal of 2% inflation (as measured by the Personal Consumption Expenditures price index).[2] The Fed's responsibilities as the nation's central bank fall into four main categories: monetary policy, provision of emergency liquidity through the lender of last resort function, supervision of certain types of banks and other financial firms for safety and soundness, and provision of payment system services to financial firms and the government.[3]

The Fed's monetary policy function is one of aggregate demand management—stabilizing business cycle fluctuations. The Federal Open Market Committee (FOMC), consisting of 12 Fed officials, meets periodically to consider whether to maintain or change the current stance of monetary policy.[4] The Fed's conventional tool for monetary policy is to target the *federal funds rate*—the overnight, interbank lending rate. It influences the federal funds rate through *open market operations*, transactions that have traditionally involved Treasury securities.

This report provides an overview of monetary policy and recent developments, a summary of the Fed's actions following the financial crisis, and ends with a brief overview of the Fed's regulatory responsibilities. For an overview of legislative activity, see CRS Report R44273, *Federal Reserve: Legislation in the 114th Congress*, by Marc Labonte.

The Current Policy Stance

In December 2008, in the midst of the financial crisis and the "Great Recession," the Fed lowered the federal funds rate to a range of 0% to 0.25%. This was the first time rates were ever lowered to what is referred to as the *zero lower bound*. They remained there until the Fed began raising rates on December 16, 2015. The Fed anticipates that this increase will be the first step in a series that will incrementally tighten monetary policy. When the Fed raises rates, it usually increases them by 0.25 or 0.5 percentage points at a time.

Although monetary policy is now less stimulative than it had been at the zero lower bound, the Fed is still adding stimulus to the economy as long as rates are below what economists call the "neutral rate" (or the long-run equilibrium rate).[5] The Fed's *forward guidance* on its expectations for future rates is that the Fed intends to keep stimulative policy in place for some time—it currently "expects that economic conditions will evolve in a manner that will warrant only

[1] Section 2A of the Federal Reserve Act, 12 U.S.C. 225a.

[2] Federal Reserve, *Statement on Longer-Run Goals and Monetary Policy Strategy*, January 24, 2012, at http://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.

[3] For background on the makeup of the Federal Reserve, see CRS In Focus IF10054, *Introduction to Financial Services: The Federal Reserve*, by Marc Labonte.

[4] The Federal Open Market Committee's (FOMC's) monetary policy announcements can be accessed at http://www.federalreserve.gov/monetarypolicy/fomccalendars.htm.

[5] There is evidence that the neutral rate fell during the financial crisis and may remain below historical norms. If so, then monetary policy has been less stimulative than if the neutral rate had remained stable.

gradual increases in the federal funds rate; the federal funds rate is likely to remain, for some time, below levels that are expected to prevail in the longer run."[6]

As the economic recovery consistently proved weaker than expected, the Fed repeatedly pushed back the timeframe for raising interest rates. As a result, the economic expansion was in its seventh year and the unemployment rate was already near the Fed's estimate of full employment when it began raising rates. This was a departure from past practice—by contrast, in the previous two economic expansions, the Fed began raising rates within three years of the preceding recession ending.

The Fed's unprecedented policy stance has been controversial. Because the recent recession was unusually severe, economists disagree about both how much slack remains in the economy today and how quickly the Fed should remove monetary stimulus. The unemployment rate is projected to be slightly below the Fed's estimate of full employment in 2016, but other labor market measures indicate that an employment gap remains. The Fed has indicated that the economy is currently on a path to achieve maximum employment, and inflation will return to 2% in the medium term.

Economists who argue that the Fed should not raise rates too quickly contend that a large output gap (i.e., the difference between actual output and potential output) still exists and note that the Fed's preferred measure of inflation has been slightly below its 2% goal since 2013 (or 2012 if food and energy prices are omitted). They point to the experiences of the Eurozone recently and of Japan since the 1990s as illustrating the risks that removing monetary stimulus too soon after a financial crisis could lead to deflation (falling prices) and prematurely choke off the expansion.[7] In other words, they contend leaving monetary stimulus in place can be justified until both the Fed's full employment mandate and its price stability mandate are met.

Economists who currently argue that low rates have been in place too long contend that the recovery is sustainable without monetary stimulus. They point out that the economic recession ended in June 2009 and that the economy has been growing steadily since. Although inflation has remained low thus far, normally, pursuing a stimulative monetary policy when the economy has reached full employment would be expected to lead to rising inflation. Further, they contend that unconventional policy has led to above-average growth in the money supply that arguably poses a threat to price stability.[8] They are also concerned that the Fed's large balance sheet and prolonged use of monetary stimulus threatens financial stability through potential asset bubbles or market distortions. In critics' eyes, the economy is now functioning close enough to normal that the risks of continuing a highly stimulative policy outweigh the benefits.[9]

As December 2015 marked the first time that the Fed raised rates since 2008, it also marked the first time in recent years that U.S. short-term interest rates were rising relative to other countries. Economy theory predicts that this relative difference in rates will attract capital flows into the

[6] FOMC, press release, January 27, 2016, at http://www.federalreserve.gov/newsevents/press/monetary/20160127a.htm.

[7] Charles Evans et al. argue that the risks of withdrawing stimulus too soon outweigh the risks of withdrawing too late. See Charles Evans et al., "Risk Management for Monetary Policy Near the Zero Lower Bound," working paper, March 9, 2015, http://www.brookings.edu/about/projects/bpea/papers/2015/risk-management-monetary-policy-zero-lower-bound.

[8] The Fed contends that money supply growth is a less accurate predictor of inflation because of changes to the monetary framework.

[9] See, for example, John Taylor, "A Monetary Policy for the Future," speech at the International Monetary Fund, April 15, 2015, http://web.stanford.edu/~johntayl/2015_pdfs/A_Monetary_Policy_For_the_Future-4-15-15.pdf.

United States, thereby pushing up the exchange rate value of the dollar. In fact, the value of the dollar has been rising since mid-2014. A stronger dollar reduces aggregate demand (total spending) by reducing demand for exports and import-competing goods, all else equal.

Another legacy of the financial crisis is the Fed's large balance sheet. Because the Fed could not provide any further stimulus through conventional policy at the zero lower bound, it turned to unconventional policy to provide further stimulus to the economy.[10] The Fed attempted to stimulate the economy through three rounds of large-scale asset purchases of U.S. Treasury securities, agency debt, and agency mortgage-backed securities (MBS) beginning in 2009, popularly referred to as *quantitative easing* (QE).[11] The third round was completed in October 2014, at which point the Fed's balance sheet was $4.5 trillion—five times its pre-crisis size. The end of QE was the first step to normalize monetary policy. Instead of normalizing monetary policy by selling its assets to reduce its balance sheet, the Fed has raised rates while maintaining the balance sheet at its current size for the time being. This has been made possible through increases in the interest rate the Fed pays banks on the reserves deposited at the Fed and reverse repurchase agreements (reverse repos).[12] Some critics have expressed concerns regarding how the Fed's normalization policy might affect inflation, asset prices, and the functioning of certain financial markets, such as the repo market**.**

How Does the Federal Reserve Execute Monetary Policy?

