

*Elements of Effective
Central Banking: Theory,
Practice, and History**

Prof. Marvin Goodfriend

Governor Reddy and guests of the Reserve Bank, I am honored to present the Foundation Day Lecture of the Reserve Bank of India Archives. I am grateful, too, for the opportunity to visit India with my mother and sister, to explore some famous examples of Indian civilization, and to see how India is fast transforming itself into a modern economy.

I have long enjoyed libraries and archives. For over two decades as a monetary policy advisor at the Federal Reserve Bank of Richmond I worked to inform my judgment about current policy questions by studying the history of the Federal Reserve System. I enjoyed searching libraries and archives in the System to track down obscure references and documents that would explain how and why things used to work as they did in the Fed and in the financial markets of years past.

I was, and still am, obsessed with exploring the mysteries of central banking. Over the years I even succeeded in solving some of them, at least to my own satisfaction. How did central banking work under the gold standard? Why did interest rate policy, which had been followed by the Bank of England under the classical gold standard, take decades to emerge fully in the United States? How did the Fed's role in foreign exchange operations evolve as the United States made the transition from a gold standard to inconvertible money? I have long felt that in order to be at all confident, persuasive, and effective in giving policy advice one needs to understand how the policy in question evolved over time.

For this reason I am especially pleased to speak in honor of the Reserve Bank of

* Foundation Day Lecture (to commemorate the Silver Jubilee of RBI Archives) delivered by Marvin Goodfriend, Professor of Economics and Chairman of the Gailliot Center for Public Policy, Tepper School of Business, Carnegie Mellon University on Oct. 5, 2007 at RBI, Mumbai.

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India Archives. By keeping a record of its history, a central bank archives provides an indispensable foundation for the systematic review of past policy actions, policy processes, and institutional design from which improvements in monetary policy practice can be made. Indeed, there is scarcely any other way for a central bank to improve monetary policy except by recognizing and evaluating the reasons for its past policy successes and failures and working to incorporate those historical lessons into current practice.

Historical experience has always played, and continues to play, an important if not decisive role in the evolution of the theory and practice of central banking, not always immediately for the better I might add. For instance, perceived deficiencies of the classical gold standard led countries to deliberately weaken the link between money and gold in the 19th and 20th centuries to economize on monetary gold and to smooth interest rates against liquidity shocks. The gold-exchange standard in India, analyzed by a young John Maynard Keynes, is a case in point. Established in 1913, the Federal Reserve System was given discretionary monetary policy powers to manage money somewhat independently of gold to eliminate the sudden, sharp interest rate pikes that had accompanied recurring banking panics in the United States after the Civil War. Unfortunately, the political drive toward discretionary monetary policy predated an operational understanding of its pitfalls, with disastrous consequences. The two great world-wide monetary disturbances, the Great Depression of the 1930s and the Great Inflation of the 1960s, 1970s, and

early 1980s are testament to that. It took nearly one hundred years for central bankers and monetary economists to understand how a fiat money system could be made to improve on the gold standard.

In my lecture today, I intend to outline and explain key elements of effective central banking that account for much of the improvement in monetary policy around the world today. The past quarter century has been a revolutionary period in which the world emerged from great inflation and output instability into a period of remarkably low inflation associated with a great moderation in the volatility of employment and output. I will tell how the mistakes and subsequent successes of the last quarter century of monetary history in the United States helped to shape monetary policy practice for the better.

My discussion of monetary policy will cover: (1) strategic guidance focused on price stability, (2) tactical considerations, (3) transparency and communication, (4) central bank independence and foreign exchange policy. I will present a number of guiding principles for monetary policy and illustrate the origin of these principles with reference to historical experience. I will also recognize important vulnerabilities that threaten good monetary policy and suggest procedural and institutional safeguards to secure policy against these threats.

Strategic Guidance Focused on Price Stability

The strategic objective for monetary policy was clear under a gold standard: A central bank maintained the convertibility of money into gold at the price of gold to

which the nation committed itself by backing its money with gold reserves. When the Bretton Woods fixed exchange rate system finally collapsed in the early 1970s and the international gold standard collapsed with it, the world was without a strategic objective for monetary policy. In general, the loss of a strategic objective to guide monetary policy was not regarded as a problem at the time. In fact, in the United States the idea was to free the Federal Reserve to pursue monetary policy on a discretionary basis so that it could flexibly respond to the public's shifting concerns between inflation and unemployment. The Federal Reserve took advantage of the opportunity to focus on short-run concerns. Keynes had said "in the long run we are dead." And this unspoken and often outspoken dictum was then the wisdom of the day in United States monetary policy circles.

