Exchange Rate Arrangements for Emerging Market Economies

Felipe Larraín and Andrés Velasco

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I. New Answers to Some Old Questions

Which is the most appropriate exchange rate arrangement for developing countries? This time-aged question has been given new urgency by the 1997-98 Asian crisis, with its offshoots in Eastern Europe and Latin America. Adjustable or crawling pegs were in place in almost every country that experienced serious difficulties over the last two years: first in Thailand, Indonesia, and Korea, then in Russia, Brazil, and Ecuador. The pressure brought by massive capital flow reversals and weakened domestic financial systems was too much to bear, even for countries that followed reasonably sound macroeconomic policies and had seemingly plentiful reserves. Pegs came crashing down almost everywhere.

The failure of adjustable or crawling pegs has caused a scramble for alternatives. Much recent thinking reflects the view that there is apparently no intermediate exchange rate regime suitable for emerging markets. Hard pegs (a fixed exchange rate that is intended to be permanent) or free floats are, allegedly, the only options.

By this logic, lack of credibility and the resulting endemically high interest rates were key factors that brought these pegs down. The way to convince skeptics then is to ensure credibility at any cost: hard pegs such as under a currency board, or even full abandonment of the domestic currency. After all, one cannot easily devalue a currency that does not exist, or one whose exchange rate is set by law. If conditions for such radical fixing are not present,
one should go to the other extreme and let the currency fluctuate freely. A third way to ensure credibility is not to make any promises about the exchange rate at all.

The starting point of this emerging consensus is sound. Revocable pegs, whether crawling, adjusting, or constant, appear indefensible in a world of high and volatile capital mobility. If this was true for rich countries with large reserves (Europe in 1991-92), it is even more true for middle-income, reserve-constrained, emerging markets.

There is much yet to be learned, however, before this new consensus can serve as a useful guide for policymaking. Its empirical foundations, for one, are weak. A good deal of the current enthusiasm for currency boards owes to the case of Argentina over a fairly brief period of time. All other experiences, except for Hong Kong’s, have been too short-lived to be informative.¹ At the same time, pure free floats do not exist, since there are no central banks in the world that completely abstain from intervention in the currency market. When assessing empirically the virtues of floating, then, one has to look at mixed regimes with wide intervention bands or periodically adjustable pegs. Mexico, Peru and Chile are recent examples of this in Latin America. A quick review of their recent performance, compared to that of several currency board economies, should help shed some light on which system has performed best.

Confusion also remains about which countries should adopt which polar system. Based on the Mundell (1961) criteria for optimum currency areas, economists used to recommend fixed exchange rates to small economies wide open to international trade.² Large economies, or small economies subjected to shocks uncorrelated to those buffeting the country to whose currency they might have pegged, were advised to choose flexible rates. This prescription is not antediluvian, as it was contained, for instance, in the 1997 IMF World Economic Outlook. But in the midst of their respective crises there was no shortage of pundits advising Russia and Brazil (not exactly small countries) to adopt currency boards, as if short-term credibility considerations should necessarily take precedence over all other considerations.³

Finally, details of implementation are complex. What kind of dirty float (a flexible exchange rate actively influenced by government intervention in the foreign exchange market) should a country pursue? Should there be a “monitoring band,” as Williamson (1998) has suggested and some countries seem to employ in practice?
Should monetary policy react systematically (either by targeting monetary aggregates or interest rates) to movements in nominal or real exchange rates? Is an inflation target the best way to endow flexible systems with a nominal anchor?

Currency boards also face serious implementation problems, such as what currency to peg to and at what rate? Pegging to the wrong anchor in a world of great volatility in the cross-rates among the three major currencies can be devastating, as the countries of Southeast Asia discovered recently. Further, how is it possible to guarantee the stability of the domestic financial system in the absence of a domestic lender of last resort?

