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MONETARY POLICY STRATEGIES FOR LATIN AMERICA

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ABSTRACT

The paper examines possible monetary policy strategies for Latin America that may help lock-in the gains in the fight against inflation attained by the region during the 1990s. We start by calling for a refocus of the debate about the conduct of monetary policy away from thinking that it is about whether the nominal exchange rate should be fixed or flexible. Instead we argue that the focus should be on whether the monetary policy regime appropriately constrains discretion in monetary policymaking. This focus suggest that there are three basic frameworks that deserve serious discussion as possible, long-run strategies for monetary policy in Latin America: a hard exchange-rate peg, monetary targeting, and inflation targeting. We look at the advantages and disadvantages of each of these strategies and then examine the recent track record of monetary policy in some Latin American countries for clues as to which of the three strategies might be best suited to economies in the region.

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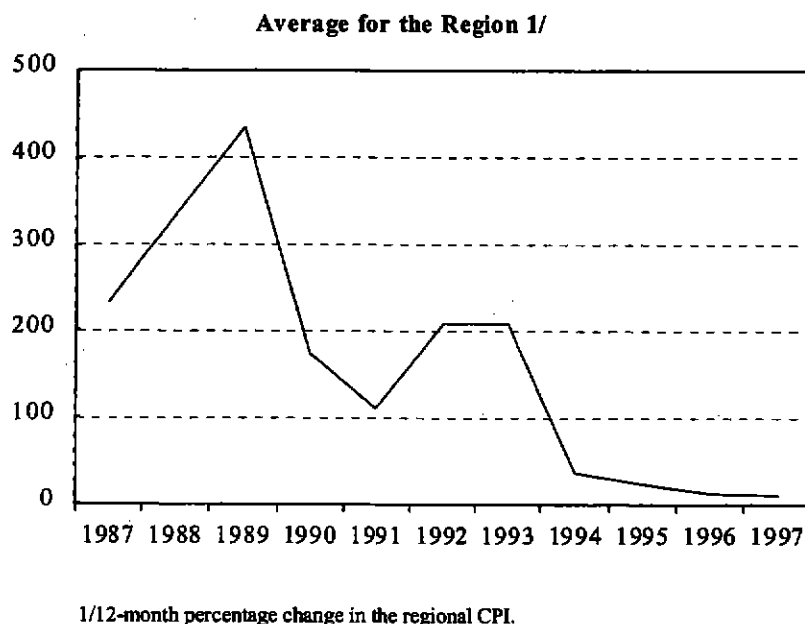
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I. Introduction

The monetary policy experience of Latin America has not been a happy one. Economies in this region have gone through extreme episodes of monetary instability, swinging from very high inflations, to massive capital flight, to collapses in their financial systems. The unsurprising outcome has been low credibility, slow growth, recurrent recessions and even depressions. However, a new era may be dawning in Latin America. In the past decade or so, most countries in the region have become outward looking, and the public, politicians and policymakers have come to recognize the high costs of protectionism and inflation, producing a growing commitment to open markets and price stability.

Evidence of this more favorable environment are the successful inflation stabilization programs adopted by many Latin American countries in the early 1990s, and the historically low rates of inflation attained by the region in recent years (see Figure 1). Where should Latin American countries go from here in designing appropriate long-run strategies for the conduct of their monetary policy? This is what we look at in this paper. We start by calling for a refocus of the debate about the conduct of monetary policy away from thinking that it is about whether the nominal exchange rate should be fixed or flexible. Instead we argue that the focus should be on whether it is possible to set up a monetary policy regime that appropriately constrains discretion in monetary policymaking. This focus suggests that there are three basic frameworks that deserve serious discussion as possible, long-run strategies for monetary policy in Latin America: a hard exchange-rate peg, monetary targeting, and inflation targeting. We look at the advantages and disadvantages of each of these strategies and then examine the recent track record of monetary policy in some Latin American countries for clues as to which of the three strategies seems best suited for the economies in the region.

Figure 1. Latin America: Inflation in the 1990s



Source: IMF, World Economic Outlook

II.

The Issue is Not Fixed Versus Flexible Exchange Rates

Discussions of monetary policy in Latin America are constrained by the small open economy paradigm. Monetary policy issues are typically relegated to the back burner of analytical and policy debates, which tend to take place in the vast domain of the “Fix vs. Flex” divide. When times are good and the attention is focused on issues related to the choice of (permanent) exchange rate regimes, it is taken for granted that monetary policy will be consistent with the preferred exchange rate system--whichever that might be. When times are bad and the attention centers on finding the main culprit of high inflation or a currency crisis, monetary policy is often considered part of the problem either because it was dictated by fiscal needs or because it exacerbated inflationary dynamics or, the ultimate euphemism, because it “was inconsistent with preserving macroeconomic equilibrium.” Issues central to the

understanding of monetary policy such as the nature and duration of the lags from instruments to targets, the main transmission mechanisms of monetary impulses, and the identification of monetary policy shocks are largely absent from the Latin American debate,¹ and for a number of countries studies of those issues do not even exist.²

Until the early 1990s this emphasis was probably justified. For the preceding two/three decades the Latin American landscape was characterized by protracted fiscal imbalances, recurrent bouts of (very) high inflation, distorted trade regimes, repressed financial systems, overvalued exchange rates and limited capital mobility. The scope for "good" monetary policy in that environment was extremely limited (e.g., Bruno, 1995). The overarching priorities were trimming down the public sector, cutting the fiscal deficit, bringing down inflation, alleviating the external debt burden, dismantling the controls, and getting the exchange rate right. It made sense to carry the debate in terms of "Fix vs. Flex" under those circumstances.³ However, with the drastic changes that have occurred in Latin America during the last few years, maintaining the discussion of monetary policy issues constrained by the terms of the "Fix vs. Flex" debate seems less justifiable. Throughout the region, inflation has come down to levels not seen for decades (see Figures 1 and 2); central banks have become more independent from the government; fiscal deficits have become manageable; and capital mobility has increased immensely. Furthermore, and largely as a consequence of the last

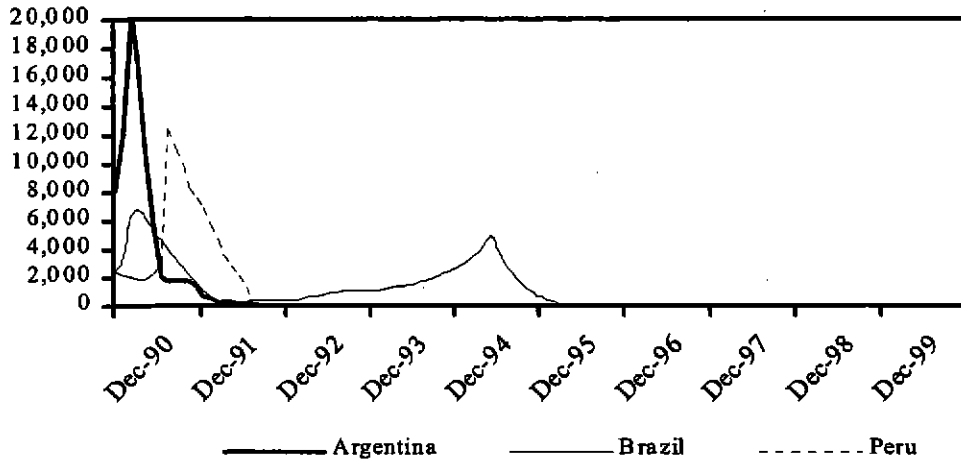
¹ The recent papers by Kamin, et al., 1998 and Corbo, 1999 are among the few studies that address some of these issues more or less systematically for a group of Latin American countries. See also Cottarelli and Giannini, 1997 and Fry, et al., 1999 for a broader overview of monetary policy issues in a larger sample of developing countries.

² For most Latin American countries there exists a vast empirical literature on money demand equations, and on the estimation of offset coefficients and of revenues from seigniorage. However, these studies do not shed much light on the conduct and effectiveness of monetary policy in the countries and, tellingly, their findings do not figure prominently in the policy debates.

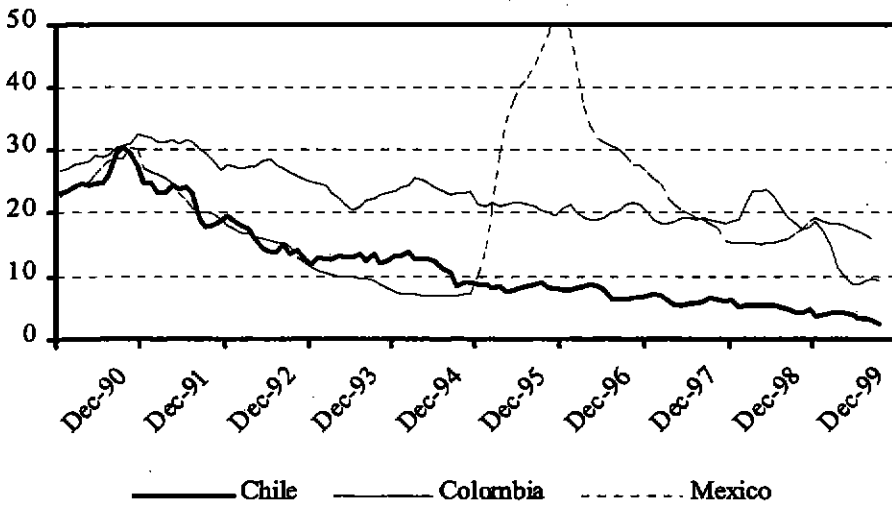
³ See Williamson, 1996, and Edwards and Savastano, 1999 for an overview of the issues covered in recent rounds of that debate.

Figure 2. Latin America: Inflation 1990-1999
 12-month percentage change in CPI

Argentina, Brazil and Peru



Chile, Colombia and Mexico



Source: IMF, International Financial Statistics

development, the majority of Latin American countries have progressively adopted (or more precisely, have been forced to adopt) more flexible exchange rate systems. Conventional theory tells us that it is precisely under conditions of low inflation, flexible exchange rates and high capital mobility that the scope for "good" monetary policy is the greatest. Hence, it would have been reasonable to expect that issues germane to the conduct and effectiveness of monetary policy in the countries of the region had started to figure more prominently in analytical and policy discussions.

But this is not what has happened. Yet another variant of the "Fix vs. Flex" debate has flourished in Latin America. By now, the main camps are more or less well defined: there are the proponents of full dollarization who see great dangers in movements of nominal exchange rates (Calvo, 1999a, Hausmann et al., 1999, Schuler, 1999); there are the supporters of what proved to be an ephemeral consensus on the perils of the "fixed-but-adjustable" pegs and on the need for a gradual move toward more flexible exchange rate systems (Obstfeld and Rogoff, 1995, Eichengreen and Masson, 1998), and finally, there are those for whom the "fixed-but-adjustable" middle-of-the-road regimes remain a valid option, at least for some countries in the region (Frankel, 1999, Larrain and Velasco, 1999, Jadresic, et al., 1999). As in earlier rounds, the terms of the debate are not entirely clear. The central issue is no longer about lowering inflation and keeping it low (it seems), but about avoiding financial and external crises and, presumably, reducing output instability. Even more so than in earlier rounds, however, the debate runs the risk of ending in deadlock.

We propose a complementary and potentially more fruitful way of approaching the important question of the future monetary regime for Latin American countries. It consists of bringing monetary policy to the forefront of the discussions. From this perspective, the central issue is whether the countries of the region have a chance of setting up institutions and mechanisms that will effectively and efficiently constrain the discretion of their monetary authorities. Whether the exchange rate is fixed or flexible (and precisely how flexible) follows from the answer one gives to that question. One advantage of this alternative approach is that it allows one to draw on the experiences of countries outside Latin America to a larger extent than what is possible in the present round of the "Fix vs. Flex" debate. Nonetheless, the task

is quite demanding; our goal here is simply to lay out the basic terms of future analyses and discussions.

In principle, there are four broad monetary policy strategies that can produce a nominal anchor that credibly constrains the discretion of the central bank over the medium term: “hard” exchange-rate pegs, “soft” exchange-rate pegs, monetary targeting, and inflation targeting.⁴ The severe shortcomings of soft pegs (in their multiple manifestations) as a *medium-term* strategy for monetary policy have been amply demonstrated by recent experiences in industrial and emerging market economies (including many from Latin America) and need not be repeated here.⁵ This leaves us with three potential medium-term strategies for monetary policy that we evaluate in the following sections drawing on the international experience and on recent evidence for a selected group of Latin American countries.

Before proceeding with the evaluation, however, we think it is important to address two fallacies that arise recurrently in discussions of monetary policy and exchange rate regimes in Latin America. The first fallacy is that floating exchange rates are not a feasible option for Latin American countries; the second is that there exists a short-run tradeoff between inflation control and external competitiveness that requires (or forces) a response from monetary policy. A myriad of arguments have been offered to “substantiate” the first fallacy. The earlier ones stressed the harmful effects that excessive nominal exchange rate volatility would have on growth, trade and resource allocation, both in the short and long run, in economies with rudimentary and thin financial markets as those of Latin America. The

⁴ A fifth possible strategy that has been suggested by some as best suited for semi-open economies is nominal income targeting (e.g., Frankel, 1995). A major problem with this strategy, however, is that it has never been tried in practice, either in industrial or emerging economies. This, plus the fact that nominal income targeting could be seen as broadly equivalent to inflation targeting under some reasonable assumptions, but with some serious disadvantages, (McCallum, 1996, Mishkin, 1999a) leads us to drop it from the set of monetary policy strategies that we consider relevant for Latin American countries.

⁵ For a review of the main arguments against soft pegs and of the lessons from recent experience see Obstfeld and Rogoff, 1995, Eichengreen and Masson, 1998, and Mishkin 1998, 1999a. Note that we are not ruling out the use of exchange-rate pegs, even if not of the hard peg variety, as a tool in the initial phases of a stabilization program. However, the shortcomings of soft pegs indicate that they will be far less useful as a longer-run strategy for monetary policy.

more recent ones tend to focus instead on the adverse effects that a floating exchange rate will have on financial intermediation, the banking system, access to external financing, inflationary expectations and, eventually, inflation and growth. A major problem with all these arguments, however, is that they are not borne out by the empirical evidence; neither by the limited one that exists for Latin America nor by the one for countries in other regions (mainly industrial countries). The common practice of using (statistical or anecdotal) evidence from Latin America's "flexible" exchange-rate regimes of the 1970s and 1980s is plainly invalid, as those regimes are essentially a reflection, rather than a cause, of the disastrous macroeconomic performance of those economies during that period. Using as evidence data from a few countries of the region in the very recent past, on the other hand, has the obvious shortcomings of sample-selectivity and short-sample biases.

A more valid argument against floating rates in the region that has come up recently in the debate is related to the lack of a precise theoretical and empirical definition of a floating exchange rate (see Calvo 1999a, 1999b, and Edwards and Savastano, 1999). Depending on where the line is drawn a floating exchange rate can easily be construed as a "managed" or a "dirty" float, and from there to a *de facto* soft peg --with all its problems-- the distance might not be too large, especially in emerging economies. This is certainly a problem that deserves further attention in the exchange rate literature.⁶ What is important to stress, however, is that from the perspective of monetary policy a strategy of monetary targeting or inflation targeting does not imply or require "benign neglect" of the exchange rate and no intervention in the foreign exchange market (i.e., a "clean" float). What matters is that the central bank makes it clear to the public, through both its actions and pronouncements, that the nominal exchange rate will always move in the direction set by the market and, crucially, that the exchange rate is not a nominal anchor for monetary policy and inflation expectations.

The second fallacy is more entrenched among policy makers and practitioners than among academics and is illustrated very clearly by what has become known as the "capital inflows problem." In its simplest form, the "problem" is that a surge of capital inflows leads

⁶ The recent study by Levy-Yeyati and Sturzenegger, 1999 is an example of the type of empirical work that is most needed in this area.

to a real currency appreciation and hence to a loss of competitiveness and a weaker and more vulnerable external position. Under fixed exchange rates the real appreciation stems from the inflationary pressures unleashed by the monetization of the inflows. Sterilized intervention cannot offset fully the effects of the inflows on the money supply and ends up attracting further capital inflows by keeping interest rates high, weakening further the external position. Under "flexible" rates the inflows provoke a nominal appreciation that help ease inflationary pressures, but at the cost of a more abrupt (and larger) loss of competitiveness. The standard policy prescription to confront this tradeoff between inflation and competitiveness is to tighten fiscal policy to restrain aggregate demand and arrest the real appreciation and the deterioration in the current account (Schadler et al., 1993). In practice, however, fiscal policy is not up to the task both because it lacks flexibility and, more importantly, because capital inflows are often deemed too large and volatile to be offset effectively by a withdrawal of fiscal stimulus. Thus, more often than not, the central bank ends up intervening in the foreign exchange market on a fairly regular basis hoping to arrest or slowdown the real appreciation even under flexible rates. With time central bank intervention becomes a standard practice, accepted and expected by analysts and the public, leading right back to the problems of sterilized intervention and, in the limit, to a *de facto* targeting of the nominal exchange rate.

The way out of this trap under flexible rates should be self-evident: it is not the role of monetary policy to try to strike a period-by-period balance between the competing objectives of inflation and external competitiveness, especially when the period in question is very short, even if such a tradeoff exists. In the long-run monetary policy cannot solve the external competitiveness problem. Gearing monetary policy to that objective is totally inconsistent with making price stability the overriding goal of monetary policy, regardless of what the central bank's charter or its public pronouncements may indicate.

