

## **Looking Back at Four Years of Federal Reserve Actions**

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Thank you for that generous introduction. It is a pleasure to be here today, especially to join all of you who are here to participate in the South Dakota Chamber of Commerce's annual Economic Outlook Seminar. I have to admit that the bulk of my remarks will be somewhat out of step with the theme of the Economic Outlook Seminar, as I provide a look back at Federal Reserve decision-making over the past few years. However, if you bear with me for the next half hour, you will hear my views on how I think the Federal Open Market Committee—the FOMC—can work to reduce the level of uncertainty surrounding future monetary policymaking. As always, any views I express here today are my own, and not necessarily those of others in the Federal Reserve System, including my colleagues on the Federal Open Market Committee.

### **Some FOMC Basics**

Let me begin, though, with some basics about the Federal Reserve System. The Federal Reserve Bank of Minneapolis is one of 12 regional Reserve banks that, along with the Board of Governors in Washington, D.C., make up the Federal Reserve System. Our bank represents the ninth of the 12 Federal Reserve districts, and by area, we're the second largest. Our district includes Montana, the Dakotas, Minnesota, northwestern Wisconsin and the Upper Peninsula of Michigan.

Eight times per year, the FOMC meets to set the path of monetary policy over the next six to seven weeks. All 12 presidents of the various regional Federal Reserve banks—including me—and the seven governors of the Federal Reserve Board, including Chairman Bernanke, contribute to these deliberations. (Currently, there are only five governors—two positions are unfilled.) However, the Committee itself consists only of the governors, the president of the

Federal Reserve Bank of New York and a group of four other presidents that rotates annually. Right now, that last group consists of the presidents from the Minneapolis, Philadelphia, Dallas and Chicago Federal Reserve Banks.

I've said that the FOMC meets (at least) eight times per year. But how do these meetings work? At a typical meeting, there are two so-called go-rounds, in which every president and every governor has the opportunity to speak without interruption. The first of these is referred to as the economics go-round. It is kicked off by a presentation on current economic conditions by Federal Reserve staff economists. Then, the presidents and governors describe their individual views on current economic conditions and their respective outlooks for future economic conditions. The presidents typically start by providing information about their district's local economic performance. We get that information from our research staffs, but also from our interactions with business and community leaders in industries and towns from across our districts.

The chairman speaks at the end of the first go-round. He briefly but thoroughly summarizes the preceding 16 perspectives. I can assure you that this is no easy task—and the chairman's balanced and thoughtful treatment of our remarks is one of the many reasons that he commands such respect among his colleagues. He then provides his own views on the economy.

The Committee next turns to the second go-round, which focuses on policy. Again, the staff begins, with a presentation of policy options. After that, each of the 17 meeting participants has a chance to speak on what each views as the appropriate policy choice. This set of remarks is followed with a summary by the chairman, in which he lays out what he sees as

the Committee's consensus view for future policy. The voting members of the FOMC then cast their votes on this policy statement and thereby set monetary policy for the next six to seven weeks.

I hope that this description of an FOMC meeting conveys two things. First, the meeting participants view monetary policy as a largely technocratic exercise that is fundamentally apolitical. As I mentioned earlier, our policy discussions are largely based on information-gathering and model analyses by meeting participants and their staffs. I would say that the tone of the discussion is pretty much in accord with its rather technical substance. There is disagreement, of course. How could there not be in such challenging and unusual economic times? But, as a relative newcomer, I've been impressed with how the dialogue within the meeting room is always fundamentally grounded in a deep respect for the job at hand and for each other.

Second, my description of an FOMC meeting highlights how the structure of the FOMC mirrors the federalist structure of our government. Representatives from different regions of the country—the various presidents—have input into FOMC deliberations. And, as I've described, their input relies critically on information received from district residents. In this way, the Federal Reserve System is deliberately designed to give the residents of Main Street a voice in national monetary policy.

