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The Federal Reserve's Unconventional Policies

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After the federal funds rate target was lowered to near zero in 2008, the Federal Reserve has used two types of unconventional monetary policies to stimulate the U.S. economy: forward policy guidance and large-scale asset purchases. These tools have been effective in pushing down longer-term Treasury yields and boosting other asset prices, thereby lifting spending and the economy. The following is adapted from a presentation by the president and CEO of the Federal Reserve Bank of San Francisco at the University of California, Irvine, on November 5, 2012.

The subject of my talk is the unconventional monetary policies pursued by the Federal Reserve over the past four years. In my time today, I'll cover three big questions. First, why has the Fed turned to unconventional monetary policies? Second, what effects are these policies having on the economy? And, third, what potential risks do they pose?

The limits of conventional monetary policy

Let me start with the first question, why unconventional monetary policy? Back in late 2008, our country was facing the worst financial crisis and recession since the Great Depression. Real gross domestic product, the broadest measure of how much we produce as a nation, plummeted at an annual rate of 8.9% in the fourth quarter of 2008. The economy was in free fall and the unemployment rate was soaring. In response, in December 2008, the Fed's monetary policy body, the Federal Open Market Committee, or FOMC, cut the target federal funds rate—our conventional instrument of monetary policy—essentially to zero.

The federal funds rate is the short-term interest rate that is normally the FOMC's primary lever used to influence the economy and inflation. When we want to stimulate the economy, we lower the target fed funds rate. This causes other interest rates—like rates on car loans and mortgages—to decline. And it boosts the value of the stock market as investors equalize risk-adjusted returns across their portfolios. In response to lower borrowing costs and the resulting improvement in financial conditions, households and businesses are more willing to spend, creating greater demand for goods and services. This increase in demand in turn causes businesses to increase production and hire more workers. When we want to slow the economy so it doesn't overheat and create inflationary pressures, we raise the fed funds rate and everything works in the opposite direction. That's conventional monetary policy in a nutshell.

Given the economy's dire straits during the recession, standard rules of thumb for monetary policy suggested that the funds rate should be cut to well below zero (see Rudebusch 2009 and Chung et al. 2012). But that was impossible. Why can't interest rates be pushed well below zero? Well, one simple reason is that currency—the cash in your wallet—pays no interest. Think about it. If bank accounts paid

negative interest—that is, if people were charged to keep their money in a bank—then depositors could take money out of their accounts and keep it as hard cash. That would save them the interest expense. Economists refer to this floor on interest rates as the zero lower bound.

Meanwhile, the economic outlook was grim. So, given the inability to cut interest rates well below zero, we began to explore alternative ways to ease credit conditions and thereby stimulate the economy. We also had an eye on inflation, which was heading lower, thereby creating a situation in which deflation might be a threat. I will focus specifically on two types of unconventional monetary policies that the Fed and other central banks put in place around that time. The first is what we at the Fed call forward policy guidance. The second is what we call large-scale asset purchases, but which are popularly known as quantitative easing, or QE.

Forward policy guidance

The first type of unconventional monetary policy that I will discuss is forward policy guidance. Let me start with some background. After each monetary policy meeting, the FOMC releases a statement describing the state of the economy and the reasons for our policy decision about our target for the federal funds rate (see Williams 2012b for a description of monetary policy statement evolution over the past two decades). In addition, the statement often contains language discussing economic risks and where the FOMC thinks monetary policy may be headed (see Rudebusch and Williams 2008). It's interesting to note that the statement language typically has bigger effects on financial conditions than the federal funds rate decision itself (see Gürkaynak, Sack, and Swanson 2005). That's not that surprising. After all, the current level of the federal funds rate only tells what the overnight interest rate is right now. But the FOMC's statement language hints at where those short-term rates are likely to be in the future. That's much more relevant information for households, businesses, and investors. They are typically borrowing for expenditures such as cars, homes, or business capital spending, which are generally financed over a longer term.

Although the FOMC has used versions of forward guidance at various times in the past, the use of the policy statement to provide more explicit information about future policy took a quantum leap forward in the summer of 2011. With the fed funds rate stuck near zero, forward guidance provided a tool to influence longer-term interest rates and financial market conditions. Forward guidance achieves its effects by influencing market expectations for the future path of interest rates. Let me give a concrete example. Around the middle of 2011, private-sector economists expected that the FOMC would start raising the fed funds rate in about nine months to a year, according to surveys of professional forecasters and financial market indicators (see Swanson and Williams 2012).

