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# Inflation Targeting in the United States?

Marvin Goodfriend

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## 8.1 Introduction

In what sense can monetary policy as currently practiced by the Federal Reserve (Fed) be characterized as inflation targeting? And what, if any, features of an inflation-targeting policy regime should the Fed adopt more formally? These are the questions implicit in the title of this paper. U.S. macroeconomic performance has improved greatly since the early 1980s. The 1980s and 1990s saw two of the longest expansions in U.S. history and two of the mildest contractions in 1990–01 and 2001. The paper argues that this success can be attributed in large part to inflation-targeting policy procedures that the Fed has adopted gradually and implicitly over the last two decades. Much of the paper is devoted to explaining the origins of the Fed's implicit commitment to inflation targeting. Understanding the historical record suggests that some form of inflation targeting is likely to remain at the core of Fed monetary policy indefinitely.

Explicit inflation targeting is characterized by the announcement of an official target for the inflation rate and by an acknowledgment that low inflation is a priority for monetary policy. Inflation targeting also involves enhanced transparency of the procedures and objectives of monetary policy,

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and increased accountability of the central bank for attaining those objectives.<sup>1</sup>

To a large extent the explicit adoption of inflation targeting would merely continue the approach to monetary policy developed under Chairmen Volcker and Greenspan. Nevertheless, it seems worthwhile to consider whether more explicit inflation-targeting procedures could help the Fed sustain good monetary policy in the future.<sup>2</sup> Detailed, explicit, and transparent inflation-targeting procedures have been adopted by numerous central banks abroad to build and secure credibility for low inflation.<sup>3</sup> The main objection to some sort of explicit, public commitment to inflation targeting is the concern that inflation targeting would focus the Fed too narrowly on inflation at the expense of output and employment. Moreover, the Fed has achieved price stability and arrived at monetary policy procedures that resemble inflation targeting by “just doing it.” So one might argue that the Fed has little need to adopt inflation targeting formally. Admittedly, the priority for low inflation is “in the water” at the Fed these days, but on the other hand “bottling” it for the future might not be a bad idea.

The Fed has been extraordinarily fortunate in having two remarkable chairmen since the late 1970s who skillfully helped to turn monetary policy from a source of instability into a major stabilizing force for the macroeconomy. It is well to remember how uniquely qualified they were to lead the Fed. Each had decades of professional experience observing the business cycle before becoming chairman—Volcker at the New York Fed and Greenspan as a private business economist in New York. Each had an extensive knowledge of financial markets and market participants from having worked in New York (see, e.g., Martin 2000 and Woodward 2000). Each had prior experience in Washington—Volcker at the Treasury and Greenspan at the Council of Economic Advisors. And both were trained economists. Moreover, both men personally experienced and understood as professionals the disruptive consequences of inflation. It will be difficult to find a successor to lead the Fed with all these qualifications who can navigate the appointments process successfully (see e.g., Stevenson 2002).

1. See Bernanke and Mishkin (1997) and Meyer (2001) for discussions of explicit inflation-targeting policy procedures.

2. Federal Open Market Committee (1995, 1996) contains early debates on inflation targeting. Saxton (1997, 2002) makes the case for inflation targeting. McCallum (2000) argues that the United States should formalize its monetary standard by committing to a low long-run target for inflation. A consensus among well-known monetary economists supporting a priority for low long-run inflation is evident in Federal Reserve Bank of Kansas City (1996).

3. See Bernanke et al. (1999), Blejer et al. (2000), Haldane (1995), King (1997), Kohn (2000), Liederman and Svensson (1995), Loayza and Soto (2002), McCallum (1997), Neumann and von Hagen (2002), Schmitt-Hebbel and Tapia (2002), Sterne (1999), and Svensson (2001).

A second, more fundamental reason to consider the adoption of explicit inflation targeting is simply that in a democracy a central bank should be fully accountable for the monetary policy that it pursues (see Blinder 1996). Adopting inflation-targeting procedures explicitly would improve the transparency of the policy process and the ability of Congress to hold the Fed accountable for monetary policy. For both of these reasons it is important to distill the essence of the implicit inflation-targeting procedures developed under Volcker and Greenspan and to consider how inflation targeting could be institutionalized to help the Fed sustain its improved performance after Chairman Greenspan retires.

The paper addresses these objectives in four parts. Section 8.2 describes the origins of the case for price stability in the United States by reviewing postwar monetary policy as practiced by the Fed and enumerating the problems created by failing to make price stability a priority. In particular, section 8.2 discusses the inflationary go/stop era and the Volcker disinflation, and describes the ways in which monetary policy as conducted in the Greenspan era can be characterized as implicit inflation targeting. Section 8.3 considers arguments for and against making low long-run inflation a priority, and whether a quantitative inflation target is a good idea. Section 8.4 considers inflation targeting in the short run, including complications involved in managing departures of inflation from its long-run target, the feasibility and desirability of strictly targeting a constant inflation objective in the short run, and the relationship of inflation targeting to counter-cyclical stabilization policy. Finally, section 8.5 suggests how to make the Fed's inflation-targeting procedures explicit in order to secure the commitment to low inflation, enhance transparency, and improve the Fed's accountability for attaining its monetary policy objectives. A brief summary concludes the paper.

## **8.2 Origins of the Case for Price Stability in the United States**

In order to appreciate fully the rationale for inflation targeting as implicitly practiced in the United States today and why inflation targeting will likely remain at the core of Fed monetary policy in the future, one must understand the origins of the case for price stability in the United States. These are found in three distinct subperiods of postwar U.S. monetary history: the period of inflationary go/stop policy from the late 1950s to the late 1970s, the Volcker disinflation from 1979 to 1987, and the subsequent achievement of credibility for low inflation under Greenspan. The go/stop period illustrates the consequences of failing to make low inflation a priority for monetary policy. The Volcker period illustrates the difficulty in restoring credibility for low inflation after it has been compromised. And the Greenspan era illustrates how and why the Fed has come to target low

inflation implicitly in recent years. Each subperiod is discussed in turn below.<sup>4</sup>

### 8.2.1 Inflationary Go/Stop Monetary Policy

The inflationary tendency evident during the period of go/stop monetary policy derived initially from a desire not to repeat the disastrous deflation of the 1930s. The disruptive potential of inflation was consistently underestimated, and each increase in inflation was tolerated in the belief that it would soon die down. Moreover, go/stop policy reflected the Fed's inclination to be responsive to the shifting balance of concerns between inflation and unemployment. In the "go" phase of the policy cycle inflation became a major concern only after it clearly moved above its previous trend; hence, the Fed did not tighten policy early enough to preempt inflationary outbursts before they became a problem. By the time the public became concerned about rising inflation, pricing decisions already embodied higher inflation expectations. At that point the Fed would *need a recession* to bring inflation and inflation expectations back down, and an aggressive increase in short-term interest rates would initiate the "stop" phase of the policy cycle. At best, there was only a relatively narrow window of public support for the Fed to raise interest rates. That window opened when rising inflation was widely judged to be a problem and closed after tighter monetary policy caused the unemployment rate to begin to rise. Thus, the Fed found it difficult to reverse rising inflation, and the trend rate of inflation tended to ratchet up with each go/stop policy cycle (see, e.g., Romer and Romer 1989).

Another reason for the rising inflation trend was that deliberately expansionary monetary policy in the go phase of the policy cycle came to be anticipated by workers and firms. Workers learned to take advantage of tight labor markets to make higher wage demands, and firms took advantage of tight product markets to pass along higher costs in higher prices. Increasingly aggressive wage and price behavior tended to neutralize the favorable effects of stimulative monetary policy. The Fed persisted in trying to pursue what it regarded as a reasonable balance between inflation and unemployment objectives. But in practice it became ever more expansionary on average in the pursuit of low unemployment, which produced correspondingly higher inflation and inflation expectations. As a result, lenders demanded ever-higher inflation premia in bond rates. In the absence of an anchor for inflation, inflation expectations and bond rates moved higher and fluctuated widely, which destabilized the economy and complicated countercyclical stabilization policy enormously.

In retrospect, the central problem for most of the postwar period up to

4. Goodfriend (1997) provides a longer-term historical perspective on the evolution of monetary theory and policy.

the Volcker disinflation beginning in 1979 was that the Fed tended to justify its periodic inflation-fighting actions against an implicit objective for low unemployment. In doing so, the Fed made monetary policy a source of instability and wound up worsening both inflation *and* unemployment. Eventually the Fed recognized that it would be better to justify its actions to stimulate employment against a commitment to low inflation.

### 8.2.2 The Volcker Disinflation: 1979–87

The case for price stability as we know it today was strengthened by the extraordinary difficulties encountered in dealing with inflation during the period of the Volcker disinflation from 1979 to 1987. In particular, the Fed experienced the adverse consequences of a near total collapse of credibility for low inflation, and learned how difficult it is to pursue interest rate policy to restore credibility for low inflation once that credibility has been thoroughly compromised. Although the challenges confronting the Fed during the Volcker disinflation were far larger than those today, their nature is similar and still relevant. This section considers, in turn, four features of this tumultuous period: the breakdown of mutual understanding between the Fed and the public, the loss of flexibility to use interest rate policy to stabilize the output gap, the nature of the cost of restoring low inflation, and the inflation scare problem.

#### *The Breakdown of Mutual Understanding between the Fed and the Public*

By the time that Volcker became Fed chairman in 1979, the sharp increase in the level and volatility of inflation and inflation expectations born of the previous decade's go/stop monetary policy made it exceptionally difficult for the Fed to contribute constructively to macroeconomic stabilization. The Fed continued to make monetary policy by managing short-term nominal interest rates. But the effect of interest rate policy on the economy is determined by its effect on *real* interest rates—nominal rates minus inflation expectations. Stabilization policy became more difficult, in part, because relatively large adjustments in the real rate were necessary to stabilize the economy. Moreover, the Fed found it increasingly difficult to judge the public's inflation expectations and to gauge how its own policy actions might influence those expectations. Hence, the Fed could not judge how a given nominal interest rate policy action would translate into an adjustment in real interest rates. In short, there was a breakdown of mutual understanding between the Fed and the public: the public could no longer discern the Fed's policy intentions, and the Fed could not predict how the economy would respond to its policy actions. Consequently, the opportunity for policy mistakes was greatly enlarged, and macroeconomic stabilization policy became increasingly difficult.

As a result, the Volcker Fed came to appreciate what the Fed had taken for granted previously—that monetary policy must be conducted so as to

preserve a mutual understanding between the public and the Fed. In particular, the Volcker Fed realized that price stability must be the cornerstone of that mutual understanding. In large part the subsequent disinflation can be seen as an effort to rebuild that mutual understanding in order to rehabilitate countercyclical stabilization policy.

*Loss of Flexibility to Use Interest Rate Policy to Stabilize Output Relative to Potential*

When the Fed's credibility for low inflation is in question, the Fed loses the *flexibility* to use interest rate policy to stabilize output relative to its potential. Obviously, when the Fed needs an output gap to restrain inflation and stabilize inflation expectations, it cannot also use interest rate policy to narrow that output gap. The behavior of interest rate policy in the brief recession of 1980 makes this point well.

The Volcker Fed raised the nominal federal funds rate target sharply from around 11 percent in September of 1979 to around 17 percent in April 1980 in its initial effort to bring down inflation. About half of that 6 percentage point increase occurred in the fall of 1979. January 1980 later turned out to be a National Bureau of Economic Research (NBER) business cycle peak, and evidence of a weakening economy caused the Fed to pause in its aggressive tightening between late 1979 and March 1980. But with the federal funds rate held steady, the thirty-year (long) bond rate jumped by around 2 percentage points between December and February despite the weakening in the economy. A number of factors contributed to the unprecedented increase in inflation expectations evident in the sharp rise in the bond rate: the ongoing increase in oil prices, the unprecedented rise in the price of gold, and the Soviet invasion of Afghanistan. In addition, the Fed's hesitation to tighten further probably created doubts about its willingness to bear the output costs necessary to reduce inflation. In any case, faced with this evidence of a further increase in inflation expectations, the Fed was forced to react with an enormous 3 percentage point increase in the nominal funds rate in March. The short recession that occurred in the first half of 1980 probably resulted from this aggressive policy tightening in conjunction with the imposition of credit controls in March (see Schreft 1990).

