Inflation Targeting from a Global Perspective

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Introduction

In December 1989, the New Zealand parliament passed the Reserve Bank of New Zealand Act (RBA) and completed the first codification of inflation targeting as a framework for the conduct of monetary policy, a codification toward which the New Zealand authorities had been groping since April 1988 (Brash 2002). In slightly more than a dozen years, twenty other countries have formally adopted inflation targeting as their preferred framework for the conduct of monetary policy.[1] In addition, at least three countries, Argentina, Hungry and Turkey, are aspiring inflation targeters. Twenty-one countries is a significant number, making up more than 10 percent of the membership of the International Monetary Fund (IMF). The list includes industrial, emerging, developing, and transition economies in all corners of the world.

Therefore, a global perspective on inflation targeting is quite justified even though historical experience with the framework remains short. I have been engaged in such an endeavor for the past year or so. My objective in this paper is to offer some preliminary conclusions.

In the following section, I briefly characterize inflation targeting, address its preconditions, and sketch a taxonomy that I have found useful in classifying inflation targeters. In section II, I look at several aspects of what we have learned about inflation targeting that are of general interest: the potential for inflation targeting by the monetary authorities of the G3 economies, inflation targeting and exchange rates, and inflation targeting and the adjustment process. Finally, I summarize what I think we have learned.

Inflation targeting as a framework for the conduct of monetary policy is not a panacea. However, the issue for monetary policy is compared with what: pure discretion (no framework), a hierarchic or multi-part mandate without an inflation target, a monetary or (more or less hard) exchange rate target, or sub-contracting monetary policy to another central bank by adopting its currency (dollarization or euroization)? The authorities have to make a choice, and as in the case of exchange rate policy, it is highly

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[1] The 21 countries are Australia, Brazil, Canada, Chile, Colombia, the Czech Republic, Finland, Iceland, Israel, Korea, Mexico, New Zealand, Norway, Peru, the Philippines, Poland, South Africa, Spain, Sweden, Thailand and the United Kingdom. Finland and Spain dropped off the list when the monetary regimes of those countries were absorbed into the European System of Central Banks in January 1999. As is discussed briefly below, these countries' inflation targeting frameworks are far from identical. Nevertheless, the authorities of the countries and the policy community generally accept that these are inflation targeting countries. One country, Switzerland, can be classified as a quasi-inflation targeter; the Swiss National Bank has an inflation target, but does not describe itself as having an inflation-targeting framework. See Truman (2002b) for a fuller discussion of the classification of countries as inflation targeters.

unlikely that any one framework for monetary policy will be best for all countries, at all times, in all circumstances.

Inflation targeting as a framework for the conduct of monetary policy places demands and requirements on central banks. If inflation targeting is to be widely employed to the benefit of the adopting economies and to the benefit of the international financial system, the challenge will be whether it can accommodate differences in the wide-ranging circumstances of those economies. In this light, I believe it is unfortunate that some proponents of inflation targeting argue that there is a substantial degree of convergence in practice among inflation targeters and that differences in practices can provide insights into what works and does not work.[2] Insights, perhaps, firm guidance about how to do it, more problematic.

Controversies about monetary policy frameworks date back at least into the 19th century, but most observers today would agree on three basic points:

First, policies matter to the economic success or failure of economies; sound monetary policy is a necessary, but not a sufficient, condition for success. No country has successfully developed without a disciplined monetary policy, which I would define as avoiding an environment of high inflation, more than 10 percent per year, for an extended period of time.[3]

Second, a successful economy needs a robust monetary policy framework. One candidate is inflation targeting; one of inflation targeting's main attractions is its focus on an ultimate target, control of inflation, which is a crucial to the overall success of an economy over the long run.

Third, rigid frameworks may offer attractions in terms of promises of quick results, but they are higher risk especially in the context of a volatile global economic and financial environment, as Argentina, Brazil and Turkey have recently learned. Nevertheless, no monetary policy framework is likely to be best for all countries, at all times, in all circumstances.

I. **Inflation Targeting as a Framework for Monetary Policy**

An observer of political processes as well as policymakers, especially those advised by economists, should not be surprised by the absence of complete agreement on the definition of inflation targeting as a framework for the conduct of monetary policy. It is useful, initially, to think in generic terms.

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[2] Bernanke et al. (1999), Chapter 11.

[3] Turkey is a country that had high inflation for an extended period, averaging of more than 60 percent a year from 1980 to 2000, and quite strong real growth of almost 2 percent per capital per year throughout that period. However, in 1999 the authorities decided to adopt an exchange-rate-based stabilization strategy in order to bring inflation down to single digits. The strategy was unsuccessful, but the point is that the authorities felt the need for it.

First, monetary policy focuses on inflation because that is what monetary policy can influence over the medium term; a stronger version of this proposition is that monetary policy has little or no influence on economic activity over the medium term.

Second, however, in the short run, monetary policy can also influence output, or the rate of expansion of economic activity.

Third, these two elements point to an underlying tension in any monetary policy framework: its short-run influence on output or growth, and its longer term limited, if not non-existent, influence on output and much greater influence on the price level or inflation.

Fourth, in this context, inflation targeting offers a framework of "constrained discretion" (Bernanke et al. (1999), King (1997a and 1997b), Kuttner and Posen (2000)). The constraint is the inflation target, and the discretion is the scope to take account of short-run economic and financial considerations. In the best of circumstances, the constraint and the discretion act like two blades of a scissors.

In practice, inflation targeting as a framework for the conduct of monetary policy usually involves four principal elements:
1. Price stability as the goal of monetary policy.
2. A numerical target or sequence of targets to make the framework operational.
3. A time horizon over which the target or the targets are to be met, and
4. An associated approach for evaluating whether the objective or objectives have been achieved.

In practice, no two countries and their central banks implement their inflation-targeting monetary policy framework identically. Some central banks, for example the Reserve Bank of Australia, have a dual mandate combining price stability with full employment. In addition, for some central banks the target (or sequence of targets) is a point, and for others it is a range.

Moreover, very few central banks have a clearly defined time horizon over which the target is to be achieved, or once the target is achieved and there is a subsequent departure from the target, a time horizon to return. In the case of a point target, the central bank essentially by construction will not hit the target every month or quarter or year. In some circumstances, for example in the United Kingdom, a miss of a certain size triggers a reporting and review process. Where the framework involves a range, it frequently does not specify timeframe over which inflation is expected to return to the range. Some observers may consider that such an omission is a defect of the particular country's regime. In their view, the omission reduces the rigor of the regime, adding a further element of discretion; for some observers, the omission might disqualify the country from being considered an inflation targeter. In practice, a central bank may follow an ad hoc procedure, indicating in each case what its intentions are with respect to the time period for bringing inflation back within the range or close to target.

Finally, transparency and accountability are very much a part of most inflation-targeting frameworks, but they may be at least as relevant to, or at least present in, other frameworks for the conduct of monetary policy. Consider, for example, a central bank that uses at monetary or exchange rate target as its framework for the conduct of monetary policy. If the central bank misses its target, the miss is certainly transparent. Moreover, the central banker certainly can be held accountable for his or her miss!

In summary, with respect to the four elements of an inflation-targeting regime for monetary policy, the goal may be fuzzy; the numerical target may be as well; more often than not, the timeframe for achieving or returning to the target may be unspecified or vague; and transparency and accountability are not unique to inflation targeting frameworks for the conduct of monetary policy. Nevertheless, countries that are considering the adoption of inflation targeting as the framework for their monetary policy should find it useful to organize their thinking in these four categories.

On the issue of the preconditions for a country to use inflation targeting as its framework for the conduct of its monetary policy, a similar degree of skepticism may be required. Some observers (for example, Schaechter et al. (2000)) set out a long list of desirable elements in support of an inflation-targeting regime. At one level, they are justified in identifying a list of desirable elements; a country is likely to be more successful with those elements in place than without them. However, most of those elements are equally necessary for the successful implementation of any monetary policy framework. Consider three preconditions that are frequently identified in this literature: absence of fiscal dominance, financial system stability, and supporting institutions.

