

ECONOMIC COMMENTARY

Federal Reserve Bank of Cleveland

A Monetary Policy Paradox

by Charles T. Carlstrom

One of the most difficult tasks faced by any central bank is explaining to the public the role that interest rates play in the conduct of monetary policy. The common understanding is that the Federal Reserve fights inflation by acting to raise short-term interest rates. But as pointed out by economist Irving Fisher many years ago, reduced inflation is associated with lower, not higher, rates of interest.

The key distinction between these two views, of course, lies in the short-run versus the long-run level of interest rates. However, the transit to the long run depends crucially on private expectations, which in turn depend on how the public perceives particular decisions in the short run.

This issue is of great practical importance. By the end of the 1970s, inflation was hovering around 13 percent. With the announcement on October 6, 1979, of the switch from interest-rate targeting to nonborrowed reserves targeting, U.S. monetary policy adopted a strong anti-inflationary stance. The new approach was successful in that inflation was cut to around 4 percent by the end of 1983. During this same period, however, the economy suffered twin recessions.

Many, if not most, economists attribute the losses in jobs and output to slowly adjusting inflation expectations.

A debate is now under way about whether another monetary policy revolution is needed. The argument this time focuses on whether the Federal Reserve

should pursue price stability. Like the last battle, the new one could also prove costly unless the Fed can credibly signal its commitment to price stability and then follow that policy relentlessly.

This *Economic Commentary* explores the paradoxical link between interest rates and inflation in the short versus the long run. It may be more difficult for a central bank to achieve credibility — and hence a less costly transition to a stable price environment — without first making the monetary authorities accountable for publicly stated multiyear objectives for the price level.

■ Inflation and Monetary Policy

Years ago, Milton Friedman issued his now-famous maxim that inflation is always and everywhere a monetary phenomenon.¹ This statement is as true today as it was three decades ago. Of course, every blip in the Consumer Price Index is not caused by Federal Reserve policy. Supply shocks, such as the oil shock in the mid-1970s, can lead to short periods in which the price level rises rapidly. But continuous increases in the price level can occur only if the central bank accommodates such shocks with faster money growth.

This sounds simple enough. One can see why Friedman once called for the Fed to set the growth rate of money at 3 percent per year (the long-run growth rate of output), declare the battle over, and go home. Alas, life is not that simple. It is doubtful that a constant money growth rule would be sufficient to achieve a

Central banks wishing to pursue price stability must deal with the paradox that reducing inflation today requires raising short-term interest rates, even though price stability can ultimately be sustained only with lower, not higher, rates of interest. Without a long-term objective, such as a multi-year path for the price level, it may be extraordinarily difficult for a central bank to signal its resolve to stabilize prices.

long-run price-level target, and even when particular money growth ranges are desired, such targets are typically sought via changes in short-term interest rates.

Interest-rate operating procedures are uniformly used by the world's central banks for a variety of reasons, but many economists believe it is desirable to smooth short-term interest-rate fluctuations arising from the temporary liquidity needs of the financial sector. Since people are unable to adjust their portfolios quickly in response to various shocks to the economy, the central bank should jump in and supply the needed liquidity by adding enough reserves to smooth interest rates.

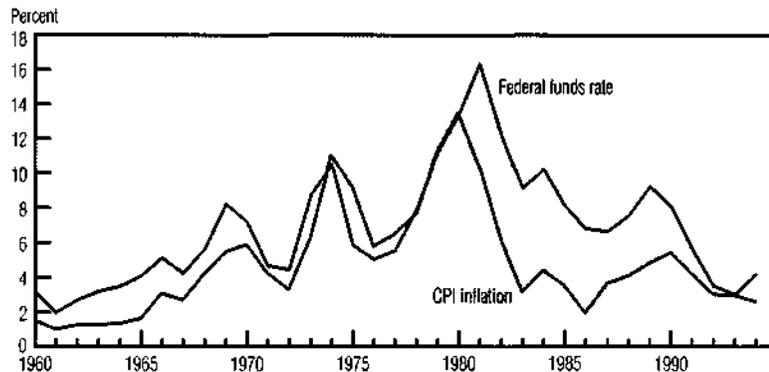
In the United States, the interest rate used to conduct monetary policy is the federal funds rate — the rate that banks charge each other for overnight loans. As with other central banks, the Federal Reserve does not directly control the money supply. Rather, it varies the supply of bank reserves to achieve its funds-rate objective. Under an interest-rate operating procedure, money growth, which determines the price level and thus the purchasing power of money, is endogenous.² To understand how monetary policy affects both short- and long-run price-level movements, it is necessary to understand the relationship between interest rates and money growth.

