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An Evaluation of Monetary Regime Options for Latin America

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with a comment by Sven Arndt

Statement of Purpose

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Editorial

On April 15 - 16, 2002 a conference on "Monetary Union: Theory, EMU Experience, and Prospects for Latin America" was held at the University of Vienna. It was jointly organized by Eduard Hochreiter (OeNB), Klaus Schmidt-Hebbel (Banco Central de Chile) and Georg Winckler (Universität Wien). Academic economists and central bank researchers presented and discussed current research on the optimal design of a monetary union in the light of economic theory and EMU experience and assessed the prospects of monetary union in Latin America. A number of papers presented at this conference are being made available to a broader audience in the Working Paper series of the Oesterreichische Nationalbank and in the Central Bank of Chile Working Paper series. This volume contains the fourth of these papers. The first ones were issued as OeNB Working Papers No. 64 to 66. In addition to the paper by Andrew Berg, Eduardo Borensztein, and Paolo Mauro the Working Paper also contains the contribution of the designated discussant Sven Arndt.

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An Evaluation of Monetary Regime Options for Latin America

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Monetary Union: Theory, EMU Experience,
and Prospects for Latin America"

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I. Introduction

Over the past decade, many middle-income developing countries have moved away from intermediate exchange rate regimes and toward either extreme of floating rates or hard pegs such as currency boards or dollarization. In the 1980s and early 1990s, intermediate regimes such as soft pegs, crawling pegs, and crawling bands were the norm. Now, these options are increasing falling out of favor, particularly for those emerging market countries that are highly integrated in international financial markets.

In this paper, we analyze the choice of exchange rate regime in Latin America. We start, in Section II, by taking stock of the evolution of exchange regimes in the region and exploring the reasons for that evolution. While the general trend in Latin America is not very different from that in other regions, it would appear that Latin American countries tend to move in large clusters from regime to regime. We note that empirical equations that try to explain regime choices do not fare particularly well for Latin American countries. In particular, the popularity of intermediate regimes seemed excessive ten years ago, but this has been neutralized with the generalized move to floating in the recent years

In Section III, we ask whether Latin American countries should form an independent common currency area. We apply a modern version of the theory of optimal currency areas (OCA). This approach is well suited to choosing between the two extremes of exchange rate regimes, because it focuses on the choice between a common currency and individually floating exchange rates. In this framework, a common currency is advantageous to the extent that it reduces transaction costs and thus encourages trade. It is costly insofar as it does not allow each country to conduct an independent monetary and exchange rate policy so as to buffer external shocks and respond to domestic conditions that may be dissimilar. We find that, under present circumstances, the costs of a common currency are likely to outweigh the benefits for the countries of Latin America. In fact, these countries do not trade much with each other, as has been noted elsewhere. Perhaps more surprisingly, they face diverse economic shocks and their business cycles are not coordinated. Finally, they are affected by common shocks to sentiment in international financial markets, but no more so than is the average pair of emerging markets.

In Section IV, we consider a different form of non-national monetary arrangement, namely unilateral dollarization. As with the choice to form a common currency, whether this option is a good one for a particular country depends on whether it is sufficiently similar and integrated with the United States, so that the monetary policy of the U.S. is acceptable. However, potential financial fragility and lack of credibility seem to be even more relevant considerations. With poor credibility of the monetary authorities and strong demand for dollar-denominated financial assets ("spontaneous" or "de facto" dollarization), it becomes extremely costly to run a national monetary regime. Countries are forced to live with high interest rates, highly volatile exchange rates and prices, and a high degree of vulnerability in the financial sector. Unilateral dollarization is perceived as an effective and immediate way of importing monetary credibility, even if it implies giving up the national central bank, thereby forgoing seigniorage and lender-of-last-resort facilities.

Finally, in Section V we review some of the evidence on whether emerging market floaters do in fact benefit from their monetary policy autonomy. We ask whether a credibility gap prevents emerging market countries from being "free floaters" by forcing them to intervene in foreign exchange markets and to adjust interest rates in an attempt to moderate exchange rates fluctuations. But the key question is whether emerging market floaters get something valuable for eschewing the credibility and lower transaction costs of dollarization, that is, whether they retain sufficient flexibility to use monetary policy for domestic ends in response to important shocks. Specifically, we examine the response of monetary policy to domestic inflation, output gaps, and shocks to terms of trade and worldwide interest rates.

We conclude that some countries are indeed viable candidates for pursuing a floating exchange rate, while others are good candidates for dollarization. Life will be difficult for countries that are neither.

II. Evolution of Exchange Rate Arrangements in Latin America. Choices and Reasons

By 2001, a majority of Latin American countries had either adopted the US dollar as legal tender currency or instituted a floating exchange rate regime—the latter often combined with an inflation target (Table 1).[2] Chile staged a gradual and orderly exit from an intermediate exchange rate system to a float. Other changes in exchange rate regime took place under crisis or near-crisis circumstances. Notably, Brazil and Mexico moved to floats under heavy losses of foreign exchange reserves, but have subsequently operated their new exchange rate regimes without excessive strain. Ecuador and El Salvador dollarized fully. In 2002, Argentina moved to a float under an intense financial crisis, after having maintained a currency board for eleven years. Also in 2002 Venezuela moved to a float from an intermediate regime under milder external pressure conditions. And so on.

In the rest of the world, there has also been a move to the "corners" (Figure 1). In Asia, Thailand moved from a de facto peg to an independent float, and Korea and Indonesia from a managed float to an independent float. The Philippines maintained a floating regime, while Malaysia, an outlier, has maintained a traditional fixed exchange rate since 1998. In contrast to Latin America, there have been no moves toward currency boards or currency unions.

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[2] Calvo and Reinhart (2002) have emphasized the difference between *de jure* regimes and *de facto* regimes, that is, between what the authorities do and what they say they do with respect to exchange rate policy. In the above, we have used the IMF's official classification, which—while beginning from the countries' self-reported regime—now corrects it on the basis of the IMF staff's views in those cases where the *de facto* regime clearly differs from the self-reported regime. We also checked that the alternative classification produced by Levy-Yeyati and Sturzenegger (1999) entirely on the basis of "deeds rather than words" is similar to the IMF's official classification, at least for the countries in Latin America.

The move to the corners has been primarily driven by heightened integration in international financial markets and the volatility of capital flows, which have led to the conclusion that intermediate regimes are more vulnerable to costly currency crises than are the "corner" regimes. A currency board gives stronger (if not foolproof) credibility and durability to a peg, and under full dollarization, without an exchange rate there is no risk of sharp devaluations. At the other end, a floating rate may permit to absorb international financial shocks more gradually and less stressfully. Latin American countries are indeed fairly open to international capital movements. Table 2 shows that an index that measures directly the incidence of capital controls yields generally low levels of restrictions for countries in the region, while de facto international financial integration (proxied by gross financial inflows plus outflows, in absolute value, as a ratio to GDP) has increased significantly for most Latin American countries in the past decade.

The increasing popularity of floating exchange rate regimes is also related to the generalized decline in inflation. Previously, inflation stabilization objectives seemed to rule out the possibility of floating exchange rates, and to require pegs or quasi-pegs, at least temporarily. Indeed, the exchange rate was a central instrument in many inflation stabilization plans, and fixing the rate (often through currency boards) proved to be particularly effective in stopping hyperinflations. For countries wishing to preserve some exchange rate flexibility, intermediate regimes were intended to keep a lid on devaluation and inflation expectations through bands and pegs, and to prevent gradual losses of competitiveness by letting the rate "crawl." With lower inflation, floating exchange rate regimes now seem to be a more appealing option.

III. A Common Currency for Latin America?

In this section we review the considerations relating to a common currency for Latin America or groups of Latin American countries. We analyze both the case in which Latin American countries lock their bilateral rates but float jointly as an independent currency, and the case in which they simultaneously adopt the U.S. dollar. A traditional approach, going back at least to Mundell (1961), is to ask whether the common currency candidates are subject to coordinated business cycles so that monetary policy would need to react in the same way in each country. As much has been written on this approach, we provide a highly selective review. We extend this idea by examining if changes in external financial conditions are also correlated among the group of Latin American countries. To the extent that they are, one could posit that their exchange rate policies should also be similar, strengthening the case for a common currency.

Real-based optimal currency area (OCA) considerations

Patterns of trade

As is well known, at present Latin American countries are less open to international trade than are other countries at a similar level of economic development. Moreover, their direction of trade is highly diversified, with no dominant trading partner (Table 3).[3] In particular, the share of trade with the United States is often no larger than that with Europe or Japan for South American countries, and is only slightly larger for the typical Central American country. Mexico, with an 80 percent trade share with the United States, is an outlier. On this basis, Latin American countries do not seem to be especially suitable candidates for a common currency, nor is there a particularly strong case for them to dollarize. However, patterns of trade are to some extent endogenous, and the direction of trade could change substantially if a free trade zone in the Americas were to materialize.

Comovement of economic variables

The comovement of output fluctuations among the various countries in the world has been extensively analyzed by Bayoumi and Eichengreen (1994). Correlations of economic growth across pairs of countries are typically lower in Latin America than they are in Western Europe, and somewhat higher than in East Asia. Interestingly, for each Latin American country, correlations with U.S. growth are positive and often significant. However, this is also the case for East Asian countries, and even more so for Western European countries. Bayoumi and Eichengreen (1994) also consider correlations of supply shocks as distinct from demand shocks, following the Blanchard and Quah (1989) methodology. To assess the desirability and feasibility of a common currency, supply shocks are clearly more relevant, as one might expect demand shocks—which to a large extent may be policy-driven—to become more correlated under a common currency. The correlation of supply shocks among the various Latin American countries is typically low and insignificant, and clearly lower than it is for the countries in the European Monetary Union. Moreover, the correlation of supply shocks with the United States is insignificant (and often negative) for all Latin American countries. On average, such shocks are larger in Latin America than in Western Europe or East Asia, and Latin America adjusts to them faster than Western Europe does, though more slowly than East Asia does. On the whole, these considerations do not support the case for a common currency in Latin America, or for widespread dollarization.

Financial-based OCA considerations

While the comovement of fundamental macroeconomic variables among Latin American countries does not seem to be particularly high, there is a widespread view that financial markets tend to treat Latin American countries as one bloc. At present, there is no clear theory of how financial variable comovement relates to optimum currency areas. Nevertheless, if there were evidence that Latin American countries are routinely hit by large, common financial shocks (such as a sudden loss of appetite for Latin American financial

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[3] Mussa et al. (2000) and Jadresic et al. (2001) report these facts for a large number of countries and potential common currency areas.

assets, regardless of fundamentals), one might speculate that monetary and exchange rate policies should react in a similar way in each Latin American country. In that case, a common currency (whether an independent currency or the U.S. dollar) might be a reasonable way to go.

Therefore, it seems helpful to complement the information obtained from comovement of real variables with that on comovement of financial variables, even if this is highly tentative because only financial asset prices, rather than shocks, can be observed. Our overall finding is that the degree of comovement of financial variables is not higher among Latin American countries than among emerging markets more generally. In other words, market participants may view emerging markets as one bloc, but they do not seem to view Latin American markets as a distinct group from the rest.[4]

Yields on government bonds issued by emerging markets in U.S. dollars are obvious candidates to consider. Specifically, we analyze the most closely-watched indicator by market participants, the EMBI+ spreads (vis-à-vis U.S. government bonds) computed by J.P.Morgan. On this basis, there seems to be very large comovement among the various Latin American emerging markets. However, the comovement among Latin American countries is not much higher than among other groups of countries. To abstract from the common component for all emerging market spreads, we first regress each individual country's spread series on the overall EMBI+ spread series, and save the residuals. We then report the correlation matrix among these country-specific components of the spread series (Table 4). We conduct this exercise for the full sample for which the EMBI+ data are available (1998-2001) and for a subsample that begins after the Russian crisis and that ends well before Argentinean spreads start to rise (1999-2000). For either sample period, the correlations between any two Latin American countries do not seem to be higher than the correlations between any two emerging markets.

In the same vein, we examined directly the observed comovement of exchange rates among the various Latin American countries. Of course, this is largely obfuscated by the presence of exchange rate pegs. To mitigate this problem, we turn to the comovement of forward exchange rates, using non-deliverable forwards to the extent that the data are available (Table 5). We again find that comovement is not particularly high among Latin American countries.

An alternative way of summarizing the comovement of both exchange rate expectations and international financial market conditions is to consider results from an "early warning system" model designed to predict exchange rate crises. The model defines a currency crisis as an extreme change in an indicator of exchange market pressure, which is calculated as a weighted average of changes in the exchange rate and international reserves. We compute a correlation matrix of the estimated probabilities of crisis obtained from the "DCSD" model

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[4] This is somewhat in contrast with the studies on regional contagion, such as Glick and Rose (1999).

developed at the IMF (Berg and Pattillo, 1999; Berg, Borensztein, Milesi-Ferretti, and Pattillo, 2000). A disadvantage of this approach is that it is designed to capture extreme events only; an advantage, however, is that it considers several macroeconomic and external variables with weights that reflect their relative ability to predict exchange rate movements. Although the model is based on fundamental variables, these would indirectly reflect changes in market sentiment as well. Using this approach, we find one more time that Latin American countries do not display greater comovement of probabilities than do other groups of countries (Table 6).

Political and Institutional Considerations

The European experience highlights the need for political commitment to a common currency and the time it may take to develop common institutions buttressing that commitment.[5] Moreover, EMU countries have very similar levels of economic and financial development. Per capita GDP (PPP-adjusted, 2000 data) is in a relatively tight range, between 16,000 U.S. dollars a year in Greece and 27,400 U.S. dollars in Belgium. This has made it easier to set up a currency union without engendering pressures for massive fiscal transfers or migration on a scale that might prove socially unsustainable.[6] By contrast, in Latin America, GDP per capita (PPP-adjusted, 2000 data) ranges from 2,200 U.S. dollars a year in Honduras to 11,000 U.S. dollars in Argentina. Even within Mercosur, GDP per capita is 4,000 U.S. dollars in Paraguay and 6,800 U.S. dollars in Brazil, still well below that of Uruguay (10,000 U.S. dollars) or Argentina. This suggests that a move toward the creation of a common currency would be a complicated and slow process for the Latin American countries.