This paper analyzes these three sets of issues. Section II reviews some empirical evidence on the recent performance of alternative exchange rate arrangements in emerging markets. Sections III and IV examine the concrete circumstances under which either polar regime should be adopted. Section V studies how to make flexibility work in practice, with special attention to inflation targets and alternative monetary policy rules. Section VI focuses on the possible role of capital controls as a complementary policy. Section VII states the paper's conclusions.
II. A Brief Look at the Evidence

Argentina's economic performance during the 1990s has been encouraging, especially when compared with the hyperinflation the country suffered in the late 1980s. However, enthusiasts of Argentina's currency board often fail to distinguish between the role of the board itself and the effect of the important structural reforms (e.g., on trade, privatization and the fiscal sector) of the last decade. Most of the spectacular turnaround of the Argentinean economy in the present decade is due to those structural reforms. The currency board can be credited with the reduction of the country's inflation to world levels (and below) since 1994, which is no minor achievement. At the same time, enthusiasts tend to overlook the fact that the particular adjustment mechanism of the currency board has been a major factor in the recessions of 1995, when GDP declined by 4%, and the likely drop of 2% to 3% expected for 1999. Similarly, Hong Kong can show relatively low inflation rates (though higher than Argentina's) and a sharp recession in 1998 and 1999, with GDP declines of 5.1% and an expected 3%.

In contrast, a number of small open economies have had successful experiences with exchange rate flexibility, often coupled with inflation targeting. Countries like Australia, New Zealand, Sweden, Israel, Mexico and Chile stand out. In these countries, moderate or low inflation has coexisted with growing degrees of flexibility. In reviewing the experience of countries experimenting
with more flexible arrangements in the early and mid-1990s, Leiderman and Bufman (1996) conclude: "Despite fears that flexibility and enhanced monetary policy autonomy would lead to uncontrolled high inflation, there has been a substantial decrease in the rate of inflation in most countries."

The more recent experience of Mexico and Chile is also encouraging. In the years since the 1994 crisis, Mexico has coupled a government-controlled money supply with a de facto dirty float. The same is true of Chile, where a wide exchange rate band exists. In both countries the central bank is legally independent. Several econometric studies show that in both Chile and Mexico policy has tightened systematically in response to expected inflation, and since the mid-1990s inflation has been trending downward.5

In the course of 1998, both Mexico and Chile suffered large terms-of-trade shocks, and their currencies came under pressure. Both countries allowed moderate depreciation (larger in Mexico than in Chile) which resulted in some real depreciation as well. Inflation did not get out of hand: it continued to fall in Chile, while it temporarily rose, and then has been falling again in Mexico. The result has been a soft landing (softer in Mexico than in Chile) with lower but still moderate growth and reduced current account deficits. Mexico grew 7% in 1997, 4.8% in 1998, and is forecasted to grow between 2.5% and 3% in 1999. Chile grew 7.1% in 1997, 3.5% in 1998, and will likely expand by around 0 to 0.5% this year.

This evidence is purely anecdotal and it is beyond the scope of this paper to undertake a systematic review of the performance of countries operating under alternative exchange rate regimes. However, it is possible to be a bit more systematic. Table 1 presents a summary of some stylized facts from three pairs of countries: Group 1 (G1) includes the currency boards, Argentina and Hong Kong; Group 2 (G2) comprises two small developed economies with floating rates, Australia and New Zealand; and Group 3 (G3) shows two emerging economies with flexible rates, Chile and Mexico.

Currency board countries have a clear advantage on inflation over Chile and Mexico, but not so over Australia and New Zealand. G2 central banks enjoy political independence and high professional standards, and monetary policy is oriented towards domestic price stability. In the past year, these countries have suffered a sharp decline in world export prices. Their currencies have depreciated sharply, and thereby helped offset the shock to domestic output, by
Table 1. Hard Pegs and Flexible Rates
A Few Stylized Facts for Selected Countries

