Inflation, Financial Stability, and Economic Growth

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The Federal Reserve Act as amended in 1977 directs the Federal Reserve to pursue monetary policies to achieve the goals of "maximum employment, stable prices, and moderate long-term interest rates." The Federal Reserve and all central banks have also long been expected to promote financial stability. Since the 19th century, central banks have been expected to serve as lender of last resort to the banking system.

The goals of maximum sustainable employment and economic growth, stable prices, moderate interest rates, and financial stability are too often viewed as incompatible with one another. Conventional wisdom holds, for example, that if monetary policy is too focused on controlling inflation, then output and employment growth will likely fall below their potential and financial markets will be less stable than they otherwise could be.

Today, I will elaborate on how I see inflation, financial stability and economic growth fitting together in a coherent framework for monetary policy. I do not subscribe to the conventional wisdom. Neither events nor economic theory support the notion that a monetary policy directed toward price stability will result in a less stable financial system or an underperforming real economy. Rather, in my view, price stability, financial stability and economic growth are mutually consistent goals for monetary policy. Further, I believe that price stability must be the paramount objective for monetary policy because without price stability, the goals of maximum employment, moderate interest rates and financial stability will be more difficult, if not impossible, to achieve.

I'll discuss evidence from both recent and not-so-recent history that support my contention that a sound monetary policy—that is, committed firmly to long-run price stability—is conducive to financial stability and economic growth. Some of this evidence is not pretty—it shows how an unstable price level can wreck a financial system and harm the real economy.

Before proceeding, I want to emphasize that the views I express here are mine and do not necessarily reflect official positions of the Federal Reserve System. I thank my colleagues at the Federal Reserve Bank of St. Louis for their comments, especially David C. Wheelock, assistant vice president in the Research Division, who provided special assistance. However, I retain full responsibility for errors.

SOUND MONETARY POLICY

I'll begin by outlining the essence of sound monetary policy and why I believe that sound policy is a prerequisite for financial stability and maximum economic growth. The foundation of a sound monetary policy is long-run price stability. By "price stability" I mean a low and stable rate of inflation. I believe that the optimal rate of inflation is zero, properly measured. However, biases in price indexes imply that, in practice, price stability will likely be consistent with a small positive measured rate of inflation. These biases arise from the difficulty of capturing

improvements in the quality of goods and services, as well as substitutions among products that comprise consumers' total purchases. Differences in how price indexes are put together imply that the specific rate of inflation that is consistent with price stability will likely vary across countries and over time. For the United States, I'll hazard a guess that zero true inflation translates to an annual rate of increase in the CPI of about 1 percent and in the broader price index for personal consumption expenditures of about 0.5 percent.

By price stability, I do not mean that the price index is constant. Monetary policy could never eliminate high-frequency movements in the inflation rate; nor should policymakers try to do so. Price stability means that inflation is sufficiently low and stable as not to influence the economic decisions of households and firms. When inflation is low and reasonably stable, people do not waste resources attempting to protect themselves from inflation. They save and invest with confidence that the value of money will be stable over time.

A highly predictable financial environment not only requires a low and stable rate of inflation but also widespread understanding of how that objective stated in general terms translates into day-by-day monetary policy actions. Speaking again in the U.S. context, it is more important that policymakers agree on some relatively low target rate of inflation than exactly on what that rate is. A number of FOMC members have spoken about a "comfort zone" of 1 to 2 percent inflation, measured by the PCE price index excluding food and energy—the so-called "core" inflation rate. That statement is fully acceptable to me.[1] My way of stating my comfort zone is core inflation of 1.5 percent per year, plus or minus a range of 0.5 percent to allow for unavoidable short-run fluctuations. My statement is meant to indicate that I would like monetary policy to aim at 1.5 percent core inflation and not just accept inflation barely inside one end or the other of a 1 to 2 percent range. As an aside, I would note that U.S. monetary policy has come a long way over the past 20 years, as indicated by the fact that I think it worthwhile to talk about the difference between a goal of 1.5 plus or minus 0.5 percent versus a goal of 1 to 2 percent inflation.