One advantage of a common currency compared with individual currencies is it might make it easier to attain political consensus for central bank independence, and may even serve as a catalyst for other desirable policies, including fiscal discipline. Indeed, it is hard to imagine a common currency without durable guarantees of central bank independence. In the European case, independence of the individual countries' central banks was a precondition for EMU membership, and the European Central Bank itself has strong institutional guarantees of independence. Similarly, many policy-makers have been attracted by the discipline imposed by the Maastricht preconditions in the areas of monetary and fiscal policy. In principle, both

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[5] Bayoumi et al. (2000) provide a recent application of economic and political considerations to the desirability and feasibility of a common currency for the countries in South-East Asia. Similar considerations apply to Latin America.

[6] Net transfers within the EU have been fairly limited as viewed from the richer countries—which are also relatively large—although they amount to a few percentage points of GDP for some of the recipient countries, such as Greece and Portugal, which are relatively small.

central bank independence and monetary and fiscal discipline can be obtained by individual countries, but a common currency may serve as a useful political catalyst.

On the whole, under current conditions, an independent common currency for Latin America does not seem to be especially appealing. As always, however, it is important to bear in mind that conditions that determine the desirability of a common currency are to a certain extent endogenous. As mentioned above, initiatives to increase trade integration among Latin American countries would increase the appeal of a common currency, in addition to fostering economic growth in the region.

At any rate, an independent common currency in Latin American is not likely to emerge, at least not in the next decade. The alternative choice for abandoning the national currency would be "unilateral dollarization." Unilateral dollarization does not require a long process of building common institutions and reaching consensus, which took decades in Europe. Moreover, with unilateral dollarization, fiscal transfers to mitigate country-specific shocks are just not an option, and the dollarizing country ends up with no say in setting monetary policy. Thus, while the move toward a common currency engendered widespread resistance among some sections of the public in several European countries, Ecuador and El Salvador were able to dollarize speedily and with no political resistance on the part of the United States' public or authorities.

IV. Unilateral Dollarization

We have seen that there is no obvious case to be made for dollarization on the basis of optimum currency area considerations. Nevertheless, dollarization may be appealing to those countries lacking credibility and where de facto dollarization has already reached high levels. Some Latin American countries have already taken the decision to unilaterally adopt the US dollar as the legal tender currency. The classic case is Panama, which has used the US dollar since its creation in 1904. More recently, Ecuador adopted the dollar in 1999 in the midst of a financial and currency crisis, and El Salvador started to make the transition to full dollarization in a gradual way at end-2000 under more tranquil conditions. The dollarization option has also been considered by other Central American nations, who seem to be watching developments in El Salvador intently, and was intensely debated in Argentina until recently. In this section, we review the main pros and cons of dollarization for the various types of economies in Latin America.

Monetary Credibility

For many countries, the main gain that could be obtained from dollarization is to neutralize the domestic monetary institutions' poor credibility, which may have been caused by past violations of exchange rate pegs or bands, a history of soft financing of the fiscal deficit or the banking system, and high inflation. Such poor credibility and the related expectations of devaluation and/or inflation bring about chronically high ex-post interest rates when monetary discipline is maintained, and a high demand for foreign financial assets, implying

capital flight or dollarization of domestic financial assets. In cases of extremely poor credibility, it may seem impossible to implement an independent monetary arrangement. Pegs or intermediate regimes involving some form of exchange rate commitment result in high interest rates with serious consequences for fiscal sustainability and private investment; a floating regime leads to high volatility of the exchange rate and episodes of overshooting, unless the central bank engages in an active defense of the exchange rate, thus undermining the principles of the floating currency regime itself.

Latin American countries have made progress in establishing credibility by making their central banks more independent and improving monetary discipline over the past decades. Many Latin American countries enacted new central bank laws in the 1990s that conferred relatively high levels of independence and accountability to the central banks. A number of Latin American countries—especially those that enacted new central bank reforms in the mid- and late 1990s—now score quite high on indices quantifying the degree of legal independence and accountability of central banks (Table 7). These indices are imperfect, because sometimes central banks operate de facto much more (or less) independently than their charters suggest. Nevertheless, the indices seems to correlate well with inflation over the last few years in this limited sample of countries.

However, it may take years to establish credibility. In fact, interest rates remain high despite the sharp decline in actual inflation during the last decade. In classic illustration of the "peso problem," nominal interest rates are still high, owing to expectations of inflation (or devaluation). Ex-post real interest rates are above 10 percent (per year) on bank deposits in several South American countries while the surge in prices does not take place. The lack of credibility increases finance costs also for the private sector, with negative effects on investment and growth. In addition, poor monetary credibility may increase the volatility of expected inflation, which in turn may increase the risk premium attached to domestic-currency debt (Ize and Levy Yeyati, 1998). This second effect is probably less important.

Sovereign default risk also contributes to increasing finance costs for the private sector. This is because rating agencies have traditionally applied a "sovereign ceiling" in their foreign currency ratings, implying that no private borrower could be rated higher than the national government. The logic is that, in a debt crisis situation, the government would apply capital controls and use the scarce foreign reserves to service their debts first. Standard and Poor's (1997) concluded that it was not necessary to apply the sovereign ceiling in fully dollarized economies, such as Panama. Interestingly, it reached the same conclusion for countries, such as Argentina, where the US dollar was widely used in parallel with the domestic currency, even if one could conceive of situations where controls could be imposed to protect the banking sector in those cases as well.

There do not appear to be easy fixes to avoid higher private finance costs resulting from poor monetary credibility. Indexation of financial contracts to the inflation rate would seem to be helpful and has been used extensively in Chile, and to some extent in Brazil. However, policy makers in other countries have stayed away from financial indexation, fearing that its very existence would lead to its application to other types of nominal arrangements, such as

wages. More importantly perhaps, if the relevant alternative assets for investors are foreign-currency denominated securities, indexation would not completely eliminate the need for high domestic interest rates to compensate for devaluation risk.

Thus, even in cases when an independent monetary regime is workable, credibility problems may still cause high financial costs for the government and the private sector, affecting investment and growth, and making defaults and financial crises more likely.

Spontaneous Dollarization

Another manifestation of the lack of monetary credibility is that citizens want to hold U.S. dollars, not domestic currency. One form of this is capital flight; another is spontaneous, or "de facto" dollarization, that is, the holding of a large fraction of domestic monetary assets (bank deposits and cash) in foreign currency. Capital flight is difficult to conceptualize, let alone estimate. A suggestive, if incomplete, indicator is the volume of deposits held by the non-bank private sector abroad with banks that are part of the BIS reporting system (Figure 2). These cross-border deposits rose steadily in the 1980s, but the trend reversed for many countries approximately at the time when they reduced their debts through Brady deals.[7] After the Mexican crisis, however, the increase in deposits held abroad resumed. At present, the volume of deposits abroad is substantial for most Latin American countries, typically ranging between 5 and 15 percent of GDP.

Foreign-currency denominated deposits are very large in many Latin American countries, particularly Bolivia, Peru, and—before their recent "pesification"—Argentina (Table 8). Anecdotal evidence suggests cash holdings of U.S. dollars are widespread in several Latin American countries. While investors may hold foreign-currency denominated assets for "normal" portfolio diversification reasons, it is overwhelmingly plausible that the main motivation in Latin America is the lack of monetary credibility. Indeed, this is in contrast to the "home bias" observed in advanced economies.

Moreover, corporations also show a preference to borrow in foreign currency. The reasons for this may be manifold, including insufficient development of domestic financial markets, and companies trying to take advantage of implicit official guarantees. Jeanne (2002) raises the possibility that, when the risk premium attached to domestic debt is very high, companies may be forced to take foreign-currency denominated debt because they would risk bankruptcy if they held high interest, domestic currency debt.

One important implication of a high degree of spontaneous dollarization is that large changes in the exchange rate can bring about a financial sector crisis and large-scale corporate bankruptcies. Even if commercial banks were well matched in terms of the currency

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[7] A possible explanation of this turning point is that the deposits abroad were needed as collateral for international trade finance during the debt crisis years.

denomination of their assets and liabilities, a large devaluation would shift many dollar loans into nonperforming status. It has been argued that, absent an exchange rate peg and implicit or explicit government guarantees, and helped by appropriate prudential regulations, banks and corporations would hedge their foreign exchange positions (Goldstein, 2001). However, it is not clear that the exchange rate risk could be hedged for the country as a whole. In the aggregate, it would be necessary for foreigners with "deep pockets" to provide exchange rate insurance and bear all the risk. For reasons that perhaps are not well understood, foreign investors seem to be resistant to doing so, implying that emerging market countries by and large cannot borrow internationally in their own currency. Presumably, the difficulties are worse for small countries, with high information costs for international investors.

If hedging the foreign exchange risk with international markets is not possible, the central bank will be forced to limit fluctuations in the exchange rate. Although countries rarely pursue "pure" floats (nor should they), there are occasions when large changes in the exchange rate would be justified. With the risk of heavy losses in the banking sector, however, the central bank will have to be extremely cautious about allowing large exchange rate adjustments.

In conclusion, the appeal of complete dollarization is greater for countries already displaying high (and not reversible) spontaneous dollarization. Under such circumstances, any floating exchange rate regime would fail to provide much real flexibility; the seigniorage loss of giving up the domestic currency is smaller, and uncertainties in the financial sector may be reduced.

Advantages of Integration

A key advantage that dollarization may bring about is to encourage greater economic integration with the United States. As far as trade is concerned, there is some evidence that the use of a common currency is a factor that encourages bilateral trade among the countries that share a currency. For example, Engels and Rogers (19--) found evidence that Canadian provinces tend to be more integrated in trade volume and price level differences among themselves than with U. S. states that are closer geographically, trading on the order of 20 times more among themselves than with nearby U. S. states. There may be many factors explaining this, and the use of a common currency is probably one of them. More significant are the findings by Rose, in a series of papers, that on the basis of a large panel of countries finds that a common currency may increase bilateral trade flows between countries by as much as four times. These estimates look extremely high, and indeed their robustness has been challenged. Klein (2002) found that, while there is a large bilateral trade effect in Rose's equations in flows between developing countries, there is no significant effect on the bilateral trade between the United States and developing countries that use the dollar as currency.[8]

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[8] See Tenreyro (2001) and Persson (2001), who argue that endogenizing the choice to belong to a currency area reduces the significance of the results.

Regardless of the actual size of the effect, one can expect dollarization to increase economic relations with the United States, including foreign direct investment, which has beneficial effects. Also, it could bring about a closer integration in financial markets. One of the most profound effects of Panama's dollarization is the close integration of its banking system with that of the United States and indeed with the rest of the world, particularly since a major liberalization in 1969-1970.

It could also be argued that dollarization could foster better financial discipline in government as it would not be possible to use the inflation tax anymore. That is, it would not be possible to finance fiscal deficits or to support the domestic financial sector simply by printing money. This is, however, a more doubtful argument. The higher degree of credibility afforded by dollarization could be used to finance more expansionary fiscal policies and more risk-taking in the financial sector. While the cost of a crisis would be higher, the probability of falling into a crisis would be perceived to be smaller, and this could encourage governments to take higher risks.

How Does It All Add Up

The ideal candidate for dollarization would be a small economy (not likely to benefit from a floating exchange rate to begin with), with close trade and economic links with the United States (to benefit from their potential strengthening by the use of a common currency), with a high degree of spontaneous dollarization (implications for the banking sector and less seigniorage), and poor credibility for the monetary authority. Not many countries fit the bill. Mexico and countries in Central America tend to be much more integrated with the United States but have less credibility issues and usually less spontaneous dollarization. For these countries the key will be to find out how big the benefits of dollarization may be in terms of higher integration with the United States, when firm conclusions can be drawn from the cases of Ecuador and El Salvador. Many countries in South America have serious credibility problems but are economies that may benefit from exchange rate flexibility. In this case, the test will be whether floating regimes with inflation targeting can build up the requisite credibility to run an independent monetary regime without creating an undue burden on the domestic economy.

V. Floating Exchange Rates

Is a floating exchange rate regime a viable option for the countries of Latin America? A floating exchange rate, in the sense we use it, is one in which the nominal exchange rate moves frequently and substantially in response (in part) to market forces, with the authorities not setting a particular level or rate of change. This does not preclude substantial intervention active monetary policies with an eye to the exchange rate, as we discuss below. Our reading of the evidence is that, while there is much truth to the "fear of floating" claim that emerging

markets do not float like the U.S. or Japan, they also do in fact typically float to some extent, in that their exchange rates do indeed move around substantially. [9]

The more interesting and important question is whether the flexibility in exchange rate and monetary policy achieves meaningful domestic objectives. The rest of the section focuses on this question. We first set the stage by briefly reviewing the experience of a few interesting emerging markets over the latter half the of the 1990s. We then look at the available systematic evidence. We begin by reviewing the literature on how a floating exchange rate should respond to various shocks, noting how various conditions specific to emerging markets, in particular lack of credibility and financial fragility, might modify this optimal response. We then examine available evidence on whether emerging market exchange rates and monetary policy appear to be useful tools of countercyclical and anti-inflationary policy.

Even if monetary policy flexibility has some value, costs may be too high. Two are most likely to be important. First, the lack of credibility associated with a floating exchange rate may imply higher real interest rates, perhaps due to a "peso problem" of a looming if never realized collapse. Finally, it may also be that unstable expectations or unruly markets generate excessive exchange rate volatility in emerging market floats. We briefly look at some evidence on these questions at the end.

Stories

We consider the experience of Mexico, Chile, Peru and Singapore as (at least nominally) floating exchange rate countries, and Hong Kong and Argentina as hard pegs in the latter half of the 1990s. We are particularly interested in the comparison of Mexico, Chile and Peru with Argentina as well as Singapore with Hong Kong during the turmoil period of the late 1990s.

First, consider Argentina in Figure 3a. The top panel shows the inflation rate, the real effective exchange rate, and real GDP growth (year over year) for 1996 through 2001. The bottom panel shows the level of the nominal and real interest rate and the change (year over year) in the real effective exchange rate. We can see the unsurprising stability of the price level and hence the real exchange rate, as well as the still strong credibility of the currency board keeping interest rates flat through the turmoil of the Russia, LTCM and Brazil crises of 1998/1999. The only variable that is affected is real GDP growth, which dives and of course still has not recovered.

