

MONETARY POLICY IN LATIN AMERICA: UNDERPINNINGS AND PROCEDURES*

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ABSTRACT

This paper studies the shift in the role of monetary policy in Latin America during the 1990s. As in most industrial economies, in Latin America there has been a refocusing of the objectives pursued by monetary policy towards the achievement of price stability. Several factors have contributed to explain this change of objectives: (1) The poor inflation record of the 1980s and the high political and economic costs it entailed; (2) The overwhelming analytical and empirical evidence which indicates that trying to achieve a permanent reduction of unemployment through monetary policy results, eventually, in an acceleration

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of inflation without much of a permanent effect on the unemployment rate; (3) The increasing awareness that, with forward-looking expectations and credible policies, the cost of reducing inflation is much lower than what had been previously thought; (4) The widespread consensus among economists that macroeconomic stability is a precondition for sustainable growth; and, (5) The increasing awareness that inflation gives rise to regressive taxation which mainly affects the poorest groups in the population. The reduction of inflation has been facilitated by the development of an institutional structure to maintain low inflation. In particular, two types of institutions have become popular: First, the creation of independent central banks; second, the enactment of procedures on budgetary responsibilities more conducive to fiscal discipline in order to consolidate the underpinnings for an independent monetary policy geared ultimately to achieving low inflation. The paper examines central banks' institutional framework and the monetary policy operating procedures for a group of five Latin American countries: Chile, Colombia, Costa Rica, El Salvador and Peru.

1. INTRODUCTION

During the last ten years, monetary policy in Latin America has experienced a major change. As country after country discovered the high political and economic costs of high and variable inflation, and the ineffectiveness of monetary policy to achieve a permanent reduction of unemployment, the main focus of monetary policy shifted away from trying to promote growth through expansionary demand policies towards achieving a sustainable reduction of inflation. This change in the orientation of monetary policy has been part of a broader policy and institutional reform agenda that has also included a major overhaul of economic policies geared toward the ultimate objective of raising the level of sustainable growth. The changes affected both macroeconomic policies as well as more structural aspects at the microeconomic and institutional levels. Thus, after pursuing for many decades economic policies based on a distrust of markets, heavy government intervention, and isolation from foreign trade, policy reform oriented towards macroeconomic stability and creating a more efficient economy has been the order of the day in recent years. Policy changes have included opening the economies to foreign trade, privatizing large public enterprises engaged in the production of private goods and public utilities, and the restructuring of the public sector.

The reduction of inflation has been facilitated by or has given origin to the development of an institutional structure to maintain low inflation. In particular, two types of institutions have become popular: first, the creation of independent central banks, second, the enactment of procedures on budgetary responsibilities more conducive to fiscal discipline in order to consolidate the underpinnings for an independent monetary policy geared ultimately to achieving low inflation.

This paper reviews the monetary policy experience of a group of five Latin American countries: Chile, Colombia, Costa Rica, El Salvador and Peru. The monetary policy regime of the first two countries is of the inflation targeting type, the one of El Salvador is an implicit exchange rate targeting, while Costa Rica and Peru do not have an explicit framework but have shown in recent years a clear commitment to reduce inflation. The rest of the paper is divided into six sections. Section 2 discusses the factors behind the change in the role for monetary policy. Section 3 reviews the institutional underpinning of central bank's operations in the five countries. Section 4 discusses the elements to consider in the choice of a monetary regime. Section 5 analyses the practice of monetary policy in the five countries. Finally, section 6 presents the main conclusions.

2. THE NEW ROLE OF MONETARY POLICY

Five main factors have been important in the refocusing of monetary policy toward the ultimate objective of achieving price stability in Latin America (and elsewhere).

First, the poor inflation record of the 1980s and the high political and economic costs it entailed. Second, the overwhelming analytical and empirical evidence which indicates that trying to achieve a permanent reduction of unemployment through monetary policy results, eventually, in an acceleration of inflation without much of a permanent effect on the unemployment rate¹. That is, the short term Phillips curve trade-off between inflation and unemployment - so popular in the 1960s and early 1970s- tends to vanish in the long run. Third, the increasing awareness that, with forward-looking expectations and credible policies, the cost of reducing inflation is much lower than what had been previously thought (Sargent, 1982). Fourth, the widespread consensus among economists that macroeconomic stability is a precondition for sustainable growth. As a corollary, there is widespread agreement that the best contribution that monetary policy can make to long term growth is to make a low and predictable inflation possible². Fifth, the increasing awareness that inflation gives rise to regressive taxation which mainly affects the poorest groups in the population which are less able to deal with inflation and hold an unusually high ratio of non-interest earning monetary assets to income (Bulir and Gulde, 1995). Furthermore, as most of the costs of inflation are non-linear to the rate of inflation, pressure to reduce inflation and the benefits from doing so are greater in the high inflation countries of Latin America than in the industrial countries.

As the costs and benefits of inflation reduction began to be articulated, along the lines indicated above, and as some countries began to make progress

¹ For a recent reference to these developments, see Goodhart (1994b) and Fischer (1995).

² Some of these factors have also been behind policy change in developed countries geared to achieve price stability. See Fischer (1996) and Bernanke *et al.* (1999).

in reducing inflation without much cost, several countries in the region moved forcefully toward achieving a sustainable reduction of inflation.

In most countries it was well understood that in order to reduce high inflation the monetization of high public deficits had to be stopped. Thus, the reform of public finances, to achieve a low level of deficits, had to be introduced as a core component of an inflation reduction program

Of course, it is also well understood that appropriate fiscal policy is a precondition for credible monetary policy geared to achieving low inflation. Not surprisingly, progress in reducing inflation has gone hand-in-hand with drastic reductions in fiscal deficits.

Tables 1 to 3 present the inflation record, together with fiscal performance and growth for the main countries of the region. As shown in Table 1, four of these countries experienced three-digit annual inflation in the period 1982-1990. However, of these countries only Brazil still had a three-digit annual inflation in the period 1991-1998. This country reached an annual inflation of only 3.5% in 1998.

The reduction of non-financial public sector deficits, shown in Table 2, has been equally remarkable. Three countries had deficits above 10 percent of GDP in the first period, while, in the second, there was only one country in that category. In recent years, all countries have reached deficit levels below 4 percent of GDP. Also, while inflation was being reduced and structural reforms were implemented, the rate of growth was increasing in most countries. Thus, the observed sacrifice ratio was positive rather than negative. This result is not so surprising, if one considers the high growth costs of extreme inflation such as that experienced by the region during the 1980s.

TABLE 1
INFLATION RATES IN SELECTED LATIN AMERICAN COUNTRIES
(Annual Rates in Percentage)

COUNTRY	1981-90	1991-98	1996	1997	1998
Argentina	437.2	27.1	0.2	0.8	0.9
Bolivia	222.7	10.5	12.4	4.7	6.5
Brazil	339.9	714.2	11.1	7.9	3.5
Chile	20.3	11	7.4	6.1	5.1
Colombia	23.6	22.7	20.8	18.5	18.7
Costa Rica	25.6	17.4	17.5	13.2	11.6
El Salvador	19	10.2	9.8	4.6	2.5
Mexico	65.1	20.2	34.4	20.6	16.7
Peru	332.1	74.2	11.5	8.5	7.3
Latin America and the Caribbean*	145.4	97.3	20.8	13.9	10.5

Source: Burki and Perry (1997) and IMF (1999). Computed using yearly averages,

*unweighted means.

TABLE 2
NON-FINANCIAL PUBLIC SECTOR BALANCES
(As percentage of GDP)

COUNTRY	1980-85	1986-90	1991-96	1996	1997	1998 ^b
Argentina	-14.5	-6.4	-1.8	-2.9	-1.4 ^c	-1.4 ^{c,d}
Bolivia	-10.3	-6.3	-3.8	-1.9	-3.4	-4.1
Brazil	-4.3	-3.9	-1.5	-3.9	-6.2	-7.0
Chile	-1.2	1.9	2.2	0.7	1.9	0.7
Colombia	-5.7	-1.1	-1.0	-2.6	-3.6	-3.4
Costa Rica	-6.9	-1.6	-3.3	-5.5	-4.0	-2.9
El Salvador	-5.5	-1.8	-2.1	-2.3	-1.1	-1.6
Mexico	-11.3	-10.6	0.1	-0.7	-1.4	-1.4
Peru	-8.0	-7.7	-2.2	-1.2	-0.1	-0.1
Latin America and the Caribbean ^a	-8.6	-7.0	-2.6	-2.4	-1.4	-2.4

Sources: Banco Central de Bolivia (1997), Banco Central de la Reserva del Perú (1998), Burki and Perry (1997), IMF(1998) and CEPAL, ^aunweighted means. ^bData published by Cepal. ^cPreliminary data. ^dCorresponds to National Non-Financial Public Sector Deficit (excludes provinces and local governments).