III. Hard Pegs

There are essentially two types of "hard peg" regimes for monetary policy: a currency board and full dollarization. In a currency board, the domestic currency is backed 100% by a foreign currency (say, U.S. dollars) and the note-issuing authority, whether the central bank or the government, fixes a conversion rate to this currency and stands ready to exchange domestically issued notes for the foreign currency on demand. A currency board is a hard peg because the commitment to the fixed exchange rate has a legal (or even constitutional) backing and because monetary policy is, in effect, put on autopilot and completely taken out of the hands of the central bank and the government. Full dollarization involves eliminating altogether the domestic currency and replacing it with a foreign currency (the U.S. dollar). It represents a stronger commitment to monetary stability than a currency board because it makes it much more costly--though still not impossible--for the government to regain control over monetary policy and/or change the parity of the (non-existent) domestic currency.

Advantages of Hard Pegs

The advantages of hard pegs, especially of currency boards, have been discussed extensively in recent years.⁷ Put succinctly, hard pegs can deliver everything that fixed-but-adjustable pegs proved incapable of delivering--with or without capital mobility.

First, they provide a nominal anchor that helps keep inflation under control by tying the prices of domestically-produced tradable goods to those in the anchor country, attenuating (and eventually breaking) the inertial component of inflation that feeds into wages and prices of nontradable goods, and making inflation expectations converge to those prevailing in the anchor country.

Second, hard pegs reduce, and in the limit eliminate, the currency risk component from domestic interest rates thus lowering the cost of funds for the government and the private sector and improving the outlook for financial deepening, investment, and growth.

⁷ See, for example, Hanke and Schuler, 1994, Williamson, 1995, and Ghosh et al., 1998.

Third, hard pegs provide an automatic adjustment mechanism for the money supply that helps mitigate (or plainly eliminates) the time-inconsistency problem of monetary policy. A fall in the demand for domestic assets, including domestic currency notes, produces an automatic outflow of hard currency and a rise in interest rates without creating pressures on the peg, while an increase in the demand for domestic assets has the opposite effects. Discretionary, expansionary and time-inconsistent monetary policy, including to finance the government deficit, is not a policy option.

Finally, hard pegs have the advantage of simplicity and clarity, which make them easily understood by the public. A "sound (foreign) currency" policy is an easy-to-understand rallying cry for monetary stability and, according to some, also for fiscal discipline.

Disadvantages of Hard Pegs

The main disadvantage of hard pegs as a medium term monetary regime is that they leave (almost) no scope for domestic monetary policy. Of course, advocates of hard pegs for Latin America count this among the main advantages of the strategy. We find this somewhat ironic. True, having no monetary policy is better than having "bad"--i.e., discretionary and inflationary--monetary policy. True, Latin America's dismal monetary history is full of examples of mismanaged monetary policy. But it is not clear why the past should serve as a predictor for the future, especially when one considers the great strides that most countries in the region have made in lowering inflation in recent years.

In our view, it still holds true that most economies in Latin America, particularly the larger ones, are better off having some scope for "good" monetary policy than having no monetary policy at all. The reasons are well known and predate those given by Mundell in his seminal article on optimal currency areas. Briefly put, a country with no monetary policy loses an instrument that may help the authorities counter the effects of certain shocks to the domestic economy (e.g., supply shocks). As long as domestic prices and wages are "sticky" and markets are incomplete, and lacking some ideal degree of "fiscal flexibility," the inability to respond to those shocks with monetary policy is likely to produce large and protracted fluctuations of investment, output and employment. The frequency, origin and severity of the

shocks will generally be a function of the size and degree of diversification of the (semi-open) economy. High but less-than-full integration to international capital markets does not eliminate this fundamental tradeoff between nominal stability and output stability. These arguments suggest that hard pegs will (almost) always represent a second best solution for most Latin American economies--especially the large ones.

Another disadvantage of hard pegs is that the central bank, when it exists, loses its ability to act as a lender of last resort. This may turn out not to be a major drawback of those regimes in the short run. As discussed in Mishkin, 1999b, central banks of emerging economies typically have very limited scope to act as lenders of last resort, even under flexible rates. The main reason for this is lack of credibility. Central bank lending to the banking system in the wake of a financial crisis is likely to unleash fears of an inflationary explosion and produce a sharp exchange rate depreciation. Given the substantial "liability dollarization" of households, firms and banks in those economies, the depreciation will tend to have a major negative impact on the net worth of the private sector, including banks, which will then amplify asymmetric information problems in financial markets and exacerbate the financial crisis. Over the longer run, however, as central banks demonstrate their commitment to price stability and banking supervision is strengthened, those problems will tend to disappear and the central banks' scope for acting as lenders of last resort will increase. This is something that hard peg regimes can never count on having.

Currency Board Versus Full Dollarization

The main disadvantage of a currency board relative to full dollarization is that the former does not eliminate completely the possibility of a devaluation. If investors' sentiment turns against a country with a currency board and speculators launch an attack, they are presented with a one-way bet because the only direction the value of the currency can go is down. The probability of this event is embedded in domestic interest rates, even in "calm" periods, making those rates higher and more volatile than the ones in the anchor country. These problems are mitigated under full dollarization. Since there is no uncertainty about the value of the currency circulating in the country (dollars will always be dollars) the currency

risk component of domestic interest rates will necessarily disappear, and interest rates will be lower.

However, this does not mean that under full dollarization domestic interest rates will converge to those prevailing in the U.S., as has been argued by some—e.g., Schuler, 1999. Domestic interest rates will continue to carry a country-risk premium. One important reason for this, but by no means the only one, is that interest rates will continue to reflect a “confiscation risk,” at least for a while. Confiscation of assets (denominated in both domestic and foreign currency) has a long tradition in Latin America. In the early 1980s, Bolivia, Mexico and Peru forcedly converted dollar deposits held in domestic banks into domestic currency deposits at below market exchange rates in a desperate—and failed—attempt to arrest capital flight (Savastano, 1992). In the late 1980s, Argentina and Brazil forcedly converted short-term bank deposits into long-term bonds to lower the government’s interest bill and pave the way for a rapid disinflation. The logic here is not just that if it happened (more than) once, it may happen again.⁸ Confiscation may be forced upon the authorities.

Consider the following example. Suppose that there is a sudden loss of confidence in a fully dollarized country that leads to a massive withdrawal of bank deposits, a severe squeeze of banks’ liquidity and a sharp decline in economic activity. A country fully committed to preserve full dollarization may be willing and able to withstand the outflow and the ensuing economic downturn, but only under some conditions. In particular, if the attack is driven by perceptions, let alone evidence, of fiscal insolvency, confiscation of dollar assets to secure resources for the government and prevent a meltdown of the banking system may become a self-fulfilling prophecy. Of course, this could happen under both types of hard pegs, and in both cases the confiscation of assets would cause the collapse of the regime and have catastrophic consequences for the financial system and the real economy. Under full dollarization, however, the damage is likely to be far more serious because the domestic currency and monetary policy that will have to be created from scratch in the aftermath will have no credibility. A small probability of this catastrophic event occurring sometime in the

⁸ Ecuador’s freeze of bank deposits in March 1999 makes it difficult to argue that the region has abandoned completely those confiscatory practices, however.

future is more than sufficient reason to expect a country risk premium in domestic interest rates under full dollarization.

Lessons from Recent Experience

The two prime examples of hard pegs in Latin America are Argentina and Panama. Both hard pegs were created under special, and quite different, historical circumstances. In the case of Argentina, the hard peg was the cornerstone of the stabilization program of 1990-91 that ended the hyperinflation bouts of the 1980s. In the case of Panama, the government's decision to adopt the U.S. dollar as the legal tender and to eschew the creation of a central bank was made in 1904, the year after the country was founded.

Argentina. The extreme inflation of the 1980s wreaked havoc with the Argentine economy. Numerous stabilization plans failed to break the inflationary dynamics and psychology fueled by high fiscal deficits, entrenched indexation practices and ballooning interest payments on government debt. To end this cycle of inflationary surges, Argentina tightened monetary and fiscal policies in early 1990 and then decided to adopt a hard peg with the passage of the Convertibility Law of April 1, 1991. The law transformed the central bank into a quasi-currency board that could only issue domestic currency when it was fully backed by foreign exchange (except for up to 10% of the monetary base which could be backed by dollar-denominated government bonds), could not alter the exchange rate from one new peso to the dollar, and could not provide credit to the government. The law also eliminated all exchange controls, banned automatic indexation clauses and allowed contracts to be expressed and settled in foreign currency (Cavallo, 1993).

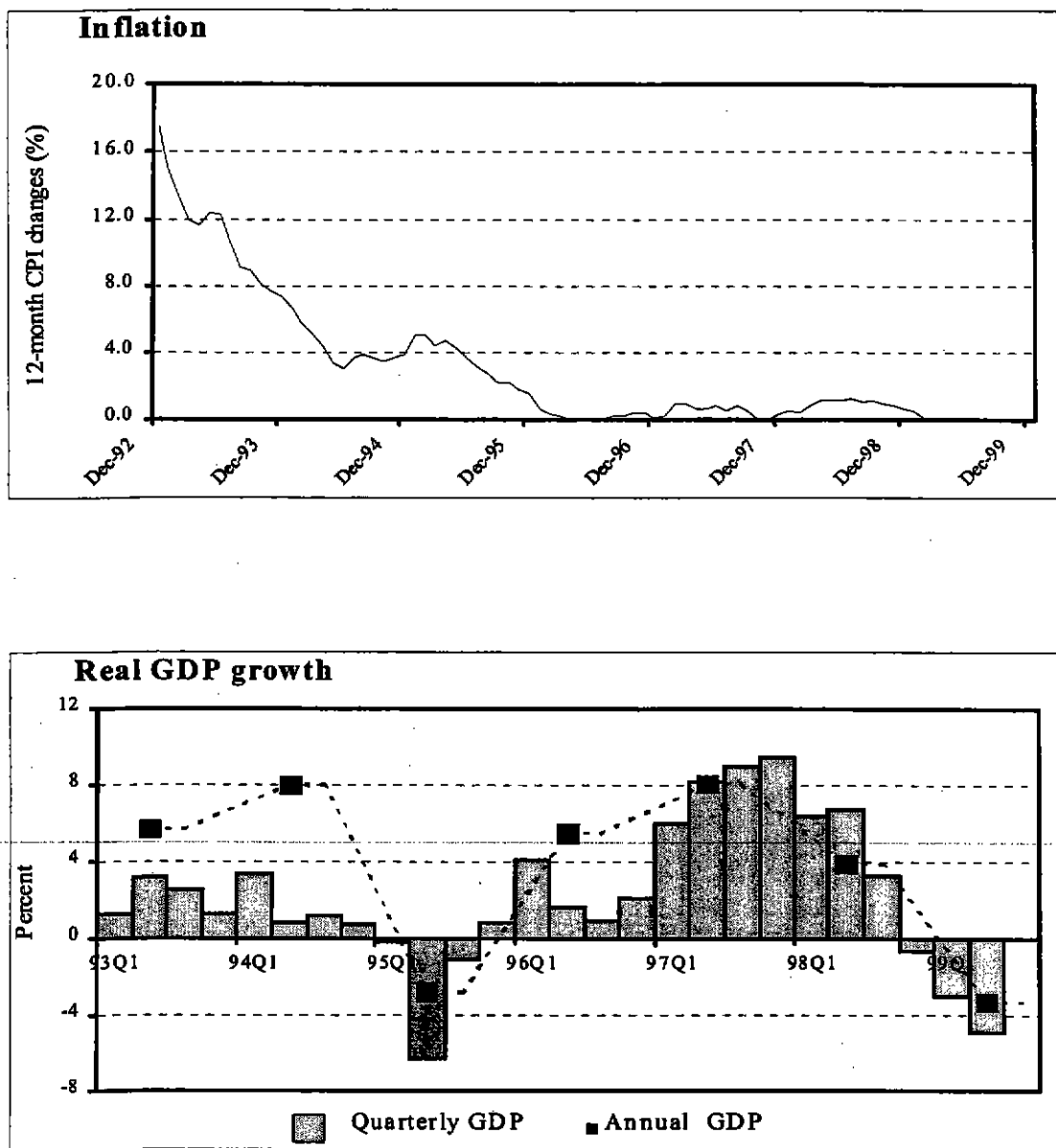
The first four years of Argentina's quasi-currency board were highly successful and have become the textbook example of the benefits of a currency board for stopping high inflation (Hanke and Schuler, 1994). Inflation fell from an 800% annual rate in 1990 to less than 5% by the end of 1994, and economic growth was rapid, averaging almost 8% per year from 1991 to 1994 (see Figures 2 and 3). Fiscal deficits were also kept moderate, averaging below 1% of GDP, and the government implemented far-reaching structural reforms, especially

in the areas of privatization and trade.

However, in the aftermath of the Mexican crisis of late 1994, a speculative attack against the Argentine currency board quickly turned into a major banking crisis. From December 1994 until March 1995, the prices of Argentine stocks and bonds plummeted, the banking system lost 17% of its total deposits, the central bank lost more than a third of its international reserves (\$5.5 billion), the money supply contracted, interest rates shot up--with the interbank rate briefly exceeding 70%, and external credit lines vanished. An interesting feature of this attack is that the run on the banks had two distinct phases: a first phase where the public moved peso deposits from small banks to large banks and switched part of those deposits into dollars, and a second phase, during March 1995, where the run of deposits spread to the dollar segment of the system and affected all financial institutions--including local branches of large foreign banks (IMF, 1996). A run on dollar deposits in large banks (including foreign ones), clearly suggests that the public was not only hedging against a devaluation of the peso but against something worse, such as a confiscation, the imposition of exchange controls or a complete meltdown of the banking system. Whatever the forces at play, the severity of the attack brought home the point that the Argentine currency board was not exempt from a sudden loss of confidence from domestic and foreign investors, and that the Argentine banking system was not prepared to cope with those shocks.

The Argentine central bank had its lender of last resort role constrained by the Convertibility Law, yet it mitigated the adverse effects of the run on bank deposits by lowering reserve requirements, providing direct credit via rediscounts and swaps, and participating actively in the restructuring, privatization and liquidation of troubled banks. By the end of April, the central bank had managed to provide over \$5 billion of liquidity to the banking system, more than a third of it in the form of direct loans, and was able to avert a large scale collapse of the banking system. An often overlooked aspect of the success of the Argentine government in containing the banking crisis and preserving its quasi-currency board was the substantial assistance it received from the multilaterals (i.e., the IMF, the World Bank, and the

Figure 3. Argentina: Inflation and Growth, 1993-1999



Source: Central Bank of Argentina, Ministry of Economy and IFS

Interamerican Development Bank) who lent Argentina almost \$ 5 billion during 1995.⁹ Despite all these efforts the real economy took a nose dive; the May unemployment rate shot up to 18% and 1995 real GDP fell by more than 3%. It was not until 1996 that the economy began to recover.

The overall performance of the Argentine economy from 1996 to 1998 was more uneven than in the first half of the 1990s. Real output grew at an average rate of 6 percent and inflation fell to practically zero but, apart from a strengthening of prudential regulations and supervision and a fast process of bank consolidation, the authorities' drive for undertaking further structural reforms and fiscal adjustment started to falter. The fiscal deficit, which had reached almost 4% of GDP in 1995, averaged 2.7% from 1996 to 1998 despite the pick-up in growth; the current account deficits widened, and all debt indicators deteriorated markedly. Investors concerns about these developments surfaced in the Fall of 1998, following the Russian crisis and the decline in commodity prices. Domestic interest rates and spreads on Argentine bonds, which had been largely unaffected by the Asian crises of 1997, shot up in September 1998 to levels not seen since the Tequila crisis. Although the spike was short lived and the Argentine government continued tapping the markets, external financing dried up and real output fell by 3.5 percent in the second half of the year (see Figure 3).

The devaluation of the Brazilian real in January 1999 sent Argentina into a full-blown recession. The sudden loss of competitiveness vis-a-vis a major trading partner exacerbated the downturn that had started in late 1998. Although there was no run on deposits and no loss of reserves, interest rates and spreads on Argentine paper rose sharply, bank credit stalled, industrial production plummeted, and the unemployment rate jumped to 14.5%. The currency board allowed no scope to use monetary policy to counter this adverse shock to aggregate demand. Confronted with its second recession in five years (real output is expected to fall at least 3 percent in 1999), the Argentine government, through the central bank, launched a proposal for disposing altogether of the peso and adopting a bilateral scheme of full dollarization (Pou, 1999). By the end of the year, however, the newly elected government

⁹Since then, Argentina has had continued access to IMF resources, with the most recent arrangement ending in March 2003.