Figure 3d presents the same information for Mexico. The response in 1998/1999 is strikingly different. While interest rates did spike up, the exchange rate was also allowed to weaken

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[9] Roubini (2001), Edwards and Savastano (1999) and Eichengreen (2002) provide useful discussions of general exchange rate issues for emerging markets; the latter concentrates on the same issues of concern to us in this section.

substantially. Real GDP growth dipped but resumed in 1999, and the exchange rate appreciated rapidly back up.[10] Two other points emerge from the figures. First, real rates have been quite low since the turmoil of 1998/1999, for example dipping below 5 percent in 2001 when Mexico followed the recession in the United States. Second, inflation in Mexico has come down well below 10 percent. This suggest that Mexico's monetary policy has been flexible enough to allow interest rates to respond to cyclical downturns, taking advantage of the prevalence of lower inflation.

Peru (Figure 3e) confirms some aspects of this story. Even this highly dollarized economy responded to the shocks of 1998/1999 through a combination of higher interest rates and a substantial, and in this case prolonged, depreciation in the real exchange rate. The outcome for growth was, however, not as cheerful as in Mexico, presumably in part because of the weaker impulse from the strong U.S. economy. The Figure also suggests another reason, that, in contrast to Mexico, the authorities seem to have first attempted to raise interest rates without letting the exchange rate go, only subsequently allowing the weakening. In the event, it is worth noting that there is no sign that inflation in fact picked up much at all following the depreciation.

Chile's story (Figure 3b) is similar story to that of Peru, though the response of interest rates seems higher relative to exchange rates, and the recession is sharper. Chile went through two episodes of exchange rate pressure, in 1999 and in 2000. In the first episode, there was a sharp increase in interest rates, in the context of a monetary framework with both an inflation objective and an explicit exchange rate objective (in fact a band). Subsequently, in September 2000, the authorities abandoned the band for a freer floating, and the sharp depreciation in 2000 was not accompanied by any interest rate increase. As with the other countries, there is no large jump in inflation associated with this depreciation, while the economy recovered from the recession. One can perhaps infer from this experience either that Chile accrued credibility in 1999, which it subsequently used, or that it learned not to fear floating.

The comparison of Hong Kong and Singapore (Figures 3c and 3f) suggests a parallel with that of Mexico and Argentina. In Hong Kong, in the adjustment, at least initially, was in the form of higher interest rates and a big output drop, while in Singapore we observe a sharp nominal and, eventually, real effective depreciation, with a moderate monetary tightening and no recession. Three differences with Mexico/Argentina are worth noting. First, Singapore allowed only a brief and fairly modest interest rate response. Second, one cannot

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[10] On Mexico's experience during this period, see Carstens and Werner (1999). It is striking to note the strong trend appreciation in the real exchange rate through the period under examination. It might be noted that this follows the sharp real depreciation of 1995. Of course Mexico benefited from the strong growth in the United States during this period, but the deviation in the real exchange rate from the trend appreciation is perhaps all the more remarkable.

attribute its strong growth performance to its location. And third, the small size and flexibility of the Hong Kong economy emerge in the large, though lagged, disinflation (at a five percent annual rate) that did ultimately lead to a substantial real exchange rate adjustment.

This anecdotal evidence is suggestive of several tentative observations. (i) The floating exchange rate countries do in fact allow exchange rates to move in response to shocks, though interest rate responses are also sharp sometimes. (ii) There is some suggestion that exchange rate flexibility may have been helpful for output. (iii) Peru's high degree of dollarization did not preclude some exchange rate response. (iv) At least for Mexico, real interest rates seem to have declined recently in response to the recession. (v) There is no clear sign that pass-through has been extremely high following the exchange rate adjustments in these floating exchange rate countries. (vi) Hong Kong's size and flexibility clearly make it a more plausible candidate for fixing than Argentina, and this shows up in the much more rapid response of prices to the need for a real depreciation. (vii). There is some evidence for gradual improvement in the effectiveness of floating regimes, at least in the case of Chile.

This perusal of cases can hardly be definitive, and others will no doubt look at these episodes differently.[11] We now turn to more systematic evidence regarding the effectiveness of floating exchange rates in emerging markets.

A Benchmark for Monetary Policy

Much of the discussion of design of optimal policy, especially for advanced economies, has focused on Taylor rules in recent years, following Taylor (1993). In this framework, monetary policy follows a rule of the form:

$$i_t^* = i^* + \boldsymbol{b}(E\{\boldsymbol{p}_{t,k}|\Omega_t\} - \boldsymbol{p}^*) + \boldsymbol{g}E\{x_{t,k}|\Omega_t\}$$

where i_t^* is the target rate for the monetary policy instrument (for example an overnight interest rate), $\boldsymbol{p}_{t,k}$ is inflation between periods t and t + k, $\boldsymbol{p}^*$ is the desired inflation rate, $x_{t,q}$ is the output gap between t and t + q (that is, the gap between desired and actual output). E is the expectations operation, with Ω_t the information available to policy-makers as of time t. $\boldsymbol{p}^*$ is then the desired rate for the monetary policy instrument that would prevail when both inflation and output are at desired levels.[12]

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[11] Viz Hausmann et al. (1999), for example.

[12] This discussion follows quite closely Clarida, Galí and Gertler (2000).

This formulation is quite general: it says that the policy maker tries to move the monetary policy instrument so as to achieve some success at both keeping inflation on track and at reducing the output gap. Note that the instrument usually is the interest rate, but it could be a monetary aggregate as well.[13] The values of the coefficients â and ã are useful summaries of policy. On the standard view that higher real interest rates contract both output and inflation, a coefficient of â above 1 suggests that policy will be stabilizing for inflation. Similarly, a coefficient of ã above 0 would be stabilizing for output. Strict inflation targeting would be a restricted form of equation (1), in which the weight on the output gap is zero. (The output gap would still be in Ω, so it would still matter for policy, a point to which we return below.)

A policy of the general Taylor-rule sort can be derived for a central banker in a closed economy who has a quadratic loss function in deviations in inflation and output from their targets, in an economy with nominal price rigidities. More generally, the Taylor rule benchmark is buttressed by the observation that the rule has provided a reasonably accurate way of describing how advanced economy central banks behave, notably those of the United States, Germany and Japan.

This theoretical literature was developed with reference to closed economies. It seems, however, that much of the closed economy story remains in open economies with floating exchange rates. The most obvious complication is the effect of the exchange rate, which provides additional channels for monetary policy to operate. The main effect is that interest rate contractions now affect inflation more rapidly through the exchange rate appreciation they induce, while their contractionary effect on output is also enhanced by the appreciation. Thus, smaller changes in the interest rate are appropriate for a given deviation from equilibrium values of output and inflation.[14] Note also that a standard Taylor rule formulation would include the exchange rate only to the extent that, as part of Ω, it helps predict inflation or output gaps. Thus, strict exchange rate targeting is inconsistent with this rule.

The Taylor Rule in the Tropics

We consider three characteristics of (many) emerging markets that may make a Taylor rule impractical: a lack of policy credibility, high inflation pass-through, and financial fragility with respect to exchange rate movements. If lack of credibility of the central bank leads markets to interpret any loosening as a permanent shift towards higher inflation, there is no

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[13] Taylor (2000) notes that especially for emerging markets, a monetary instrument may make more sense, essentially when uncertainty about velocity of money is less than uncertainty about measuring the real interest rate or if there are large real shocks, such as to export demand.

[14] Eichengreen (2002) shows this in a very simple model. Svensson (2000) reaches broadly similar conclusions based on simulations of a much more elaborate framework.

benefit to discretion. High inflation pass-through implies that exchange rate devaluations will end up being predominantly inflationary, rather than expansionary. Note that high pass-though may well be a function of lack of credibility, as wage and price setters interpret movements in the exchange rate as signaling a loosening of monetary policy, rather than a change in relative prices. Finally, exchange rate movements might have drastic real effects through their implications for the balance sheets of banks and firms, as well as the government.

Poor credibility and high pass-through coefficients imply would make the central bank less willing to disregard exchange rate fluctuations when using monetary policy for domestic objectives. The implication of balance sheet effects for optimal monetary policy is more complicated. The most obvious implication is that devaluations are less strongly expansionary, as the negative balance sheet effects on output counteract the stimulative effect on net exports. Only if balance sheet effects are so strong that devaluations are contractionary the appropriate policy is to raise interest rates sufficiently to prevent movements of the exchange rate, and in this case the (implausible) implication is that exchange rate overvaluation is good for output.[15]

Do floating exchange rate emerging markets follow effectively a form of Taylor rule? For comparison, Clarida, Galí and Gertler (1997) present baseline estimates suggesting that the G3 central banks have since the 1980s raised (expected) real interest rates when inflation was high and lowered them when output was below equilibrium (Table 9 lines 1 through 4).[16] Table 9 also shows some roughly comparable results from the literature for Chile and Peru, from Corbo (2000) and Morón and Castro (2000).

The evidence is not conclusive but is consistent with the view that these emerging markets did make effective use of monetary policy. Most notably, the coefficient β is roughly comparable across the three advanced and two emerging market economies, though not significantly different from 1 in the case of the emerging markets. Thus, there is some weak evidence that these two countries can manipulate their real interest rate (in the case of Chile) and money supply (in the case of Peru) in response to expected inflation. It is important to emphasize that even if the coefficient on the output gap ($\tilde{a}$ in equation (1)) is zero, a regime in which the authorities respond only to inflation is still more countercyclical than a hard peg or dollarization, where uncovered interest parity suggests that the real interest rate increases when inflation is low. A non-zero value for $\tilde{a}$ is evidence that in addition to responding to the output gap through its effects on price pressures, the authorities respond to it directly.[17] In

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[15] Eichengreen (2002) and Céspedes, Chang and Velasco (2001).

[16] The Fed seems to have given more emphasis to output after the initial disinflation period of 1979 through 1982 (line 4).

[17] It might be interesting to examine the first-stage regressions that underlie these results. In other words, it might be interesting to see to what extent shocks such as foreign interest rates,

(continued)

addition, there is evidence of multiple objectives, in that for Chile a specification that includes the current account deficit (another announced objective of the central bank) works better, while in Peru deviations in the real exchange rate from trend are resisted by the authorities.

These results are inevitably tentative. Compared to the developed country examples, the time series are short and the monetary policy regimes are changing during the sample, as we noted in the section above specifically for Chile. For Peru, Morón and Castro (2000) argue that during the turmoil of 1998/1999 the authorities were especially conscious to avoid depreciation, and they show econometrically that the revealed aversion of the authorities to exchange rate weakness was especially strong during that period. Nonetheless, their results also show some countercyclical response. In addition, it is often more difficult to identify the instrument of monetary policy in emerging markets, most notably where the authorities attempt to control a monetary aggregate but do so only imperfectly at all horizons.[18]

Terms-of-trade shocks

A complementary approach to looking at general monetary policy reaction functions is to ask whether emerging market floaters respond appropriately to specific shocks. We consider first shocks to the terms of trade. These "experiments" are especially useful since the terms of trade are particularly likely to be exogenous to monetary policy and because theoretical predictions of appropriate policy response are also fairly clear. A negative shock to the terms of trade shocks should depreciate the exchange rate. [19] It might be appropriate for monetary

the terms of trade, or the exchange rate itself feed in to expected output and inflation and hence into monetary policy responses. (It would seem that Corbo (2000) did not include such variables in his first-state regressions.)

[18] Edwards and Savastano (1998) attempt to estimate a monetary policy reaction function for Mexico during the 1996 – 1997 period, though using somewhat different techniques. Hausmann et al. (1999), in a somewhat similar exercise, regress real interest rates on the output gap, and find that the correlation is negative, implying higher real rates during recessions. They note, though, that these results for emerging markets are similar to the U.S. (at least during low inflation periods). We know, though, from various Taylor-type regressions for the U.S. that monetary policy seems countercyclical. The difference may lie in the fact that one way to think about the Hausmann et al. (1999) regressions is that they are like Taylor-rule regressions that omit the inflation rate and are backward looking, in that only current or lagged output matters, not expected future output.

[19] Chen and Rogoff (2001) point out that it is a general feature of many plausible models that the nominal exchange rate should depreciate with negative terms of trade shocks. With sticky domestic prices, for example, a permanent change increase in the terms of trade will call for an almost corresponding appreciation to keep the relative price of domestic goods in line. In

(continued)

authorities to "lean against the wind" by raising interest rates, since inflation will rise. The "fear of floating" should not be absolute, however; output will also be lower because of the negative shock, directly motivating lower interest rates through the second term in equation (1) and also implying countervailing downward pressure on inflation. To the extent that emerging markets central bank lack credibility, face high pass-through, or view devaluations as contractionary, a sharper interest rate response and very limited depreciations might be appropriate, as discussed above.

There is some evidence that emerging market floating exchange rate countries do, in fact, usefully depreciate in response to negative terms of trade shocks. Broda (2000) looks at a sample of 73 developing countries since 1973 and examines whether the business cycle response of real GDP, the real exchange rate and inflation to terms of trade shocks differs systematically across exchange rate regimes. He finds that, in response to negative terms of trade shocks, fixed exchange rate regimes observe real exchange rate depreciations only after two years, while they suffer large and significant losses in terms of real GDP growth. Floating exchange rate countries, on the other hand, observe immediate large nominal and real depreciations, some inflation, and much smaller output losses. A final conclusion from Broda (2000) is that countries that are highly de facto dollarized according to Baliño et al. (1999) do not look different in this regard. That is, when the regressions are run only for a sample of highly dollarized economies, it remains the case that floating exchange rate countries respond to negative terms of trade shocks with much larger real depreciations and much smaller output losses, while the inflationary impact is minor.

On the other hand, the broad-brush panel approach hides many country idiosyncrasies, and as many have noted, the available systematic exchange rate classifications are not entirely convincing. Moreover, the approach is short-run, in that the interest is on responses to shocks in a horizon of a few years. A complementary approach comes from considering how the nominal exchange rate responds to long-run trends that affect the equilibrium real exchange rate. One potential advantage of a floating, compared to a fixed exchange rate regime might be that it could allow the real exchange rate to trend, as necessary given underlying economic forces, without demanding changes in the price level, as would be the case with dollarization or a hard peg. Chen and Rogoff (2002) examine the long-run relationship between the real exchange rate and real commodity prices for three small open developed countries, Canada, Australia and New Zealand. They find that world real commodity prices have a strong and fairly stable relationship with the real exchange rate of New Zealand and Australia, while the result is less clear for Canada. For example, a long depreciating trend in the Australian real exchange rate can be explained in terms of a similar downward trend in the real commodity prices of Australia's main exports. In the absence of a floating exchange rate, Australia

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the Dornbusch (1976) model, similarly, a permanent change in the terms of trade requires a full adjustment of the nominal exchange rate, in order to reproduce the flexible price equilibrium.

would have had to have deflation (relative to its low-inflation trading partners) over two decades to achieve a similar adjustment.

