FRBSF Weekly Letter

July 14, 1989

What Makes a Central Bank Credible?

Economists have noted that there is a tradeoff in the short run between inflation and employment, in the sense that a central bank's pursuit of disinflationary policy frequently entails a temporary decline in employment and output. However, the magnitude of this tradeoff varies from country to country. For example, following the second oil-price shock in 1979, Japan's central bank, the Bank of Japan (BoJ), restored price stability quickly without engendering a recession, while in the United States, the Federal Reserve was able to bring inflation under control only after several years and two back-to-back recessions.

What accounts for this difference in the way the Japanese and American economies responded to disinflationary monetary policies? Economists suggest that it has a lot to do with central bank credibility. Credibility means that the public quickly adjusts its expectations concerning future policy in response to the announcement of a change in policy, or to policy actions that suggest a new policy stance. Thus, a central bank with "credibility" can announce a new disinflationary monetary policy and quickly achieve a lower inflation rate without a prolonged economic downturn because the public expects it to follow through with its new policy long enough to be successful. Consequently, wage and price increases moderate quickly.

In contrast, when a central bank with little or no credibility pursues a disinflationary policy, the public is much more skeptical about the central bank's determination to fight inflation. As a result, inflationary expectations decline only gradually.

In practice, it is not clear how a central bank makes its policies credible. Some observers argue that the *procedures* followed by the central bank in formulating and implementing monetary policy play an important role. Others argue that establishing a systematic *record* of successful action against inflation is more effective. This *Letter* evaluates these arguments in light of the BoJ's experience, and concludes with some observations on Federal Reserve credibility.

Central bank behavior

In general, the impact of a change in monetary policy is not felt immediately. In the United States, for example, it takes about six months for a change in policy to affect the pace of economic activity, while the lag from policy actions to inflation is about 18 to 24 months. Such lags make it difficult for the public to determine when a change in monetary policy has occurred and whether the new policy is being pursued successfully. The central bank's credibility, or lack thereof, will determine the speed with which the public adjusts inflation expectations in response to a new policy stance and ultimately, the extent to which employment and output will be affected by a change in policy.

Economic theory can provide insights into the way central banks make their policies credible. Economists Allan Meltzer and Alex Cukierman have developed a model that defines credibility as the speed with which the public recognizes that a change in policy has occurred based upon observed policy actions. The faster these expectations adjust, the higher is credibility, and the lower are the costs of disinflation. Conversely, slow adjustment implies low credibility and means that disinflation will be more costly.

When expectations are formed "rationally," this speed of adjustment, and hence credibility, is determined by: 1) the frequency with which the central bank's objectives have changed in the past, 2) the extent to which the central bank has displayed a preference for long-run inflation control over short-run output gains, and 3) the precision with which the central bank controls its target variable (assumed in this model to be the money supply).

The first factor, the stability of the central bank's objectives, is important in determining how much significance the public will attach to an apparent change in policy actions. A central bank's objectives may change over time for many reasons, including, for example, a change in the composition of the central bank's decision-making body, or an unexpected development such as a stock-market crash. However, frequent changes in these objectives will make the central bank's policies less credible since the public will not see current policy actions as good indicators of future policy actions.

The second factor that influences credibility is the relative importance the central bank attaches to each of its various objectives. In the model developed by Meltzer and Cukierman, central banks prefer both low inflation and rapid output growth. However, in the long run, central banks cannot control the level of output, which is determined by underlying supply conditions. Thus, if central bank policy causes output to rise above trend today, output must fall short of this trend at some point in the future. Prices, on the other hand, can be permanently affected by central bank policy.

The policies a central bank pursues depend upon which of these two objectives it considers more important. Thus, a central bank that considers rapid output growth relatively more important will tend to seek short-run gains in the pace of economic activity, even though these gains will tend to cause prices to rise in the long run. For such a central bank, a disinflationary policy will not be particularly credible since the public will expect it to swerve from its course to seek short-run output gains.

In contrast, a central bank that considers low inflation more important will tend generally to forego opportunities to push output temporarily above its full-employment level, since this would mean higher inflation in the long run. It consistently will implement an anti-inflationary stance, and its policies will be highly credible.

Announcements
Credibility also may be enhanced when the central bank decides to announce monetary targets to the public. Announcing monetary targets reduces the public's uncertainty about the central bank's objectives and thus enhances credibility.

However, the way the central bank responds to deviations in the money supply from target depends on the central bank's preference for low inflation versus high output. A central bank that places a heavy weight on inflation control will announce more precise monetary targets and be more apt consistently to meet those targets than will a central bank that places greater weight on short-run output gains.

Clearly, the former will be the more credible of the two central banks. However, it probably would be highly credible even if it did not announce targets, since it would have achieved credibility through its actions. In this case, deciding to announce targets may not significantly enhance an already high level of credibility.