With respect to an absence of fiscal dominance, the argument goes that if the government cannot finance its operations in the market and requires uncertain but substantial amounts of central bank financing to meet its domestic obligations, then it is risky for the country to adopt inflation targeting as its monetary policy framework. The reason is that in such an environment, fiscal needs are likely to determine the scale of monetary operations. If those needs force too expansionary a monetary policy the inflation target will be missed. However, the cause of the miss is the fiscal policy or the framework for fiscal policy, not monetary policy or the framework for monetary policy. Moreover, any framework for monetary policy, or at least any framework that is intended to achieve a reasonable degree of macroeconomic stability, will fail to deliver under such circumstances. The answer is if any country expects monetary policy to contribute to macroeconomic stability, it should first make sure that the fiscal situation is reasonably under control. Once that has been achieved, nothing in inflation targeting as a framework for monetary policy that would dictate greater fiscal discipline than any other monetary-policy framework that is worthy of being called a framework.

With respect of financial system stability, the argument is that if the banking system is unsound, and financial institutions have to turn frequently and in large amounts to the central bank for liquidity injections, and the institutions are so fragile that their borrowers and their balance sheets cannot withstand the increases in interest rates that

would be associated with the central bank mopping up the liquidity in the market (or the central bank lacks the technical capacity to do so), then the central bank will find it difficult to achieve its inflation objective. A related argument is that if the cost of bailing out the banking system becomes a large fiscal burden, this may lead to fiscal dominance, as discussed above. Again, however, it is not clear why inflation targeting as a framework for the conduct of a monetary policy that is directed at achieving or maintaining macroeconomic stability is any more vulnerable than any other framework to financial system instability.

Finally, with respect to institutions, the argument is that if the central bank does not have the institutional capacity to implement inflation targeting, it would be better off not trying. To the extent that this argument is code for a need for operational independence of the central bank, at least de facto and preferably de jure, then the argument is analogous to the those outlined above; either short-run political considerations, or a lack of fiscal discipline, or the condition of the financial system could constrain the central bank from using its policy instruments to achieve its inflation objective.

A slightly different argument is that a monetary policy rule that embodies a simple guide for monetary policy, for example, a monetary or an exchange rate target, is not as demanding to implement. Again, this proposition can be debated. On the one hand, it helps in the successful achievement of an inflation target, if the central bank has a reasonably accurate understanding of the mechanisms by which its policy instruments affect inflation and the economy. On the other hand, if the central bank has a monetary target, other than a narrow target for the rate of expansion of the liability side of its balance sheet, its achievement of that objective is enhanced if it has an understanding of how its policy instruments affect the demand and supply of money. Moreover, if the monetary target is a means to an end (in other words an intermediate target), and if its policy is to be successful, then, even in the case of targeting a narrow aggregate, the central bank needs to have a reasonably accurate understanding of the mechanism that links the monetary target to the ultimate objective.[4] Thus, it should not be a surprise that greater knowledge of the economy or substantial institutional capacity (resources) to acquire that knowledge will help a central bank to implement its policy and to achieve its objective, in particular its ultimate objective, as long the inflation objective is feasible, regardless of the framework the central bank employs. It also follows that the institution's skill at articulating its policy through various devices, such as inflation reports, enhances understanding of its policy, increases transparency, assists in the area of accountability, and thereby contributes to the success of the overall process.

If a central bank is successfully to target future inflation, it is likely to be more successful if it has the tools to forecast inflation. On the other hand, a central bank could use actual inflation or surveys of expected inflation to guide its policy instruments and still have a reasonable chance of hitting its objectives, as long as it is able to formulate a procedure, essentially through trial and error, to calibrate changes in those instruments.

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[4] A similar argument would apply to an exchange rate target with the added qualification that with an exchange rate target, the central bank runs the risk of running out of reserves.

In effect it would construct a reduced form model through experience.[5] Given that inflation is a lagging indicator, it is certainly possible that output would be volatile, at least at first, assuming the central bank is reasonably successful in achieving its inflation target. However, the more relevant question is whether output and inflation would be more volatile than under an alternative monetary policy framework. This is largely an empirical issue.

An interesting question is what leads a country to adopt inflation targeting as the framework for the conduct of its monetary policy. This question is examined in more detail, including its intellectual underpinnings, in Truman (2002b). However, one element of that decision is the actual performance of inflation, for example, do countries chose inflation targeting because inflation is high or do they choose inflation targeting in order to keep inflation low?

To help address this question, I find it useful to distinguish three categories of inflation targeting countries:

- n "Maintainers" that have essentially achieved whatever they have decided is the appropriately low level of inflation, sometimes referred to as stationary inflation; normally, one would expect that rate to be less than 5 percent per year and to be achieved without the suppression of inflation through administered prices;

- n "Convergers" that are well on their way to achieving stationary inflation, for example, with inflation rates of more than 5 percent (or if less than 5 percent, then only as the result of suppressed inflation) but less than double digits; and

- n "Squeezers" that have embarked on larger projects to bring down inflation rates than may be as high as 20 percent per annum, or higher, to single-digit rates and lower.

Considering the 21 countries identified earlier as inflation targeters and the rate of inflation of consumer prices in the year prior to their choice of inflation targeting as their framework for the conduct of monetary policy, we learn the following. In the majority of cases (11), the countries were Maintainers at the time of adoption of inflation targeting; seven were Convergers and only three were Squeezers.[6]

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[5] The use of inflation forecasts is attractive, and has been used by several inflation-targeting central banks, but there is the danger the expectations may not be independent of the central bank's reputation. For example, those surveyed may believe that the central bank will hit its target and may project inflation accordingly. Once those expectations are disappointed, then there is the opposite risk.

[6] The Maintainers were Australia, Brazil, Canada, Finland, Korea, Norway, Peru, Spain, Sweden, Thailand, and the United Kingdom. The Convergers were Colombia, the Czech Republic, Iceland, Mexico, New Zealand, the Philippines, and South Africa. The Squeezers were Chile, Israel and Poland. However, with respect to the last category, Chile in 1990 initially employed a mixed monetary policy framework and by 1999 when it fully embraced inflation targeting it was a Maintainer; Israel also had a mixed framework in 1991 and by 1997 when it fully embraced inflation targeting it was a Converger. Moreover, Poland only

A different perspective on the inflation experience of these 21 countries is to look at their average inflation rates for the period 1990-2000. Of course some of the countries were inflation targeters for most of the period and others were inflation targeters only a small part or for no part of the period. From this perspective, ten of the 21 countries were Maintainers on average for the 11 years; four were Convergers; and seven were Squeezers.[7]

Finally, a third perspective is provided by recent inflation experience. In 2000, 15 of the 21 countries had achieved the status of Maintainers; five were Convergers; and only one was a Squeezer.[8]

The high proportion of Maintainers by 2000 reinforces a basic observation about recent inflation experience: On the whole, the decade of the 1990s was a good decade to be an inflation fighter. Average inflation in the industrial countries in 1989, the year New Zealand embarked on its experiment, was 4.6 percent down from 12.3 percent in 1980, and compared with 4.6 percent as well in 1970. World inflation was 12.9 percent in 1989 down from 17.2 percent in 1980, reflecting the still-high level of inflation in developing countries in average, 27.4 percent in 1989 compared with 27.6 percent in 1980. By 2000, average world inflation was 4.2 percent, suggesting that on average countries were Maintainers; inflation in industrial countries was 2.4 percent, and it had been close to that level since 1994; inflation in developing countries was 6.4 percent on average, about 10 percentage points below the average rate in 1996 and more than 50 percentage points below the average rate in 1994.

II. What Have We Learned About Inflation Targeting?

The concluding observation in the previous section emphasized the point that the past dozen years have been favorable for inflation targeting in the sense that by 2000 many inflation targeting countries and many other countries had either reduced inflation rates to quite low levels or were maintaining them at low levels. In this section, I examine three of the many aspects of inflation targeting that are of general interest from a global perspective: the potential benefits to the international financial system of inflation targeting by authorities in charge of policy in the three largest monetary areas (the G3), inflation targeting and exchange rates, and inflation targeting and adjustment programs, including the role of the IMF.

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marginally was a Squeezer in 1998-99 when it adopted inflation targeting, i.e., its inflation rate was more than 10 percent but less than 20 percent.
[7] The Maintainers were Australia, Canada, Finland, Iceland, New Zealand, Norway, Spain, Sweden, Thailand, and the United Kingdom. The Convergers were the Czech Republic, Korea, the Philippines, and South Africa. The Squeezers were Brazil, Chile, Colombia, Israel, Mexico, Poland, and South Africa.
[8] The Convergers were Brazil, Colombia, Iceland, Mexico, and South Africa. The only Squeezer was Poland by a small margin; its inflation rate in 2000 was 10.1 percent.