* Corresponds to the operational deficit.

TABLE 3
REAL GDP GROWTH RATES
(Percent)

COUNTRY	1981-90	1991-98	1996	1997	1998
Argentina	-1.2	5.9	4.8	8.6	4.2
Bolivia	0.1	4.3	4.7	4.2	4.7
Brazil	1.5	2.7	2.8	3.2	0.2
Chile	3.1	7.7	7.4	7.1	3.3
Colombia	3.4	3.6	2.1	3.1	0.2
Costa Rica	2.8	4.1	-0.6	3.7	6.2
El Salvador	0.1	5.1	2.0	4.0	4.0
Mexico	1.9	3.1	5.2	7.0	4.9
Peru	-0.8	4.9	2.5	7.2	1.5
Latin America and the Caribbean*	1.6	3.6	3.6	5.2	2.3

Source: Burki and Perry (1997) and IMF (1999).

*unweighted means.

The laying of the foundations for low inflation went beyond the creation of appropriate fiscal underpinnings, including as well the institutional structure for the operation of Central Banks (CB) capable of orienting their policy towards achieving low inflation.

When selecting a target level for inflation, policy makers did not stop at the range of 10 to 30 percent per annum, but continued all the way to the single digit annual level. Two developments were important in this regard. First, the increasing recognition that achieving a stable intermediate inflation, in the twenty percent per annum level, is a difficult task. In particular, it has been observed that, as agents develop mechanisms to live with this level of inflation, through

explicit or implicit indexation mechanisms, any unfavorable shock tends to increase the level and variability of inflation. Second, the research findings that show that even a low level of inflation (above 5% per year) can have important costs in terms of the level of output and its rate of growth. These costs are related to the use of resources in financial activities with low social productivity to escape the cost of inflation and to the distortions and reduced information content of relative prices, which result from that level of inflation³. Recently, it has been found that inflation also has high costs linked to the labor market distortions, resulting from the level of inflation. Thus, it is estimated that the cost of labor market distortions inherent in moving from two percent per annum, to ten percent per annum, inflation could be as high as two percent of GDP (Groshen and Schweitzer, 1996).

But this is not all. The relative price uncertainty generated by inflation itself shortens the duration of contracts, hinders the development of long term capital markets and discriminates against investment projects with long gestation periods. The ultimate effect is a lower level and a lower efficiency of investment, and a lower rate of growth (Fischer, 1996). Some of these efficiency costs can be reduced through indexation, but indexation, in turn, generates inertia which increases the costs of reducing inflation and makes relative price adjustment more costly.

In choosing the speed of inflation reduction, the main consideration has been the degree of inertia of the economy. In countries with a long history of inflation, inertia and the explicit indexation mechanisms that generates it are well entrenched, so that, short of a full repudiation of indexation, the most appropriate way of reducing inflation is through a gradual process (Corbo and Fischer, 1994, Clarida, Gali and Gertler, 1999). Gradualism is also the proper way to build credibility for a country with a long history of inflation which helps reduce the short-term cost of inflation reduction.

After initial progress has been made in reducing inflation towards levels around 10 percent per annum, the tolerance to even this level of inflation has been reduced, so that most countries are engaged today in achieving inflation levels of 5% per annum or less.

3. THE INSTITUTIONAL UNDERPINNINGS OF PRICE STABILITY: THE ROLE OF INDEPENDENT CENTRAL BANKS

To pursue the objective of achieving low inflation, one key institutional development has been the creation of independent CB with clear responsibilities for achieving a reduction of inflation⁴.

³ For references on this point, see Goodhart (1994b), Fischer (1995) and English (1996).

⁴ Some countries have gone further by curtailing the spending authority of Congress as a way of facilitating fiscal responsibility.

However, as the literature on independent CB has shown (Cukierman, 1992, Fischer, 1994 and 1995, Goodhart, 1994a and 1994b), the creation of an independent CB is not sufficient for achieving low inflation. Indeed, the Reichsbank in the Germany of the 1920s was nominally independent of the Executive, as is the current Russian CB. Both, however, presided over the build up of high inflation experiences. Similarly, in Venezuela, inflation has accelerated recently, in spite of the existence of an independent CB.

The fact that some independent CB can deliver low inflation while others not may be due to the environment in which the independent CB operates. This has led some observers to conclude that the high correlations generally obtained between CB independence and control of inflation is more a reflection of the social demand for low inflation. Thus, Goodhart (1994b, p. 67), for example, states that «the true underlying correlations may be between the underlying priorities of the electorate and the economic outturns». Goodhart's message is that, for a CB to be truly independent, and to make effective use of that independence, it is necessary to have broad popular support for the type of objectives pursued by the CB. In Latin America, the macroeconomic disorder of the last twenty years and an increasing awareness of the costs of inflation created the initial support for the creation of independent CB.

Table 4 presents the main characteristics of the laws giving independence to the CB in Latin America.

TABLE 4
SELECTED LATIN AMERICAN CENTRAL BANK'S CHARTERS

Country	Year of the reform	Legal objectives	Is the Finance Minister a Member of the Board?	Has the CB final authority to formulate monetary policy?	Has de CB final authority to formulate exchange rate policy?	Is the CB authorized to finance the government?
Chile	1989	(1) Price stability (2) Normal functioning of the internal payments system (3) Normal functioning of the external payments system	NO	YES	YES	NO
Colombia	1991	(1) Price stability (2) Financial system's strenght	YES	YES	Partially; The exchange rate regime is defined by Congress	NO
Costa Rica	1995	(1) Price stability (2) Multiple objectives (including full employment)	YES	YES	YES	NO
El Salvador	1991	(1) Price stability (2) Stability and competitiveness of the financial system	NO	YES	YES	NO
Peru	1993	(1) Price stability	NO	YES	YES	NO

Source: Own elaboration.

In Latin America, the movement towards the creation of independent CB was initiated in Chile in 1989 and has been extended thereafter to other countries. In Chile, a law creating an independent CB was enacted in October 10, 1989, towards the end of the Pinochet's administration. During the first half of the 1990s, similar steps were taken in Colombia (1991), El Salvador (1991), Peru (1993) and Costa Rica (1995). Although the legal reforms had in common the aim for a greater independence of the CB, they varied considerably in the deepness with which they pursued their objective.

In order to assess the degree of formal -as opposed to actual- independence of the CB analyzed, we follow Cukierman (1992) and examine CB' charters over several dimensions. The dimensions considered are: (1) The appointment and dismissal procedures of the board of directors, (2) The provisions for the resolution of conflicts between the executive branch and the CB and the degree of influence of the CB in the formulation of monetary policy, exchange rate policy, and the budgetary process, (3) Clarity of mandate, and, (4) Legal restrictions on the ability of the public sector to borrow from the CB. As emphasized by Cukierman (1992) although greater legal independence may not imply a higher degree of actual independence, "it suggests what is the degree of independence that legislators meant to confer on the CB".

3.1. The Board of Directors

A key dimension of the independence of a CB has to do with the capacity of the Executive to influence the course of monetary policy through the appointment of a board of directors close to the government. Within this dimension, it is also relevant the existence of provisions for the dismissal of the CB's members. CB's independence tends to weaken when the Executive has the legal faculty to remove a member of the board because of a discrepancy over a resolution adopted by the board. Obviously, it is also relevant whether the law allows the directors to hold another office in government.

Within the group of Latin American countries under analysis, the appointment procedures of the members of the board and its composition vary considerably.

