Exchange Rate Regimes in the Americas: Is Dollarization the Solution?.

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EXCHANGE RATE REGIMES IN THE AMERICAS: IS DOLLARIZATION THE SOLUTION?*

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Abstract

The series of crises, which have affected emerging markets in recent years, have reopened the debate on the most appropriate exchange regime for an emergent economy. In particular, all countries that experienced severe crises in the 1990s had some sort of fixed exchange rate regime, the majority of them falling in the categories that Corden (2002) calls fixed-but-adjustable exchange rate regime (FBAR) and in between regimes of the pegged (including flexible and crawling pegs) and target zone types. As a result, in recent years countries have been emigrating to a corner solution: a credible fixed regime or a floating regime with a monetary anchor. Within the latter categories, the increasingly used monetary regime is the inflation targeting one. The paper discusses the advantages and disadvantages of alternative exchange rate regimes and ends with a discussion of the possibility of dollarization in the Americas.

1. Introduction

A series of crises, which have affected emerging markets in recent years, have reopened the debate on the most appropriate exchange rate regime for an emerging economy[1]. This debate has been prompted, in part, by the fact that all countries that experienced severe crises in the 1990s had some sort of fixed exchange rate regime, the majority of them falling in the categories that Corden (2002) calls fixed-but-adjustable exchange rate regime (FBAR) and in between regimes of the pegged (including flexible and crawling pegs) and target zone types.

This is not surprising, as the structural characteristics of an economy –degree of openness, structure of production, level of financial development, fiscal stance and degree of wage and price downward rigidity- and its exchange rate regime affect its ability to adjust to negative real shocks, specially persistent ones. In particular, under rigid downward adjustment in nominal prices, a more flexible exchange rate regime facilitates adjustment in the real exchange rate when a change in fundamentals requires a real depreciation, resulting in a lower cost in terms of unemployment. This acquires special relevance for countries specializing in natural resource based-sectors, as they are frequently exposed to negative real shocks.

Some of these shocks are of an external nature (a drop in terms of trade, a rise in foreign interest rates for a net debtor country, a sudden reduction in capital inflows) and some have a domestic cause (a drought, an earthquake or a political change with a negative impact on expectations and aggregate demand). When the adjustment to these types of shocks requires a depreciation of the real exchange rate, having a flexible exchange rate system can be an important asset in the presence of nominal downward rigidities. Furthermore, the exchange rate system also has an impact on the effectiveness of monetary policy on aggregate demand, in stabilizing the level of output and controling the size of the current account deficit. The macroeconomic fundamentals in conjunction with the exchange rate systems also have a bearing on the volatility of the nominal and

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[1] Among recent work on exchange rate regimes, see Obstfeld (1995), Ghosh et al. (1997), Edwards and Savastano (2000), Frankel (1999), Mussa et al. (2000), and Corden (2002).

real exchange rate, with final effects on the level and variability of output and unemployment.

The rest of this paper is organized as follows. Section 2, briefly compares the cost and benefits of alternative exchange rate systems. Section 3 takes a look at what we know about hard pegs and compares their particular advantages and disadvantages. Section 4 reviews the current situation about exchange rate regimes in the Americas. Section 5 analyzes the alternative monetary regimes, giving special attention to inflation targeting. Section 6 conducts a more detailed analysis on the question of whether the major countries in the Americas are good candidates for dollarization or not, and Section 7 presents some concluding remarks.

2. Alternative Exchange Rate Regimes: Costs and Benefits

Exchange rate regimes can be grouped into three broad categories: hard peg regimes (dollarization, currency unions and currency boards), intermediate regimes (fixed-but-adjustable pegs, flexible pegs, crawling pegs, target zones) and floating regimes (managed floats with occasional interventions and free floats).[2] Hard peg regimes have many benefits. First, they eliminate (and intermediate regimes reduce) the volatility in the nominal and real exchange rate and, when accompanied by supporting macro policies, are less prone to generate misalignments that are unrelated to change in fundamentals[3]. Second, hard pegs, as well as fixed-but-adjustable pegs with infrequent adjustments (FBAR) also provide a nominal anchor for the evolution of the price level and allow for more efficient adjustments when shocks are of a nominal nature. The anchor is stronger for hard pegs than for FBARs. Also, a commitment to an exchange rate anchor is easier to understand and monitor than a commitment to a monetary anchor. Third, an additional advantage for countries with a poor track record on the use of monetary policy is that it also reduces the scope for an independent monetary policy.

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[2] Corden (2002) distinguishes nine regimes that go all the way from absolutely fixed regime (dollarization and monetary unions) to the pure floating regime.

[3] Empirical work on Latin America shows that the variability of the real exchange rate has a detrimental effect on export growth and on investment and output growth (Caballero and Corbo, 1989, Corbo and Rojas, 1993, and Reinhart and Reinhart, 2001). Furthermore, Baxter and Stockman (1989) compare the variability of a set of real variables across different exchange rate regimes, finding that, controlling for fundamentals, there were no mayor differences except for the real exchange rate, which was more volatile for flexible regimes. Furthermore, there was a tendency for long-lasting misalignments.