Bank of Japan
The BoJ is among the world's most credible central banks, and typically, this is cited as an important reason for its success in taming inflation without losses of output and employment. As noted above, it avoided a recession during the second oil shock in 1978-79—in contrast to every other major industrial country—and, at the same time, quickly restored price stability.

The seemingly low cost of fighting inflation in Japan has not always been the case, however. Following the first oil shock in 1973, the BoJ immediately tightened monetary policy and raised interest rates. The result was a substantial recession, the largest and longest drop in output growth that Japan has experienced in the postwar period. Some have argued that an increase in BoJ credibility is the cause of the more favorable inflation/employment tradeoff in the period following this episode. But what accounts for that enhanced credibility?

In July 1978, the BoJ began to announce projections for broad money growth on a quarterly basis. A number of academic economists and journalists have cited the accuracy with which these targets have been met as one important reason for the high credibility of the BoJ. However, a closer look casts doubt on the significance of this factor as a source of credibility. First, the projections for money growth cover four quarters ending one quarter ahead; that is, the projections average three quarters of actual money growth and only one quarter of projected money growth. When transformed into true one-quarter-ahead projections, the money projection errors are about four times larger than at first they appear, and are roughly the same size as the errors made by the Federal Reserve in comparable one-quarter-ahead projections.

Second, the base for the new projection each quarter is the actual level of M2 + CDs three quarters earlier. This permits so-called full "base drift" in the monetary range each quarter. The Fed has been criticized heavily for permitting base drift (although it does so only once per year), because this approach "forgives" past misses. Thus, the BoJ's implicit use of base drift each quarter most likely has not contributed to the credibility of its monetary announcements.

Third, BoJ officials have noted repeatedly that monetary announcements should not be interpreted as targets, but rather as projections. This is an important distinction because it affects how monetary policy is conducted in the face of deviations of money from its range. The announced money range simply represents the BoJ's best guess about the most likely path for money, given its projections for income and prices and its planned policy actions, which are defined in terms of short-term interest rates. A deviation of money from its projected range would not necessarily elicit a policy response.

Thus, it is unlikely that the change in monetary control procedures in 1978 can account for the increase in the BoJ's credibility. Rather, that credibility appears to have been earned through performance. Although initially it may not have been viewed as entirely credible, the BoJ demonstrated its resolve to fight inflation by quickly and decisively reacting to the first oil price shock. Money growth was lowered to 11% in 1974—less than half its rate in the previous year—and interest rates were raised by almost 10 percentage points, the largest increase among the major industrial countries. At the same time, the switch in the BoJ's policy objectives toward price stability became apparent. Although the 1974-75 recession in Japan was very costly in terms of lost employment and output, by the middle of 1975, the inflation rate was below double digits and has continued falling since then. Japan now consistently ranks among the lowest inflation countries in the world. The result is that firms and unions recognize the fundamental shift in the BoJ's policy objectives, which have been pursued very consistently for more than a decade.

Federal Reserve

The Federal Reserve's experience in the 1980s also seems consistent with the view that results, not procedures, are what count for credibility. In the early 1980s, the Fed instituted a new reserves-oriented monetary-control procedure designed to gain better control of the monetary aggregates. Nonetheless, inflation fell from double-digit rates to around four percent only after two back-to-back recessions. If the new control procedures had enhanced the Fed's credibility, one might expect to see a lower inflation/employment tradeoff during this episode than that which had prevailed in the 1970s. However, studies, such as the one by economist Benjamin Friedman, have concluded that the tradeoff during the early 1980s is statistically indistinguishable from that in the 1970s, when Fed policy operations focused much more on interest rates.

In recent years, the Fed's credibility has improved considerably, largely because the Fed has been willing to stick to an anti-inflation policy since early in the decade. The U.S. economy has benefited from this enhanced credibility. In the past two years, monetary policy has tightened significantly, as suggested by substantial rises in short-term interest rates and the associated slowdown in the growth of the monetary aggregates. Yet this rise in short rates has had little effect on long-term interest rates. According to surveys conducted by Drexel Burnham Lambert, it appears that financial decision makers' longer-term inflation expectations have declined over time, and this has helped to keep long-term interest rates from rising. (See this *Letter,* March 10, 1989.) Inflation expectations have continued to moderate steadily as the Fed has maintained relatively low rates of inflation for the past six years.

Again, it appears that results, not procedures, count for central bank credibility. It is through results that a central bank has its best chance to demonstrate that, indeed, it places sufficient emphasis on inflation control in its policy decisions to be a credible inflation fighter.

Michael Hutchison
Visiting Scholar, FRBSF
and Assistant Professor
University of California,
Santa Cruz

John P. Judd
Vice President and
Associate Director
of Research

Research Department

Federal Reserve
Bank of
San Francisco

P.O. Box 7702
San Francisco, CA 94120