Thus, interest rate policy helped to precipitate the 1980 recession as it would precipitate the 1981–82 recession, and for the same reasons. The difference is that in 1980 the Fed cut the federal funds rate sharply by around 8 percentage points between April and July to act against the downturn, and the recession ended quickly with around 8 percent real gross domestic product (GDP) growth in the fourth quarter (4Q) of 1980. However, inflation remained high in 1980. The lesson of 1980 was that the Fed could not restore credibility for low inflation if it continued to utilize interest rate policy to stabilize the output gap.

*The Cost of Restoring Credibility for Low Inflation*

The Volcker disinflation made particularly clear why it is so costly to restore credibility for low inflation once it has been compromised. Consider the striking disinflation that occurred in 1981. In early 1981 the Fed maintained the nominal federal funds rate at 19 percent. As measured by personal consumption expenditures (PCE) inflation, which was around 10 percent in Q1 1981, real short-term interest rates were then a very high 9 percent. Not surprisingly, the aggressive policy tightening began to take hold by midyear. The NBER business cycle peak was reached in July, and real GDP growth fell at a 6 percent annual rate in Q4 1981 and at a 5 percent annual rate in Q1 1982. The Fed brought the nominal federal funds rate down from 19 percent in the summer to the 14 percent range at the end of the year, where it remained until the summer of 1982, when it was reduced further to around 10 percent.

The 5 percentage point funds rate reduction through the end of 1981 was large in nominal terms. But PCE inflation also fell by about 5 percentage points by early 1982 to the 5 percent range. To the extent that short-term inflation expectations followed the decline in actual inflation during 1981, the Fed maintained an extraordinarily high 9 percent real funds rate *during* the recession! Amazingly, the Volcker Fed maintained a 9 percent real short rate even as the recession worsened and the unemployment rate rose from around 7 percent in July 1981 toward a peak of nearly 10 percent at the recession trough in November 1982.

Why did interest rate policy remain so extraordinarily tight even after the sharp break in inflation in 1981? One reason is that the behavior of long bond rates suggested that the Fed's credibility for low inflation continued to deteriorate. In fact, the long bond rate actually *rose* by about 3 percentage points from January 1981 to more than 14 percent in October, even as the economy weakened. And although the rate showed some tendency to decline thereafter, it remained in the 13 to 14 percent range until it began to come down more persistently in the summer of 1982. Only after this evidence emerged in the bond market, that the Fed was finally beginning to acquire credibility for low inflation, did the Fed ease policy decisively in August 1982. This policy easing paved the way for an end to the recession. Inflation stabilized at around 4 percent. And real GDP grew by a spectacular 6.7 percent in 1983 and 4.5 percent in 1984.

The Volcker Fed disinflation of 1981 is an extreme illustration of the point mentioned in section 8.2.2 that, in practice, the Fed *needs a recession* to restore credibility for low inflation after it has been compromised. The reason is this: if a disinflation is fully credible, then wage and price inflation can slow immediately without much effect on real interest rates or output (see Ball 1994). If, however, as in 1981, a disinflation is not immediately credible, then wage and price inflation continue as before. If the Fed per-

sists in tightening monetary policy anyway, real interest rates rise, aggregate demand moves below potential output, employment falls, and the output gap thus created causes wage and price inflation to slow gradually. Postwar U.S. monetary history makes it abundantly clear that disinflation is costly in practice because credibility for low inflation is hard to acquire after it has been lost. Moreover, the Fed's commitment to low inflation is only as credible as the public's support for it. And that support usually remains in question until a disinflation is nearly complete.

### *The Inflation Scare Problem*

The Fed's credibility problems during the Volcker era showed up as "inflation scares," sharply rising long-term bond rates reflecting rising long-term inflation expectations.<sup>5</sup> Inflation scares presented the Fed with a costly dilemma because ignoring them would encourage even more doubt about the central bank's commitment to low inflation. Yet raising real short rates to restore credibility for low inflation risked precipitating a recession. There were four striking examples of inflation scares in the bond rate during the Volcker era. As discussed above, the Fed's response to the first two scares in 1980 and 1981 precipitated recessions in those years.

The third inflation scare occurred in 1983–84. By then, inflation was running at around 4 percent, and, for the most part, it held in that range during this episode. Nonetheless, an inflation scare in the bond market raised the long rate from the 10 percent range in the summer of 1983 to its peak the following summer in the 13 percent range—only about 1 percentage point short of its 1981 peak even though inflation was over 6 percentage points lower in 1983 than in early 1981! The Fed reacted by moving the nominal funds rate up from the 8 percent range to the 11 percent range. Inflation remained low, so the tightening took the real short-term interest rate up by about 3 percentage points to around 7 percent briefly in mid-1984 before the inflation scare subsided and the bond rate began to come down. In this case, the high real short rate needed to contain the scare succeeded in bringing real GDP growth down to a sustainable 2 to 3 percent range in the second half of 1984. This episode was important because it demonstrated that a well-timed and well-calibrated series of preemptive interest rate policy actions could defuse an inflation scare without creating a recession. The 6 percentage point drop in the bond rate from its June 1984 peak to the 7 percent range in early 1986 indicates that the Fed acquired enormous additional credibility for low inflation during this period, in large part no doubt due to the aggressive inflation-fighting actions taken in 1983–84.

5. See Goodfriend (1993). Ireland (1996a) uses the modern theory of interest to show that movements in long bond rates reliably signal changes in expected inflation. Gurkaynak, Sack, and Swanson (2003) present evidence that the apparent "excess sensitivity" of long bond rates to macrodata largely reflects fluctuations in inflation expectations.

Remarkably, even after the Volcker Fed had demonstrated its determination to act against inflation for almost a decade, there was yet another inflation scare when the bond rate rose by 2 percentage points from March to October 1987. Surprisingly, the Fed reacted little to this scare. In part, this may have reflected real growth weaker than in 1983–84. The scare may have occurred in part because Volcker was near the end of his term as chairman and there was doubt about whether the Fed under Volcker's successor would continue to place a high priority on low inflation. In any case, the 1987 scare is particularly striking evidence of the fragility of the credibility of the Fed's commitment to low inflation, possibly connected to the transition from one Fed chairman to another.

### 8.2.3 The Greenspan Era: 1987 to the Present

When Alan Greenspan succeeded Paul Volcker as Fed chairman in the summer of 1987 the inflation scare needed immediate attention. However, the October 1987 stock market crash forced the Fed to *ease* monetary policy and put off raising interest rates until the spring of 1988. Judging by the behavior of the long bond rate, which did not return to its early 1987 levels until 1992, it took the Greenspan Fed about five years to overcome the 1987 inflation scare.

The discussion of the Greenspan era below is in four parts. It begins by emphasizing the difficulty of reversing even a relatively minor loss of credibility for low inflation. It then describes the preemptive interest rate policy actions in 1994 that achieved virtual price stability and the benefits, thereafter, of having achieved full credibility for low inflation. One can see in the behavior of the Greenspan Fed the emergence of an implicit inflation-targeting policy regime. The section concludes by pointing out five aspects of inflation targeting practiced implicitly by the Greenspan Fed.

#### *Reversing a Minor Loss of Credibility for Low Inflation*

As a result of the 1987 inflation scare and the policy easing that followed the October 1987 crash, PCE inflation *rose* by over 2 percentage points from around 3 percent in 1986 to around 5.5 percent in 1990. In response, the Fed raised the funds rate by over 3 percentage points to a peak of nearly 10 percent from the spring of 1988 to the spring of 1989 in an effort to reverse the rise in inflation and inflation expectations. As a result of those policy actions and the Gulf War recession, inflation began to recede in 1991. However, the unemployment rate rose by about 1 percentage point during the 1990–91 recession and rose further to nearly 8 percent in June 1992 during the “jobless recovery” that followed. Here is another instance where, having been insufficiently preemptive in containing inflation (in 1987 and 1988), monetary policy was obliged to be more restrictive than otherwise. With its credibility for low inflation compromised earlier, the Greenspan Fed lowered the federal funds rate tentatively and haltingly

from a peak around 8 percent at the start of the recession in mid-1990 to 3 percent in the fall of 1992. By September 1992, the bond rate had returned to the 7 percent range, inflation had come down to around 3 percent, and the real federal funds rate was therefore near zero.

The zero real short rate was in place for eighteen months from September 1992 to February 1994. During that time the unemployment rate came down to 6.6 percent, the bond rate fell to the 6 percent range, and the inflation rate fell slightly. It appeared that the Fed had acquired an additional degree of credibility for low inflation. To secure that credibility, however, the Fed would need to preempt rising inflation by raising real short rates as the economy strengthened further in 1994. At a minimum, the Fed would have to move real short rates up from zero to a range historically consistent with sustainable growth without inflation. In part, preemptive policy was motivated by yet another inflation scare in the bond market. The more than 2 percentage point increase in the bond rate from late 1993 to November 1994 indicated that the Fed's credibility for low inflation still was not secure.

#### *Preemptive Interest Rate Policy in 1994*

The series of policy actions that lifted the real funds rate by 3 percentage points from February 1994 to February 1995 marked the Greenspan Fed's first preemptive actions against inflation. Like the Volcker Fed's 1983–84 actions, the Greenspan Fed's 1994 preemptive policy held the line on inflation without creating unemployment. After falling to the mid-5 percent range during 1994, the unemployment rate moved up only slightly in April 1995 and then began to fall again. The 1994 tightening proved once more that well-timed preemptive interest rate policy actions are nothing to be feared. By January 1996 the bond rate was down to around 6 percent, and there was widespread talk of the "death of inflation" (see Bootle 1996).

The successful preemptive policy action in 1994 brought the economy to virtual price stability. Inflation and inflation expectations were anchored more firmly than ever before. Inflation has remained low ever since, and long bond rates have remained in the 5 to 6 percent range with little evidence of inflation scares. Remarkably, price stability was maintained even though the economy grew in the 4 percent range annually from 1996 through 1999, and the unemployment rate briefly fell below 4 percent for a while. Unquestionably, rising productivity growth during the period helped to hold down inflation, but the fact that the economy achieved this growth without much of an increase in inflation or an inflation scare further reinforced the Greenspan Fed's credibility for low inflation.<sup>6</sup>

6. Goodfriend (2002b) discusses the consequences of rising productivity growth and credible price stability in the second half of the 1990s for inflation and monetary policy.

### *Benefits of Full Credibility for Low Inflation*

Three closely related benefits of full credibility for low inflation have been apparent in the second half of the Greenspan era. First, credibility helped the economy to operate well beyond the levels that might have created inflation and inflation scares in the past. Second, when in 1999 and 2000 the Fed set out to slow the growth of real aggregate demand to a more sustainable rate, it raised real short rates to the 5 percent range, somewhat below the range of real short rates it had targeted in previous periods of policy restraint. As in 1994, less real rate restraint was necessary in 2000 because the Fed did not have to restore low inflation or its credibility for low inflation after they had been compromised. Having attained price stability, the Fed did not need a *recession* to bring inflation and inflation expectations down. The Fed's objective in 2000 was *only* to bring aggregate demand back into line with potential output so that the expansion would not end with an outbreak of inflation, an inflation scare, or an unsustainable real boom and bust.

Third, when the expansion *did* end in an unsustainable boom and bust, the fact that inflation and inflation expectations were well anchored enabled the Greenspan Fed to cut the nominal federal funds rate aggressively from 6.5 percent to 1.75 percent in 2001 to cushion the fall in aggregate demand and employment.<sup>7</sup> Amazingly, the Fed was able to cut the real federal funds rate by 4 or 5 percentage points to around zero without a hint of an inflation scare. Since the Fed did not *need* a recession in 2001, it had the *flexibility* to cut the real funds rate aggressively to prevent one.

#### 8.2.4 Implicit Inflation Targeting Practiced by the Greenspan Fed

When one considers the Greenspan era as a whole, it would appear that the Greenspan Fed adopted, gradually and implicitly, an approach to monetary policy that can be characterized as inflation targeting. To begin, the Greenspan Fed must have appreciated something like the case for price stability described above as it developed in the years of go/stop policy and during the Volcker disinflation. Moreover, Chairman Greenspan testified in 1989 in favor of a qualitative zero-inflation objective for the Fed, defined as a situation in which “the expected rate of change of the general level of prices ceases to be a factor in individual and business decisionmaking” (see Greenspan 1990, 6). Thus, it is reasonable to think that the Greenspan Fed set out to achieve low enough inflation to make that definition of price stability a reality. This is the *first* sense in which it

7. Some economists argue that monetary policy should have acted more aggressively against the extreme asset price increases in the late 1990s. See Bernanke and Gertler (1999) and Goodfriend (2003) for reasons why interest rate policy should not react directly to asset prices.

is plausible to think that the Greenspan Fed has adopted an implicit form of inflation targeting.