In a market economy, consumers and firms base their consumption and investment decisions on information derived from prices, including asset prices and returns. Efficient allocation of economic resources depends on the clarity of signals coming from the price system and, I might add, the clarity of signals from governments and central banks about economic policy. Uncertainty about the aggregate price level muddies the waters by making it difficult for firms and households to determine whether changes in individual prices reflect fundamental shifts in supply and demand or merely changes in the overall rate of inflation. By eliminating this uncertainty, a monetary policy that is committed to long-run price stability eliminates a potential drag on the efficient allocation of resources and, hence, on economic growth.

Long-run price stability contributes to financial stability in a similar fashion. An unstable price level can lead to bad forecasts of real returns to investment projects and, hence, to unprofitable borrowing and lending decisions. Unexpected bouts of inflation, for example, tend to encourage optimistic forecasts of real returns. Errors in distinguishing nominal and real returns result in misallocation of resources and eventually to financial distress that would not have occurred if the price level had been stable. Business decisions based on expectations of continuing inflation often turn out badly when inflation falls, resulting in higher rates of loan defaults and business failures. Outright deflation is particularly notorious because a falling price level increases the real cost of servicing outstanding debt.

[1] And has been for a long time. For a relatively recent example, see William Poole, "The Monetary Policy Model," National Association of Business Economics Annual Meeting (NABE), Boston, Massachusetts, September 11, 2006 [http://www.stlouisfed.org/news/speeches/2006/PDF/09_11.pdf].

Long-run price stability is the most powerful tool the central bank has to promote economic growth, high employment and financial stability. Price stability also enables monetary authorities to pursue secondary objectives. Worthwhile secondary goals for monetary policy include the reduction of fluctuations in real economic activity and the management of financial and/or liquidity crises. I refer to these as secondary goals because the central bank is unlikely to be successful at limiting fluctuations in economic activity or containing financial crises in the absence of price stability. The reason is that, in the absence of entrenched market expectations of long-run price stability, based on a high degree of confidence in the central bank, expansionary monetary policy actions risk raising inflation expectations rather than cushioning an economic or financial disturbance. Price stability must therefore be the principal goal of policy. A central bank that invests in achieving credibility will find that market confidence yields a very high rate of return.

The Federal Reserve has faced a number of challenges in recent history, including liquidity shocks associated with the Asian financial crisis and Russian government bond default in 1998, and the terrorist attacks of September 11, 2001. The Fed's ability to respond quickly and decisively to the extraordinary demands for liquidity during these events was enhanced by the fact that inflation was low and expected by the public to remain low. The public understood that in providing additional liquidity during the crises the Federal Reserve was not giving up on its pursuit of price stability over the long term.

Low inflation and contained inflation expectations have also enhanced the Federal Reserve's ability to react effectively to business cycle fluctuations. The Fed eased aggressively to encourage economic recovery from the 2001 recession. Because the public had confidence in the Fed's commitment to price stability, we were able to bring the target federal funds rate to its lowest level in 40 years without triggering widespread fears of higher inflation. If expected inflation had risen as the Fed brought rates down, long-term interest rates would likely have risen and hampered efforts to encourage economic recovery. Hence, price stability made the Fed's actions more effective than they otherwise would have been.

LESSONS FROM U.S. ECONOMIC HISTORY

Whereas recent experience supports the view that price stability contributes to financial stability and economic growth, there is no shortage of evidence that an unstable price level leads to financial instability and a poorly performing real economy. Sadly, history is full of examples where mismanaged monetary policy resulted in financial instability and serious disruption of economic activity. The experiences of the United States during the Great Depression of the 1930s and the Great Inflation of the 1970s provide two such examples.

The Great Depression is a classic illustration of how financial disruptions can wreak havoc on the real economy. Policy mistakes by the Federal Reserve were critical, as Milton Friedman and Anna Schwartz demonstrated in their *Monetary History of the United States*. The Fed's principal error was in failing to act as lender of last resort to the banking system as banking panics swept across the United States. The collapse of the banking system caused the money stock to contract sharply, which caused the price level to fall. Deflation drove up the real cost of servicing debt and led to widespread business failures and unemployment. Falling incomes and increased loan defaults put further strain on banks and other financial firms. Failure of the Federal Reserve to act in timely fashion created a downward debt-deflation spiral. More than 1,000 banks were forced to suspend operations in each year between 1930 and 1933.