Unfortunately, the Federal Reserve learned the hard way that monetary policy pursued on a discretionary basis without a strategic focus produces increasing instability associated with what has come to be known as "go-stop monetary policy." Go-stop monetary policy became evident beginning in the 1950s. By putting unemployment ahead of inflation in the "go" phase of the policy cycle, the Fed would allow inflation and inflation expectations to move higher. As the unemployment rate fell and inflation rose, eventually the public would become more concerned about inflation than unemployment. At that point the Fed would switch to the "stop" phase of the policy cycle and tighten monetary policy to restrain inflation. There was then a narrow window of opportunity within which to bring inflation down before

unemployment began to rise and the public would push for easier monetary policy once again. So inflation ratcheted up with each go-stop cycle. Naturally, inflation expectations ratcheted up also, carrying interest rates up too, and both inflation expectations and long-term bond rates became more unstable and moved higher with each policy cycle.

In retrospect, by putting unemployment first and attending to inflation later, the Fed created recessions periodically to contain inflation. Worse still, inflation expectations began to move up in *anticipation* of the "go" phase of the policy cycles, and eventually the Fed lost room to maneuver between "go" and "stop" policy. Federal Reserve Board Chairman Paul Volcker summed up that predicament and its implications for monetary policy at the watershed Federal Open Market Committee meeting of July 1981 as follows:

"[Our] job is in assessing where the risks lie...I haven't much doubt in my mind that it's appropriate...to take the risk of more softness in the economy in the short run than one might ideally like in order to capitalize on the anti-inflationary momentum...That is much more likely to give a more satisfactory economic as well as inflationary outlook over a period of time as compared to the opposite scenario of heading off...sluggishness or even a downturn at the expense of rapidly getting back into the kind of situation we were in last fall where we had some retreat on inflationary psychology...Then we would look forward to another prolonged period of high interest rates and strain and face the same dilemmas over and over again. (FOMC Transcripts, 7-8-81, p. 36).

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This was the pivotal moment in the last 50 years of U.S. monetary history when the Fed under Chairman Volcker came to view the likely unemployment cost of a deliberate disinflation in 1981-82 as acceptable in light of the costly recessions that would result in the future from failing to stabilize inflation.

Famously, the Volcker Fed succeeded in bringing the inflation rate down from over 10 percent to 4 percent by 1984 at the cost of the most severe recession in the United States since the Great Depression, a recession that lasted from July 1981 until November 1982 and took the unemployment rate above 10 percent. Yet most would agree that the recession was acceptable in light of the fact that inflation has remained low since then, and the United States has experienced two of its longest economic expansions punctuated by two of its mildest recessions, in 1990-91 and in 2001. In comparison, the United States endured six recessions in the 30 years from 1955 to 1985.

The Volcker Fed's experience, first failing to control inflation, and then succeeding in its disinflation, taught two central lessons: (1) that monetary policy *could not* be conducted effectively on a purely discretionary basis, and (2) that monetary policy *could* be guided effectively by the attainment of low and stable inflation in practice. Discretionary monetary policy needed to be constrained by a commitment to low inflation in order to tie down inflation expectations. Ironically, the lesson is that monetary policy makes its best contribution to the stabilization of employment and output by putting a strategic priority on low inflation.

To appreciate fully the force of these fundamental guiding principles for monetary policy one must understand the behavior and control of what I have identified elsewhere as "inflation scares." An inflation scare is a significant upward movement in long-term bond rates over a period of time, possibly spanning months, that reflects an increase in inflation expectations. Four prominent inflation scares occurred during the eight years, from 1979 to 1987, when Volcker was Fed chairman. These inflation scare events show why monetary policy must be guided by a strategic priority for low inflation. I will talk about each in turn.

The first inflation scare occurred from January to March 1980, relatively early in Volcker's term as Fed chairman. Nothing like it had occurred before in the United States. In just a couple of months the long-term bond rate rose by an unprecedented 2 percentage points, reflecting a 2 percentage point increase in trend inflation expectations. This collapse of confidence in the Fed occurred even as the economy was weakening due to a sharp tightening of monetary policy that the Volcker Fed had engineered in the fall of 1979.