However, hard-peg regimes (and to a lesser extend, FBARs) also have some important costs. First, in the presence of nominal downward price and wage rigidities, they make a real depreciation difficult to achieve when a change in fundamentals requires one, resulting in important costs in terms of output and unemployment. Thus, it has also been found that adjustment to real shocks under fixed exchange rate regimes (hard pegs and FBARs) are more costly than under more flexible regimes (Broda, 2000). Second, when agents underestimate the risk of an exchange rate change, they facilitate over-expansion of foreign indebtedness, exposing agents to high costs when an exchange rate adjustment does take place. These costs could be high in economies with weak financial systems. Furthermore, an additional difficulty for hard pegs and especially for FBARs, which has been much stressed in the recent literature (Fischer, 2001 and Mussa et. al., 2000), is that they are prone to costly speculative attacks in countries that are increasingly integrated into world markets through trade, direct foreign investment, and other types of capital flows[4]. The costs here are multidimensional: the central bank losses associated with the exchange rate intervention, the macroeconomic and financial effects of the high interest rates needed to defend the peg, the balance-sheet and relative price effects of an abrupt change in the exchange rate, and the political and economic costs usually associated with the abandonment of a peg. Balance-sheet effects can emerge when there is a severe currency mismatch between assets and liabilities in the real economy and the financial system. That is, in systems in which the liabilities of private agents are dollarized while their assets or income-generating capacity are in local currency. In this type of situation, a drastic exchange rate adjustment could unleash generalized bankruptcy. Third, a fixed exchange rate regime -both of the hard-peg and FBAR varieties- also requires giving up on the use of monetary policy to help control demand to stabilize output. This is not a minor cost, as with a flexible exchange rate monetary policy is the most effective stabilization tool in the presence of nominal price rigidities. Some of these benefits of having a less rigid system should not be underestimated. Indeed, there is an emerging

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[4] The experience of Hong Kong currency board illustrates this point. Thus, in the heyday of the Asian crises doubts about the survival of the system resulted in high interest rates and a substantial slowdown of growth.

consensus that the countries which suffered least from the Great Depression were the ones that abandoned earlier on the rigid gold standard comparatively early[5].

Floating regimes reduce most of the costs of the fixed regimes enumerated in the previous paragraphs. However, floating regimes also have their costs. First, they usually deliver higher inflation than fixed-rate regimes. Thus, an explicit nominal anchor, most likely in the form of an inflation target regime, must complement any flexible exchange rate regime. Second, flexible exchange rate regimes show more volatility in nominal and real exchange rates and sometimes lasting misalignments in the real exchange rate. This could be an important cost of flexible regimes, as volatility and misalignments have real costs in terms of reduced trade and capital flows and, ultimately, on growth and welfare. How high volatility may rise is well illustrated by the exchange rate between the yen and the dollar, which went from 147 yen per dollar in August 1998 to 115 in October of that same year. If these sharp movements occur for the currencies of the two largest countries in the world, with deep markets to cover exchange rate risks, anything could happen for the currencies of smaller countries. The exchange rate volatility costs of a flexible exchange rate system in the form of balance-sheet effects could be important. Calvo (2000) has made this point forcefully while advocating a hard peg (currency board or dollarization). However, a balance-sheet effects could be ameliorated through appropriate regulation and supervision of the financial system and the aggressive development of instruments and markets to cover exchange rate risks as well as the development of deeper capital markets in domestic currency (Caballero, 2002, and Goldstein, 2002). Thus, a flexible exchange rate system must be accompanied by appropriate supervision and regulation of banks and by the promotion of instruments to hedge exchange rate risks, including encouraging issuance of local currency denominated debt.

It is sometimes claimed that countries have a fear of floating and therefore, although they claim to have a flexible exchange rate system, they do not use the flexibility that it entails[6]. Fear of floating could be due to a high pass-through effect of devaluation to inflation or to the commercial risks associated with an abrupt exchange rate adjustment in

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[5] See Eichengreen and Sachs (1995), Eichengreen (1992), and Bernanke (1995) for industrial countries and Díaz-Alejandro (1982), Corbo (1988), and Campa (1990) for Latin America.
[6] Calvo and Reinhart (2002) present evidence on fear of floating.

an economy where agents have a mismatch between the currency composition of their assets and liabilities. However, recent analytical and empirical work shows convincingly that pass-through effects –from depreciation to CPI inflation- are much weaker than initially thought (Obstfeld and Rogoff, 2001 and Goldfajn and Werlang, 2000). This is especially so for those countries with a well-established and credible monetary framework of the inflation-targeting type. Under these circumstances, agents trust that the central bank will avoid an acceleration of inflation above the set target, in the process reducing the pass-through from depreciation to inflation[7]. In a formal model where monetary policy follows a Taylor rule, fear of floating could be merely the result of the normal reaction of a monetary authority that is concerned about inflation, especially if it also has a separate target for the real exchange rate (or for the current deficit) as an independent objective of monetary policy. However, a hidden cost of having a separate exchange rate objective –for fear of bankruptcies or its potential effects on trade flows- is that the IT framework would become less transparent, reducing its credibility. In a recent study of monetary policy in Latin America, Corbo (2002) finds that the Central Bank of Chile in the 1990s had a separate current account target objective and the central banks of Colombia in the 1980s and of Peru in the 1990s had real exchange rate objectives. However, Corbo and Schmidt-Hebbel (2001) show that countries in Latin America that are listed as floaters were indeed floating.

But one should always keep in mind that in the ideal case of absence of any market friction there is no gain from exchange rate flexibility or from having an independent monetary policy. At the same time, in this particular case, not much is gained by giving up the domestic currency, as currency transaction costs are nil and perfect financial markets hedge the currency risk premiums and currency mismatch. The only residual issue would be a minor one, related to the international distribution of seigniorage revenue.

Is it possible to combine a fixed exchange rate regime and a flexible one? In their heyday a decade ago, the intermediate regimes of adjustable pegs and exchange rate bands seemed to provide a perfect combination of credibility (with the nominal anchor provided by the exchange rate peg or band) and flexibility (through the limited and gradual

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[7] However, still the pass-through from depreciation to a rise in import prices could be high, as shown by

adjustment of the nominal and real exchange rate in response to shocks). However, in a world with large capital movements and high levels of workers' remittances, these exchange rate regimes have become very vulnerable to highly costly speculative attacks (Mexico in 1994, Asia in 1997, Russia in 1998, Brazil in 1999, and Turkey in 2001). As a result, after a decade of growing disappointment with intermediate regimes (including FBARs), the current consensus has shifted in favor of the two pure cases: credible fixed or fully flexible (Eichengreen, 1994, Obstfeld, 1995, Summers, 2000, Mussa et al., 2000, and Fischer, 2001). A minority view in favor the intermediate option is presented in Frankel (1999) and Williamson (2000).