Does this sort of result hold for emerging markets as well? In more recent work, Cashin and Sahay (forthcoming) show that the real (and nominal) depreciation of the South African rand over the two decades since 1979 is explained by a continued decline in the real price of its commodity exports. Similarly, then, to Australia, South Africa would have had to suffer ongoing relative deflation, or progressively more relative overvaluation of the currency, in the absence of the ability to depreciate the exchange rate.

These two sorts of evidence, taken together, provide a compelling set of examples of situations in which the ability to float the exchange rate can ease adjustment to real external shocks, both in the short run and over long horizons. It will be interesting to see if these results extend to other emerging markets.

Foreign Interest Rate Shocks

An increase in the foreign interest rate will, like a negative terms of trade shock, tend to depreciate the exchange rate and hence cause inflation. Thus, equation (1) implies some contractionary monetary policy response. Again, however, since the monetary policy response will itself reduce output, the monetary authority should "lean against the wind" but not fully offset the shock.[20] Unlike terms of trade shocks, however, permanent shocks should be more fully offset, as inflation will not tend to come down over time in the absence of a reduction in output. More generally, uncovered interest parity implies that a permanent increase in the foreign interest rate requires, in the long run, a corresponding increase in the domestic interest rate to maintain a stable inflation rate and output gap, independent of the exchange rate regime.[21] However, temporary shocks should be less than fully offset.

Hausmann et al. (1999) find that the reaction of domestic rates to U.S. rates is insignificantly different across regimes using monthly data from 1960 to 1998 for 11 emerging markets. Moreover, using daily data for 1998-99 for Mexico, Venezuela and Argentina, they find that the reaction of domestic interest rates to the international risk premium is highest in Mexico, the country with the most flexible exchange rate regime. In a more comprehensive study, Frankel, Schmukler and Servén (2000) regress quarterly and monthly domestic interest rates in several emerging market countries on the U.S. Federal Funds rate, along with several

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[20] Eichengreen (2002) makes these points informally. Parrado and Velasco (2001) conclude that, in an optimizing model of a small open economy in the Obstfeld and Rogoff (1996) tradition, the interest rate should respond counter-cyclically to domestic demand shocks. Moreover a floating exchange rate is still optimal, though the interest rate should offset, but in general only partially, shocks to foreign interest rates.

[21] Eichengreen (2002) emphasizes these points.

controls. They find mixed results: over the long sample floats seem to have some insulating properties, but not for developing countries in the 1990s alone. These sorts of studies suggest a mixed picture. Indeed, they are broadly consistent with our examination of a few cases above: interest rates do indeed go up response to shocks in floating exchange rate countries.

Another perspective, though, is available from Borensztein, Zettelmeyer and Philippon (2001), who examine the response of domestic interest rates and exchange rates to shocks to the U.S. Fed Fund rate and the risk premium to emerging market debt in a small sample of polar extreme regimes (Hong Kong, Singapore, Mexico and Argentina). They attempt to identify the effects of surprises to the U.S. Fed Fund rate, rather than any movements in the rates that may reflect underlying factors affecting both emerging markets and the U.S. For example, unexpectedly high growth in the U.S. could drive up both U.S. and Mexican interest rates, without a direct causal connection. Moreover, they look at the short-run dynamic effects of changes in rates, rather than looking at how the levels of the two rates move together. Finally, they provide a benchmark by comparing their results to those for developed country floaters such as Australia, Canada and New Zealand.

Their main results are that interest rates in Hong Kong seem to react one-for-one to U.S. monetary policy shocks, while interest rates in Singapore increase by about 0.3 basis points (bp) to a 1 bp increase in U.S. interest rates; there is a also a significant but moderate exchange rate depreciation. Singapore looks a lot like the developed countries Australia, Canada and New Zealand. The results for the comparison between Argentina and Mexico with respect to U.S. interest rate shocks are inconclusive. In particular, imprecise estimates for Mexico make it difficult to discern any statistically robust result. There is no evidence, though, that rates in Mexico go up more than in Argentina, unlike Hausmann et al. (1999), while clearly the Mexican exchange rate does depreciate in response to the U.S. shocks, consistent with the results in Frankel, Schmukler and Servén (2000).

To sum up, the evidence on the ability of floating exchange rate regimes to buffer interest rate shocks is broadly inconclusive. Singapore seems to float like a developed country in this sense and looks very different from Hong Kong. The data do not seem to allow the drawing of a clear distinction between Mexico and Argentina. Mexico floats in the sense that the exchange rate does depreciate when the Fed surprises with an interest rate increase, but interest rates tend to go up to.

Inflation Pass-through

Experience in Mexico, Brazil, Russia, and other countries that have undergone extremely large devaluations, is that pass-through has been moderate. We saw in section A that casual observation suggested little pass-through in the countries we looked at there. Borensztein and De Gregorio (1999) and Goldfajn and Werlang (2000) find that where output is below potential, the real exchange rate is initially misaligned, and the initial rate of inflation is low, pass-through is also low. This suggests that, in less extreme conditions, pass-through may be low where countries have established a track record of credibility with respect to their monetary policy in the context of a floating exchange rate, since in this case devaluations will

tend to happen when the exchange rate is overvalued in the first place, while initial inflation will be low.

We present some evidence on this conjecture for Mexico. We have made a crude estimate of inflation pass-through by regressing (the log of) prices on past prices and current and past exchange rate levels in the context of a two-variable VAR in prices and the exchange rate. The figure shows how an innovation of one percent in the exchange rate passes through into changes in the price level over time. The upper curve has been estimated over the 1995 to 1998 period, while the latter curve has been estimated over the 1999 through 2001 period. While these results are only suggestive, they do suggest that pass-through has become lower over time in Mexico since the introduction of floating during the crisis of 1995.[22]

Do emerging markets pay a large price in terms of credibility or volatility?

We have observed a variety of pieces of evidence suggesting that emerging market floaters may be able to loosen monetary and exchange rate policy when domestic conditions are weak or external real shocks call for nominal exchange rate depreciation; they may even be able to buffer external interest rate shocks to some extent. We have not examined the price they may be paying for this flexibility.

First, has there been a price in terms of higher inflation? The answer is generally negative. In recent years emerging market floating exchange rate countries have, in contrast to earlier periods such as the 1970s and 1980s, been able to control inflation.[23]

Second, have emerging market floaters suffered from chronically higher real interest rates as a result of the lack of credibility associated with a float? Hausmann et al. (1999) find that, even looking at lower inflation periods only, real interest rates were significantly higher in floating than in fixed exchange rate countries in the 1990s (9.2 percent versus 5.1 percent). In the much broader sample studied in Ghosh et al. (1997), pegged exchange rate regimes also have somewhat lower average real interest rates. However, they find no systematic difference in the average rate of growth across regimes. This evidence is suggestive of a credibility effect associated with floating exchange rate regimes. It would be interesting to explore if credibility increases as countries gain experience practicing floating exchange rate regimes.

Finally, is exchange rate volatility excessive in emerging market floaters? Note that there is evidence for advanced economies that much of the exchange rate volatility is unrelated to fundamentals. For example, Flood and Rose (1995) find that the only economic variable

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[22] Carstens and Werner (1999) present other evidence to this effect.

[23] We do not discuss here the interesting question about effectiveness of strict inflation targeting versus other methods of managing a floating exchange rate. On this see Corbo et al. (2001), who focus more on emerging markets than most of the literature.

whose behavior depends systematically on the exchange rate regime is the real exchange rate, which is much more volatile in floats. In other words, there is no sign that the volatility associated with floats achieves lower volatility in some other dimension (such as interest rates).[24] For emerging markets, the "fear of floating" argument suggests that exchange rate volatility would be less than in advanced economies. Indeed, interventions in the form of foreign reserve market purchases and sales, and active interest rate polices, are surely characteristics of emerging markets, perhaps in response to what would otherwise be high volatility. Along these lines, Edwards and Savastano (1998) show that the volatility observed in Mexico has not been out of line with that observed in developed country floats, after the immediate post-crisis period of 1995.

VI. Conclusions

We have reviewed the attractions of each "corner" of the exchange rate policy spectrum, the adoption of a common or foreign currency on the one hand, and a floating exchange rate regime on the other, and asked which looks better for the countries of Latin America. From the optimal currency area literature, a high degree of integration promises large gains from trade and few costs to foregoing monetary policy independence to countries that share a common currency. An independent common currency for Latin America does not seem to be especially desirable on the basis of these considerations. For them, the choice in the near term is between floating and dollarization.

We have also seen that there is no obvious case to be made for dollarization on the basis of optimum currency area considerations. Nevertheless, dollarization may be appealing to those countries lacking credibility and where de facto dollarization has already reached high levels. Thus, the ideal candidate for dollarization would be a small economy (not likely to benefit from a floating exchange rate to begin with), with close trade and economic links with the United States (to benefit from the lower transaction costs), with a high degree of spontaneous dollarization and poor credibility for the monetary authority (less seigniorage to be lost, and less likely to benefit from a float). The most likely candidates are many of the countries in Central America., which are small and have high trade shares with the United States, and in some cases also substantially de facto dollarized. For these countries the key will be to find out how big the benefits of dollarization may be in terms of higher integration with the United States, when firm conclusions can be drawn from the cases of Ecuador and El Salvador.

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[24] Jeanne and Rose (2000) suggest in a model how "noise traders" could explain this result. Flood and Rose (1999) instead focus on how volatility in the exchange rate can be self-fulfilling in that it can generate high and volatile risk premia that, in turn, justify the exchange rate volatility. In this context, a *credible* peg could fix expectations around the stable equilibrium and reduce volatility in the exchange rate without increasing volatility elsewhere in the economy.

Many countries in South America have more credibility issues but are economies that may benefit from exchange rate flexibility. Countries such as Brazil, Chile and Colombia seem relatively well suited to float. But is a float viable? Emerging market central banks do not conduct pure floats, in the sense that they in many cases intervene in the foreign exchange market and regularly conduct monetary policy while keeping a close eye on the foreign exchange market. What does this imply? Policy reaction functions, and the behavior of interest rates and exchange rates to shocks of various sorts, suggest that exchange rate fluctuations seem to play a stabilizing role. There is strong evidence that shocks to the terms of trade lead to appropriate adjustments in the exchange rate and hence relative prices, adjustments that would be painful if they had to take place directly through changes in nominal prices instead. There is some (weaker) evidence that floating exchange rate countries can indeed lower interest rates in response to depressed domestic activity and to relatively low inflation.

Some countries do not fit easily in either extreme. Mexico's close trade relations with the United States may suggest a move to a currency union, or even dollarization, over time. However, the Canadian model of floating while tightly integrated to the United States seems a successful model. Argentina is both without the credibility that would make floating easy and the characteristics that suggest that dollarization would make sense. While floating is probably the most viable option, the road ahead looks difficult in either case.

We have painted a fairly static picture. If performance under floating regimes can remain acceptable in terms of overall price stability, one can hope for a number of developments that will further enhance this effectiveness. Wage indexation and backward looking inflation expectations in general may disappear as the central bank gains in credibility.[25] Firms may change their financial structure to reduce their vulnerability to exchange rate fluctuations, minimizing the magnitude of balance sheet effects.[26] We saw some hint of such improved performance in our examination of the Chilean experience of 1998/2000 and some evidence in the case of Mexico. On the other extreme, increased trade liberalization and further integration with the United States, combined possibly with positive examples from recent dollarizers, may make dollarization an easier choice in the future as well. In both cases, the move towards the corners will continue.

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[25] Corbo et al. (2001) argue that this has been observed in Latin American inflation targeters in the 1990s.

[26] Eichengreen (2002) make the point that, even if the economy on the whole cannot reduce its exposure to foreign-currency-denominated debt, firms can rearrange it so as to minimize risks. Martinez and Werner (2001) find some evidence that the floating exchange rate in Mexico has reduced foreign currency mismatches in the borrowing of Mexican firms over the 1992 to 2000 period.

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Table 1. Exchange Rate Regimes and Monetary Targets: South America and Central America, 1985-2001.

	1985	1990	1995	2001	Target playing a role in 2001
South America					
Argentina	Intermediate	Float	Hard Peg	Hard Peg	--
Bolivia	Float	Intermediate	Intermediate	Intermediate	exchange rate
Brazil	Intermediate	Intermediate	Intermediate	Float	inflation rate
Chile	Intermediate	Intermediate	Intermediate	Float	inflation rate
Colombia	Intermediate	Intermediate	Intermediate	Float	inflation rate
Ecuador	Intermediate	Intermediate	Intermediate	Hard Peg	exchange rate
Paraguay	Intermediate	Float	Float	Float	--
Peru	Intermediate	Float	Float	Float	monetary aggregate
Uruguay	Float	Intermediate	Intermediate	Intermediate	--
Venezuela	Intermediate	Float	Intermediate	Intermediate	exchange rate
Central America					
Costa Rica	Intermediate	Intermediate	Intermediate	Intermediate	exchange rate
El Salvador	Intermediate	Intermediate	Intermediate	Hard Peg	exchange rate
Guatemala	Intermediate	Float	Float	Float	--
Honduras	Float	Intermediate	Intermediate	Intermediate	exchange rate
Mexico	Intermediate	Intermediate	Float	Float	monetary aggregate
Nicaragua	Intermediate	Intermediate	Intermediate	Intermediate	exchange rate
Panama	Hard Peg	Hard Peg	Hard Peg	Hard Peg	exchange rate

Source:

Exchange Arrangements and Exchange Restrictions, Annual Reports, International Monetary Fund, 1985-2001.

Notes:

The IMF classification is based on countries' self-reporting. Since 1998, the classification incorporates the IMF staff's views. The data prior to 2001 in this table has been corrected on the basis of the IMF staff's views. In early 2002, Argentina and Venezuela moved to floats. Hard pegs include currency unions and currency board arrangements. Intermediates include pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands. Floats include managed floats and independent floats.

