Transition and Continuity at the Federal Reserve in 2006
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I would like to talk to you tonight about the evolution in the way the Federal Reserve goes about conducting monetary policy. As my title suggests, one theme is that a transition is taking place. Of course, the most striking transition at the Federal Reserve this year is the change in leadership. On January 31, Federal Reserve Board Chairman Alan Greenspan served his last day in office and chaired his last meeting of the Federal Open Market Committee. His successor, Ben Bernanke, took over the following day, and tomorrow morning, he delivers his first testimony to Congress as chairman.

Much has been written and said recently about this changing of the guard. It is quite natural in such circumstances for commentators to contrast an influential leader and his successor and to look for likely differences in philosophy and practice. But in my opinion, too much has been made of their differences. Thus, the second theme of my talk: continuity. In remarks upon the announcement of his nomination, Bernanke very deliberately emphasized the stability of monetary policy. He stated that his "first priority will be to maintain continuity with the policies and policy strategies established during the Greenspan years." But I won't ask you to take his word for it. Tonight, I hope to convince you that a careful student of the Federal Reserve should have good reason to believe that the practice of monetary policy will continue to evolve gradually. I will argue that a certain economic logic has influenced the way policy and practice evolved during the Greenspan years, and that that logic will continue to influence the evolution of policy during the Bernanke years. In particular, the stability of the public's understanding of and expectations about the future conduct of monetary policy have been central to Chairman Greenspan's success. As a consequence, the Federal Reserve has found it useful to steadily make the conduct of monetary policy more transparent. This logic is likely to continue to hold sway, and thus the Fed is likely to continue to emphasize credibility and enhanced transparency.

Let me be clear, however. Understanding the economic logic of the evolution of monetary policy over the last several decades should take nothing away from the significant achievements of Alan Greenspan. He served as Fed chairman for more than 18-and-a-half years and his record during that time was exemplary. Under his leadership, the Federal Reserve brought inflation down to historically low levels, which contributed to a period of extended economic expansion interrupted by only two brief and mild recessions. Indeed, the term "The Great Moderation" has been given to the phenomenal improvement in macroeconomic performance during the period following the mid-1980s, just before Greenspan took over. In essence, he successfully completed the task begun by his predecessor, Paul Volcker, of re-establishing the expectation of price stability that had been lost in the inflationary decade of the 1970s.

We are fortunate to have in Ben Bernanke a new chairman who has experience in policymaking and has made important contributions to our understanding of monetary economics. He is well-versed in both the economic logic of monetary policy and the research devoted to dissecting the great monetary policy mistakes of the 1930s and 1970s. He is therefore eminently qualified to continue to lead Fed policymaking along the path laid out by his predecessors. And his public comments thus far, particularly in his confirmation hearings, suggest that we can expect the type of continuity in Fed policymaking that I'll be talking about this evening.

I should say at the outset that, as always, my remarks reflect my own views and not necessarily those of my colleagues in the Federal Reserve.

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Many observers, myself included, have argued that one of the hallmarks of the Greenspan legacy is adherence to a *systematic* approach to policymaking.[1] The value of a systematic approach to monetary policy goes beyond the usefulness of minimizing unexpected deviations from what the public anticipates. The purpose of monetary policy, after all, is to stabilize the value of money, and the value people place on money today depends critically on what value people expect money to have in the near future, which depends in turn on what value people expect money to have a bit further into the future, and so on. The future conduct of monetary policy is thus a fundamental determinant of the value of money. Therefore, the key to stabilizing the value of money is getting people to understand the systematic conduct of monetary policy.

But saying that Greenspan introduced systematic policymaking is not quite right – and not quite enough. After all, monetary policy during the inflationary 1970s was just as systematic. An econometrician could estimate a statistical relationship between macroeconomic variables and the Fed's policy actions in the 1960s and 1970s. Indeed, many econometricians have estimated such relationships, and they tend to fit pretty well. But those relationships generally differ from what you get when you estimate relationships for the Volcker or Greenspan years. The question, then, is just *what* systematic relationship the Fed follows.