The introduction of forward guidance in the August 2011 FOMC statement succeeded in shifting market expectations regarding the future path of the federal funds rate. Specifically, the FOMC stated that it "anticipates that economic conditions...are likely to warrant exceptionally low levels for the federal funds rate at least through mid-2013." That statement communicated that the FOMC would probably keep the fed funds rate near zero for at least two more years, longer than many private-sector economists had been thinking. As a result of this shift in expectations, yields on Treasury securities fell by between one- and two-tenths of a percentage point. This may not sound like a big change. But in terms of the effects of monetary policy, those were actually big drops. In fact, this was about as big a fall in interest rates as would normally come from cutting the federal funds rate by three-quarters or even a full percentage

point (see Gürkaynak, Sack, and Swanson 2005 and Chung et al. 2012). And, the ripple effect through financial markets lowered the cost of credit for all kinds of borrowers, not just the U.S. Treasury.

The use of forward policy guidance has now become a key monetary policy tool. Since August 2011, the FOMC has extended forward guidance twice. In January 2012, the FOMC said it would keep the fed funds rate exceptionally low "at least through late 2014." Just this September, it extended its guidance further, "at least through mid-2015." The FOMC also said it would maintain low rates "for a considerable time after the economic recovery strengthens." In other words, it indicated it intends to keep short-term rates low even as the economy improves to make sure this recovery takes hold. I should note that the Fed is not alone in using forward guidance. Other central banks provide forward policy guidance in a variety of ways.

Although forward policy guidance has proven to be a very useful policy tool, it's not a perfect substitute for the kind of monetary stimulus that comes from lower interest rates. One issue is that, for the forward guidance policy to work as desired, the public has to believe that the FOMC will really carry out the policy as it says it will. But, the Fed doesn't have the ability to tie its hands that way. This point was made by Finn Kydland and Edward Prescott in the late 1970s. Let me explain. For forward policy guidance to have its maximum effect, the Fed must commit to keeping the short-term policy rate lower than it otherwise would to compensate for the fact that the short-term interest rate cannot be lowered today. But when the time comes to carry out the commitment made in its forward guidance, it may no longer want to do so. For instance, it might be hard to resist raising rates earlier than promised to head off an increase in inflation (see Adam and Billi 2007). So, even when central bankers say they will keep rates unusually low for a set time, the public may worry that the central bank will raise rates earlier to fight budding inflation pressures (Evans 2010 is an exception; see Walsh 2009 for discussion).

Another challenge for forward guidance is that the public may have different expectations about the future of the economy and monetary policy than the central bank. Expectations are crucial for forward guidance to be effective. If the public doesn't understand the central bank's intended policy path, then forward guidance may not work so well (see Reifschneider and Roberts 2006 and Williams 2006). Therefore, clear communication of policy to the public is a key challenge. This isn't always easy. The public and the media tend to gloss over the nuances of policy and take away simple sound bites.

Large-scale asset purchases

Let me now turn to the second form of unconventional monetary policy, large-scale asset purchases. The goal of large-scale asset purchases, or LSAPs, is the same as for conventional policy actions and forward guidance: to drive down longer-term interest rates, and thereby boost economic growth. How do LSAPs work? First, let me tell you when they wouldn't work. In a hypothetical world of perfect financial markets, LSAPs would have essentially no effect on asset prices or the economy. In such a world, the price of an asset depends solely on its expected future returns, adjusted for risk. If the price of a specific asset deviated from this level, arbitrageurs would swoop in to take advantage of the discrepancy, knowing that the price would inevitably return to its proper level. Suppose the Fed were to step in and buy large amounts of an asset class, say, for example, Treasury securities. In that case, other investors would freely sell their holdings and rebalance their portfolios accordingly. But, asset prices would not change at all. And there would be no impact on the broader economy.

The reason LSAPs work is that financial markets are not perfect. Decades ago, James Tobin and Franco Modigliani pointed out that markets are to a certain degree segmented. Some investors, such as pension funds, have "preferred habitats" for their investments. For example, a pension fund might prefer longer-term securities to hedge its longer-term liabilities. Thus, the supply and demand of assets in these habitats can affect prices because that pension fund is not going to start buying short-term securities just because the prices of longer-term securities rise.

Now, if the Fed buys significant quantities of longer-term Treasury securities or mortgage-backed securities, then the supply of those securities available to the public falls. As supply falls, the prices of those securities rise and their yields decline. The effects extend to other longer-term securities. Mortgage rates and corporate bond yields fall as investors who sold securities to the Fed invest that money elsewhere. Hence, LSAPs drive down a broad range of longer-term borrowing rates. And lower rates get households and businesses to spend more than they otherwise would, boosting economic activity.