Table 2. Integration in Global Financial Markets: Latin American Countries, 1980-1999.

	Emerging Market 1/	Capital controls 1990-1999 2/	De facto openness 3/		Trade Openness	
			1980-1989	1990-1999	1980-1989	1990-1999
South American Countries						
Argentina	yes	1.0	4.0	11.6	7.8	9.5
Bolivia	no	1.7	10.4	9.0	25.9	22.4
Brazil	yes	4.0	4.4	6.4	9.1	9.0
Chile	yes	3.3	13.6	15.6	25.9	29.7
Colombia	yes	3.3	5.0	6.1	14.3	17.9
Ecuador	yes	2.0	10.4	7.0	23.2	28.7
Paraguay	no	1.0	5.4	3.8	23.2	46.6
Peru	yes	0.3	5.4	6.4	11.8	15.0
Uruguay	no	0.3	10.1	7.4	24.1	19.8
Venezuela	yes	1.0	5.2	17.1	22.5	25.7
Median		1.3	5.4	7.2	22.9	21.1
Weighted average		1.8	5.2	9.2	12.0	13.4
Central American Countries						
Costa Rica	no	0.3	8.6	6.4	35.9	41.4
El Salvador	no	0.7	3.4	4.1	24.5	27.2
Guatemala	no	1.0	4.4	5.1	18.9	21.6
Honduras	no	2.3	5.7	6.4	29.3	43.6
Mexico	yes	1.0	4.8	8.4	14.7	24.5
Nicaragua	no	0.3	8.4	29.7	26.4	45.9
Panama	no	0.0	203.2	49.6	34.9	38.1
Median		0.7	5.7	6.4	26.4	38.1
Weighted Average		1.0	8.0	8.8	16.1	25.4
Asian Emerging Markets						
Median		1.8	4.3	7.6	24.0	30.5
Weighted Average		2.5	3.5	6.9	17.7	24.4
All Emerging Markets						
Median		2.0	5.4	8.2	27.1	31.9
Weighted Average		2.2	4.5	8.4	19.9	24.1

Sources: International Financial Corporation; *Exchange Arrangements and Exchange Restrictions* and *International Financial Statistics*, International Monetary Fund.

1/ IFC definition

2/The index of capital controls ranges from 0 to 4 and it is the sum of four dummy variables that take the value of one if the country has (a) multiple exchange rates, (b) current account restrictions, (c) capital account restrictions, (d) export proceeds surrender requirements, respectively.

3/ Absolute value of inward and outward flows of financial assets and liabilities (the sum of the absolute values, if available, of IFS lines 78bdd, 78bed, 78fd, 78bgd, 78bhd, and 78bid), as a ratio of GDP.

Table 3. Latin American Countries: Trade Shares, 2000.

	Trade Share with			
	Euro Area	Japan	United States	Western Hemisphere
South American countries				
Argentina	20.9	2.4	15.7	0.6
Bolivia	15.8	2.1	16.4	0.0
Brazil	25.9	4.9	23.5	0.5
Chile	21.3	9.3	18.4	0.0
Colombia	15.0	3.1	42.8	0.0
Ecuador	13.6	4.8	34.9	0.2
Paraguay	10.3	1.9	12.9	0.9
Peru	21.0	4.9	28.8	0.1
Uruguay	17.5	1.6	9.2	0.0
Venezuela	8.3	1.4	46.1	6.4
Median	16.6	2.7	20.9	0.2
Weighted Average	21.5	4.0	24.8	1.0
Central American countries				
Costa Rica	20.9	3.0	42.4	0.0
El Salvador	10.8	1.5	48.8	0.6
Guatemala	8.5	2.7	44.4	0.4
Honduras	6.0	2.4	62.7	4.2
Mexico	6.1	2.2	80.4	0.2
Nicaragua	9.0	3.5	35.8	0.2
Panama	11.2	4.8	35.5	9.6
Median	9.0	2.7	44.4	0.4
Weighted Average	6.7	2.3	76.7	0.4

Source:
Direction of Trade Statistics , International Monetary Fund.

Table 4. Correlation Matrix of Spread Residuals.

A. Long Sample, 1/07/1998 to 11/28/2001.

	Argentina	Brazil	Ecuador	Mexico	Panama	Peru	Venezuela	Bulgaria	Morocco	Nigeria	Philippines	Poland	Russia
Argentina	1.00												
Brazil	0.40	1.00											
Ecuador	-0.23	-0.41	1.00										
Mexico	-0.46	-0.02	-0.26	1.00									
Panama	0.00	0.11	0.13	0.06	1.00								
Peru	-0.01	0.47	-0.30	0.06	0.64	1.00							
Venezuela	0.29	0.34	-0.14	0.21	0.35	0.37	1.00						
Bulgaria	-0.48	-0.06	-0.05	0.50	0.55	0.56	0.35	1.00					
Morocco	-0.06	0.20	-0.43	0.65	0.39	0.45	0.52	0.68	1.00				
Nigeria	0.07	0.22	0.42	-0.33	0.56	0.43	0.36	0.30	0.03	1.00			
Philippines	0.22	0.39	-0.22	-0.07	0.62	0.78	0.56	0.45	0.40	0.62	1.00		
Poland	-0.28	-0.08	0.33	0.35	0.51	0.16	0.29	0.53	0.40	0.54	0.38	1.00	
Russia	-0.52	-0.29	0.01	0.62	-0.35	-0.31	-0.08	0.08	0.12	-0.44	-0.52	0.09	1.00

B. Short Sample, 1/06/1999 1/03/2001.

	Argentina	Brazil	Ecuador	Mexico	Panama	Peru	Venezuela	Bulgaria	Korea	Morocco	Nigeria	Philippines	Poland	Russia
Argentina	1.00													
Brazil	0.61	1.00												
Ecuador	-0.39	-0.28	1.00											
Mexico	0.38	0.57	-0.26	1.00										
Panama	0.73	0.30	0.01	0.23	1.00									
Peru	0.83	0.61	-0.37	0.25	0.78	1.00								
Venezuela	0.37	0.61	0.11	-0.05	0.35	0.51	1.00							
Bulgaria	0.69	0.37	-0.26	0.21	0.64	0.70	0.35	1.00						
Korea	0.63	0.53	-0.09	0.03	0.65	0.76	0.78	0.71	1.00					
Morocco	0.74	0.60	-0.52	0.53	0.52	0.75	0.31	0.79	0.60	1.00				
Nigeria	0.47	0.42	0.33	0.02	0.53	0.49	0.75	0.57	0.80	0.39	1.00			
Philippines	0.72	0.42	-0.07	-0.03	0.77	0.83	0.69	0.72	0.93	0.58	0.74	1.00		
Poland	0.49	0.32	0.35	0.01	0.59	0.44	0.55	0.59	0.75	0.36	0.87	0.70	1.00	
Russia	-0.69	-0.20	-0.11	-0.21	-0.74	-0.50	-0.19	-0.59	-0.44	-0.42	-0.47	-0.60	-0.59	1.00

Source:
morganmarkets.jpmogran.com, JPMorgan.
Note:
Spread residuals are the residuals that result from a linear regression of the country's EMBI plus index on the global EMBI plus index.

Table 5. Correlation matrix of Forward premiums, 7/26/2000 to 2/06/2002.

	Argentina	Brazil	Chile	Mexico	Venezuela	India	Korea	Philippines	South Africa	Thailand	Turkey
Argentina	1.00										
Brazil	0.90	1.00									
Chile	0.57	0.63	1.00								
Mexico	-0.68	-0.58	-0.34	1.00							
Venezuela	0.79	0.61	0.58	-0.75	1.00						
India	-0.82	-0.73	-0.40	0.51	-0.68	1.00					
Korea	0.92	0.81	0.59	-0.63	0.79	-0.76	1.00				
Philippines	-0.08	-0.03	0.33	0.30	-0.18	0.33	-0.16	1.00			
South Africa	0.87	0.72	0.52	-0.48	0.75	-0.78	0.92	-0.07	1.00		
Thailand	0.83	0.76	0.34	-0.39	0.45	-0.67	0.85	-0.08	0.79	1.00	
Turkey	0.65	0.78	0.35	-0.40	0.24	-0.56	0.55	-0.01	0.42	0.67	1.00

Source:
Bloomberg
Note:
Forward premiums are defined as the log of the ratio of the 12 month forward rate or the 12 month non-deliverable forward rate to the spot rate.

Table 6. Correlation matrix of the estimated probabilities of an exchange rate crisis according to the DCSD m

	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Uruguay	Venezuela	Cyprus	Egypt	India	Indonesia	Israel	Korea	Malaysia	Pakistan
Argentina	1.00															
Brazil	0.03	1.00														
Chile	0.21	0.17	1.00													
Colombia	0.14	0.19	0.65	1.00												
Mexico	-0.22	-0.30	-0.44	-0.24	1.00											
Peru	0.01	0.41	-0.10	-0.26	-0.30	1.00										
Uruguay	0.02	-0.15	-0.07	0.33	0.39	-0.35	1.00									
Venezuela	0.08	-0.21	0.26	0.14	-0.11	-0.13	-0.34	1.00								
Cyprus	0.17	-0.09	0.14	0.53	0.07	-0.15	0.58	-0.21	1.00							
Egypt	0.03	0.13	0.25	-0.04	-0.26	0.13	-0.68	0.68	-0.56	1.00						
India	-0.15	0.36	-0.28	-0.39	-0.20	0.64	-0.62	0.14	-0.49	0.43	1.00					
Indonesia	-0.11	0.12	-0.10	0.33	0.10	-0.08	0.54	-0.41	0.42	-0.44	-0.16	1.00				
Israel	-0.29	-0.08	-0.48	-0.28	0.15	0.43	-0.09	-0.03	-0.01	-0.01	0.52	0.25	1.00			
Korea	-0.25	0.12	-0.35	0.10	0.08	-0.05	0.57	-0.53	0.33	-0.53	-0.10	0.74	0.26	1.00		
Malaysia	-0.01	0.10	0.14	0.57	-0.15	-0.22	0.49	-0.23	0.44	-0.32	-0.34	0.81	0.04	0.66	1.00	
Pakistan	-0.21	0.13	0.03	0.28	-0.23	0.08	0.18	-0.19	0.25	-0.30	0.08	0.47	0.24	0.41	0.53	1.00
Philippines	-0.25	0.11	-0.11	0.15	-0.19	0.18	-0.07	0.05	-0.19	0.15	0.43	0.28	0.35	0.30	0.39	0.34
South Africa	0.00	-0.25	-0.37	-0.22	0.38	0.11	0.31	-0.26	0.13	-0.34	0.10	0.42	0.44	0.39	0.15	0.31
Sri Lanka	0.06	-0.10	-0.03	-0.15	-0.18	-0.12	-0.54	0.49	-0.36	0.63	0.24	-0.29	-0.01	-0.35	-0.16	-0.15
Thailand	-0.14	-0.01	0.00	0.47	0.05	-0.25	0.62	-0.36	0.49	-0.49	-0.36	0.90	0.11	0.77	0.91	0.54
Zimbabwe	0.03	0.37	0.12	0.02	-0.23	0.18	-0.16	-0.25	0.04	-0.16	0.05	-0.15	-0.15	0.03	-0.01	-0.04

Source:

International Monetary Fund.

Note:

For the methodology used to compute the probabilities, see Berg and Pattillo (1999) and Berg, Borensztein, Milesi-Ferretti, and Pattillo (2000).

Table 7. Latin America: Legal Central Bank Independence and Inflation

Country	ICBI [1]	Rate of Inflation		
		1985–95	1996–2000	2001
Argentina	18.5	193.6	-0.4	-1.5
Peru	17.0	299.0	6.1	-0.1
Chile	16.5	16.2	4.8	2.6
Mexico	16.0	41.3	15.7	4.4
Colombia	15.0	24.9	14.4	9.0
Bolivia	13.5	24.6	4.8	0.9
Honduras	13.0	14.4	14.7	8.8
Costa Rica	12.5	18.0	11.3	10.6
Uruguay	12.5	68.5	10.8	3.5
Brazil	12.0	700.9	6.0	7.6
Paraguay	10.5	22.6	8.2	8.4
Venezuela	9.5	40.6	35.4	12.3
Dominican Republic	7.0			
Guatemala	7.0	17.4	6.8	9.2

1/ Index of Legal Central Bank Independence. Source: Jacome (2001). Maximum value (most independent) is 19.

Table 8. Latin America: Foreign Currency Deposits as a share of Total

	1992	1993	1994	1995	1996	1997	1998	1999	2000
South America									
Argentina	50.7	52.9	55.7	57.3	57.6	56.3	58.4	61.9	64.7
Bolivia				92.6	92.2	92.2	92.1	92.8	92.5
Chile		8.6 (92-95)			4.3	3.7	6.9	10.5	12.5
Ecuador	7.0	8.7	11.8	17.8	24.8	32.0	46.4	39.9	
Paraguay	42.3	49.5	46.1	40.1	44.6	51.0	59.4	63.7	
Peru						72.0	74.7	77.1	78.2
Uruguay		81.4	82.0	82.5	83.7	83.9	84.2		
Central America									
Costa Rica	41.8	38.3	40.9	41.6	43.2	44.5	45.7		
El Salvador		4.4	5.5	5.9	7.0	8.0	8.2		
Honduras			15.3	20.8	26.9	24.6	23.2		
Mexico		4.3	7.6	8.8	10.5	3.8	4.0	4.6	4.9
Nicaragua	50.1	59.1	59.7	65.4	69.1	68.4	71.7	70.3	72.8

Sources: *Staff Country Reports* and *Country Desk Data*, International Monetary Fund.

Notes: Brazil and Guatemala are not listed because foreign currency deposits are not allowed. Colombia and Venezuela are not listed because they have negligible foreign currency deposits. Panama is not listed because it is dollarized.