In Chile, the Executive appoints its five members, which are subject to Senate approval. Each member is appointed for a ten-year term, with one member renewed every second year. Thus, no President can pack the Board of Governors, as one Governor's slot is renewed every two years. This procedure also provides continuity for Chile's monetary policy. The President of the Board, who also acts as President of the CB, is appointed by the President of the Republic from among the five members of the Board. The Board President's term of office is for five years or the duration left in his or her term when the latter is less than five years. The Board selects the Vice-President of the Bank from among its members and the Board determines the length of his or her tenure.

In Colombia, from the seven members of the Board, the Government can name three of them, one of whom, the Finance Minister, assumes the Presidency

of the board. These three members and the other three appointed by past administrations select the Managing Director, who is also the seventh member of the Board. The designated members are appointed for a fixed term of four years. Before the reform to the CB, the board was packed with member of the executive branch, with three State Ministers (Finance, Agriculture and Development) composing the Board as well as the Director of the National Planning Office.

In Costa Rica, the Board of Directors is composed of seven members. A Government Council, composed of a subset of the Ministers, names the President of the CB and his or her term of office coincides with the presidential period. The other members of the board include the Finance Minister and five members named by the Government Council and ratified by the legal branch. These five members have a term of office of ninety months (seven and a half years) with one member renewed every eighteen months. All board members can be reelected.

The Central Reserve Bank of El Salvador's charter establishes that the board of directors must be composed by seven members that are appointed for a period of five years (which coincides with the presidential period) and with the possibility of being reelected. The President of the Republic directly names the President of the CB. A Council of Ministers selects the CB's First Vice-President from a short list of three members presented by the President of the CB. The CB's Second Vice-President, who does not have voting rights unless when it is substituting the President or the First Vice-President, is selected from a short list of three members proposed by the First Vice-President. The other four members possess voting rights and are chosen from short lists proposed by: a group of State Ministers, the associations that represent industrial, commercial and agricultural sectors, the associations that represent academic institutions in the areas of business and economics, and, the association of banks and financial institutions.

In Peru, the Board of Directors is composed of seven members. The executive branch names four of them, including the President of the Bank who must be ratified by Congress. The legislative branch names the other three members. Each one of the seven members of the Board stays in office for a period of five years. The period in office coincides with the term in office of the President of the Republic.

Most CB's charters also include provisions for the dismissal of members of the board. These provisions differ across countries both with respect to the causes that can be invoked for the removal of a director (policy or non-policy motives) and the organisms legally able to determine the dismissal of a member of the board. In general, a CB is less independent as the Executive has more authority to remove unconditionally a member of the board.

In Chile, a director can be removed by the judicial branch when the President of the Republic, the President of the CB, or at least two members of the Board accuse her (him) of violating the law. The President of the CB can be removed directly by the President of the Republic when at least three members of the CB's Board ask him (her) to do so because they consider the CB's President to have failed in complying with the resolutions of the Board. The President of

the Republic can also remove the board members when they are considered to have adopted a resolution that implies such a deviation from their constitutional mandate that inflicts a significant damage to the economy. The Senate must ratify the presidential decision.

In Costa Rica, the CB's charter establishes a provision for the dismissal of members of the Board by which directors can be removed in case of incapacity or violation of the law. The charter does not allow the members of the Board to be dismissed because of a policy decision that is considered to deviate from their legal objectives. In this sense the legal framework contributes to protect the CB's independence.

The Salvadorian CB's charter establishes that the Council of Ministers has the authority to dismiss a director when she (or he) has voted favorably a resolution that implies a flagrant deviation from the CB's objectives or any other violation of the responsibilities that the law imposes to them.

In Peru, the Congress is the only entity with the authority to dismiss the directors, and can only proceed to do so when a serious fault has been committed and proved after a due diligence. The dismissal of a member must be approved by two thirds of Congress.

In all the countries studied the directors are precluded from holding an office in government while they are serving as members of the CB's Board.

3.2 Formulation of Policy and Mechanisms for the Resolution of Conflicts

Another dimension of CB's independence is the faculty of the CB to decide the course of monetary and exchange rate policy. As expressed by Cukierman (1992) "...central banks with wider authority to formulate monetary policy and to resist the executive branch in cases of conflict are classified as more independent..."

Within the group of countries studied, all the CBs have the authority to formulate monetary policy. Most countries have also the faculty to formulate exchange rate policy. Only in the case of Colombia the CB is precluded from deciding the exchange rate regime (which is determined by Congress). Certainly, the later restriction imposes a constraint on the Colombian CB in pursuing the objectives established by the Constitution.

The mechanisms for the resolution of conflicts established by law are also important in determining the degree of influence of the Executive on the resolutions adopted by the board. If every time that a conflict arises within the board is the Executive the one with authority to resolve it, then the potential influence of the government on monetary policy is enhanced.

In all five countries the CB's charters establish mechanisms for the resolution of conflicts within the CB's board. In all cases is the President of the CB who must resolve the conflict. Thus, the Executive cannot countermand the decisions made by the board of the CB. In this way, the resolutions adopted by the CB have a more irreversible character.

3.3 *Clarity of mandate*

As the literature on CB's independence has emphasized, the clarity of mandate is an important dimension of CB's autonomy. A CB is more independent (in the sense of having more room for pursuing price stability) when its only legal objective is price stability or when its other objectives are not potentially conflictive with price stability. From a theoretical perspective, the principal-agent approach to CB independence has emphasized the importance of having clearly defined goals for the CB in order to enhance its autonomy (Fischer, 1995).

Within the countries analyzed, all of them have price stability as one of the main legal objectives of their CBs, in one of them -Peru- price stability is the CB's sole objective.

In Chile, the CB's charter establishes three objectives for the Central Bank: (1) to achieve and preserve stability for the value of the currency, (2) to maintain the normal functioning of the internal payments system, and (3) to maintain the normal functioning of the international payments system. Thus, the Chilean legal framework allows the CB to pursue other objectives different from price stability but these objectives do not seem to be potentially conflictive with the achievement of stability for the value of the currency.

In Costa Rica the CB's charter establishes as the main objective of the CB maintaining the internal and external stability of the local currency and ensuring its convertibility. Nonetheless, it also establishes as secondary objectives: (i) Promoting the orderly development of the economy, in order to achieve full employment procuring to avoid or moderate inflationary or deflationary tendencies that could emerge in credit and money markets, (ii) Managing international reserves in order to achieve general economic stability, (iii) Promoting the efficiency of the internal and external payments system and maintaining its normal functioning, and (iv) Promoting the efficiency, stability and competitiveness of the financial system.

The CB's charter in Costa Rica includes objectives that are potentially in conflict with the monetary stability objective. In particular, establishing full employment as an objective for the CB can harm the commitment of the Board with price stability.

The CB's charter in El Salvador establishes that the fundamental objective of the CB must be the achievement of monetary stability. However, this is not the only objective established by law. The Salvadorian CB's charter includes also other objectives: (i) Maintaining the stability of the internal and external value of the currency as well as its convertibility, (ii) Preventing or moderating inflationary or deflationary tendencies, (iii) Maintaining the liquidity and stability of the financial system, (iv) Fostering the development of an efficient, solvent and competitive financial system, (v) Regulating the expansion financial system credit, (vi) Insuring the normal functioning of the internal and external payments system, (vii) Managing the international reserves, and (viii) Coordinating its policies with fiscal policy.

Although monetary stability is not the only objective of the CB established by law, the other objectives do not seem to be potentially conflictive with the main objective of the Bank. In this sense, the existence of multiple objectives does not seem to be potentially harmful for CB's independence.

Within the group of Latin American countries studied, Peru is the only one in which the CB's charter establishes a unique objective: the achievement of price stability.

3.4 *Legal restrictions on the ability of the public sector to borrow from the CB.*

A crucial aspect of CB independence is the ability of the CB to finance the public sector. Within the countries studied, in all of them the law prohibits the CB from financing the government. Only financial institutions that are not related to the public sector can obtain credit from the CB.

4. THE CHOICE OF A MONETARY POLICY REGIME

Even fully independent Central Banks, which have as their central mandate to achieve and maintain price stability, are well aware that, given the existence of a short-run Phillips curve, reducing inflation has short-run costs. The crucial cost of reducing inflation is the probable short-run recessionary consequences of a stabilization attempt. In choosing the speed and alternative ways to reduce inflation, the minimization of the short-term costs involved has been one of the elements considered. However, the main benefit of a monetary regime accrues in terms of the higher growth that can be obtained once inflation has been reduced to a low and stable level. Thus, in the choice of a monetary policy regime, the central issue should be its effectiveness in achieving the ultimate objective of low inflation⁵.