The Fed defines monetary policy as the actions it undertakes to influence the availability and cost of money and credit to promote the goals mandated by Congress, a stable price level and maximum sustainable employment. Because the expectations of households as consumers and businesses as purchasers of capital goods exert an important influence on the major portion of spending in the United States, and because these expectations are influenced in important ways by the Fed's actions, a broader definition of monetary policy would include the directives, policies, statements, economic forecasts, and other Fed actions, especially those made by or associated with the chairman of its Board of Governors, who is the nation's central banker.

Policy Tools

The Federal Reserve has traditionally relied on three instruments to conduct monetary policy:

1. The primary method is called *open market operations*, and it involves the Fed buying existing U.S. Treasury securities in the secondary market (i.e., those that have already been issued and sold to private investors).[13] Should the Fed buy securities, it does so with the equivalent of newly issued currency (Federal

[10] Federal Reserve, press release, June 18, 2014, http://federalreserve.gov/newsevents/press/monetary/20140618a.htm.

[11] In this context, agency securities and mortgage-backed securities (MBS) are primarily securities issued by Fannie Mae and Freddie Mac, but they also include securities issued by the Federal Home Loan Banks and Ginnie Mae.

[12] For more information about repurchase agreements (*repos*), see the "How Does the Federal Reserve Execute Monetary Policy?" section below.

[13] For a technical discussion of how this is actually done, see Cheryl L. Edwards, "Open Market Operations in the 1990s," *Federal Reserve Bulletin*, November 1997, pp. 859-872; Benjamin Friedman and Kenneth Kuttner, "Implementation of Monetary Policy: How Do Central Banks Set Interest Rates?," National Bureau of Economic Research, working paper, no. 16165, March 2011.

Reserve notes), which expands the reserve base and increases the ability of depository institutions to make loans and expand money and credit. The reverse is true if the Fed decides to sell securities from its portfolio. Outright purchases of securities were used for QE from 2009 to 2014, but normal open market operations are typically conducted through repos, described in the text box. When the Fed wishes to add liquidity to the banking system, it enters into repos. When it wishes to remove liquidity, as it is planning to do during the normalization period, the Fed enters into reverse repos.[14]

What Are Repos?

Repurchase agreements (repos) are agreements between two parties to purchase and then repurchase securities at a fixed price and future date, often overnight. Although legally structured as a pair of security sales, they are economically equivalent to a collateralized loan. The difference in price between the first and second transaction determines the interest rate on the loan. The repo market is one of the largest short-term lending markets, where banks and other financial institutions are active borrowers and lenders. For the seller of the security, who receives the cash, the transaction is called a repo. For the purchaser of the security, who lends the cash, it is called a reverse repo. Collateral protects the lender against potential default. In principle, any type of security can be used as collateral, but the most common collateral—and the types used by the Fed—are Treasury securities, agency MBS, and agency debt.

Note: For background on the repo market, see Tobias Adrian et al., "Repo and Securities Lending," Federal Reserve Bank of New York, Staff Report no. 529, December 2011, available at http://www.newyorkfed.org/research/staff_reports/sr529.pdf.

2. The Fed can also change reserve requirements, which specify what portion of customer deposits (primarily checking accounts) banks must hold as vault cash or on deposit at the Fed. Thus, reserve requirements affect the liquidity available within the federal funds market. Statute sets the numerical levels of reserve requirements, although the Fed has some discretion to adjust them. Currently, banks are required to hold 0% to 10% of their deposits that qualify as net transaction accounts in reserves, depending on the size of the bank's deposits.[15] This tool is used rarely—the percentage was last changed in 1992.[16]

[14] See the section below entitled "The "Exit Strategy": Normalization of Monetary Policy After QE."

[15] Checking accounts are subject to reserve requirements, but savings accounts are not. As a result, the Fed defines by regulation the different characteristics that checking and savings accounts may have. For example, savings accounts are subject to a limit on monthly withdrawals.

[16] The deposit threshold is regularly adjusted for inflation. For current reserve requirements, see http://www.federalreserve.gov/monetarypolicy/reservereq.htm.

Arguments For and Against Reserve Requirements

Reserve requirements impose an opportunity cost on banks and the broader economy—funds that banks must hold as reserves cannot be used for loans or other bank activities. Other types of financial institutions do not face reserve requirements. Given the opportunity cost, reserve requirements can only be justified if they provide sufficient benefits. The intended benefit is to ensure banks hold enough liquidity to avoid destabilizing runs. Some economists have questioned whether reserve requirements should be reformed or abolished for a number of reasons. First, changing reserve requirements is a blunt monetary policy tool that has not been used in recent decades. Second, banks can avoid reserve requirements through practices such as sweeps, a practice in which banks automatically shift funds in and out of accounts subject to reserve requirements. Third, reserve requirements could be better targeted to a bank's liquidity needs. By comparison, the new liquidity coverage ratio, which only applies to large banks, tries to measure the amount of liquid assets that would be needed to meet net outflows in a stressed environment and takes into account that reserves are not the only liquid asset a bank holds. However, because the federal funds market arose to meet reserve requirements, abolishing reserve requirements could complicate the Fed's use of the federal funds rate as its primary target for policy. Currently and atypically, reserves far exceed reserve requirements as a result of QE. As a result, reserve requirements are currently not influencing most banks' behavior.[17]

3. Finally, the Fed can change the two interest rates it administers directly by fiat, and these interest rates influence market rates. The Fed permits depository institutions to borrow from it directly on a temporary basis at the discount window.[18] That is, these institutions can discount at the Fed some of their own assets to provide a temporary means for obtaining reserves. Discounts are usually on an overnight basis. For this privilege banks are charged an interest rate called the *discount rate*, which is set by the Fed at a small markup over the federal funds rate.[19] Direct lending, from the discount window and other recently created lending facilities, is negligible under normal financial conditions like the ones at present but was an important source of liquidity during the financial crisis. In October 2008, the Federal Reserve began to pay interest on required and excess reserves held at the Fed. Reducing the opportunity cost for banks of holding that money as opposed to lending it out should also influence the rates at which banks are willing to lend reserves to each other, such as the federal funds rate.

Each of these tools works by altering the overall liquidity available for use by the banking system, which influences the amount of assets these institutions can acquire. These assets are often called *credit* because they represent loans the institutions have made to businesses and households, among others.

The Fed's definition of monetary policy as the actions it undertakes to influence the availability and cost of money and credit suggests two ways to measure the stance of monetary policy. One is to look at the cost of money and credit as measured by the rate of interest relative to inflation (or inflation projections), and the other is to look at the growth of money and credit itself. Thus, it is possible to look at either interest rates or the growth in the supply of money and credit in coming

[17] In the 113th Congress, H.R. 3240 was passed by the House. It would have required GAO to conduct a study on the impact of reserve requirements on banks, consumers, and monetary policy. Under existing law (31 U.S.C. 714(b)), GAO's authority to audit the Fed does not include authority to audit certain operations, including "reserves of member banks," however.

[18] All depository institutions, as defined by 12 U.S.C. 461, may borrow from the discount window and are subject to reserve requirements regardless of whether they are members of the Federal Reserve.

[19] Until 2003, the discount rate was set slightly below the federal funds target, and the Fed used moral suasion to discourage healthy banks from profiting from this low rate. To reduce the need for moral suasion, lending rules were altered in early 2003. Since that time, the discount rate has been set at a penalty rate above the federal funds rate target. However, during the financial crisis, the Fed encouraged banks to use the discount window.

to a conclusion about the current stance of monetary policy—that is, whether it is expansionary (adding stimulus to the economy), contractionary (slowing economic activity), or neutral.