Table 9. Taylor Equations for Various Countries[1]			
	Â	ã	Coefficient on additional variables in eq. (1) (as noted)
1. Germany[2]	1.31 (0.09)	0.25 (0.04)	
2. Japan[2]	2.04 (0.19)	0.08 (0.03)	
3. United States[2]	1.79 (0.18)	0.07 (0.06)	
4. post 82:10	1.83 (0.45)	0.56 (0.16)	
5. Chile[3]	1.24 (0.18)	0.36 (0.32)	
6. including CA deficit deviation from 4% target[4]	1.68 (0.29)	-	0.61 (0.24)
Peru[6] Includes the deviation of the real exchange rate from trend.	-0.00222 (0.00076)	-0.00068 (0.000121	-0.11059 (-0.048)

Notes: All these results derive from GMM (that is instrumented) regressions of the sort described by equation (1) in the text. Standard errors are in parentheses. The developed country results are from Clarida, Galí and Gertler (1997), Chile is Corbo (2000), while Peru is from Morón and Castro (2000).
[2] Monthly data from 1979 through 1994.
[3] Quarterly data from 1990:1 through 1999:4. The dependent variable in this regression is the *real* interest rate; for purposes of comparison we have added 1 to the reported coefficient of 0.236, to correspond to the dependent variable, which is the nominal interest rate in the other regressions. The standard error is not adjusted. Corbo (2000) emphasizes that 0.236 is not significantly different from 0.
[4] Chile has a declared objective of maintaining a current account deficit below 4% of GDP. The observed sign implies that an increase in the deficit led to a counter-cyclical increase in the real interest rate.
[5] For Colombia, Corbo (2000) used the deviation of the unemployment rate from trend rather than the output gap; here we present the opposite sign from that in Corbo (2000),for comparability. It may be that a difference in units explains the difference in magnitudes.
[6] From Morón and Castro (2000), estimated with the change in base money as the dependent variable from Jan 1992 to December 1999. The coefficients are not comparable because of the different dependent variable. The signs are as expected, in that low inflation, low output, and a depreciated exchange rate imply higher subsequent base money growth.

Figure 1. Exchange Rate Regimes, 1990 and 2001.
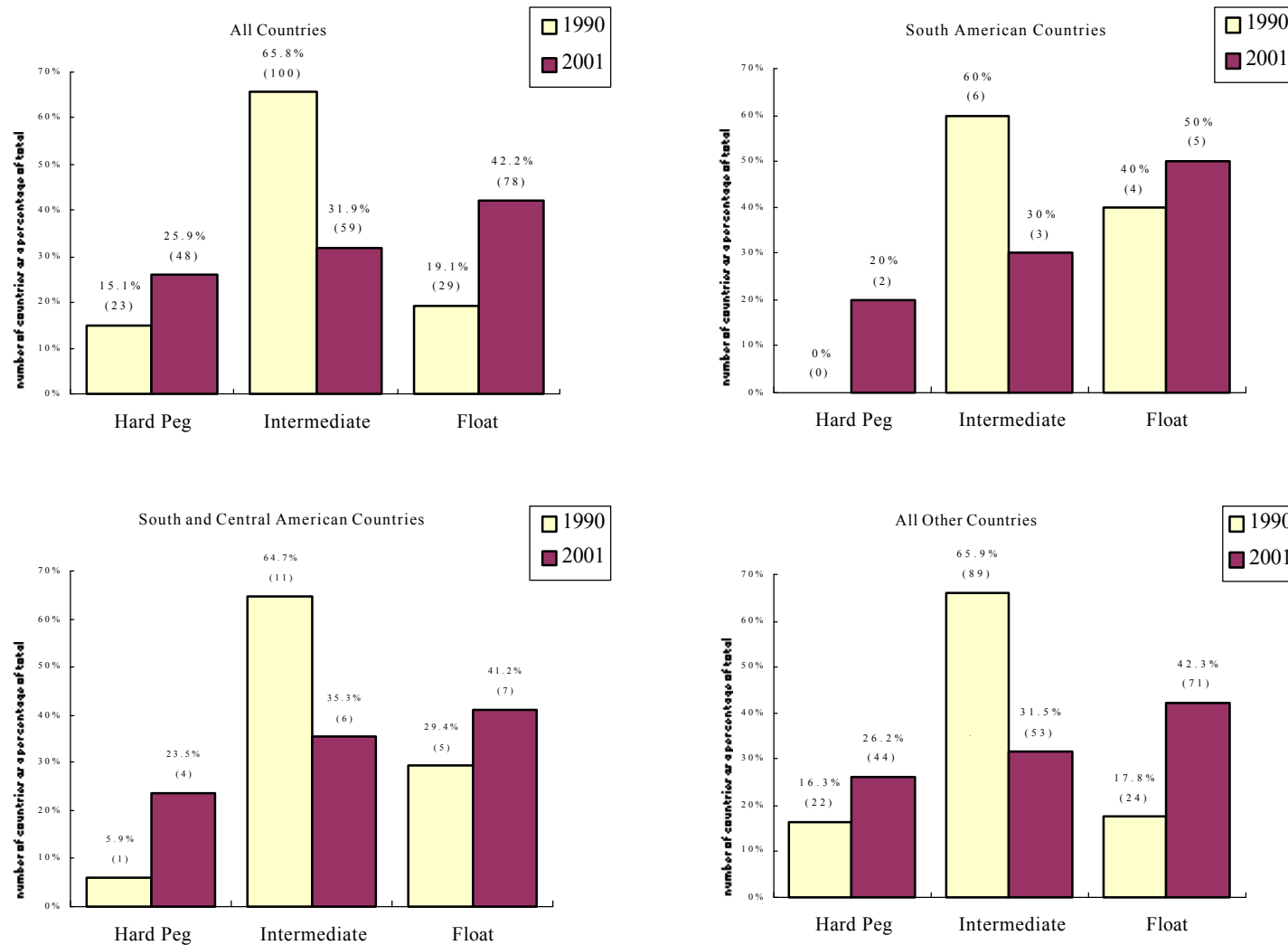
All Countries

	1990	2001

- Hard Peg: 15.1% (23), 25.9% (48)
- Intermediate: 65.8% (100), 31.9% (59)
- Float: 19.1% (29), 42.2% (78)

South American Countries

	1990	2001

- Hard Peg: 0% (0), 20% (2)
- Intermediate: 60% (6), 30% (3)
- Float: 40% (4), 50% (5)

South and Central American Countries

	1990	2001

- Hard Peg: 5.9% (1), 23.5% (4)
- Intermediate: 64.7% (11), 35.3% (6)
- Float: 29.4% (5), 41.2% (7)

All Other Countries

	1990	2001

- Hard Peg: 16.3% (22), 26.2% (44)
- Intermediate: 65.9% (89), 31.5% (53)
- Float: 17.8% (24), 42.3% (71)

Source: Exchange Arrangements and Exchange Restrictions, Annual Reports, International Monetary Fund, 1990 and 2001.
Notes: The data refers to 12/31/1990 and 3/31/2001. The number of countries is in parentheses. For 1990, official classification has been corrected on the basis of IMF staff views. South American countries include Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, Paraguay, Peru, Uruguay and Venezuela. Central American countries include Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama. There are 135 other countries in 1990 and 168 other countries in 2001. Hard pegs include currency unions and currency board arrangements. Intermediates include pegged horizontal bands, conventional fixed peg arrangements, crawling pegs and crawling bands. Floats include managed floats and independent floats.
and independent floats.

Figure 2. Latin America: Private Deposits Abroad, 1983-2001.
## (in millions of US dollars)
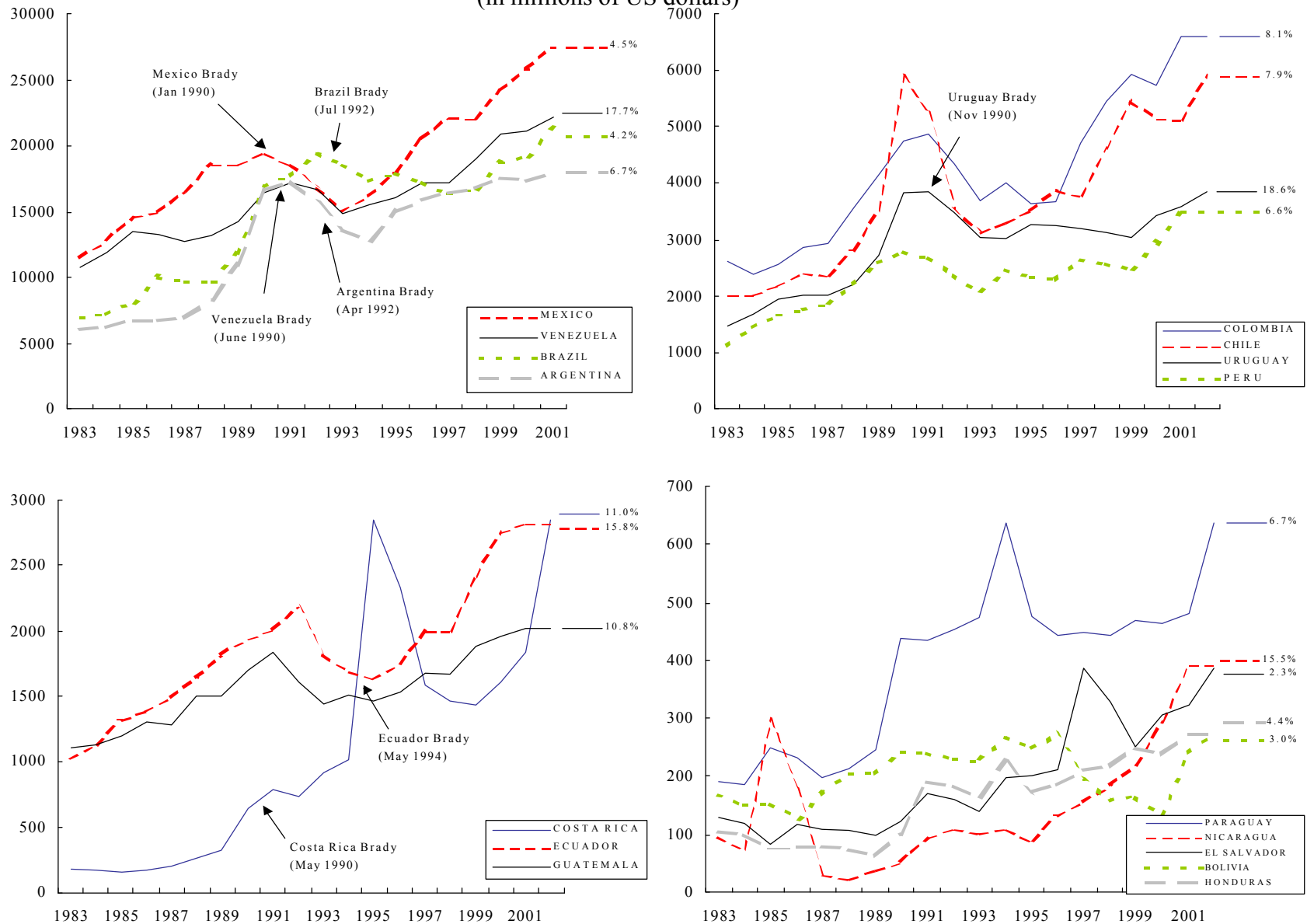

Source: Bank of International Settlements database.
Notes: Total outstanding liabilities of BIS-reporting banks vis-a-vis non-bank residents of Latin American countries. The right hand side labels represent the 2001 liabilities of each country as a percent of GDP. Arrows indicate the times of the countries' respective Brady plans.
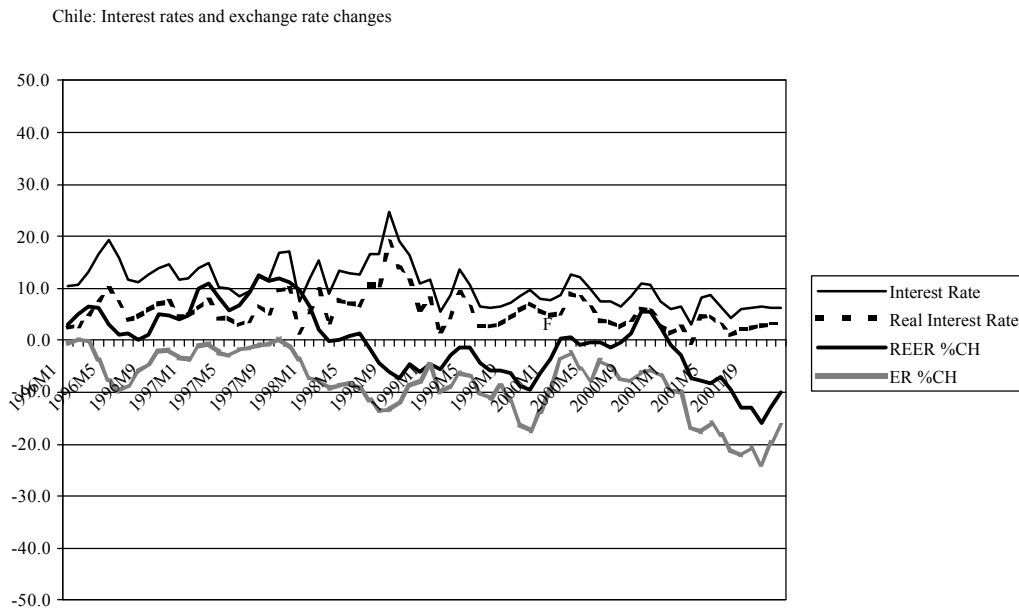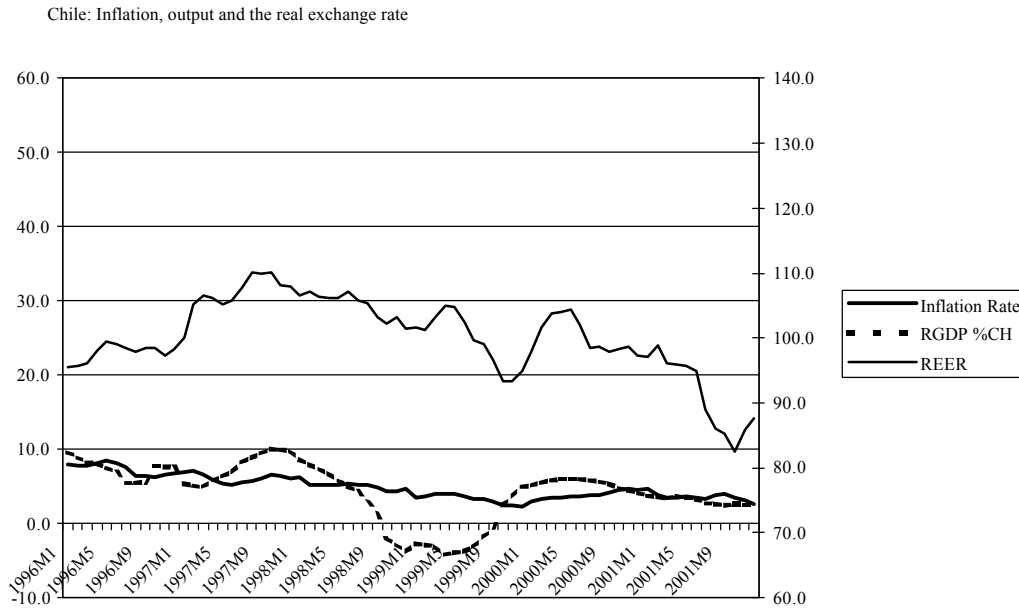
Figure 3a. Argentina