One way to reduce the short-term costs of inflation is to have a clear rule from the beginning, which commits the monetary authorities to a reduction of inflation. With this type of strategy, if credibility in the rule is high, costs are reduced through the effect of that policy on the trajectory of expected inflation. In reducing intermediate inflation, let us say from 15% to 30% per-annum, three basic strategies can be envisaged to accomplish the set objective. The first would be fully orthodox, consisting in an attempt to reduce inflation through the tightening of the money supply by using a pre-committed path for the money supply as a monetary anchor. This strategy is called monetary targeting. The second would use the nominal anchor of the exchange rate (sometimes accompanied by agreements with the trade and industrial unions). This is standard exchange-rate-based stabilization or exchange rate targeting. The third,

⁵ For a recent assessment of alternative monetary policy regimes, see Bernanke *et al.* (1999).

and quite novel strategy, is the use of inflation targeting as the nominal anchor. In inflation targeting, the target for inflation is the nominal anchor and monetary policy is adjusted to tame inflation towards the target.

In all cases, the stabilization attempt would probably slow growth. In monetary and inflation targeting, output would probably be below normal during the disinflationary phases, while in exchange-rate-targeting, growth would be below normal in a later phase, when the initial real appreciation has to be reversed. In choosing between a monetary and an exchange-rate-targeting strategy, it is important to take into account the degree of openness of the economy and the stability of the relationship between the chosen monetary aggregate and inflation. In particular, in a small open economy, the exchange rate provides an anchor for the price level through its effect on the price of tradable goods and to the overall price level once real exchange rate has been achieved. For monetary targeting, there must be a close relationship between the monetary aggregate being targeted and inflation. The stability of this relationship is usually a problem in cases in which there is considerable financial innovation or when there is a sudden change in the rate of inflation.

In an economy that has experienced a period of high and variable inflation, in general, the demand for money becomes very unstable as economic agents develop ways to economize in the use of money balances. Therefore, when the rate of inflation is reduced, hysteresis effects emerge, generating a breakdown in the old demand for money relationship. In this case, predicting the quantity of money demanded becomes very difficult and the use of a monetary target could result in a too high cost for a given reduction of inflation. In these cases, it could be more appropriate to use an exchange rate anchor in the initial stages of the stabilization program (Dornbusch, 1992). Another advantage of exchange-rate-targeting is that it is much more easily understood by the public than monetary targeting, given that the information content of the exchange rate is much more direct than that provided by a monetary aggregate.

However, the use of exchange rate targeting also has some disadvantages. The first disadvantage is that one loses the freedom to use an independent monetary policy. Thus, a country that pegs its currency to that of another country loses the ability to use monetary policy to respond to domestic shocks. Furthermore, with free capital movements, the use of exchange-rate-targeting exposes the country to speculative attacks, attacks which could be costly in terms of the potential unemployment costs of defending the peg or in terms of the consequences of abandoning the peg when its defense would lead to a devaluation (Obtsfeld and Rogoff, 1995).

But this is not all. The fixing of the exchange rate also requires that other indexation mechanisms in the economy be discarded and that the appropriate institutional structure be developed to prevent the financial system from becoming too vulnerable to an eventual exchange rate correction. Potential problems along these lines are best illustrated by the experience of Chile in the late 1970s (Corbo and Fischer, 1994), Mexico in 1994 (Edwards, 1998) and the Asian countries in 1997 (IMF, 1997).

Another potential side effect of exchange rate fixing, with an open capital account, is undue risk taking and, as a consequence, an unsustainable expansion of credit, with a currency mismatch, which could result in a financial bubble (Corbo and Fischer, 1995, Edwards and Végh, 1997, and Mishkin, 1997). This problem is illustrated by the experience of Chile in the early 1980s, of Mexico in the first half of the 1990s, and in the recent experience of Asia (Thailand, Korea, Malaysia and Indonesia). In all these cases, following the fixing of the exchange rate, the initial spread between the domestic and the foreign interest rates -adjusted for the expected rate of devaluation- rose sharply, providing substantial encouragement for capital inflows and credit expansion. The final result was a combination of large capital inflows, an expenditure boom, a currency mismatch of bank assets and liabilities, and a sharp real appreciation. In these cases, a sudden reversal of capital flows is all it took to set the stage for a major crisis.

The exchange rate anchor usually takes the form of a predetermined path for the rate of currency devaluation. At the limit, this rate of change could be fixed at zero and it can also be built into a stronger institutional framework, as in Argentina's currency board system.

Given the problems that could emerge with the use of both a monetary and exchange rate targeting strategy, in recent years a third type of nominal anchor has come into use: inflation targeting. The advantage of this system is that its effectiveness does not rely on a stable relationship between a monetary aggregate and inflation and, at the same time, it avoids the problems associated with exchange rate targeting. An additional advantage is that, when accompanied by a flexible exchange rate system, the trajectory of the market exchange rate provides important information on the market evaluation of present and future monetary policy.

As mentioned earlier, in this system, the established inflation target is the ultimate objective of policy, and an inflation forecast, sometimes not made public, is the intermediate objective. The interest rate is the main instrument used to pursue the target⁶. Thus, when the conditional inflation forecast, made with the existing policies and the expected path of the exogenous variables, is above the inflation target, the level of the intervention interest rate is raised. One advantage of inflation targeting is that inflation itself is made the target, committing monetary policy to achieve the set target and thus helping to shape inflation expectations. However, herein also reside its main disadvantages. First, as inflation is an endogenous variable, that is, the authorities do not directly control it, it is hard to evaluate the monetary stance on the basis of the observed path of inflation. Second, as monetary policy works with a substantial lag, to pre-commit an unconditional inflation target -independently of changes in external factors that do affect the inflation rate- and to change monetary policy to bring the inflation rate back to the set target could be costly. In particular, to try to reach the inflation

⁶ The interest rate that is the instrument of monetary policy can be the real rate, as in the highly indexed Chilean economy, or the nominal rate as is the case in most other countries.

target, when a shock results in an (temporary) increase in the inflation rate, could be costly in terms of a severe slowdown or increased output volatility (Corbo, 1998, Cecchetti, 1998, Jadresic, 1999).

To address some of these problems, the inflation target is usually set in terms of a range rather than a point estimate, in terms of core inflation rather than observed inflation, or, sometimes, as in New Zealand, excluding the effects of changes in indirect tax and in terms of trade. Furthermore, the target itself may be set as a fourth quarter to fourth quarter rate of change of the selected price index, rather than as a December to December rate of change. In this way, the use of quarterly averages for the price level smooth out unexpected shocks.

Another problem with inflation targeting has been its effects on the exchange rate. Thus, countries that have used inflation targeting occasionally face the dilemma that the monetary policy enacted to fulfill the target could result in excessive nominal appreciation. This nominal appreciation, in the presence of inertia in the inflation rate, could result in a pronounced real appreciation which could jeopardize not only export growth but even the sustainability of the external account. The problem here is that, with two objectives, the inflation rate and the real exchange rate (or the size of the current account deficit), one needs two instruments and monetary policy provides only one.

The use of an anchor for monetary policy does not resolve certain potential conflicts among objectives. This is well illustrated by recent experience in Chile and Colombia, when pursuing inflation targeting with an exchange rate band. Given the exchange rate system, as long as the observed value of the exchange rate is well within the band, the uncovered interest rate parity condition provides a link between the interest rate and the exchange rate. In particular, as long as the exchange rate is within the band, any adjustment in the domestic interest rate required by inflation targeting policy results in a movement in the nominal exchange rate. Therefore, for all practical purposes the exchange rate policy is a result of the monetary policy⁷.