The monetary hemorrhage finally ended when the entire banking system, including the Federal Reserve banks, was shut down by government decree in March 1933. Once confidence in the banking system had been restored, the money stock and price level began to rise. The real

interest rate fell as the price level rose, which encouraged increased business investment and consumer spending, and the economy began to recover.

The Great Depression illustrates how deflation can wreck a financial system and economy. The Great Inflation, by contrast, showed the destructive power of inflation. Inflation began to rise in the mid 1960s. It is interesting to compare attitudes toward restrictive monetary policy in the late 1960s and attitudes now. Forty years ago, there was great concern in the United States that higher interest rates would have an undue impact on housing finance and housing construction; that concern contributed to delays in needed Federal Reserve policy actions that ended up destabilizing the entire economy. Now, we understand that monetary policy must concentrate on the goal of aggregate economic stability and especially inflation control. We regard stresses in any particular industry as a problem for that industry to deal with; those stresses are not an issue for monetary policy, unless they spill over to the economy more generally.

In the 1960s, political pressure for low interest rates combined forces with a growing consensus among economists and policymakers that moderate inflation is an acceptable way to boost employment and economic growth. Monetary policymaking was viewed as simply a matter of selecting from among a menu of inflation and unemployment options. Choose a little more inflation and unemployment would fall, according to this theory. Accept somewhat higher unemployment, on the other hand, and inflation would be a bit lower.

The infamous Phillips curve made policymaking seem beguilingly simple. Based on this theory, several influential economists argued that the menu of inflation-unemployment options offered by the Phillips curve could be improved upon if policymakers were willing to discard their old-fashioned attraction to price stability. Forego price stability, these economists argued, and the labor market would operate more efficiently, employment would rise and the economy would grow faster.

There were some notable dissents from this view. Milton Friedman and Edmund Phelps argued strongly that inflationary policies could not boost employment or economic growth in the long run, and that attempts to do so would produce ever higher inflation but no more employment or growth than was possible with a stable price level.

The views of Friedman and Phelps became increasingly accepted in the 1970s as economists came to appreciate the importance of expectations in the economic decision making of firms and households. At a theoretical level, economists showed formally that when the public comes to expect that policymakers will attempt to use inflation to boost employment or economic growth, the public will respond in ways that prevent employment or output from rising. For example, if inflation is expected to rise, then workers will demand higher nominal wages and savers will demand higher nominal interest rates to prevent real wages and interest rates from falling. Consequently, once the public figures out the central bank's game, inflationary monetary policy will have no effect on employment or output.

At an empirical level, as the 1970s progressed the performance of the economy discredited the notion that higher inflation could produce higher employment and faster growth. If anything, the data indicated just the opposite. As inflation rose still higher and became more variable, the average growth rate of the U.S. economy slowed and business cycle fluctuations became more pronounced.

Inflation, and especially inflation instability, proved disruptive for financial markets and firms. Initially the impact of the intensifying inflation seemed benign with respect to financial markets and financial stability. Below the surface, however, the rising inflation was interacting with the financial regulatory structure that had been established in the 1930s in response to the failures of the Great Depression.

Mutual savings banks and savings and loan associations—the "thrift institutions"—had become the mainstay of housing finance in the United States after World War II. These financial

intermediaries borrowed short and lent long—a classic duration mismatch. As inflation premiums became built into market interest rates, short-term interest rates rose much more rapidly than did the return on the thrifts' assets, which were heavily invested in fixed-rate 30-year home mortgages. By 1980, on a marked-to-market basis the capital of a large portion of the thrift industry was exhausted.

Although the industry was kept afloat for a time by government sanctioned accounting gimmicks, many thrifts were walking dead—"zombies" some called them—that had to be closed. Because the deposit liabilities of most thrifts were federally insured, the collapse of the industry was costly for taxpayers. The cleanup is estimated to have cost U.S. taxpayers between 150 and 200 billion dollars. It is worth noting that deposit insurance did function effectively in maintaining the public's confidence in the banking system. Nevertheless, in the absence of high inflation, the episode could largely have been avoided.