Argentina: Inflation, output and the real exchange rate
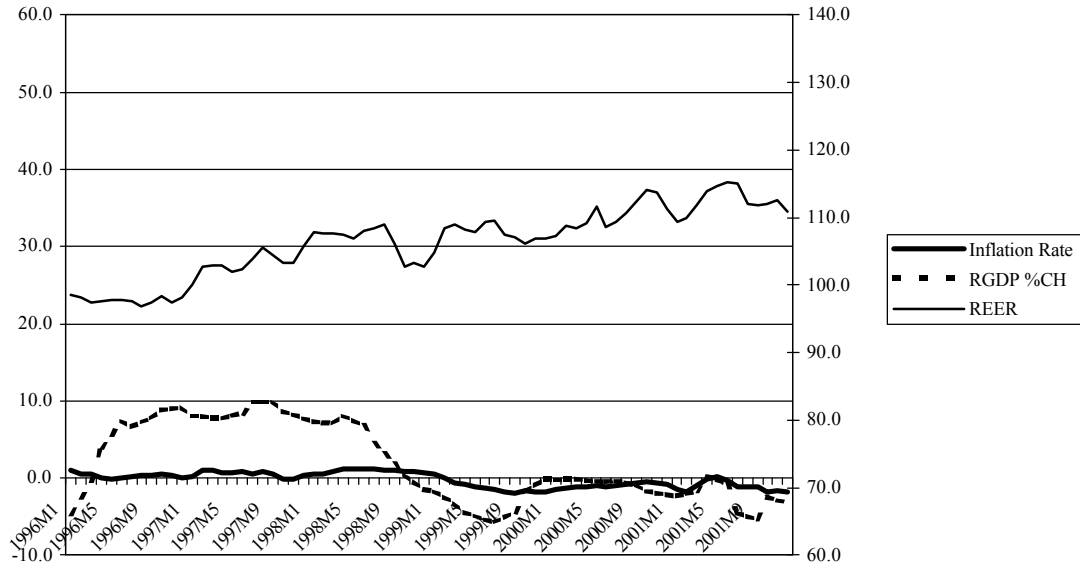
Argentina: Interest rates and exchange rate changes
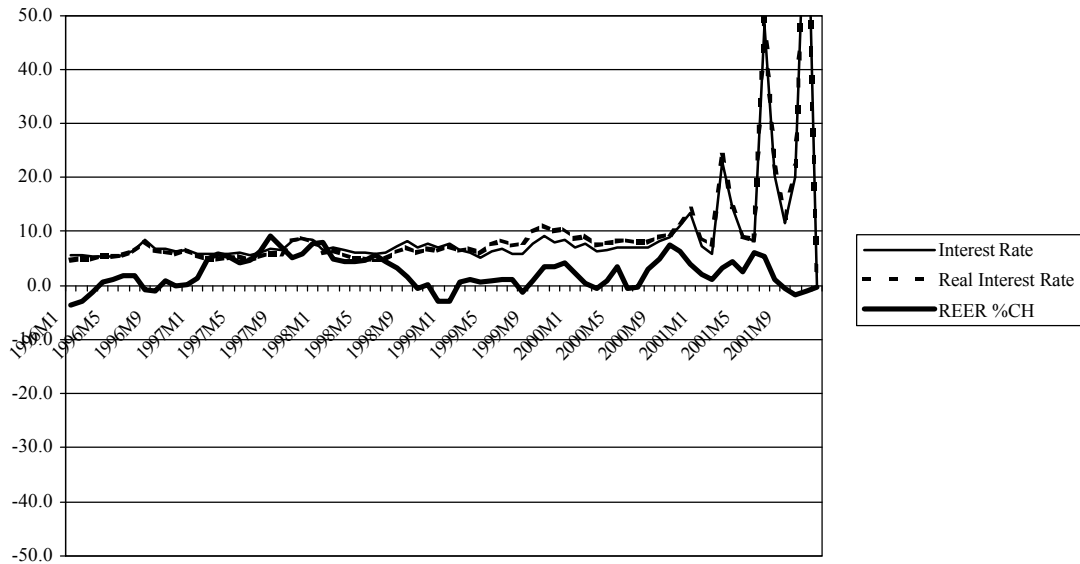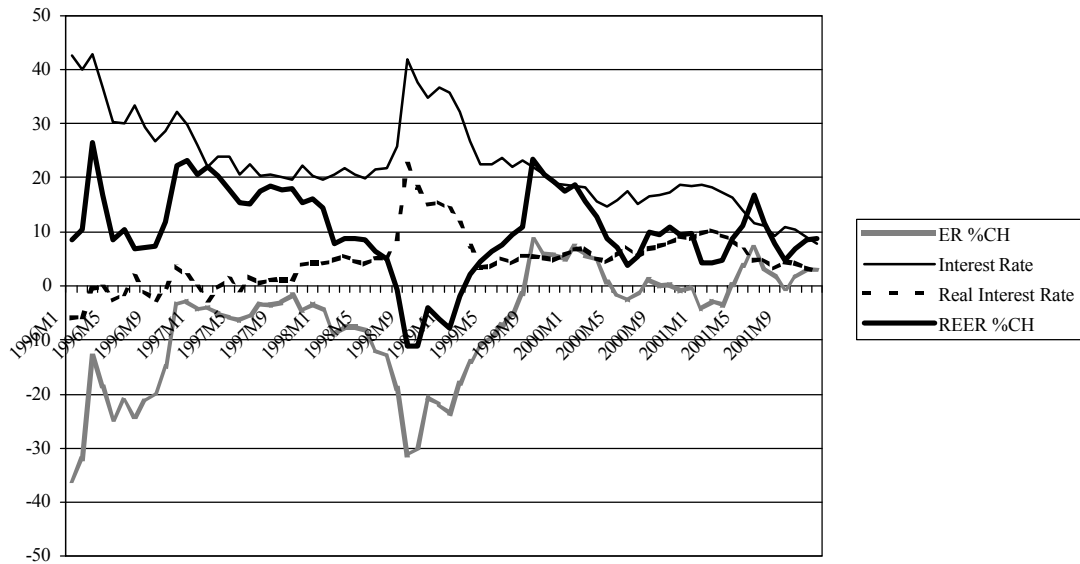

Source: IMF

Figure 3b. Chile

Chile: Inflation, output and the real exchange rate

Chile: Interest rates and exchange rate changes

Source: IMF
Both Real effective exchange rate (REER) and the exchange rate (ER)
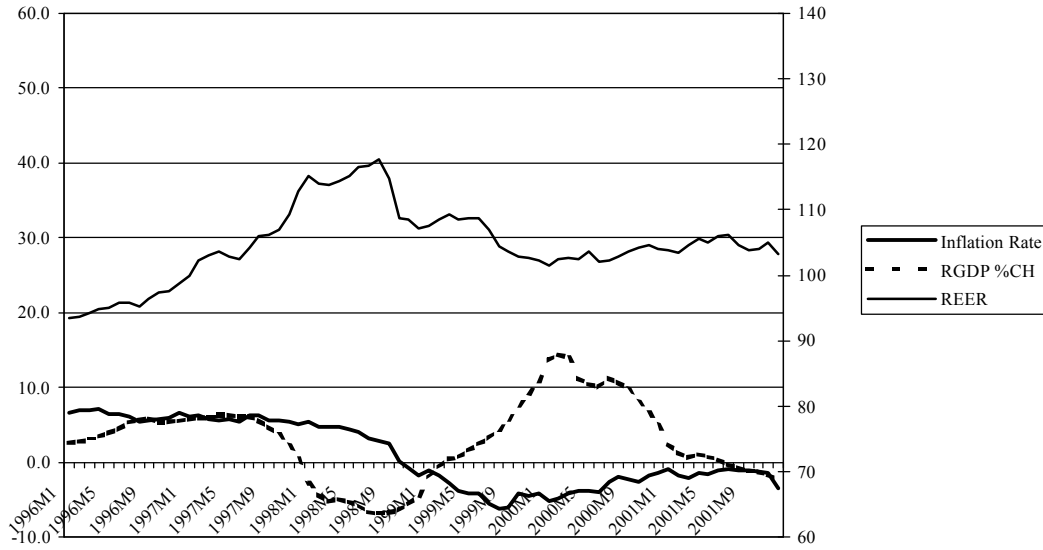are defined so an increase is an appreciation.

Figure 3c. Mexico

Mexico: Inflation, output and the real exchange rate
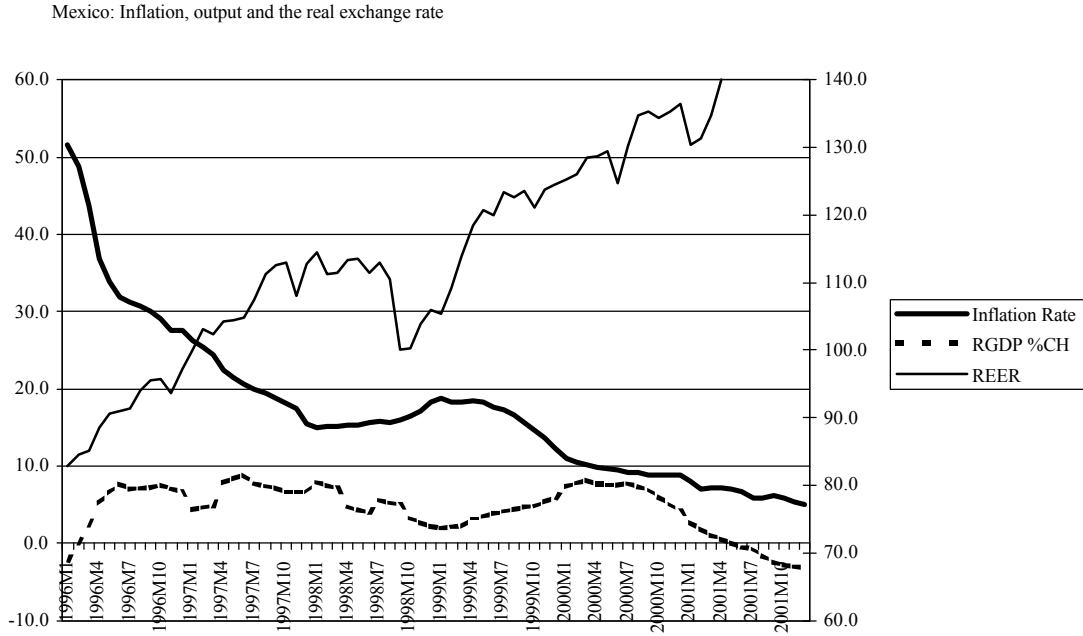
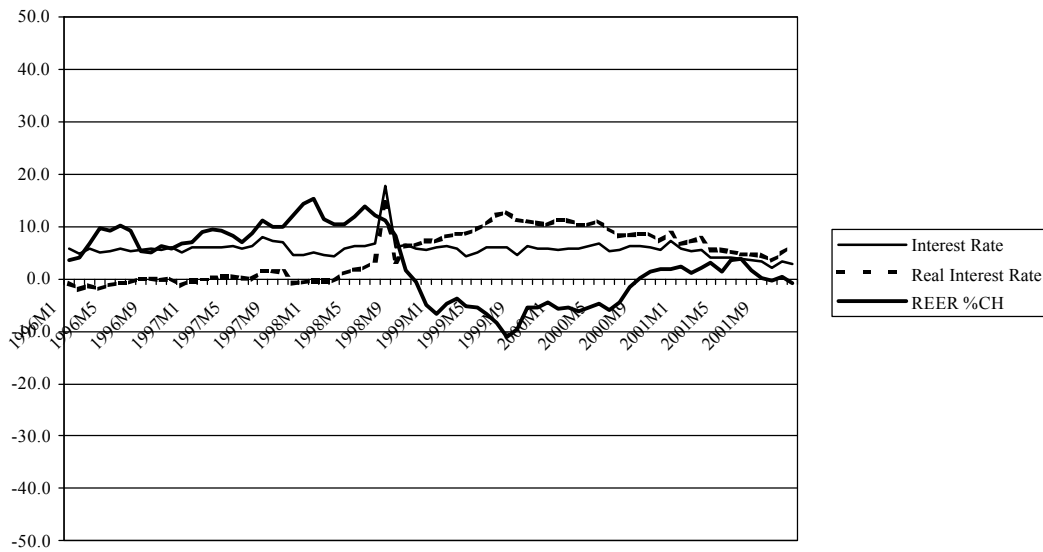Argentina: Interest rates and exchange rate changes

Source: IMF

Figure 3d. Hong Kong

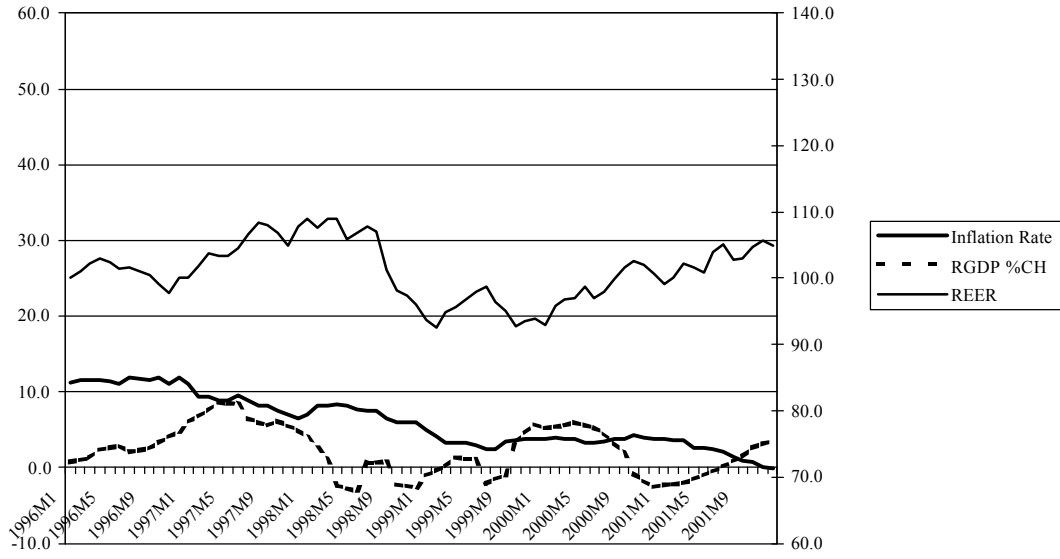Hong Kong: Inflation, output and the real exchange rate