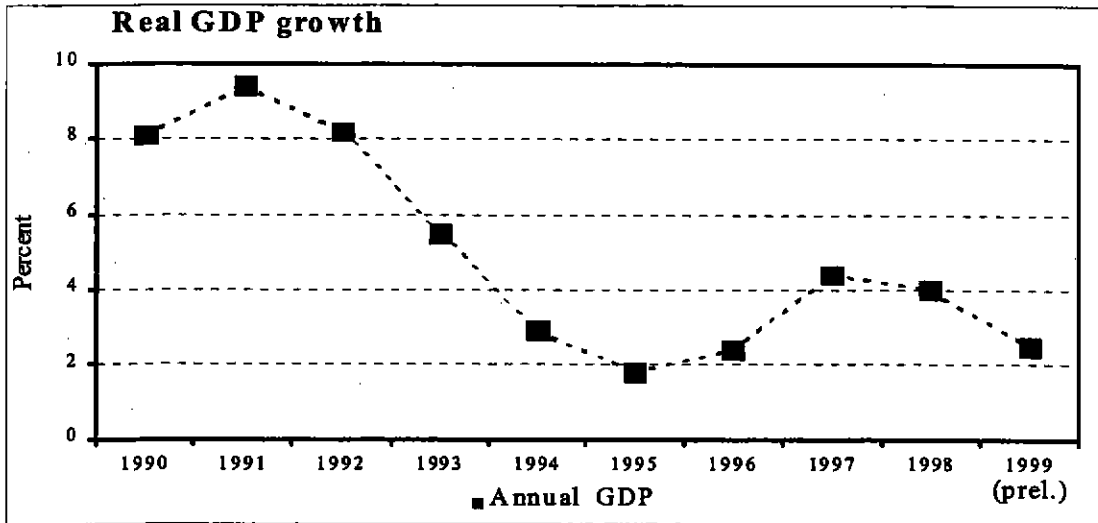
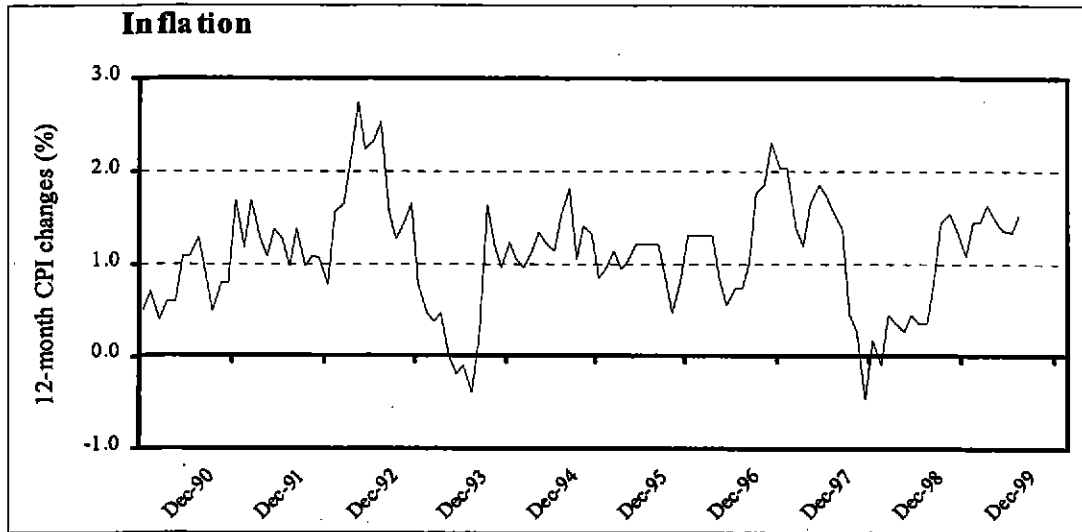
stated clearly that it was not interested in pursuing that option.

Panama. Panama has recently come into the limelight because it is the only fully dollarized country in Latin America.¹⁰ The inflation performance of Panama illustrates the key advantage of full dollarization: its ability to deliver low inflation. From 1960 to 1998, Panama's inflation rate has averaged 2.8% per year, which is significantly lower than in any other country in Latin America, and is even lower than the 4.6% average over the same period for the United States. Panama's growth performance during the same period was also good, but far less impressive. Since 1960, Panama's real GDP grew at an average of 4.2% --about one percentage point faster than Latin America as a whole (see Figure 4). However, some studies have shown that output volatility in Panama has been among the highest in the region, and that a main factor behind that volatility has been its exchange-rate regime (e.g., Hausmann and Gavin, 1995, Tables 4 and 14). These findings seem fully consistent with the earlier noted tradeoff between price stability and output stability that affects countries with no monetary policy.

A hallmark and a key strength of Panama's economy is the soundness and sophistication of its banking system. Although the low inflation environment produced by full dollarization contributed to this outcome, full dollarization does not appear to be the primary source of the well-functioning banking system. The take-off of Panama's financial system only began in 1970 with the passage of a banking law--Cabinet Decree 238--that eased licensing and portfolio allocation requirements on foreign banks, strengthened secrecy provisions, and allowed unrestricted movements of capital (Moreno, 1999). The goal of transforming Panama into an offshore banking center was achieved fairly quickly. By 1987 there were more than 120 banks located in the country, the majority foreign-owned, and broad

¹⁰ See, for example, Eichengreen and Hausmann, 1999, Moreno, 1999, and Schuler, 1999. Panama has domestic currency coins (balboas) that co-circulate at parity with U.S. dollar coins. The balboas are issued by the Banco Nacional de Panama, a government-owned commercial bank that acts as the financial agent of the government but does not centralize official holdings of reserves nor acts as lender of last resort.

Figure 4. Panama: Inflation and Growth, 1990-1999



Source: IFS, ECLAC

money and private sector credit as a share of GDP had risen by more than 15 percentage points (to 40% and 54% respectively). Except for a banking crisis in 1988-1989 which occurred as a result of economic sanctions imposed on Panama in 1988, including a freezing of the deposits held in the United States by the Banco Nacional de Panama, the Panamanian banking system has fared well.¹¹ One result is that private sector borrowers in Panama have access to international financial markets and can borrow at low interest rates. Indeed, Panamanian firms and banks do not face a "sovereign ceiling" and can often borrow at lower rates than the government. However, the small spread between domestic and foreign interest rates is probably more a reflection of Panama's sound and internationally-oriented banking system than the result of full dollarization.

The rest of Panama's economy displays many of the maladies common to Latin America. Until the late 1980s, Panama had a large and inefficient public sector that spent more than 25% of GDP on public sector wages and other current outlays, rigid labor markets that led to high unemployment (of more than 15%), a distorted trade regime that thwarted the development of agriculture and manufacturing, and a weak system of property rights (Loayza and Palacios, 1997). Given these problems, Panama had a lackluster fiscal performance, with fiscal deficits jumping from 2% of GDP in the 1960s to over 7% in the 1970s, and averaging 5% in the 1980s. Like the rest of Latin America, Panama financed its large fiscal deficits mainly with foreign borrowing, and when the debt crisis of the 1980s hit the region the country was not spared. In fact, partly due to the political upheaval, the resolution of Panama's external debt problems was particularly difficult and protracted. A reflection of this and of its fiscal profligacy is the fact that Panama has needed continued support from the IMF: from 1973 to 1997, Panama requested thirteen IMF programs, the greatest number for any country in Latin America during that period. Although the size of the IMF loans was generally

¹¹The U.S. economic warfare against Panama sparked a series of bank runs that nearly caused the collapse of the Panamanian payments system (see Garber, 1999). When the standstill ended, after almost two years, a number of small banks had disappeared, the money supply had shrunk by 30%, and real output had fallen by 18%. This episode illustrates that a country with a hard peg is not exempt from bank runs and panics, whatever their origin may be. The fact that the United States also had frequent bank panics in the nineteenth and early twentieth century even when it had a hard peg (the gold standard) also illustrates this point--e.g., see Mishkin, 1991.

small, and many of the loans were not drawn, the recurrent need to solicit IMF support cast doubts on the claims about self-adjusting properties of Panama's dollarized economy that have become popular in some circles.

Bottom Line

Our review of the advantages and disadvantages of hard pegs and of the experience with those regimes in Argentina and Panama suggests two main conclusions.

The first one is that there are two necessary conditions for the success of a hard peg: a solid banking and financial system, and sound and sustainable fiscal policies. The sole adoption of a hard peg does not ensure that these two conditions will be met, at least not rapidly or automatically. The weakness of Argentina's banking system almost brought down its (quasi-) currency board during the Tequila crisis of 1995, whereas the strength of Panama's banking system --badly shaken by the incidents of the late 1980s-- seems to owe at least as much to the policies and regulations that transformed Panama into an offshore financial center for the region than to its hard peg regime. On the fiscal requirements, small fiscal deficits were key to the early success of Argentina's currency board but persistent fiscal imbalances in the second half of the 1990s raised recurrent concerns about the sustainability of the hard peg. The fiscal problems of Panama, on the other hand, have been as entrenched and protracted as those of the typical (non-dollarized) Latin American country. The claim that hard pegs ensure fiscal discipline and prevent fiscal dominance receives little support from these two experiences.

The second conclusion is that hard pegs remain subject to speculative attacks and bank runs, and are ill-equipped to counter country-specific shocks. The spillovers of the Tequila crisis on Argentina and the runs on Panama's banks in the late 1980s provide evidence of the first point. The experience of Argentina after the devaluation of the Brazilian real in 1999 and the high volatility of output in Panama are illustrations of the second.

Another problem of hard pegs is that they do not have an easy exit strategy. Not even when changes in the country's political and economic institutions make it possible and desirable to have a monetary policy able to focus on domestic considerations. Exiting from a

currency board is highly dangerous unless the currency is likely to appreciate, but this is exactly when things are going well and so the political will to exit is likely to be weak, or nonexistent. Exiting from a fully dollarized economy is even more troublesome because the (new) monetary authorities, and the new currency, are likely to encounter a serious problem of lack of credibility.

Notwithstanding their shortcomings, hard pegs may be the only sustainable monetary policy strategy in the medium term for those Latin American countries whose political and economic institutions cannot support an independent central bank focused on preserving price stability. Countries that cannot find ways of locking-in the gains from their recent fight against (high) inflation, or those that have not yet started that fight, may find in hard pegs a reasonable second best strategy for monetary policy.

IV. Monetary Targeting

A monetary targeting strategy focused on controlling inflation comprises three key elements: 1) reliance on information conveyed by a monetary aggregate to conduct monetary policy, 2) announcement of targets on a monetary aggregate to guide the public's inflation expectations, and 3) some accountability mechanism that precludes large and systematic deviations from the monetary targets. In addition, the strategy presupposes that monetary policy is not dictated by fiscal considerations--i.e., lack of fiscal dominance--and that the exchange rate is "flexible."

Advantages of Monetary Targeting

The two major advantages of monetary targeting over exchange-rate pegs (hard and soft) are that it enables the central bank to choose goals for inflation that may differ from those of other countries, and that it allows some scope for monetary policy to deal with transitory output fluctuations and certain external shocks. Also, like an exchange-rate peg, the strategy is easy to monitor since information on whether the central bank is complying with its target is

readily available-- actual figures for monetary aggregates are typically reported within a couple of weeks. Thus, comparisons between targeted and actual monetary aggregates might send timely and periodic signals to the public and markets about the stance of monetary policy and the intentions of the authorities to keep inflation in check. In turn, these signals might help consolidate inflation expectations and produce less inflation. Targets on money aggregates might also be conducive to making the central bank accountable for meeting its low inflation objective, helping to mitigate the time-inconsistency problem of monetary policy.

Disadvantages of Monetary Targeting

All the above advantages of monetary targeting depend on a big *if*: there must be a strong and reliable relationship between the goal variable (inflation) and the monetary aggregate chosen as target. If the relationship between the monetary aggregate and the goal variable is or becomes weak, monetary targeting will simply not work. As is well-known and amply documented, this was the main problem with this strategy in industrialized countries.¹² Though the existing evidence is not nearly as conclusive, the problem is likely to be just as bad if not worse for the emerging economies of Latin America. The main reason for this is that in the new environment of low inflation and increasing financial integration it will be highly unlikely that the relationship between monetary aggregates and inflation in those countries remains, or becomes, stable. A weak and unstable relationship between money and inflation will give rise to situations where hitting the monetary target will not produce the desired inflation outcome, where monetary aggregates will fail to provide reliable signals of the stance of monetary policy, and where there will be no effective anchor for inflation expectations. Furthermore, a weak relationship between the targeted monetary aggregate and inflation will make it difficult for the central bank to be transparent and accountable to the public. Although this does not necessarily imply that monetary policy will be expansionary or irresponsible, it will complicate greatly the central bank's communication with the public and the markets, and impair its credibility.

¹²See, for instance, Goodhart, 1989, Bernanke and Mishkin, 1992, and Estrella and Mishkin, 1997.

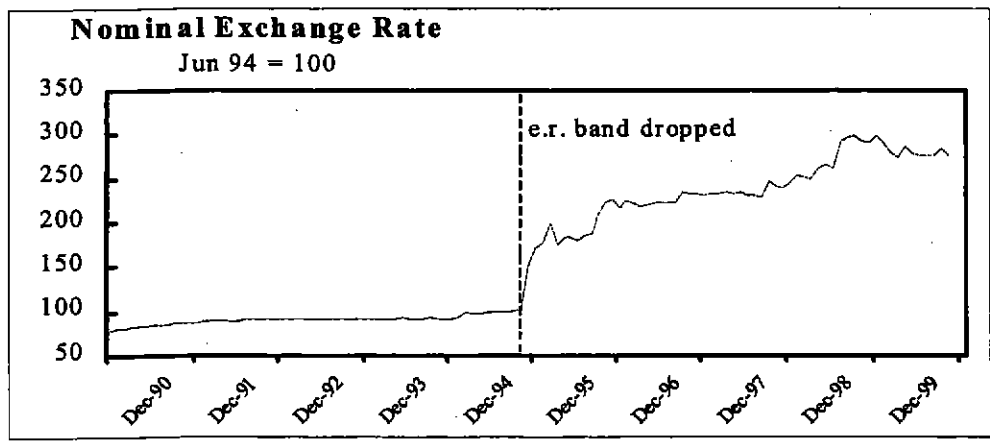
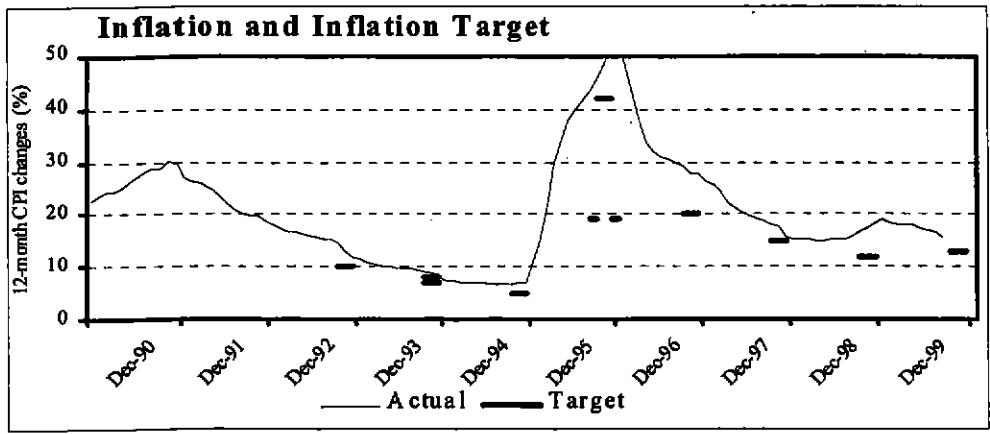
Lessons from Recent Experience

Despite what is often said, no central bank in Latin America has truly practiced monetary targeting. In their relatively recent experience with low(er) inflation and flexible exchange rates, the monetary policy frameworks of many Latin American central banks have contained the first of the three key elements mentioned earlier --i.e., using the information conveyed by a monetary aggregate to conduct monetary policy-- but the other two elements (public announcements of the targets and some type of accountability mechanism) rarely have been present at the same time--see Cottarelli and Giannini, 1997.

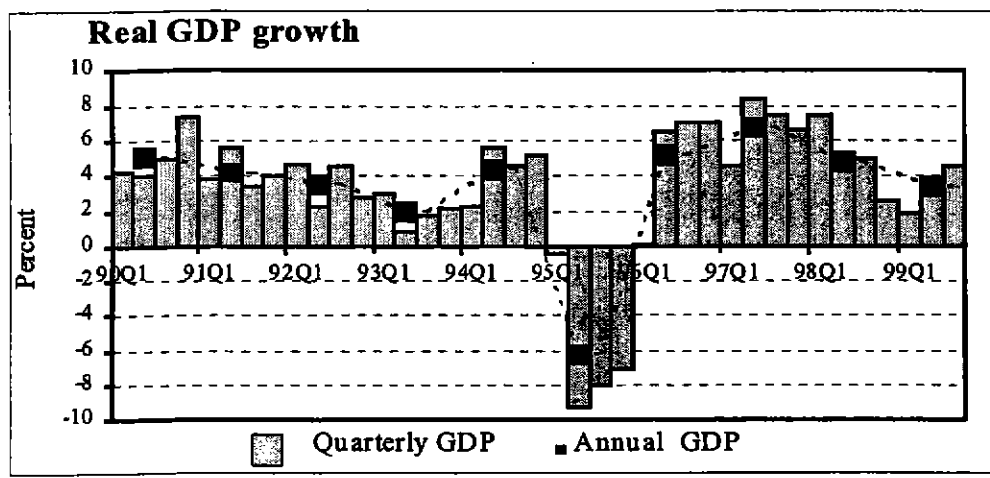
The commonly held view that Latin American countries have pursued monetary targeting is probably rooted on the observation that most central banks in the region traditionally have used monetary aggregates for the *internal design* of their monetary policy. In fact, they have followed this practice in "good" and "bad" times: in periods of high inflation and complete fiscal dominance and in periods of low inflation and high central bank independence; in periods when the exchange rate was fixed and when it was allowed to float more or less freely; during episodes of stabilization, both failed and successful; and as an integral part of the many IMF programs these countries have had over the years. However, the fact that monetary aggregates have played an important role in monetary policymaking in Latin America does not mean that the central banks of the region have implemented a monetary targeting strategy. Regimes where monetary targets are not announced, or are announced but not given a chance to perform as the main nominal anchor, are not monetary targeting regimes. Instead these regimes are better characterized as ones where central banks make vague references to monetary aggregates, while they retain a high degree of discretion and instrument independence. A brief discussion of the experience in Mexico and Peru in recent years illustrate this point

Mexico. From late 1987 to 1994 the inflation rate in Mexico fell from a record high 140% to 7% (see Figure 5). The disinflation program comprised drastic cuts of government spending, a pegged exchange rate, and the periodic announcement of guidelines for public sector prices,

Figure 5. Mexico: Inflation, Exchange Rate and Growth, 1990-1999



* Depreciation is up



Source: Bank of Mexico and INEGI

the exchange rate and wages (see Aspe, 1993). Starting in November 1991, when inflation was running at 20% in annual terms, Mexico adopted a system of gradually widening exchange rate bands aimed at giving the central bank scope to strike a better balance between the “credibility” and “flexibility” of its monetary regime (Helpman et al., 1994). In effect, however, Mexico’s monetary policy in the early 1990s was overburdened by multiple objectives: accumulating international reserves, lowering interest rates, limiting exchange rate volatility, preserving the exchange rate band, and reducing inflation. To achieve these, the central bank conducted monetary policy guided by its internal forecasts of the demand for base money, and relied heavily on sterilized intervention to prevent the massive capital inflows that flooded Mexico in those years from fueling base money growth and inflation. Hence, from 1991 to 1994, excluding the December spikes, Mexico’s monetary base hovered around a remarkably narrow range, while the central bank accumulated more than \$ 11 billion of reserves.