Inflation declined sharply in the early 1980s, thanks to a change in the course of monetary policy under the leadership of Paul Volcker, then Chairman of the Federal Reserve Board. The decline was largely unanticipated. Because few people expected inflation to remain contained, real interest rates soared as savers continued to demand high inflation risk premiums. The dollar also appreciated sharply in world foreign exchange markets. The strong dollar was hard on U.S. exporters and particularly devastating for farmers as the dollar prices of agricultural commodities fell sharply. Many farmers had borrowed heavily to purchase land during the 1970s when commodity prices were soaring and land values were appreciating rapidly. Falling commodity and land prices in the 1980s left many farmers unable to service their debts and many went bankrupt. Losses on farm loans caused the failure of many banks in agricultural regions of the United States. This financial distress did not spread to the economy as a whole, but did severely affect farming regions.

The U.S. inflation environment was fairly stable in early 1965, and fairly stable again in 1985. The 20 years in between saw the failure of scores of banks and thrift institutions and of thousands of farms and two deep recessions, in 1973-75 and 1981-82. Hundreds more thrift institutions were closed in the late 1980s and early 1990s when the U.S. government finally faced up to the fact that they had exhausted their capital during the Great Inflation.

The general principle common to these cases of financial distress is that significant changes in the inflation rate cannot be accurately foreseen. Forecasting errors, and resulting financial loses and bankruptcies, are inevitable when the price level is unstable. In short, inflation and inflation instability put an economy's financial sector at risk.

LESSONS FROM HIGH INFLATION EXPERIENCES

Although I have focused on U.S. experiences, which I know best, many other countries have seen the deleterious effects of price level instability. Indeed, some have had far worse experiences than the United States. Many lesser developed countries have experienced very high rates of inflation at one time or another, often with disastrous consequences for financial stability and economic growth.

In a study of cross-country data, Robert Barro found that high rates of inflation significantly reduce economic growth, even after one controls for such influences on growth as educational attainment levels, the rule of law and strength of democratic institutions.[2] Michael Bruno and William Easterly of the World Bank report similar evidence. They find that inflation crises—which they define as inflation rates on the order of 40 percent or more—produce significant shortfalls

[2] Robert Barro, "Inflation and Growth." Federal Reserve Bank of St. Louis *Review*, May/June 1996, *78*(3), pp. 153-69.

in a country's economic growth.[3] For example, when Chile's inflation rate soared from an average rate of 27 percent between 1960 and 1971 to an average rate of 240 percent between 1972 and 1977, the country's already modest rate of per capita output growth declined from just under the world average to more than 5 percentage points below the world average. Bruno and Easterly show that other countries that have had such inflationary bursts also experienced large declines in output growth.

Perhaps the most obvious examples of the destructive force of inflation are hyperinflations in Germany after World War I, in various eastern European countries after World War II and in Latin America more recently. These were caused by printing money to finance massive government budget deficits. Hyperinflation was ended in those countries by reforms that brought government spending under control and credibly ended the financing of deficits by printing money. Economists have debated whether the termination of hyperinflations resulted in serious declines in output. It is certain, however, that hyperinflation did not promote faster growth or financial stability. Hyperinflations went hand in hand with collapsing economies and financial markets.

Countries that have very high rates of inflation typically have weak institutions, including poor enforcement of contracts and property rights, and inefficient tax systems (and consequently large budget deficits). Many countries have made efforts to improve their political and economic institutions and are now experiencing lower inflation and higher economic growth than they did before their reforms.