As for countries well integrated into world capital markets, intermediate regimes are prone to crises; there has emerged a strong policy interest in finding less costly options. The main options are to establish a credible hard-peg exchange rate system (dollarization, currency unions, or a currency board) or to employ a more flexible exchange rate system where there is no explicit commitment to a given exchange rate value, developing, at the same time, instruments to cover exchange rate risks and building in parallel a monetary framework capable of delivering low inflation. An increasingly popular framework of this sort that is the inflation targeting one[8].

3. Hard Pegs: Dollarization, Currency Unions, and Currency Boards.

Hard pegs are extreme cases of fixed pegs and, as such, they share the costs and benefits of such systems already discussed in the previous section. A successful hard peg has some prerequisites. First, it must be credible and therefore the central bank must have sufficient foreign reserves to buy back the monetary base or back it up. The fiscal and financial situation must also be strong enough to facilitate the normal development of the private economy. Otherwise, unacceptable economic outcomes (high interest rates, low growth, and high unemployment) would reduce the credibility of the system, making it vulnerable to attack. Second, as they rule out the use of the nominal exchange rate to

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Campa and Goldberg (2002).

[8] A third option, generated in certain cases to avoid exchange rate crises, is to introduce controls on capital flows. However, it must be kept in mind that, given the increasing integration of world trade and direct foreign investment and the lower communication and information costs and advances in information technology, the world is an ever more integrated market, so that capital controls are very difficult to

adjust to negative real shocks that require a rise in the real exchange rate, they must be accompanied by sufficient downward flexibility in nominal prices and wages to reduce adjustment costs to these types of shocks. In the specific case where the hard peg is part of a currency union, adjustment is also facilitated by the possibility of labor and capital mobility within the union. Third, the financial system must be solid enough to survive without a lender of last resort. However, in the event of a financial crisis, provision must be made for emergency loans from foreign commercial banks or from a monetary authority of industrial country, presumably the Federal Reserve Board or the European Central Bank, and/or the fiscal situation must be robust enough to obtain financing in case of a financial emergency. Fourth, any successful hard peg requires a solvent government, in which country-risk-augmented interest rates do not crowd out private demand. Furthermore, the government must have the capacity to carry out counter-cyclical fiscal policy in situations when the country faces shocks that result in a reduction in aggregate demand. This is the functional fiscal policy of Corden (2002). Nevertheless, the discipline inherent in a hard peg means that a government must be ready to endure, and have the political support to weather, the temporal high real interest rates (and high unemployment) that are an integral part of an adjustment to a drop in foreign reserves. Changing reserve requirements, impeding market-determined increases in the interest rate, or reducing the backing of the monetary base in a currency board scheme may backfire, resulting in reserve losses and/or higher interest rates, as the credibility of the system starts to be questioned.

Hard pegs of the weaker currency board type are not fully protected from the effect of financial contagion. Indeed, financial turmoil and contagion in open economies that have adopted currency boards (e.g., Argentina and Hong Kong), and protracted high exchange rate risk premiums after nine years of Argentina's currency board (reflected both directly and indirectly through large country-risk premiums, as described by Powell and Sturzenegger 2000) mark some recent disillusion with currency boards. Thus, some believe that, to reduce the cost associated with distrust of the authorities' ability to maintain a currency board, it is necessary to renounce one's domestic currency and adopt

implement and, at best, are only temporarily effective (until the private sector finds ways to avoid them). For a recent review of the effectiveness of capital controls, see Edwards (1999).

that of a larger country with a history of monetary discipline, such as the dollar. Indeed, this option was openly discussed in Argentina at the end of the Menem administration as a way of reducing the growing currency risk despite having a currency board system. However, if fiscal solvency and a sound financial system are not established in advance, the market default risks will still be in place, with high economic costs in terms of unemployment and output losses.

There is a related question of the most appropriate exchange rate regime to provide a nominal anchor to reduce high inflation for a country that starts from high inflation and it is prepared to carry out a fiscal adjustment compatible with low inflation. Here, a hard peg has the advantage in that it provides a clear and transparent signal of the course of policy as well as a direct anchor for the price of imports and exports. However, early on and once inflation has been reduced to low levels, it could become advantageous to move toward a flexible regime –accompanied by inflation targeting with strong institutional backing- to facilitate adjustment to external shocks. The longer it takes to exit the fixed peg, the higher the cost of the transition, as agents will gradually adjust to the fixed peg. Here there is a clear trade-off between credibility and flexibility. Again, this could be a major advantage for countries where there are many prices that are rigid in a downward direction. Otherwise, the high unemployment costs that usually accompany the adjustment to a negative shock could become too costly to endure.

4. Exchange Rate Systems in the Americas: What Is said and What is Actually Done

The Americas encompasses a great variety of countries, ranging from large industrialized countries such as the United States, Canada, and Brazil to the small island countries in the Caribbean. Also, the variety of exchange rate regimes adopted during the 20th century is quite impressive. The current distribution of exchange rate regimes in the region is very wide, ranging from the long-standing full dollarization of Panama and Puerto Rico to the FBARs and crawling pegs of Bolivia, Peru, and Nicaragua, to the floating with rare intervention of Chile and Canada, and the free floating of the largest country, the United States. A broad view on the exchange rate systems of the region can be obtained by drawing on the results presented in three recent papers: Berg et al.'s (2002) study of monetary regimes in Latin America, and the Levy-Yeyati and

Sturzenegger (2002) and Reinhart and Rogoff (2002) studies, which provide an overview of the differing exchange rate systems in the world.[9]

To define a country's type of exchange rate system is not an easy task, as in many cases the announced system is different from the actual one. The first paper mentioned above presents a classification of exchange rate regimes for the Latin American countries that corresponds to the official classification of the International Monetary Fund (based on the countries' official announcements, adjusted by the views of the IMF staff). The latter two papers provide independent classifications of exchange rate regimes, over a very long span of time, contrasting the official announcements and the effectively observed trajectories of the exchange rates and other variables related to the exchange rate regime. Reinhart and Rogoff (2002) also take into account the presence of parallel exchange rate markets, using the trajectory of market-determined exchange rates rather than official rates. The focus on what is effectively done provides an opportunity to avoid some of the problems that arise from the "fear of floating" and the "fear of pegging."[10] Both classifications differ significantly from each other and from the traditional one presented by the IMF, based upon what is officially declared by each government.