However, the Greenspan Fed clearly has not focused singlemindedly on achieving low inflation. Had it done so, it surely could have restored low inflation and the credibility for low inflation lost in 1987–88 sooner than it did. However, given the initial credibility problems, attempting to act against inflation too aggressively could have come at too great a cost in lost employment and output. It was plausible to think that the relatively small slippage in inflation and credibility for low inflation that occurred in the late 1980s could be contained eventually without an aggressive monetary tightening. Such reasoning probably contributed to the decision to pursue a mildly restrictive interest rate policy to build back credibility for low inflation gradually. In other words, the Greenspan Fed displayed great patience in overcoming the effects on inflation and Fed credibility of the unfortunate initial conditions (the 1987 inflation scare and stock market crash) that it started with.

Moreover, the Greenspan Fed did not proceed to push the inflation rate down deliberately to price stability after 1992 in a way that might have been costly in terms of employment and output. Instead, preemptive policy was utilized in 1994 to reinforce the transition to price stability. The Fed held real short rates near zero for a year and a half until the economy showed strength in 1994 and then acted to preempt what might have been a cyclical increase in inflation. Holding the line on inflation proved to be a virtually costless way of moving the economy to price stability and fully securing the Fed's credibility for low inflation.

The manner in which the Greenspan Fed moved to restore credibility for low inflation before 1992 and pushed to price stability after 1992 demonstrates a *second* sense in which it may be said to have targeted inflation implicitly. It is clear that the Greenspan Fed practiced a form of *flexible* inflation targeting in its pursuit of price stability.

Arguably, it is plausible to think that the Fed has finally achieved price stability in the sense that a measure of inflation favored by the Fed, core PCE inflation, has remained in the 1 to 2 percent range since the mid-1990s (see Federal Open Market Committee 1996, 11). It is difficult to imagine circumstances that would cause the Greenspan Fed to *deliberately* target core PCE inflation *above* 2 percent in either the long run or the short run. This is the third sense in which it may be said that the Greenspan Fed has adopted an implicit form of inflation targeting. Likewise, it is hard to imagine any circumstances in which the Greenspan Fed would *deliberately* target core PCE inflation below 1 percent. There is no reason to take the inflation rate lower than that, given the risk of deflation and the problems associated with the zero bound on nominal interest rates. This is the fourth sense in which it may be said that the Greenspan Fed has adopted an implicit form of inflation targeting.

Finally, it is clear that the Greenspan Fed practices inflation targeting in large part to enhance the flexibility of interest rate policy to stabilize the output gap over the business cycle. For instance, the discussion above explained how the Greenspan Fed exploited its full credibility for low inflation to lower short-term interest rates flexibly to cushion the 2001 recession. In this sense, inflation targeting as practiced by the Greenspan Fed involves a *fifth* characteristic: constrained countercyclical stabilization policy. In other words, the Greenspan Fed appears willing to pursue aggressive countercyclical interest rate policy as long as inflation and inflation expectations remain anchored in or near the long-run target range.

### 8.3 Should Low Long-Run Inflation Be a Priority?

Since the record shows that the Greenspan Fed has pursued inflation targeting implicitly, we now ask what features of those implicit inflation-targeting procedures should be made explicit. We use the case for inflation targeting developed in section 8.2 to help answer that question. In this section we consider only whether the Fed should make low *long-run* inflation a priority. We begin with arguments supporting a priority for price stability. Then we consider opposing arguments and counterarguments. Finally we consider the case for a quantitative long-run inflation target.

#### 8.3.1 Arguments Supporting a Long-Run Priority for Price Stability

A priority for low long-run inflation derives not so much from a belief in its intrinsic value relative to other goals such as full employment and economic growth, but from theory and evidence suggesting that monetary policy encourages employment and growth in the long run mostly by controlling inflation (see, e.g., Feldstein 1997 and Federal Reserve Bank of Kansas City 1996). Moreover, the U.S. monetary policy record outlined in section 8.2 suggests that the *flexibility* to pursue short-run stabilization policy has been enhanced by a credible commitment to low inflation. Arguably, that credibility would be strengthened if the Fed announced publicly a priority for low long-run inflation.<sup>8</sup>

Further, in 1994 the Fed began to announce its current federal funds rate target publicly for the first time. The Fed became more forthcoming about its policy instrument in part because Congress and the public expressed an interest in greater transparency in monetary policy. For instance, all twelve reserve bank presidents were invited to explain their views on monetary policy before the Senate banking committee in March 1993 and again before the House banking committee in October of that year. This increased trans-

8. Fed officials have spoken repeatedly over the years about the benefits of low inflation and the Fed's commitment to price stability. However, the Fed has not asserted a priority for low long-run inflation.

parency of the Fed's policy instrument, the federal funds rate, has enhanced the understanding of monetary policy and facilitated a public debate about Fed policy. A healthy debate about whether the Fed's policy actions are appropriate to achieve its objectives is to be expected. But the current situation is one in which the Fed has not clarified its priority for low inflation as well as it might. Thus, a debate about Fed policy actions in the current institutional environment can become a debate about the Fed's policy objectives.

The combination of instrument transparency with ambiguity about the priority for low inflation creates problems for monetary policy. For instance, the visibility of the Fed's aggressive preemptive tightening against inflation in 1994 attracted much criticism in part because the priority the Fed placed on low inflation had not been clarified, understood, and accepted by Congress and the public. The criticism from Congress and elsewhere at the time was seen by many as a threat to price stability and probably contributed to the severity of the inflation scare that raised the long bond rate by over 2 percentage points in 1994. Especially now that price stability has been achieved and the transition costs are behind us, the Fed's commitment to long-run price stability could be clarified to minimize the risk that a debate about Fed policy actions could create inflation scares in the future.<sup>9</sup>

### 8.3.2 Opposing Arguments and Counterarguments

The most fundamental argument against making low *long-run* inflation a priority is that it might unduly constrain interest rate policy from stabilizing output relative to its potential in the *short run*. The concern is that, in practice, the Fed might become more timid in using interest rate policy flexibly to stabilize real economic activity over the business cycle for fear of the inflationary consequences. That being said, the policy record outlined above shows that the Fed's power to stabilize the output gap over the business cycle was considerably *enhanced* as inflation and inflation expectations became more firmly anchored. Nevertheless, the above argument must be taken seriously.

The second argument against formally adopting a priority for low long-run inflation is that there is little to be gained, since the Fed has achieved and maintained low inflation by "just doing it." The Greenspan Fed appears to have acquired near-full credibility for low inflation without a formal priority for low inflation. And there is every reason to think that the Greenspan Fed can continue to pursue inflation targeting implicitly and successfully. This argument seems to take it for granted that the Fed needs no institutional help in carrying on after Chairman Greenspan retires.

9. Gurkaynak, Sack, and Swanson (2003) present evidence indicating that the Bank of England's credible commitment to an inflation target helped to anchor long-term inflation expectations and bond rates in the United Kingdom.

The third argument admits that a legislative mandate for low long-run inflation would be helpful but stresses that it would be awkward, inappropriate, and potentially counterproductive for the Fed to announce a priority for low long-run inflation unilaterally. To be sure, the Fed is an independent central bank in the sense that its interest rate policy actions are not subject to further evaluation by other authorities. And Congress did not object to the Volcker disinflation and the Greenspan Fed transition to price stability. Yet the Fed is supposed to take direction on its goals from Congress. The current understanding between the Fed and Congress would appear to amount to a “don’t ask, don’t tell” equilibrium: Congress doesn’t ask the Fed whether it places a priority on low long-run inflation, and the Fed does not say whether it has such a priority.<sup>10</sup> Both the Fed and Congress appear to be satisfied with “don’t ask, don’t tell,” so apparently the status quo is satisfactory.

The problem with this argument is that waiting for Congress to endorse formally a priority for low long-run inflation poses some risks. Currently, a large fraction of the public has had firsthand experience with inflation and naturally supports the view that it must be contained. But as the Fed succeeds over time in maintaining low inflation, that collective memory will fade, and Congress will be less likely to mandate a priority for price stability than it may be today. If the Greenspan Fed, in its capacity as the repository of central-banking expertise in the United States, believes that monetary policy would benefit from a legislatively mandated priority for low long-run inflation, then it could *ask* Congress for one. The time is right to do so. Because price stability has been achieved, transition costs are no longer an obstacle. More important, the public has great confidence in the Greenspan Fed, and future Feds will have less personal experience with and appreciation of the reasons why monetary policy would benefit from such a mandate. Institutionalizing that knowledge and experience in a mandate will go a long way toward insuring that future generations do not repeat the inflationary mistakes of the past.

### 8.3.3 The Case for a Quantitative Long-Run Inflation Target

The above discussion made the case that low long-run inflation should be a priority for monetary policy. In principle, that priority could be specified in either a qualitative or a quantitative way. If a priority for low inflation is largely about anchoring inflation expectations, then arguably much of the benefit could be derived by specifying the priority in qualitative language using Chairman Greenspan’s definition of price stability. For instance, such a commitment could be stated as a priority for maintaining

10. Federal Open Market Committee (FOMC; 1996, 64, 67, 72) indicates the consensus within the FOMC on the desirability of a 2 percent long-run objective for a CPI measure of inflation.

monetary conditions in which “the expected rate of change of the general level of prices ceases to be a factor in individual and business decision making.” The discussion above suggests that explicitly adopting even a qualitative priority for low long-run inflation would be a major step forward for monetary policy.

There are a number of reasons, however, why a priority for low long-run inflation could be stated usefully in quantitative terms. The Fed could choose the measure of inflation to target from any number of candidate measures that have been exceptionally stable since the mid-1990s. Moreover, Fed staff routinely use for internal policy simulations a quantitative working definition of low inflation that constitutes price stability. Arguably, that working definition is the FOMC’s de facto quantitative long-run inflation target, and it would serve naturally as a quantitative long-run inflation target for external purposes as well. It makes sense to put a quantitative lower bound on inflation to protect against deflation and the problem of the zero bound on nominal interest rates. Announcing an explicit lower bound on inflation would make the public more confident that the Fed will not allow the United States to fall into a Japanese-style deflation, zero-bound trap. That, in turn, would protect against potentially destabilizing *deflation* scares, to which the Fed would have to respond by pushing the nominal funds rate closer to zero. If it makes sense for the Fed to announce an explicit lower bound on its long-run inflation target to protect against deflation, then it also makes sense to announce an explicit *upper* bound to emphasize that the Fed intends to hold the line on inflation as well. Finally, a quantitative long-run inflation target would serve as a better benchmark against which to judge departures from price stability in the short run.

A target *range* would have advantages over a *point* inflation target. A target range would give the Fed a “safe harbor” within which it would not have to explain or respond to movements in inflation very much. Only when inflation moved outside the range would the Fed be expected to explain how policy would return inflation to the range. Without a range, the Fed might find it difficult to switch rhetorically from relatively little concern about inflation to greater concern when inflation moved up or down on a sustained basis. Specifying a quantitative range would not tie the Fed’s hands in practice. What it would do is put the burden of proof on the Fed to explain how it intends to return inflation to its target. And that would be a valuable disciplining device.

A range of 1 to 2 percent for core PCE inflation monthly over twelve or twenty-four months earlier would be a reasonable quantitative long-run target. The Fed is apparently comfortable using the core PCE price index to measure inflation (see Federal Open Market Committee 1996, 11). Core PCE inflation has ranged between 1 and 2 percent since 1997. Given this

observed stability, a 1 percentage point range should provide enough leeway for routine short-run fluctuations of inflation. Finally, core PCE inflation would provide a more stable measure than overall PCE inflation against which to judge departures from price stability in the short run.