Chile is one example of a country that appears to have seen a direct benefit from implementing pro-economic growth policies that include measures to control inflation. The executive board of the International Monetary Fund (IMF) recently complimented Chile for its enviable economic performance over the past 15 years, which the IMF attributed largely to the implementation of sound economic policies. During the 15 years ending in 2005, Chile enjoyed an average GDP growth rate of 5.5 percent, a tripling of its per capita income in U.S. dollar terms, and a halving of its poverty rate, all while keeping the lid on inflation. The IMF cited Chile's sound fiscal policies, its low barriers to international trade and capital flows, sound financial regulatory and supervisory framework, a floating exchange rate, and its inflation-targeting framework for monetary policy. These policies, the IMF argues, have helped keep inflation and inflation expectations low, sustained economic growth and helped make the Chilean economy resilient to external shocks.[4]

Like Chile, many countries have made price stability the paramount objective of monetary policy, and several have adopted formal inflation targeting as a way of anchoring inflation expectations. The advantage of adopting a formal quantitative target for inflation, especially when coupled with institutional reforms, such as increased operating independence for central banks, is that it reduces uncertainty about the long-term inflation rate. This, in turn, reduces inflation risk premiums in interest rates and promotes long-term contracting and investment. These benefits can be especially important for countries that have had a history of high or unstable inflation. However, I believe that any country could benefit from announcing and sticking to a specific numeric inflation objective.

CONCLUSION

I will conclude by noting that, over the past 20 years or so, the inflation record of the United States and many other countries has been far better than it was from the mid 1960s to the early 1980s. It is not a coincidence, I believe, that we

[3] Michael Bruno and William Easterly, "Inflation and Growth: In Search of a Stable Relationship." Federal Reserve Bank of St. Louis *Review*, May/June 1996, *78*(3), pp. 139-46.

[4] "IMF Executive Board Concludes 2006 Article IV Consultation with Chile." Public Information Notice no. 06/97. August 11, 2006.

have also had a better record of economic growth and financial stability over the recent two decades than during the years of high and highly variable inflation. Federal Reserve Chairman Ben Bernanke has referred to the decline in the volatility of both inflation and output over the past 20 years as "The Great Moderation."

During the recent past, our financial system and economy have shown remarkable resilience in the face of some serious shocks. I have already mentioned the Asian financial crisis and Russian government bond default in 1998, and the terrorist attacks of September 11, 2001. None of these had more than a passing impact on U.S. financial markets or firms or on the real economy. More recently, we have seen little fallout from the ending of the housing boom. At least thus far, only the residential construction industry and closely allied industries and professions have experienced any significant effects of the slowing of housing markets. Needless to say, I doubt that our financial system or economy would show such resilience if inflation were not low and stable.

Monetary policy is not magic. A stable currency is a necessary but not sufficient condition for economic growth. A democratic government, able to transfer power peacefully and reliably, is essential to sustained prosperity. So also are sound legal traditions and processes to resolve disputes according to the law. Governments need to pursue policies that encourage entrepreneurial activity. A social safety net is important in today's world, but it must not destroy incentives for firms to hire productive workers. In a market economy, those who take risks should be rewarded when they are successful and should suffer losses when they are not. Monetary policy cannot offset government policies destructive of the growth process.

I finish by noting a common misunderstanding. In many countries, including the United States, there is the view that good times are often associated with a little inflation, and bad times with falling inflation or, especially, deflation. That observation is correct but incomplete. A little unexpected inflation is associated with temporary good times but cannot last. Expectations catch up with reality. As expectations and actual inflation rise, the good times come to an end and financial instability begins. As Milton Friedman argued so brilliantly, for an economy operating close to full employment, the trade-off is not between inflation and unemployment but between unemployment now and unemployment plus inflation later.

Under the Federal Reserve Act, the Fed operates with a dual mandate, to encourage maximum employment and price stability. Those goals are not incompatible but fundamentally the same goal. Maintaining low and stable inflation is central to achieving maximum employment and the highest possible rate of economic growth. Maintaining price stability does not require that the central bank come down hard on every upward twitch in the inflation rate, but disciplined response is required when the inflation rate threatens to rise in a sustained fashion or fall into deflation. Central bankers need to apply their best judgment, and they will not always be correct in those judgments. But if they have a good record and the market retains confidence that the central bank will correct its mistakes, errors in judgment will not do lasting damage. I myself rely heavily on market measures of inflation expectations in forming my judgments and in deciding what policy risks to run—in an uncertain world, it is always the case that policy judgments depend on probabilistic calculations.

I hope that I have persuaded you that financial stability and economic growth are enhanced by price stability. But I know that actual experience in the United States, in Chile and in many other countries is more persuasive that words can ever be.