Since the great inflation of the 1970s, most central banks have preferred to formulate monetary policy in terms of the cost of money and credit rather than in terms of their supply. The Fed thus conducts monetary policy by focusing on the cost of money and credit as proxied by an interest rate. In particular, it targets a very short-term interest rate known as the federal funds rate. The FOMC meets every six weeks to choose a federal funds target and sometimes meets on an ad hoc basis if it wants to change the target between regularly scheduled meetings. [20] The FOMC is composed of the 7 Fed governors, the President of the Federal Reserve Bank of New York, and 4 of the other 11 regional Federal Reserve Bank presidents selected on a rotating basis.

The federal funds rate is determined in the private market for overnight reserves of depository institutions. At the end of a given period, usually a day, depository institutions must calculate how many dollars of reserves they want or need to hold against their reservable liabilities (deposits).[21] Some institutions may discover a reserve shortage (too few reservable assets relative to those they want to hold), whereas others may have reservable assets in excess of their wants. These reserves can be bought and sold on an overnight basis in a private market called the federal funds market. The interest rate in this market is called the federal funds rate. It is this rate that the Fed uses as a target for conducting monetary policy. If it wishes to expand money and credit, the Fed will lower the target, which encourages more lending activity and, thus, greater demand in the economy. To support this lower target, the Fed must stand ready to buy more U.S. Treasury securities. Conversely, if it wishes to tighten money and credit, the Fed will raise the target and remove as many reserves from depository institutions as necessary to accomplish its ends. This will require the sale of treasuries from its portfolio of assets.

The federal funds rate is linked to the interest rates that banks and other financial institutions charge for loans—or the provision of credit. Thus, whereas the Fed may directly influence only a very short-term interest rate, this rate influences other, longer-term rates. However, this relationship is far from being on a one-to-one basis because the longer-term market rates are influenced not only by what the Fed is doing today but also by what it is expected to do in the future and by what inflation is expected to be in the future. This fact highlights the importance of expectations in explaining market interest rates. For that reason, a growing body of literature urges the Fed to be very transparent in explaining what its policy is and will be and in making a commitment to adhere to that policy.[22] The Fed has responded to this literature and is increasingly transparent in explaining its policy measures and what these measures are expected to accomplish.

Using market interest rates as an indicator of monetary policy is potentially misleading, however. Economists call the interest rate that is essential to decisions made by households and businesses

[20] Of the three monetary policy tools described above, the board is generally responsible for setting reserve requirements and interest rates paid or levied by the Fed, whereas open market operations are set by the FOMC. In practice, the board and FOMC coordinate the use of these tools to implement a consistent monetary policy stance.

[21] Depository institutions are obligated by law to hold some fraction of their deposit liabilities as reserves. They are also likely to hold additional or excess reserves based on certain risk assessments they make about their portfolios and liabilities. Until very recently, these reserves were non-income earning assets. The Fed now pays interest on both types of reserves. It is too early to assess how this shift in policy will affect bank reserve holdings.

[22] See, for example, Anthony M. Santomero, "Great Expectations: The Role of Beliefs in Economics and Monetary Policy," *Business Review*, Federal Reserve Bank of Philadelphia, Second Quarter 2004, pp. 1-6, and Gordon H. Sellon, Jr., "Expectations and the Monetary Policy Transmission Mechanism," *Economic Review*, Federal Reserve Bank of Kansas City, Fourth Quarter 2004, pp. 4-42.

to buy capital goods the *real* interest rate. It is often proxied by subtracting from the market interest rate the actual or expected rate of inflation. The real rate is largely independent of the amount of money and credit over the longer run because it is determined by the interaction of saving and investment (or the demand for capital goods). The internationalization of capital markets means that for most developed countries the relevant interaction between saving and investment that determines the real interest rate is on a global basis. Thus, real rates in the United States depend not only on U.S. national saving and investment but also on the saving and investment of other countries. For that reason, national interest rates are influenced by international credit conditions and business cycles.

The recent financial crisis underlines that open market operations alone can be insufficient at times for meeting the Fed's statutory mandate. Since the crisis, many economists and central bankers have argued that a macroprudential approach to supervision and regulation is needed (discussed in the section below entitled "Regulatory Responsibilities"), and this may affect conduct of monetary policy to maintain maximum employment and price stability.[23] Whereas traditional open market operations managed to contain systemic risk following the bursting of the "dot-com" bubble in 2000, direct lending by the Fed on a large scale was unable to contain systemic risk in 2008. This had led to a debate about whether the Fed should be aggressive in using monetary policy against asset bubbles, even at the expense of meeting its mandate in the short term. Traditionally, the Fed has expressed doubt that it could correctly identify or safely neutralize bubbles using monetary policy.

Economic Effects of Monetary Policy in the Short Run and Long Run

How do changes in short-term interest rates affect the overall economy? In the short run, an expansionary monetary policy that reduces interest rates increases interest-sensitive spending, all else equal. Interest-sensitive spending includes physical investment (i.e., plant and equipment) by firms, residential investment (housing construction), and consumer-durable spending (e.g., automobiles and appliances) by households. As discussed in the next section, it also encourages exchange rate depreciation that causes exports to rise and imports to fall, all else equal. To reduce spending in the economy, the Fed raises interest rates and the process works in reverse. An examination of U.S. economic history will show that money- and credit-induced demand expansions can have a positive effect on U.S. GDP growth and total employment. The extent to which greater interest-sensitive spending results in an increase in overall spending in the economy in the short run will depend in part on how close the economy is to full employment. When the economy is near full employment, the increase in spending is likely to be dissipated through higher inflation more quickly. When the economy is far below full employment, inflationary pressures are more likely to be muted. This same history, however, also suggests that over the longer run, a more rapid rate of growth of money and credit is largely dissipated in a more rapid rate of inflation with little, if any, lasting effect on real GDP and employment. (Since the crisis, the historical relationship between money growth and inflation has not held so far, as will be discussed below.)

Economists have two explanations for this paradoxical behavior. First, they note that, in the short run, many economies have an elaborate system of contracts (both implicit and explicit) that makes it difficult in a short period for significant adjustments to take place in wages and prices in

[23] Bank for International Settlements, "Monetary Policy in a World with Macro Prudential Policy," speech by Jaime Caruana on June 11, 2011, http://www.bis.org/speeches/sp110610.htm.

response to a more rapid growth of money and credit. Second, they note that expectations for one reason or another are slow to adjust to the longer-run consequences of major changes in monetary policy. This slow adjustment also adds rigidities to wages and prices. Because of these rigidities, changes in the growth of money and credit that change aggregate demand can have a large initial effect on output and employment, albeit with a policy lag of six to eight quarters before the broader economy fully responds to monetary policy measures. Over the longer run, as contracts are renegotiated and expectations adjust, wages and prices rise in response to the change in demand and much of the change in output and employment is undone. Thus, monetary policy can matter in the short run but be fairly neutral for GDP growth and employment in the longer run.[24]

In societies in which high rates of inflation are endemic, price adjustments are very rapid. During the final stages of very rapid inflations, called hyperinflation, the ability of more rapid rates of growth of money and credit to alter GDP growth and employment is virtually nonexistent, if not negative.