Factors such as an ongoing oil price shock, the jump in the price of gold to 850 dollars an ounce, and the Soviet invasion of Afghanistan helped to trigger the inflation scare. Another important factor was the Volcker Fed's hesitation to continue raising interest rates in January as the economy appeared to be moving into recession. The Volcker Fed reacted to the inflation scare with an unprecedented 3 percentage point increase in short term interest rates in March alone! A short but

deep recession followed to which the Fed responded by cutting interest rates. In spite of the recession, inflation remained high in 1980. The episode was another in a long line of Fed policy reversals and showed how a failure to contain inflation caused the Fed to become "captive of events."

A second inflation scare occurred from January to October 1981. By early 1981 the Fed had utilized the window of opportunity that presented itself in the transition from the Carter administration to the incoming Reagan administration to move the federal funds rate up to nearly 20 percent, which represented an exceptionally high 9 percent real interest rate given the going 10 percent rate of inflation. Amazingly, the market challenged the Volcker Fed with another inflation scare, moving long-bond rates up by 3 percentage points from January to October 1981 to a peak around 15 percent. The impact of this second great inflation scare was a major factor behind Volcker's assessment of the situation in July 1981 quoted earlier, and a major factor in the Volcker Fed's decision to deliberately disinflate the economy in 1981-82. In effect, this second inflation scare convinced the Fed that it would remain captive by evermore violent inflation scares if it failed to bring inflation down.

The third inflation scare occurred after the Volcker Fed succeeded in bringing the actual inflation rate down to 4 percent in 1983. The third inflation scare took the long-bond rate up by 3 percentage points to 13.5 percent from mid-1983 to mid-1984, just 1 percentage point below its October 1981 peak, even though by then inflation was 6 percentage points lower! Determined to protect its gains against inflation, the

Volcker Fed also took the federal funds rate up by 3 percentage points to 11 percent by mid-1984, paralleling the rise in the bond rate. For the first time in its history the Fed employed interest rate policy preemptively against inflation and succeeded in holding the line on inflation (at 4 percent) without creating a recession. The markets subsequently rewarded the Volcker Fed by bringing the long-bond rate down 6 percentage points by early 1986. This third inflation-scare event proved that the Fed could defeat an inflation scare, break out of the go-stop policy cycle, and acquire full credibility for low 4 percent inflation.

After all that, the Volcker Fed suffered a fourth inflation scare when the long-bond rate rose by 2 percentage points from March to October of 1987. Apparently, markets regarded the coordinated international effort to manage exchange rates at the time (the Louvre Accord) as potentially inflationary. Also, Volcker was likely to leave the Fed in 1987, and markets may have doubted the Fed's commitment to low inflation under Volcker's then unknown successor. This fourth inflation scare apparently demonstrated that the Fed's credibility could be impacted negatively by the actions of the government, through international arrangements and the appointments process.

The following findings from the Volcker era at the Fed constitute the founding elements of the strategic guidance for monetary policy based on price stability.

First, an independent central bank determined to tighten money growth sufficiently can bring down a persistently high rate of inflation with a significant but tolerable temporary rise in unemployment.

Second, inflation can be brought down with monetary policy alone, without the support of wage, price, or credit controls, and without supportive fiscal policy.

Third, a determined independent central bank free to pursue discretionary policy can acquire credibility for low inflation without an institutional mandate from the government; however, *stand-alone* central bank credibility for low inflation is fragile and susceptible to destabilizing inflation scares.

Fourth, a well-timed aggressive interest rate tightening can defuse an inflation scare and preempt a resurgence of inflation without creating a recession.

Fifth, the indispensable strategic imperative for monetary policy is to maintain stable inflation and inflation expectations, both of which appear to be more stable when inflation is low. Failure to anchor inflation and inflation expectations makes a central bank susceptible to inflation scares to which a central bank must respond by tightening monetary policy aggressively, with an elevated risk of recession, to block the pass-through of inflation expectations to actual inflation.

An important implication of the five practical findings from the Volcker era at the Fed is that central bank *credibility for low inflation* is an indispensable element of effective central banking. It follows that a central bank should reinforce as much as possible its commitment to low inflation by institutional, operational, and rhetorical means. The strategic focus on price stability allows a central bank to avoid becoming

reactive to the economy in ways that are ultimately self-defeating (by slipping into go-stop policy) and instead enables a central bank to manage events so as to be a stabilizing force for the economy.