A. Inflation Targeting and the Group of Three[9]

Other participants in the international financial system might support adoption by the G3 of inflation-targeting frameworks for the conduct and evaluation of their monetary policies if as a consequence the G3 economies in the aggregate could be expected to produce better outcomes in terms of inflation and growth, and the stability of inflation and growth, to the benefit of the system as a whole. However, there may not be wide consensus outside the G3 about the definition of those better outcomes, just as there may not be a wide consensus inside each G3 economy or among them about what would represent better outcomes: Would the particular inflation-targeting frameworks be too demanding, in that the inflation targets would be set too low? Would they be operated in too rigid a manner, increasing the volatility of G3 output?

The most reasonable assumption is that the parameterization and operation under their respective inflation targeting frameworks would reflect the revealed preferences of the respective authorities today: somewhat greater tolerance of inflation by the Federal Reserve along with somewhat greater willingness to experiment and take inflation risks; less tolerance of inflation by the ECB and less willingness to experiment or take inflation risks; and the least tolerance of inflation and the least willingness to experiment and take inflation risks on the part of the Bank of Japan. In the absence of action-forcing events, continuity and gradual evolution generally dominate abrupt change and revolution, especially when it comes to institutions like central banks and their policies. Thus, the rest of the world should expect de facto continuity if the G3 were to adopt inflation targeting, but some might hope to be favorably surprised.

The rest of the world would benefit if the adoption of inflation targeting by the G3 contributed significantly to more predictable policies, i.e., reduced uncertainty about G3 macroeconomic outcomes for the system as a whole. At least as far as monetary policies are concerned, inflation targeting has that promise. The issue is whether the frameworks would be or become straightjackets, focused too narrowly on achieving individual inflation targets and insufficiently on G3 growth or constraining G3 central banks from responding imaginatively to shocks to the global economic and financial system.

Speculating briefly about the extent to which adoption of inflation targeting by the G3 authorities individually would contribute to better policies leads to the following summary conclusions:

In the case of the United States, the objective case for adoption of an inflation-targeting framework for the conduct and evaluation of monetary policy is rather weak: amounting to strengthening confidence in a projection of the Federal Reserve's recent performance into the future. The technical quality of Federal Reserve policy, which seeks to incorporate all available information in a forward-looking policy approach, would not be expected to change. Accountability and transparency might increase, but not a great deal. A slight plus would be the prospect that the institutionalization of the Federal Reserve's recent solid performance might be enhanced. Thus, there would be

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[9] A fuller treatment of this aspect of inflation targeting from a global perspective is in Truman (2002b).

little benefit to the functioning of the international financial system from unilateral U.S. action in this area.[10]

With respect to Euroland, some might consider it premature to reach firm conclusions about altering a framework for monetary policy that is still in its start-up phase. However, when better to make adjustments? A moderately strong case can be made in favor of the ECB's adoption of inflation targeting. Inflation targeting would contribute to increased clarity about the ECB's policies and intentions, and it is possible that it would contribute to improved performance (more growth with little more inflation), though that would depend crucially on how the parameters of the framework were set (e.g., a range of 0-2 or 1-3) and the extent to which the ECB employed the discretion aspect in the framework of constrained discretion. Actual ECB behavior might be little affected. In the end what matters is what the central bank does, not the framework it uses to do it, or what it says it will do. For inflation targeting to affect performance in Euroland and significantly benefit the international financial system, the European central bankers would have to be convinced to modify what they do – that they could do better.

The situation is somewhat different in Japan where there is an ongoing debate about inflation targeting. Reasonable people can differ, but my view is that inflation targeting is not a panacea for the Japanese economy or for the Bank of Japan's credibility problems. It would have been in the interests of Japan and the international financial system if the Japanese monetary authorities had adopted an inflation-targeting framework for Japan's monetary policy in the early 1990s. (It also would have been preferable if Japan could have avoided its land and stock market bubbles of the 1980s, although is debatable whether monetary policy alone could have done so.) It would have been reasonable to expect that if the Bank of Japan had been employing an inflation-targeting framework, Japan would not have experienced as much deflation; deflation was a risk that was well if not widely anticipated. As a consequence, the real economy might have not have sunk so far, the fiscal imbalance might not have increased as much, the financial sector might now be in better shape, nominal interest rates might not have had to be at such low, distorted levels for so long, and the yen might have been less volatile. Each of these potential effects would have benefited both Japan and the international financial system.

Going forward, inflation targeting could also help the Japanese economy meet the difficult and complex challenges ahead. It is not a panacea; it will not by itself eliminate the actuality or risk of deflation. However, it would provide a framework to help address Japan's macroeconomic problems. That framework should permit the Bank of Japan to act more flexibly and imaginatively precisely because it would provide the Bank with

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[10] An interesting question is whether Canada, an inflation-targeting economy, or Mexico, for that matter, which is not, would have particular reason to benefit from U.S. adoption of inflation targeting. I will not go into that question here, but there is some presumption that because of the importance of understanding developments and policies in the United States to both Canada and Mexico they would benefit from the increased policy clarity that inflation targeting would be expected to produce. On the other hand, these benefits may not rise to the level of the "systemic."

some protection from being forced to be too easy for too long. It would also provide more context to the Bank of Japan's policy efforts supplementing its commitment in March of 2001 not to tighten monetary policy until the year-on-year core nationwide CPI is non-negative on a stable basis.

Thus, although we cannot with great confidence predict that the adoption of inflation targeting by the G3 would contribute to what the rest of the world would consider to be substantially better outcomes for the three economies aside from some reduction in uncertainty about G3 policies, the thrust of the effect of their adoption of inflation targeting should be in that direction; the sign would be positive. However, the rest of the world also has an interest in the "quality" of G3 cooperation, and one might reasonably expect that if the G3 were able to make a collective decision to adopt inflation targeting for their central banks, this step might improve the quality of G3 cooperation.

First and most obviously, a common framework, even if the parameters were different in the different economies, should improve communication, compared with the present more eclectic approaches. The central bankers, and their finance ministry colleagues, would all be talking a common language.

Second, a common framework would force the central bankers in their discussions with each other and their finance ministry colleagues to be more frank about the objectives of their policies and about how they intend to achieve those objectives. This follows from the specificity embedded in the inflation-targeting framework itself. However, more important than objectives is straightforward communication about current and prospective developments. The G3 central banks, each of which has "price stability" as all or part of its mandate, appear to have fundamentally different analytical frameworks when it comes to inflation. The Federal Reserve employs as a starting point a forward-looking apparatus based upon estimates of actual and potential GDP and output gaps. The ECB, in the Bundesbank tradition, tends to downplay forward-looking indicators and the associated use of output gaps in favor of an emphasis on current and past inflation and the influence of special factors like oil prices, exchange rate movements, and wage settlements that may affect inflation. The Bank of Japan until recently appears to have taken the view that the less inflation the better even if that means deflation. The preceding sentences are caricatures of what actually goes on in these three central banks, but they are not that far removed from the popular view of the biases and orientations.   The information about revealed inflation aversion is consistent with experience over the period 1990 to 2000 when U.S. overall CPI inflation averaged 3.0 percent per year, German inflation averaged about three quarters of a percentage point lower (2.3 percent), and Japanese inflation was about a percentage point lower than the German rate (1.0 percent).[11] If inflation targeting were adopted by each of the G3 monetary authorities, popular perceptions might become better informed even if the underlying behavior of the central banks did not change significantly.

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[11] The CPI of the G3 economies are not fully comparable. For example, it has been reported that in recent years U.S. cumulative inflation has been less than that in the EU/Euroland as a whole using the methodology of the EU's harmonized index.

If all three central banks employed an inflation targeting framework in conducting and articulating their monetary policies, it would contribute to improved dialogue among them, and thereby, one would hope, contribute to improved cooperation because each party would have a better understanding about how the other party thinks about its challenges.[12]

Of course it is possible that if the G3 each adopted inflation-targeting frameworks for their monetary policies, the parameterization of those frameworks and a failure to articulate their rationales and their implications for policy could increase macroeconomic tensions among the G3 and deliver a setback to international monetary cooperation. One would hope not! If the G3 were to adopt inflation targeting as a framework for their monetary policy, high-level dialogue about inflation forecasts and their implications would be a natural result.