Monetary Versus Fiscal Policy

Either fiscal policy (defined here as changes in the structural budget deficit) or monetary policy can be used to alter overall spending in the economy. However, there are several important differences to consider between the two.

First, economic conditions change rapidly, and in practice monetary policy can be more nimble than fiscal policy. The Fed meets every six weeks to consider changes in interest rates and can call an unscheduled meeting any time. Large changes to fiscal policy typically occur once a year at most. Once a decision to alter fiscal policy has been made, the proposal must travel through a long and arduous legislative process that can last months before it can become law, whereas monetary policy changes are made instantly.[25]

Both monetary and fiscal policy measures are thought to take more than a year to achieve their full impact on the economy due to pipeline effects. In the case of monetary policy, interest rates throughout the economy may change rapidly, but it takes longer for economic actors to change their spending patterns in response. For example, in response to a lower interest rate, a business must put together a loan proposal, apply for a loan, receive approval for the loan, and then put the funds to use. In the case of fiscal policy, once legislation has been enacted, it may take some time for authorized spending to be outlayed. An agency must approve projects and select and negotiate with contractors before funds can be released. In the case of transfers or tax cuts, recipients must receive the funds and then alter their private spending patterns before the economy-wide effects are felt. For both monetary and fiscal policy, further rounds of private and public decision making must occur before multiplier or ripple effects are fully felt.

Second, political constraints have prevented increases in budget deficits from being fully reversed during expansions. Over the course of the business cycle, aggregate spending in the economy can be expected to be too high as often as it is too low. This means that stabilization policy should be tightened as often as it is loosened, yet increasing the budget deficit has proven to be much more

[24] Two interesting papers bearing on what monetary policy can accomplish by two former officials of the Federal Reserve are Anthony M. Santomero, "What Monetary Policy Can and Cannot Do," *Business Review*, Federal Reserve Bank of Philadelphia, First Quarter 2002, pp. 1-4, and Frederic S. Mishkin, "What Should Central Banks Do?," *Review*, Federal Reserve Bank of St. Louis, November/December 2000, pp. 1-14.

[25] To some extent, fiscal policy automatically mitigates changes in the business cycle without any policy changes because tax revenue falls relative to GDP and certain mandatory spending (such as unemployment insurance) rises when economic growth slows and vice versa.

popular than implementing the spending cuts or tax increases necessary to reduce it. As a result, the budget has been in deficit in all but five years since 1961, which has led to an accumulation of federal debt that gives policymakers less leeway to potentially undertake a robust expansionary fiscal policy, if needed, in the future. By contrast, the Fed is more insulated from political pressures,[26] and experience shows that it is as willing to raise interest rates as it is to lower them.

Third, the long-run consequences of fiscal and monetary policy differ. Expansionary fiscal policy creates federal debt that must be serviced by future generations. Some of this debt will be "owed to ourselves," but some (presently, about half) will be owed to foreigners. To the extent that expansionary fiscal policy crowds out private investment, it leaves future national income lower than it otherwise would have been.[27] Monetary policy does not have this effect on generational equity, although different levels of interest rates will affect borrowers and lenders differently. Furthermore, the government faces a budget constraint that limits the scope of expansionary fiscal policy—it can only issue debt as long as investors believe the debt will be honored, even if economic conditions require larger deficits to restore equilibrium.

Fourth, openness of an economy to highly mobile capital flows changes the relative effectiveness of fiscal and monetary policy. Expansionary fiscal policy would be expected to lead to higher interest rates, all else equal, which would attract foreign capital looking for a higher rate of return.[28] Foreign capital can only enter the United States on net through a trade deficit. Thus, higher foreign capital inflows lead to higher imports, which reduce spending on domestically produced substitutes and lower spending on exports. The increase in the trade deficit would cancel out the expansionary effects of the increase in the budget deficit to some extent (in theory, entirely). Expansionary monetary policy would have the opposite effect—lower interest rates would cause capital to flow abroad in search of higher rates of return elsewhere. Foreign capital outflows would reduce the trade deficit through an increase in spending on exports and domestically produced import substitutes. Thus, foreign capital flows would (tend to) magnify the expansionary effects of monetary policy.

Fifth, fiscal policy can be targeted to specific recipients. In the case of normal open market operations, monetary policy cannot. This difference could be considered an advantage or a disadvantage. On the one hand, policymakers could target stimulus to aid the sectors of the economy most in need or most likely to respond positively to stimulus. On the other hand, stimulus could be allocated on the basis of political or other noneconomic factors that reduce the macroeconomic effectiveness of the stimulus. As a result, both fiscal and monetary policy have distributional implications, but the latter's are largely incidental whereas the former's can be explicitly chosen.

In cases in which economic activity is extremely depressed, monetary policy may lose some of its effectiveness. When interest rates become extremely low, interest-sensitive spending may no longer be very responsive to further rate cuts. Furthermore, interest rates cannot be lowered below zero so traditional monetary policy is limited by this "zero lower bound." In this scenario, fiscal policy may be more effective. As is discussed in the next section, some argue that the U.S. economy experienced this scenario following the recent financial crisis.

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[26] For more information, see CRS Report RL31056, *Economics of Federal Reserve Independence*, by Marc Labonte.

[27] An exception to the rule would be a situation in which the economy is far enough below full employment that virtually no crowding out takes place because the stimulus to spending generates enough resources to finance new capital spending.

[28] For more information, see CRS Report RL31235, *The Economics of the Federal Budget Deficit*, by Brian W. Cashell.

Of course, using monetary and fiscal policy to stabilize the economy are not mutually exclusive policy options. But because of the Fed's independence from Congress and the Administration, the two policy options are not always coordinated. If Congress and the Fed were to choose compatible fiscal and monetary policies, respectively, then the economic effects would be more powerful than if either policy were implemented in isolation. For example, if stimulative monetary and fiscal policies were implemented, the resulting economic stimulus would be larger than if one policy were stimulative and the other were neutral. But if Congress and the Fed were to select incompatible policies, these policies could partially negate each other. For example, a stimulative fiscal policy and contractionary monetary policy may end up having little net effect on aggregate demand (although there may be considerable distributional effects). Thus, when fiscal and monetary policymakers disagree in the current system, they can potentially choose policies with the intent of offsetting each other's actions.[29] Whether this arrangement is better or worse for the economy depends on what policies are chosen. If one actor chooses inappropriate policies, then the lack of coordination allows the other actor to try to negate its effects.

Unconventional Monetary Policy During and After the Financial Crisis

Until financial turmoil began in 2007, a consensus had emerged among economists that a relatively stable business cycle could be maintained through prudent and nimble changes to interest rates via transparently communicated and signaled open market operations. That proved not to be the case in periods of extreme financial instability, and the Fed took increasingly unconventional and unprecedented steps to restore financial stability.

Before the Financial Crisis

As the U.S. economy was coming out of the short and shallow 2001 recession, unemployment continued rising until mid-2003. Fearful that the economy would slip back into recession, the Fed kept the federal funds rate extremely low.[30] The federal funds target reached a low of 1% by mid-2003. As the expansion gathered momentum and prices began to rise, the federal funds target was slowly increased in a series of moves to 5.25% in mid-2006.