From the classification of exchange rate regimes presented in the Levy-Yeyati and Sturzenegger and Reinhart and Rogoff papers, one can derive an overall classification of exchange rate regimes as of December 2001. However, one loose point remains, as the two sources group exchange rate systems into categories that do not coincide and, in particular, one is less detailed than the other. In this paper, we use a classification of exchange rate systems that is closer to that presented by Berg et al.[11], but we rely mostly on the country information provided by Levy-Yeyati and Sturzenegger and Reinhart and Rogoff. We use three categories of exchange rate systems: hard pegs (dollarization, currency unions, and currency boards), intermediate regimes (FBARs, crawling pegs, bands, and crawling bands) and floaters (managed and free). Table 1 distributes the different countries into these three categories, using the individual

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[9] Two previous comprehensive revisions of monetary policy and exchange rate regimes in Latin America are Corbo et al. (1999), and Corbo and Schmidt-Hebbel (2001).

[10] Fear of pegging emerges when a country declares to be a floater but in practice does not allow the exchange rate to move.

[11] See table 1 of their paper.

classifications of Reinhart and Rogoff. Table 2 does the same thing using the classification of Levy-Yeyati and Sturzenegger, and Table 3, which is used as a benchmark, is the classification of Berg et al. (2002) expanded to the whole of the Americas using information from IMF (2002).

As can be observed from the three tables, the distribution of countries among categories is very different in each work. In fact, the results of Reinhart and Rogoff show a high concentration of countries in intermediate regimes. So, after a first examination there is no explicit evidence of the "bipolar view" or the "hollowing-out hypothesis" in the Americas.[12] But, the results from Berg et al. show a different distribution, with more than half of the countries located in the corners of the distribution. A completely different result is obtained using the Levy-Yeyati and Sturzenegger classification of countries. However, their results could be contaminated, as they do not provide enough information to separate hard pegs from conventional pegs.

An important result that arises from the comparison of the classifications is that, apart from the differences originating in the statistical procedures used, a large number of countries show fear of "something", that is, they have in practice a different regime than the one reported to the IMF and described in IMF (2002).[13] Thus, it appears that some countries, which declare themselves to be floaters, are in fact afraid of letting the exchange rate adjust freely (fear of floating), and other countries that declare themselves to be pegging to something are not actually pegging to what they were supposed to (fear of pegging).

Another result, not reported here, is that the distribution today is quite different from that existing during the previous decade or in the second half of the previous century. By reviewing the recent history of various countries, one observes that a significant portion of them have officially moved to the corners. Unfortunately, this rough classification hides the fact that an important number of these intermediate regimes really are *de facto* crawling bands or *de facto* pegs, arrangements that are more flexible than an officially announced peg or band. Table 4 presents a finer classification of the

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[12] See Fischer (2001) and Eichengreen (1994), respectively, for a presentation of these hypotheses.

countries, based on the information provided by Reinhart and Rogoff and incorporating also additional information, where it can be observed that the mentioned bipolar concentration is due to de-facto behavior more than to formal commitments to rigid schemes. The absence of a formally announced commitment allows countries to "abandon" the rigid *de facto* schemes. However, as we will see below, the countries of the Americas that are more fully integrated into the world economy, especially to world capital markets, tend to be in those corners.[14]

As a summary, we conclude from examining Table 4 that as of the end of December 2001 in the Americas Panama, Puerto Rico and Ecuador are dollarized, while El Salvador is en route towards dollarization. Ecuador, a country that dollarized in 1999, still has many pending problems and weaknesses (a weak financial system, rigid nominal wages in the formal sector, severe structural fiscal problems, etc.) that could reduce the credibility of its dollarization experiment and may lead to its abandonment. However, the dollarization could also force the flexibility and fiscal discipline that are required for its success. A group of small countries in the East Caribbean have a currency union (the East Caribbean currency union), and Argentina had up to December 2001 a currency board (which was established in April 1991). Argentina ended up abandoning its currency board in early 2002.[15] Leaving aside the East Caribbean countries that have a currency union and are pegged to the US dollar, 12 countries have intermediate regimes. These countries, except Uruguay, are not well integrated into world capital markets, which makes them less prone to speculative attacks.[16] In some countries that are classified as floaters, the exchange rate could have low volatility due to fundamentals or movements in the interest rate. This result could be due more to a monetary policy that reacts not only to inflation but also to movements of the exchange rate. Seven countries (Brazil, Canada,

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[13] The number of countries would be even higher if we had compared what the countries say with what they do instead of using the classifications appearing in IMF (2002).

[14] Levy-Yeyati and Sturzenegger (2002) found the same result for a larger set of countries.

[15] The abandonment took place during a profound crisis related to many factors: the increasing insolvency of the public sector, and a series of severe and persistent negative real external shocks in the presence of downward inflexibility in public-sector nominal wages. Interestingly enough, private-sector nominal wages became downwardly flexible when the economy had to adjust to a higher equilibrium real exchange rate.

[16] Levy-Yeyati and Sturzenegger (2002) indeed find that, using their classification of exchange rate regimes, the countries that are not well integrated to capital markets do not have corner regimes.

Chile, Colombia, Haiti, Mexico and the United States) have a floating exchange rate regime. All these countries, except Haiti, are well integrated into world capital markets.