The main reasons for the Fed not to adopt a quantitative inflation target are fourfold. First, the Fed may not be quite sure yet what measure of inflation and target range to adopt. Second, as discussed above, there is no pressing need to adopt a quantitative inflation target. Finally, the Fed's credibility for low inflation may actually be jeopardized if, for whatever reason, it cannot keep inflation within its long-run quantitative target range. Fourth, adopting a quantitative inflation target may generate pressure to adopt a quantitative target for the unemployment rate, which would create problems for monetary policy of the sort encountered during the go/stop period reviewed in section 8.2.1.

#### 8.4 Inflation Targeting in the Short Run

This section considers inflation targeting in the short run. It begins by outlining complications that the Fed must confront in managing departures of inflation from the long-run target range. It then suggests strongly that it is both feasible and desirable for the Fed to keep inflation within its long-run inflation target even in the short run. The section closes by pointing out that strict inflation targeting is compatible with stabilizing output at its potential over the business cycle in a reasonable benchmark macro-model.

This discussion does not deny that inflation could be pushed outside of the target range in the short run. The analysis asserts only that it is likely to take an exceptional event to destabilize inflation when the Fed purposefully pursues price stability. Undoubtedly, bad luck or bad judgment could create excessively inflationary or deflationary conditions. If that were to happen, then presumably the Fed would return inflation to the target range flexibility, much as the Greenspan Fed restored credibility for low inflation in the late 1980s and early 1990s.

##### 8.4.1 Managing Departures of Inflation from the Long-Run Target

If inflation moves outside its long-run target range, for whatever reason, the Fed must choose a path for its interest rate policy instrument that balances the speed with which inflation is returned to target against the cost in lost output relative to potential. The Fed must decide how *fast* to rebuild credibility for its long-run inflation objective. As a formal matter, the decision would depend on the following factors: (a) the mechanism by which interest rate policy is assumed to be transmitted to aggregate demand in the macromodel used by the Fed; (b) the specification of the relationships

among aggregate demand, the output gap, and the inflation-generating process in that macromodel; (c) the relative weights placed on the output gap and inflation stabilization in the Fed's (implicit) loss function, or (d) the length of time that the Fed arbitrarily allows for returning its conditional inflation forecast to the long-run target; and (e) any conditional information on current shocks and adjustments to the model or the loss function weights due to special circumstances or evolving economic conditions. In sum, the policy response would depend on all information available to the Fed affecting the conditional inflation forecast and the output-gap forecast (see Svensson 1999 and Galí 2001).

The complexity of the elements listed above shows how difficult it is for the Fed to manage inflation once it moves outside its long-run target range. Arguably, the inflation-generating process is the weakest part of the macromodel. Among other things the cost, in terms of lost output relative to potential, of returning inflation to its long-run range depends on the credibility of the Fed's commitment to do so. The historical record discussed in section 8.2 suggests that such credibility is sensitive to the Fed's actions *themselves* in the context of other aspects of the political economy in a way that is difficult to model. In any particular case the Fed must *judge* the extent to which drawing out the return of inflation to its long-run target might be counterproductive by reducing the credibility of its intention to bring inflation all the way back down. That consideration must be balanced against attempting to bring inflation down before the credibility for doing so has been built up. An error in either direction would increase the output cost of restoring price stability.

Another problem arises because the Fed may tend to overstate the extent to which inflation has an inherent tendency to persist after it has been shocked. U.S. inflation has exhibited a high degree of persistence in the past (see Fuhrer and Moore 1995 and Goodfriend and King 2001, 75–81). The Fed tolerated outbursts of inflation in the go phase of the policy cycle and showed only a limited inclination to risk recession to reverse those outbursts but a willingness to allow “opportunistic” shocks to reduce inflation. Thus, both positive and negative inflation shocks tended to be propagated through time.<sup>11</sup> Firms would quickly build a shock to inflation into inflation expectations and incorporate those expectations into their own price-setting behavior. By underestimating its own role in creating inflation persistence in the past, the Fed may be too quick to accommodate and propagate deviations of inflation from its long-run target in the present (see Cecchetti 1995 and Cogley and Sargent 2001).

It is optimal for the monetary authority to vary its short-run inflation target deliberately in response to some shocks in some macromodels. How-

11. The empirical findings reported in Atkeson and Ohanian (2001) reflect this behavior.

ever, that optimal variation depends sensitively on the details of the macro-model and on the size and type of shocks hitting the economy. Given our uncertainty about the structure of the economy, the difficulty in promptly and accurately identifying the shocks hitting the economy, and the complications discussed above, attempting to *fine-tune* the inflation target in the short run is more likely to be counterproductive than not (see Orphanides and Williams 2002 and Schmitt-Grohé and Uribe 2002). In any case, the historical record suggests that the Fed's ability to deliberately and systematically manipulate inflation in response to shocks is very limited. Moreover, such attempted manipulation would open the door to inflation scares. For all these reasons the presumption must be that it is inadvisable for the Fed to attempt to vary the short-run inflation target deliberately over time.

#### 8.4.2 Precluding Inflation from Moving Outside the Long-Run Range

As a practical matter, the Fed can adhere closely to its long-run inflation target only if interest rate policy can *preclude* shocks from moving inflation outside the long-run target range. Is it plausible that the Fed can do so? The answer would appear to be yes, especially for a core inflation index that excludes highly flexible commodity and food prices. As mentioned above, evidence from the mid-1990s to the present suggests that inflation will remain stable over the business cycle when the Fed makes price stability a priority.

Theory suggests why the Fed has been able to stabilize inflation so well and is likely to continue to do so in the future. Credibility for stable prices is self-enforcing to a great extent. Forward-looking, sticky-price firms are less likely to pass cost shocks through to prices if firms expect the Fed to take policy actions promptly to conform aggregate demand to potential output in order to relieve the cost pressures (see Taylor 2000). Moreover, credible price stability gives the Fed greater leeway to cut short-term interest rates in response to a financial market crisis or to stabilize the output gap without creating inflation or an inflation scare in bond markets. Thus, the Fed was able to cut the federal funds rate target by 75 basis points in 1998–99 in aftermath of the Russian debt default, and then by 475 basis points when the economy turned down in 2001, without much effect on inflation or inflation expectations in either case. Because the Fed is known to have such leeway to act aggressively and preemptively against recessions, firms are less likely to pass *deflationary* cost shocks through to prices as well.

#### 8.4.3 Strict Inflation Targeting and Countercyclical Stabilization Policy

According to the argument above, strictly targeting core inflation within its long-run range has much to recommend it. The strength of that argument derived in part from the fact that doing otherwise would require the

Fed to take a stand on theoretical and empirical inflation dynamics, about which there is much uncertainty. This section supplements the case by pointing out that strict inflation targeting is entirely consistent with stabilizing output at its potential over the business cycle in a reasonable benchmark macromodel. In other words, strict inflation targeting can be regarded as the anchor for *constrained countercyclical stabilization policy* along the lines of the description in section 8.2.4 of inflation targeting as practiced by the Greenspan Fed. From this perspective, even those who care mainly about output and employment can support strict inflation targeting.

This point is clear with respect to a shock to aggregate demand. For instance, a positive shock that moves aggregate demand above potential output would increase labor demand and put upward pressure on wages. That cost pressure would be passed to sticky (core) prices in the absence of a tightening of monetary policy. However, by raising short-term interest rates, the Fed could bring aggregate demand back into line with potential output, move employment back down, eliminate the upward pressure on wages, and hold the line on inflation. In other words, interest rate policy can stabilize simultaneously both inflation and the output gap in the face of a shock to aggregate demand.

What about a shock to aggregate supply, such as a temporary increase in the price of oil? The question is: can the interest rate policy actions that stabilize core inflation against an oil price shock also be construed as stabilizing output relative to its potential? The higher price of oil would raise the cost of production for sticky-price firms, and again that cost pressure could be passed to sticky (core) prices in the absence of a tightening of monetary policy. To stabilize sticky (core) price inflation the Fed would have to raise real short rates and depress aggregate demand enough to *reduce* employment and wages in order to *offset* the effect of higher oil prices on production costs. In effect, price stability could be maintained by making aggregate demand conform to the temporary reduction in potential output. From this perspective, the answer to the question above could be yes.

In fact, in a benchmark macromodel with sticky prices and effectively flexible wages, interest rate policy that stabilizes sticky (core) prices automatically makes output conform to its time-varying potential.<sup>12</sup> The reason is twofold: (a) strict inflation targeting neutralizes fluctuations in employment and output that would otherwise occur due to sticky prices, and (b) effective wage flexibility assures that output fluctuates with its potential defined as the outcome of an imperfectly competitive real business

12. See Goodfriend and King (1997, 2001) and Goodfriend (2002a) for a discussion of the benchmark new neoclassical synthesis model in which strict inflation targeting also stabilizes the output gap. Goodfriend (2002a), Ireland (1996b), and Woodford (2001) show why strict inflation targeting maximizes welfare in related models.

cycle model with a constant markup and perfectly flexible wages and prices.

Of course, there is some question about the extent to which actual wages are effectively flexible. Nominal wages exhibit about the same temporary rigidity as nominal prices (see Taylor 1999). To the extent that nominal wages are temporarily rigid, the Fed might have to push employment and output below potential as defined above in order to relieve cost pressures and stabilize core inflation against an oil price shock. Pushing employment down further would reduce labor costs by raising the marginal physical product of labor. In this case, however, the Fed would face a short-run trade-off between inflation and output relative to its potential.

That being said, there are two reasons why such a trade-off may be of relatively little concern in practice. First, an inflation target of 1 to 2 percent with trend productivity growth of around 2 percent would yield average nominal wage growth in the 3 to 4 percent range. Such high nominal wage growth should keep the economy safely away from situations in which significant downward nominal wage rigidity, as opposed to slower nominal wage growth, is required to stabilize inflation and the output gap. Second, wages may be effectively flexible in the context of the long-term implicit and explicit contracts that characterize most employment relationships. It would be inefficient for either firms or workers to allow temporary nominal wage rigidity to upset the terms of otherwise efficient long-term employment relationships. In particular, one might expect future wage adjustments to undo any effects of temporary nominal wage stickiness, so that wages would be effectively flexible. Such behavior would neutralize the allocative consequences of sticky nominal wages (see Barro 1977 and Hall 1999).

## 8.5 How to Make Inflation Targeting Explicit in the United States

At the core of the case for inflation targeting is the idea that monetary policy encourages economic growth and stabilizes output at its potential over the business cycle in large part by anchoring inflation and inflation expectations. The need to influence expectations puts a premium on a central bank's credibility, commitment to goals, and perceived independence and competence to achieve its objectives. Currently, these foundations are secure in the United States because the public has confidence in the Greenspan Fed. If price stability is to be sustained, however, the operating procedures of the Greenspan Fed must be credibly transferred to its successor. Over the long run, the Fed's credibility must be based on an understanding of how inflation targeting works rather than being based in the leadership of the Fed. Making the Fed's inflation-targeting procedures explicit would help to achieve these ends by securing the Fed's commitment to low inflation and improving the transparency and accountability of the

Fed for attaining its monetary policy objectives (see Broaddus 2001 and Ferguson 2002).

Based on the discussion above, it seems fair to say that, consistent with theory and U.S. experience, and in line with practices that have been adopted abroad, low inflation *is* a priority for Fed monetary policy in the following sense: in the *long run* there are no circumstances in which sustained inflation should ever be much higher or lower than it is today. A public *acknowledgment* by the Fed of this would be a useful starting point for making the Fed's inflation-targeting procedures explicit. The priority for long-run price stability would simply reflect *best-practice* monetary policy as the Fed, other central banks, and the economics profession have come to understand it. Hence, the Fed could assert that priority on its own initiative without direction from Congress. In fact, the Fed has an *obligation* to inform Congress to that effect without any expectation of a response in order to help the oversight committees understand better how to evaluate monetary policy. The Fed Chairman could add that as a practical matter there is little reason for the Fed *deliberately* to allow inflation to deviate from price stability in the *short run* either, since price stability best facilitates maximum sustainable employment, growth, and output stabilization relative to potential.

A unilateral acknowledgement of this sort would be worthwhile in its own right. Openly clarifying the priority for price stability would reinforce the Fed's commitment to low inflation and enhance the credibility of that commitment. It would balance the recently increased transparency of the Fed's interest rate instrument with greater transparency of its low-inflation goal. And it would act to defuse further the idea that secrecy has any role to play in monetary policy (see Goodfriend 1986). In this regard, the Fed could go further and publicly acknowledge its quantitative working definition of long-run price stability. If a 1 to 2 percent range for core PCE inflation is it, then the Fed could acknowledge that it intends to keep core PCE inflation *in or near* that range indefinitely.