Some economists now argue that the financial crisis was, at least in part, caused by the Fed keeping short-term rates too low for too long after the 2001 recession had ended. Low rates, they claim, caused an increased demand for housing that resulted in a *price bubble* (a bubble that was also due, in part, to lax lending standards that were subject to regulation by the Fed and others).[31] The shift in preference from fixed to variable rate mortgages made this sector of the economy increasingly vulnerable to movements in short-term interest rates. An alternative perspective,

[29] It is important to take this possibility into consideration when evaluating the potential effects of fiscal policy on the business cycle. Because the Fed presumably chooses (and continually updates) a monetary policy that aims to keep the economy at full employment, the Fed would need to alter its policy to offset the effects of any stimulative fiscal policy changes that moved the economy above full employment. Thus, the actual net stimulative effect of a fiscal policy change (after taking into account monetary policy adjustments) could be less than the effects in isolation.

[30] Historical and current targets for the federal funds rate can be found at http://www.federalreserve.gov/fomc/fundsrate.htm.

[31] In a *Wall Street Journal* opinion article, six economists are polled regarding if the Fed was to blame for creating the housing bubble that in part led to the recent financial crisis, and five of the six responded that the Fed in some degree was to blame. See David Henderson, "Did the Fed Cause the Housing Bubble?," *Wall Street Journal*, March 27, 2009.

championed by Ben Bernanke and others, was that the low mortgage rates that helped fuel the housing bubble were mainly caused by a "global savings glut" over which the Fed had little control.[32] One consequence of the tightening of monetary policy later in the decade, critics now claim, was to burst this price bubble.

The Early Stages of the Crisis and the Zero Lower Bound

The bursting of the housing bubble led to the onset of a financial crisis that affected both depository institutions and other segments of the financial sector involved with housing finance. As the delinquency rates on home mortgages rose to record numbers, financial firms exposed to the mortgage market suffered capital losses and lost access to liquidity. The contagious nature of this development was soon obvious as other types of loans and credit became adversely affected. This, in turn, spilled over into the broader economy, as the lack of credit soon had a negative effect on both production and aggregate demand. In December 2007, the economy entered a recession.

As the housing slump's spillover effects to the financial system, as well as its international scope, became apparent, the Fed responded by reducing the federal funds target and the discount rate.[33] Beginning on September 18, 2007, and ending on December 16, 2008, the federal funds target was reduced from 5.25% to a range between 0% and 0.25%, where it currently remains. Economists call this the zero lower bound to signify that once the federal funds rate is lowered to zero, conventional open market operations cannot be used to provide further stimulus.

The decision to maintain a target interest rate near zero is unprecedented. First, short-term interest rates have never before been reduced to zero in the history of the Federal Reserve.[34] Second, the Fed has waited much longer than usual to begin tightening monetary policy in this recovery. For example, in the previous two expansions, the Fed began raising rates less than three years after the preceding recession ended.

Direct Assistance During and After the Financial Crisis

With liquidity problems persisting as the federal funds rate was reduced, it appeared that the traditional transmission mechanism linking monetary policy to activity in the broader economy was not working. Monetary authorities became concerned that the liquidity provided to the banking system was not reaching other parts of the financial system. Using only traditional monetary policy tools, additional monetary stimulus cannot be provided once the federal funds rate has reached its zero bound. To circumvent this problem, the Fed decided to use nontraditional methods to provide additional monetary policy stimulus.

First, the Federal Reserve introduced a number of emergency credit facilities to provide increased liquidity directly to financial firms and markets. The first facility was introduced in December 2007, and several were added after the worsening of the crisis in September 2008. These facilities

[32] See Ben Bernanke, "The Global Saving Glut and the U.S. Current Account Deficit," speech at the Virginia Association of Economists, March 10, 2005.

[33] For a detailed account of the Fed's role in the financial crisis, see CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*, by Marc Labonte.

[34] The Fed did not target the federal funds rate as its monetary policy instrument until the late 1980s or early 1990s. (See Daniel Thornton, "When Did the FOMC Begin Targeting the Federal Funds Rate?," Federal Reserve Bank of *St.* Louis, working paper 2004-015B, May 2005, http://research.stlouisfed.org/wp/2004/2004-015.pdf.) Data on the federal funds rate back to 1914 is not available. Before 2008, the Fed had not set its discount rate (the rate charged at the Fed's discount window) as low as 0.5% since 1914.

were designed to fill perceived gaps between open market operations and the discount window, and most of them were designed to provide short-term loans backed by collateral that exceeded the value of the loan.[35] A number of the recipients were nonbanks that are outside the regulatory umbrella of the Federal Reserve; this marked the first time that the Fed had lent to nonbanks since the Great Depression. The Fed began to employ a seldom-used emergency provision, Section 13(3) of the Federal Reserve Act,[36] that allows it to make loans to other financial institutions and to nonfinancial firms as well.

The Fed provided assistance through liquidity facilities, which included both the traditional discount window and the newly created emergency facilities mentioned above, and through direct support to prevent the failure of two specific institutions, American International Group (AIG) and Bear Stearns. The amount of assistance provided was an order of magnitude larger than normal Fed lending. Total assistance from the Federal Reserve at the beginning of August 2007 was approximately $234 million provided through liquidity facilities, with no direct support given. In mid-December 2008, this number reached a high of $1.6 trillion, with a near-high of $108 billion given in direct support. From that point on, it fell steadily. Assistance provided through liquidity facilities fell below $100 billion in February 2010, when many facilities were allowed to expire, and support to specific institutions fell below $100 billion in January 2011.[37] The last loan from the crisis was repaid on October 29, 2014.[38] Central bank liquidity swaps (temporary currency exchanges between the Fed and central foreign banks) are the only facility created during the crisis that is still active, but they have not been used on a large scale since 2012. All assistance through expired facilities has been fully repaid with interest. In 2010, the Dodd-Frank Act[39] changed Section 13(3) to rule out direct support to specific institutions in the future.

From the introduction of its first emergency lending facility in December 2007 to the worsening of the crisis in September 2008, the Fed sterilized the effects of lending on its balance sheet by selling an offsetting amount of Treasury securities. After September 2008, assistance exceeded remaining Treasury holdings, and the Fed allowed its balance sheet to grow. Between September 2008 and November 2008, the Fed's balance sheet more than doubled in size, increasing from less than $1 trillion to more than $2 trillion. The loans and other assistance provided by the Federal Reserve to banks and nonbank institutions are considered assets on this balance sheet because they represent money owed to the Fed.

With the federal funds rate at its zero bound since December 2008 and direct lending falling as financial conditions began to normalize in 2009, the Fed faced the decision of whether to try to provide additional monetary stimulus through unconventional measures. It did so through two unconventional tools—large-scale asset purchases (quantitative easing) and forward guidance.

[35] See CRS Report R44185, *Federal Reserve: Emergency Lending*, by Marc Labonte.

[36] 12 U.S.C. 343.

[37] Data from "Recent Balance Sheet Trends," *Credit and Liquidity Programs and the Balance Sheet*, http://www.federalreserve.gov/monetarypolicy/bst_recenttrends.htm. Values include totals from credit extended through Federal Reserve liquidity facilities and support for specific institutions.

[38] Federal Reserve, *Quarterly Report on Federal Reserve Balance Sheet Developments*, November 2014, http://www.federalreserve.gov/monetarypolicy/bsd-content-201411.htm.