<table>
<thead>
<tr>
<th>Countries</th>
<th>Real GDP Growth (%)</th>
<th>Inflation (%)</th>
<th>Terms-of-Trade (% change)</th>
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<tr>
<td>Currency Board Countries (G1)</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Argentina</td>
<td>-4.0  4.8 8.6 4.2</td>
<td>1.6 0.1 0.3 0.9</td>
<td>0.3 8.1 -2.4 -3.9</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>3.9 4.5 5.3 -5.1</td>
<td>7.0 6.6 5.2 2.6</td>
<td>-1.5 0.9 0.7 1.2</td>
</tr>
<tr>
<td>Flexible Rate Countries</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Developed (G2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>4.1 3.7 2.8 4.9</td>
<td>4.6 2.6 0.3 0.9</td>
<td>3.7 1.3 1.9 -3.2</td>
</tr>
<tr>
<td>New Zealand</td>
<td>3.0 2.6 3.3 -0.7</td>
<td>3.8 2.3 1.2 1.3</td>
<td>-1.6 -0.8 -1.7 -0.5</td>
</tr>
<tr>
<td>Emerging (G3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chile</td>
<td>10.6 7.4 7.1 3.4</td>
<td>8.2 6.6 6.0 4.7</td>
<td>14.8 -16.6 3.8 -10.5</td>
</tr>
<tr>
<td>Mexico</td>
<td>-6.2 5.2 7.0 4.8</td>
<td>52.1 27.7 15.7 18.6</td>
<td>-1.3 2.8 -0.1 -2.6</td>
</tr>
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Sources: International Financial Statistics (IMF), 1999; JP Morgan (several issues); and national sources.
spurring production in the tradable sector. Inflation has remained modest even as the currencies have depreciated. Perhaps most importantly, all of these countries have avoided panics or runs, since the exchange rate depreciation has been gradual and without drama.⁶

In terms of GDP growth, we have already mentioned that G1 economies have experienced sharp recessions, whereas G3 economies have suffered only a deceleration of their annual growth rates (though sharp in the case of Chile). This is also the case of Australia and, to a lesser extent, of New Zealand, which suffered a mild recession in 1998. The contrast is even starker if we control for terms-of-trade changes. Chile has been the hardest hit economy of the six on this front, with a collapse of over 10% in its terms-of-trade in 1998, followed at a distance by Argentina and Australia (3.9% and 3.2% drop, respectively). Interestingly, Hong Kong’s terms-of-trade actually improved in 1997, and again in 1998, thereby placing more of the blame for its sharp 1998 recession on the currency board.

A quick revision of the evidence would also show that hard pegs have performed better than revocable pegs (a-la Thailand, Korea, Russia and Brazil) during the recent crisis. But this is not enough evidence to endorse hard pegs. Several flexible rate countries appeared to have fared better than currency boards in many of the key macroeconomic variables.
III. The Pros and Cons of Hard Pegs

The increasing popularity of hard pegs stems from some of the experience discussed above. We now review the theoretical arguments behind this popularity, and ask two sets of questions: What kind of country is best served by adopting a hard peg? And what pitfalls should the adopting country strive to avoid?

Credibility

The main argument in favor of hard pegs is the need to make monetary policy credible. If credibility cannot be built at home, then it can presumably be imported by fixing the exchange rate to a hard-money country. This is what Club-Med countries' attempted by pegging to the Deutschmark (DM), and what Argentina has tried with the U.S. dollar. Many theoretical and practical objections to the argument exist. Where the political costs of abandoning a peg come from and whether they are large enough to prevent unpleasant surprises is less than clear. Many an "irreversible" peg has come undone, as the European Monetary System (EMS) troubles in the early 1990s show. Yet if the political will is sufficient, and the institutions designed to express that will are robust enough, interest rate spreads and other indicators of the public's skepticism can come down sharply and stay there. Europe in the run-up to European Economic and Monetary Union (EMU) is a good example.
The strength (and also the potential weakness) of hard pegs lies in the absence of escape clauses. It has been argued that a fixed exchange rate is an implicit contract in which the Central Bank commits to retaining the peg, unless one of more of several unspecified but painful factors kick in. If they do, devaluation need not be punished by a loss of credibility, for in devaluing the authorities have adhered to the implicit contract. When the short-term pain of defending the peg is large enough that it outweighs the long-term benefits of retaining the fixed rate regime, the country could exercise an "escape clause," or engage in an "excusable devaluation."

Is this a plausible view of the world? Whether "excusable devaluations" exist in emerging markets is unclear, just as there may be no "orderly devaluations" either. This is probably because the exogenous shocks that could render them so are not fully observable, or perhaps not even fully exogenous, in the sense that governments could try to manipulate economic variables to justify an abandonment of the peg. When in doubt, a weary public may justifiably choose to be skeptical.\textsuperscript{8}

Obstfeld (1997) has argued against escape clauses in fixed exchange rates because they can open the door to multiple equilibria.\textsuperscript{9} The government is allowed to devalue if the situation gets too nasty, but the expectation that the government may devalue could lead the private sector to take actions (demand large wage increases and high nominal interest rates) that make the situation nasty to begin with. If the government does not devalue, it has to live with costly high real wages and real interest rates. If it does give in and devalue, it has created a self-fulfilling prophecy: devaluation takes place exclusively because agents expected it. This means governments should think long and hard before hinting that they view devaluation in some circumstances as "excusable."