In 1994 the conflicting demands placed on monetary policy clashed. The central bank reacted to the long string of adverse shocks hitting Mexico during the year by sticking to its internal forecast for base money and sterilizing the outflows of reserves. Instead of raising interest rates to arrest the reserve losses, the authorities issued \$ 40 billion of dollar-denominated short-term debt (the infamous *Tesobonos*) worsening the system’s vulnerability to a speculative attack.¹³ The end came on December 20, when the central bank tried to undertake a “controlled” 15% devaluation. The plan did not work, and two days later the peso was allowed to float.

In the ensuing panic Mexico’s central bank maintained its adherence to base money targeting. In January 1995 the central bank released to the public, for the first time, its monetary program for the year. The program had an inflation objective of 19%, and projected a 10 billion pesos increase in base money, which was presented as the main nominal anchor of the “new” regime. The program lacked credibility and the free fall of the peso continued until

¹³ The role of monetary policy in precipitating the Tequila crisis of December 1994 remains a matter of dispute. See, for example, the contrasting views presented in Gil-Diaz and Carstens, 1996, Kamin and Rogers, 1996, Calvo and Mendoza, 1996, and Edwards, 1998.

late March, when Mexico secured a \$52 billion support package arranged by the U.S. Treasury and the IMF. At that time, the central bank announced a modified monetary program that maintained the projected increase in base money at 10 billion pesos, revised the forecast of inflation to 42%, and, crucially, raised interest sharply and kept them high until May, when the peso showed signs of stabilizing. For the remainder of the year, the central bank seemed to gear its monetary policy to preventing "large" peso depreciations; every fall in the peso of more than 2-3% was followed by a large increase in the interest rates of *Cetes* (Mexico's T-bills), both at the primary auction and in the secondary market (see Edwards and Savastano, 1998). At the end of 1995, the central bank actually complied with its announced target for base money (though with less foreign reserves and more domestic credit than it had projected), but inflation, at 52%, exceeded the program target by 10 percentage points (see Figure 5).

The confusion about the instruments and targets of Mexico's monetary policy continued for the following two years. The central bank maintained its (new) practice of releasing to the public its (quarterly) monetary program, which contained targets for base money, domestic credit and international reserves at about the same time as the government submitted to Congress a document containing the budget and the broad economic objectives for the following year (including an end-point objective for the rate of inflation). Starting in late 1996, the bank went one step further and released (and posted on its website) its *daily* forecast of the monetary base for the following year. However, it gave no indication of the expected path of inflation over the period covered by the forecast. Moreover, the fact that the nominal exchange rate exhibited remarkable stability from early 1996 to mid 1997 triggered suspicions that the central bank, despite its repeated pronouncements to the contrary, was once again targeting the peso/dollar exchange rate.

Assessing the stance of monetary policy in Mexico during this period, let alone understanding how the central bank conducted monetary policy, was a daunting task for analysts and the general public. Although inflation fell steadily, albeit slowly, throughout 1996-97, the Bank of Mexico had serious trouble communicating its monetary strategy to the public and producing a nominal anchor that would help lower inflation expectations. These

problems became particularly acute in 1997 when the monetary base, which had remained fairly close to its preannounced (quarterly) path in 1996, started to show large and sustained deviations from its daily forecasts early in the year. As a result, the Bank of Mexico went to great lengths trying to explain to the public the reduced role that its own forecasts of the monetary base were playing in guiding its monetary policy (see Bank of Mexico, 1998). Even though the monetary base exceeded its target by 4.1%, inflation in 1997 fell to 15.7%, very close to the year-end objective of 15%. The unreliability of the relationship between the monetary base and inflation became apparent again in 1998 when inflation exceeded the year-end objective of 12% by almost 7 percentage points even though base money ended up 1.5% below its forecast. The opposite problem occurred in 1999, when the inflation rate fell below the end-year inflation target (12.3% vs 13%), while base money exceeded its forecast by more than 21%.

Though it can hardly be argued that the instability of the monetary base-inflation relationship has produced terribly bad outcomes since the floating of the peso in late 1994, it is fairly apparent that it has left the Bank of Mexico without a useful nominal anchor to guide inflation expectations. Aware of this situation, the central bank has gradually backed off from its flirtation with monetary targeting. Since Guillermo Ortiz became Governor in 1998, the bank started to downplay publicly the role that base money forecasts play in the setting of monetary policy, even though it has maintained the practice of releasing its year-ahead daily forecast of base money, and has allowed considerably more scope for exchange rate fluctuations. In fact, we will argue in the next section that the Bank of Mexico has been moving gradually in the direction of inflation targeting.

Peru. In August 1990, Peru launched an ambitious economic reform program aimed at stopping hyperinflation and dismantling the numerous controls and distortions prevailing in the economy. The central elements of the anti-inflation effort were the adoption of a freely floating and fully convertible exchange rate, the establishment of a cash management committee to handle the finances of the public sector without resorting to central bank credit, the de-facto elimination of interest rate ceilings, and a once-off large adjustment of

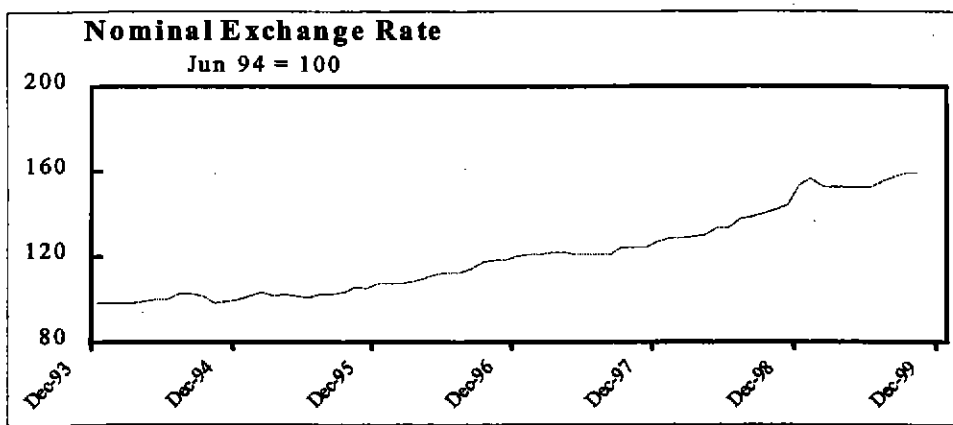
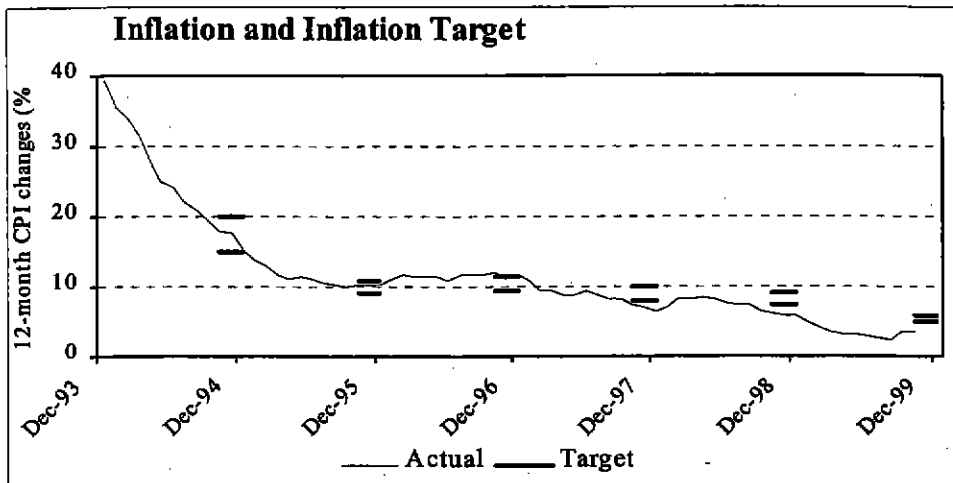
administered prices--including a 3,000% increase in the price of gasoline--that helped push the inflation rate that month to 400% (Paredes, 1991). The decision to refrain from using the exchange rate as the main nominal anchor of the disinflation was probably the most distinctive feature of Peru's stabilization.

The stabilization program was highly successful (see Figures 2 and 6). In its first phase, from August 1990 to late 1992, annual inflation fell steadily, though gradually, from a high of a 12,000% rate in August 1990 to 57%. Key elements of the program during this phase were the tight control over government spending exercised by the cash management committee, the major reforms of the tax and tariff codes, and a bold program of privatizations.

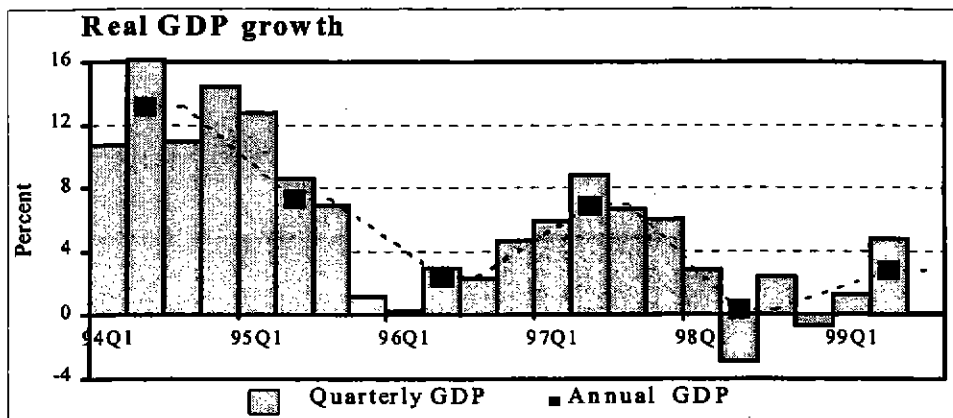
The second phase of the stabilization started in 1993, with the approval of a new charter for the central bank, and lasted until late 1996. The new charter provided a strong institutional foundation for the conduct of an independent monetary policy by making price stability the sole objective of the central bank, by prohibiting the bank from lending to the public sector, from providing any type of subsidized credit or from creating multiple exchange rates, and by making the central bank's Board accountable to Congress in case those directives were breached (de la Rocha, 1998). In addition, in 1994, Peru's central bank started to announce at the beginning of each year a target range for annual inflation at year end (the December to December 12-month inflation rate) which had been agreed with the Minister of Finance and used in the preparation of the coming year's fiscal budget. These changes helped to consolidate the stabilization. Inflation fell from 56.7% in 1992 to 11.8% in 1996, while output growth averaged 9% from 1993 to 1995. Importantly, the disinflation proceeded at a fairly steady pace and the rate of inflation did not get "stuck" in the 20% range as had happened often in other stabilization programs in the region. In the final phase, from 1997 to the present, inflation has fallen to the single digit level, an outcome Peruvians had not seen for almost thirty years.

At least since 1993, Peru's central bank has used estimates of the demand for base money as its main intermediate target for monetary policy. However, and *most crucially*, Peru's central bank has not made its monetary targets public. Aware of the uncertainties surrounding those forecasts in a dollarized economy (80% of bank deposits and bank loans in

Figure 6. Peru: Inflation, Exchange Rate and Growth, 1994-1999



* Depreciation is up



Source: Central Reserve Bank of Peru and IFS

Peru are dollar- denominated), the central bank has retained considerable discretion to revise and update its base money demand estimates, and to modify the setting of policy instruments whenever it has deemed necessary (de la Rocha, 1998). By doing so, Peru avoided the type of problems encountered by Mexico when it tried to employ base money forecasts as a nominal anchor for inflation expectations.

Even though the Peruvian authorities did not announce targets for monetary aggregates nor any type of money rule as an anchor for inflation expectations at any point during the 1990s, Peru's program has become the prime case of a "money-based stabilization" in the large literature on inflation-stabilization strategies (e.g., Calvo and Vegh, 1994, 1999). The "money-based stabilization" label has been pushed further recently with Corbo, 1999, who argues that Peru used a monetary anchor as the central element of its stabilization program-- see also Favaro, 1996. These characterizations are misleading: Peru's central bank has not been pursuing a monetary targeting strategy with a money anchor but has instead followed a conventional two-step approach for the *internal* design of its monetary policy, using the growth of base money as one of the elements guiding its decisions on instruments settings. Peru's strategy in recent years should be seen as one of *discretionary* monetary policy with an increasing focus on price stability, not too different from the approach to monetary policy followed by many non-inflation targeting industrial countries (including the U.S.).

Bottom Line

The recent experiences of Mexico and Peru illustrate the difficulties that the instability of the money-inflation relationship creates for monetary targeting as a strategy for monetary policy in Latin America. This does not mean that monetary aggregates have no role to play in the conduct of monetary policy in the region. The signal-to-noise ratio of monetary aggregates in many countries is likely to be high owing to their history of high inflation and large swings in money growth. However, as inflation falls to single digit levels and remains there, money growth rates are likely to lose informational content and become less useful indicators of monetary policy, as occurred in industrial countries (see Estrella and Mishkin, 1997). As money aggregates become less reliable indicators of future inflation, central banks will be

forced to downplay the importance of monetary targets, and search for alternative nominal anchors and communication devices.

Those Latin American central banks that are often regarded as monetary targeters, like Mexico and Peru, should instead be seen as following a discretionary monetary policy. Even if that approach proves to be successful for a period of time, as has been the case especially in Peru, it is a highly dangerous strategy. Two crippling shortcomings of the approach are that it depends too much on the preferences, skills and credibility of the individuals running the central bank, and that it does not lend itself to make monetary policy transparent and accountable.¹⁴

In sum, our review of the evidence suggests that monetary targeting is a strategy for monetary policy that has not been used by Latin American countries in the recent past, and is probably not an advisable medium-term strategy for the future. This is so because the problems that led to the abandonment of this strategy in industrialized countries (Bernanke and Mishkin, 1992) are also likely to arise in Latin America as low inflation becomes a more permanent feature. Indeed, even Germany, the quintessential monetary targeter, has encountered problems with the money-inflation relationship which have led the Bundesbank to miss the target ranges for its monetary targets on the order of half the time.¹⁵ The secret to the Bundesbank's success is its long-term adherence to a "monetarist" framework to communicate to the public its commitment to price stability, along with the credibility it has earned over the years which makes its explanations of target misses believable to the public. Germany's relative success with monetary targeting is not a model for Latin America, where central banks need to assert their credibility over the next few years. In fact, the Bundesbank's success may not even be a model for how the European Central Bank should conduct monetary policy.

¹⁴ One of us has argued elsewhere that even the discretionary monetary policy regime in the United States, which has been so successful, may not produce desirable outcomes over the long run and needs to be modified, even though the environment for good discretion in the United States is far more favorable than in Latin America (see Mishkin, 1999a).

¹⁵ Partly because of this a number of researchers regard Germany's monetary policy as being closer to an inflation targeting regime than to a monetary targeting regime. See for example, Clarida and Gertler, 1998, Bernanke, et al., 1999 and Mishkin, 1999a.

V. Inflation Targeting

Inflation targeting is a monetary policy strategy that involves five main elements: 1) the public announcement of medium-term numerical targets for inflation; 2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated; 3) an information-inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments; 4) a transparent monetary policy strategy that ascribes a central role to communicating to the public and the markets the plans, objectives, and rationale for the decisions of the central bank; and 5) mechanisms that make the central bank accountable for attaining its inflation objectives. The list should clarify one crucial point about inflation targeting: it entails *much more* than a public announcement of numerical targets for inflation for the year ahead. This is important in the Latin American context, because many countries in the region have routinely reported numerical inflation targets or objectives as part of the government's economic plan for the coming year (see Fry, et al., 1999) and yet they *have not* been pursuing an inflation targeting strategy. The monetary policy strategy must contain the other four elements listed above for it to be consistent with inflation targeting and, hence, sustainable over the medium term.

Advantages of Inflation Targeting

Inflation targeting has several advantages over hard pegs and monetary targeting as a medium-term strategy for monetary policy. In contrast to a hard peg, inflation targeting enables monetary policy to focus on domestic considerations and to respond to shocks of both domestic and foreign origin. Inflation targeting also has the advantage that stability in the relationship between money and inflation is not critical to its success because it does not depend on such a relationship. Indeed, an inflation targeting strategy allows the monetary authorities to use all available information, and not just the information contained in one or two variables, to determine the best settings for the instruments of monetary policy. Inflation

targeting, like a hard peg, also has the key advantage that it is easily understood by the public and thus highly transparent. In contrast, monetary targets, although visible, are less likely to be well understood by the public, especially as the relationship between monetary aggregates and inflation becomes less stable and reliable.

