

Maintaining Price Stability

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The enduring challenge facing central banks is to fight inflation. Central banks can best meet this challenge if they are independent and adopt a low inflation target with some flexibility for price shocks in recognition of the short-run trade-off between inflation and unemployment.

THE FUNDAMENTAL task of the central bank is to preserve the value of the currency. The understanding of the centrality of price stability has evolved over the years, and it is worthwhile to review selectively recent developments in thinking about this aspect of the role of the central bank, with an emphasis on unsettled and controversial issues.

As long as countries adhered to the gold standard, rapid inflations were precluded, although prolonged movements in the inflation rate were evident in the nineteenth century. But, the gold standard has two fundamental disadvantages: it makes the growth rate of the monetary base (currency held outside banks plus banks' claims on the central bank) dependent on the vagaries of the supply of gold; and it is a costly way of producing money—printing

and book, or electronic, entry are much cheaper. However, it does in principle have the advantage of keeping control over the quantity of money out of the government's hands.

The enthusiasm of central bankers and academics for this benefit led after World War I to a return to the gold standard in Europe and the spread of gold-standard-based central banking to many independent developing countries. Currency boards in a number of colonies effectively placed them too on the gold standard, at one remove.

The predominant view before the Great Depression of the 1930s was that the macroeconomy was best put on automatic pilot. Britain's difficulties after its return to gold in 1925, and even more the Great Depression, reduced confidence in the benefits of the automaticity of the operation of the gold standard and of the market system. Keynes's *General Theory*, produced during the Great Depression, provided the predominant theoretical framework in which macroeconomic policy problems were analyzed during and after World War II.

The *General Theory* does not deal with inflation, but wartime and postwar inflations made it impossible to ignore. For a time there was an awkward intellectual gap between the Keynesian model, used to determine the level of output, and the analysis of inflation, which was explained primarily through the quantity theory of money. That gap was closed by adding the Phillips curve to the Keynesian model. The original Phillips curve implied that there is a long-run trade-off between inflation and

unemployment, but that view has long since been abandoned, on empirical as well as theoretical grounds. A closely related notion, that inflation might be good for growth, has also been refuted by empirical evidence, which shows that inflation is in fact *negatively* correlated with growth—at least at double-digit inflation rates. (See, for example, Fischer (1993) and Bruno and Easterly (1995).)

Some uncertainty remains about the relationship between inflation and growth at low inflation rates. In principle, there is likely to be a turning point in the relationship, since there are grounds for believing deflation is bad for growth. In my work, I have found the negative relationship to continue even in the low single-digit range. However, both Barro (1995) and Sarel (1996) do not find a clear negative relationship below 8 percent inflation, though they do confirm a strong negative relationship at higher inflation rates. Notwithstanding the uncertainty about the negative inflation-growth correlation at inflation rates below 8 percent, no one has yet found evidence for a positive correlation over any sustained period.

Nonetheless, the *short-run* Phillips curve trade-off between inflation and unemployment remains central to the macroeconomics of monetary policy. It is this short-run trade-off between inflation and the level of economic activity with which central bankers grapple much of the time—often while denying its existence. While there may be good political reasons to wish there were no short-run trade-off, a moment's reflection on the circumstances in

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which monetary policy is eased or tightened—as well as more formal empirical evidence—confirms its existence.

Central bank independence

The arguments for central bank independence are well known. They are arguments from the world of the second best. In a first-best world, monetary and fiscal policy would be perfectly coordinated and chosen, and there would be no need for an independent central bank. But in the imperfect world in which most central bankers ply their trade, political systems tend to behave myopically, favoring inflationary policies with short-run benefits and discounting excessively their long-run costs. An independent central bank, given responsibility for price stability, can overcome this inflationary bias.

The empirical evidence that, on average, countries with more independent central banks have lower inflation, at no cost in terms of growth or the variability of growth, is persuasive. Of course, it is possible to have low inflation without an independent central bank. Nevertheless, the evidence is that a country is more likely to have low inflation if the central bank is independent, and there are good reasons to expect that outcome when the fiscal authority is not highly disciplined.

Stable prices the only goal?

Given the short-run trade-off between inflation and unemployment, shouldn't the central bank be given the task of maintaining full employment together with that of maintaining low inflation? It is sometimes argued that the rate of unemployment is determined by structural factors, and that it is therefore inappropriate to direct monetary policy to take unemployment or the level of output into account. While structural unemployment is beyond the reach of monetary policy, cyclical unemployment is not. It cannot therefore be argued that monetary policy decisions should pay no heed to the state of the business cycle and focus only on the rate of inflation. Nor does any central bank behave that way.