⁷ During the 1990s, in Chile, the exchange rate system operated as a diagonal exchange rate band. The central parity of the band was initially adjusted passively, on a daily basis, by the difference between the domestic and international inflation of the previous month. More recently, starting in September of 1998, the adjustment for domestic inflation was changed to a forward-looking measure of target inflation. The width of the band was increased to 10 percent on both sides of central parity in January 1992. Up to July 1992, central parity was established in terms of the value of the US dollar. However, after that day it was set in terms of a basket of currencies. In addition, starting in November 1995, a further 2 percent per year started to be subtracted from central parity to accommodate an estimate for trend appreciation of the equilibrium real exchange rate. Starting in January 1997, the width of the band was increased to 12.5 percent on both sides of central parity. Then, on June 25, 1998, the band was made asymmetric with 3.5 percent below central parity and 2 percent above it. At the same time, the discount for the estimated trend appreciation of the real rate was eliminated. On September 16, 1998, the parameters of the band were changed, the width was now being made symmetric at 3.5% on both sides of central parity with a daily increase of 0.01375%

In Chile, conflicts between the independent CB and the Ministry of Finance have arisen when, as a result of an increase in domestic interest rates, there was a sharp nominal and real exchange rate appreciation. Similar problems have emerged in Colombia when the CB had to tighten monetary policy to neutralize the expansionary effects of very loose fiscal policy. It is also claimed that, in 1992-93, Peru was forced to slow down the speed of the reduction of inflation to avoid excessive real appreciation (Favaro, 1996). In all these cases, we face the problem of having only one instrument, monetary policy, and two objectives: the rate of inflation and a value for the real exchange rate. The way out of this conflict is to abandon the second objective or to add another instrument. In the second case, the obvious instrument is fiscal policy. Table 5 shows the inflation strategies used by a group of Latin American countries.

TABLE 5
LATIN AMERICAN ANTI-INFLATION STRATEGIES

Country	Traditional Ways		Other Ways Inflation Targeting
	Monetary Anchor	Exchange Rate Anchor	
Chile			
Colombia			
Costa Rica			
El Salvador			
Peru			

5. MONETARY POLICY IN PRACTICE: THE CASES OF CHILE, COLOMBIA, COSTA RICA, EL SALVADOR AND PERU

The strategy to reduce inflation depends in part on the level of inflation. High inflation is usually attacked using one of two strategies: monetary targeting and exchange rate targeting. In contrast, the reduction of intermediate inflation is done using the above two choices plus the use of inflation targeting. In the sample of countries analyzed in this paper, the reduction of high inflation was pursued using the two models. Peru (1989) used the money anchor strategy,

until December 31, 1998, at the same time the central parity adjustment was changed to the difference between the inflation target and an estimate for the external inflation rate (which was settled at 0%). After the stabilization of the foreign exchange market, the CB announced, on December 22, 1998, an increase in the width of the band, to 8% on each side, and maintained the daily increases announced in September after December 31, 1998. Finally, on September 2 The CB announced that the operation of the band was suspended and from then on the exchange rate system would be of the flexible exchange rate variety.

while Chile (1976-78) used an exchange rate anchor⁸. Once sufficient progress had been made in reducing inflation, from the very high levels of the 1980s to the intermediate level of 15% to 25% per annum level, most countries began to introduce programs aimed at reducing their inflation to one-digit annual levels and in some cases towards the levels observed in industrial countries. In pursuing this objective, countries have employed three types of monetary policy regime. At one extreme, El Salvador since 1993 uses a sort of exchange rate targeting, where the exchange rate has been kept practically fixed⁹. Chile and Colombia use inflation targeting, and Costa Rica and Peru use monetary targeting¹⁰.

At a more operational level, during the 1990s there has been a sort of convergence in operating procedures and instruments of monetary policy among the countries studied. In the 1970s and 1980s, as financial systems were bank-dominated, the use of reserve requirements and the discount window as monetary control tools was pervasive. In contrast, during the 1990s, the introduction of reforms aiming at liberalizing financial markets and opening the capital account has led CB to rely more heavily on short term interest rate as the main instrument of monetary policy.

5.1 *Chile*

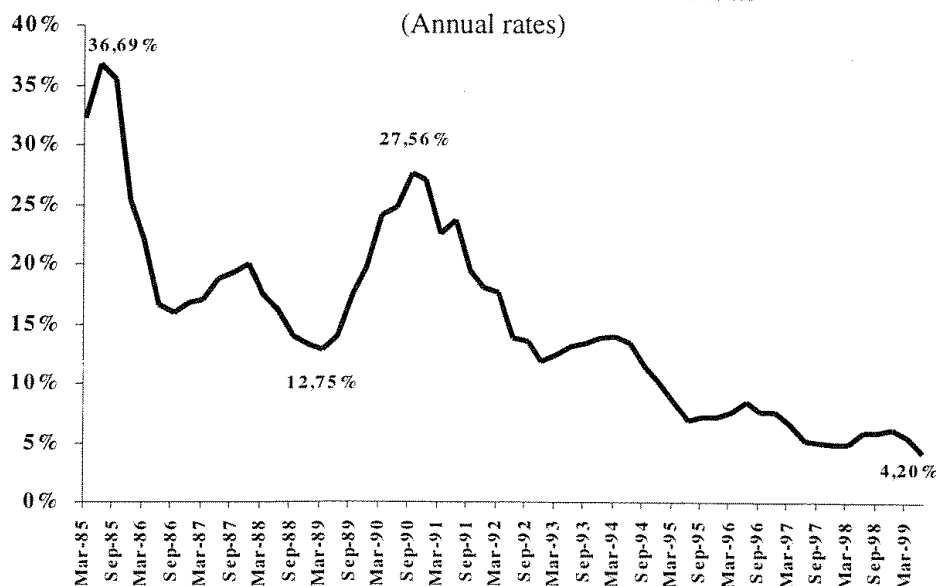
Chile has had a long history of moderate inflation. However, inflation burst close to hyperinflation in the heydays of Allende's regime in the early 1970s. Since the late 1970s, inflation has been moderate, running below 50% per annum. Figure 1 presents the evolution of the quarterly core inflation rate, expressed at an annual rate, from the first quarter of 1985 up to the second quarter of 1999. As shown in this figure, during the last twelve years, inflation was quite volatile (up to the early 1990s), when it initiated a clear downward trend with much less volatility.

⁸ Exchange rate targeting was also used to reduce high inflation in other countries of the region as in Argentina (1991) and in part in Brazil (1993).

⁹ The clearest case of exchange rate targeting in the region is Argentina, where the exchange rate has been fixed within the context of a currency board institutional framework.

¹⁰ Outside our sample of countries, Brazil used exchange rate targeting, with a fixed exchange rate, in the early stages of the "Real" plan and subsequently shifted to a sliding exchange rate, however, following the exchange rate crisis of January 1999 it shifted to inflation targeting.

FIGURE 1
CORE INFLATION: CHILE 1985.I to 1999.II
(Annual rates)



The Board of the Bank was appointed in late 1989, immediately prior to the transfer of power from Pinochet to the freely elected government of President Aylwin, inflation was accelerating. Thus, when the Board took office in December 1989, following the expansionary macroeconomic policies of 1989, the 12-month inflation rate (November 1988 to November 1989) was 21.1% and accelerating.

In designing its stabilization strategy, the new Board found it necessary to inform the market that the reduction of inflation was going to be the main objective of monetary policy. Recognizing the slowness with which the rate of change of nominal wages and prices adjusts in a fully indexed economy, such as that of Chile, the CB defined a policy aimed at achieving a gradual reduction of inflation. Initially, there was simply a commitment to reduce inflation and the main strategy to that end was the use of very restrictive monetary policy.

One of the first measures adopted by the Board was to introduce a sharp increase in the real -CPI indexed- interest rates on CB bills. The overnight real interest rate on the 10-year CB bond was raised by 280 base points, from 6.9 to 9.7 percent per year. In parallel, the rate on the 90-day -CPI indexed- CB bond was raised from 6.8 to 8.7 percent per year. However, in a world of increasingly integrated capital markets, the high real interest rate policy pulled in foreign capital, which, in turn, led to an appreciation of the real exchange rate. Not surprisingly, in 1990 the value of the peso appreciated up to the lower limit permitted by the exchange rate band. To defend the band, the CB found it necessary to intervene in the foreign exchange market, accumulating, in the process, US \$ 2.43 billion of foreign reserves in that year alone (an 82.3% increase in the stock of foreign reserves). This massive exchange rate accumulation points to a significant exchange rate intervention. However, as CB authorities sought to gain credibility

for their anti-inflationary stance, they accompanied that exchange rate accumulation with an aggressive sterilization policy run in parallel.