[39] P.L. 111-203.

Quantitative Easing and the Growth in the Fed's Balance Sheet and Bank Reserves

With short-term rates constrained by the zero bound, the Fed hoped to reduce long-term rates through large-scale asset purchases, which were popularly referred to as *quantitative easing* (QE). Between 2009 and 2014, the Fed undertook three rounds of QE, buying U.S. Treasury securities, agency debt, and agency mortgage-backed securities (MBS). These securities now comprise most of the assets on the Fed's balance sheet.

To understand the effect of quantitative easing on the economy, it is first necessary to describe its effect on the Fed's balance sheet. In 2009, the Fed's emergency lending declined rapidly as market conditions stabilized, which would have caused the balance sheet to decline if the Fed took no other action. Instead, asset purchases under the first round of QE, QE1, offset the decline in lending, and from November 2008 to November 2010, the overall size of the Fed's balance sheet did not vary much. Its composition changed because of QE1, however—the amount of Fed loans outstanding fell to less than $50 billion at the end of 2010, whereas holdings of securities rose from less than $500 billion in November 2008 to more than $2 trillion in November 2010. The second round of QE, QE2, increased the Fed's balance sheet from $2.3 trillion in November 2010 to $2.9 trillion in mid-2011. It remained around that level until September 2012,[40] when it began rising for the duration of the third round, QE3. It was about $4.5 trillion (comprised of $2.5 trillion of Treasury securities, $1.7 trillion MBS, and $0.4 trillion of agency debt) when QE3 ended in October 2014, and has remained at that level since.

Table 1 summarizes the Fed's QE purchases. In total, the Fed's balance sheet increased by more than $2.5 trillion over the course of the three rounds of QE, making it about five times larger than it was before the crisis.

Table 1. Quantitative Easing (QE): Changes in Asset Holdings on the Fed's Balance Sheet

(billions of dollars)

	Treasury Security Holdings	Agency MBS Holdings	Agency Debt Holdings	Total Assets
QE1 (Mar. 2009-May 2010)	+$302	+$1,129	+$168	+$451
QE2 (Nov. 2010-July 2011)	+$788	-$142	-$35	+$578
QE3 (Oct. 2012-Oct. 2014)	+$810	+874	-$48	+$1,663
Total (Mar. 2009-Oct. 2014)	+$1,987	+$1,718	+$40	+$2,587

Source: Congressional Research Service (CRS) calculations based on Fed data.

Notes: The first round of QE, QE1, was announced in March 2009. The "QE1" and "total" rows include agency securities and mortgage-backed securities (MBS) that the Fed began purchasing in September 2008 and January 2009, respectively. The final column does not equal the sum of the first three columns because of changes in

[40] Between QE2 and QE3, the Fed created the Maturity Extension Program, popularly referred to as *Operation Twist*. Under this program, the Fed sold short-term Treasury securities and purchased long-term Treasury securities, resulting in no net increase in the size of its balance sheet.

other items (not shown) on the Fed's balance sheet. The final row does not equal the sum of the first three rows because it includes changes in holdings between the three rounds of QE. Data on the table is based on actual data, not announced amounts at the onset of the program. The two can differ because of timing and the maturity of prior holdings, which decrease the amounts shown in the table.

This increase in the Fed's assets must be matched by a corresponding increase in the liabilities on its balance sheet. The Fed's liabilities mostly take the form of currency, bank reserves, and cash deposited by the U.S. Treasury at the Fed. QE has mainly resulted in an increase in bank reserves, from about $46 billion in August 2008 to $820 billion at the end of 2008. Since October 2009, bank reserves have exceeded $1 trillion, and they have been between $2.5 trillion and $2.8 trillion since 2014.[41] The increase in bank reserves can be seen as the inevitable outcome of the increase in assets held by the Fed because the bank reserves, in effect, financed the Fed's asset purchases and loan programs. Reserves increase because when the Fed makes loans or purchases assets, it credits the proceeds to the recipients' reserve accounts at the Fed.

The intended purpose of QE was to put downward pressure on long-term interest rates. Purchasing long-term Treasury securities and MBS should directly reduce the rates on those securities, all else equal. The hope is that a reduction in those rates feeds through to private borrowing rates throughout the economy, stimulating spending on interest-sensitive consumer durables, housing, and business investment in plant and equipment. Indeed, Treasury and mortgage rates have been unusually low since the crisis compared with the past few decades, although the timing of declines in those rates do not match up closely to the timing of asset purchases. Determining whether QE has reduced rates more broadly and stimulated interest-sensitive spending requires controlling for other factors, such as the weak economy, which tends to reduce both rates and interest-sensitive spending.[42]

The increase in the Fed's balance sheet has the potential to be inflationary because bank reserves are a component of the portion of the money supply controlled by the Fed (called the *monetary base*), which has grown at an unprecedented pace during QE. In practice, overall measures of the money supply have not grown as quickly as the monetary base, and inflation has remained below the Fed's goal of 2% for most of the time since 2008. The growth in the monetary base has not translated into higher inflation because bank reserves have mostly remained deposited at the Fed and have not led to increased lending or asset purchases by banks.

Another concern is that by holding large amounts of MBS, the Fed is allocating credit to the housing sector, putting the rest of the economy at a disadvantage compared with that sector. Advocates of MBS purchases note that housing was the sector of the economy most in need of stabilization, given the nature of the crisis (this argument becomes less persuasive as the housing market continues to rebound); that MBS markets are more liquid than most alternatives, limiting the potential for the Fed's purchases to be disruptive; and that the Fed is legally permitted to purchase few other assets, besides Treasury securities.

Forward Guidance

Another tool the Fed has used recently to achieve additional monetary stimulus at the zero bound is a pledge to keep the federal funds rate low for an extended period of time, which has been called *forward guidance* or *forward commitment*. The Fed believes this will stimulate economic

[41] See H.3. Federal Reserve Statistical Releases, *Aggregate Reserves of Depository Institutions and the Monetary Base*, at http://www.federalreserve.gov/releases/h3/Current.

[42] For a review of studies on the effectiveness of QE, see CRS Report R42962, *Federal Reserve: Unconventional Monetary Policy Options*, by Marc Labonte.

activity because businesses, for example, will be more likely to take on long-term investment commitments if they are confident rates will be low over the life of a loan. Over time, this forward guidance became more detailed and explicit. In August 2011, the Fed set a date for how long it expected to maintain "exceptionally low levels for the federal funds rate." In December 2012, the Fed replaced the date threshold with an economic threshold: it pledged to maintain an "exceptionally low" federal funds target at least as long as unemployment is above 6.5% and inflation is low.

It is difficult to pinpoint how effective the forward guidance tool has been, in part because its efficacy depends on how credible market participants find the commitment. Because economic conditions may unexpectedly change, this commitment is only a contingent one, causing the Fed's commitment to change when conditions change. This occurred in 2013-2014, when the unemployment rate fell unexpectedly rapidly without a commensurate improvement in broader labor market or economic conditions.[43] Had the Fed followed its existing forward guidance, the fall in the unemployment rate would have led to a tightening of policy sooner than intended. Instead, as the unemployment rate neared 6.5% in March 2014, the Fed replaced the specific unemployment threshold in its forward guidance with a vaguer statement—"The Committee currently anticipates that, even after employment and inflation are near mandate-consistent levels, economic conditions may, for some time, warrant keeping the target federal funds rate below levels the Committee views as normal in the longer run."[44] Less specific statements provide less clarity to market participants about the path of future rates, but future policy is less likely to need to deviate from them.