5. A Monetary Policy Framework for the Floaters: The Case for Inflation Targeting[17].

The free floaters by definition have dispensed with the use of the exchange rate as a nominal anchor and thus must select a monetary regime capable of delivering low inflation. Two fundamental options can be considered: a money anchor and an inflation target anchor. [18] A monetary anchor relies on a pre-committed path for the money supply to anchor inflation. In the case of inflation targeting, the anchor for inflation is the publicly announced inflation target itself. The credibility of this policy relies on the power given to the central bank to orient monetary policy chiefly toward achieving the target and its willingness to use its power and policy instruments at its disposal for this purpose.

The effectiveness of the use of a monetary aggregate as a nominal anchor for inflation depends, first of all, just as in the case with an inflation targe, on the authority and capacity of the central bank to carry out an independent monetary policy aimed at achieving and maintaining low inflation (including that induced by exchange rate depreciations). But in this case, the effectiveness of the policy depends also on the stability of the demand for the monetary aggregate that is used as the anchor. That stability provides a link between the monetary anchor and the inflation rate. The stability of the demand for money presents a problem in cases where there is considerable financial innovation or a sudden change in the level of inflation.

In particular, in an economy that has experienced a period of high and variable inflation, the demand for money becomes very unstable, as economic agents develop ways to economize in the use of domestic money balances. Therefore, when the rate of inflation is reduced, hysteresis effects emerge, generating a breakdown in the former relationship governing the demand for money. That is, when the inflation rate returns to previously observed lower values, the quantity of money demanded is lower than what was expected before the outburst of inflation. In cases like these, one would overestimate

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[17] This section draws, in part, on Corbo and Schmidt-Hebbel (2001).

the quantity of money demanded, and the use of a money target could be very ineffective in achieving a given inflation objective. Thus, it is not surprising that as countries have moved toward more flexible exchange rate arrangements, they have searched for a new monetary anchor.[19] In recent years, the anchor that has become increasingly popular is inflation targeting. An additional advantage of the inflation target over a monetary aggregate is that as the credibility of the policy increases, the central bank can engage in short-term stabilization policy.

In the case of the Americas, five of the seven floaters (Brazil, Canada, Chile, Colombia, and Mexico) have gradually established an inflation-targeting framework (ITF). Meanwhile another floater, the United States, uses the high credibility of its central bank, the Federal Reserve Board, as a monetary anchor, but recently there have been suggestions to move toward an explicit ITF framework (Meyer 2001).

An ITF was initially introduced in Canada (February 1991), and Chile (1991), and was later extended to Colombia (1999), Brazil (June 1999), and Mexico (1999). Under the ITF, the target rate of inflation provides a monetary anchor and monetary and fiscal policies are geared toward achieving the inflation target. The advantages of this framework are that it does not rely on a stable relationship between a monetary aggregate and inflation for its effectiveness, and at the same time, it avoids the problems associated with pegging the exchange rate. An additional advantage for emerging countries is that the trajectory of the market exchange rate provides important information on the market evaluation of present and future monetary policy, such as the information provided by nominal and real yields on long-term government bonds in industrial countries (Bernanke et al. 1999).

A well-defined ITF has to satisfy a set of conditions (Svensson 2000, and King 2000). First, it must include a public announcement of the strategy of medium-term price stability, and an intermediate target level for inflation for the relevant period in the future

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[18] On monetary anchors, see Calvo and Végh (1999); Bernanke and Mishkin (1997), and Bernanke et al. (1999).

[19] One should be careful not to oversell to much this argument. As my discussant Linda Goldberg argued, inflation targeting also benefits from a stable demand for money although all that it is required is a stable relation between inflation and its determinants, including among the latter the policy interest rate. However, for this relation to be stable, the money demand must also exhibit some stability.

in which monetary policy affects inflation. Second, an institutional commitment to price stability must be in place, in the form of rules of operation for the monetary authority. Third, operational procedures must be transparent and there must be a clear strategy concerning how monetary policy will operate to bring inflation close to the announced target. The strategy, in practice, usually starts from a conditional forecast of inflation for the period for which the target is set. It also establishes specific operational procedures for the central bank to adopt when the inflation forecast differs from the target. The procedures should be transparent and the monetary authority should be accountable for attaining the objective that has been established. Central bank autonomy is an important institutional development that reinforces the credibility of an ITF.

Given the lags in the operation of monetary policy, the inflation target must be set for a period far enough into the future to ensure that monetary policy can have a role in determining future inflation. In practice, central banks announce a target for the next eighteen to twenty-four months. They then develop a conditional forecast of inflation for this timeframe –based on the existing monetary policy stance and a forecast of the relevant exogenous variables– and provide a strategy and communicate to the public the policy actions they will adopt in response to deviations of inflation from target levels. When the conditional inflation forecast is above the inflation target, the level of the intervention interest rate is raised to bring inflation closer to the target. One advantage of ITF is that inflation itself is made the target, committing monetary policy to achieve an explicit inflation objective and thus helping to shape inflation expectations. However, herein also resides its main disadvantage. As inflation is not directly under the control of the central bank, it becomes difficult to evaluate the monetary stance on the basis of the observed path of inflation. Furthermore, as monetary policy operates with substantial lags, it could be costly to pre-commit to an unconditional inflation target – independently of changes in external factors that affect inflation – and change monetary policy to bring inflation back to the target. Aiming at the inflation target when a shock causes a temporary rise in inflation could be very costly in terms of a severe growth slowdown and increased output volatility (Cecchetti 1998).