Tactical Considerations

My lecture so far has told how experience gained in the Volcker disinflation led to the conclusion that monetary policy makes its greatest contribution to the stability of both inflation and employment by sustaining a strategic focus on low inflation. Alan Greenspan, who succeeded Volcker as Fed chairman in 1987, likewise recognized the importance of a strategic guidance for monetary policy based on a commitment to price stability. The Greenspan Fed declined to announce an explicit numerical inflation target, but its monetary policy was characterized by a consistent focus on keeping inflation low and stable, which can be viewed as a form of *implicit* inflation targeting. Chairman Greenspan reinforced the Fed's stand-alone credibility for low inflation by testifying before congress in 1989 in favor of maintaining inflation so low that "the expected rate of change of the general level of prices ceases to be a factor in individual and business decision-making."

Moreover, when the Federal Open Market Committee debated inflation targeting at its January 1995 and its July 1996 meetings, transcripts released to the public five years later revealed widespread agreement within the Committee that core inflation as measured by the personal consumption expenditure (PCE) deflator should remain near 2 percent over time.

Later, in May 2003 as deflationary forces appeared to be gripping the U.S. economy, the Federal Open Market Committee felt compelled to acknowledge publicly that a significant further disinflation below the then prevailing 1 percent core PCE rate would be "unwelcome." The Greenspan Fed maintained a 1 percent federal funds rate until the deflation risk passed. Thus did the Greenspan Fed strengthen the Federal Reserve's commitment to price stability by putting an explicit *lower bound* on its tolerance range for inflation.

The Greenspan Fed made its major contribution to central banking practice, however, in the area of *tactical considerations*, or the medium-term strategy of monetary policy, demonstrating three elements of effective central banking in particular. First, the Greenspan Fed demonstrated *flexibility* in reversing the 1987 inflation shock. As mentioned earlier, Greenspan inherited an inflation scare in the bond market when he became Fed chairman in 1987. Moreover, the stock market crashed in October, only a few weeks after Greenspan arrived at the Fed, delaying the Fed's inflation-fighting actions and instead causing the Fed to supply liquidity to the financial markets to stabilize financial conditions. The result was that inflation rose and peaked near 6 percent in 1990.

A consistent focus on reversing the rise in inflation enabled the Greenspan Fed to bring inflation back to 3 percent by 1993 with the help of the Gulf War recession in 1990-91 and at some cost in unemployment, which peaked at 7.8 percent in the so-called "jobless recovery." The market rewarded the Greenspan Fed by reversing the inflation scare in the long-

bond rate, which fell below 6 percent in 1993, in part because of some encouraging developments on the fiscal deficit.

A second element of medium-term strategy was demonstrated when the Greenspan Fed moved aggressively in 1994 to defend its gains against inflation, while another inflation scare in bond markets lifted long-term interest rates by about 2.5 percentage points to 8.2 percent from October 1993 to November 1994. The Fed raised short rates by 3 percentage points and demonstrated once more that well-timed preemptive interest rate policy actions can defuse an inflation scare without creating a recession. Greenspan describes the 1994 preemptive action in some detail in his new book. This success against the last great inflation scare to date in the United States set the stage for the long boom that followed. The long-bond rate fell back to 6 percent by early 1996, observers began to talk of the "death of inflation," the unemployment rate fell to 4 percent in the late 1990s, and the U.S. economy grew in the 4 percent range.

I bought a book entitled the death of inflation expecting to read about the role the Greenspan Fed played in "killing" inflation, only to be disappointed by the fact that the author devoted little space to the Fed with none of the story as I understood it. I kept the book on my shelf anyway because I was proud of the title. But I reminded myself that inflation doesn't really die, but returns when least expected, much like a vampire in a movie. And like a vampire, inflation must be vanquished periodically by aggressive interest rate policy.

The third element of medium-term strategy demonstrated by the Greenspan

Fed occurred when a recession arrived in 2001. Having firmly anchored inflation expectations, the Greenspan Fed demonstrated the power of interest rate policy to act flexibly and aggressively to cushion the economy against recession. The Fed cut the federal funds rate from 6.5 percent to 1.75 percent in 2001 and the recession was short and mild, lasting only from March to November. Moreover, the downturn might not have been officially denoted a recession at all by the National Bureau of Economic Research if the terrorist attack in September had not caused a sharp contraction in economic activity.