The Fed's forward guidance has signaled a more aggressively stimulative policy stance than the Fed has taken in the past. Typically, the Fed keeps interest rates below normal when the economy is operating below full employment, at normal levels when the economy is near full employment, and above normal when the economy is overheating. Because of lags between changes in interest rates and their economic effects, the Fed often will preemptively change its monetary policy stance before the economy reaches the state that the Fed is anticipating. By contrast, in this case, the Fed has pledged to keep interest rates below normal even after the economy is approaching full employment. Normally, such a stance would risk resulting in high inflation. In this case, the Fed views low inflation as a greater risk than high inflation.

The "Exit Strategy": Normalization of Monetary Policy After QE

On October 29, 2014, the Fed announced that it would stop making large-scale asset purchases at the end of the month.[45] Now that QE is completed, attention has turned to the Fed's "exit strategy" from QE and zero interest rates. The Fed laid out its plans to normalize monetary policy in a statement in September 2014.[46] It plans to continue implementing monetary policy by

[43] See CRS Report R43476, *Returning to Full Employment: What Do the Indicators Tell Us?*, by Marc Labonte.

[44] Federal Reserve, press release, June 18, 2014, http://federalreserve.gov/newsevents/press/monetary/20140618a.htm.

[45] Federal Reserve, press release, October 29, 2014, available at http://federalreserve.gov/newsevents/press/monetary/20141029a.htm.

[46] Available at http://federalreserve.gov/newsevents/press/monetary/20140917c.htm. For more information on the Fed's exit strategy, see Stanley Fischer, "Conducting Monetary Policy with a Large Balance Sheet," speech at Monetary Policy Forum, February 27, 2015, http://www.federalreserve.gov/newsevents/speech/fischer20150227a.htm; Simon Potter, "Money Markets and Monetary Policy Normalization," speech at New York University, April 15, 2015, http://www.newyorkfed.org/newsevents/speeches/2015/pot150415.html.

targeting the federal funds rate.[47] The basic challenge to doing so is that the Fed cannot effectively alter the federal funds rate by altering reserve levels (as it did before the crisis) because QE has flooded the market with excess bank reserves. In other words, in the presence of more than $2 trillion in bank reserves, the market-clearing federal funds rate is close to zero.[48]

The most straightforward way to return to normal monetary policy would be to remove those excess reserves by shrinking the balance sheet through asset sales. In its normalization statement, the Fed ruled out MBS sales and indicated that it does not intend to sell Treasury securities in the near term. Instead, it eventually plans gradual reductions in the balance sheet by ceasing to roll over securities as they mature. However, the Fed continued rolling over maturing securities after it began raising the federal funds rate. The Fed intends to ultimately reduce the balance sheet until it holds "no more securities than necessary to implement monetary policy efficiently," which Fed Chair Janet Yellen stated might not occur until the end of the decade.[49] At that point, it plans to hold primarily Treasury securities.

Rapid asset sales could cause volatility in those markets, but modest and gradual sales likely would not pose that risk. Comparing the Fed's purchases of agency MBS with net issuance illustrates concerns about potential volatility. As **Table 2** illustrates, the Fed purchased more MBS than were issued on net each year from 2009 to 2014 except 2011, whereas all other investors were net sellers of MBS in those years.[50]

Table 2. Treasury Securities and Agency Mortgage-Backed Securities (MBS): Issuance and Fed Purchases Since 2009

(billions of dollars; percentages)

	2009	2010	2011	2012	2013	2014
			Treasury Securities			
Net Purchases by Fed	$300.8	$244.9	$642.0	$2.7	$542.6	$252.6
Net Issuance	$1,443.7	$1,579.6	$1,066.8	$1,140.6	$759.5	$670.5
Net Purchases/Net Issuance	20.8%	15.5%	60.2%	0.2%	71.4%	37.7%
			Agency MBS			
Net Purchases by Fed	$908.4	$83.8	-$154.5	$89.0	$563.5	$248.2
Net Issuance	$506.8	-$107.3	$16.0	$71.9	$152.3	$90.1
Net Purchases/Net Issuance	179.2%	NA	NA	123.8%	370.0%	275.5%

[47] In the normalization statement, the Fed announced it would continue setting a target range for the federal funds rate (e.g., 0% to 0.25%), whereas before rates reached the zero bound, the Fed set a point target. See Simon Potter, "Interest Rate Control During Normalization," speech at SIFMA conference, October 7, 2014, available at http://www.newyorkfed.org/newsevents/speeches/2014/pot141007.html.

[48] The decline in turnover in the federal funds market since the beginning of unconventional monetary policy is chronicled in Gara Afonso et al., "Who's Borrowing in the Fed Funds Market," *Liberty Street Economics*, Federal Reserve Bank of New York, December 9, 2013, available at http://libertystreeteconomics.newyorkfed.org/2013/12/whos-borrowing-in-the-fed-funds-market.html#more.

[49] Fed Chair Janet Yellen, press conference, September 17, 2014, available at http://www.federalreserve.gov/mediacenter/files/FOMCpresconf20140917.pdf.

[50] The Fed is legally forbidden from buying securities directly from the Treasury Department. Instead, it buys them on secondary markets from primary dealers.

Source: CRS calculations based on Federal Reserve, *Financial Accounts of the United States*, June 11, 2015, Table F. 209; Urban Institute, *Housing Finance at a Glance,* January 2015, p. 30.

Instead of selling securities, the Fed has increased market interest rates by raising the rate it pays banks on reserves held at the Fed and using large-scale reverse repos to alter repo rates.[51] By manipulating two rates that are close substitutes, the Fed believes it can control the federal funds rate.

In 2008, Congress granted the Fed the authority to pay interest on reserves.[52] Because banks can earn interest on excess reserves by lending them in the federal funds market or by depositing them at the Fed, raising the interest rate on bank reserves should also raise the federal funds rate.[53] In this way, the Fed can lock up excess liquidity to avoid any potentially inflationary effects because reserves kept at the Fed cannot be put to use by banks to finance activity in the broader economy.[54] In practice, the interest rate that the Fed has paid banks on reserves has been slightly higher than the federal funds rate, which some have criticized as a subsidy to banks.[55]

Reverse repos are another tool for draining liquidity from the system and influencing short-term market rates. They drain liquidity from the financial system because cash is transferred from market participants to the Fed. As a result, interest rates in the repo market, one of the largest short-term lending markets, rise. The Fed has long conducted open market operations through the repo market, but since 2013 it has engaged in a much larger volume of reverse repos with a broader range of nonbank counterparties, including the government-sponsored enterprises and certain money market funds. There has been some concern about the potential ramifications of the Fed becoming a dominant participant in this market and expanding its counterparties. For example, will counterparties only be willing to transact with the Fed in a panic, and will the Fed be exposed to counterparty risk with nonbanks that it does not regulate?[56] The Fed's normalization statement indicated that reverse repos will be limited in size-although it has lifted the cap at times-and phased out after normalization is completed.