To address some of these problems, several options have been proposed. First, the inflation target can be set in terms of a range rather than a point. Second, a target can be set for core inflation rather than observed inflation. Third, changes in indirect taxes, interest payments, and energy prices can be excluded from the targeted inflation measure. Fourth, the target can be set for sufficient long periods so that short-term shocks to inflation do not require a monetary response.[20]

Emerging markets that adopted an ITF at a time when inflation levels were well above their long-run objectives have had to deal with the problem of inflation convergence. Usually, these countries have started reducing inflation without a full-fledged ITF in place. Once they had made sufficient progress in reducing inflation, they announced annual targets and gradually put in place the components of a full-fledged ITF, as they moved toward low and stationary inflation (Australia, Chile, Canada, Israel, New Zealand, and the United Kingdom are good examples here).

6. Is Dollarization an Option for the Americas?

Dollarization can be unilateral or part of a currency union in which all or some countries of the Americas adopt the US dollar. Let us first discuss the case for unilateral dollarization. Both types of dollarization are the strongest cases of a hard peg (the third and weakest case is a currency board). Replacing the domestic currency for the US dollar eliminates the risk of devaluation, but a country that eliminates its own currency and adopts that of a low-inflation country, such as the US dollar, must incur the cost of buying back the money base (the stock cost) as well as the flow losses of seigniorage. For the case of the larger economies in the Americas -Argentina, Brazil, Chile, and Mexico- Morandé and Schmidt-Hebbel (2000) estimate these losses to be between 2.2% and 4.4% of GDP in 1999 for the first component, and between 0.12% of GDP and 0.25% of GDP for the second. Nevertheless in the case of countries with a record of poor monetary management and price stability, the cost could be worthwhile. In the special case of forming a currency union, as is the case of the European Monetary Union, the member countries could negotiate the distribution of the revenues from seigniorage.

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[20] For a review of the costs and benefits of these alternative options, see Bernanke et al. (1999), chapter 3.

One should now ask which are the natural candidates for unilateral dollarization in the Americas. In the first place, they are countries that have not managed to set an independent monetary policy capable of delivering low inflation. For these countries, the main benefit of dollarization stems from importing a better way of running monetary policy. Countries that could fit into this category are Argentina, Nicaragua and Venezuela[21]. The benefits of dollarization could also outweigh the costs in the case of the smaller countries of Central America and the Caribbean, as well as the group of small countries that are part of the East Caribbean monetary union, all of which are characterized by highly dollarized economies and concentrate a substantial part of their trade in goods and services and capital flows with the US (including in some cases worker remittances). On labor market flexibility, the exceptions are some countries in Central America, particularly Costa Rica. The benefits of dollarization for these countries are derived from lower interest rates resulting from the elimination of currency risk and its associated premium, elimination of currency transaction costs, lower variability in relative prices of tradable goods, and the elimination of currency mismatches in foreign assets and liabilities. The reduction of all these microeconomic costs and market frictions should result in an improved integration into the world economy.

In the case of El Salvador, it was the disillusion with the performance of the late 1980s and early 1990s and with the high domestic interest rates of the second half of the 1990s -when they had a *de facto* fixed peg to the US dollar but lacked a strong institutional backing- that prompted the government to start a process of dollarization. But in this case, as well as that of other small countries of Central America and the Caribbean mentioned above, dollarization can also be justified using the standard arguments of an optimal currency area, given that its small economy is very open and has a high share of its trade, worker remittances, and capital flows concentrated in the US. Since El Salvador initiated its movement toward full dollarization, Guatemala and Nicaragua are considering the possibility of following the same route. The case of Nicaragua (already identified as a dollarization candidate), given its poor record on macro management, is not surprising since the financial and economic crises of the 1980s resulted in high degree of

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[21] In all these countries dollarization to be successful will require first to put order in the public finances and to build appropriate mechanisms to deal with negative real shocks.

dollarization substantially reducing the demand for the local currency, and severely curtailing the room for an independent monetary policy. However, in the Central American countries the adoption of the US dollar cannot resolve the problem of the fragile condition of their fiscal and financial systems. On the fiscal side, dollarization could help to generate a dynamic process in favor of stronger fiscal discipline. A robust fiscal situation is also required to enable fiscal policy to respond to real shocks associated to commodity shocks. Building a robust financial system would require to put in place and enforce adequate supervision and regulation of banks.

For some of the largest countries in the region, which have a high country diversification of their trade, pervasive nominal rigidities, and a well-run monetary policy that delivers low inflation, the advantages of dollarization are not as large. Furthermore, these countries are usually exposed to real external shocks –mostly in terms of trade- that are not highly correlated with the ones in the US. This is the case in Canada, Chile, Brazil, Mexico, and Colombia.

The structural characteristics of the largest countries in the Americas -with respect to macroeconomic characteristics, the degree of openness, the direction of their trade, terms of trade variability, and cross-country correlation- are presented in Tables 5 through 7. With regard to macroeconomic indicators, Chile has the lowest government deficit and the second-lowest inflation after Argentina within emerging markets. However, on the fiscal side the situation is weak in Brazil, Colombia, and Argentina. Inflation has come down, but there are still important differences among countries. Recently, Argentina has experienced a major crisis and inflation has returned to the high double-digit annual level. Thus, on the macro side many countries in the region are far from satisfying Maastrich-type criteria. Table 6 shows that for three countries (Canada, Chile and Mexico), total trade is 50% of GDP or more. In contrast, Colombia, Brazil, Argentina, and the US have the lowest trade-openness indicators, in that order. In the direction of trade, more than 70% of Mexico's and Canada's trade is concentrated in the US. In contrast, less than 25% of the total trade of Brazil, Argentina and Chile is directed towards the US. Furthermore, for Brazil and Chile, 50% or more of their trade is with countries outside the Americas. Thus, from a trade perspective, unilateral dollarization (or a common currency of the

MERCOSUR and associated member countries) does not appear to be much of a benefit in the case of Brazil and Chile. However, from a capital flow perspective, a substantial part of their transactions are denominated in US dollars.