All in all, the most important practical lesson of the Greenspan era at the Fed from 1987 to 2005 is this: The Greenspan Fed demonstrated that interest rate policy guided by a consistent strategic focus on low inflation could sustain low inflation with low unemployment on average with infrequent and mild recessions.

Transparency and Communication

Transparency and communication must play a central role in monetary policy because central banks implement policy through the control of a *short-term nominal* interest rate; yet it is through *longer-term real* interest rates that interest rate policy exercises leverage over aggregate demand, employment, and inflation. Transparency and communication help a central bank to implement interest rate policy in two ways: (1) by helping to stabilize inflation and expected inflation so that nominal interest rate policy actions translate reliably into real interest rate policy actions, and (2) by helping a central bank to exercise leverage

over longer-term interest rates with its short-term interest rate policy instrument.

Often ignored in the media, the primary role of transparency and communication is to convey clearly a central bank's *long-run inflation objective*, so as to anchor inflation expectations firmly. Without a firm anchor for inflation expectations, a central bank cannot manage real interest rates reliably to influence employment and output.

More widely discussed in the media is the *operational* role played by transparency and communication to help manage interest rates. A central bank must influence longer-term nominal interest rates by *managing expected future short-term nominal rates*. Financial markets price longer-term rates (up to a term premium) as an average of expected future short rates. The response of longer-term rates to changes in expected future short rates reflects arbitrage in markets, due to what academic economists call the expectations theory of the term structure of interest rates.

The main operational problem for interest rate policy stems from the fact that longer-term interest rates are determined in financial markets *every* day; yet a monetary policy committee meets *infrequently*, at most only every few weeks, in part because comprehensive macroeconomic data to which interest rate policy actions respond arrives only every few weeks or months. Since central banks prefer not to surprise markets, central banks try to *prepare* markets for interest rate target changes that central banks intend to take in the future. To do so, central banks must *manage expectations* of future interest rate policy intentions in a manner

consistent with medium-and long-term strategic objectives for employment, output, and inflation.

One can appreciate the operational importance of transparency and communication from as follows. To manage expectations of future interest rate policy actions, a central bank must take markets into its confidence by signaling such information as its conditional forecast of relevant economic conditions and its conditional intentions for future short rates based on a medium-term strategy with regard to employment, output, and inflation.

There is a tension in transparency and communication policy. Central banks are naturally reluctant to reveal much of their current thinking because judgments about economic conditions and the effects on employment and inflation of policy actions themselves are necessarily tentative and subject to revision. On the other hand, interest rate policy is demanding of transparency and communication, and central banks are inclined to be evermore revealing of their current thinking to better manage longer-term interest rates.

As a middle ground, there is a tendency for central banks to resort to ad hoc announcements to help manage intended future interest rate policy actions. Such announcements appear in after-meeting press conferences, in statements and minutes, and in regular reports to legislative oversight committees. Ad hoc announcements would appear to provide a degree of flexibility in conveying a central bank's concerns and in steering interest rates that a more systematic signaling of a

central bank's concerns and intentions on the basis of regular data releases would not allow. However, ad hoc announcements *cannot* deliver reliable flexibility because it is difficult for a central bank to predict how they will be interpreted by markets.

The Fed's experience in May and June 2003 is a case in point. The period provides an example of why ad hoc references to inflationary or deflationary risks and concerns in a statement accompanying a surprise policy action cannot reliably substitute for an explicit numerical long-run inflation target. (The Fed did not then, and still does not have an explicit inflation target.)

As I mentioned earlier, the Federal Open Market Committee accompanied the cut in the federal funds rate target at its May 2003 meeting with a surprise announcement that significant further disinflation would be "unwelcome." And market participants regarded the statement as implicitly putting a floor of 1 percent under on the Fed's tolerance range or comfort zone for inflation. The statement served two reasonable purposes, it alerted the public to the small but real risk of deflation and the fact that the Fed would act to deter further disinflation.