Because an explicit numerical target for inflation increases the accountability of the central bank relative to a discretionary regime, inflation targeting also has the potential to reduce the likelihood that the central bank will fall into the time-inconsistency trap. Moreover, since the source of time-inconsistency is often found in (covert or open) political pressures on the central bank to engage in expansionary monetary policy, inflation targeting has the advantage of focusing the political debate on what a central bank can do on a sustainable basis--i.e., control inflation--rather on than what it cannot do through monetary policy--e.g., raise output growth, lower unemployment, or increase external competitiveness.

For inflation targeting to deliver these outcomes, there must exist a strong institutional commitment to make price stability the primary goal of the central bank. This is particularly important in Latin America, given its history of monetary mismanagement. The institutional commitment involves legislative support for an independent central bank whose charter ought to contain two key features: 1) sufficient insulation of the decision-making board of the central bank from the political process and the politicians--with the members of the board appointed to long terms and protected from arbitrary dismissal; and 2) giving the central bank full and exclusive control over the setting of monetary policy instruments. The institutional commitment to price stability also requires that the central bank be given a mandate to have price stability as its primary goal, making it clear that when there is a (perceived or actual) conflict with other goals, such as exchange rate stability or promotion of high employment, price stability must be accorded the higher priority.

Inflation-targeting regimes also put great stress on the need to make monetary policy transparent and to maintain regular channels of communication with the public; in fact, these features are central to the strategy's success. Inflation-targeting central banks have frequent communications with the government, some mandated by law and some in response to informal inquiries, and their officials take every opportunity to make public speeches on their

monetary policy strategy. While these practices are also commonly used in countries that have not adopted inflation targeting (prominent examples being Germany and the United States), inflation-targeting central banks have taken public outreach a step further: not only do they engage in extended public information campaigns, but they publish *Inflation Report*-type documents (originated by the Bank of England) to present their views about the past and *future* performance of inflation and monetary policy. The publication of these documents is noteworthy because they represent a departure from the traditional, more formal reports of central banks and introduce new design elements that help enhance communication with the public.

The rationale for ascribing a central role to communication under inflation targeting is to keep the general public, financial markets and the politicians permanently informed about: 1) the goals and limitations of monetary policy, including the rationale for inflation targets; 2) the numerical values of the inflation targets and how they were determined, 3) how the inflation targets are to be achieved, given current economic conditions--i.e., baseline inflation forecasts; and 4) reasons for any deviations from targets. In countries that have adopted inflation targeting this emphasis on communication has improved private-sector planning by reducing uncertainty about monetary policy, interest rates and inflation; has promoted public debate of monetary policy, in part by educating the public about what a central bank can and cannot achieve; and has helped clarify the responsibilities of the central bank and of politicians in the conduct of monetary policy (see Bernanke et al., 1999).

Another key feature of inflation-targeting regimes is the tendency toward increased accountability of the central bank. Indeed, transparency and communication go hand in hand with increased accountability. The strongest case of accountability of a central bank in an inflation-targeting regime is that of New Zealand, where the government has the right to dismiss the Reserve Bank's governor if the inflation targets are breached, even for one quarter. In other inflation-targeting countries, the central bank's accountability is less formalized. Nevertheless, the transparency of policy associated with inflation targeting has tended to make the central bank highly accountable to the public and the government. Sustained success in the conduct of monetary policy as measured against a pre-announced and

well-defined inflation target can be instrumental in building public support for an independent central bank, even in the absence of a rigid standard of performance evaluation and penalties.

Disadvantages of Inflation Targeting

Critics of inflation targeting have noted at least seven major disadvantages of this monetary policy strategy. Four of those disadvantages--that inflation targeting is too rigid, that it is tantamount to full discretion, that it necessarily increases output instability, and that it hurts economic growth-- we believe are misplaced. The fifth disadvantage, that inflation targeting can only produce weak central bank accountability because inflation is hard to control and because there are long lags from the monetary policy instruments to the inflation outcome, is a serious one indeed. This disadvantage is particularly important in the Latin American context because the question of inflation controllability in an environment of low inflation and flexible exchange rates is fairly new for the region and hence central banks cannot draw on minimally robust findings and regularities, and because the accountability and credibility of public institutions, including the central bank, are quite low by international standards. The sixth and seventh disadvantages, that inflation targeting cannot prevent fiscal dominance, and that the exchange rate flexibility required by inflation targeting might cause financial instability, especially when there is partial dollarization, are also very relevant in the Latin American context.

Some economists, most notably Friedman and Kuttner, 1996, have criticized inflation targeting because they see it as imposing a rigid rule on the monetary authorities that does not allow them enough discretion to respond to unforeseen circumstances. For example, the central banks of the industrial countries that adopted monetary targeting in the 1970s and 1980s did not foresee the breakdown of the relationship between monetary aggregates and goal variables such as nominal spending or inflation. With rigid adherence to a monetary rule, that breakdown could have had disastrous consequences. But this is not what happened. The point here is that the useful analytical distinction between rules and discretion can be highly misleading when translated into practical policy advice. There exist useful policy strategies that are "rule-like" in that they involve forward-looking behavior that limits policymakers from

systematically engaging in policies with undesirable long-run consequences. For the case of monetary policy, such policies avoid the time-inconsistency problem and can be suitably described as providing the monetary authorities with “constrained discretion” (see Bernanke and Mishkin, 1997).

Inflation targeting can be described exactly in this way. Inflation targeting, as actually practiced, is far from a rigid rule. It does not imply simple or mechanical instructions as to how the central bank should conduct monetary policy. Rather, inflation targeting requires that the central bank uses all the information available at a given point in time to determine what are the appropriate policy actions to achieve its preannounced inflation target. Unlike simple policy rules, inflation targeting mitigates the risk that the central bank ignores important information by focusing exclusively on a reduced set of variables. In fact, it gives the central bank considerable room for choosing what weight to assign to the information it receives, for changing the setting of its policy instruments and, under certain well-defined circumstances, for modifying or even breaching the inflation targets (Bernanke, et al., 1999).

Other critics of inflation targeting, (e.g., Calvo 1999b, Calvo and Mendoza, 2000) have raised the exact opposite criticism and argue that inflation targeting allows too much discretion to monetary policy making and, thus, is a harbinger for a myriad of undesirable outcomes. As explained in Bernanke et al., 1999, this criticism is also unwarranted. The increased transparency and accountability to which all central banks that adopt inflation targeting become subject substantially constrains their discretion and scope for making systematic policy mistakes. Transparent discussions of the conduct of monetary policy make it very difficult for the central bank to follow an overly expansionary monetary policy without it being noticed, while accountability means that the central bank pays a high price if it engages in discretionary policy that leads to high inflation or to excessive output instability (see below). The incentives and scope for central banks to adopt a purely discretionary monetary policy are thus greatly reduced.

A third criticism of inflation targeting is that by focusing monetary policy on lowering inflation it necessarily exacerbates output instability. The counter to this argument is that inflation targeting does not require an exclusive focus on inflation, but simply making inflation

the primary goal of monetary policy. In fact, experience has shown that inflation targeters do display substantial concern about output fluctuations. For example, all the industrialized countries that follow this strategy have set their inflation targets above zero:¹⁶ at present, New Zealand has the lowest midpoint for an inflation target, 1.5%, Canada and Sweden have set the midpoint of their inflation target at 2%; while the United Kingdom and Australia have them at 2.5%. The decision by inflation targeters to choose inflation targets above zero reflects the monetary authorities' concerns that (de-facto) deflation can have substantial negative effects on real economic activity. More generally, central bankers in inflation-targeting countries continue to express their concern about fluctuations in output and employment, and the ability to accommodate short-run stabilization goals to some degree is built into all inflation-targeting regimes; one manifestation of this is the tendency to pursue a strategy of gradual convergence of inflation towards its long-run goal.

Furthermore, many inflation targeters have stressed that the floor of the target range should be considered every bit as binding as the ceiling, thus helping to stabilize the real economy when there are negative shocks to aggregate demand. Inflation targets can in fact increase the central bank's ability to respond to those types of shocks; declines in aggregate demand that may cause the (future) rate of inflation to fall below the floor of the target range will automatically induce the central bank to loosen monetary policy without fearing that its action will trigger a rise in inflation expectations. Another element of flexibility in an inflation targeting strategy is that deviations from inflation targets are routinely allowed in response to supply shocks that could have large adverse effects on output. There are two ways in which this is done in practice: excluding certain items from the price index on which the official inflation targets are defined (for example, excluding some combination of food and energy prices from the officially targeted price index); or accommodating the first-round effects on inflation of an observable supply shock (e.g., a rise in the value-added tax or a natural disaster that raises agricultural prices) and then explaining to the public the reasons for the deviations

¹⁶ CPI indices typically contain an upward bias in the measurement of true inflation and so it is not surprising that the chosen inflation targets were all above zero. However, the point is that these countries have chosen targets for inflation that exceed zero even after taking account of measurement bias.

and its implications for the attainment of the inflation target.

A fourth concern about inflation targeting is that it will lead to low growth in output and employment. This is the age-old concern about the output costs of disinflation (from low inflation levels). Although inflation reduction has been associated with below-normal output during disinflationary phases in inflation-targeting regimes, evidence shows that once low inflation was achieved, output and employment returned to their pre-disinflation levels. Hence a conservative conclusion is that inflation targeting is not harmful to the real economy after the disinflation has occurred. Given the strong economic growth experienced by many inflation targeting countries once they attained their medium-term inflation goal, however, a case could be made that inflation targeting in fact fosters output growth in addition to controlling inflation.

The last three disadvantages that have been noted in the current debate--that inflation targeting does little for central bank accountability because inflation is hard to control, that it does not cure or prevent fiscal dominance, and that it might expose the economy to financial instability, especially when there is partial dollarization--deserve, in our view, more serious consideration.

In contrast to exchange rates and monetary aggregates, the inflation rate can not be easily controlled by the central bank; furthermore, inflation outcomes that incorporate the effects of changes in instruments settings are revealed only after a substantial lag. To address this problem an inflation targeting strategy should place a high value on transparency; periodic releases of the central bank's inflation forecasts and explanations of its policy decisions, for example, become crucial for guiding inflation expectations and building credibility in the regime (see Svensson, 1997). However, the difficulty of controlling inflation creates a particularly severe problem for those countries in Latin America where inflation is being brought down from relatively high levels. In those circumstances, inflation forecast errors are likely to be large, inflation targets will tend to be missed more often, and it will be difficult for the central bank to gain credibility from an inflation targeting strategy, and for the public to ascertain the reasons for the deviations. This suggests that, as noted by Masson et al., 1997, inflation targeting is likely to be a more effective strategy if it is phased in only after there has

been some successful disinflation. As will be noted below, this is what Chile did, but it is also the strategy that was followed by the majority of industrialized countries that adopted inflation targeting.

Two other factors affecting inflation controllability that are especially relevant in the Latin American context are the (at times large) incidence of government-controlled prices on the index used to compute headline inflation, and the historically high passthrough from exchange rate depreciations. The former suggests that inflation targeting may demand a high degree of coordination between monetary and fiscal authorities on the timing and magnitude of future changes in controlled prices, while the latter suggests that the central banks of the region probably can not afford an attitude of "benign neglect" towards exchange rate depreciations, at least until low inflation induces a change in the expectations-formation process and in the price-setting practices of households and firms (more on this below).

A sixth shortcoming of inflation targeting is that it may not be sufficient to ensure fiscal discipline or prevent fiscal dominance. Governments can still pursue irresponsible fiscal policy with an inflation targeting regime in place. In the long run, large fiscal deficits will cause an inflation targeting regime to break down: the fiscal deficits will eventually have to be monetized or the public debt eroded by a large devaluation, and high inflation will follow. Absence of outright fiscal dominance is a therefore key prerequisite for inflation targeting, and the setting up of institutions that help keep fiscal policy in check are crucial to the success of the strategy (Masson et al., 1997). However, as we have seen, absence of fiscal dominance is also crucial to the success of a full dollarization strategy, and it is not at all clear that full dollarization is more effective than inflation targeting to prevent its occurrence. In fact, inflation targeting may help constrain fiscal policy to the extent that the government is actively involved in setting the inflation target (including through the coordination on future adjustments to government-controlled prices).

Finally, a high degree of (partial) dollarization may create a potentially serious problem for inflation targeting. In fact, in many Latin American countries the balance sheets of firms, households and banks are substantially dollarized, on both sides, and the bulk of long-term debt is denominated in dollars (Calvo 1999b). Because inflation targeting necessarily requires

nominal exchange rate flexibility and because the economies of the region are highly open and dependent on external financing, exchange rate shocks are unavoidable. However, large and abrupt depreciations may increase the burden of dollar-denominated debt, produce a massive deterioration of balance sheets, and increase the risks of a financial crisis along the lines discussed in Mishkin, 1996. This provides an additional reason why Latin American countries may not afford to completely ignore the exchange rate when conducting monetary policy under inflation targeting. It also suggests that inflation targeting in partially dollarized economies may not be viable unless there are stringent prudential regulations on, and strict supervision of, financial institutions that ensure that the system is capable of withstanding exchange rate shocks.

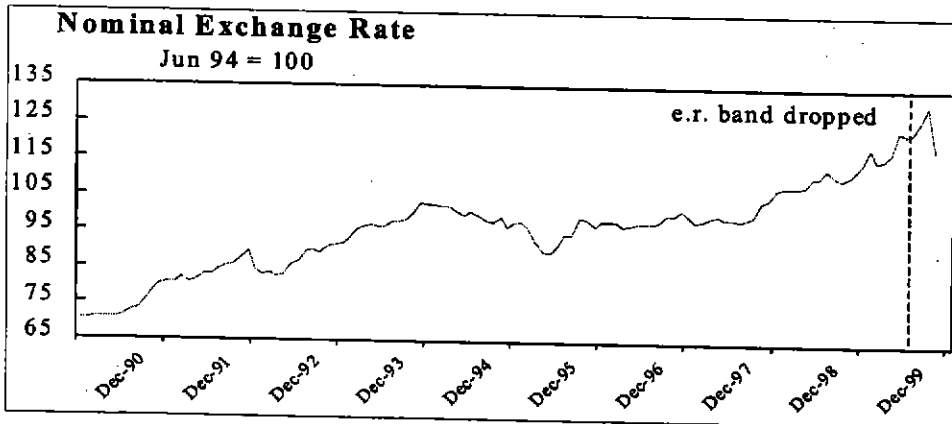
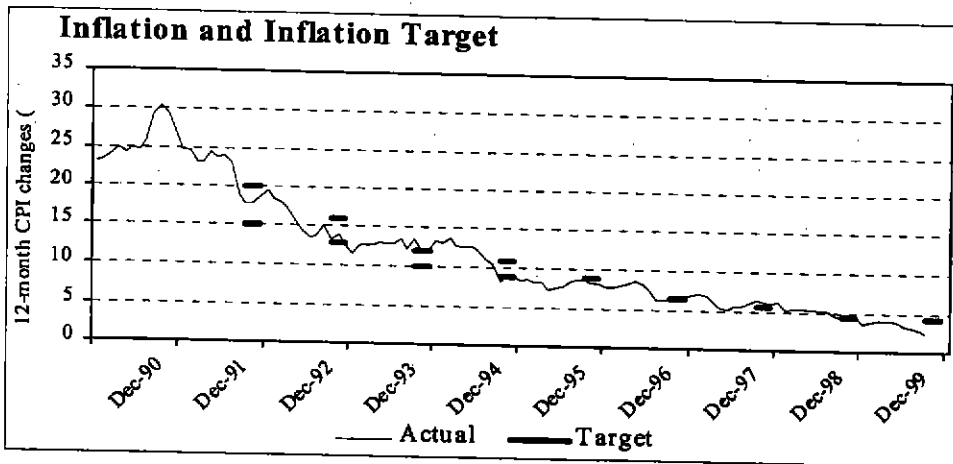
Lessons from Recent Experience

Inflation targeting is often in the eyes of the beholder. The monetary policy frameworks of several countries in Latin America contain some of the elements of inflation targeting that we have outlined earlier. However, this does not mean that those countries should be regarded as following an inflation targeting strategy. To understand why we take a brief look at the recent experience of five of those countries: Chile, Colombia, Peru, Mexico and Brazil.¹⁷

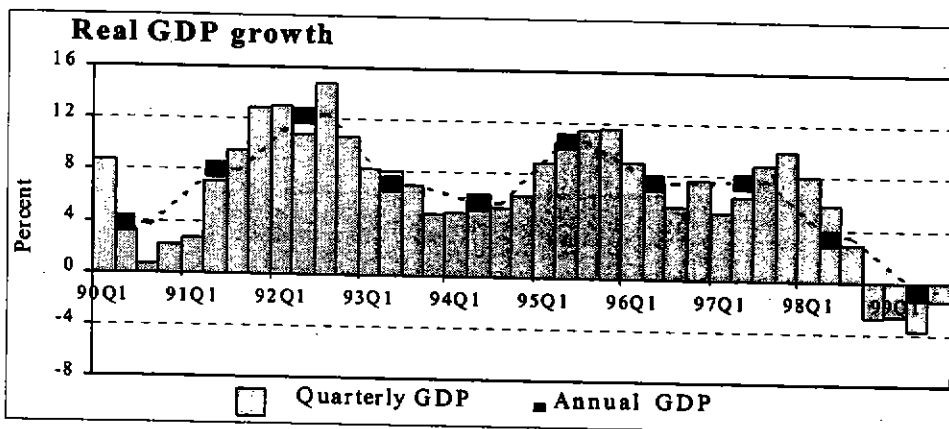
Chile. The new central bank legislation of 1989, which took effect in 1990, gave independence to the central bank and mandated price stability as one of its primary objectives. However, the legislation also stipulated objectives of the central bank to ensure equilibria in domestic and external payments. Over time, the central bank of Chile gradually increased the weight it attached to its price stability objective. The first inflation objective under the new legislation was announced in September 1990 for the twelve-month inflation rate in 1991 and

¹⁷ A questionnaire-based assessment of monetary policy frameworks in emerging economies reported in Masson et al., 1997, identified Chile, Colombia and Mexico as the countries in Latin America that, as of end-1996, appeared to be good candidates for adopting an inflation targeting strategy. Brazil and Peru were not proposed as candidates by the IMF desk officers to whom the questionnaire was sent.