An acknowledgement of either a quantitative or a qualitative priority for low long-run inflation would open the door for the oversight committees in Congress to *recognize* a priority for low long-run inflation. By accepting that priority, the oversight committees could then hold the Fed accountable for maintaining low inflation. Presumably, the Fed would welcome being held accountable by Congress because that would secure further its commitment to low inflation. Congress, of course, might be concerned that holding the Fed accountable for low *long-run* inflation would skew Fed policy in the *short run* toward price stability at the expense of stabilizing output relative to its potential. The reality, though, is that it is not feasible to hold the Fed accountable for employment or output objectives because in the long run these are determined *independently* of monetary policy. This is the lesson of the inflationary go/stop period discussed in section 8.2.1.

There is a chicken-and-egg problem here. Without a mechanism by which the Fed's reasoning about short-run policy can be assessed more fully, Congress may be reluctant to recognize a priority for low long-run inflation. And without some assurance that Congress accepts a priority for low long-run inflation, the Fed may be reluctant to be more transparent about how it strikes a balance between inflation and output in the short run.

This conundrum suggests the following possibility: in exchange for a congressional acceptance of a priority for low long-run inflation, the Fed could consider participating in a public *monetary policy forum* where the FOMC (through its chairman and other representatives) would subject its current assessment of the economy and thinking about recent policy actions to questions from invited academic and business economists who are expert in monetary policy. The discussion would be disciplined by a congressional directive to utilize monetary policy flexibly to stabilize output at its potential over the business cycle *subject* to inflation remaining in or near its long-run target range.

The policy forum could be held publicly for one full day, twice a year, a month before the Fed's regular monetary policy reports to Congress in order to unearth key policy issues and better inform the congressional oversight hearings. Invited participants would be drawn from the community of professional Fed watchers, economic forecasters, and academic monetary economists. The forum could be arranged and participants invited by the Fed itself or by a private nonprofit sponsor. It would be held independently of Congress, although representatives from Congress would be welcome to attend. By enabling Congress to observe a professional exchange of views on monetary policy, the forum would give Congress more insight into the thinking of the FOMC.

To achieve balance in the questions and comments, the invited participants should be grouped according to whether they think that policy is too easy, about right, or too tight, and equal time should be given to all points of view. The opportunity for the FOMC to address comments and questions from all perspectives would enable the Fed to build public understanding as well as confidence in its own policy position. The Fed's thinking on the economy and current policy could be summarized in an "Inflation Report" prepared and distributed in advance of the forum. The forum would provide the Fed with regular opportunities to respond to professional comments on its assessments of the economy without appearing defensive or self-congratulatory. The forum would also provide the Fed with a convenient and efficient means of acquiring regular professional advice and council on monetary policy. Finally, the forum would help to educate economists, the press, and the financial markets so that eventually the public's confidence in monetary policy could be based on a deeper understanding of how inflation targeting works to optimize the economy's performance.

## 8.6 Conclusion

The paper began by tracing the origins of the case for inflation targeting in postwar U.S. monetary history from the inflationary go/stop period, through the Volcker disinflation, to the period of price stability in the Greenspan era. This historical review made clear why the Fed has made price stability a priority as never before in its history and why low inflation will remain a priority indefinitely. In particular, the historical review served three purposes. First, it showed why price stability improves monetary policy. Second, it showed how the Greenspan Fed practices inflation targeting implicitly. Third, it showed why the Fed should continue to utilize the inflation-targeting procedures developed and employed implicitly by the Greenspan Fed after Chairman Greenspan retires.

In the second half of the paper consideration was given to whether the Fed's implicit inflation-targeting procedures should be made explicit, how tightly inflation should be targeted in the short run, and how the Fed's inflation targeting procedures *could* be made explicit. The main findings were these: (a) low long-run inflation should be an explicit priority for monetary policy; (b) as a practical matter it is not desirable for the Fed to vary its inflation target in the short run; and (c) strict inflation targeting can be efficient constrained countercyclical stabilization policy. The Fed should publicly acknowledge its implicit priority for low long-run inflation so that Congress could publicly accept that priority and agree to hold the Fed accountable for attaining it. In return, representatives of the FOMC should consider participating in a monetary policy forum to better inform the congressional oversight committees and the public about current monetary policy.

## References

- Atkeson, A., and L. E. Ohanian. 2001. Are Phillips curves useful for forecasting inflation? *Federal Reserve Bank of Minneapolis Quarterly Review* 25:2–11.
- Ball, L. 1994. Credible disinflation with staggered price-setting. *American Economic Review* 84:282–89.
- Barro, R. 1977. Long-term contracting, sticky prices, and monetary policy. *Journal of Monetary Economics* 3 (July): 305–16.
- Bernanke, B. S., and M. Gertler. 1999. Monetary policy and asset price volatility. In *New challenges for monetary policy: A symposium*, 77–128. Kansas City, Mo.: Federal Reserve Bank of Kansas City.
- Bernanke, B. S., and F. S. Mishkin. 1997. Inflation targeting: A new framework for monetary policy? *Journal of Economic Perspectives* 11:97–116.
- Bernanke, B. S., T. Laubach, F. S. Mishkin, and A. S. Posen. 1999. *Inflation targeting: Lessons from the international experience*. Princeton, N.J.: Princeton University Press.

- Blejer, M. L., A. Ize, A. Leone, and S. Werlang. 2000. *Inflation targeting in practice: Strategic and operational issues and application to emerging market economies*. Washington, D.C.: International Monetary Fund.
- Blinder, Alan S. 1996. Central banking in a democracy. *Federal Reserve Bank of Richmond Economic Quarterly* 82:1–14.
- Bootele, R. 1996. *The death of inflation*. London: Nicholas Brealey Publishing.
- Broadbuss, J. Alfred, Jr. 2001. Transparency in the practice of monetary policy. *Federal Reserve Bank of Richmond Economic Quarterly* 87:1–9.
- Cecchetti, Stephen G. 1995. Inflation indicators and inflation policy. In *NBER macroeconomics annual 1995*, ed. B. Bernanke and J. Rotemberg, 189–219. Cambridge: MIT Press.
- Cogley, T., and T. J. Sargent. 2001. The evolution of postwar U.S. inflation dynamics. In *NBER macroeconomics annual 2001*, ed. B. Bernanke and K. Rogoff, 331–73. Cambridge: MIT Press.
- Federal Open Market Committee. 1995. *Transcript*, January 31–February 1:39–59.
- . 1996. *Transcript*, July 2–3.
- Federal Reserve Bank of Kansas City. 1996. Achieving Price Stability: A Symposium. 29–31 August, Federal Reserve Bank of Kansas City.
- Feldstein, M. 1997. The costs and benefits of going from low inflation to price stability. In *Reducing inflation: Motivation and strategy*, ed. C. Romer and D. Romer, 123–66. Chicago: University of Chicago Press.
- Ferguson, R. 2002. Why central banks should talk. Remarks at Graduate Institute of International Studies. 8 January, Geneva, Switzerland.
- Fuhrer, J., and G. Moore. 1995. Inflation persistence. *Quarterly Journal of Economics* 110:127–59.
- Galí, J. 2001. Targeting inflation in an economy with staggered price setting. Paper presented at Ten Years of Inflation Targeting: Design, Performance, Challenges. 30 November–1 December, Santiago, Chile, Central Bank of Chile.
- Goodfriend, M. 1986. Monetary mystique: Secrecy and central banking. *Journal of Monetary Economics* 17:63–92.
- . 1993. Interest rate policy and the inflation scare problem: 1979–1992. *Federal Reserve Bank of Richmond Economic Quarterly* 79:1–24.
- . 1997. Monetary policy comes of age: A 20th century odyssey. *Federal Reserve Bank of Richmond Economic Quarterly* 83:1–22.
- . 2002a. Monetary policy in the new neoclassical synthesis: A primer. *International Finance* 5:165–92.
- . 2002b. The phases of U.S. monetary policy: 1987 to 2001. *Federal Reserve Bank of Richmond Economic Quarterly* 88:1–17.
- . 2003. Interest rate policy should not react directly to asset prices. In *Asset price bubbles: Implications for monetary, regulatory, and international policies*, ed. W. C. Hunter, G. G. Kaufman, and M. Pomerleano, 445–57. Cambridge: MIT Press.
- Goodfriend, M., and R. G. King. 1997. The new neoclassical synthesis and the role of monetary policy. In *NBER macroeconomic annual 1997*, ed. B. S. Bernanke and J. J. Rotemberg, 231–83. Cambridge: MIT Press.
- . 2001. The case for price stability. In *Why price stability?*, ed. A. G. Herrero, V. Gaspar, L. Hoogduin, J. Morgan, and B. Winnkler, 53–94. Frankfurt, Germany: European Central Bank.
- Greenspan, A. 1990. Statement before the U.S. Congress, House of Representatives, Subcommittee on Domestic Monetary Policy of the Committee on Banking, Finance and Urban Affairs. Zero Inflation hearing. 101 Cong. 1 Sess. Washington, D.C.: Government Printing Office.

- Gurkaynak, R. S., B. Sack, and E. Swanson. 2003. The excess sensitivity of long-term interest rates: Evidence and implications for macroeconomic models. Finance and Economics Discussion Series no. 2003-50. Washington, D.C.: Federal Reserve Board, February.
- Haldane, A. G. ed. 1995. *Targeting inflation*. London: Bank of England.
- Hall, R. E. 1999. Labor market frictions and employment fluctuations. In *Handbook of macroeconomics*, ed. J. B. Taylor and M. Woodford, 1137–70. Amsterdam: Elsevier Science.
- Ireland, P. 1996a. Long-term interest rates and inflation: A Fisherian approach. *Federal Reserve Bank of Richmond Economic Quarterly* 82:21–36.
- . 1996b. The role of countercyclical monetary policy. *Journal of Political Economy* 104:704–24.
- King, M. 1997. The inflation target five years on. Lecture delivered at the London School of Economics. 29 October.
- Kohn, D. 2000. *Report to the non-executive directors of the court of the Bank of England on monetary policy processes and the work of monetary analysis*. Washington, D.C.: Board of Governors of the Federal Reserve System. Manuscript.
- Leiderman, L., and L. E. O. Svensson, eds. 1995. *Inflation targets*. London: Centre for Economic Policy Research.
- Loayza, N., and R. Soto, eds. 2002. *Inflation targeting: Design, performance, challenges*. Santiago, Chile: Central Bank of Chile.
- Martin, J. 2000. *Greenspan: The man behind money*. Cambridge, Mass.: Perseus Publishing.
- McCallum, B. 1997. Inflation targeting in Canada, New Zealand, Sweden, the United Kingdom, and in general. In *Towards more effective monetary policy*, ed. I. Kuroda, 211–41. New York: St. Martin's Press.
- . 2000. *The United States deserves a monetary standard*. Washington, D.C.: Shadow Open Market Committee. Manuscript.
- Meyer, L. H. 2001. Inflation targets and inflation targeting. *Federal Reserve Bank of St. Louis Review* 83:1–13.
- Neumann, M. J. M., and J. von Hagen. 2002. Does inflation targeting matter? Center for European Integration Studies Working Paper no. B 01. Bonn, Germany: Center for European Integration Studies.
- Orphanides, A., and J. C. Williams. 2002. Imperfect knowledge, inflation expectations, and monetary policy. Washington, D.C.: Board of Governors of the Federal Reserve System. Manuscript, May.
- Romer, C. D., and D. H. Romer. 1989. Does monetary policy matter? A new test in the spirit of Friedman and Schwartz. In *NBER macroeconomics annual 1989*, ed. O. J. Blanchard and S. Fisher, 121–69. Cambridge: MIT Press.
- Saxton, J. 1997. A response to criticisms of price stability. Washington, D.C.: Joint Economic Committee. Manuscript.
- . 2002. Inflation targeting goals for the Federal Reserve. Joint Economic Committee. Manuscript.
- Schmitt-Grohé, S., and M. Uribe. 2002. Optimal fiscal and monetary policy under sticky prices. NBER Working Paper no. 9220. Cambridge, Mass.: National Bureau of Economic Research.
- Schmitt-Hebbel, K., and M. Tapia. 2002. Monetary policy implementation and results in twenty inflation-targeting countries. Central Bank of Chile Working Paper no. 166. Santiago, Chile: Central Bank of Chile.
- Schreft, S. L. 1990. Credit controls: 1980. *Federal Reserve Bank of Richmond Economic Review* 76:25–55.
- Sterne, G. 1999. The use of explicit targets for monetary policy: Practical experi-

- ences of 91 economies in the 1990s. *Bank of England Quarterly Bulletin* 39:272–81.
- Stevenson, R. W. 2002. Oh so quietly: Fed ponders what follows Greenspan. *New York Times*, October 3, sec. C1 and C6.
- Svensson, L. E. O. 1999. Inflation targeting as a monetary policy rule. *Journal of Monetary Economics* 43:607–54.
- . 2001. Independent review of the operation of monetary policy in New Zealand: Report to the minister of finance. Stockholm University, Institute for International Economic Studies. Manuscript.
- Taylor, J. B. 2000. Low inflation, pass through, and the pricing power of firms. *European Economic Review* 44:1389–1408.
- . 1999. Staggered price and wage setting in macroeconomics. In *Handbook of Macroeconomics*, ed. J. B. Taylor and M. Woodford, 1009–50. Amsterdam: Elsevier Science B. V.
- Woodford, M. 2001. Inflation stabilization and welfare. NBER Working Paper no. 8071. Cambridge, Mass.: National Bureau of Economic Research.
- Woodward, B. 2000. *Maestro: Greenspan's fed and the American boom*. New York: Simon & Schuster.