LSAPs can also affect interest rates by signaling that the central bank is determined to ease monetary conditions (see Bauer and Rudebusch 2012, Christensen and Rudebusch 2012, and Krishnamurthy and Vissing-Jorgensen 2011). Effectively, the central bank is putting its money where its mouth is. Thus, LSAPs reinforce forward guidance. For this reason, I view these two types of unconventional monetary policy as complementary.

The use of LSAPs goes back to a 1961 initiative with the catchy name of Operation Twist, an effort by the Fed and the Kennedy Administration to drive down longer-term interest rates. More recently, in late 2008 and 2009, the Fed purchased over $1.7 trillion of longer-term Treasury bonds and mortgage-backed securities, a program often referred to as QE1. In November 2010, the FOMC announced an additional $600 billion of longer-term bond purchases—QE2. And, two months ago, we got QE3 when the FOMC announced that the Fed would buy an additional $40 billion in mortgage-backed securities every month until the outlook for the job market improves substantially.

Other central banks have also carried out large-scale asset purchase programs. The Bank of Japan began a large-scale asset purchase program in 2001. In its most recent program, launched in 2010, it has bought roughly $1.1 trillion in Japanese government bonds and other assets. In March 2009, the Bank of England announced an LSAP program that was later raised to the equivalent of roughly $600 billion in purchases mostly of British government bonds. Both of these central banks have continued and expanded their asset purchase programs in the past year.

The effects of unconventional monetary policy on the economy

A great deal of research has analyzed the effects of forward policy guidance and large-scale asset purchases on financial conditions and the economy. As I mentioned before, forward policy guidance has proven to be effective at lowering expectations of future interest rates (see Swanson and Williams 2012 and Woodford 2012). Similarly, the evidence shows that LSAPs have been effective at improving financial conditions as well.

To be precise, the estimated impact of a $600 billion LSAP program, such as QE2, is to lower the 10-year Treasury yield by between 0.15 and 0.20 percentage point (see, for example, Williams 2011, Krishnamurthy and Vissing-Jorgensen 2011, Hamilton and Wu 2012, Swanson 2011, Gagnon et al. 2011,

and Chen, Curdia, and Ferrero 2012). It is around the same magnitude as the effects of forward policy guidance, and about how much the yield on 10-year Treasury securities typically responds to a cut in the fed funds rate of three-quarters to one percentage point (see Chung et al. 2012 and Gürkaynak, Sack, and Swanson 2005). So, by that metric, LSAPs have big effects on longer-term Treasury yields.

By pushing down longer-term Treasury yields, forward guidance and LSAPs have rippled through to other interest rates and boosted other asset prices, lifting spending and the economy. For example, mortgage rates have fallen below 3½%, apparently the lowest level since at least the 1930s. Thanks in part to those rock-bottom rates, we're at long last seeing signs of life in the housing market. Likewise, cheap auto financing rates have spurred car sales. And historically low corporate bond rates encourage businesses to start new projects and hire more workers.

In addition, low interest rates help to support asset prices, such as the value of people's homes and their retirement funds. All else equal, households are more likely to consume if their wealth is growing rather than falling. Stronger asset prices support consumption because they make people feel wealthier and more confident. And that in turn helps boost the economy.

Finally, although it's not our main intention, these unconventional policies have also had an effect on the dollar versus foreign currencies. When interest rates in the United States fall relative to rates in other countries, the dollar tends to decline as money flows to foreign markets with higher returns. One estimate is that a $600 billion program like QE2 causes the dollar to fall by roughly 3 or 4% (see Neely 2011). That helps stimulate the U.S. economy by making American goods more competitive at home and abroad.

I've argued that forward guidance and LSAPs invigorate the economy by lowering interest rates and improving financial conditions more generally. But just how big are these effects? That's not easy to answer. Financial markets react instantly to FOMC announcements, so it's relatively easy to gauge the financial impact of any policy move. By contrast, monetary policy actions affect economic growth, employment, and inflation gradually over time. Thus, the broad economic effects of monetary policy are not immediately obvious. Moreover, data on unemployment and gross domestic product are only collected monthly or quarterly. Many factors besides monetary policy affect these variables. In any particular data release, it's devilishly hard to separate the contribution of monetary policy from other factors.