Figure 7. Chile: Inflation, Exchange Rate and Growth 1990-1999



* Depreciation is up



Source: Central Bank of Chile and IFS

has been announced every year since then in the first fifteen days of September for the following year (December to December). However, the inflation objective was initially interpreted by the public more as official inflation projections rather than as formal or "hard" targets (Morandé and Schmidt-Hebbel, 1997). In fact, Chile's central bank pursued a very gradualist approach to lowering its inflation objectives, starting with targets of over 20% for 1991 and lowering them slowly to below 5% (see Figure 7). Over time, as the central bank experienced success in both disinflating and meeting its inflation objectives, the public began to interpret those objectives as "hard" targets for which the central bank could be made accountable. As part of this process, in September 1994 the central bank started to announce point targets rather than target ranges for its inflation objective for the following year. However, it was only in 1999 when the central bank explicitly announced a multi-year target for inflation-- consisting of a target of 3.5% for the year 2000, and a longer-term target of 2 to 4% for 2001 onwards.

The Chilean experience with inflation targeting looks quite successful.¹⁸ Inflation has fallen from levels above 20% when inflation projections were first introduced to a level around 3% at present. Over the same period, output growth has been very high, averaging almost over 8.5% per year from 1991 to 1997, a level comparable to those exhibited by the (former) Asian tigers. Only in the last two years has the economy entered a recession with output growth falling to 3.4% in 1998 and by an estimated -1.3% in 1999 (see Figure 7). In 1998 the Chilean central bank was reluctant to ease monetary policy and let the exchange rate depreciate in order to cushion the effects of a substantial negative terms of trade shock. Instead, the central bank raised interest rates and even narrowed the exchange rate band. In hindsight, these decisions appear to have been a mistake: the inflation target was undershot and the economy entered a recession for the first time under the inflation targeting regime. Not surprisingly given these outcomes, the central bank came under strong criticism.¹⁹ During

¹⁸ Corbo, 1998 and Landerretche, et al., 1999 analyze the factors behind Chile's successful disinflation of the 1990s; see also Massad, 1998. For a critical view of the disinflation, see Calvo and Mendoza, 1999.

¹⁹ In contrast, during this same period, Australia eased monetary policy, thereby allowing the currency to depreciate to cushion the effects of its own negative terms of trade shock. This policy met with great success, resulting in an economy that remained strong while the inflation target continued to be met. One

1999 the central bank reversed course, eased monetary policy by lowering interest rates, and allowed the peso to depreciate.

As part of its monetary policy regime, from the mid-1980s until August 1999, Chile had an exchange rate band around a crawling peg which was (loosely) tied to *lagged* domestic inflation. The central bank stressed that the purpose of the exchange rate band *was not* inflation control, and this was the reason why, for most of the period, the rate of crawl was set on a backward-looking rather than a forward-looking basis. Rather the central bank argued that the purpose of the exchange rate band was to keep the real exchange rate in a range consistent with medium- and long-term external equilibrium and, thus, preclude an excessive current account deficit. Over time, the central bank also made it clear through its actions that the inflation target would take precedence over the exchange rate band when there was a potential conflict between the two objectives. Thus, for example, in various instances from 1992 to 1997 when large capital inflows pushed the exchange rate close to the appreciated edge of the band, the central bank widened the band and even revalued the central parity while keeping the inflation target unchanged, thus signaling to the public that it attached a higher weight to lowering inflation than to resisting a real appreciation that seemed warranted by the “fundamental” determinants of the real exchange rate.

A strong fiscal position and a sound financial system are two key features of the Chilean economy that have supported the inflation targeting regime. The fiscal balance ended in surplus every year from 1991 to 1998, and during 1991-97 the surplus averaged 2.8% of GDP, clear indications that fiscal policy was kept under control. In addition, due largely to the measures taken in the aftermath of the severe banking crisis of the early 1980s, Chile's standards and practices in the areas of banking regulation and supervision during the 1990s have been of a quality comparable to those found in industrialized countries and far superior to those found in the rest of Latin America (with the possible exception of Argentina since 1995).

The resulting solidity of the Chilean financial system has meant that the ability of the central

reason why Chile's central bank did not react in a similar manner to a comparable shock may have been its (unwarranted) concern that a large peso depreciation would lead to inflation exceeding the target and, hence, erode its credibility.

bank to take steps to defend the currency and the banks has never been in question, which may have helped Chile experience less pressures on its currency than other countries of the region at the time of the Tequila crisis (see IMF, 1996). The controls on short-term capital inflows have also been cited often as another important factor behind the low vulnerability and relative stability of the Chilean economy in the 1990s. However, the controls are highly controversial and their contribution is difficult to ascertain.²⁰ Our reading of the evidence suggests that, from the perspective of monetary policy and inflation control, strict prudential supervision was probably more important.

The Chilean example suggests that inflation targeting can be used as a successful strategy for gradual disinflation, even when inflation starts from levels of around 20%. It is important to emphasize that the success of inflation targeting cannot be solely attributed to the actions of the Chilean central bank: supportive policies such as sustained fiscal surpluses and rigorous regulation and supervision of the financial sector have been crucial to that outcome. Another important element of Chile's strategy has been the gradual hardening of the inflation targets and, most recently, the announcement of multi-year targets. However, it could be argued that Chile has not yet accomplished a full-fledged inflation targeting regime: the Chilean central bank has not yet produced an *Inflation Report*-type of document (the first one is scheduled for May 2000), it does not release to the public its baseline inflation forecasts, and its accountability is rather weak. Considering how far it has come, it seems to us that the benefits from rapidly strengthening these features of Chile's monetary policy regime outweigh all possible costs.

Colombia. A decade ago, the prospects for Colombia's monetary policy were quite promising. The country had avoided the populist excesses that had ravaged many of its neighbors, had not been much affected by the debt crisis, and had not suffered a hyperinflation (see Urrutia, 1991). Next to Chile, Colombia was seen by many as the country in the region best positioned for economic take-off. Breaking double-digit inflation, a feature of Colombia's

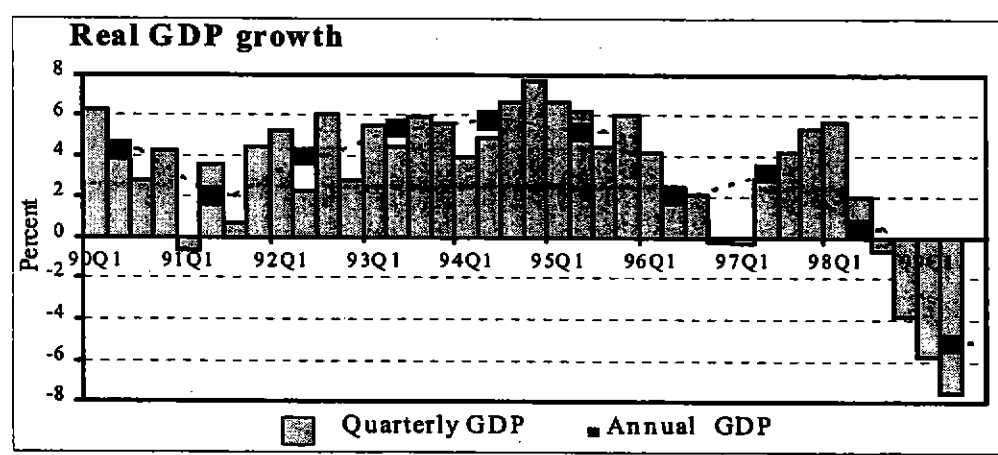
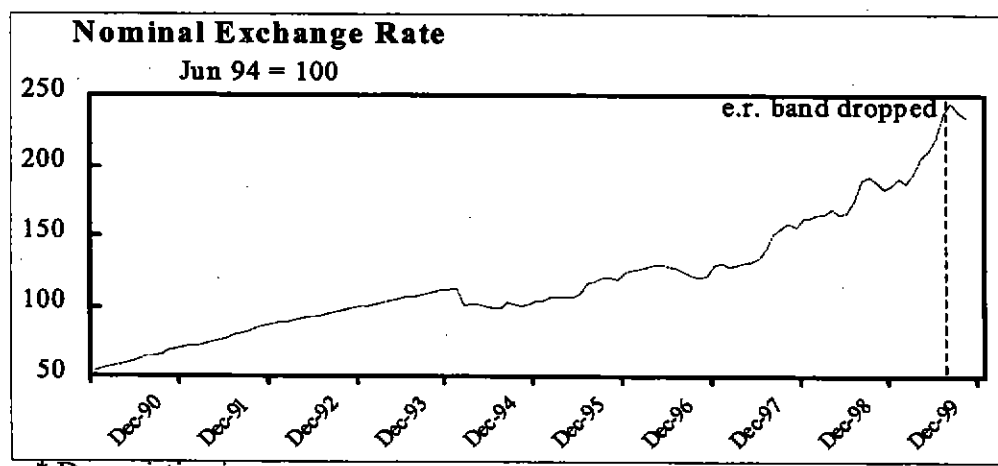
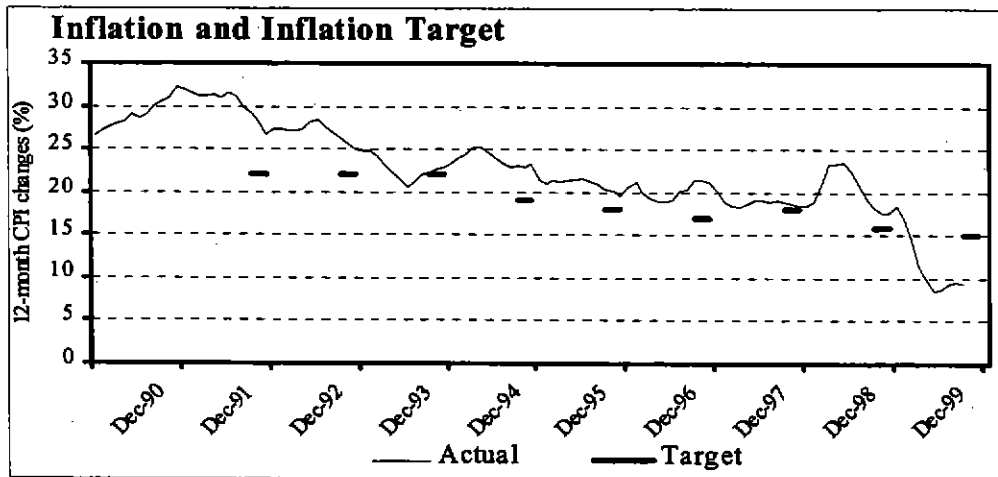
²⁰ For a recent overview of the debate surrounding Chile's capital controls, see Edwards, 1999.

economy since the early 1970s, was considered a key prerequisite for attaining that goal (see Dornbusch and Fischer, 1993). The Colombian authorities seemed up to the challenge. The 1991 constitution --and the supportive legislation passed in 1992-- made the central bank independent from the government, made inflation control the overriding objective of monetary policy, prohibited the central bank from financing private sector activities, and placed tight limits on the bank's financing of government deficits (see Steiner, 1995). In addition, since 1991 the central bank started to announce explicit numerical targets for the one-year ahead inflation rate, as part of the authorities economic program--which continued to be centered around the crawling peg system which had been a hallmark of Colombia's economic policy since the late 1960s (see Williamson, 1996).

The anti-inflation strategy was a failure. Average annual inflation in the period 1991-1998 (22.7%) was essentially the same as the average for the 1980s (23.6%), and from 1991 to 1996 the central bank consistently exceeded its always modest inflation targets (see Figure 8). The inflation target was met for the first time in 1997 --with inflation ending slightly below the 18% target-- but the target was breached again in 1998 (16.7% vs. 16%). In that year, investors concerns about Colombia's large fiscal and external deficits (in the order of 4% and 5% of GDP, respectively) and about its political situation led to a string of speculative attacks on the peso. In response, the central bank first raised interest rates to record-high levels and then, in September 1998, depreciated both edges of the exchange rate band by 9%. The response did not arrest the speculative pressures and induced a sharp slowdown in activity. In 1999 the pressures on the peso continued and Colombia suffered its first recession in seven decades. By mid-year it was apparent that the inflation target of 15% would be undershot by a large margin, but it was also clear that this was not a desired policy outcome. In late September the exchange rate band was abandoned, the peso was allowed to float, and Colombia requested its first IMF program in more than 30 years in an attempt to allay investors concerns and end the recession.

It is self-evident from Colombia's inflation performance during the 1990s that reducing inflation from the 20-25% range was not a priority of monetary policy. Its increased

Figure 8. Colombia: Inflation, Exchange Rate and Growth, 1990-1999



Source: DANE, Central Bank of Colombia and IFS.

independence notwithstanding, the central bank continued to give priority to other objectives, especially output stability, whenever those goals seemed to be put in jeopardy by the inflation target (see Cardenas and Partow, 1998). The following statement from a former Vice-Governor of the central bank is illustrative of the bank's acceptance of Colombia's "historical" inflation rate: "the stance of economic policy in Colombia has been defined in the context of a global objective which has been to maintain moderate inflation in the 20-30% range" (Carrasquilla, 1998, p.87). Whatever merits this view may have in the particular case of Colombia, it is now clear that the central bank was not really committed to reducing inflation or to comply with its inflation targets.

Peru. As we noted in the previous section, Peru's central bank has announced an inflation target since 1994 and has been quite successful in bringing down inflation. However, since 1997, the central bank has consistently undershot its inflation targets. The target range for 1997 was 8-10% with the actual end-of-year inflation rate coming in at 6.5%; in 1998 the target range was set at 7.5-9% and actual inflation was 6%; and in 1999 the range was 5-6% and inflation fell to 3.4% (see Figure 6). In 1998 a series of adverse shocks (i.e., el Niño, low commodity prices, and the Russian crisis) provoked a collapse in exports, a substantial depreciation of the sol, and a sharp slowdown of bank credit; these events put the Peruvian economy on the verge of its first recession since 1992. Economic activity remained depressed in 1999 despite an agriculture-led rebound of aggregate output. As a result, monetary policy has come under fire from all fronts fueling a debate on whether there is a need for an alternative monetary framework for Peru, including the option of full dollarization. These facts would suggest that, despite the successful disinflation, Peru's monetary authorities continue to lack credibility.

Although the central bank announces inflation targets, Peru's monetary policy framework does not contain many crucial features of an inflation targeting regime, such as the publication of *inflation reports* (and hence the release of the bank's inflation forecasts), mechanisms for making the central bank accountable for attaining its inflation targets, or the announcement of multi-year targets. However, probably the most serious shortcoming of

Peru's monetary policy has been its lack of transparency. A main contributing factor has been the profusion of instruments of monetary policy employed by the central bank: intervention in the money market (through the auction of certificates of deposits), intervention in the foreign exchange market (through direct sales and purchases of foreign exchange), and several other secondary instruments such as rediscounts, reserve requirements on the sizable foreign currency deposits and the interest paid on those reserve requirements. The proliferation of signals, compounded by the apparent lack of a coherent framework to communicate and evaluate monetary policy, has made it difficult for the public to decipher the central bank's actions, intentions and priorities, as well as to assess the stance of monetary policy at any given point in time. Instances where these problems have arisen abound, but they have been particularly acute and frequent with regard to two indicators: the observed rate of growth of base money (which on many occasions has been considered excessive and inconsistent with the inflation target -- for example during 1995-1996) and the intervention in the foreign exchange market (which is often perceived as interfering excessively with equilibrium short-run movements in the nominal exchange rate--especially with depreciations). Although the latter criticism is probably warranted, Peru's central bank has consistently, and in our view, prudently, refrained from making any type of commitment, explicit or implicit, regarding the (expected or desired) level or path of the nominal exchange rate, and has let the exchange rate depreciate at a faster rate when market pressures have proved persistent--for example, in late 1998 and 1999. This flexibility, added to the desirable features already included in the central bank's charter, bodes well for a smooth transition to a monetary policy regime more consistent with inflation targeting.