Most of the time—when the economy is being affected by demand shocks—a monetary policy that has the goal of maintaining low inflation will also be appropriate for the stabilization of output. When the economy is overheating, restrictive monetary policies will prevent both inflation from

rising and output from overexpanding. When the economy is in recession, or recession is anticipated, monetary policy can become more expansionary without increasing the inflation rate. However, there are always differences of view on the speed with which policy should be adjusted, and on the balance of risks, even in dealing with



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demand shifts. These conflicts become more marked when the economy is hit by a supply shock. In practice, central banks tend to accommodate adverse supply shocks, allowing a temporary rise in inflation to mitigate the decline in output.

Not only does monetary policy affect both output and inflation, but inflation is also affected by other policies, especially fiscal policy. It is a *political* judgment, supported by political and economic theory and evidence, that control over inflation should nonetheless be made the primary goal of monetary policy. A central bank given multiple and general goals may choose among them and will certainly be subject to political pressures to shift among its goals depending on the state of the electoral cycle. Sharing the formal responsibility for inflation control equally among several policy-making branches of government helps ensure that none takes actual responsibility.

This fact makes a strong case for giving primary responsibility for control over inflation to the central bank. However, since the public needs to understand the basis for monetary policy decisions, it is best in specifying the goals of monetary policy to recognize that monetary policy does affect

output. The approach taken in the statutes of the new European Central Bank is to specify preservation of the value of the currency as the primary goal of the central bank, with the promotion of full employment and growth being permitted to the extent that this does not conflict with the goal of price stability. Alternatively, the primary goal could be set as the preservation of the value of the currency, taking account of the impact of monetary policy decisions on economic activity. The central bank could also be assigned the task of promoting growth—but it has to be understood that this is best done by maintaining a low rate of inflation and ensuring the health of the financial system.

Explicit inflation targets?

Central banks are divided on the advisability of setting explicit inflation targets. Several, such as the Bank of Canada, the Bank of England, and the Reserve Bank of New Zealand, that have recently reformed their monetary policy procedures, have adopted explicit inflation targets. Others whose credibility in fighting inflation is longer established, among them the Bundesbank and the Swiss National Bank, have not set explicit goals, and certainly not formal annual inflation targets.

The setting of explicit goals promotes accountability, making it more likely that the central bank will come close to target. Accountability and the need to explain deviations from targets should promote transparency, allowing the public to understand the basis for monetary policy decisions, and thus to form more accurate expectations. I therefore favor explicit inflation targeting, while recognizing that there is no urgent need for central banks with a sustained record of producing low inflation to shift their approaches.

Optimal inflation target

What rate of inflation should be targeted? Low-inflation countries have chosen inflation targets in the range of 1–3 percent. Even taking into account the likely upward bias in the measured inflation rate, this allows for some increase in the price level over time. There has been relatively little analysis of the optimal target inflation rate. Zero inflation is the obvious starting point. It has long been argued that downward price or wage stickiness would justify some inflation—the idea that inflation greases

the wheels of the economy. Interest in this question has revived as worldwide inflation rates have declined, though there is not yet a consensus on whether wages or prices are in fact inflexible downward, or whether they would gradually become more flexible if inflation were maintained at low rates. The research on the relation between growth and inflation described above does not provide much guidance on the choice among target inflation rates once they are below 8 percent.

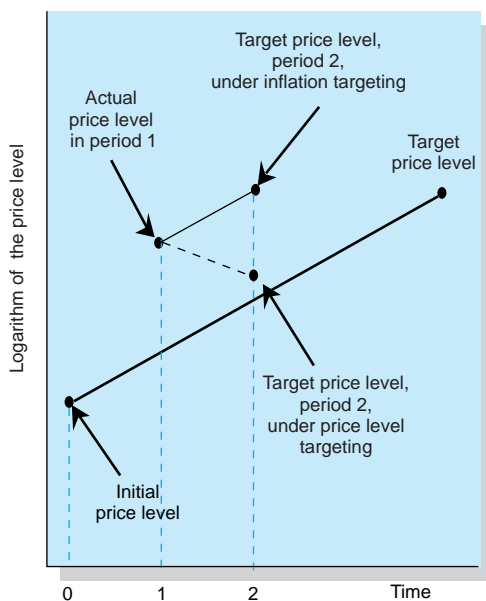
The main argument for a positive rather than a zero inflation target is that in a monetary economy, the existence of cash puts a lower bound of zero on the nominal interest rate; at zero inflation this also puts a lower bound of zero on the real interest rate. In times of recession, it may be useful to allow the real interest rate to become negative, and that is precluded if the target inflation rate is zero. It becomes even more problematic when we recognize that inflation tends to be below average during recessions. Thus a target inflation rate above zero allows some room for negative ex ante real interest rates during the cycle. This argument would justify a target inflation range of 1–3 percent. But it is clear that further research is needed to refine the notion of the optimal inflation target and its determinants. For instance, the inflation target can and should be adjusted to take supply shocks, including changes in the terms of trade and indirect taxes, into account, thereby allowing for the short-run trade-off between output and inflation.