Another consideration when evaluating the adoption of a common currency is the degree of correlation of terms of trade. Table 7 presents the coefficient of variation of terms of trade and the correlation matrix of terms of trade for the same group of countries. The highest coefficients of variation of terms of trade belong to Mexico, Brazil, Argentina, and Chile, in that order. For these countries, the coefficient of variation of terms of trade is more than 50% higher than those of the US. Surprisingly enough, Canada's coefficient of variation is one-third that of the US. From the results presented in Tables 5, 6, and 7 it appears that Canada is the most suitable candidate to adopt the US dollar. Interestingly enough, Canada has decided that the benefits of keeping its own currency –to adjust to other real shocks and set an independent monetary policy to accommodate real shocks that require a depreciation of the real exchange rate- outweigh the costs. One should also note that Canada has been able to achieve and maintain low inflation –using an ITF- and has developed a strong public finance position (Table 5).

In the cases of Brazil, Chile, and Mexico, as these countries complete the implementation of a full-fledged ITF, it will be difficult to give up the use of a flexible exchange rate –used to facilitate real exchange rate adjustments- and monetary policy as a stabilization tool. In the case of Chile, inflation has already converged to its medium-term target level, supported by solid fiscal circumstances, and the exchange rate and monetary policy have been used actively to stabilize the economy, the country is in the process of signing a broad trade agreement with the European Union, and unilateral dollarization is not even in the agenda for discussion.[22] Mexico, which has done much to recover the credibility of its central bank and monetary policy, and reduced inflation to an annual rate below 6%, does not need to tie itself to the rigid structure inherent in the dollarization of

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[22] In the case of Chile, in a recent paper Morandé and Schmidt-Hebbel (2000) conclude that, among various Southern Hemisphere countries, Chile would gain the least (or lose the most) if it gave up its currency. Subject to large idiosyncratic shocks and significant temporary wage and price rigidity, and a conservative monetary policy, it is argued that Chile has the most to gain from a floating exchange rate and an independent monetary policy. Another negative view on the advantages of dollarization for Chile is presented in Fontaine and Vergara (2000)

its economy. This is especially so given its high oil dependence.[23] Indeed, the coefficient of variation of its terms of trade is the highest among the seven countries included in Table 7. However, one must also consider the high share of its trade, capital flows, and workers remittances with the US.

In Brazil, the flexible exchange rate system has played a key role -together with a responsible fiscal and monetary policy- in the surprising recovery from the crisis of early 1999, to the adjustment following the recent Argentine crisis, and to the political risks emerging from the upcoming election. Furthermore, given the country diversification of its trade and capital flows and the size of its economy, optimal currency area arguments are much less relevant.[24]

In the case of MERCOSUR, there has been, at time, open discussions on the most appropriate exchange rate arrangement to promote integration. However, it is well understood that any currency union type of arrangement will have to wait until sufficient progress is made at the country level on the macroeconomic stability front. Furthermore, given that no country within the union can play the role of the anchor country, it has been argued that any currency union will have to use the currency of a third country or group of countries (the dollar or the euro). Moreover, there is still much to be done to reduce barriers to trade in goods and services within the area, and this should precede any attempt at creating a currency union.[25]

However, if a Free Trade Zone of the Americas becomes a reality and the trade integration of the Americas increases then the question of dollarization will have to be reexamined. Here, the experience of the euro will be very important.

7. Concluding Remarks.

For countries with a poor record on macroeconomic stability -that is, countries which have succeeded in setting an independent monetary policy capable of delivering low inflation- it could be beneficial to become dollarized. Countries that might fit this category are Argentina, Nicaragua, and Venezuela. Also, for the smaller countries in

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[23] Carstens and Werner (2000) arrive at the same general conclusion for Mexico.

Central America and the Caribbean, as well as for the small countries that are part of the East Caribbean monetary union -characterized as being highly dollarized economies, with a substantial part of their trade in goods and services and capital flows with the US (including in some cases worker remittances)- it could also be beneficial to dollarize. The benefits of dollarization for these countries are derived from lower interest rates resulting from the elimination of currency risk and its associated premium, elimination of currency transaction costs, lower variability in relative prices of tradable goods, and elimination of currency mismatches in foreign assets and liabilities. The reduction of all these microeconomic costs and market friction should result in improved integration into the world economy, a higher income level, and higher growth rates. For both types of countries, the benefits of dollarization would be higher still if labor markets were flexible and they developed appropriate institutions to support the financial system in case of a sudden crisis. In contrast, for open economies with a good record of financial stability and a large tradable sector, in which exports are highly diversified by country of destination and downward nominal rigidities are widespread, dollarization could be a major hindrance to the adjustment to a negative real shock that requires a real depreciation. For this type of country, a more flexible exchange rate regime would be preferable. Indeed, the combination of prudent monetary policy and exchange rate flexibility has facilitated adjustment in most countries in the region. With capital mobility, exchange rate flexibility also leaves the door open for the use of discretionary monetary policy in response to unexpected domestic and external shocks.

After the revision of the current exchange rate regimes adopted in the Americas, we can conclude that we have today a broad spectrum of exchange rate arrangements. The first group consists of countries that have hard-peg systems. There is also a group of small countries that are not well integrated into world capital markets which have intermediate regimes. And at the other end of the distribution, there is a group of six large countries (Brazil, Chile, Colombia, Mexico, the US and Canada) that are floaters and have succeeded in achieving and maintaining low inflation using an explicit ITF, with the exception of the US, that uses an implicit ITF.

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[25] On exchange rate mechanisms within MERCOSUR and an evaluation of the feasibility of a currency union, see Carrera and Sturzenegger (2000), and Levy-Yeyati and Sturzenegger (2000).

While few countries are willing to follow the path of full dollarization, a larger number is moving toward the use more flexible systems. However, more flexible systems must be accompanied by the development of forward and future exchange rate markets, to enable market participants to hedge against exchange rate risks. Otherwise, the costs of real exchange rate variability could be high. As countries move toward the use of more flexible exchange rate arrangements, they will need to make the selection of the monetary anchor more explicit. Here, much progress has been made in the region in implementing quite successful full-fledged ITFs. Thus, for a country that has built strong macro fundamentals and has a safe and sound financial system, the alternative of keeping its own currency, combining a floating exchange rate system with an ITF, may be a better choice.