One feature of the Peruvian experience that is of great interest is the high degree of dollarization of the economy. As noted before, 80% of bank deposits and bank loans in Peru are dollar-denominated; moreover, U.S. dollars circulate freely and are widely accepted as means of payment. As in other countries of the region, Peru's dollarization has its roots in the high inflation of the 1970s and 1980s. The process of remonetization that accompanied the successful stabilization of the early 1990s was driven by repatriation of flight capital of domestic residents and was channeled primarily to the fully convertible dollar deposits offered

by the banking system. Thus, also as in other countries -- i.e., Argentina, Bolivia, Uruguay-- the banking system has remained highly dollarized despite the success in fighting inflation.²¹ As noted earlier, partial dollarization has the potential to make an inflation targeting regime, which requires some degree of exchange rate flexibility, vulnerable to financial instability. However, this does not seem to have presented a severe problem in the case of Peru. The country suffered no contagion whatsoever from the Tequila crisis of December 1994 and weathered the crisis nicely, although this outcome was substantially helped by Peru's limited access to short-term capital flows at that time. Similarly during the recent Russian crisis, when there was a substantial depreciation, Peru did not experience severe financial instability, although bank credit and economic activity slowed down considerably. The overhaul of banking supervision and prudential regulations undertaken since the mid-1990s are likely to have contributed to this outcome.

Mexico. We noted in Section IV that Mexico's attempt at using base money forecasts as a nominal anchor has not been too successful, and that the central bank has started to back off from that practice. In fact, senior central bank officials have recently characterized Mexico's monetary policy framework as being in "a transition period towards a clear-cut inflation targeting scheme" (Carstens and Werner, 1999). We also noted earlier that for a number of years Mexico has made public an explicit inflation objective at the time the Minister of Finance submitted to Congress the government's economic program for the following year. However, Mexico's monetary policy still lacks some important elements of an inflation targeting strategy such as a transparent policy framework, and high accountability for meeting the inflation target. It is true that the Bank of Mexico has increased the emphasis on the inflation goal as the central objective of its monetary policy and that, since 1998, has let the exchange rate fluctuate more freely. But those changes do not go far enough. Mexico's central bank continues to release its year-ahead forecasts for the daily monetary base, insists on explaining its monetary policy actions in terms of its system of daily liquidity management (the

²¹ See Rodriguez, 1993, and Savastano, 1996 for evidence on the path of remonetization in these economies.

“corto” and “largo”), does not produce or release to the public mid-course inflation forecasts and, until recently, maintained the one-year ahead horizon for the inflation target. These practices are not credibility-enhancing and tend to create confusion, especially when there are (downward) pressures on the exchange rate. This lack of transparency is also reflected in the documents normally produced by the central bank, such as its annual report, which spend far more space discussing general developments in the Mexican economy than explaining the rationale and outcomes of the bank’s anti-inflation policy.

It is possible that the Bank of Mexico has been waiting for the “right” time to move to a more explicit inflation targeting regime. After all, inflation remains in the (low) double digits, external financing conditions have been tight, and the passthrough from exchange rate changes does not seem to have fallen much (see Bank of Mexico, 1998). In addition, the inflation rate in 1998 overshot the announced target by almost 7 percentage points, damaging the Bank of Mexico’s anti-inflation credentials. As we have argued, there is a case to be made for central banks to wait until they have acquired some anti-inflation credibility before they “harden” their targets for inflation. From this perspective, 1998 was probably not a good year for the Bank of Mexico to push further in the direction of inflation targeting.

In 1999, however, things started to look different. Annual inflation, at 12.3%, fell below the 13% target, the passthrough from exchange rate changes seemed to abate slightly, and, unlike the other large countries of the region, the economy grew by more than 3% (see Figure 5). These outcomes will help enhance the credibility of the Bank of Mexico. Furthermore, the central bank has recently been taking steps to increase its commitment to inflation targeting. For the first time, the central bank announced the 10% inflation target for the year 2000 before the Ministry of Finance submitted to Congress the economic program for the year. This (subtle) move may contribute to raise the accountability of the central bank for complying with its inflation objectives. Also for the first time, the Bank of Mexico announced a multi-year target for inflation by stating that it intends to lower inflation to “international levels,” (i.e., somewhere in the 2 to 3% range) by 2003. More changes are clearly needed and the political calendar may slowdown their implementation, but, judging from these two steps, the Bank of Mexico seems to be following a strategy that is not too dissimilar from the

one followed by the central bank of Chile, i.e., gradually "hardening" the inflation targets as the bank's credibility increases because of demonstrated success on the inflation front.

Brazil. The exchange-rate based stabilization under the *Real* plan from 1994 until January 1999 was extremely successful, reducing inflation from 2,500% in December 1993 to less than 2% by December 1998 (see Figures 2 and 9).²² However, the inability of the Brazilian government to put its fiscal house in order led to a gradual build up of public debt that increased the regime's vulnerability to speculative attacks and, following a costly defense in the fall of 1998, the *real* collapsed in January 1999. In the immediate aftermath of the currency crash, the (de-facto) resignation of two central bank presidents and the lack of a clear strategy for monetary policy made Brazilian prospects look bleak; doomsday predictions --such as: *[One caipirinha will amount to ten tequilas]*²³-- became common in the press and in market commentary. However, soon after his appointment in early February, the new central bank president, Arminio Fraga, took two crucial steps. First, as the British had done in the fall of 1992,²⁴ he recognized the need to rapidly put in place a nominal anchor and announced that Brazil would be soon adopting an inflation targeting strategy. And second, he decided to increase the interbank interest rate by 600 basis points, to 45%, to arrest the plunge of the *real* and re-establish credibility in monetary policy.

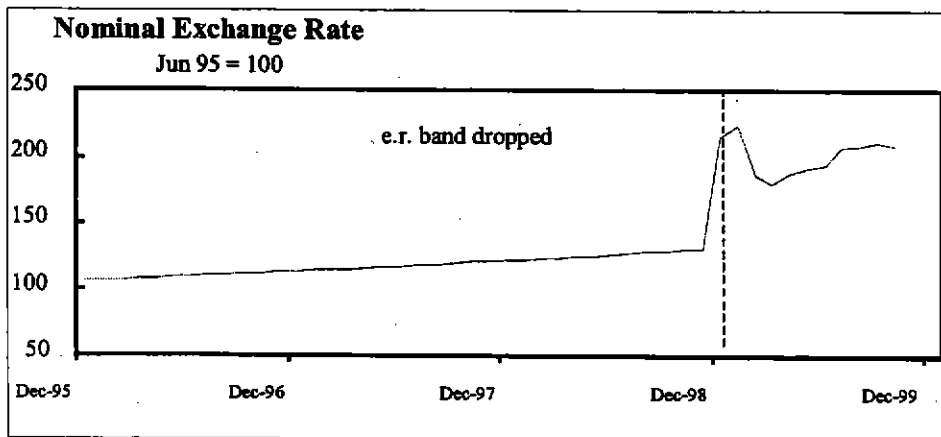
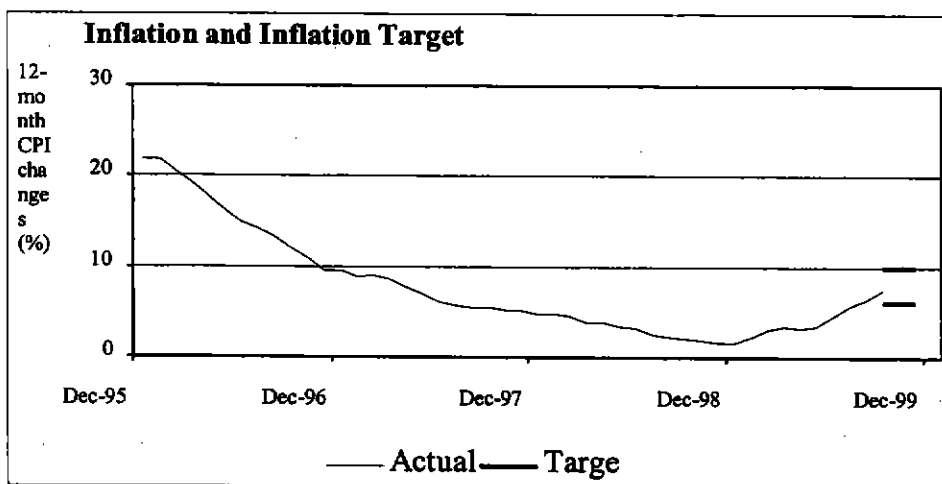
On June 21, 1999 the President of Brazil issued a decree instituting an inflation targeting framework for the conduct of monetary policy. The regime contemplated in the decree contains all the key elements of an inflation targeting strategy, namely : 1) the announcement of multi-year inflation targets (with explicit numerical targets for the 12-month rate of inflation in the years 1999, 2000 and 2001, and a commitment to announce the targets

²² For an overview of the main elements of the *Real* plan and of its initial results see Cardoso, 1998, and Lopes, 1998.

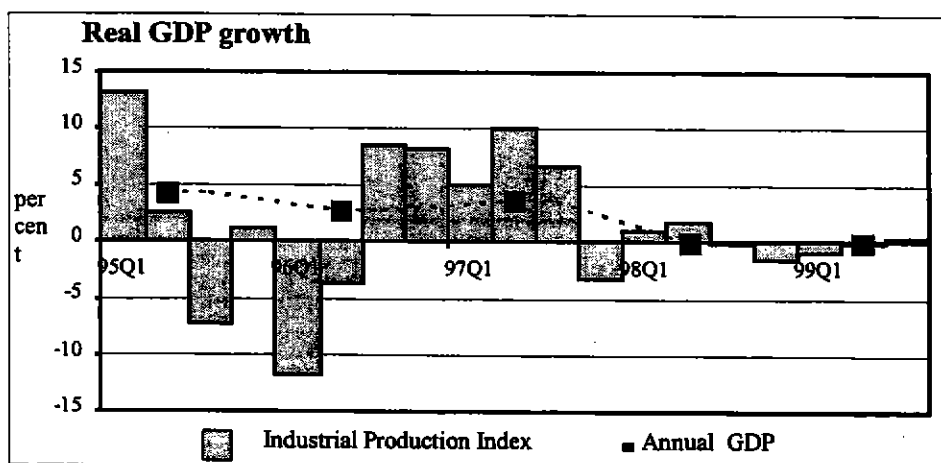
²³ A caipirinha is a popular alcoholic drink in Brazil, as is the tequila in Mexico.

²⁴ See Mishkin and Posen, 1997, and Bernanke et al., 1999.

Figure 9. Brazil: Inflation, Exchange Rate and Growth, 1995-1999



* Depreciation is up



Source: Central Bank of Brazil
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for 2002 onwards two years in advance); 2) assigning to the National Monetary Council the responsibility for setting the inflation targets and tolerance ranges based on a proposal by the Minister of Finance; 3) giving to the central bank of Brazil full responsibility to implement the policies needed to attain the inflation targets; 4) establishing procedures to increase the central bank's accountability (specifically, if the target range is breached, the central bank president would have to issue an open letter to the Minister of Finance explaining the causes of the deviation, the measures that will be taken to eliminate it, and the time it will take to get inflation back inside the tolerance range) and 5) taking actions to improve the transparency of monetary policy (concretely, the central bank was requested to issue a quarterly *Inflation Report* modeled after that produced by the Bank of England).

In terms of its design, the framework set up by Brazil has all the "bells and whistles" of an inflation targeting regime, and is clearly the most comprehensive attempt to establish a regime of this type in Latin America. What is especially striking about Brazil's move to inflation targeting is how fast it occurred. The first inflation report was issued in July 1999, just a few months after Fraga was confirmed, with the second, right on schedule in September. The reports not only discuss clearly the conditions prevailing in the economy and the prospects for inflation, but also provide the central bank's inflation forecasts under different scenarios--including through the use of "fan charts" depicting the probabilities of different inflation paths. Many central bankers in the region have been concerned that it might take them a long time to acquire the technical capability to issue an inflation report of this type. Brazil's example suggest that those concerns may be a bit overdone.

The initial inflation targets were set at 8% for 1999, 6% for 2000 and 4% for 2001, with a tolerance range around the target of $\pm 2\%$. To the surprise of many, the strategy seemed to work. There was a remarkably small passthrough from the large depreciation of the *real* (which fell by 45% on impact and thereafter stabilized at 30% below its pre-devaluation level), the output contraction was contained (in fact, annual GDP grew by almost 1 percent), Brazil was not cut-off from external financing--though there was some "arm twisting" involved-- and there were no major bank runs. By March 1999, asset prices had started to recover, the *real* appreciated and the central bank found room to lower interest rates--which it

did, quite aggressively (from a high of 45% to below 20% in a seven-months period). Inflation and the exchange rate remained subdued through October, when the monthly inflation rate rose to 1.2%, the largest monthly increase since June 1996, and the exchange rate crossed, briefly, the "critical" mark of R\$2.00 per U.S. dollar (see Figure 9). In the end, 1999 inflation reached 8.9%, above the 8% target for the year but well within the 2 percent tolerance range.

Its auspicious beginning notwithstanding, it is of course too soon to tell whether Brazil's inflation targeting scheme will be successful. The two big question marks are, first, whether the central bank will be capable of enhancing and asserting its independence from the government and remain committed to controlling inflation, and second, the perennial question in Brazil, whether the government will undertake the steps and reforms needed to put fiscal policy on a sustainable path consistent with low inflation. If Brazil, yet again, cannot meet these challenges, monetary policy will become increasingly overburdened and discretionary, fiscal dominance will reappear, and the inflation targeting regime will blow up. Despite these risks, it is nonetheless useful to search for the factors that may have contributed to Brazil's initial success with inflation targeting. In our view, the three that stand out are the relative strength of Brazil's banking system (which had undergone a major restructuring following the bank crisis of 1994-1996—see Caprio and Klingebiel, 1999), the existence of substantial "slack" in the economy (partly a consequence of the prolonged interest rate defense of the *real* plan), and, especially, the quick measures taken by Governor Fraga to reestablish credibility in monetary policy. Other countries in the region may want to take note.

Bottom Line

Our review of the conduct and orientation of monetary policy in five countries of the region in recent years suggests to us that inflation targeting can become a viable medium-term strategy for monetary policy for many countries in Latin America. In fact all the countries reviewed, except perhaps for Colombia, seem to be moving in the direction of a full-fledged inflation targeting regime, although none of them is quite there yet. In terms of a demonstrated commitment to lowering inflation in line with its target and of the general

conduct of monetary policy, Chile is far ahead from the rest of the group, but could improve in the areas of transparency and accountability. In terms of setting up a framework for monetary policy that contains all the key elements of inflation targeting, Brazil has recently taken the lead in the region, showing that an inflation-targeting regime can be implemented quite quickly. However, Brazil's inflation-targeting regime is so recent that it lacks a track record. The other three countries reviewed lag behind in both the commitment to inflation control and adoption of the other key elements of inflation targeting, Colombia being the one furthest out.

A key requirement for inflation-targeting regimes in Latin America, as elsewhere is the recognition that undershooting inflation targets, as occurred recently in Chile and Peru, is just as costly as overshooting the targets. Support for an independent central bank which is pursuing price stability can erode if the central bank is perceived as focusing too narrowly on lowering inflation to the detriment of other objectives, especially output stability. By just as readily admitting their mistakes when an inflation target is undershot as when it is overshot, and continuously refining their technical expertise to minimize the occurrence of such events, central banks may increase support for their independence and for the inflation targeting regime.

Fiscal discipline and a sound and well-regulated banking system are crucial for the viability and success of inflation targeting, just as they are for the success of hard pegs. Again, Chile seems to be way ahead of the other countries reviewed in terms of broad compliance with these requirements. Lack of fiscal discipline is a particularly serious concern in Brazil and Colombia, whereas weaknesses in the banking system are the big question mark in Mexico, and, to a lesser extent, Peru. Inflation targeting alone will not solve these problems; neither will hard pegs. Setting *multi-year* inflation targets in coordination with the government (including on the issue of government-controlled prices) may help reduce the risk of fiscal profligacy, but it is not a long-term solution. Setting up institutions that help keep fiscal policy in check and others that promote and enforce sound banking practices, seem to be the only solutions that may prove lasting and workable in the region.

Then there is the difficult question of the role of the exchange rate in an inflation

targeting strategy for monetary policy in a Latin America country. The five cases reviewed provide only limited guidance for answering this question satisfactorily. The countries' reluctance to adopt an attitude of "benign neglect" of exchange rate movements (i.e., a pure float) seems broadly appropriate--especially while they were undertaking a disinflation-- but all of them probably went too far for too long in the direction of limiting exchange rate flexibility--not only through the explicit use of exchange rate bands, employed by all countries, except Peru, for a good part of the 1990s, but also through frequent direct and indirect intervention in the foreign exchange market. The main problem with responding too heavily and too frequently to movements in a "flexible" exchange rate is, of course, that the strategy runs the risk of transforming the exchange rate into a nominal anchor for monetary policy that takes precedence over the inflation target, at least in the eyes of the public. With time, this practice may become observationally equivalent with a strategy of nominal exchange rate targeting.

To mitigate the risk that the exchange rate might replace the inflation target as the economy's main nominal anchor, central banks in the region could increase the transparency of their intervention in the foreign exchange market, making it clear to the public that the purpose of such intervention is just to smooth "excessive" exchange-rate fluctuations and not to preclude the exchange rate from reaching its market-determined level over longer horizons. In this regard, for example, central banks could explain to the public the rationale for exchange rate intervention in a manner analogous to that for interest-rate smoothing, i.e., as a policy aimed not at resisting market-determined movements in an asset price, but at mitigating potentially destabilizing effects of abrupt and sustained changes in that price. More generally, we think it is important that central banks understand that there are no "good floats" or "bad floats," but that there is such a thing as "good" and "bad" monetary policy under flexible exchange rates. Letting the exchange rate become the de-facto nominal anchor of the economy through excessive intervention in a quasi-inflation targeting regime is an example of the latter.

It is also important for central banks to recognize that, as is the case for most economic relationships, the passthrough from exchange rate changes to prices is likely to be regime-dependent. After a sustained period of low inflation with effective, as opposed to fictional,

exchange rate flexibility, the informational content of the exchange rate in the expectations-formation process and price-setting practices of households and firms is likely to fall. Thus, the widespread view that a currently high passthrough from exchange rate changes to prices is a barrier to successful inflation targeting is probably exaggerated.