Turning to G3 exchange rates, a case could be made that if the G3 were to adopt inflation targeting frameworks for their monetary policies this would provide a useful guide for nominal exchange rates. If the point targets or midpoints of target ranges for each of the G3 economies were the same, nominal exchange rates might be expected not to be influenced by monetary policy over the longer run. If they differed, then nominal exchange rates might be expected to move in the direction of the net difference.

What is the bottom line? Would G3 inflation targeting be a net plus from a global perspective? The G3 economies as a group might produce better economic outcomes; the improvement in clarity would tend to outweigh any risk of excessive rigidity. Moreover, if as some think we are going into a period where global deflation is a real risk, inflation targeting by the G3 in the form of anti-deflation targeting, in effect, might be a wise insurance policy for the global economy. More generally, the quality of G3 monetary cooperation could reasonably be expected to improve, which would be desirable. Implications of G3 inflation targeting for the behavior and management of G3 exchange rates might be a very small net plus. On balance, it is difficult to make a strong case for collective G3 adoption of inflation targeting as essential to the improved functioning of the international financial system, but it likely would be a plus and there appear to be no substantial downside risks. If the G3 were to adopt inflation targeting by "immaculate conception" it would be a plus. However, how and why inflation targeting might be adopted in each G3 country also is not a trivial matter.[13]

B. **Inflation Targeting and Exchange Rates**

In the three years following New Zealand's formal adoption of inflation targeting at the end of 1989, CPI inflation averaged 2.7 percent in New Zealand, 7.2 percentage

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[12] The BIS annually hosts conferences for central bank economists, and a conference in the fall of 2000 dealt with inflation forecasting. The BIS is to be commended for these efforts; they do contribute to improved understanding among central banks and to the advancement of knowledge generally. However, they are no substitute for high-level discussions of inflation forecasts and their implications for central bank policy.

[13] It should be possible to overcome these procedural hurdles as outlined in Truman (2002b).

points lower than during the three-year period ending in 1989. Growth of real GDP, which had been minuscule in the three years ending in 1989, 0.6 percent, not only did not pick up but was negative, minus 0.2 percent on average in 1990-92. In the subsequent three years, however, growth recovered to average 4.8 percent, and in 2000 and 2001 growth averaged 3.7 percent, in the context of the global economic slowdown. Inflation has remained subdued, and New Zealand is now a successful inflation Maintainer. One puzzle has been the performance of the New Zealand dollar, which on the IMF's real effective basis declined 17 percent from 1989 to 1992, appreciated 30 percent to 1997, and backed off again 27 percent through October 2001. Price stability and reasonably solid growth performance, though not as much growth as the New Zealand authorities hoped, has not been rewarded with exchange rate stability.

On the issue of inflation targeting and the behavior of exchange rates, it is instructive to compare and contrast the experiences of the United Kingdom, Sweden, Poland and Brazil. By way of background, the first two countries adopted inflation targeting in the early 1990s in the wake of the ERM crisis in 1992. The second two countries adopted inflation targeting in the late 1990s, in Poland as part of a further evolution away from an exchange-rate-based disinflation strategy and in Brazil following an external financial crisis and the forced abandonment of an exchange-rate-based disinflation strategy. On average, inflation declined 2.7 percentage points in these four countries in the three years following their adoptions of inflation targeting compared with the three years beforehand.[14] On average, the growth of real GDP rose 1.3 percentage points in the four countries in the three years following their adoption of inflation targeting compared with the previous three years.[15]

These overall favorable results on inflation and growth are only indicative of the macroeconomic success or failure of inflation targeting.[16] The favorable global environment for lower inflation may have had a lot to do with the inflation results. It is also possible the favorable results for both inflation and growth reflect a more general pattern that sound monetary and fiscal policies are generally associated both with low inflation and better overall growth performance.[17]

What about the behavior of exchange rates in these four countries?

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[14] In three of the four countries inflation fell on average, but inflation rose a modest 1.9 percentage points in Brazil in the wake of the real's devaluation in January 1999. The Brazilian calculations cover only the two years before and after its adoption of inflation targeting and exclude 1999; including 1999 in both averages (before and after) reduces the increase in inflation to 1.3 percentage points. For the other three countries, the switch to inflation targeting came late or early in the calendar year, and the six-years are split evenly into before and after.

[15] Poland was the only country that experienced a decline in growth, which was 1.8 percentage points. Again, the average for Brazil is for two years before and after, excluding 1999, but there is still a moderate increase in growth if 1999 is included in both averages.

[16] Truman (2002b) explores these issues in greater if not definitive detail.

[17] The evidence presented in Truman (2002a) for a dozen emerging market economies for the period 1980 to 2000 supports this interpretation.

In the case of the United Kingdom, sterling appreciated 11 percent in terms of the euro from December 1998 (just prior to the euro's inauguration) to October 2000, before depreciating 7 percent through early-May 2002, which left sterling 8 percent above its old ERM central rate with the DM (DM 2.90 per pound). In terms of the dollar, over the same intervals, sterling depreciated 13 percent and has more recently appreciated 1 percent. In real effective terms as calculated by the IMF, from the fourth quarter of 1998 to October 2000, sterling appreciated 13.5 percent and had edged off 1 percent by November 2001.

As in the United States, a relatively strong economy and currency has enlarged the U.K. current account deficit (to the neighborhood of 2 percent of GDP) and tended to depress activity in sectors of the economy producing traded goods and services, while non-traded sectors have continued to do quite well. The Bank of England faces no real dilemma in its policy. The United Kingdom is a relatively large economy (population almost 60 million) and not as open as some (imports of goods and services are about 25 percent of GDP). The Bank of England lowered interest rates 200 basis points in 2001 to help cushion the slowdown in the economy while not endangering its medium-term target for inflation and, possibly, hoping in the process to take a bit of air out of sterling, though sterling only declined 2.5 percent against the euro between the end of 2000 and early May 2002.

In contrast, the Swedish kronor appreciated 12 percent in terms of the euro from December 1998 to October 2000, and the kronor subsequently depreciated 9 percent to early May 2002. In terms of the dollar, over the same intervals, the kronor depreciated 24 percent and subsequently appreciated 4 percent. In real effective terms, as calculated by the IMF, from the fourth quarter of 1998 to October 2000, the kronor depreciated 1.7 percent and it declined a further 8.9 percent by November 2001.

Unlike the U.K. situation the Riksbank faced a bit of a dilemma as its currency weakened. How much should it worry about the risk of imported inflation? Sweden is a small economy (less than 9 million population) and it is open (imports are about 40 percent of GDP). The Riksbank has a much stronger case for not ignoring the first-round effects of a weaker currency than do either the ECB or the Federal Reserve. On the other hand, the Riksbank achieved its inflation objectives in 1999-2001 with the kronor weakening.

A more difficult issue is the potential for distortions in the Swedish economy favoring the production of traded over non-traded goods and services, patterns of production that have pushed Sweden's current account surplus above 3 percent of GDP, are not likely to be sustainable, and may undergo sharp reversal down the road. It may be best to live with the kronor's weakness rather than to fight it with tighter monetary policy that further weakens the domestic economy while inflation is projected to remain close to target. In fact the Riksbank chose to raise the repurchase rate 25 basis points in July 2001, lower it 50 basis points after September 11, and reverse that increase by early May 2002. Sterilized intervention is an option, which the Riksbank employed in the summer of 2001. Sterilized intervention may help to inform foreign exchange and financial

markets of the authorities' views about the appropriateness of the exchange rate's movement, but it not likely to be particularly effective in industrial economics beyond the short run.

This brief review of the British and Swedish experience illustrates three points: First, the generally successful performance of their economies under inflation targeting. Second, the different trends in their exchange rates, suggesting, in case there was any doubt, that successful inflation targeting does not map one for one into a particular type of exchange rate behavior. Third, inflation targeting does not remove the need for the authorities to think about exchange rates and their impact on the economy, certainly the structure of the economy and to some extent inflation, though this last is an unsettled question and may depend more on circumstances than many central bankers willing admit.

Consider the third case, Poland. Against a background of a large fiscal deficit and a widening current account deficit, the zloty has remained strong. From the end of December 1998 (prior to the inauguration of the euro) to October 2000, the zloty appreciated 4.3 percent in terms of the euro, and a further 8.8 percent by early May 2002. Against the dollar, the zloty depreciated 25.2 percent in the first period, and appreciated 18.2 percent in the second. In real effective terms, as calculated by the IMF, from the fourth quarter of 1998 to October 2000, the appreciation of the zloty was 4.2 percent, and it appreciated a further 11.4 percent though October 2001.