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Table 1
Exchange Rate Regimes in the Americas:
Reinhart and Rogoff's (2002) Classification as of December 2001

Hard pegs[1]	Intermediate[2]	Float[3]
- East Caribbean Central Bank countries[4] - Argentina[5] - Ecuador (dollarization) - El Salvador (en route to dollarization) - Panama (dollarization)	- Bolivia (de facto crawling peg) - Canada (de facto crawling band) - Costa Rica (de facto crawling band) - Dominican Republic (de facto crawling band) - Guatemala (de facto crawling peg) - Guyana (de facto crawling peg) - Honduras (de facto crawling peg) - Jamaica (de facto crawling peg) - Nicaragua (crawling peg) - Paraguay (de facto crawling band) - Peru (de facto peg) - Suriname (peg) - Uruguay (de facto crawling band) ***[6] - Venezuela (pre-announced crawling band)[5]	- Brazil [7] - Chile[7] - Colombia[7] - Haiti - Mexico[7] - United States

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[1]Comprises dollarization, currency unions and currency boards arrangements.

[2] Comprises pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands.

[3] Comprises managed floats and free floats.

[4] Includes: Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms, these countries are members of a currency union, whose currency is pegged to the dollar.

[5] In 2002, moved to float

[6] There was an official crawling band up to early 2002 but Reinhart and Rogoff found that in fact the Central Bank followed a narrower crawling band. In 2002 the band was widened and the central parity was adjusted to allow a faster depreciation pace and later on in the year they adopted a free float.

[7] Managed Floating.

Table 2
Exchange Rate Regimes in the Americas (cont.):
Levy-Yeyati's and Sturzenegger's (2002) Classification as of 2000

Fixed	Intermediate[2]	Float
- East Caribbean Central Bank countries [1]	- Costa Rica	- Canada
- Argentina	- Dominican Republic	- Colombia
- Bahamas	- Ecuador	- Chile
- Barbados	- Guatemala	- Haiti
- Belize	- Peru	- Honduras (1999)
- Bolivia	- Uruguay	- Jamaica
- Brazil		- Mexico
- El Salvador		- Paraguay
- Guyana		- Sao Tome and Principe
- Netherlands Antilles		- Suriname (dirty float)
- Nicaragua		- United States
- Panama		- Venezuela (dirty float)
- Trinidad and Tobago		

[1] Includes Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms, these countries are members of a currency union, whose currency is pegged to the dollar.
[2] Corresponds only to the intermediate/crawling peg category presented in appendix 2.

Table 3
Exchange Rate Regimes in the Americas (cont.):
Berg et al.'s (2002) Classification as of 2001[1]

Hard Pegs[2]	Intermediate[3]	Float[4]
- Argentina	- Aruba	- Brazil
- Ecuador	- Bahamas	- Canada
- El Salvador	- Barbados	- Chile
- East Caribbean Central Bank countries[5]	- Belize	- Colombia
- Panama	- Bolivia	- Dominican Republic
	- Costa Rica	- Guatemala
	- Honduras	- Guyana
	- Netherlands Antilles	- Haiti
	- Nicaragua	- Jamaica
	- Uruguay	- Mexico
	- Venezuela	- Paraguay
		- Peru
		- Trinidad & Tobago
		- United States

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[1] The author, using the IMF classification presented in the IMF's International Financial Statistics (May 2002) added additional countries to the original classification.

[2] Comprises currency unions and currency board arrangements.

[3] Comprises pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands.

[4] Comprises managed floats and free floats.

[5] Includes Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms, these countries are members of a currency union, whose currency is pegged to the dollar.

Table 4
Exchange Rate Regimes: A Finer Classification as of December 2001

Hard pegs			Intermediate regimes		
Dollarization	Currency Union	Currency board	Peg and crawling peg	De facto peg and crawling peg	Band
- Ecuador - El Salvador - Panama - Puerto Rico	- East Caribbean Central Bank countries[1]	- Argentina[2]	- Nicaragua - Suriname	- Bolivia - Guatemala - Honduras - Jamaica - Peru	- Venezuela[2]

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[1] Includes Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. In practical terms, these countries are members of a currency union, whose currency is pegged to the dollar.

[2] In 2002, it moved to float.

[3] Managed float.

[4] Reinhart and Rogoff (2002) classified the country as a de facto band, but according to the author's view, confirmed by the IMF classification, it was reclassified as a floater.

Source: Author's preparation based on the results presented in Reinhart and Rogoff (2002).

Table 5
Debt and Macro Indicators: Selected American Countries

	Govt. debt (% GDP)	Govt. deficit (% GDP)	Inflation		Interest rates	
			1990-2000	2001	Nominal	Real
Argentina	44.9	4.0	46.3	-1.1	24.9	26.0
Brazil	49.4	5.2	237.9	6.8	17.47	10.67
Canada	103.2	-2.8	2.2	2.5	2.24	-0.26
Chile	29.7	0.3	10.2	3.6	6.81	3.21
Colombia	34.9	5.8	19.7	8.0	10.43	2.43
Mexico	28.3	0.7	18.0	6.4	12.89	6.49
USA	59.4	-0.6	3.0	2.8	3.89	1.09

Sources:

Government debt: Deutsche Bank and OECD, except for Chile whose figures where calculated by the author using data from the IMF and the Central Bank of Chile. Figures correspond to 2000, except Mexico, which corresponds to 1998.

Government deficit: OECD, Chilean Ministry of Finance, and Deutsche Bank. Data correspond to 2001 values.

Inflation: IMF, World Economic Outlook Database.

Interest rates: IMF. It corresponds to the money rate of the International Financial Statistics. Real rates where computed as expost real rates. Figures correspond to 2001.