A related problem of special relevance for Latin America is the extent to which a high degree of dollarization may hinder inflation targeting. To a large extent a transparent and well-designed policy of exchange-rate smoothing combined with strong regulatory and supervision practices in the financial system should mitigate potential inconsistencies. The recent experience of Peru is encouraging in this regard. In fact, the argument can be turned on its head. The high dollarization of bank loans and deposits and the widespread use of U.S. dollars as unit of account and medium of exchange (though not as legal tender) in countries like Peru, Bolivia and Uruguay is probably irreversible, at least in the medium run. Yet all these countries have retained a domestic currency and have managed to reduce inflation to very low levels. Even Uruguay, the chronic inflation country *par excellence* has recently brought inflation down to the single digits. Highly dollarized economies are therefore reaping one of the main benefits of full dollarization (low inflation) while preserving some scope to mitigate the effects of other shocks through monetary policy. Because their payments systems and transactions technology are already partially dollarized, it would be relatively easy for these countries to switch unilaterally to full dollarization, if they chose to. Designing a credible strategy that allows them to retain an additional margin of flexibility without impairing their gains on the inflation front, which is what inflation targeting is all about, is probably a more demanding task, but its net benefits over the medium term are also greater, and, we think, worth pursuing.

VI. Conclusion

We have taken the view that the real debate over monetary policy regimes in Latin America should not be over whether the exchange rate regime should be fixed or flexible. Instead, the debate should be over what is the best way to constrain discretion over monetary policy in Latin American countries. Like most economists, we come up with the answer that "it depends," in particular, we think that the key to the answer lies on the institutional environment in each country. There are some countries in Latin America which do not appear to have the political and other institutions to constrain monetary policy if it is allowed some discretion. In these countries there is a strong argument for hard pegs, including full dollarization, which allow little or no discretion to the monetary authorities. On the other hand, there are countries in Latin America that seem to have the ability to constrain discretion, with Chile being the clearest example, and for these cases we believe that inflation targeting is likely to produce a monetary policy which keeps inflation low and yet appropriately copes with domestic and foreign shocks.

Monetary targeting as a strategy for Latin America is not viable because of the likely instability of the relationship between monetary aggregates and inflation, of which there is ample international evidence. Therefore, it is not surprising that no Latin American country has truly followed a monetary targeting strategy, and those that have tried or have been regarded as trying, have instead conducted a highly discretionary monetary policy which is, of necessity, non-transparent and has the potential of breaking down at any point.

Proponents of different strategies for the conduct of monetary policy often have a tendency to argue that their preferred strategy will be a panacea that will help resolve hard problems such as fiscal dominance. Our case studies suggest that these arguments are quite problematic. Our reading of the experiences in Latin America suggest that a monetary policy strategy, no matter whether it involves a hard peg or an inflation target, will not be successful in maintaining low inflation over the medium term unless government policies create the right institutional environment. Rigorous prudential supervision, which ensures the safety and soundness of the

financial system, is crucial to the success of an inflation targeting regime just as it is for hard pegs. Also, sound and sustainable fiscal policy is as essential to the success of inflation targeting regimes as it is to the viability of hard pegs. Large fiscal deficits and the ensuing buildup of government debt will eventually lead to the failure of both types of regime.

The bottom line is that adopting a strategy for monetary policy, whether it be a hard peg or a regime with greater flexibility of exchange rates, like inflation targeting, cannot solve the basic problems that have existed in Latin American economies for a long time. Successful monetary policy in Latin America cannot be done in a vacuum. Design of the basic institutional infrastructure in those economies must be addressed and improved in order to attain and preserve low and stable inflation.

A number of economists have become convinced that Latin America is subject to some type of "original sin" and thus is unlikely to grow up and develop institutions which would promote good monetary policy. With this view, it seems sensible to effectively close down central banks and adopt a currency board or to go for (unilateral) full dollarization. We are quite skeptical of the "original sin" argument. The recent successes in bringing down inflation in many countries of the region suggests to us that it is possible for Latin America to develop institutions which would allow its central banks to follow a monetary policy focused on keeping inflation low while preserving some scope to mitigate output fluctuations. We are thus not convinced that it is time to give up on the maturation of Latin America, and believe that the move towards inflation targeting that has started in the region will continue and make further inroads in the years ahead.

References

- Aspe, P., 1993, *Economic Transformation the Mexican Way*, Cambridge, MA: MIT Press
- Bank of Mexico, 1998, *The Mexican Economy 1998*, Mexico City: Bank of Mexico, June
- Bernanke, B. and F. Mishkin, 1992, "Central bank behavior and the strategy of monetary policy: Observations from Six Industrialized Countries," *NBER Macroeconomics Annual*, 1992: 183-228.
- Bernanke, B. and F. Mishkin, 1997, "Inflation Targeting: A New Framework for Monetary Policy?" *Journal of Economic Perspectives* Vol. 11, No. 2, Spring 1997: 97-116.
- Bernanke, B., T. Laubach, F. Mishkin, and A. Posen, 1999, *Inflation Targeting: Lessons from the International Experience*, Princeton, NJ: Princeton University Press
- Bruno, M., 1995, *Inflation, Growth and Monetary Control: Non-linear Lessons from Crisis and Recovery*, Paolo Baffi Lectures on Money and Finance, Rome: Banca d'Italia
- Calvo, G., 1999a, "On Dollarization," mimeo, University of Maryland, April
- Calvo, G., 1999b, "Capital Markets and the Exchange Rate," mimeo, University of Maryland, October
- Calvo, G. and E. Mendoza, 1996, "Mexico's balance-of-payments crisis: A chronicle of a death foretold," *Journal of International Economics*, (special issue), Vol 41, Nos. 3/4, November
- Calvo, G. and E. Mendoza, 1999, "Empirical Puzzles of Chilean Stabilization Policy," in G. Perry and D. Leipziger (eds) *Chile: Recent Policy Lessons and Emerging Challenges*, Washington D.C.: The World Bank
- Calvo, G. and E. Mendoza, 2000, "Capital-Market Crises and Economic Collapse in Emerging Markets: An Informational-Frictions Approach," mimeo, Duke University and University of Maryland, January
- Calvo, G. and C. Vegh, 1994, "Inflation Stabilization and Nominal Anchors," *Contemporary Economic Policy*, Vol. 12
- Calvo, G. and C. Vegh, 1999, "Inflation Stabilization and BOP Crises in Developing Countries," in J. Taylor and M. Woodford (eds), *Handbook of Macroeconomics*, Elsevier: North Holland

- Caprio, G. and D. Klingebiel, 1999. "Episodes of Systemic and Borderline Financial Crises," mimeo, The World Bank, October
- Cardenas, M. and Z. Patrow, 1998, "Does Independence Matter? The Case of the Colombian Central Bank," mimeo, Bogota: Fedesarrollo
- Cardoso, E., 1998, "Virtual Deficits and the Patinkin Effect," *IMF Staff Papers*, Vol 45, December
- Carrasquilla, A., 1998, "Monetary policy transmission: the Colombian case," in *The Transmission of Monetary Policy in Emerging Market Economies*, BIS Policy Papers No.3, January
- Carstens, A. and A. Werner, 1999, "Mexico's Monetary Policy Framework under a Floating Exchange Rate Regime," Banco de Mexico Research Paper 9905, May
- Cavallo, D., 1993, "The Convertibility Plan," in N. Liviatan (ed.) *Proceedings of a Conference on Currency Substitution and Currency Boards*, Washington D.C.: The World Bank
- Clarida R. and M. Gertler, 1998, "How the Bundesbank Conducts Monetary Policy," in C. Romer and D. Romer (eds) *Reducing Inflation*, Chicago: The University of Chicago Press for the NBER
- Corbo, V. 1998, "Reaching one-digit inflation: The Chilean experience," *Journal of Applied Economics*, Vol 1, No.1: 123-163
- Corbo, V. 1999, "Monetary Policy in Latin America in the '90s," paper presented at the Third Annual Conference of the Central Bank of Chile, September 20-21, 1999
- Cottarelli, C. and C. Giannini, 1997, *Credibility Without Rules? Monetary Frameworks in the Post-Bretton Woods Era*, IMF Occasional Paper 154, Washington, D.C.: International Monetary Fund
- de la Rocha, J., 1998, "The transmission mechanism of monetary policy in Peru," in *The Transmission of Monetary Policy in Emerging Market Economies*, BIS Policy Papers No.3, January
- Dornbusch, R. and S. Fischer, 1993 "Moderate Inflation," *The World Bank Economic Review*, Vol. 7, (1): 1-44

- Edwards, S., 1998, "Two Crises: Inflationary Inertia and Credibility," *The Economic Journal*, Vol 108: 680-702, May
- Edwards, S., 1999, "How Effective are Controls on Capital Inflows? An Evaluation of Chile's Experience," mimeo, UCLA, June
- Edwards, S. and M. Savastano, 1998, "The Morning After: The Mexican Peso in the Aftermath of the 1994 Currency Crisis," NBER Working Paper 6516, April
- Edwards, S. and M. Savastano, 1999, "Exchange Rates in Emerging Economies: What do we know? What do we need to know?" NBER Working Paper 7228, July
- Eichengreen, B. and P. Masson, 1998, *Exit Strategies: Policy Options for Countries Seeking Greater Exchange Rate Flexibility*, IMF Occasional Paper 168, September
- Eichengreen, B. and R. Hausmann, 1999, "Exchange Rates and Financial Fragility," NBER Working Paper 7448, November
- Estrella, A. and F. Mishkin, 1997, "Is there a role for monetary aggregates in the conduct of monetary policy?," *Journal of Monetary Economics*, Vol 40: 279-304
- Favaro, E., 1996, "Peru's Stabilization Under Floating Exchange Rates," mimeo, The World Bank, September
- Frankel, J., 1995, "Monetary regime choice for a semi-open country," in S. Edwards (ed), *Capital Controls, Exchange Rates and Monetary Policy in the World Economy*, New York: Cambridge University Press
- Frankel, J., 1999, "No single currency regime is right for all countries or at all times," NBER Working Paper 7338, September
- Friedman, B. and K. Kuttner, 1996, "A Price Target for U.S. Monetary Policy? Lessons from the experience with money growth targets," *Brookings Papers on Economic Activity*, 1: 77-125
- Fry, M., and others, 1999, "Monetary Policy Frameworks in a Global Context," report prepared for a Central Bank Governors' Symposium at the Bank of England, June 4, 1999, London: Bank of England
- Garber, P., 1999 "Hard-Wiring to the Dollar: From Currency Board to Currency Zone," *Global Markets Research*, London: Deutsche Bank, March
- Ghosh, A., A. Gulde and H. Wolf, "Currency Boards: The Ultimate Fix?" IMF Working

Paper 98/8, January

- Gil-Díaz, F. and A. Carstens, 1996, "One Year of Solitude: Some Pilgrim Tales About Mexico's 1994-95 Crisis," *American Economic Review Papers and Proceedings*, May
- Goodhart, C., 1989, "The Conduct of Monetary Policy," *The Economic Journal*, 99:293-346
- Hanke, S. and K. Schuler, 1994, *Currency Boards for Developing Countries: A Handbook*, San Francisco: ICS Press
- Hausmann R. and M. Gavin, 1995, "Overcoming Volatility in Latin America," Office of the Chief Economist, Washington, D.C.: Inter-American Development Bank, August
- Hausmann, R., M. Gavin, C. Pages-Serra and E. Stein, 1999, "Financial Turmoil and the Choice of Exchange Rate Regime," mimeo, Inter-American Development Bank, March
- Helpman, E., L. Leiderman and G. Bufman, 1994, "New Breed of Exchange Rate Bands: Chile, Israel and Mexico," *Economic Policy* Vol.9: 206-306, October
- IMF, 1996, *International Capital Markets: Developments, Prospects and Key Policy Issues*, IMF: Washington, D.C., September
- Jadresic, E., P. Masson and P. Mauro, 1999, "Exchange Rate Regimes of Developing Countries: Global Context and Individual Choices," mimeo, International Monetary Fund, December
- Kamin, S., and J. Rogers, 1996, "Monetary policy in the end-game to exchange-rate based stabilizations: the case of Mexico," *Journal of International Economics*, (special issue), Vol 41, Nos. 3/4, November
- Kamin, S., P. Turner and J. Vant 't dack, 1998, "The transmission mechanism of monetary policy in emerging economies: an overview," in *The Transmission of Monetary Policy in Emerging Market Economies*, BIS Policy Papers No.3, January
- Landerretche, O., F. Morandé and K. Schmidt-Hebbel, 1999, "Inflation Targets and Stabilization in Chile," Central Bank of Chile, Working Paper 55, December
- Larrain, F. and A. Velasco, 1999, "Exchange Rate Policy for Emerging Markets: One size does not fit all," *Princeton Essays in International Finance*, (forthcoming)
- Levy-Yeyati, E. and F. Sturzenegger, 1999, "Classifying Exchange Rate Regimes: Deeds vs. Words", mimeo, Universidad Torcuato di Tella, November

- Loayza N., and L. Palacios, 1997, "Economic Reform and Progress in Latin American and the Caribbean," Policy Research Working Paper 1829, Washington, D.C.: The World Bank, September
- Lopes, F., 1998, "The transmission mechanism of monetary policy in a stabilizing economy: Notes on the case of Brazil," in *The Transmission of Monetary Policy in Emerging Market Economies*, BIS Policy Papers No.3, January
- Massad, C., 1998, "La Política Monetaria en Chile," *Economía Chilena*, Vol 1, No. 1
- Masson, P., M. Savastano, and S. Sharma, 1997, "The Scope for Inflation Targeting in Developing Countries," IMF Working Paper 97/130, October
- McCallum, B., 1996, "Inflation Targeting in Canada, New Zealand, Sweden, The United Kingdom, and in General," NBER Working Paper 5579, Cambridge MA, May
- Mishkin, F., 1991, "Asymmetric Information and Financial Crises: A Historical Perspective," in R. Glenn Hubbard, ed., *Financial Markets and Financial Crises*, Chicago: The University of Chicago Press
- Mishkin, F., 1996, "Understanding Financial Crises: A Developing Country Perspective," in Michael Bruno and Boris Pleskovic, eds., *Annual World Bank Conference on Development Economics 1996* (World Bank: Washington D.C. 1996): 29-62.
- Mishkin, F., 1998, "The Dangers of Exchange-Rate Pegging in Emerging Markets Countries," *International Finance*, Vol 1., No.1: 81-101
- Mishkin, F., 1999a, "International Experiences with Different Monetary Regimes," *Journal of Monetary Economics*, Vol 43: 579-606
- Mishkin, F., 1999b, "Lessons from the Asian Crisis," *Journal of International Money and Finance*, 18, 4 (August 1999): 709-723.
- Mishkin, F. and A. Posen, 1997, "Inflation Targeting: Lessons from Four Countries," *Federal Reserve Bank of New York Economic Policy Review*, August 1997
- Morandé, F. and K. Schmidt-Hebbel, 1997, "Inflation Targets and Indexation in Chile," mimeo, Central Bank of Chile, August
- Moreno, J., 1999, "Lessons from the Monetary Experience of Panama: A Dollar Economy with Financial Integration," *Cato Journal*, Vol.18, No.3 (Winter)

- Obstfeld, M. and K. Rogoff, 1995 "The Mirage of Fixed Exchange Rates," *Journal of Economic Perspectives*, Vol. 9, No. 4, Fall
- Paredes, C., 1991, "Epilogue: In the Aftermath of Hyperinflation," in C. Paredes and J. Sachs (eds), *Peru's Path to Recovery*, Washington, D.C.: The Brookings Institution
- Pou, P., 1999, "Más Dolarización para profundizar la Convertibilidad," *El Clarin*, May 26, 1999
- Rodriguez, C., 1993, "Money and Credit under Currency Substitution," *IMF Staff Papers*, Vol 20: 414-26
- Savastano, M., 1992, "The Pattern of Currency Substitution in Latin America: An Overview," *Revista de Analisis Economico*, (special issue), June
- Savastano, M., 1996, "Dollarization in Latin America: Recent Evidence and Policy Issues," in P. Mizen and E. Pentecost (eds), *The Macroeconomics of International Currencies*, Edward Elgar Publishing
- Schadler, S., M. Carkovic, A. Bennett and R. Kahn, 1993 *Recent Experiences with Surges in Capital Inflows*, IMF Occasional Paper 108, Washington, D.C., December.
- Schuler, K. 1999, "Encouraging Official Dollarization in Emerging Markets," Joint Economic Committee Staff Report, Washington D.C.: United States Senate, April.
- Steiner, R.(ed), 1995, *La Autonomía del Banco Central de la República: Economía Política de la Reforma*, Bogotá: Tercer Mundo Editores
- Svensson, L. 1997, "Inflation Forecast Targeting: Implementing and Monitoring Inflation Targets," *European Economic Review*, 41: 1111-1146.
- Urrutia, M., 1991, "On the absence of economic populism in Colombia," in R. Dornbusch and S. Edwards (eds) *The Macroeconomics of Populism in Latin America*, Chicago: The University of Chicago Press for the NBER
- Williamson, J., 1995, *What Role for Currency Boards? Policy Analyses in International Economics No.40*, Washington D.C.: Institute for International Economics
- Williamson, J., 1996, *The Crawling Band as an Exchange Rate Regime: Lessons from Chile, Colombia and Israel*, Washington D.C.: Institute for International Economics