Since the end of 2000, the National Bank of Poland has reduced its 28-day intervention rate by 950 basis points to 9.50 percent (as of April 2002), lowering short-term real rates significantly as growth slowed from 4.2 percent in 2000 to 1.1 percent in 2001. Inflation in 2001 was low at 3.4 percent, compared with the 7.5 percent mean projection in "Consensus Forecasts" as of February 2001 and the National Bank's goal of less than 4 percent by 2003 in order to help it qualify for admission to the European Union. Nevertheless, with a strong currency, a widening fiscal deficit of 5.5 percent of GDP in 2001, a current account deficit also of 5.5 percent of GDP, and elections pending in 2002, Poland was described by one investment bank (JPMorgan, August 10, 2001) as "a prime suspect for having an unsustainable policy mix."

Turning to the fourth case, Brazil adopted an inflation target in June 1999 in the wake of the devaluation of the real in January 1999, which terminated what was for a time a very successful exchange-rate-based disinflation strategy under the *real* plan. Inflation came down from quadruple-digits in 1992-93, to 10 percent in 1996, 5.2 percent in 1996, and 1.7 percent in 1998, and growth averaged 3.5 percent during 1995-97 but was only 0.2 percent in 1998.[18] Aided by a dramatic improvement in Brazil's fiscal situation in 1999 and the weakness in the real economy in advance of the devaluation of the *real*, Brazil experienced a much-lower-than-expected pass through of the *real's* depreciation into inflation and the central bank was able to hold 1999 inflation to 8.9 percent, within the 2 percent band around Brazil's initial inflation target of 8 percent, and

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[18] The inflation data are December over December.

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growth was positive.[19] (See Arminio Fraga (2000), Research Department of the Central Bank of Brazil (2000), Bogdanski et al. (2000) and Bodganski et al. (2001).) In 2000, inflation was right on the target of 6 percent set by the National Monetary Council based on the recommendation by the Minister of Finance, and growth picked up to 4.5 percent although the current account deficit remained above 4 percent of GDP.

More recently the performance of the Brazilian economy has been adversely affected by the global economic slowdown and the trials and tribulations of neighboring Argentina. Growth in 2001 was 1.5 percent. The *real* depreciated against the U.S. dollar 34 percent from the end of June 1999, when Brazil formally adopted inflation targeting, through the end of October 2001. The *real* recovered 14 percent against the dollar by the end of the year, but edged off 4 percent by early May 2002. Brazil's current account deficit widened slightly further in 2001 to 4.6 percent of GDP. The Banco Central pushed up the overnight (SELIC) interest rate by 325 basis points during 2001 to 19 percent, before lowering them 50 basis points in early 2002, and in mid-2001 initiated a program of daily foreign exchange sales, in part, to cover the unexpected shortfall of inflows of foreign direct investment. As a consequence of these factors, and despite overachievement of the target of 3 percent of GDP for the primary surplus by 0.7 percentage points, the overall fiscal deficit increased by 0.7 percentage points of GDP to 5.2 percent in 2001 and government debt rose further to 53.1 percent of GDP by the end of the year. The central bank has raised its December-over-December inflation forecast for 2002 to 4.5 to 5 percent compared with a target of 3.5 percent with a tolerance of plus or minus 2 percent.[20]

Against the background of this brief review of the experiences of Brazil, Poland, Sweden and the United Kingdom with inflation targeting and flexible exchange rates regimes, lets return to the basic question. What can we say about inflation targeting as a framework for the conduct of monetary policy and debates about exchange rate regimes, particularly for emerging market and other developing economies where such debates still rage most intensely. The issue for the most part has been settled for the industrial countries in favor of either floating or adoption of a collective currency, as in the case of most members of the European Union.[21] However, for inflation-targeting industrial countries such as the Australia, Canada, New Zealand, Sweden and the United Kingdom solid inflation performances and reasonably strong growth performances have not been associated with either exchange rate stability or the avoidance of wide swings in

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[19] In addition to the inflation-targeting framework itself, the central bank also credits the support of the international financial community for its success in containing inflation in 1999. See Joel Bogdanski, Paulo Springer de Freitas, Ilan Goldfajn, and Alexandre Antonio Tombini (2001).

[20] The National Monetary Council sets Brazil's annual December-over-December inflation targets by June 30 two years in advance of the target year. The target for 2003 is 3-1/4 percent.

[21] The birth of the euro can only partly be attributed to a coalescence of views within Europe about exchange rate regimes, contrary to the views expressed by Stanley Fischer (2001) and Paul A. Volcker (2001). The euro phenomenon is at least as much a consequence of the fifty-year trend toward European economic and, importantly, political integration. That latter factor, of course, figures in debates about exchange rate regimes and national sovereignty, as is illustrated by the debate in the United Kingdom about joining the euro area and by debates in Ecuador and El Salvador about dollarization.

exchange rates, the behavior of exchange rates is at least a challenge and definitely raises policy issues.

Moreover, the debate about the appropriate choice of exchange rate regime for emerging market economies continues to rage among economists and political economists in large part because of the less-than-accepted wisdom that no exchange rate regime is best for all countries at all times in all circumstances, or as Jeffrey A. Frankel (1999) stated in the title of his essay *No Single Currency Regime is Right for all Countries or at All Times*. As Corbo and Schmidt-Hebbel (2001) argue in the context of inflation targeting in Latin America, economists and policy makers do not have an all-encompassing framework for choosing among exchange rate regimes, there is a lack of consensus on the empirical weight to be given to different costs and benefits, and those costs and benefits change over time.

In the context of inflation targeting, the debate about exchange rate regimes comes down to three questions: What types of exchange rate regimes are compatible with an inflation-targeting framework for monetary policy? What types of exchange market policy or approaches to exchange market operations are most consistent with that framework? Is a "fear of floating" likely to undermine, for either rational or irrational reasons, the capacity, in particular by authorities in emerging market economies, to implement inflation targeting effectively?

Some advocates of inflation targeting take the position that the only exchange rate regime that is fully compatible with an inflation-targeting framework for the conduct of monetary policy is essentially free floating. Anything in the direction of the more rigid pole in the spectrum of exchange rate regimes is at best a distraction and at worst confusing to policy makers and economic agents. This is not an area where virtue resides in being doctrinaire.

First, we know that some countries (Chile, Israel, and Poland) quite successfully combined an inflation-targeting framework for the conduct of monetary policy with the use of crawling-peg or fixed-band exchange rate regimes; those countries faced numerous problems, but on balance they succeeded in their overall policy objective which was to bring down inflation gradually.[22] Whether other countries, e.g., Turkey, are likely to be equally successful, only time will tell.

Two factors under the control of the authorities appear to be essential in combining an inflation-targeting framework for monetary policy with rigid or more heavily managed exchange rate regimes.[23] The authorities need to provide reasonable clarity in advance about which element of the dual approach will be given priority in the case of a conflict, e.g., downward pressure on a country's currency when inflation is running below target or vice versa, or at least they should communicate their thinking about the relevant considerations, ex ante, and explain their behavior clearly, ex post.

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[22] See Mishkin (2000) and his discussion of Chile's careful and successful execution of a dual approach.
[23] The debate about the fear of floating, see below, is largely about external factors that are not under the control of the authorities.

Blejer and Leone (2000) argue that the co-existence of "multiple anchors" sooner or later becomes a source of policy conflict; the issue is whether the conflict can be anticipated and, thereby, can be largely defused in advance. In non-conflict cases, the issue is one not of strategy but of tactics. The authorities also need to be realistic. In light of the recent failures of exchange-rate-based exchange rate regimes, care needs to be paid to their design and operation. In this connection, the BBC (band, basket, and crawl) approach advocated by John Williamson (2000) in the most recent evolution of his thinking about more structured exchange rate regimes merits serious consideration.

Second, monetary authorities in industrial countries as well as emerging market economies care about their exchange rates, and it is unrealistic to try to constrain them from doing so or to pretend that they do not. They care about their exchange rates for many reasons, including the impact on inflation, on particular sectors of the economy, on social cohesion, and on financial stability. The challenge is to channel these concerns in realistic and constructive directions and to resist the construction of Maginot lines. What is pressure on a country's currency telling the authorities of that country about their macroeconomic and, possibly, other policies? What is the best way to respond to such pressure? We return to this question below in discussing of the "fear of floating."