The Fed's concern about deflation, however, came as a surprise, and markets responded by taking the expected future federal funds rate path and longer-term interest rates sharply lower. Media commentary amplified the nervousness about deflation well beyond what was called for in the data. The Fed, too, was taken by surprise by the market's overreaction and rectified matters by dropping the federal

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funds rate by only 25 basis points at its June policy meeting instead of the expected 50 basis points. And longer-term rates promptly reversed field.

The episode illustrates an important practical lesson of the theory of rational expectations and economic policy: It is very difficult to predict how a policy action or an announcement will be interpreted by markets when either is undertaken with insufficient strategic guidance. In May 2003 the market reaction to the Fed's concern for deflation was excessive relative to what the Fed expected and intended. However, the reaction could just as easily have been insufficient relative to what the Fed expected and intended.

Either way, such misunderstandings are potentially very costly for the implementation of interest rate policy because they whipsaw markets, create confusion, and weaken a central bank's ability to manage expectations of future short-term interest rates to influence longer-term rates. Failing to convey its message, concerns, and intentions accurately in the first place can cause a central bank to reverse an unintended message by overreacting in the other direction creating further confusion, with adverse consequences for the economy.

If an inflation target had been in place in 2003, the public could have inferred the Fed's growing concern about disinflation gradually as inflation drifted lower. Interest rates would have drifted lower gradually as well, with less chance of overshooting or undershooting the Fed's intended policy stance. In other words, clear strategic guidance in the form of an inflation target

would have *prepared* markets for interest rate actions that the Fed would take as inflation neared the 1 percent lower bound on its tolerance range. Policy statements could have reinforced the Fed's concern about further disinflation when inflation reached 1 percent. The point is that flexibility of ad hoc policy statements is largely an illusion because that flexibility is not reliable outside of an announced strategic context.

Needless to say, an analogous confusion can also occur with regard to ambiguity about an *upper* bound of the tolerance range for inflation. For instance, in the wake of the current world-wide "credit crunch," Fed interest rate policy must address the potential for a recession due to the downturn in housing against the possibility that excessive monetary stimulus could trigger a rise in inflation expectations.

An assessment of the current potential for an inflation scare involves the following considerations. The current boom followed a deliberate and unprecedented easing of monetary policy against deflation by the Greenspan Fed in 2003 and the departure of Greenspan in 2005. Furthermore, the failure to announce an upper bound on its tolerance range after implicitly announcing a 1 percent lower bound in 2003 may suggest to markets that the Fed is more tolerant of inflation moving higher. In fact, core PCE inflation has been above 2 percent on a per annum basis for a couple of years now, although it has recently fallen back. Under these circumstances, it is reasonable to think that inflation expectations in the United States are particularly sensitive to the possibility that monetary stimulus against the downside risk might put upward pressure on inflation.

On the other hand, inflation expectations remained well-anchored without an announced explicit upper bound on the Fed's tolerance range for inflation when the Fed acted aggressively against the 2001 recession. Does that earlier episode provide some comfort? I think not because the circumstances in 2001 were different than today's. The trigger for the 2001 downturn was the deflation of equity prices that began in March 2000. The deflation of equity prices exerted a negative influence on aggregate demand with a long lag. It was late 2000 until sufficient evidence accumulated that a macroeconomic contraction had begun, one that demanded an aggressive cut in interest rates. By that time, the risk was slight that easing monetary policy would trigger a rise in inflation or an inflation scare. And the aggressive cut in interest rates acted decisively to cushion the downturn.

The credit crunch of 2007 is a different matter. The sudden and significant widening of credit spreads and the seizing up of credit markets has the potential to exert an immediate negative effect on economic activity. The Fed had to act against the downturn more quickly at the risk of an adverse reaction on inflation or inflation expectations. The 50 basis point reduction in the federal funds rate at the September 2007 meeting of the Federal Open Market Committee was regarded by the market as surprisingly aggressive. It was cheered by equity markets and brought relief to banking and credit markets. But the immediate reaction in the bond markets and in the foreign exchange market was reported in the media to reflect elevated inflation concerns. The statement that

accompanied the cut in interest rates can be interpreted to reflect an implicit commitment to hold the line on inflation at around 2 percent, roughly where core PCE inflation has been of late. Apparently, the markets were not fully reassured. The Fed cannot have been entirely happy with that outcome. The history that I talked about earlier indicates that inflation expectations *must* remain well anchored for interest rate policy to maneuver decisively against a downturn.