**Discipline**

The other important reason that leads many to advocate hard pegs is their alleged ability to induce fiscal or monetary discipline. This is a close cousin of the credibility story. Presumably, fixed rates induce more discipline because adopting lax fiscal policies must eventually lead to an exhaustion of reserves and an end to the peg. Presumably, the eventual collapse of the fixed exchange rate would imply a big political cost for the policymaker. That is to say, bad behavior today would lead to a punishment tomorrow. Fear of suffering this punishment leads the policymaker to be disciplined,
and if the deterrent is strong enough, then unsustainable fiscal policies do not occur in equilibrium.

But, as Tornell and Velasco (1998, 1999) have argued, the conventional wisdom fails to understand that a hard peg is not the only way to achieve discipline: under flexible rates, imprudent behavior (especially fiscal laxity) has costs as well. The difference is in the intertemporal distribution of these costs. Under fixed rates, unsound policies manifest themselves in falling reserves or exploding debts. Only when the situation becomes unsustainable do the costs begin to bite. Flexible rates, by contrast, allow the effects of unsound fiscal policies to manifest themselves immediately through movements in the exchange rate and the price level. All of this means that if inflation is costly for the fiscal authorities, and they discount the future heavily, then flexible rates, by forcing the costs to be paid up-front, can provide more fiscal discipline.

Recent empirical work supports this revisionist view. Tornell and Velasco (1998) and Gavin and Perotti (1997) show that in Latin America fiscal policies have been more prudent (after controlling for a host of factors) under flexible than under fixed rates. Those results were mostly for soft pegs (fixed exchange rates that can be adjusted or changed), so we are left with the question of whether hard pegs would perform any differently? The evidence in this regard is limited. Tornell and Velasco (1999) show the same for Africa, comparing the experience of francophone countries that have pegged to the franc versus the rest. Since pegs in the Communauté Financière Africaine (CFA) are an artifact of colonial rule, they are supported by a French commitment to intervene, and since currency rates have been changed only once since 1948, they could conceivably be thought of as hard. The bad news is that African countries under that regime seem to have exhibited less fiscal discipline, defined as average deficits, after controlling for a host of factors, than did the others studied.

**When to Adopt a Hard Peg?**

Hard pegs, then, seem to have some important (though not unambiguous) advantages, but a currency board or full dollarization is not for everyone. A short list of conditions ought to include:  

- The criteria for optimal currency areas must be satisfied. This means, among other things, that large countries are worse candidates than small countries, and that pegging to a country subject to asymmetric real shocks is likely to prove problematic.
• The bulk of the adopting country’s trade should take place with the country or countries to whose currencies it plans to peg. This means that, all things being equal, Mexico or Central America are much better candidates for dollarization than Argentina, Brazil or Chile.

• The adopting country must have inflation preferences broadly similar to those of the country to which it plans to peg. This may be easily achieved in countries with a history of high inflation, which now want price stability at all costs (e.g. Argentina). It may prove trickier in countries which have never experienced full-blown hyperinflation, and where the population is less unanimous in its willingness to take pain to ensure stable prices (e.g. Ecuador, Brazil, Venezuela).

• Flexible labor markets become more essential than ever, and countries considering a hard peg are well advised to undertake labor reforms first. The argument is sometimes made (especially in Europe), that the very presence of a hard peg will create the political impetus for labor market deregulation. That may well be so, but it seems like a very risky gamble to take, especially for countries with political systems more unwieldy than Europe’s.

• The banking sector must be strong, well-capitalized and well-regulated, since a hard peg prevents the local central bank from serving as a lender of last resort to domestic banks.

• Hard pegs are most necessary for countries with weak central banks and chaotic fiscal institutions. But making hard pegs work requires high-quality institutions, and a rule of law that matters in ways seldom discussed. A currency board for instance, is a commitment to adhere to a set of very strict rules governing monetary policy. It may also involve putting the exchange rate into the law, as Argentina has done. These arrangements only make sense in countries where governments adhere to their own rules and where laws cannot be changed by fiat.