In this connection Morris Goldstein (2002) has recently put forward a mixed strategy which he calls "managed floating plus." The approach involves managed floating plus inflation targeting as a focus for macroeconomic policy discipline (more than just a guide to the central bank and an anchor for inflation expectations) plus aggressive measures to reduce currency mismatching by the authorities, financial institutions and private borrowers. In the Goldstein world, the authorities could intervene in the exchange market to smooth "excessive short-term fluctuations in exchange rates or to maintain market liquidity," but they would not use sterilized intervention on a large scale to try to alter the course of the exchange rate; they would not intervene to dampen short-term volatility of exchange rates which he sees as helping to enhance perceptions of market risk; and they would certainly not have a publicly announced exchange rate target.[24] Although Goldstein rejects it, I could see his "lightly managed" floating plus enhanced a bit in the direction of management in combination with a "light" version of the Williamson (2000) BBC approach. It would have to be clear that the band was purely indicative of the authorities thinking on the appropriate longer-term trend for their currency in terms of a basket of currencies. For a successful inflation-targeting Maintainer, the crawl dimension of the BBC approach would be unnecessary.

When the authorities of an inflation-targeting economy become concerned about pressures on their currencies, they need to consider how best to respond under the circumstances, including the framework under which they operate their monetary policy.

The first option is (sterilized) exchange market intervention. Not all policy makers or experts agree about the effectiveness of exchange market intervention, but there is reasonably broad consensus that the more open a country's capital market and financial system the less likely it is to be effective, but also vice versa. It is quite possible

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[24] Goldstein (2002), pages 43-44.

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that a $10 billion sale or purchase of yen or euro by the U.S. monetary authorities, whether or not it is in coordination with the Japanese or European authorities, will be less effective, or whatever effect there is will be less sustained, than, say, a $1 billion sale or purchase of *reais* or Mexican pesos by the authorities of those countries.

If the country's monetary policy is being conducted using an inflation-targeting framework (Brazil) or if the country has merely had negative experience with rigid exchange rate regimes (Mexico and Colombia until recently), there is considerable merit in conducting such operation with as much transparency as possible as the authorities of Brazil, Mexico and Colombia have recently demonstrated. Given that one potential channel through which exchange market intervention affects exchange rates is by altering expectations about the future course of monetary policy, the risk is that non-transparent operations will generate the wrong signals about those policies. Moreover, as long as central banks hold foreign exchange reserves, which normally entail a fiscal burden, it is reasonable that they should use them.[25]

The second option open to the authorities, if they feel that have to resist exchange market pressures on their currency, is to adjust their monetary policy.[26] The challenge, if the authorities choose this course, is that in their desire to resist pressures on their currency they may implement monetary policies, which may be too tight or too easy, that undermine the achievement of their inflation and stabilization objectives. It is human to seek to achieve, or to fool oneself into thinking that one can achieve, incompatible objectives. Under such circumstances, an inflation-targeting framework for the conduct of monetary policy may provide some discipline on choices that are made, but inflation targeting offers no foolproof way of achieving incompatible objectives or of preventing foolish attempts to do.

Detractors from inflation-targeting as a framework for the conduct of monetary policy when combined with a floating exchange rate regime, in particular for an emerging market economy, argue that the authorities may pretend to allow their currency to float as they target inflation, but their "fear of floating" will prevent them from doing so. To the extent that this fear is irrational, the economic psychiatrists should be called in to handle

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[25] The matter of the use of foreign exchange reserves is connected to the issue of IMF conditionality, discussed below. (For example, what is the rationale for IMF-imposed limits on a member country's net international reserve position?) It is also connected to the issue of the Greenspan-Guidotti rule or guideline that the ratio of foreign exchange reserves to short-term external obligations maturing in less than one year ideally should exceed one. (For example, should reserves only be used to pay off those short-term obligations or should they be potentially available for other purposes as well?)

[26] I am deliberately excluding the option of comprehensive capital controls. The recent revival of attention to the so-called impossible trinity – fixed exchange rate, capital mobility, and monetary policy dedicated to domestic objectives – as a framework to think about the international financial system has contributed to the mistaken view that the first and third elements of that trinity can be achieved in practice on a sustained basis via capital controls. As with sterilized foreign exchange market intervention, comprehensive capital controls on either outflows or inflows are unlikely to be effective for very long; the more that they are strengthened and made more comprehensive, in the name of sustaining or enhancing their effectiveness, the more costly are the distortions that they introduce into the economy, including the administrative costs of the controls. It is a separate issue whether something less than full capital account convertibility as practiced by Brazil is a net benefit to an emerging market economy as part of a transitional regime.

the condition. However, detractors argue that the fear is entirely rational because countries with floating exchange rate regimes are prone to experience external financial crises, which involve severe economic contractions, because emerging market economies have non-continuous access to international capital markets, and because their financial systems are weakened by liability dollarization.[27]

The holders of these views are right to argue that floating exchange rates offer no panacea. Advocates of floating exchange rates at best are justified in making the case that floating offers particular countries in most circumstances a more attractive option than other alternatives. By the same time, advocates of the alternative, the abandonment of the country's currency in favor of the adoption of another country's currency, e.g., the dollar via dollarization, also should be forthright about the risks. Economies that opt for dollarization may reduce the probability of experiencing a currency crisis, by construction. However, the probability of experiencing an international credit crisis may increase; see the experience of Panama.

It is not appropriate to focus on the incidence and severity of crises as the principal test for exchange rate and monetary policy regimes. There are more effective ways of preparing for winter blizzards than walking around all summer in heavy overcoats. If the nature of an economy lends itself to exchange rate crises that are associated with severe economic contractions and the reason is that the government and private economic agents lose access to international capital markets after having taken on excessive dollar liabilities, then the authorities should consider other means of lessening those risks and protecting their domestic financial systems via policies and regulations that reduce their vulnerability. Here, Goldstein (2002) and his recommendations about an aggressive approach toward currency mismatching deserve serious consideration.

On the question of the authorities of countries that nominally favor floating but behave as if they actually favor fixed exchange rates, one must be careful in the analysis. As argued above, caring about exchange rate movements is not the same thing as being fixated on them. Calvo and Reinhart (2001) comment with respect to inflation targeting, "in countries where the pass-through from exchange rates to prices is high, inflation targeting often starts to resemble a soft peg, as swings in exchange rates are resisted."[28] This statement involves two separable issues: the extent of the pass-through from movements in exchange rates to prices and how the authorities should respond.

On the first issue, if prices of most or all goods and services in an economy are linked, pari passu, to movements in the economy's currency both in terms of level and rate of change, then one can reasonably ask whether the economy will be well served by floating. However, that is usually not the case, unless that economy follows a monetary policy that completely accommodates all nominal exchange rate movements. Research on various economies' experience with the pass through of exchange rate movements to prices reveals a range of experience depending on various structural characteristics of the

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[27] The insightful and provocative writings of Guillermo Calvo and Carmen Reinhart (2000 and 2001) lay out this case.

[28] Eichengreen (2001) appears to have some sympathy with this position.

economies, their changing economic circumstances, and their histories. (See Goldfajn and Werlang (2000), Kamin (1998), and Joseph Gagnon and Jane Ihrig (2001).) A reasonable conclusion from this literature is that pass-through coefficients are not universal constants but endogenous variables, and as such they can be influenced by policy and the policy regime.

On the question of how monetary authorities should respond to exchange rate movements, the appropriate answer is not that they should be ignored. However, the fact that the authorities do not ignore such movements should not be interpreted as evidence that they are closet advocates of fixed exchange rates. As noted above, the authorities should consider whether movements in exchange rates are telling them something about their underlying policies. For example, the weakness of the U.S. dollar in the late 1970s ultimately told the U.S. monetary authorities that monetary policy was and had been too easy for too long.

Even if a message of the U.S. type is not relevant to the particular country's circumstances, and the explanation for the exchange rate movement is entirely exogenous, the authorities should take account of such movements.[29] In a very open economy, where the authorities' judgment is that the pass-through coefficient is expected to be large, they may choose to tighten monetary policy (raise interest rates) to resist their currency's depreciation, including the first-round effects of that depreciation. In the limit, as just argued, the economy may be better off in a regime with zero exchange rate flexibility. In a less open economy, where the pass-through coefficient is expected to be small, the authorities nevertheless have to take account of the impact on the economy (output gap and structural imbalances) and on inflation (sympathetic movements in prices of import-competing and export goods and second-round effects) of movements in exchange rates as was discussed in the context of the British and Swedish situations. To do so does not weaken the case for the adoption of inflation targeting as a framework for the conduct and evaluation of monetary policy, it merely illustrates that such a framework is not self-executing.