The point I want to make is this. If the Fed had announced an explicit 2 percent upper bound on its comfort zone for core PCE inflation a few years ago, then arguably longer-term interest rates would have drifted higher than they did in the last couple of years as the inflation rate drifted above 2 percent. In retrospect, a policy tightening earlier in the current expansion might have blunted the worst excesses of housing finance and had a better chance of avoiding the international credit crunch. Moreover, by better anchoring inflation expectations, an announced 2 percent ceiling on the comfort zone for inflation likely would have given the Fed more flexibility to act against the current credit crunch and the downturn in housing.

Central Bank Independence and Foreign Exchange Policy

Central bank independence disciplined by a commitment to price stability is widely recognized today as an indispensable element of effective central banking. Broadly speaking, independence implies a separation of central bank decisions from the regular political system. At a minimum,

it means that a central bank should be free to conduct monetary policy without interference from the Treasury. The reason has long been obvious. Central banks with the power to create money must be shielded from political pressure to create money to finance government spending.

Yet there is a problem. The Treasury, not the central bank, is often delegated the responsibility for exchange rate policy. For instance, exchange rate policy is the responsibility of the Treasury in Japan and in the United States, and the Maastricht Treaty gives responsibility for exchange rate policy to a committee representing the Treasuries of the countries in the Euro area. Yet monetary theory and practice make clear that monetary policy and exchange rate policy cannot be pursued independently of each other.

In the United States, for instance, the Fed works closely with the Treasury in conducting foreign exchange operations. The Federal Open Market Committee's foreign exchange directive has required that any foreign exchange operations be conducted in close and continuous consultation and cooperation with the Treasury. It is fair to say that the Fed recognizes the Treasury's preeminence in foreign exchange policy.

The problem is that a central bank's credibility for low inflation is potentially undermined by a perceived or actual conflict with exchange rate policy promoted by the Treasury. The most serious threat to the credibility for low inflation tends to arise if an appreciation of the exchange rate hurts competitiveness and results in concentrated job losses in the export sector that concerns

the Treasury. For instance, the exchange rate can appreciate due to economic forces originating abroad, or as a result of interest rate policy actions undertaken domestically to act against an inflation scare or rising inflation at home. The problem is that the *only* way the Treasury can influence the exchange rate is to persuade or pressure the central bank to pursue inflationary policy – by easing monetary policy excessively against an exchange rate appreciation due to economic forces originating abroad in the first case, or by tightening policy insufficiently in the second case. The country would import inflation in the first instance, and generate inflation domestically in the second.

Thus, lodging responsibility for exchange rate policy in the Treasury has the potential to create credibility problems for monetary policy because it creates doubt in the public's mind about whether a central bank can sustain domestic price stability against pressure from the Treasury in such circumstances. The Treasury's authority over exchange rate policy is the "Achilles' heel" of central bank independence and effective monetary policy. The exchange rate must be allowed to adjust flexibly if a country is to enjoy the benefits that monetary policy can deliver. Countries that have not already done so should move to secure central bank independence against political interference arising from exchange rate concerns by explicitly giving priority to domestic price stability over exchange rate stability.

Conclusion

Central banks are naturally inclined to get caught up in the moment —reluctant

to jeopardize an expansion by raising interest rates preemptively against rising inflation, and too quick to cut interest rates excessively at the first signs of a downturn. That inclination gave rise to inflationary go-stop policy in the past and still has the potential to do so today.

Central banks must work hard to avoid this outcome by deciding interest rate policy actions consistently in a two-fold strategic context. An announced long-run explicit strategic commitment to low inflation is indispensable for anchoring inflation expectations, stabilizing actual inflation, and giving interest rate policy the flexibility to act decisively against downturns. Interest rate policy demands a transparent medium-term strategic objective as well. There is no other way for a central bank to reliably influence longer-term interest rates by

managing expectations of expected future policy actions. Ad hoc announcements that surprise markets independently of any underlying strategic guidance are not a reliable means of steering market expectations of future interest rate policy intentions. The circumstances are very limited in which announcements can be used to steer interest rates flexibly and reliably outside of an articulated medium- and long-term strategic context.

Central bank independence in support of a commitment to price stability is rightly regarded as an essential element of effective monetary policy. Yet neither central bank independence nor the commitment to consistent price stability can be secure unless the Treasury's power over exchange rate policy is clearly subordinated to the nation's commitment to price stability.