### **FOMC Objectives**

I've said that FOMC participants seek to adopt what they view as the appropriate policy choice. That provides a natural segue into my next topic: the policy objectives of the FOMC. The FOMC

has a dual mandate, established by Congress: to set monetary policy so as to promote price stability and maximum employment. The heart of the price stability mandate is the Federal Reserve's inflation objective. The FOMC communicates its inflation objective to the public in a number of ways. Most prominently, at quarterly intervals, FOMC meeting participants publicly reveal their forecasts for inflation in the longer run (maybe five or six years), assuming that monetary policy is optimal. Those forecasts usually range between 1.5 percent and 2 percent per year. They are often collectively referred to by saying that the Federal Reserve views inflation as being "mandate-consistent" if it is running at "2 percent or a bit under."

Congress has also mandated that the FOMC set monetary policy so as to promote maximum employment. An important and ongoing communications challenge for the FOMC is that it is much harder to quantify the maximum employment mandate than the price stability mandate. Changes in minimum wage policy, demography, taxes and regulations, technological productivity, job market efficiency, unemployment insurance benefits, entrepreneurial credit access and social norms all influence what we might consider "maximum employment." Trying to offset these changes in the economy with monetary policy can lead to a dangerous drift in inflationary expectations and ultimately in inflation itself.

### **Looking Back over the Past Four Years: Actions**

The National Bureau of Economic Research's Business Cycle Dating Committee serves as the official arbiter of precisely when recessions begin and end.<sup>1</sup> The committee has determined that what is commonly referred to as the Great Recession began in December 2007 and ended

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<sup>1</sup> See <http://www.nber.org/cycles/recessions.html>.

in June 2009. During that time period, real gross domestic product (that is, GDP adjusted for inflation) fell by 5 percent and unemployment nearly doubled.

The Federal Reserve responded to the Great Recession and the associated financial crisis in a number of ways that fall roughly into two classes. First, the Fed engaged in a vast amount of lending to firms believed to be in sound condition. It lent through conventional vehicles like the discount window and currency swaps with foreign central banks. But it also lent through relatively unconventional vehicles like the Term Asset-Backed Securities Loan Facility.<sup>2</sup> Second, the Fed lowered the real interest rate facing borrowers and lenders.

Here, I should clarify some terminology. By the term “real interest rate,” I’m referring to the interest rate received by lenders net of inflation. Thus, if the interest rate on the loan is 5 percent per year and lenders expect inflation to be around 2 percent, the real interest rate is roughly 3 percent. Economists generally think that it’s the real interest rate that matters for economic decision-making.

Early in the recession, the Fed lowered its target for the fed funds rate. Given that inflation expectations remained stable, this action served to lower the real interest rate. By early 2009, when the fed funds rate target could really go no lower, the Fed used large-scale asset purchases to achieve further reductions in the real interest rate.

I’ll first discuss the Fed’s lending responses and then talk about the interest rate cuts.

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<sup>2</sup> See Willardson (2008) and Willardson and Pederson (2010).

## ***Lending***

To understand the Fed's responses to the events of 2007-09, we need to step back to the second half of 2006. At that time, firms and people around the world held a wide array of financial assets that were ultimately backed by U.S. residential land. They viewed those assets as being largely risk-free. Investors may have understood that a fall in the value of U.S. land would impose large losses on them. However, they put low odds on such a decline taking place. Rather, they seemed to believe that U.S. land prices would continue to rise at a steady clip, as they had over the preceding 10 years.

By the second half of 2007, that belief began to unravel in the face of incoming data. People were learning the hard way that U.S. land was a risky investment. Now the only question was how risky. That uncertainty planted the seeds for global financial panic.

What do I mean by the term "financial panic"? Financial panics are events that blur the line between liquidity and solvency. A firm is solvent if its revenues (in a discounted present-value sense) exceed its expenditures. A firm is liquid if it is able to raise enough funds—either by borrowing or by selling assets—to pay its current costs. In a financial market that is functioning well, solvent firms are typically liquid because they can borrow against their future profits. During a financial panic, however, lenders feel unable to assess the future profits and/or collateral of borrowers. Borrowing becomes highly constrained, credit markets cease to function as well, and even highly solvent firms may become illiquid.

As I've said, many forms of collateral around the world were either implicitly or explicitly backed by U.S. residential land in the mid-2000s. But by mid-2007, as those land prices fell, financial markets became increasingly uncertain about how to evaluate mortgage-backed

securities and other assets backed by U.S. land. That translated into uncertainty about the ultimate solvency of institutions holding those assets—and then about the ultimate solvency of any of their creditors. Spreads in credit markets between Treasury returns and other bond returns began to widen—at first slightly and then alarmingly as the panic conditions took firmer hold.