**Choosing the Right Currency**

In a world of floating rates, pegging to one currency means floating vis-à-vis most others. This is not a problem for countries whose trade is more or less geographically concentrated, and who peg to the currency of their dominant trading partner. Otherwise, cross-
rate fluctuations can do serious damage, as East Asian economies whose currencies were pegged to the dollar discovered in 1997. The sharp appreciation of the dollar vis-à-vis the yen caused substantial appreciation in the real effective exchange rate of several East Asian countries, helping pave the way for the crisis that followed. Of course, part of the problem followed from the fact that these countries pegged to the dollar while their trade was quite diversified.

Pegging to a basket and not to a single currency is a possible way out. In principle, at least, this could help insulate countries from cross-rate instability. But the implementation problems are many, and difficult. Under a currency board the weights used to calculate the basket would have to be public information; this is not the way in which banks have traditionally preferred to manage such baskets. There is also the need to change the weights in response to structural change. Who is to do that and according to what criteria? Discretional manipulation of weights can easily become arbitrary even when done by independent and respected central banks, as the recent experience of Chile suggests.

If the main virtues of a currency board are simplicity, transparency and observability, moving toward a complex and ever-changing basket system may undermine the very foundations of the policy. And, of course, pegging to a basket means that pairwise exchange rates fluctuate as much as international cross rates do, and this adds risk to certain kinds of transactions. Much of the appeal of current Argentine policy comes from the constant and one-for-one exchange rate, which all Buenos Aires taxi drivers know and can brag about. A complex arrangement in which the price of the U.S. dollar fluctuated unpredictably every day might not command the same kind of support, and would almost certainly not impose the same degree of transparency upon monetary policy.

Exchange Rate Stability versus Financial Stability

In essence, a currency board severely limits the ability of the authorities to extend domestic credit. This may be good for preventing inflation, but it can be bad for bank stability, as under a currency board or the gold standard, domestic banks are left without a lender of last resort. In a world of fractional banking^{12} and imperfect deposit insurance, this amounts to an invitation to self-fulfilling bank runs. A conclusion, couched in modern language, that economists have known at least since Bagehot: systems that tie
the central bank’s hands and prevent it from printing money, also prevent it from coming to the rescue of banks at times of trouble. As Chang and Velasco (1998a) demonstrate, a currency board makes balance of payments crises less likely only at the price of making bank crises more likely. For emerging markets, the price of low inflation may be endemic financial instability.

Alternatively, fiscal policy may be used instead of monetary policy to help troubled banks. But since emerging markets are typically rationed at times of crisis, it is not feasible for the government simply to borrow against the present value of future tax receipts and then hand over the money to the bankers. Ready help at times of trouble requires that the fiscal authority build, via sustained surpluses, a liquid "war chest". For a country to "self-insure" its banking system in this way is, at least in theory, costly but perfectly possible. Even glossing over the political difficulties, the financial costs are large. Imagine, for example, a country with M2 equal to 66% of GDP, which keeps half that amount in time deposits in Zurich. Such deposits pay 50 basis points below the London Interbank Offered Rate (LIBOR), while domestic interest rates in the country in question (quite likely lower than the marginal product of capital) are 2.5% above LIBOR. Hence, the lower band for the net cost of holding the war chest is 1% of GDP per annum.

Can the country do better by purchasing such insurance abroad? After all, if lenders can diversify away the risk of country-specific bank runs, such insurance need not be expensive. This is presumably the logic of the Argentine policy of contracting a line of credit (for which a premium is paid annually) to be used in case of bank troubles. The idea is appealing, but not without potential difficulties. First, if there is regional or global contagion, the risk of bank runs need not be easily diversifiable for lenders. Second, the obvious potential for moral hazard makes such contracts hard to write and enforce. Third is the issue of size: press accounts put the Argentine line of credit at U.S. $6 billion, which is less than 10% of M2. Whether larger amounts may be provided by the market at a reasonable premium is unclear.

Not everyone feels this is a problem. Dornbusch (1998) has recently written: “The counter-argument that currency boards or full dollarization sacrifice the lender of last resort function are deeply misguided... Lender of last resort can readily be rented, along with bank supervision, by requiring financial institutions to carry off-shore guarantees.” But how exactly does one rent such a
lender? We saw that contingent credit lines are not without problems. A currently fashionable alternative is to encourage foreign ownership of domestic banks, hoping that equity holders abroad will serve as lenders of last resort. Again, this is probably a good idea, but a completely untested one. Will Citibank U.S. ride to the rescue every time a Latin or Asian bank in which it has a 10% equity stake gets into trouble? Perhaps, but hanging a whole financial system's health on that conjecture seems risky indeed.