[51] See Federal Reserve Bank of New York, *FAQs: Overnight Fixed-Rate Reverse Repurchase Agreement Operational Exercise*, September 19, 2014, available at http://www.newyorkfed.org/markets/rrp_faq.html. For a list of the Fed's current counterparties, see http://www.newyorkfed.org/markets/expanded_counterparties.html. See also Josh Frost et al., "Overnight RRP Operations as a Monetary Policy Tool," *Finance and Economics Discussion Series 2015-010*, February 19, 2015, http://www.federalreserve.gov/econresdata/feds/2015/files/2015010pap.pdf.

[52] The authority (12 U.S.C. 461(b)) for the Fed to pay interest on reserves was originally granted in the Financial Services Regulatory Relief Act of 2006, beginning in 2011. The start date was changed to immediately in the Emergency Economic Stabilization Act of 2008 (P.L. 110-343).

[53] The interest rate on reserves might be expected to set a floor on the federal funds rate, but in practice the actual federal funds rate has been slightly lower than the interest rate on reserves because the Fed began paying interest in 2008. This discrepancy has been ascribed to the fact that some participants in the federal funds market, such as Fannie Mae, Freddie Mac, and the Federal Home Loan Banks, do not earn interest on reserves held at the Fed. See Gara Afonso et al., "Who's Lending in the Fed Funds Market," *Liberty Street Economics*, Federal Reserve Bank of New York, December 2, 2013, available at http://libertystreeteconomics.newyorkfed.org/2013/12/whos-lending-in-the-fed-funds-market.html#.VDWOgxYXOmo.

[54] Removing reserves through asset sales would have the same effect on bank lending as paying banks to keep reserves at the Fed.

[55] Joseph Gagnon, "Should the Fed Subsidize Banks?," blog post, Peterson Institute for International Economics, December 9, 2015, http://blogs.piie.com/realtime/?p=5299. The difference between the federal funds rate and the interest rate paid on reserves is not intentional, but comes about because of differences in eligible market participants. Gagnon proposes eliminating the difference by having the Fed offer unlimited reverse repos.

[56] See, for example, Sheila Bair, "The Federal Reserve's Risky Reverse Repurchase Scheme," *Wall Street Journal*, July 24, 2014.

How Has QE Affected the Fed's Profits and the Federal Budget Deficit?

The Fed earns interest on its securities holdings, and it uses this interest to fund its operations. (It receives no appropriations from Congress.) The Fed's income exceeds its expenses, and it remits most of its net income to the Treasury, which uses it to reduce the budget deficit. Although the increases in, first, direct lending and, later, holdings of mortgage-related securities increased the potential riskiness of the Fed's balance sheet, it had the ex post facto effect of more than doubling the Fed's net income and remittances to Treasury. Remittances from net income to Treasury rose from $35 billion in 2007 to more than $75 billion annually since 2010, and they were $98 billion in 2015. (In addition, P.L. 114-94 required a $19 billion statutory transfer from the Fed's surplus in 2015.) However, normalization is likely to reduce remittances because of the costs associated with paying interest on bank reserves and reverse repos. Although some analysts have raised concerns that the Fed could have negative net income in the next few years as a result of normalization, the New York Fed currently projects that remittances will remain positive but at levels closer to those prevailing before QE. If the Fed were to generate negative net income, its accounting conventions preclude the possibility of insolvency or transfers from Treasury.

Regulatory Responsibilities

The Fed has distinct roles as a central bank and a regulator. Its main regulatory responsibilities are as follows:

- **Bank regulation.** The Fed supervises bank holding companies (BHCs) and thrift holding companies (THCs), which include all large and thousands of small depositories, for safety and soundness.[57] The Dodd-Frank Act requires the Fed to subject BHCs with more than $50 billion in consolidated assets to enhanced prudential regulation (i.e., stricter standards than are applied to similar firms) in an effort to mitigate the systemic risk they pose.[58] The Fed is also the prudential regulator of U.S. branches of foreign banks and state banks that have elected to become members of the Federal Reserve System. Often in concert with the other banking regulators,[59] it promulgates rules and supervisory guidelines that apply to banks in areas such as capital adequacy, and examines depository firms under its supervision to ensure that those rules are being followed and those firms are conducting business prudently. The Fed's supervisory authority includes consumer protection for banks under its jurisdiction that have $10 billion or less in assets.[60]
- **Prudential regulation of nonbank systemically important financial institutions.** The Dodd-Frank Act allows the Financial Stability Oversight

[57] The Fed was assigned regulatory responsibility for thrift holding companies as a result of the Dodd-Frank Act, which eliminated the Office of Thrift Supervision.

[58] For more information, see CRS Report R42150, *Systemically Important or "Too Big to Fail" Financial Institutions*, by Marc Labonte.

[59] The federal financial regulatory system is charter based. Other types of depositories are regulated by the Office of the Comptroller of the Currency and the Federal Deposit Insurance Corporation. A bank holding company is typically regulated by the Fed at the holding company level and the other banking regulators at the bank subsidiary level. For more info, see CRS Report R43087, *Who Regulates Whom and How? An Overview of U.S. Financial Regulatory Policy for Banking and Securities Markets*, by Edward V. Murphy.

[60] The Dodd-Frank Act transferred the Fed's authority to promulgate consumer protection rules to the Consumer Financial Protection Bureau (CFPB), but the Fed retained supervisory responsibilities for banks under its jurisdiction that have $10 billion or less in assets. Although the CFPB was created as a bureau of the Fed, the Fed has no authority to select CFPB's leadership or employees or to set or modify CFPB policy. For more information, see CRS Report R42572, *The Consumer Financial Protection Bureau (CFPB): A Legal Analysis*, by David H. Carpenter.

Council (FSOC)[61] to designate nonbank financial firms as systemically important (SIFIs). Designated firms are supervised by the Fed for safety and soundness.

- **Regulation of the payment system.** The Fed regulates the retail and wholesale payment system for safety and soundness. It also operates parts of the payment system, such as interbank settlements and check clearing. The Dodd-Frank Act subjects payment, clearing, and settlement systems designated as systemically important by the FSOC to enhanced supervision by the Fed (along with the Securities and Exchange Commission and the Commodity Futures Trading Commission, depending on the type of system).
- **Margin requirements.** The Fed sets margin requirements on the purchases of certain securities, such as stocks, in certain private transactions. The purpose of margin requirements is to mandate what proportion of the purchase can be made on credit.

The Fed attempts to mitigate systemic risk and prevent financial instability through these regulatory responsibilities, as well as through its lender of last resort activities and participation on the FSOC (whose mandate is to identify risks and respond to emerging threats to financial stability). The Fed has also restructured its internal operations to facilitate a macroprudential approach to supervision and regulation.[62]

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Acknowledgments

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[61] The FSOC is an interagency council consisting of financial regulators and headed by the Treasury Secretary. For more information, see CRS Report R42083, *Financial Stability Oversight Council: A Framework to Mitigate Systemic Risk*, by Edward V. Murphy.

[62] Then-Fed Chairman Ben Bernanke, "Implementing a Macroprudential Approach to Supervision and Regulation," speech at the 47th Annual Conference on Bank Structure and Competition, Chicago, Illinois, Federal Reserve, May 5, 2011, http://www.federalreserve.gov/newsevents/speech/bernanke20110505a.htm.