Central bank charters and official statements typically specify price stability as the goal of monetary policy. There is a subtle but important difference between specifying an inflation target and price stability. If the target each year is the inflation rate, the central bank is not required to compensate for failures to achieve its target in previous years. If the target is the price level, or a path for the price level, the central bank does have to attempt to compensate for missing the target in previous years. For instance, if the target inflation rate is 2 percent and inflation last year was 4 percent, then under inflation targeting, the goal this year will be 2 percent inflation; under price level targeting, the goal this year would be less than 2 percent—for example, 1 percent—since the central bank has the obligation

to return to its target path for prices (see diagram).

Price level targeting produces more certainty about prices in the distant future than does inflation targeting. Price level targeting thus encourages long-term nominal contracts. But, as the previous example implies, it does this at the cost of creating

Inflation versus price level targeting



more short-run variability in inflation. For this reason, it is preferable to target inflation rather than the price level.

Intermediate targets

Monetary targeting (using the money supply as the primary policy target) was widely adopted in the inflationary 1970s. It was always understood that monetary targeting depended for its success on the stability or at least the predictability of money demand. The approach began to break down in the 1980s, as money demand equations moved off track, possibly due to the pace of financial innovation. Some central banks continue to announce money targets, and, at least in Germany, these targets appear to affect subsequent policy decisions.

The extent to which the preannounced targets should constrain subsequent decisions depends on the stability of the money demand function, or equivalently, on whether money growth developments are good predictors of future inflation and output trends. If money growth or any other potential intermediate target is a poor

predictor of future inflation or output, then publicizing it as an intermediate target of monetary policy may be counterproductive. Either the central bank has to ignore the behavior of the variable, and undermine its credibility, or it sticks to it, and reduces the effectiveness of its policies.

All central banks monitor a variety of economic variables, among them the money supply and interest rates but also, for example, wages and inventories. Those that can be influenced relatively strongly and directly by the central bank could play the role of intermediate targets of policy. However, if the empirical relations tying those variables to the state of the economy are unstable, it becomes preferable to downplay their role by describing them as monitoring variables rather than intermediate targets.

Other arrangements

Monetary policy and the exchange rate regime. The choice of exchange rate regime is one of the longest-running debates in economics. The fact that it is not resolved must mean that there is no exchange rate system that is superior in all circumstances. By successfully pegging to a stable foreign currency or a basket of currencies of low-inflation countries, a country

can assure itself of low inflation. The goals of monetary policy become simplified—the task is simply to maintain the peg. Indeed, this is one of the strong arguments in favor of pegging; it helps focus the mind of the government on a very clear constraint on policy.

Pegs are rarely permanent. This was true even under the gold standard, when countries would occasionally have to suspend convertibility. However, an adjustable peg regime too may help reduce the inflation rate. Countries with a pegged rate have had lower inflation on average during 1979–93 than those with floating rates, but the direction of causality is hard to determine.

One major difficulty with exchange rate pegs is that the system appears crisis prone: often, a peg or the pegged rate regime itself is changed too late, and in a crisis. The problem of choosing an optimal time to change the peg or the regime has been named the “exit strategy.” Analytically, the question of when to change a peg must depend in large part on an estimate of the sustainability of the current account, and thus on an estimate of the

equilibrium exchange rate. It is conceptually straightforward to define an equilibrium rate from the viewpoint of the current account, but less simple to estimate an equilibrium rate in the presence of capital flows.

Maintenance of a fixed rate becomes more difficult as financial liberalization is undertaken. In particular, countries attempting to maintain a fixed rate or a crawling peg often have to deal with the inconsistency between the foreign interest rate and the interest rate they would prefer from the domestic viewpoint. When a country is pursuing a tight money policy to fight inflation, its domestic interest rates may well exceed foreign rates, even adjusted for expected exchange rate changes. The resultant capital inflows tend to offset the effects of the tight money. This is the capital inflow problem, which has affected a number of countries around the world.