The preceding discussion points to the following conclusions: First, successful inflation targeting does not eliminate wide swings in exchange rates, sometimes up, sometimes down, and sometimes both. Second, inflation targeting does not remove either the incentive or the need for the authorities to think about movements in exchange rates and their impacts on the economy. Third, it follows that under some circumstances mixed regimes may be appropriate. Fourth, the more transparent any mixed regime, the better. Fifth, the fact that the authorities may react to and seek transparently to influence exchange rate movements is not necessarily equivalent to manifesting a "fear of floating;" it may just be good policy. Finally, both Williamson's BBC approach and Goldstein's "managed floating plus" approach may have something to offer the authorities.

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[29] The fact that they do so, for example in the case of Canada which Calvo and Reinhart (2001) cite as exhibiting a "fear of floating", should be taken as a measure of responsible policy not a policy distortion.

C. Inflation Targeting and Adjustment Programs

With the possible exception of Brazil, which already was receiving support from the IMF following its 1998-99 crisis and had been using an inflation-targeting framework for its monetary policy since the middle of 1999 and received additional contingent support from the IMF in August-September 2001 linked to concerns about contagion from Argentina, no economy using an inflation-targeting framework has experienced an international financial crisis. However, as discussed above, to date, experience with the framework has been limited among emerging market economies and the behavior of the global economy over past decade generally has been conducive to the reduction of inflation rates.

Thus, it is too early to say whether economies with inflation-targeting frameworks will be particularly prone to international financial crises. However, it would be unwise to conclude that countries employing inflation targeting are immune from crises. One can only hypothesize about the circumstances in which an inflation-targeting practitioner might experience a crisis: a large adjustment in its exchange rate accompanied by a domestic capital flight and a withdrawal of foreign capital, and, perhaps, also associated with widespread problems in its domestic financial system. Under such circumstances, the monetary authorities will be challenged to make difficult judgments in the context of their inflation-targeting framework, should they choose to retain it. Upward pressure on inflation and downward pressure on economic activity would normally be expected, but the inflation typology of the economy might be that of a Maintainer, Converger, or Squeezer, which is also relevant.

The situations in the United Kingdom in 1992 and Brazil in 1999 may be illustrative of the possible circumstances of inflation-targeting Maintainers in the wake of an international financial crisis. They were not inflation targeters at the time and, aside from their low inflation rates, were not identical in several respects, e.g., the United Kingdom at no point lost access to international capital markets although the adjustment in its external accounts over the next two years (1993 and 1994) was substantial. Economic activity increased in both countries in the wake of their crises. In the United Kingdom, year-over-year inflation, which was 3.7 percent in 1992 and 6.7 percent in 1991, declined to 1.6 percent in 1993 before rising to 2.3 percent in 1994. In Brazil, year-over-year inflation was 1.7 percent in 1998 and 5.2 percent the year before, and rose to 8.9 percent in 1999 and 6.0 percent in 2000. Brazil's performance was remarkable, but not quite as remarkable in absolute terms as that of the United Kingdom. Comparing the experiences of these two economies, one might reasonably conclude that inflation targeting can aid in the return of a country in crisis to stability, but that the challenges for an emerging market economy are greater.

The experience of the Czech Republic comes closest to that of an inflation-targeting Converger. In 1997, the year the Czech Republic abandoned its exchange rate peg in the middle of the year and adopted an inflation-targeting framework for its monetary policy at the end of the year, year-over-year inflation was 8.5 percent and real

GDP declined 1 percent; the year before, inflation was 8.8 percent and growth 4.8 percent. In 1998, inflation rose to 10.6 percent, substantially above the central bank's target range for "net inflation, excluding regulated prices and the effects of changes in taxes" of 5.5 to 6.5 percent, and the real economy contracted by 2.2 percent. In 1999, inflation dropped off to 2.1 percent, substantially below central bank's target range of 4 to 5 percent, and there was negligible growth (minus 0.2 percent). In 2000, inflation and growth both picked up; inflation was 3.9 percent, within the target range of 3.5 to 5.5 percent, and growth was 2.9 percent. In 2001, inflation was 4.1 percent close to the Czech National Bank's target range of 2 to 4 percent, and growth increased.[30] This evidence suggests that inflation-targeting Convergers, in the wake of international financial crises, and the Czech situation was not really a crisis because the central bank took preemptive action to abandon the exchange rate peg in 1997, can achieve substantial convergence, but at a non-trivial sacrifice in terms of economic growth, and their success may be short-lived.

Turkey offers the first case of an inflation-targeting Squeezer in the context of an international financial crisis. The parameters of its framework have not yet been set, nor has a date been set for implementation. However, following inflation of 55 percent in 2000 and the same rate again in 2001 along with a 6.2 percent contraction of real GDP, the authorities have their proverbial work cut out for them, does the IMF.

Mario Blejer, Alfredo Leone, Pau Rabanal and Gerd Schwartz (2001) provide an excellent overview of the tensions and challenges posed by the potential interaction of inflation targeting and IMF conditionality. As they explain, conditionality (performance criteria, which normally are formal quantitative targets on defined variables, subject to verification, such as the level of or changes in the central bank's net international reserve (NIR) position[31] and net domestic assets (NDA)) is the device used by the IMF to "establish safeguards that would increase the certainty that its resources are used only temporarily" as the member reaches a viable balance of payments position. The potential incompatibility of traditional IMF conditionality with inflation targeting arises, in the words of Blejer et al., "because the actual implementation of inflation targeting is largely based on the premise that an independent central bank can use, at its discretion, its various policy instruments, in the proportions considered appropriate in each particular circumstance, so as to ensure the attainment of its inflation goal."

Moreover, the link between inflation and a viable balance of payments position is not one that is well established either in theory (as long as a country has a flexible exchange rate) or in practice. Article I of the IMF's Articles of Agreement states the purposes of the Fund. It mentions the temporary availability of IMF resources to members "under adequate safeguards" to provide them with "the opportunity to correct maladjustments in their balance of payments without resorting to measures destructive of

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[30] Consistent with the objective of joining the European Union and participating fully in European Economic and Monetary Union by 2005, the Czech Republic's target for inflation that year is 1 to 3 percent.
[31] Defined normally as gross foreign exchange reserves less credit advanced by the IMF and any other official short-term credit to the central bank or finance ministry.

national or international prosperity" and, thereby, "to shorten the duration and lessen the degree of disequilibrium in the international balances of payments of members." The closest the language in Article I comes to mentioning low inflation is a reference to the "promotion and maintenance of high levels of employment and real income" in its members.

Supporters of the IMF's involvement with the anti-inflation policies of its members might reasonably argue that the Fund is a monetary institution and that monetary institutions should be concerned about inflation regardless of what their charters state to be their mandates. In fact, under Article IV of the IMF Articles of Agreement, governing members' obligations regarding exchange rate arrangements, a member "undertakes to collaborate with the Fund and other members . . . [and] shall endeavor to direct its economic and financial policies toward the objective of fostering orderly economic growth with reasonable price stability, with due regard to its circumstances." It also could be argued that low global inflation contributes to the better functioning of the international financial system. The IMF also has a reason to have an interest in the instruments and manifestations of a member's monetary policy – interest rates and central bank credit – and how they are used to help reestablish equilibrium in a member's balance of payments, inclusive of its capital account, via the reestablishment of macroeconomic stability, once that equilibrium has been lost.[32]

The sensitive point in the context of Turkey's experience with the IMF, dating back to 1999, is that Turkey did not initially face a balance of payments problem in the sense that those problems are conventionally understood, pressure on its real exchange rate and difficulty financing its current account deficit, which was less that 1 percent of GDP in 1999. One could reasonably argue, in terms of the stability of the international financial system, that Turkey was an accident waiting to happen; the IMF was right to support preemptive action to bring down inflation and establish macroeconomic stability (given that the objective and the approach to achieving it had the strong support of the Turkish government); the exchange-rate regime that the IMF supported in an effort to do so was high risk; and with the benefit of hindsight the program that the IMF supported brought on the crisis that the IMF and the Turkish authorities were trying to avoid. It would appear that a rethinking of the IMF's rationale for intervention in such cases could usefully be undertaken. In the meantime, the IMF must adapt its traditional policies on conditionality to the reality that inflation targeting is the preferred monetary policy framework for some members with IMF-supported adjustment programs.