Most economists agree that central banks should respond to financial panics by communicating that they are willing to lend freely to solvent firms, against a wide range of good collateral, at some kind of penalty rate. This policy is useful for two reasons. First, it provides a source of funds to potential borrowers who are illiquid but nonetheless solvent. Second, it provides a floor to collateral valuation. Private lenders know that they can always use collateral seized from a defaulting borrower as a vehicle to borrow money from the central bank. That baseline use serves to spur private lending.

Beginning in mid-2007, the Fed took a number of actions consistent with this operating principle. It lent money to financial institutions through the discount window and its close cousin, the Term Auction Facility. It injected liquidity into a broad range of essential credit markets through a veritable alphabet soup of special lending vehicles. In some sense, these interventions were typical for a central bank operating in the context of a financial panic. But the size of the problem meant that the operations were unprecedented in their scale. The interventions made up more than \$1 trillion of Federal Reserve assets.

There is no doubt that these interventions saved many solvent firms from collapse during the financial crisis. Over time, panic eased and spreads in financial markets normalized. Once that happened, the private sector stopped borrowing from the Fed because it found the



Fed's penalty rates too onerous. As a result, the Fed shut down its special lending facilities in 2010.

It is plausible that the Fed's loans through the various special facilities exposed it—and by extension, the American public—to some risk of loss. However, it is difficult to know how much risk was involved. We generally try to measure a financial asset's risk by the spread between its yield and that of a safe benchmark like U.S. Treasuries. But as I've mentioned, in a financial panic a relatively large fraction of such a spread is attributable to illiquidity as opposed to intrinsic risk. The goal of the central bank's intervention is exactly to eliminate this panic-driven illiquidity. Accordingly, we cannot gauge the Fed's risk exposures without somehow correcting spreads for this illiquidity factor. Calculating this, however, is extremely difficult. What we can say with certainty is that the Fed has not lost a penny on any of these transactions: All such loans have been repaid in full.

I should be careful to distinguish the lending that I've described from the institution-specific assistance the Federal Reserve provided to firms like AIG. These institution-specific interventions were deemed necessary by the Fed and the Bush administration because they believed that there were no adequate procedures in place for liquidating the assets of systemically important financial institutions in an orderly fashion. The Dodd-Frank Act passed in 2010 provides these procedures. Simultaneously—and correctly—the Dodd-Frank Act removes the Fed's ability to engage in institution-specific assistance. The act does leave in place the Fed's ability to engage in broad-based market interventions of the kind that I've described, albeit with more congressional and White House oversight.

### ***Cutting Interest Rates***

I've talked about how the fall in land prices generated a sharp increase in risk perceptions in financial markets and how that in turn led to a financial crisis. I now want to turn to what I see as the second key effect of the fall in land prices. This fall reduced the net worth of many households and firms. According to Fed calculations, household net worth fell by over 25 percent from the second quarter of 2007 to the first quarter of 2009. Households responded to this change in their balance sheets by forgoing consumption, which led in turn to a fall in output and employment,<sup>3</sup> and put downward pressure on the price level.

The FOMC reacted by lowering its target interest rate from 5.25 percent in August 2007 to a range of 0 to 0.25 percent in December 2008; it now remains at this lower bound. Since inflation expectations remained stable, the FOMC's action has had the effect of lowering the real interest rate facing households. Households, of course, typically respond to lower rates by saving less and demanding more consumption. Similarly, firms undertake more investment projects. In this way, the FOMC can and has partially offset the impact on the economy of the loss of net worth.

Indeed, the FOMC would probably have liked to respond by cutting its target interest rate still further. The problem is that this target interest rate cannot go below zero. Instead, the FOMC has engaged in large-scale purchases of long-term assets issued or backed by the government. The goal of these transactions is to lower long-term real interest rates and again offset the impact on the economy of the net worth shock.

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<sup>3</sup> See Kocherlakota (2010) for a more extensive discussion of the relevant transmission mechanisms.