It has to be recognized that countries with open capital accounts cannot insulate themselves from monetary conditions abroad. Nonetheless, there are ways of mitigating the problem. The right way to deal with capital inflows depends on the source of the flows. If the capital inflow is caused by an increase in the demand for domestic money, it is easily handled in a fixed exchange rate regime by allowing the money supply to expand. But there is no fully satisfactory answer to the capital inflows problem if it results from a decrease in foreign interest rates or a shift in the preferences of foreign investors. Sometimes currency appreciation will be advisable.

Countries seeking to avoid appreciation have a number of possibilities. One route is through sterilized intervention, increasing foreign reserves while maintaining the money supply constant. That may be expensive, especially if domestic interest rates exceed foreign rates, as is inherent in the situation. Fiscal contraction is generally advisable. Market-based policies to reduce the returns to foreign investors, such as increases in the reserve requirements on foreign-owned deposits or taxes on their returns, have been used effectively for short periods in some countries.

An exchange rate peg may be used as a nominal anchor by a country stabilizing from high inflation. This approach was successful in Israel in 1985, Poland in 1990, and—with variation—in Brazil in 1994 and 1995; it is also being used by several transition economies, among them Russia. Provided the peg is not maintained too long, it is a powerful tool in bringing about rapid disinflation.

Once a country has achieved low inflation, and provided it can keep fiscal discipline without the constraint of the fixed exchange rate, it can move to a more flexible system. However, governments cannot and should not give the markets the impression that the level of the exchange rate is of no concern.

But, of course, a country in that situation can also maintain a fixed exchange rate. Which should it do? Exchange rate flexibility provides an added element of adjustment to internal and external shocks. In principle, adjustment could also be provided by domestic wage and price flexibility. When the source of the disturbance is foreign, it is far simpler for the exchange rate to adjust than for many domestic prices to be adjusted. Exchange rate flexibility is thus likely to be preferable.

Currency boards. One popular and suspiciously neat formulation argues that as capital mobility increases, only the two extreme regimes, of pure floating or of truly fixed exchange rates, are viable. A currency board arrangement provides one example of a truly fixed rate regime, with the strongest of commitments to the exchange rate peg. Currency boards have operated well in several small countries, and very well in Hong Kong. It is also often argued that the recent Argentine experience, not least in 1995 when the currency peg was preserved, supports the case for a currency board.

The monetary theory of the currency board is exactly that of the gold standard. Provided the arrangement is credible, it brings the benefit of rapid convergence toward international inflation and interest rates, as can be seen in the Argentine experience. But there should be no mistaking the severe demands a currency board puts on monetary policy: adjusting the monetary base one-for-one with the balance of payments can create major swings in the money supply.

It is sometimes said that the foreign currency reserves fully cover the domestic money supply under a currency board. However, the reserves necessarily cover only the monetary base. An increase in the demand for currency will force a contraction of the banking system in a strict currency board system, and that is why a currency board can put severe strains on the banking system. The strains are more difficult to deal with because there is no lender of last resort, unless the country has built up a large excess of cover for the domestic monetary base.

A sharp way of describing the problem is to say that a currency board is a device that

can turn a currency crisis into a banking crisis. The problem of the potential fragility of the domestic banking system under a currency board was not as clear in the nineteenth century, because the banks in currency board countries were typically part of a metropolitan power's financial system. A currency board would be much easier to operate if all banks were foreign, supervised by the monetary authorities of other countries, and with access to their lender-of-last-resort facilities.

Conclusion

In sum, I advocate central bank independence; inflation targeting, with adjustments for supply shocks in recognition of the short-run trade-off between inflation and unemployment; a target inflation rate of 1–3 percent; and downplaying intermediate targets that are not strong indicators of future inflation or output. An exchange rate peg can serve a useful purpose for a country that is trying to reduce inflation to world levels, but overvaluation must be avoided like the plague. Once low inflation and fiscal discipline are assured, a country may benefit from allowing more exchange rate flexibility. The currency board system is the strongest form of commitment to a fixed exchange rate, but its gold standard monetary policy rules may put severe strains on the banking system. A currency board can work well if fiscal policy is highly responsible—or will become responsible as a result of the currency board—and if the commercial banks are international.

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