Starting with the Brazilian case, an inflation-targeting Maintainer not an inflation-targeting Squeezer, the IMF had to find a way to blend its traditional instruments of conditionality with respect to the execution of monetary policy by the central bank with Brazil's inflation-targeting framework for the conduct of that policy.[33] What the IMF

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[32] Of course, this latter issue, the role of interest rate policy in the establishment of macroeconomic stability, has also been hotly debated in the wake of the Asian financial crisis.

[33] In April 2001 the IMF applied essentially the same procedure to Colombia, a Converger, and in February 2002 to Peru, a Maintainer. The Philippines has also become an inflation targeter, but in January 2002, after the end of its most recent IMF program.

management proposed, the Brazilian authorities accepted, and the IMF Executive Board approved, as described by Blejer et al. (2001), was an approach that retained a limit on the level of NIR – to ensure that the central bank held onto enough resources to repay the IMF and to guard against a reversion to exchange rate fixity due to an underlying fear of floating – and quarterly reviews of the central bank's progress in meeting its 12-month inflation targets. Notwithstanding the fact that Brazil's inflation targets were stated in terms of the December-to-December rates, the quarterly reviews were based on interpolated 12-month inflation rates with a deviation of plus or minus one percent triggering an informal consultation with the IMF staff and a deviation of plus or minus two percent triggering a formal review involving the IMF Executive Board.

Although the IMF should be commended for its exercise of imagination and flexibility with respect to monetary policy conditionality in the Brazilian case, the Brazilian program is an experiment. It would be reasonable to consider a range of other options in addition to considering both the issue of the role of NIR targets as discussed earlier and the rationale for IMF involvement in support of anti-inflation programs.

A reasonable list of alternative approaches might include the following possibilities:

1. Let the IMF itself, through its resident representative or her agent, run central bank policy; a broad guideline might be agreed between the country and the IMF (an inflation target) but all operational decisions about how to conduct policy in light of that target would be subject to prior approval or non-disapproval by the resident representative. This might be called the Indonesian model of the spring of 1998, which was adopted after two failed attempts by the government and central bank of Indonesia to abide by mutually agreed monetary policy guidelines.

2. Periodic monitoring based on
    a. Inflation bands as is now the case for Brazil, Colombia and Peru, but consideration might be given to wider bands or widening of the bands under some circumstances such as the initial inflation rate;
    b. On a bi-weekly, monthly, quarterly or semi-annual basis;
    c. By IMF staff;
    d. By IMF staff and the Executive Board as is now the case for Brazil, Colombia, and Peru;
    e. By IMF staff with the Executive Board reserving the right to ask for a formal review if it became concerned;
    f. By a group of independent experts who might or might not have the discretion to refer their findings or concerns to the Executive Board.

3. Trust the central bank and review performance only annually.

4. Trust the central bank, review performance annually, but provide that if the Executive Board were not satisfied it could ask for early repayment of some or all IMF disbursements.

5. Supplementing a monitoring arrangement, at least under some circumstances, with qualitative measures of performance, in addition to a NIR target (assuming such a target can be justified on other grounds), such as:
   a. A guideline for the minimum level of real interest rates based upon the observed level of real interest rates on average over a pre-program period;[34]
   b. An exchange rate guideline, preferably one based on the BBC (band, basket, and crawl) approach; and
   c. A rule such as the Taylor rule.[35]

6. Some combination of the above elements at the option of the country with the understanding that a more circumscribed option would be chosen if the central bank's performance were subsequently judged by the Executive Board to be deficient.

Further work and experimentation is needed on the issue the structure of conditionality for practitioners of inflation targeting that are receiving IMF support for their programs and also on the underlying rationale for the IMF's involvement in monetary policy implementation. There should be a strong presumptive case in favor of "IMF lite" in this area at least for inflation-targeting Maintainers if not inflation-targeting Convergers. Inflation-targeting Squeezers are another matter. In those cases, where there is little evidence that inflation targeting per se is likely to accomplish a great deal, there is a much stronger case for supplementary, supporting guidelines such as those outlined in point 5 above. On the basis, of a positive assessment of a member's overall performance on the IMF-supported program, the conditionality surrounding the implementation of its inflation-targeting framework for the conduct of monetary policy should be relaxed, consistent with the transparency and accountability ingredients of that framework.

On inflation targeting and adjustment problems and programs, three broad conclusions emerge: First, inflation targeting almost certainly does not offer an escape from external financial crises though no inflation targeter to date has experienced a crisis after it has adopted such a framework. Second, inflation targeting may offer some help to countries emerging from external financial crises, and inflation targeting may be less crisis-prone than more rigid regimes. Third, with respect to IMF conditionality, the IMF is to be commended by seeking to adapt its procedures for countries with IMF-supported

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[34] Some inflation targeting central banks employ such a guideline in their internal deliberations.

[35] Blejer et al. and Bogdanski et al. have investigated the application of a Taylor rule approach to monitoring the Banco Central do Brazil's execution of monetary policy and have not found that it provides much improvement in terms of improved outcomes or less binding constraints on the central bank.

adjustment programs that also have adopted inflation targeting, but further modification and experimentation almost certainly is in order.

III. Conclusions

First, inflation targeting as a framework for the conduct of a country's monetary policy may not be best for every economy because economic and financial conditions may not be conducive or the authorities may not have the political support to implement such a framework. Successful implementation requires political will to focus with some degree of seriousness on achieving a reasonable degree of price stability even though the target itself can be specified in a number of different forms. Successful implementation normally also requires the expenditure of real resources by central banks in calibrating the framework, performing the type of analyses necessary to employ it, and communicating to politicians, economic agents, financial markets and the general public what the central bank is doing and why -- in particular, when an economy is buffeted by volatile external and internal conditions. Substantial resources are required to implement any successful monetary policy framework, but politicians and the general public may not accept that fact.

Second, the case for inflation targeting presumes that a country has some scope to exercise an independent monetary policy and that the economy will generally perform at a higher level over a sustained period if the authorities are in a position to exercise that independence, at least occasionally. The successful exercise of that independence requires that there be a meaningful difference in the behavior of the prices of traded and non-traded goods so that adjustment of real exchange rates has the potential for offering a lower-cost means of adjusting to disturbances than economy-wide inflation or deflation. In addition, there must be some short-run elasticity of output to inflation. Monetary policy needs a fulcrum on which to operate. Moreover, the authorities must be willing, or see it as potentially advantageous on balance, to use monetary policy as an instrument of adjustment. If they are content to have the economy's interest rates and its price level determined entirely by the interaction of the real economy with monetary conditions as set, or at least strongly influenced, by the authorities of another country, or if they see no alternative, then inflation targeting is not for them.

It may well be, as argued by Volcker (2001), that monetary independence is not all that valuable in today's world, "The loss of monetary independence has been equated with loss of control over a nation's economic destiny. But for some countries it's fair to ask whether the perceived loss of national autonomy is real or illusionary. Can in fact a small open economy have an independent monetary policy and control over its financial destiny?" Volcker asserts that economies as large as Indonesia, Thailand, Mexico, and Argentina do not really have freedom of choice in a world of globalized finance. He reaches the "conviction that the full implication of a truly global system of trade and finance will ultimately be a common currency encompassing most of the world" though he claims he is enough of a realist to know that is not a project for his lifetime. Volcker may be right, but I suspect that he underestimates the complexity of

both the economics and the political economy involved the authorities in economies as large as those he mentions to give up their monetary independence.

Third, hybrid regimes and experimentation should be tolerated and, perhaps, encouraged. Inflation targeting is best view as a framework for the conduct of monetary policy. It should not be treated as a fixed formula or a straightjacket. It is neither a panacea nor a poison pill for an individual economy or the international financial system. If inflation targeting proves to be broadly adaptable it can offer more promise to more economies. Adaptation involves hybrids that place different weights on various considerations, such as exchange rate movements. However, the challenge is to be clear about the nature of the hybrid and avoid randomized eclecticism.

Fourth, everything else being equal, including the three previous points, inflation targeting has considerable promise for Maintainers, if they are serious, and provides an opportunity for Convergers, as long as they understand that the framework involves discipline not magic. The costs of reducing inflation are not likely to be lowered, but it may be easier and less costly to maintain inflation at a low level. With respect to inflation Squeezers, I think that we can only conclude that the jury is still out.

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