A weak form of inflation targeting was announced in the report to Congress of September 1990. This report included, for the first time, an inflation target that was more an inflation projection than a hard inflation target. Then, after a degree of initial success in gradually reducing inflation from the high levels of the late 1980s, the inflation projections became clear targets rather than mere projections (Morandé and Schmidt-Hebbel, 1997)¹¹. As shown by Bernanke *et al.* (1999), this has been also the experience of the industrial countries which have adopted an inflation targeting framework for conducting monetary policy.

Moreover, in the initial stages, the CB set the inflation target, although later on the target has been set on the basis of a more explicit understanding between the Finance Ministry and the CB. However, this more explicit coordination has not eliminated conflicts between the two institutions, especially so when the CB has decided that expected inflation was putting the inflation target in jeopardy and decided to raise interest rates.

Interest rate has been used as the main instrument to achieve the inflation target. Initially, the interest rate used to implement monetary policy was the 90-day index rate of CB paper. More recently and more in line with experience in industrial countries, monetary policy is carried out through the use of overnight interest rates. The inflation target was first announced in terms of a band on the variation of the «all-items» or headline CPI (December to December) and, then, was changed to just a target for the point estimate of the CPI for the upcoming year (December to December variation). More recently the target has been set as a point estimate with an unknown band. At the time when the target for the year 2.000 was set (September 1999) it was also announced that the long term objective is to hold inflation in the range of 2% to 4% at an annual rate. Monetary policy will be set with the objective of achieving an inflation rate in the mean point of the band.

Through the use of monetary policy, the CB affects the evolution of actual inflation. Occasionally, it appears that the inflation forecast—which is used as an intermediate target—is closely related to the gap between domestic expenditures and GDP, and that monetary policy is adjusted in response to this gap in order to avoid the build up of inflationary pressures which could endanger the inflation target¹². The Minister of Finance can then use supply side fiscal policy to increase

11 This shift is, indeed, consistent with the Chilean situation of continuous financial innovation, whereby, as mentioned before, the link between the growth in monetary aggregates and inflation or the growth in nominal income is too fragile to be the cornerstone of stabilization policy.

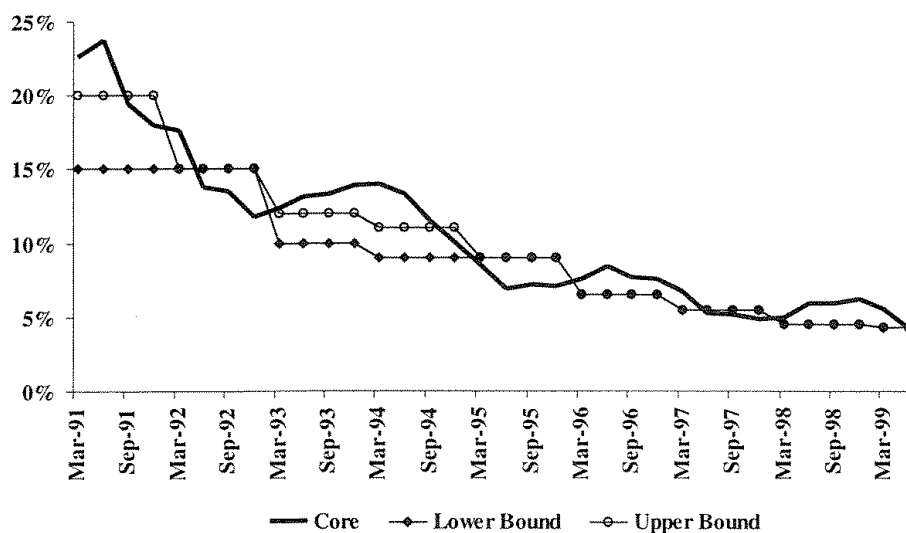
12 In its evaluation of inflation targeting programs, Masson *et al.* (1997) conclude that Chile is the clearer case of the use of inflation targeting among the developing countries that they studied.

capacity output and to reduce the non-accelerating inflation rate of unemployment (NAIRU).

All through the 1990s, the independent CB has achieved an impressive record in the gradual reduction of inflation. Figure 2 presents a comparison between core inflation and the inflation target.

Corbo (1998) studied the factors that account for the reduction of Chilean inflation up to late 1997. He identifies three channels through which the new strategy has operated to achieve a reduction of inflation. The first channel investigates whether the increasing credibility of CB inflation targeting changed the process of the formation of inflation expectations. If this is the case, those expectations directly affect the dynamics of wages and indirectly affect those of the inflationary process. The second channel, the appreciation of the real exchange rate, works through the effects of the trajectory of the nominal exchange rate on the price dynamics of tradable goods and ultimately of inflation. Finally, the third channel works through a lower rate of increase of unit labor cost resulting from an increase in average labor productivity. From these three effects, he found that the first effect, the enhanced credibility of the new policy operating through the formation of inflation expectations, was the most important factor behind the success in reducing inflation¹³.

FIGURE 2
CORE INFLATION AND TARGETS: CHILE 1991:I-1999:II
(12 months variation)



13

However, Rosende (1998) argues that it was the nominal appreciation chosen to facilitate the appreciation in the equilibrium real exchange rate resulting from an expansionary fiscal policy (including the quasi-fiscal deficit of the CB arising from its sterilization policy) what facilitated the reduction of inflation.

5.2 *Colombia*

Colombia is a classic case of intermediate and persistent inflation (Dornbusch and Fischer, 1993). The recent evolution of Colombia's inflation is presented in Figure 3, which also shows the annual targets set for the inflation rate. As can be seen from this chart, Colombian authorities have found difficulties in complying with their target. In fact, from 1992 to 1998 only in one year was observed inflation lower than the target.

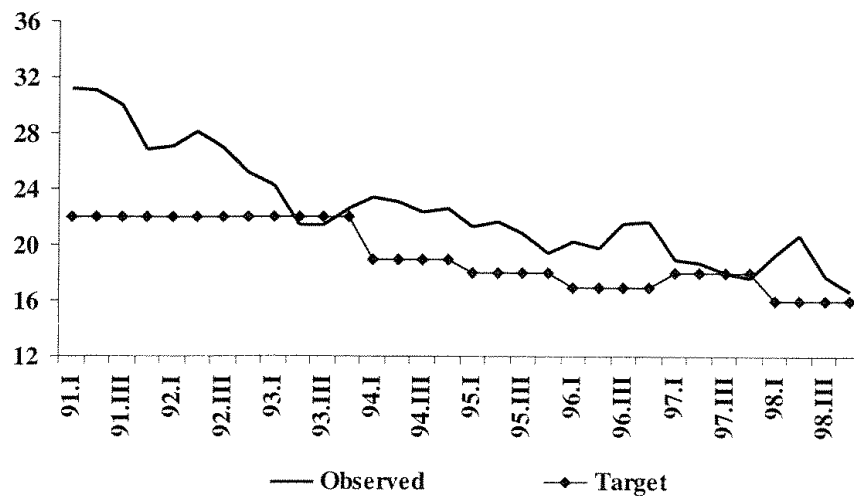
The long inflation history and the poor record of previous stabilization attempts have resulted in very high inertia. In recent years, the continuous public debate between the Minister of Finance -who is also the President of the CB- and the CB Board on the costs and appropriateness of pursuing the objective of reducing inflation has not helped in building credibility and reducing inertia. Thus, although the CB has a clear mandate to achieve a gradual reduction of inflation, in practice, with the Minister of Finance as its President, many other objectives find their way into the choice of which monetary policy should be pursued.

Colombia's monetary anchor is of the inflation target type. However, in setting monetary policy, it uses the interest rate as the instrument to keep inflation close to the target. Furthermore, it uses a band for the evolution of M1 as an intermediate target. This intermediate target is chosen by using an econometric model to predict inflation. In this model, the rate of growth of M1 is one of the key explanatory variables. On a day-to-day basis, it is through the effect of monetary policy on short-term interest rates that the CB attempts to keep M1 within the corridor. In practice, although the band is quite wide, the evolution of M1 is kept within a narrow band compatible with the inflation target. This form of monetary policy is not much different from setting interest rates in response to the gap between predicted inflation and the inflation target.