## Comment      Donald L. Kohn

### Introduction

Marvin Goodfriend answers the question in his title with a “yes” and, in the process, has provided us with an excellent foundation for a discussion of inflation targeting in the United States. I completely agree with the fundamental premise that low inflation is an indispensable long-run focus of the central bank. Low and stable rates of inflation allow economies to function more effectively, and having inflation expectations anchored facilitates countercyclical monetary policy and improves the trade-off between output and inflation that policymakers face. For the most part, in a regime of flexible exchange rates, the trend of prices over the long run should be under the control of the central bank, and exercising that control to achieve something approximating price stability over time is the way the central bank can best contribute to the long-run prosperity of its economy.

Marvin builds his case in the first part of his paper by recounting the experience of the United States over the last thirty years or so. I have no quarrel with the overall arc of his story.<sup>1</sup> The rise of inflation from the mid-1960s through the 1970s was highly damaging to the performance of the U.S.

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1. However, I do take issue with his descriptions of several episodes over the period. In particular, see my critique of his discussion of the 1986–90 period.

economy and could have been stopped and reversed much earlier than it was by a determined monetary policy better focused on price stability. The restoration of price stability has taken time and entailed considerable cost to output in the 1979–82 period and, perhaps, some constraint on policy flexibility thereafter. A number of factors have contributed to the reestablishment of price stability, but surely an essential ingredient has been the attention that the Federal Reserve has paid to long-run trends in inflation and inflation expectations since 1979. We are better off now that price stability has been restored and economic agents expect inflation to stay low and stable. Moreover, this stability has been accomplished in the context of a highly successful policy strategy that, by anticipating emerging imbalances and actively leaning against shocks to the financial sector and the real economy, has contributed to two extraordinarily long expansions since 1980.

Marvin argues that to extend this successful policy record the United States should adopt an explicit, numerical target range for inflation and the Federal Reserve should strive to keep inflation in or near that range.<sup>2</sup> However, in my opinion, adopting such an inflation target would not be an effective means for locking in past policy practices. I do not believe that inflation targeting, in any meaningful sense of that term, describes what the Federal Reserve has been doing over the last twenty years, or even in recent years, when Marvin claims that policy has evolved into “implicit” inflation targeting. Instead, the success of U.S. monetary policy has in large part derived from its ability to adapt to changing conditions—a flexibility that likely has benefited from the absence of an inflation target. Nonetheless, the U.S. economy has enjoyed most of the benefits ascribed to inflation targeting in terms of anchoring inflation expectations as well as inflation itself. It is the focus on long-term price stability that has fostered these benefits, and I believe that this focus will not be at risk with a change in personnel at the Federal Reserve. Considering these points, I am skeptical that for the United States the potential benefits of changing to a regime of inflation targeting would outweigh its possible costs. Let me develop my argument.

### **The Federal Reserve Has Not Been Practicing Inflation Targeting.**

One difficulty in assessing whether the United States has been practicing inflation targeting is in defining the term. For more than twenty years, the Federal Reserve has conducted policy with one eye on fostering long-run price stability over time. The law specifies price stability as one of the Federal Reserve’s long-term objectives; its importance to economic performance has been supported by theory and experience, and hence achieving

2. He does not recommend “inflation-forecast targeting,” in which the central bank, to achieve an inflation target, aims at the intermediate objective of an explicit, published, inflation forecast. Consequently, I have not commented on this aspect of many inflation-targeting frameworks.

this objective has been a key influence, together with promoting maximum sustainable output, on monetary policy actions. The Federal Reserve has stated publicly many times that it considers long-run price stability both its unique responsibility and the way it can contribute to maximum growth and employment over time.<sup>3</sup>

Although some might view this policy approach as inflation targeting, this would be a very weak definition. I believe that inflation targeting, as commonly understood and recommended, involves more substance and constraint than this allegiance to achieving price stability over the long run.

As Marvin's discussion suggests, there are two key elements in inflation targeting. First is the announcement of an explicit, numerical, inflation target. The numerical goal is important because putting a number on the objective gives it weight and importance and a focus for accountability—it becomes an explicit yardstick against which to measure performance.

The second element is a priority for price stability in monetary policy. Such a priority usually implies a presumption that the central bank should act to keep inflation at the target (or in the range) within some time horizon—that is, that the central bank would not deliberately allow inflation to deviate from the target and would return it to the target promptly if shocks pushed it away.

I recognize that flexible inflation-targeting frameworks can be derived from structures that minimize the variability of output around potential as well as inflation around its target. But inflation targeting is not usually framed that way in practice. In inflation-targeting countries, either the central bank law or the agreement between the central bank and the government usually is stated so that inflation is expected to be held at the target. To be sure, inflation targeting has not meant that countries have ignored output fluctuations. In many circumstances, especially in response to demand shocks, no conflict exists between stabilizing inflation around its objective and stabilizing output around potential. And some deviations from target, of course, are inevitable and permitted; indeed, inflation targeting has become more flexible over time in many countries. But in practice, the presumption still is that the numerical goal will be hit consistently, with the burden of proof on any deviations—and that presumption must be part of the

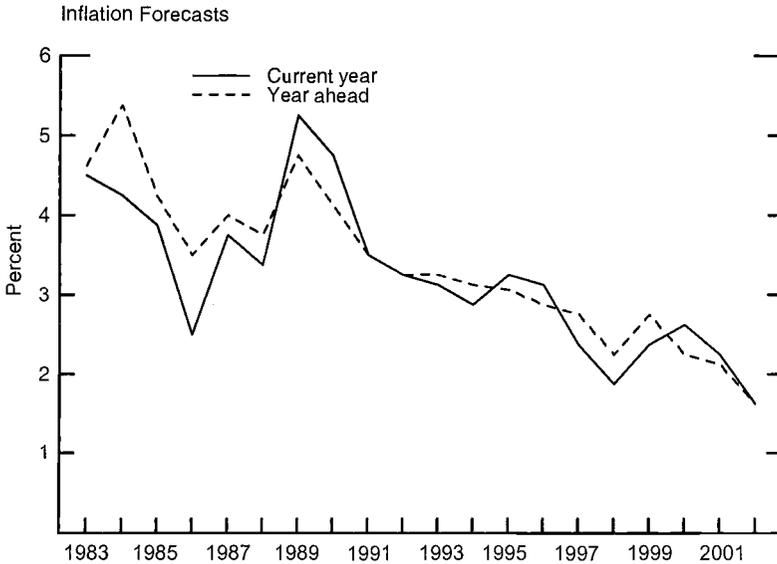
3. In this regard, the Federal Reserve has been very clear on many occasions about its emphasis on achieving long-run price stability. For example, in his monetary policy testimony of July 1992, Chairman Greenspan said, "As I have often noted to this committee, the most important contribution the Federal Reserve can make to encouraging the highest sustainable growth the U.S. economy can deliver over time is to provide a backdrop of reasonably stable prices on average for business and household decisionmaking" (Greenspan, 1992, 675–76). Nearly every monetary policy testimony (and many reports) for the past fifteen years contains similar sentiments and reasoning. Consequently, I do not agree with Marvin's characterization of the Federal Reserve's communication of the importance or priority it places on its long-run price stability objective as "don't ask, don't tell"; the Federal Reserve has in fact been telling the Congress and the public that price stability is its most important long-run responsibility and intention.

mind-set of the policymaker; in most inflation-targeting countries the periodic reports of the central banks are called inflation reports, not inflation and output variability reports. The attitude of policymakers is understandable. Inflation targeting is usually accompanied by elements of accountability linked directly to the inflation target—and to that target alone—and that shapes much of the transparency associated with this framework.

The Federal Reserve is not an inflation targeter in the obvious sense that it has not had an announced inflation target. Nonetheless, it is interesting to ask whether the Federal Reserve has been an “implicit inflation targeter,” as Marvin and others have asserted. That is, has Federal Reserve policy been consistent with the second aspect of the definition above—a priority for placing inflation at its “implicit” target and keeping it there? In my judgment, it has not. This is clearest for policy between 1983 and the mid-1990s, as Marvin acknowledges. Over this period, inflation remained above most definitions of price stability, and the Federal Reserve was not actively seeking to reduce it. This can be seen by the FOMC’s forecasts for inflation reported in the semiannual Monetary Policy Report to the Congress, shown in figure 8C.1. Inflation forecasts for the subsequent year were mostly at or above those for the current year, even though inflation was running well in excess of any reasonable notion of price stability. An inflation-targeting central bank presumably would have been setting policy so that inflation forecasts were moving toward the “implicit” price stability target. The Federal Reserve leaned against potential upticks in inflation, but it had no commitment to achieving price stability in a particular time frame; the priority seemed to be on realizing “maximum sustainable growth” as long as inflation was not rising from moderate levels.

Since the mid-1990s, inflation has been low and stable as measured by the core PCE chain price index—within the range that Marvin has designated as price stability. However, the level and stability of core PCE inflation since 1997 are as much a consequence of unexpected developments as of deliberate policy choices. Importantly, the speedup in productivity growth, even after it was detected, seemed to have greater disinflationary force than anticipated; the broad-based strength of the dollar and the weakness in global commodity prices that accompanied the East Asian crisis that began in 1997 put substantial downward pressure on prices in the United States, and, more recently, the recession and resulting output gap have provided another unexpected source of disinflation. Notably, as can be seen in figure 8C.1, in 1997, 1998, and 1999, the FOMC was projecting an increase in inflation the following year from levels already to the high side of Marvin’s implicit target.<sup>4</sup> And in 2000 and 2001, the FOMC’s projections of total PCE inflation for the year ahead exceeded the 2 percent

4. The level comparisons to Marvin’s target in those years are admittedly ambiguous. Until 2000, the FOMC was projecting total Consumer Price Index (CPI) inflation, not core PCE price movements.