In the 1960s and 1970s monetary policy typically allowed inflation to rise noticeably during economic expansions. As the economy recovered from a recession and growth picked up, the Fed kept interest rates from rising as much as they should. In fact, at times, the Fed failed to raise nominal interest rates by as much as inflation was increasing. This caused real (that is, inflation-adjusted) interest rates to fall and, thus, provided further monetary stimulus at precisely the wrong time. The acceleration of inflation ultimately provoked a sharp tightening in policy, which often exacerbated or even caused an ensuing recession. Policymakers' fear of even further deepening the slump led them to ease policy before inflation had fully subsided. So inflation was essentially ratcheting upward throughout the period before 1980.

An important part of the economic instability of the 1970s can be attributed to the fact that the public's inflation expectations became untethered. For a long time before, indeed for centuries, inflation expectations had been anchored by commodity standards – that is, by arrangements that tied the value of money to the value of one or more precious metals like gold or silver. Under a commodity standard, inflation wasn't eliminated, since changes in the supply and demand conditions for the commodity to which money was linked could change the value of money. But over the long run, the real value of a commodity like gold is determined by the cost of extraction, and this tended to be fairly stable. Thus, commodity standards provided people with confidence that movements in the value of money would not be persistent and that inflation would ultimately settle back down to low levels.

The 20th century saw a gradual but steady departure from the gold standard, culminating in the closing of the U.S. "gold window" in 1971. It is not surprising that expectational stability would have been lost around the same time. When inflation was observed to rise in the 1970s, the public saw no obvious mechanism in place for bringing it back down, and so higher inflation became built into people's long-run expectations. The story of the Volcker-Greenspan era, then, is the story of how expectational stability was restored – the story of how the Fed regained the public's confidence that it would and could keep inflation low and stable.

The emergence of persistent inflation expectations on the part of the public during the 1970s was one factor that contributed to important developments in the discipline of macroeconomics. Before the 1970s, the consensus framework for understanding the effects of monetary policy treated the public's expectations about future inflation as a fixed parameter, unaffected by the actual current conduct of monetary policy. That framework contributed to the policy errors of that period by encouraging policymakers to discount the possibility that public expectation would shift over time in response to the actual conduct of policy.

Economists already had begun to think more carefully about how the public's expectations are formed, and in the 1970s, they had begun to study models in which the public's expectations were tied very tightly to how policy would actually be conducted. The experience of the 1970s confirmed the importance of this link by teaching us, essentially, that you can't fool all the people all the time. People learn from what they see, and it was unreasonable to assume that people would continue to expect inflation to settle down to low levels when they kept seeing inflation continue to ratchet up. The models developed in the 1970s provided a compelling diagnosis of the deterioration in inflation we witnessed that decade: monetary policy had a systematic inflationary bias, and the public had come to understand that and behave accordingly. Those models also provided the Fed with a prescription: systematically adhere to, and convince the public we would systematically adhere to, a non-inflationary monetary policy.

That prescription is easier written than followed, however. Merely announcing an intention to bring inflation down is not sufficient. After all, the Federal Reserve had been publicly advocating lower inflation throughout the 1970s. We needed a way to convincingly *demonstrate* our commitment to bringing inflation down. The Fed began this process in October 1979, under Chairman Paul Volcker, by allowing interest rates to rise sharply and withstanding a deep recession while inflation ratcheted down. Thereafter, the Fed often had to raise the fed funds rate in response to signs of rising inflation, or in response to *inflation scares* – that is, signs from the bond market that inflation expectations were rising. Over time, however, inflation has stabilized at a low level and inflation scares have become much less frequent as the public has learned that the Fed would respond systematically in a way designed to keep inflation low and steady.