■ Money Growth and the Funds Rate: The Long and Short of It

According to conventional wisdom, interest-rate hikes are supposed to fight inflation. The mechanism by which these actions operate in the short run is straightforward: Increases in the funds rate lead to slower money growth. Slower money growth should in turn lead to lower inflation.

But what about in the long run? One of the strongest correlations in economics is the positive relationship between inflation and nominal interest rates (see figure 1). In light of this, and given that monetary policy operates via interest rates, it seems fair to ask whether the

FIGURE 1 CPI INFLATION AND THE FEDERAL FUNDS RATE



SOURCES: Board of Governors of the Federal Reserve System; and U.S. Department of Labor, Bureau of Labor Statistics.

seeds of future inflation are being planted with interest-rate hikes that must ultimately be supported by excess money creation.

As pointed out by economist Irving Fisher, nominal interest rates, like the fed funds rate, contain both a real rate and an inflation premium. In general, the higher the inflation premium, the higher are nominal rates. In the long run, then, higher nominal interest rates do in fact accompany higher inflation.

Thus, we are left to contend with a paradox: Although higher federal funds rates may be associated with an anti-inflationary policy in the short run, lower inflation will ultimately be reflected in lower interest rates. The key to understanding this puzzle is the critical role played by inflation expectations.

In the near term, because inflation expectations are fixed, a higher funds rate can be supported by increasing the real (inflation-adjusted) funds rate via slower money growth. In the long run, however, the Fed has little or no effect on real economic variables — and hence on real interest rates. This means that over the long term, a high funds rate can be supported only with faster money growth and increased inflation expectations. Thus, an interest-rate hike that is not rescinded once the economy fully adjusts to it can in fact cause higher long-term inflation. Figures 2 and 3 show that although there is a weak negative relationship between changes in the

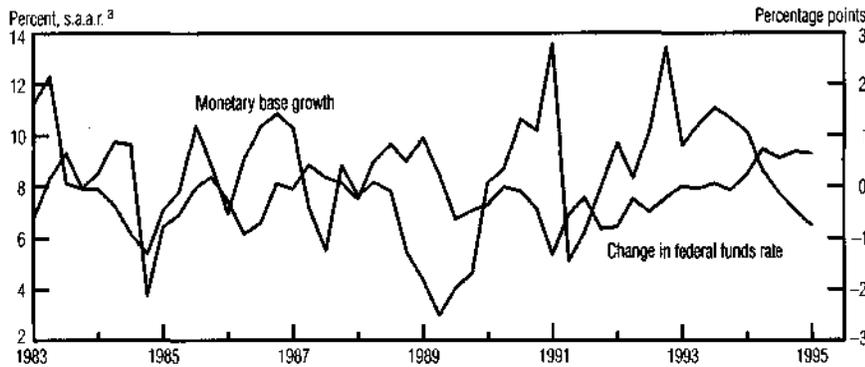
funds rate and monetary base growth over a quarterly frequency, over the long run a positive relationship exists.

The line of demarcation between the short run and the long run is not a fixed period like one day, one year, or even one decade. Rather, it is crucially related to the amount of time it takes for expectations to adjust. This adjustment period — that is, how long the “short run” lasts — is ultimately an empirical issue. However, the tight relationship between the funds rate and inflation suggests that the long-run correlations noted by Irving Fisher are apparent in the data.³

■ Interest Rates and Credibility

The seeds of the paradox are now sown: What should a central bank do if it wishes to reduce inflation and pursue price stability? Complicating this issue is the problematic nature of the signals that particular funds-rate decisions give about the Fed's overall objective. While increasing the funds rate may result in slower short-term money growth and hence in lower short-term inflation, it may be a poor way for a central bank to signal its resolve to pursue price stability. Eventually, a lower, not higher, funds rate will be necessary to support price stability. But failing to raise the rate may be just as unlikely to signal the Fed's resolve to cut inflation. An unchanged funds rate in the face of increasing market interest rates may fuel short-term inflation and make it difficult for the Fed to convince the public that it is serious about controlling inflation over the long term.