So, to sum up, the fall in land prices triggered an increase in risk perceptions and a decrease in household net worth. The increase in risk led to a major financial crisis that has been cured, thanks in part to the actions by the Federal Reserve that I've just described. The decrease in net worth led to a major recession and ongoing slow recovery. The Federal Reserve's reduction in interest rates has lessened the impact of this change in net worth.

### **Looking Back over the Past Four Years: Outcomes**

How has the FOMC performed relative to its dual mandate over the past four years, since the onset of the Great Recession at the end of 2007? In terms of price stability, the answer is remarkably well. The personal consumption expenditure (PCE) inflation rate has averaged 1.8 percent per year from the fourth quarter of 2007 through the third quarter of 2011. In my view, this outcome is essentially consistent with price stability.

Now, I want to be clear here about what I mean when I say "inflation." That number I just gave you, 1.8 percent per year for nearly four years, refers to what's termed *headline* inflation. It includes all goods and services, including food and energy. When the Fed says that it is committed to keeping inflation at 2 percent or a little less, it means prices for *all* goods and services, including the gas we put in our cars and the food we put on our tables. When we make reference to year-over-year *core* inflation—that is, inflation without food and energy—it's only because we believe that core inflation is a helpful predictor of headline inflation over the next three or four years.

I want to spend some time explaining why there is no longer an intrinsic connection between the size of the Fed's balance sheet and inflation. In the past three years, the Fed has

bought over \$2 trillion of securities issued or backed by the government. The Fed has funded that purchase by tripling the amount of deposits held by banks with the Fed—what are called bank *reserves*.

The standard reasoning is that this kind of reserve creation is inflationary. Banks are only allowed to offer checkable deposits in proportion to their reserves. Economists view checkable deposits as a form of money because, like cash, checkable deposits make many transactions easier. In this sense, bank reserves held with the Fed are essentially *licenses* for banks to create a certain amount of money. By giving out more licenses, the FOMC is allowing banks to create more money. And if you took any economics in school you learned: More money chasing the same number of goods—*voilà*, inflation. Indeed, I think I'm pretty safe in saying that after four years in economics grad school, I've uttered this phrase—more money chasing the same number of goods creates inflation—more often than anyone else in this room.

But this connection between bank reserves and inflation is simply not operative right now. Banks have few good lending opportunities, and so they're not trying to attract deposits. As a result, they are keeping nearly \$1.6 trillion of reserves at the Fed in excess of what they need to back their deposits. In other words, banks have the licenses to create money, but are choosing not to do so.

I'm confident, though, that at some point in the future, the economy will improve and banks will once again have good lending opportunities. Some observers are concerned that once this happens, the banks' excess reserves will serve as kindling for an inflationary fire. This concern would have been entirely appropriate three years ago. But in October 2008, Congress

granted the Federal Reserve the power to pay *interest on bank reserves*. Right now, that interest rate is 25 basis points, or 0.25 percent. By raising that rate judiciously, the Fed has the ability to deter banks from using their reserves to create money, and through this mechanism, the Fed can prevent inflation. The Fed's ability to pay interest on reserves means that the old and familiar link between increased bank reserves and higher inflation has been broken.

Of course, this requires the Fed to raise the interest rate on reserves in response to changes in economic conditions. You might well ask: Will the Fed raise interest rates in a sufficiently timely and effective manner to keep inflation at 2 percent or a little less? But that's *always* been the key question to ask about Fed policy, even when the Fed had a much smaller balance sheet. And that's my point: Because the Fed can pay interest on reserves, the size of its balance sheet does not, in and of itself, undercut the credibility of its commitment to keep inflation at 2 percent or a bit under. I believe that's why both survey and market-based measures of expected inflation over the next five to 10 years have remained remarkably stable as the Fed has expanded its liabilities.

Unemployment remains disturbingly high at 9 percent. But—and this is important to keep in mind—it would likely be much higher without Federal Reserve interventions. Suppose the Fed had not followed its aggressive lending policies or its imaginative forms of monetary accommodation. What would have happened to the economy? While a definitive answer is impossible, the evidence from the Great Depression is suggestive. In the early years of the Great Depression, the United States was on the gold standard and the Fed could not easily adjust the quantity of bank reserves. As a result, the Fed did not engage in broad-based lending during the 1929-33 period. Nor did it cut interest rates aggressively. By 1933, hosts of financial

institutions had failed, real GDP had fallen by over 25 percent, unemployment was 25 percent and the nation had experienced annual double-digit rates of deflation. The Fed's passiveness in 1929-33 was associated with an economic catastrophe.