The conduct of monetary policy in the last two decades has brought us to a very favorable place. Inflation is low and stable, and the public appears to be fairly confident that inflation will remain persistently low and stable. This is the Greenspan legacy, and it is now our responsibility, under the leadership of the new chairman, to preserve that credibility.

The challenge of fulfilling that responsibility in the period ahead will be analytically demanding. For how does one conduct monetary policy when inflation is low and stable? Here we can draw on our understanding from a class of models that researchers have developed and studied in the last decade or two. While this research program is still in progress and important open questions remain, a few clear principles have emerged. First, holding interest rates steady until inflation or deflation pressures are actually visible is clearly inappropriate. Instead, policy should be conducted recognizing that *real* interest rates should be expected to fluctuate with economic conditions. A real interest rate is the *relative* price of current resources in terms of future resources. It represents the real amount of goods and services one must sacrifice in the future (in addition to the repayment of principal) to obtain real goods and services today. As I have emphasized elsewhere, real interest rates should be expected to fluctuate over time in response to variations in the relative pressure on current versus future resources.[2] When current resource demand is less than it will be in the near future – as was the case from 2001 through the beginning of 2004 – then real interest rates need to be low to reflect the relative lack of pressure on current resources. When that relative pressure on current resources rises, as has been happening over the last two years, then real interest rates need to rise. In such circumstances, if the Fed sets and keeps the funds rate too low, the inevitable result will be rising inflation.

The behavior of the Fed thus has evolved in a way that is consistent with the evolution of our understanding of the macroeconomy and of how inflation, growth, and interest rates interact over time. Alan Greenspan's leadership was vital to this evolution. He understood the importance of stabilizing the public's expectations regarding future monetary policy. He proved highly skilled at sensing the evolution of those expectations, and at influencing them through the practice of monetary policy. And his focus on the Fed's credibility dovetailed with advances in economic research both inside and outside the Federal Reserve. It's fitting, then, that leadership of the Fed should now pass to Ben

Bernanke who, in addition to his previous experience on the FOMC, has made quite important contributions to research on monetary policy during his academic career.

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The importance of expectations and how policy effectiveness hinges on expectations is one of the most significant contributions of macroeconomic research in recent decades. Given this importance, one might wonder whether a central bank can influence expectations through means other than its own rate-setting behavior. In particular, what role can or should communication by the Federal Reserve play in shaping the public's expectations?

By itself, communication is not a particularly powerful tool for influencing people's beliefs. To be effective, communication needs to be backed up by and consistent with the actual policy behavior. Otherwise, listeners tend to discount what the policymaker says in favor of how the policymaker behaves. Thus the popular aphorism: "Actions speak louder than words." Words can matter, however, if the public believes that the policymaker will feel compelled to live up to them. A central banker who pledges to keep inflation low but then persistently lets it rise runs the risk of not being believed the next time around. This risk strongly discourages making empty promises. Thus, a clear central bank commitment to a policy objective can influence the public's expectations.

One widely noticed feature of the Greenspan legacy is the dramatic increase in transparency during his tenure. This is especially apparent in the Fed's communications regarding policy actions. Before 1994, the FOMC released only a difficult-to-interpret document called the "directive" regarding the supply of bank reserves to the market, and then only after the following meeting, when it had been superseded. Faced with this "radio silence," an industry of Fed-watchers developed to try to infer policy decisions from market movements after a meeting.

In a series of steps beginning in 1994, the FOMC began to expand the amount of information released to the public immediately following a meeting. First, the intended target for the federal funds rate was released immediately following the meeting. This was then supplemented by a "balance of risks assessment," which was often described as indicating the "tilt" in policy – that is, whether an increase or a decrease in the funds rate was relatively more likely at coming meetings. Over time, the statements gradually included more discussion of current and prospective economic conditions. Finally, in 2005, the FOMC began releasing the full minutes three weeks following the meeting, rather than after the subsequent meeting, as had been the practice.