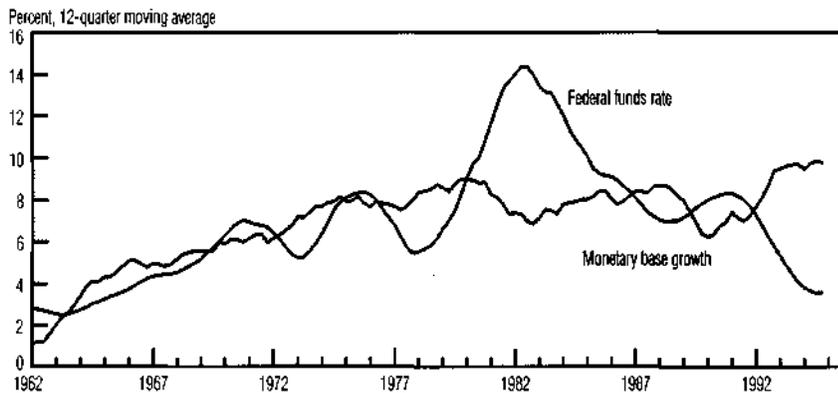
FIGURE 2 MONETARY BASE GROWTH AND CHANGES IN THE FEDERAL FUNDS RATE



a. Seasonally adjusted annual rate.

SOURCE: Board of Governors of the Federal Reserve System.

FIGURE 3 MONETARY BASE GROWTH AND THE FEDERAL FUNDS RATE



SOURCE: Board of Governors of the Federal Reserve System.

Whether increases in the funds rate can adequately signal a central bank's resolve to lower long-term inflation depends on what people expect future monetary policy to be. When the Fed raises the funds rate, do people expect that four years into the future the rate will be higher or lower than it otherwise would have been?⁴ This is a hard question to answer empirically, but to believe that a higher funds rate signals lower long-term inflation is to believe that it also signals a lower long-term funds rate. If people actually expect the funds rate several years hence to be higher following a funds rate hike, the cost of achieving price stability will be unnecessarily steep. This is because

the rate hike may be successful in slowing short-term inflation, but will actually increase the market's expectations of longer-term inflation.

So how should an inflation-conscious central bank proceed? The answer obviously depends on whether one believes that increases in the fed funds rate can, in and of themselves, credibly signal a change in the long-term inflation rate. The paradox discussed in this section points out in a particularly stark manner what the market must believe about the course of future fed funds decisions if it is in fact to believe that long-term inflation expectations will fall when short-term interest rates are raised.

Even if one believes that interest-rate hikes lower long-term inflation expectations, the monetary authorities still face a difficult task. The funds rate must be raised today to fight inflation, then brought back down in the future as inflation expectations adjust. If the Fed usually decreases the funds rate before expectations have adjusted, inflation will rise, partially undoing the inflation-fighting signal sent by the initial rate hike. Yet, paradoxically, consistent failure to decrease the funds rate after expectations have adjusted can also increase inflation. After expectations have fallen into line, a high fed funds rate can be supported only via faster money growth.

■ A Possible Course for Monetary Policy

A monetary authority that wishes to pursue price stability has its job complicated enormously both by the seeming paradox that lowering interest rates in the long run may require raising them in the short run, and by the subtle but important role that near-term funds-rate decisions play in the formation of private expectations. Consequently, more fundamental changes may be required than simply adjusting the short-term funds rate. A sensible place for an inflation-conscious central bank to start is to adopt publicly announced multiyear paths for the price level.

This institutional change would likely mitigate the dilemma discussed in the previous section. The goal is to get people thinking about monetary policy in terms of objectives rather than as a series of short-term interest-rate changes. Without long-term goals, a person's best guess of the federal funds rate one year hence is likely to be dominated by the current rate. In the absence of explicit guidelines, history serves as our only teacher.

Multiyear price-level commitments would help people see short-term hikes in the funds rate in a different context. A rate increase today would necessarily be viewed as a temporary measure taken to

meet tomorrow's long-term policy goals, ending the contradictory signals that people now must deal with when trying to predict future policy on the basis of current actions.

Undoubtedly, this change alone would not magically give central bankers the credibility they need to minimize the costs of disinflation. Without such a commitment, however, short-term increases in the funds rate are less likely to signal a central bank's seriousness about achieving long-term price stability. This is especially true when such hikes, if left unchanged, are consistent with higher long-term inflation. Multiyear price-level paths are therefore a potentially important first step in reducing the costs of disinflation and will likely improve any cost/benefit calculation.

■ Footnotes

1. See Milton Friedman, "Inflation: Causes and Consequences," in *Dollars and Deficits*, Englewood Cliffs, N.J.: Prentice-Hall, 1968, p. 39.

2. The fed funds rate target may be set in order to achieve a particular money growth objective, in which case money growth is at least partially controlled by the central bank.

3. Some argue that the positive relationship between inflation and the funds rate exists because the Federal Reserve chooses to fight inflation by raising the funds rate during inflationary periods. I believe that in all likelihood, both mechanisms are operating.

4. I arbitrarily chose four years to convey an interval in which people's expectations of the real funds rate at the end of the period are independent of whether short-term interest rates are raised today.

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