**Fig. 8C.1 FOMC forecasts from Monetary Policy Report**

*Notes:* Measures shown are the midpoint of the range of the central tendency projections reported in the Monetary Policy Report in July of each year. The solid line shows the forecast for inflation in that calendar year; the dashed line shows the forecast made at that time for inflation in the subsequent calendar year. The inflation variable is based on the GNP deflator from 1983 to 1988, the CPI from 1989 to 1999, and the PCE chain-type price index after 1999.

upper end of Marvin's range (see fig. 8C.1). Still, the FOMC took no action to bring inflation down; tightening from mid-1999 through mid-2000 was seen as necessary to forestall a sustained acceleration in prices. It was not until July 2002 that the FOMC projected inflation to remain within the range Marvin takes to be its implicit target.<sup>5</sup>

In addition, at a few key junctures in the past five years, the Federal Reserve exercised a more flexible monetary policy than inflation targeting probably would have suggested or allowed. The first occurred in reaction to the "seizing up" of financial markets that followed the Russian debt default in the late summer of 1998. Although forecasts were marked down at this time, the easing was faster and larger than would have been suggested by Taylor-type rules based on our past pattern of behavior and incorporating an implicit inflation target. In effect, to protect against the potential for a really bad outcome for markets and economic activity, the policymakers raised the most likely outcome for inflation—or at least skewed the risks toward the possibility that inflation would pick up. Similarly, in 2001,

5. Of course, the FOMC might have had higher (implicit) targets than Marvin is suggesting, but a policy regime in which one cannot discern the implicit inflation target over several years is probably not inflation targeting.

easing was unusually aggressive, even before September 11, as the extent of the demand shock gradually revealed itself. To be sure, when one looks back, the outcomes in both instances in terms of stable inflation were not any different from what inflation targeting would have sought. At issue, however, is whether the FOMC would have responded so aggressively to these shocks if it had been constrained by an inflation target. It is a matter of how the central bank is likely to weigh the risks and rewards of various courses of action—where it takes its chances. My sense is that, given the stress on hitting inflation objectives, the pressures of an inflation target would have constrained flexibility that in the end turned out to be useful.

Marvin argues that such flexibility is not critical. His argument is that, in an RBC model with flexible wages, policymakers face no trade-off between stabilizing inflation and the output gap, which obviously bolsters the case for inflation targeting. Unfortunately, though, in thinking about appropriate policy frameworks, we have to leave the comfort of his model for the real world. I think it would be naïve to assume that circumstances would not arise in which the central bank faced short-term choices between inflation stability and economic or financial stability.

### **The U.S. Economy Has Realized the Benefits of Inflation Targeting for Anchoring Inflation and Inflation Expectations without Its Constraints.**

Inflation targeting would benefit the United States if it would help tie down inflation expectations or reduce errors in private-sector inflation forecasts. The former would give the central bank more scope to lean against economic imbalances and result in a more favorable trade-off between changes in inflation and in the output gap than otherwise. Better forecasts would produce more efficient allocation of resources as private agents made decisions about spending and saving, and it would reduce arbitrary redistributions of wealth from inflation surprises.

In general, however, the empirical evidence does not support a conclusion that shifting to inflation targeting would produce such benefits for the United States.<sup>6</sup> In some countries, the adoption of inflation targeting (and the granting of central bank independence, which often occurs at the same time) has helped to reduce inflation expectations. But the countries that have taken this step are often those with a history of high and variable inflation, and it has tended to bring their inflation experience more closely into line with other countries. Since the late 1970s, inflation and inflation expectations have come down in inflation-targeting and non-inflation-targeting countries alike. Studies do not tend to show that inflation-targeting countries have gained an advantage relative to other countries in anchoring inflation expectations and reducing sacrifice ratios or in reduc-

6. See, for example, Bernanke et al. (1999) and Ball and Sheridan (chap. 6 in this volume). All empirical work on this subject is handicapped by the relatively recent advent of inflation targeting and, as a consequence, the paucity of episodes in which to differentiate behaviors in targeting and nontargeting economies.

ing the variance of inflation-forecast errors. Apparently, credibility and predictability flow primarily from achieving low inflation, not from the presence of an announced target. As a consequence, inflation expectations seem to be as well anchored and as accurate in the United States as they are in inflation-targeting countries, despite the absence of a numerical inflation target or specification of “price stability” here.

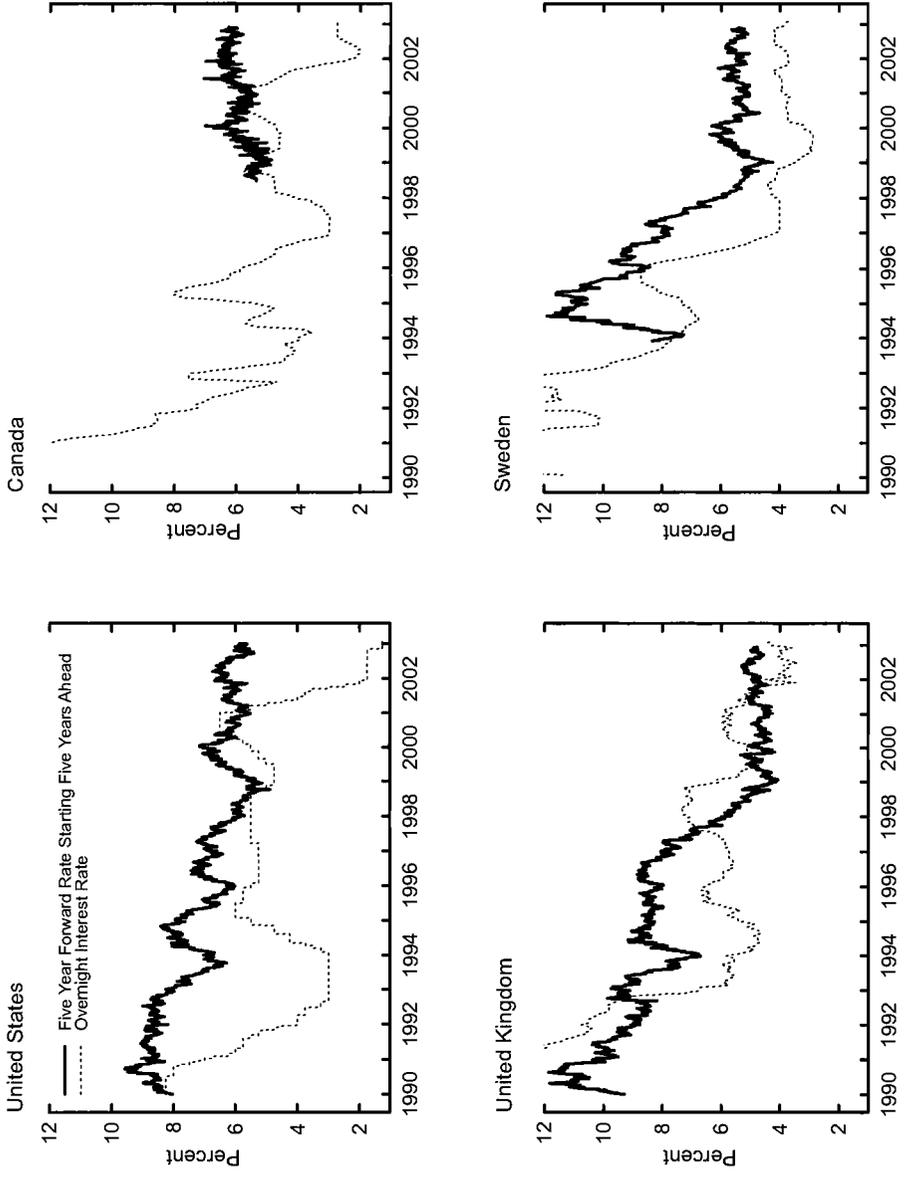
To investigate further whether inflation targeting helps tie down longer-term inflation expectations, I took a closer look at the sensitivity of some measures of such expectations to economic developments in the United States and several other countries. One such proxy is the survey by Consensus Economics, which records the forecasts of economists and other market commentators over various horizons. To measure how firmly long-term inflation expectations are held, I looked at the extent to which long-term forecasts react to changes in short-term forecasts. The three columns of table 8C.1 give the variation in short- and long-term forecasts and the ratio of the two. Column (2) clearly shows that long-term forecasts have varied no more—and perhaps slightly less—in the United States than in inflation-targeting countries, and column (3) indicates that they are also no more sensitive to variations in short-term forecasts in the United States. Apparently, long-term inflation expectations are as well anchored against short-term inflation variations in the United States as in inflation-targeting countries; variations in short-term inflation forecasts do not appear to pass through to long-term forecasts in any of these countries, whatever the policy regime.

Figure 8C.2 shows another proxy for changes in inflation expectations—

**Table 8C.1** Variation in inflation expectations (in hundredths of percentage points)

	Average absolute $\Delta\pi^e$		Ratio (2)/(1)
	Current year (1)	5 to 10 years ahead (2)	
United States			
1990–1995	45	10	0.22
1996–2002	39	9	0.24
United Kingdom			
1990–1995	98	20	0.21
1996–2002	21	15	0.70
Canada			
1990–1995	88	23	0.26
1996–2002	47	15	0.32
Germany			
1990–1995	33	10	0.31
1996–2002	36	13	0.35
Sweden			
1990–1995	n.a.	n.a.	n.a.
1996–2002	51	15	0.29

*Notes:* Table reports semiannual survey measures of inflation expectations from Consensus economics; n.a. = not available.



**Fig. 8C.2 Forward rates in the United States and in inflation-targeting countries**

*Note:* Overnight interest rate is the intended federal funds rate for the United States and the monthly average of a market interest rate for all other countries.

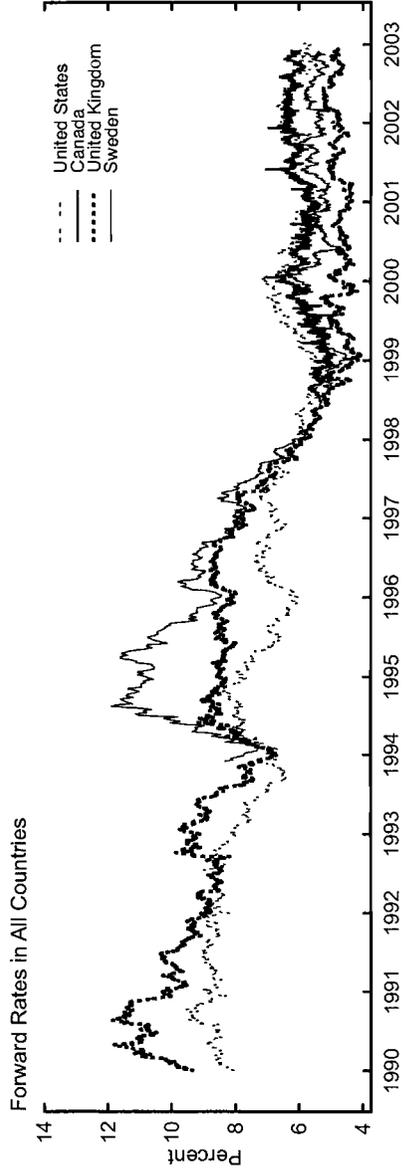


Fig. 8C.2 (cont.)

movements in long-term forward rates derived from the government securities yield curve. These are of particular interest since they are related to the “inflation scares” identified by Marvin, which he defined by sizable increases in long-term interest rates. However, long-term rates are influenced to some extent by anticipated near-term movements in short-term rates, which may not be related to longer-term inflation expectations, and so the use of a long-term *forward* rate in this context is preferred. Even so, these rates, like those used by Marvin, can vary with changes in longer-term expected real rates, resulting for example from changes in the longer-term prospects for fiscal policy or the trend rate of growth in productivity. Thus, these measures are, at best, a rough proxy of inflation expectations.<sup>7</sup>

Since 1990, long-term forward rates in the United States have risen substantially on two occasions—in 1994 and in 1999. Marvin identifies the former as an inflation scare but, for unexplained reasons, not the latter, although the change in the forward rate is no smaller in the second case. In 1994, forward rates rose in all the countries shown. However, inflation targeting was just beginning in Sweden and the United Kingdom and was not well established or, arguably, credible.

In 1999, forward rates also rose in the United States in response to strong economic growth and high levels of resource utilization. But they increased as much in Canada and Sweden, both inflation targeters. The exception is the United Kingdom, whose forward rates have been quite stable in recent years. The behavior of forward rates in 2001 is also instructive. The Federal Reserve eased aggressively—more so than other central banks and more so than might have been expected based on its past pattern of actions. Nonetheless, forward rates behaved similarly in all the countries shown. Judging from this proxy, even without an explicit inflation target, the Federal Reserve could strongly counter a perceived demand shock without significant adverse consequences for expectations.

### **An Inflation-Targeting Framework Is Not Necessary to Lock In Low Inflation in the Future.**

So far I have argued that inflation targeting would not simply replicate existing policy practices, it would not buy credibility or clarity about future inflation prospects, and it would likely reduce the flexibility that has so importantly contributed to the success of U.S. monetary policy. One could still argue that inflation targeting might be worthwhile, though, if its added constraints on central-bank actions were needed to forestall a tendency to backslide toward higher inflation in the future. However, a number of features in the policy environment in the United States already provide considerable protection against such a development.