Back in 2003, the FOMC began issuing statements that sent fairly explicit signals about the likely path for the funds rate. Early in 2003, core inflation had drifted down to 1 percent. The statement released following the May meeting that year made reference to "an unwelcome further fall in inflation." This was something of a watershed in Fed history – the first time in our modern experience that inflation threatened to fall *too low*. The language labeling a further fall in inflation as "unwelcome" conveyed the

Committee's intention to keep core inflation above 1 percent. At the next meeting in late June, the FOMC lowered the fed funds rate to 1 percent and repeated the "unwelcome" reference. After the August meeting, the statement said that "policy accommodation can be maintained for a considerable period." This too was a watershed – explicit communication about the likely future path of the policy instrument. Since then the Committee has continued to communicate about the likely near-term policy path, using phrases like "can be patient" and "a pace that is likely to be measured."

This series of moves toward greater and more timely communication form a natural progression. For decades, the Fed has articulated its desire for low and stable inflation. In the 1990s, the FOMC went beyond general goals and began disclosing current policy actions and their rationale, thus providing information on how past policy actions had been affected by current and prospective economic conditions. The balance of risks statement broke new ground by communicating, though somewhat elliptically, about the likely near-term policy direction. The forward-looking language used since 2003 has in turn provided richer insights into the policy actions that the Committee believes it would have to take to achieve its goals.

I can understand why this progression took as long as it did. Starting from a status quo in which the Fed provided very little up-to-the-minute information on its policy, small initial steps were probably warranted. Too abrupt a change may have temporarily created uncertainty in the markets about the meaning of the information coming out of the Fed, although clearly, over time, market participants would learn how to interpret Fed statements. If that uncertainty fed into market volatility, even as a transitory matter while markets learned about the new format, then transparency skeptics might have been able to use that volatility as an argument against sharing information with the public.

I think it is important to be clear about what the Committee communicates when it comments on the near-term policy direction. Central banks set interest rates in response to incoming economic data. What ultimately drives that data is the evolution of economic fundamentals – that is, the evolution of technologies and external factors like world commodity prices. So the current policy rate should be thought of as a function (though probably a fairly complicated one) of the fundamentals – that's what systematic policy means. When the FOMC communicates about the likely future path of policy rates, as it did from mid-2003 on, it is communicating about two separate things at once – first, how fundamentals are likely to evolve, and second, how policy is likely to react to those fundamentals. I believe there are important roles for both, but that it is important to distinguish between the two.

The striking feature of the period since mid-2003 has been that the likely evolution of economic fundamentals and the likely policy reaction have combined to make the likely path of our policy instrument, the fed funds rate, relatively clear. Beginning in early 2004, for example, it was clear that short-term interest rates were going to have to rise steadily as the economy recovered and made the transition to a sustained growth path. Having now moved much closer to such a growth path, however, it may be much less common for the FOMC to find itself willing and able to forecast an extended string of rate changes.

But if the federal funds rate path becomes less predictable than it has been over the last 14 FOMC meetings, does that mean that the Committee must retreat to saying little beyond announcing its rate decisions when they are made? In my opinion, no. My sense is that there will still be room for forward-looking communications that entail more conditional statements about how policy is likely to react to evolving economic fundamentals, in contrast to the less conditional statements common since 2003. I opened my remarks tonight by noting the importance of systematic public expectations regarding monetary policy. Building better public understanding of how policy systematically responds to evolving economic conditions is the key to enhancing our credibility and improving the effectiveness of monetary policy.

Beyond moving to more conditional forward-looking language, I think there is probably more that can be done to build systematic public understanding. An important component of that understanding is the public's sense of our long-run intentions for inflation. Several FOMC members, myself included, have indicated the level or range of inflation that they would like to see prevail over the long run, but the Committee itself has not formally adopted such a goal or target for inflation. Providing quantitative guidance to the public about the Committee's long-run inflation intentions would have the benefit of reducing uncertainty about future monetary policy, and more securely anchoring long-run inflation expectations.