Indeed, the CB of Colombia explicitly states that, in setting its monetary policy, it compares inflation forecasts, using four different models, with the target inflation. It appears that, due to the standard problems of instability in the demand for money, the CB has, in practice, moved directly to the use of inflation targeting (Banco de la Republica, 1997).

To affect the level of interest rates, the CB of Colombia uses both the level of reserve requirements and open market operations with short-term CB papers.

FIGURE 3
OBSERVED AND TARGET INFLATION: COLOMBIA 1991:I - 1998:IV
(12 month variation)



5.3 Costa Rica

Since mid-1980s, monetary policy in Costa Rica has been subordinated to the restrictions imposed by the exchange rate system and the stance of fiscal policy. In the early 1980s the country experienced the most dramatic inflationary crisis in all its economic history. During this decade, the roots of the inflationary process were at the persistent fiscal deficits monetized by the issuance of currency. The lack of autonomy of the CB (BCCR), reflected in the extended practice of financing government fiscal deficits, led to substantial quasi-fiscal losses that harmed even more the precarious financial autonomy of the BCCR.

The exchange rate policy was oriented toward the enhancement of competitiveness in the exports sector. In mid-1980s a real exchange rate rule was adopted, in which the BCCR implemented periodic mini-devaluations according to the differential between domestic inflation and a weighted average of the rates of inflation of Costa Rica's major trading partners. The use of past inflation instead of an inflation target in the real exchange rate rule contributed to increasing inflationary inertia in the economy. This exchange rate policy has, in general terms, been maintained until the present. The main modification, introduced in the 1990s, consisted in relating the adjustments of the nominal exchange rate to target inflation rather than to past inflation.

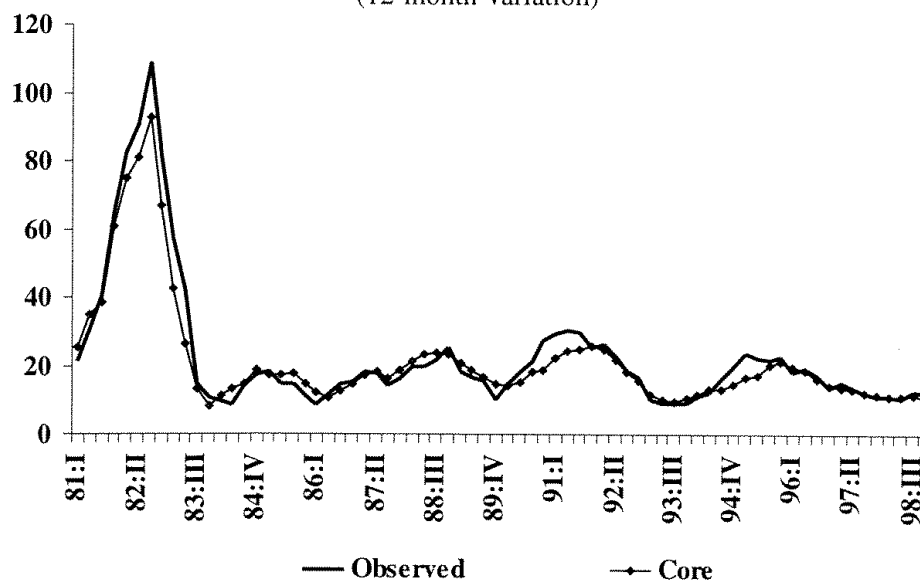
As an intermediate target, the BCCR has focused on a monetary aggregate defined as the difference between currency in circulation and net international reserves. During the 1990s, given the development of domestic financial markets—that has included deregulation and the emergence of financial innovations—the BCCR has found difficulties in controlling a monetary aggregate and, thus, has progressively focused on narrower monetary aggregates. In present times, the BCCR is studying to implement an inflation-targeting framework as a mean to

avoid the instability caused by using a monetary target in a context characterized by an unstable demand for money. The instruments used by the monetary authority have varied from the discount window and legal reserves requirements, used intensively at the beginnings of the decade, to open market operations conducted through Monetary Stabilization Bonds (BEMs). In April of 1996, the authorities introduced an auction mechanism for the placement of government and stabilization bonds.

Although the legal independence of the BCCR has been enhanced considerably since the enactment of a new legal framework in November of 1995, the incapacity to recapitalize the CB has, in practice, conspired with the effective autonomy of it. The quasi-fiscal losses have not been stopped since the promulgation of the law, amounting to over 2% of GDP in 1996, while the government debt has grown steadily from 13.4% (as a percentage of GDP) in 1991 to 26.1% in 1997.

In spite of the difficulties found in enhancing the independence of the CB, authorities have been able to reduce inflation from an annual average of over 28% in the period 1981-1989 to an annual average of 17.6% in the period 1990-1998.

FIGURE 4
COSTA RICA'S OBSERVED AND CORE INFLATION: 1981:I - 1998:IV
(12 month variation)



5.4 El Salvador

The recent economic history of El Salvador is closely linked to the political episodes occurred in the last twenty years. During the 1980s, the country experienced a dramatic downturn as a consequence of the civil war initiated in 1979. The conflict led to the destruction of an important part of the country's

infrastructure (its costs are estimated in over US\$ 1.5 billion), the public finance management was devoted to finance the acquisition of military equipment, and, many markets were intervened by the government.

Two consequences of this conflict were fundamental to understand the conduct of monetary policy in El Salvador. First, during the 1980s monetary policy, operating in a setting characterized by a CB dependent on the Finance Minister, was aimed at financing the non-financial public sector's growing spending. Thus, the roots of the relatively high inflation rates observed during the 1980s were at the monetization of fiscal deficits. Second, the war led to many Salvadoran citizens to abandon their country and establish their residency mainly in the United States. This massive emigration of Salvadorans to the United States has led to a substantial inflow of workers remittances during the 1990s, which has posed a policy dilemma for the monetary authorities of El Salvador. As a percentage of GDP, the remittances experienced an increase from 1.5% in 1980 to 10.3% in 1996.

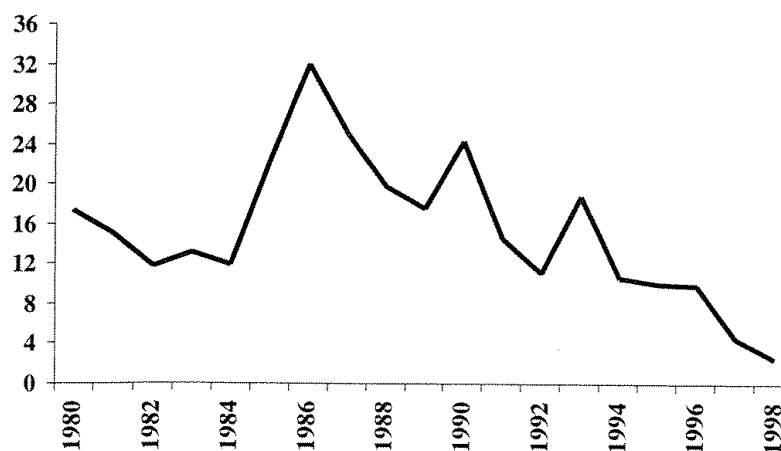
As in the case of many other emerging economies that have had to deal with excessive capital inflows during the 1990s, the Salvadoran monetary authorities have made use of sterilization policies to prevent the remittances from having an expansionary impact that puts the inflation objective at risk. As a consequence of this policy, net international reserves increased from US\$489 millions in 1991 to US\$1.765 millions in 1998. Given the low sensitivity of remittances to the interest rate differential, the increase of the domestic interest rates as a consequence of the sterilization policy does not cause remittances to increase in an unsustainable spiral. However, this policy has attracted other types of capital that have contributed to the appreciation of the real exchange rate and have conducted to growing quasi-fiscal deficits.

In the early 1990s the institutional monetary framework was modified in order to give the CB a higher degree of autonomy and more definite objectives. The achievement of price stability was established as the main objective of monetary management. The prohibition to the CB to finance Public Sector deficits has traduced in a reduction of the Central Government debt from 18.8% of the GDP in 1990 to 6.9% in 1998. In order to comply with its legal mandate, in 1993 the Central Bank started to use a *de facto* fixed exchange as a monetary anchor.