To control for these other factors, a researcher must use a macroeconomic model. In some of my own research with staff at the Federal Reserve Board, we used the Board's large-scale macroeconomic model, which has hundreds of economic relationships built in, for this purpose (see Chung et al. 2012). We estimated that the Fed's $600 billion QE2 program lowered the unemployment rate by about 0.3 percentage point compared with what it would have been without the program. We also estimated that the program raised GDP by a little over half a percentage point and inflation by 0.2 percentage point. When we considered the combined effects of QE1 and QE2, we found that these programs had a peak effect of reducing the unemployment rate by 1½ percentage points. In addition, we found that these programs probably prevented the U.S. economy from falling into deflation.

Other researchers using different macroeconomic models have found roughly similar effects, although there is a lot of uncertainty surrounding these estimates (see Chen, Curdia, and Ferrero 2012, Kiley 2012,

Fuhrer and Olivei 2011, Baumeister and Benati 2010, and Curdia and Ferrero 2011). Part of the uncertainty stems from the fact that changes in longer-term interest rates due to LSAPs may be atypical. That is, they may affect the economy differently than do changes in longer-term interest rates in normal times. That would make the past relationship between longer-term interest rates and the economy less informative for estimating the effects of unconventional monetary policy.

Risks and uncertainty

Although the evidence shows that the Fed's unconventional policy actions have been effective at lowering interest rates and stimulating economic growth, it's also clear that there remains a great deal of uncertainty about the effects of these policies. After decades of using the fed funds rate as the main tool of monetary policy, Fed policymakers have plenty of confidence in this instrument. We know it works and we're pretty good at estimating how much it works. By contrast, with unconventional monetary policies, we're in waters that have not been extensively charted. We don't know all the consequences. There is uncertainty about the magnitude of the effects on the economy, as I've already discussed. In addition, there is a concern that these policies carry with them risks of unintended negative consequences. Let me go over a few of those concerns.

One concern is that the Fed's very low rate policies may be building up inflationary pressures that we can't yet see (see Williams 2012a). Of course, this risk is not peculiar to unconventional policies. It exists whenever monetary policy is very expansionary. Although this is a risk, it's important to note in the current context that inflation has been very low during this period of unconventional policies, and it remains so. Moreover, the public's inflation expectations remain well anchored. So, we are not seeing signs of rising inflation on the horizon. Japan's experience with unconventional policies is informative as well. Japan has had undesirably low inflation since the 1990s despite the Bank of Japan's very large quantitative easing programs.

Nonetheless, whenever a stimulatory monetary policy is in place, there is always a risk of inflation rising too high. Let me emphasize that the Fed has the tools to combat such a threat if it were to materialize. We can raise interest rates, slowing economic growth. And we can reverse the asset purchase programs, selling assets back into the market if needed.

A second concern is that these policies may be contributing to excessive risk-taking in financial markets as investors seek higher yields in the low-rate environment. I take this concern seriously. We monitor indicators of financial market conditions very closely, looking for signs of imbalances or excesses. In addition, in our role as bank supervisors, we carefully watch for signs of inappropriate risk-taking. We are always on the lookout for indications that the low-rate environment is creating dangers for the banking system. That said, as of today, most indications still point to an environment of heightened risk aversion rather than reckless risk-taking in our financial system. Memories of 2008 are simply too close for most financial market participants to go out on a limb. If that situation were to change significantly, we could modify our unconventional policies to mitigate undesired effects on risk-taking.

I've highlighted the uncertain effects of unconventional policies and some concerns about undesired consequences of these policies. But, the presence of uncertainty does not mean that we shouldn't be using these tools. That is the point that William Brainard analyzed 45 years ago in his classic paper on optimal policy under uncertainty. The answer Brainard (1967) found was that a policy tool with

uncertain effects should not be discarded. However, it should be employed more cautiously than policy tools that have more certain effects. This insight applies to the current situation. The Fed has been deliberate in using its unconventional policies over the past few years. We've carefully weighed the benefits of these policies on improving economic growth against potential risks and uncertainties.

Conclusion

Let me offer some final thoughts. Unconventional monetary policies such as forward guidance and large-scale asset purchases give central banks effective instruments when the traditional policy interest rate is near zero. The Fed and other central banks have been actively using these policies. In the United States, these policies have had meaningful effects on longer-term interest rates and other financial conditions. The precise impact on unemployment, GDP, and inflation is harder to determine. But the available evidence suggests they have been effective in stimulating growth without creating an undesirable rise in inflation. Conducting monetary policy always involves striking the right balance between the benefits and risks of a policy action. As the FOMC statement makes clear: "In determining the size, pace, and composition of its asset purchases, the Committee will, as always, take appropriate account of the likely efficacy and costs of such purchases."

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