In his nomination hearings last November, Chairman Bernanke acknowledged that he has supported the idea of a quantitative inflation objective in academic writings and in speeches as a member of the Board of Governors. But he assured the senators that, if confirmed, he would "take no precipitate steps" in this direction, and he indicated that the idea "requires further study … as well as extensive discussion and consultation." He went on to say that he would act only if a "consensus" develops that doing so would further enhance our ability to achieve our mandated objectives. I have already expressed my own support for such a formal quantitative statement as a means of providing an anchor for long-term inflation expectations,[3] and I look forward to further study and discussion of the issue under Chairman Bernanke's leadership.

I suspect that the next frontier in Fed communications will involve the framework we use for policy analysis. After we have had some practice at communicating our past actions and how we are likely to respond in the future, it will be time to communicate more about *why* we will respond the way we will respond. Admittedly, this will be a tougher nut to crack, if only because of the genuine scientific uncertainty that typically surrounds economic inferences. But to the extent that a reasonably firm consensus can be obtained on some basic principles, I believe that it would aid public understanding for us to find ways to communicate them. Public understanding of the economic reasoning underlying our policy choices would help prevent drawing the wrong lessons from history.

For example, the initial response of market participants to the spike in energy prices that followed Hurricane Katrina suggested that people considered it possible or even likely that the FOMC would pause in its sequence of rate hikes, and that we would be willing to tolerate an acceleration in broader measures of inflation in response to the energy price increases. In the popular media, this expectation was tied to the experience with energy price shocks in the 1970s. But as I've already emphasized, the systematic part of policy in the 1970s was very different from what it became in the Greenspan years. Such misunderstandings can create challenges for policymakers. If the public comes to expect rising inflation, based on an outdated view of how policy responds to an economic shock, then the task of preventing a rise in inflation is made more difficult.

I commented earlier about the nature of monetary policy when inflation is low and stable. I emphasized that real, inflation-adjusted interest rates should be expected to fluctuate in such circumstances, even in the absence of visible fluctuations in inflation pressures. With inflation low and steady, changes in real interest rates require changes in the nominal overnight policy rate that the Fed directly controls. Communicating that fact will help the public understand that policy needs to respond to changing real economic conditions. Moreover, focusing on *real* interest rates draws attention to how and why policy must respond; *real interest rates must fluctuate to accommodate changes in the relative pressure on current versus future resources*. Widespread understanding of this would have aided the market response to Katrina; the storm impaired the supply of current resources relative to the future, and so, if anything real interest rates had to rise, not fall.

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To sum up, then, Chairman Greenspan's success was predicated on establishing credibility – that is, widespread public confidence that the future conduct of monetary policy would keep inflation low and stable. Building that confidence through actions alone was insufficient, and the Greenspan Fed began to expand communications, first about current policy actions, then about likely prospective actions. To maintain and build credibility, we are likely to continue to look for ways to enhance communications in the years ahead. Our efforts in this direction will be informed both by a rich history of experience with monetary policy and by a growing body of knowledge gained from viewing that history through the lens of economic logic.

On a personal note, I have known Ben Bernanke professionally since shortly after the publication of his influential 1983 paper on money and credit in the Great Depression. He is an outstanding monetary economist but also an imminently sensible monetary policy practitioner. I am looking forward with enthusiasm to serving in the Bernanke Fed.

Looking back, I count it an extraordinary honor and privilege to have served under Chairman Greenspan since mid-2004.

[1] See, for example, Janet Yellen, "2006: A Year of Transition at the Federal Reserve," Jan. 19, 2006, or Jeffrey Lacker, "Interest Rate Policy After Greenspan," Winthrop University, Oct. 20, 2005.
[2] Jeffrey Lacker, "Interest Rate Policy After Greenspan," Winthrop University, Oct. 20, 2005.
[3] Jeffrey Lacker, "Inflation Targeting and the Conduct of Monetary Policy," University of Richmond, March 1, 2005.