Hong Kong: Interest rates and exchange rate changes
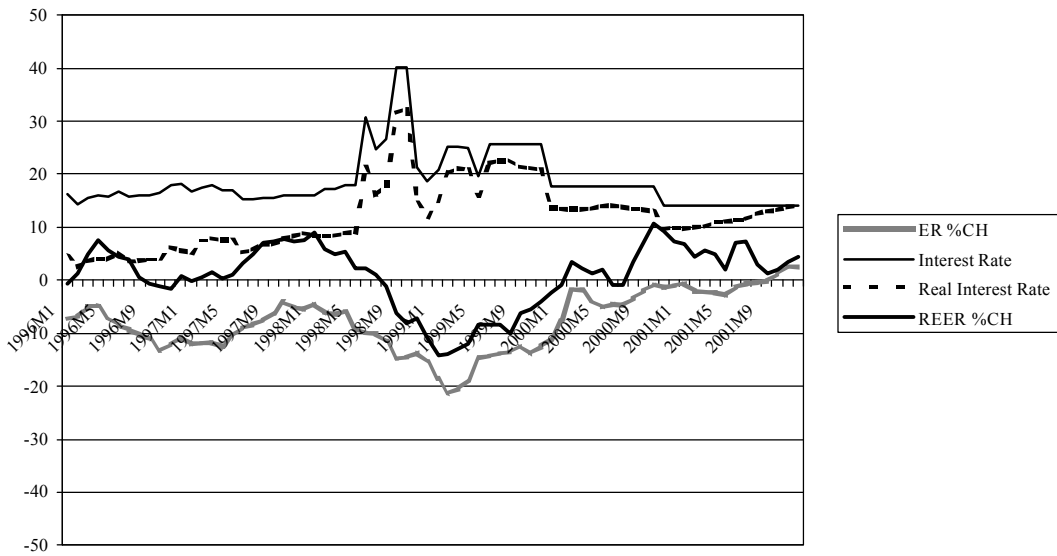

Source: IMF

Figure 3e. Peru
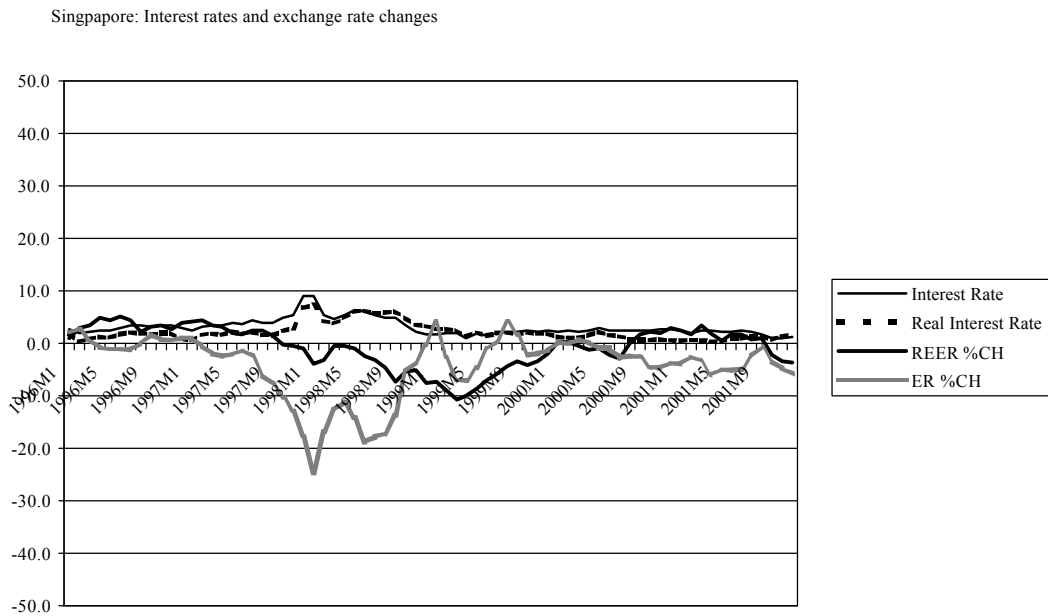
Argentina: Inflation, output and the real exchange rate

Argentina: Interest rates and exchange rate changes

Source: IMF

Figure 3f. Singapore

Singapore: Inflation, output and the real exchange rate

Singpapore: Interest rates and exchange rate changes
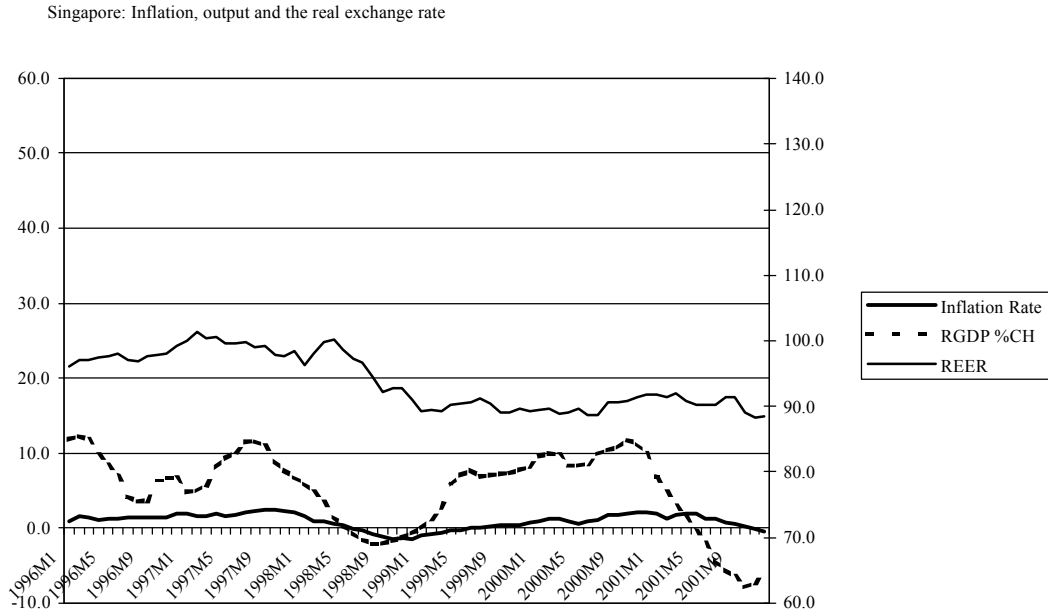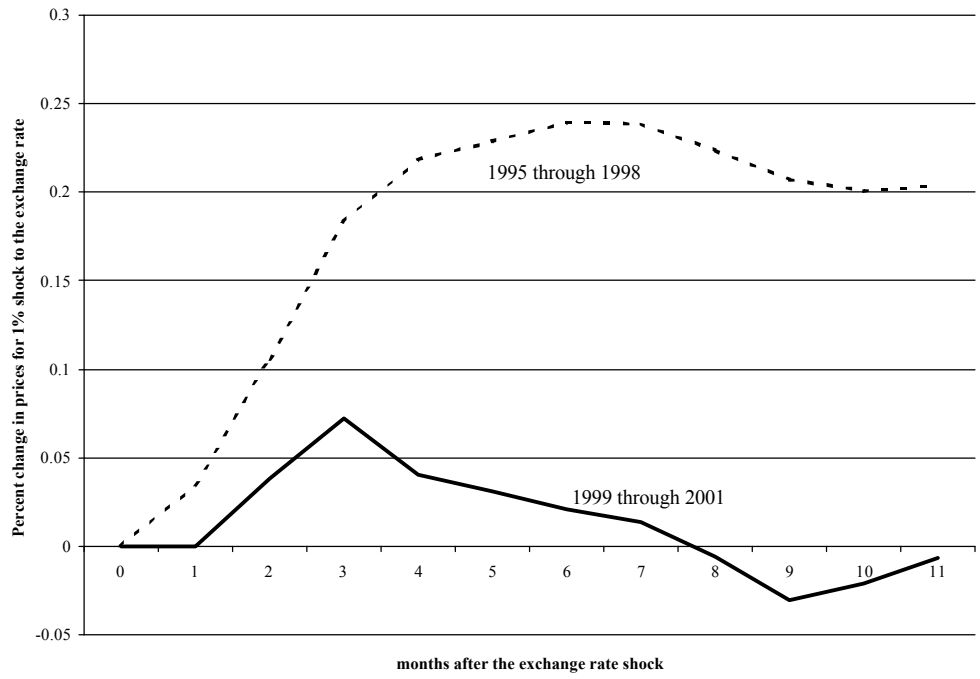

Source: IMF
Both the real effective exchange rate (REER) and the nominal exchange rate (ER)
are defined such that an increase is an appreciation.

Figure 4. Inflation Pass-through in Mexico

1995 through 1998

1999 through 2001

Percent change in prices for 1% shock to the exchange rate

months after the exchange rate shock

Discussion

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This is a very interesting and useful paper. It provides a concise and comprehensive review of the major regime options, recaps and evaluates a variety of country experiences, and assesses the suitability of major monetary policy regimes for Latin American countries. An important, though not surprising, conclusion is that Latin American countries, on average, do not appear to be particularly well-suited for any of the currently fashionable fixed rate regimes, including dollarization and currency union.

While this conclusion is eminently defensible, it should carry a warning label, reminding the observer that Latin America is a vast region whose many countries are stretched along a wide spectrum of characteristics. It would be a mistake to think of them as clustered around some average of common characteristics. To think of those countries as a "common" group involves *classification contagion*, which would be no more justifiable here than in the "guilty-by-association" approach of which investors were accused during the Asian crises of the late nineties.

One of the regimes evaluated in this paper is currency unification. The authors conclude quite rightly that Latin American countries do not appear, on average, to satisfy many of the standard criteria of the theory of optimum currency areas (OCA). It is important to recall, however, that these criteria are relatively static concepts. They were originally developed for and applied to industrialized countries with settled economic structures and well-established and transparent comparative advantage. Since there was little reason to expect significant structural changes among candidate countries, it made sense to assess the suitability of monetary union in terms of existing structures and institution.

It makes less sense to do so in Latin America (and other cases involving emerging markets), where comparative advantage is being created, economic structure is evolving, and institutions are in their infancy. Hence, any monetary regime implemented today must be flexible enough to accommodate structural change. Indeed, it may be important to ask whether and to what extent regime rigidities may prevent emerging economies from reaching their potential?

Assessment of monetary policy regimes must take account of the dynamics of the underlying process. This raises important questions about the endogeneity of OCA and of self-validating processes. The authors are aware of this possibility, but do not make it an integral part of their analysis. Under what circumstances would adoption of a common currency in violation of OCA criteria nevertheless lead two countries with asymmetries to converge structurally and thereby satisfy those criteria ex post? Should currency unification always follow trade, investment and production integration, as it did in Europe, or are there situation in which the sequencing may be profitably reversed?

This question is of immediate relevance to North America, where implementation of NAFTA is giving a major boost to cross-border production sharing between the United States and Mexico. Trading patterns have been changing significantly in recent years, with Mexico's share of U.S. imports at the expense, especially, of Asian suppliers. Mexico's share has particularly strongly in passenger vehicles, textiles and apparel, and consumer electronics.

But this has been more than a shift in the origin of U.S. imports, for it has been accompanied by changes in the composition of trade and in the nature of manufacturing in North America. While goods entering the United States from Asia tend to be largely "made in Asia," substitute products entering from Mexico contain significant amounts of U.S.-made parts and components. When Mexico displaces an Asian supplier in a manner that leaves total imports unchanged, U.S. exports of components rise and the value-added trade balance of the United States improves.

As cross-border production sharing rises in an industry, the domestic and foreign branches are more fully linked and hence more prone to similar shocks. It is a process that brings convergence between two economies which were, and still are, very different or asymmetric in terms of economic structure. It is an example of endogenous economic integration.

Policy discipline and credibility are key ingredients without which no regime can survive. The spread of pessimism about the future of Latin American policies is not independent of pessimism about countries' ability to impose discipline on the policy-making process. The prospects in this area often depend on implementation of policy reforms and here the question arises of whether policy reforms should precede or coincide with implementation of an exchange-rate regime or be allowed to follow?

The experience of EMU suggests the former, but it also suggests that a country acting in concert with like-minded others may find it easier to sustain policy discipline than when it acts

unilaterally. It may not make sense, as the authors suggest, for Latin American countries to establish currency unions today, with or without the United States, but it may make sense for them to establish reform and institution-building agreements designed to create the conditions for eventual monetary integration. While individual Latin American countries have little clout in world financial markets, the group acting together can hope to establish a regional financial system that serves their collective needs better than present arrangements. Over time, such an arrangement may even ameliorate the problem of "original sin."

Recent exchange-rate and financial crises have underscored the important role of foreign borrowing and foreign indebtedness. The authors are well aware of the problem. The trick is to find ways of disciplining foreign asset and liability management in both public and private sectors. Practices such as those in Argentina will bring down any regime. A major objective of structural and institutional reforms must be to strengthen financial markets, within countries, certainly, but within the region as well.

This was a stimulating paper, indeed, and I enjoyed reading it.

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1) vergriffen (out of print)
2) In abgeänderter Form erschienen in Berichte und Studien Nr. 4/1990, S 74 ff
3) In abgeänderter Form erschienen in Berichte und Studien Nr. 4/1991, S 44 ff
4) In abgeänderter Form erschienen in Berichte und Studien Nr. 3/1991, S 39 ff
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