The instruments used by monetary authorities have changed during the 1990s as the financial markets have evolved toward a higher level of development and as the inflow of capitals have threatened the competitiveness of Salvadoran tradable sectors. In fact, as the CB has been required to sterilize the massive inflow of capitals, it has needed to substitute the use of the liquidity window – intensively used until 1994- with less direct policy instrument as the open market operations.

The average annual inflation rate was reduced from a 19.1% for the period 1980-1990 to a 10.2% for the period 1991-1998.

FIGURE 5
EL SALVADOR'S OBSERVED INFLATION: 1980:1998
(12 month variation)



5.5 *Peru*

Peru had a long history of high inflation that culminated in hyperinflation in 1990. It was the poor inflation record of the late 1980s and the increasing evidence that achieving stability was a precondition for restoring economic growth that provided the support for the new government's stabilization policy. Furthermore, in Peru the regressive aspects of the inflation tax were just too obvious to be ignored.

When President Fujimori took office in July 1990, Peru was in the middle of a severe economic and political crisis. On the economic side, there was open hyperinflation -inflation reached 7,650% in that year-, GDP had decreased 19% during the period 1988-1989, and terrorism was rampant. From the beginning, the new government implemented a program of macroeconomic and structural adjustment oriented towards achieving a drastic reduction of inflation, restoring stability in the external accounts and creating the conditions for sustainable growth.

In the early 1990s, there was a severe fiscal adjustment -the public sector deficit was reduced from 8.5 percent of GDP in 1989, to only 1.5 percent of GDP in 1991- which created the pre-conditions for the reduction of inflation. Thanks to that fiscal adjustment, the CB could liberate its monetary policy from the financing of public sector deficits and concentrate on the reduction of inflation.

All through the 1990s, the CB of Peru has employed monetary rules with some discretion. This is not surprising, given that the stability of the demand for money usually becomes very precarious in economies that have experienced a long spell of high inflation and balance of payments crises. In this type of economy, one observes a high degree of substitution away from the local currency towards a more stable currency of another country. Furthermore, normal hysteresis patterns

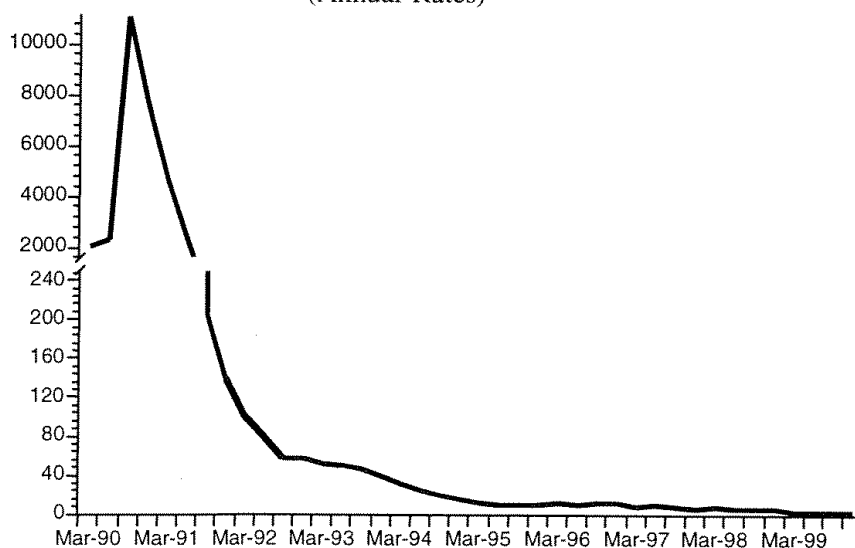
have created a situation such that, in spite of the substantial progress made on reducing inflation, even today dollar deposits are a 69.8% of total deposits (July 1999). Moreover, dollars compete with “soles” as currency in circulation. Thus, in this scheme, one could expect substantial volatility in the relationship between monetary aggregates in local currency and inflation, forcing the authorities to also consider other instruments or anchors to control inflation. In the case of Peru, a second instrument, which sometimes plays the role of a nominal anchor, has been the exchange rate.

The monetary rule, in terms of quarterly ceilings for the stock of net domestic credit and a floor for net foreign reserves holdings, has been imbedded in the ESAF programs that Peru has negotiated periodically with the IMF. Indeed, Peru has had active IMF support all through the 1990s, which has conditioned the way in which monetary policy is pursued. This has most likely also played a role in providing credibility for the stabilization program (Cottarelli and Giannini, 1997).

The use of the exchange rate as an implicit second anchor has meant that the resulting short-run real appreciation has occasionally created conflicts with the objective of promoting export-led growth. The difficulties in using a monetary anchor with a quite unstable demand for money could explain the more explicit shift towards inflation targeting that has taken place since 1994. Although these targets are more illustrative than in the case for Chile, monetary policy is still formulated today in terms of ceilings for net domestic credit.

As shown in Figure 6, Peru's inflation reduction record has been impressive: CPI inflation was reduced from 7,650% in 1990, to only 7.0% in 1998. The stock of foreign reserves has also increased substantially, increasing from a stock of –US\$ 105 million in July 1990, to US\$ 2,230 million at the end of July of 1998.

FIGURE 6
PERU'S OBSERVED INFLATION: 1990.1 TO 1999.2
(Annual Rates)



Monetary policy in Peru is carried out through the control of the rate of growth of monetary aggregates. The market, with the stance of monetary policy being one of its main determinants, determines the daily values of the exchange rate and interest rates. In formulating its policy of monetary aggregates, the CB starts with an estimated demand for money equation and plugs in the values for the target inflation rate, for an estimate of the rate of growth of GDP and for an estimate of interest rates. The estimated quantity of money demanded is then compared with an estimate of the money multiplier to obtain an estimated demand for the monetary base. It is this estimated demand for the monetary base, jointly with a floor for the net foreign exchange reserve holdings, that are used to derive the ceiling for the stock of net domestic credit.

Although the objective of the CB for the net stock of domestic assets is established on a quarterly basis, the CB carries out a monthly review of its monetary policy. When carrying out this review, the CB takes into account the evolution of a broad set of variables: observed and projected inflation, a survey measure of expected inflation, market interest rates, the size of the fiscal balance, the rate of growth of bank credit to the private sector, and the evolution of the external accounts (Banco Central de la Reserva del Peru, 1997). Although Peru used a monetary anchor as the central element of its stabilization program, actual inflation was close to the forecast, providing important evidence that the inflation forecast was being used as a sort of inflation target.

6. CONCLUSIONS

So much has changed in Latin America with respect to economic policies and performance that, if an observer had left the region in the early 1980s and came back in 1998, he or she would think that they were not in Latin America. One of the areas where these changes have been more pronounced is in monetary policy. Here, the substantial investment in preparing professional economists and the close relation of these economists with new developments in the field (made possible in part through the globalization of the profession) has resulted in a professional attack on fiscal and monetary policy irresponsibility. As a result of the increasingly accepted view that stabilization is a pre-condition for achieving sustainable growth, one by one the countries of the region have moved to get their fiscal account in order and to implement serious stabilization efforts.

Inflation strategies were initially based on getting the fiscal situation under control as a way of liberating monetary policy from the financing of the fiscal deficit, and have subsequently moved into more formal uses of nominal anchors. In parallel, the final objective with respect to the level of inflation has shifted from moderate levels to one-digit levels and more recently to levels closer to the ones observed in industrial countries. As a way of protecting the CB from the typical political pressures that give rise to time-inconsistency problems, granting independence to the CB's has assisted the stabilization effort. Furthermore, CB's

have been given a clear mandate and appropriate instruments for achieving a sustainable reduction of inflation.

These developments on CB independence have been carried out in parallel with similar reforms in industrial countries and have been part of a worldwide movement towards focusing monetary policy on price stability.

The results in terms of inflation have been spectacular, while the cost in terms of economic growth is not in evidence. This result could be due, in large part, to the effect of the credibility of the new policies on inflation expectations, making-through this mechanism- a reduction of inflation possible at a much lower cost than anticipated using standard models with high inflation inertia. Moreover, the beneficial effect on growth is not surprising as most studies of the costs of inflation show that these costs are highly non-linear and become very high at high levels of inflation, such as those typical of Latin America in the 1980s. Higher growth is also a result of the radical reforms implemented in the last 10 years (IDB, 1996). But here again, the results of the reforms would have not been the same without the support of lower and predictable inflation.

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