7. This comparison is also handicapped by the paucity of countries for which yield curves are sufficiently detailed to derive forward rates.

First, the importance of long-run price stability and its appropriateness as an essential long-run goal of monetary policy are widely recognized and acknowledged. Certainly, this objective for the central bank and the limits of its ability to affect long-term trends in income and employment are agreed on within the academic and central-banking communities.

More important, the key role of price stability is also recognized and supported by the public and its elected representatives. Price stability has been a legislated long-term goal of the Federal Reserve since 1977; notably, it was retained in 1978 when the Humphrey-Hawkins Act was passed, despite that legislation's overall emphasis on high employment. The contrast between the economic difficulties of the 1970s and the successes of the 1980s and 1990s has probably contributed to public understanding and support for low inflation. Even when politicians call for easier monetary policy, they usually frame their recommendation in the context that such a policy would still be consistent with keeping inflation low.

Second, the Federal Reserve Act has established an institutional structure for making monetary policy that militates against forgetting or ignoring the lessons of theory and experience or the requirements of the law. Policy is made by a large and diverse committee within a central bank that has substantial insulation from short-term political pressures. In addition, owing to the length of governors' terms and the nature of the Reserve Bank presidents' positions, there has been considerable continuity in the makeup of the FOMC over the years, which has been echoed on the staff level as well. To be sure, the FOMC has tended to operate by consensus under the leadership of the chairman, who exerts a strong influence on the nature of the consensus. But it is a committee, and deference to a new chairman is not likely to be as strong as it has become for the existing chairman, given his record of extraordinary judgment and success over the years. Indeed, a leader whose recommendations seem to be leading to higher inflation would be likely to lose influence rapidly.

Marvin foreshadows and supports his argument that inflation targeting is needed to sustain good inflation performance across leadership shifts by raising the possibility that the "inflation scare" of 1987 was linked to the change in chairmen that year and emphasizing how long the subsequent rise in inflation and inflation expectations took to unwind. Inflation and inflation expectations did rise in 1987, reversing a decline in 1986. Oil and import prices escalated rapidly, likely triggering memories of similar circumstances in the 1970s, and import prices were expected to continue to increase for some time as the dollar corrected its earlier overvaluation. In addition, strong demand was boosting capital and labor utilization rates (see Council of Economic Advisors 1988, 26–28). Consequently, a number of reasons existed for a rise in inflation expectations that were not linked to the leadership change. Moreover, as Marvin notes, inflation expectations had increased a few years earlier and were to do so again in 1989 and 1994,

when leadership change was not in the wind. The rise in underlying inflation and inflation expectations was far smaller and less persistent in the late 1980s than Marvin implies. He cites a jump of more than 2 percentage points from 1986 to 1990 in *total* PCE inflation, but this increase was greatly influenced by movements in oil prices, which fell in 1986 and spiked higher in 1990 because of the invasion of Kuwait. The acceleration in *core* PCE inflation, the measure Marvin recommends be targeted, was one-fourth as much—from 3.93 to 4.39 percent—from 1986 to 1990. The ten-year CPI forecasts of Blue Chip respondents rose from 4 percent in 1986 to 4.5 percent in 1987 but by the beginning of 1990 had reversed that uptick.

Of course, erosion of the weight that the Federal Reserve has placed on long-term price stability is not impossible and would have adverse consequences for inflation and economic performance. Inflation targeting with an explicit political mandate to give long-term price stability priority would make erosion much less likely. But it is not very likely in any event, and I would be hesitant to incur the constraints of inflation targeting until they seemed more necessary.

#### **Even If I Favored Inflation Targeting, I Still Would Have Serious Reservations about the Way Marvin Seems to Propose It Be Implemented.**

Marvin notes several levels on which the Federal Reserve could “make inflation targeting explicit,” differing by their specificity and whether they would hold in the short run as well as in the long run. They range from declaring that inflation in the long run should never vary much on a sustained basis from recent levels to announcing a specific numerical target range for core PCE inflation of 1 to 2 percent and setting policy so that realized inflation would be expected to remain in that range almost always.

To implement explicit targeting, he argues that the Federal Reserve could obtain “congressional acceptance” of a priority for low long-term inflation by offering in exchange to participate in policy forums that would allow outside commentators to voice their opinions and interact with Federal Reserve officials. However, this trade is not likely to have great appeal to congressional skeptics, since they already have the authority to get testimony and analysis from outside observers and critics of monetary policy. Indeed, such hearings used to be a regular feature in the weeks leading up to semiannual monetary policy hearings.

More fundamental is the issue of “congressional acceptance.” Marvin does not specify what he means by this, which is problematic because it could encompass a variety of interactions between the central bank and the legislature. In my view, because the Federal Reserve, appropriately, has limited “goal independence,” it has little scope for announcing a numerical inflation target that would tend to constrain its actions without explicit authorization and direction from new legislation.

The place of an independent central bank in a democratic society is

finely balanced. In exchange for insulation from political pressures, the central bank agrees to strive for the objectives it has been given by the elected representatives. The Federal Reserve has already exercised considerable discretion in interpreting its “dual mandate” of price stability and maximum employment in ways it has made clear in its testimonies and reports. In the absence of legislation, going appreciably further in the direction of prioritizing price stability, as would be implied by a numerical target that was expected to be achieved most of the time, would be potentially damaging to the democratic balance and would risk a backlash. Congress has had several opportunities over the past fifteen years to consider bills proposed by legislators to make price stability the primary goal of the Federal Reserve, and it has not passed them or even given them serious consideration. This statement does not necessarily imply that Congress would oppose such a step if it were asked again—especially if the Federal Reserve were strongly behind the proposal. But it does reinforce the view that it should be asked, and actions to adopt and give priority to numerical inflation targets should await explicit legislative authorization. Moreover, acting without specific authorization would abrogate one of the important advantages of inflation targeting as practiced in most countries—it requires the elected representatives to discuss and reach a conclusion on just what they can and should expect from the central bank.

This point does not mean that there are no steps the Federal Reserve might consider taking within its current mandate to clarify its views on price stability. One such step might be similar to the first level in Marvin’s list—discussing in a general way how recent inflation rates relate to the central bank’s view of price stability. A more specific approach would be to announce a numerical range of a particular index that might be expected to prevail over the long run, but with no change in the Federal Reserve’s relative priorities on price stability and growth (see, e.g., Meyer 2001). To avoid the constraints of inflation targeting, the Federal Reserve would need to be clear that the range did not constitute a firm or presumptive target for inflation over the short or intermediate term and that the range could change in response to shifting assessments of the costs and benefits of particular inflation rates, to improvements in measurement techniques, and to readings from other price indexes that seemed to be conveying different information about underlying price trends.

However, I have some concerns about even such a “soft” inflation target. Placing any number on an inflation objective—however much it would be surrounded with caveats—has the potential to constrain policy in some circumstances in which it would not be desirable to do so. That is, the quantification itself might tend to create a presumption that deviations from the long-run goal would need to be resisted more than would be consistent with the policy flexibility exercised over the past twenty years. And I would be hesitant to proceed down this path without some kind of explicit con-

gressional acceptance. Congress might in fact perceive that the weight on its legislated goals had been changed, without its approval. If, partly as a consequence, it demanded that the Federal Reserve also quantify “maximum employment” or “maximum sustainable growth” and give weight to those specifications, policy could be adversely affected. As we have seen so graphically in the last several years, assessments of the level and growth of potential GDP must be revised frequently, and of course these variables are not under the control of the central bank. As I noted earlier, markets seem no less certain of the path for inflation in the United States than in many of those countries with numerical inflation targets, and so the gains from putting numbers on “price stability” are likely to be limited.

## References

- Bernanke, B. S., T. Laubach, F. S. Mishkin, and A. S. Posen. 1999. *Inflation targeting: Lessons from the international experience*. Princeton, N.J.: Princeton University Press.
- Council of Economic Advisors. 1988. *Economic report of the president*. Washington, D.C.: Government Printing Office.
- Greenspan, Alan. 1992. Statement before the Committee on Banking, Housing and Urban Affairs, U.S. Senate, July 21, 1992. *Federal Reserve Bulletin* 78 (September): 673–78.
- Meyer, L. H. 2001. Inflation targets and inflation targeting. *Federal Reserve Bank of St. Louis Review* 83:1–13.

## Discussion Summary

*Laurence Meyer* suggested as a framework for thinking about Goodfriend’s and Kohn’s positions a two-by-two matrix with implicit versus explicit numerical inflation target in the columns, and dual versus hierarchical mandate as rows. The common interpretation of inflation targeting would thus be the bottom right element—an explicit inflation target with a hierarchical mandate. Meyer had instead suggested in the past the upper right element—an explicit inflation target with a dual mandate that would preserve the flexibility to respond to output fluctuations as well. Kohn seemed to suggest that this was impossible to do.

*Lars Svensson* proposed that, even without announcing an inflation target, the Federal Reserve could publish inflation reports with inflation forecasts up to three years ahead, which would allow the public to infer what rate of inflation it was aiming for.

*Frederic Mishkin* disagreed with the view that the Federal Reserve’s response to events in 1998 and 2001 would have been different had there been an explicit inflation target. He suggested that in situations of this kind the

Fed should mention in its statements deflationary risks instead of using language related to economic weakness. His main concern was to ensure that a nominal anchor was in place by the time that the current chairman left office, but a unilateral announcement by the Federal Reserve of an inflation target risked an undesirable reaction of Congress.

*Mervyn King* emphasized the responsibility of central banks to communicate to the wider public the importance of price stability as an objective for monetary policy, and the constraints that this objective imposes on the conduct of monetary policy. An argument for an inflation target was that it made explicit these constraints.

*Stephen Cecchetti* suggested that policy making by committee such as the FOMC would be improved by having agreed-upon objectives. Once the objectives had been agreed upon, they should be communicated to the public for both transparency and accountability. It was incumbent on those who took exception to inflation targeting to produce alternative objectives.

*John Berry* questioned whether, given the approval in Congress of the Fed's conduct, there was any support in Congress for changing the Federal Reserve's objectives. Neither were recent administrations involving themselves in a debate about the objectives for monetary policy. He also suggested that there was little support for an announced numerical target for inflation within the FOMC.

*Martin Feldstein* pointed out that both Paul Volcker and Alan Greenspan had mentioned in public speeches practical definitions of price stability, and that the inflation expectations derived from long-term interest rates suggested that market participants believed the Fed was committed to price stability in the long run.

*Athanasios Orphanides* expressed concern about the degree of flexibility inherent in the Fed's current operating regime. He pointed out that Arthur Burns had been a chairman with as excellent qualifications as the chairmen after him, and yet mistakes were made that led to the great inflation. It was therefore important to search for refinements to the current procedures that would prevent a repetition of past policy mistakes, and inflation targeting might be such a refinement.

*Laurence Ball* proposed to combine inflation targeting with the concern for flexibility expressed in Kohn's comments by having an extended list of caveats, such as financial crises, similar to the current practice of the Reserve Bank of New Zealand, such that deviations from an inflation target are admissible when specific events occur.

*Bennett McCallum* suggested exploring the possibility of explicit, but not quantitative, targets, such as the definition of price stability used by Alan Greenspan. Performance with respect to such a definition could be measured by looking at long-term inflation expectations.

*Ben Bernanke* agreed with Meyer's suggestion that a dual mandate was

the only sensible choice, albeit one that put a large weight on inflation control. He expressed concern with the lack of communication between the Fed and the public, and he suggested that the Fed could use its resources to provide more information to the public about its outlook for the economy.

In response to Kohn's comments, *Marvin Goodfriend* argued that his proposed policy forum would provide the Fed with flexibility in the short run through improved transparency and public understanding of its policy. In response to Meyer, Goodfriend said that he did favor making the long-run inflation target explicit and encouraging the Fed to target inflation within the long-run range in the short run. But Goodfriend also favored allowing the Fed to take employment into account in the short run if inflation is inside the long-run target range, and even if the Fed is trying to work inflation back inside the range after a shock.

*Donald Kohn* emphasized that the large number of FOMC members complicated communication with the public enormously. In response to Ball's suggestions, he expressed the view that caveats had a tendency of being ignored, so that the announced numerical target could well assume more importance, and be perceived as more unqualified, than was intended.