Let me summarize my review of Federal Reserve performance since the beginning of the Great Recession in December 2007. My assessment is that, despite profound economic shocks, the Federal Reserve—led by Chairman Bernanke—has successfully met its price stability mandate through its lending programs and through innovative forms of monetary accommodation. These actions also helped keep the unemployment rate from rising even higher. As part of its accommodative policy, the FOMC has greatly expanded its balance sheet. But it is important to understand that this expansion need not trigger inflation now or in the future, because the Federal Reserve can now pay interest on bank reserves.

### **Going Forward**

I've spent most of this speech looking back. Let me close by offering some thoughts about future policy.

I've underscored the Federal Reserve's success in meeting its price stability mandate over the past four years. And the Fed's actions have helped keep unemployment from rising higher. But the unemployment rate, currently 9 percent, remains disturbingly high—and FOMC meeting participants are projecting that it will fall to only about 8 percent over the next two years.

The FOMC does have tools remaining. It could put downward pressure on long-term market interest rates in at least two ways. First, it could buy more long-term Treasury securities or securities issued by government-sponsored enterprises like Fannie Mae and Freddie Mac.

Second, the Committee could extend its prediction for how long it will keep its target short-term interest rate exceptionally low. So, tools—and choices—remain.

However, the FOMC should do more than simply decide at each meeting whether or not to buy more assets or to keep interest rates low for longer. Any current decision is based on the FOMC's forecast of the future, and no forecast can be perfect. The Committee should provide a *public contingency plan*—that is, provide clear guidance on how it will respond to a variety of relevant scenarios. For example, the Committee recently projected that in 2011, core inflation will be 1.9 percent and that it will fall back in 2012 and 2013 to around 1.7 percent. Suppose hypothetically that core inflation, and the outlook for core inflation, has risen to 3 percent by the end of 2013, while unemployment has fallen to between 8 percent and 8.5 percent. A public contingency plan would allow the public to know what the Committee intends to do in that eventuality.

I believe that this kind of public contingency planning will have many benefits. Let me mention two. First, in recent statements and speeches, I have described why the FOMC actions in August and September seemed inconsistent with the evolution of the macroeconomic data in 2011. This kind of inconsistency is much less likely to occur once the FOMC has formulated an explicit public contingency plan. Second, I've heard from businesses that policy uncertainty is curbing their incentive to hire or invest. Similarly, I've heard from consumers that policy uncertainty is curbing their incentive to spend. A public FOMC contingency plan can help reduce the level of policy uncertainty being created by the Fed.

No contingency plan can ever be definitive. Inevitably, the FOMC will learn things that it did not expect to learn, and events will occur that it did not expect to occur. And so there may

be conditions that force the FOMC to deviate from a chosen plan. However, having a public plan, and couching its decisions against the backdrop of that plan, will enhance Federal Reserve transparency, credibility, accountability and consistency.

Thank you for listening. I'd be happy to take your questions.



## References

Kocherlakota, Narayana R. 2010. "Two Models of Land Overvaluation and Their Implications." Presented at "A Return to Jekyll Island: The Origins, History, and Future of the Federal Reserve," Jekyll Island, Ga. Online at

[http://www.minneapolisfed.org/news\\_events/pres/papers/kocherlakota\\_landovervaluation\\_110610.pdf](http://www.minneapolisfed.org/news_events/pres/papers/kocherlakota_landovervaluation_110610.pdf).

Willardson, Niel. 2008. "Actions to Restore Financial Stability." *The Region* (December), Federal Reserve Bank of Minneapolis. Online at <http://www.minneapolisfed.org/pubs/region/08-12/willardson.pdf>.

Willardson, Niel, and LuAnne Pederson. 2010. "Federal Reserve Liquidity Programs: An Update." *The Region* (June), Federal Reserve Bank of Minneapolis. Online at <http://www.minneapolisfed.org/pubs/region/10-06/liquidity.pdf>.