Is there a Case for Dollarization?\textsuperscript{13}

The dollar has been used widely as an alternative currency in regions with a record of macroeconomic instability, such as Latin America. We may call this unofficial dollarization: the dollar is utilized informally, sometimes illegally, as a store of wealth or in large transactions. \textcite{baliño_1999} report that foreign currency deposits exceeded 45% of broad money in 18 countries while they were still significant (over 16% of broad money) in 34 other countries during 1990-95. \textcite{porter_judson_1996} estimate that 55% to 70% of the total amount of dollars issued are held by foreigners, mostly in Latin America and Russia.

Official dollarization, that is, the situation in which a country relinquishes the issue of domestic notes and coins and adopts the dollar as the national currency, is much less frequent. Only a handful of independent countries (four in total) are officially dollarized. The best-known, and the only small but not minute country among them, is Panama.\textsuperscript{14}

A number of proposals for full dollarization have been floated in recent months. \textcite{schuler_1998, schuler_1999} advocates dollarization for Hong Kong and elsewhere, while \textcite{hanke_schuler_1999} make a similar proposal for Argentina. The Argentine government itself has announced plans to study dollarization. Recently, \textcite{calvo_1999} argued for a monetary treaty between Argentina and the United States, while \textcite{hausmann_1999} advocated the benefits of dollarization for Latin America. On the other hand, Alan Greenspan and Lawrence Summers have recently warned about the difficulties in the decision to dollarize, and stressed that the Federal Reserve is not ready to act as lender of last resort for other countries. \textcite{krugman_1999} has also forcefully argued against dollarization.

On the plus side, dollarization tends to make domestic inflation converge to the U.S. rate, and limits the rise of local interest rates
due to the elimination of currency risk. Of course, interest rates do not converge to U.S. levels due to country risk. The main costs of dollarization are the loss of independent monetary policy, the lack of a lender of last resort (and thus the need for additional dollar assets), and the loss of seigniorage.\textsuperscript{15}

The first two issues we have discussed already, but what about the fact that dollarizing amounts to handing over seigniorage to the United States? For a developing economy under responsible monetary management (meaning a single-digit inflation rate), this can mean giving up between 1% and 2% of GDP from seigniorage. Several proposals have been put forward to share the seigniorage between the dollarized economy and the United States (e.g., Calvo, 1999), but U.S. acceptance is crucial and has so far, not been forthcoming.

The costs and benefits of dollarization also depend on initial conditions. Calvo (1999), for example, correctly argues the need to recognize that Argentina's liabilities are already highly dollarized. Balíño et al (1999) stress that dollarization of liabilities is relatively widespread in Latin America. This makes the banking system more vulnerable to exchange rate changes and complicates the use of monetary policy. Argentina, Hong Kong and others have already abdicated the bulk of their monetary independence. Hence, the costs of moving toward full dollarization would be lower than for economies with a revocable peg or a float.

**Are Monetary Unions an Alternative?**

Monetary unions share much with currency boards and dollarization, though important differences remain. A monetary union implies, by definition, an irrevocably fixed rate among members, but may retain flexibility vis-à-vis other currencies. This is the case of the European Union. For other regions of the world, such as Mercosur\textsuperscript{16} and NAFTA,\textsuperscript{17} currently considering this arrangement, arguments go back to the discussion of whether a region is an optimal currency area, and hence to issues of factor mobility, trade integration and similarities in economic structure.\textsuperscript{18}

Eichengreen (1998) considers four essential prerequisites for a smoothly functioning monetary union: i) an independent central bank insulated from the political business cycle; ii) wage and price flexibility; iii) a strong financial sector; and iv) significant barriers to exit the union. For the first condition to be met, for example, debt and deficit ceilings must guarantee that countries will not issue
debt with the hope that there will be an inflationary bailout by the central bank, whose cost is borne by all countries. If other economic, social and political agreements are attached to the monetary arrangement, the exit costs will be higher and the currency union more credible.

The most immediate benefit of a currency area is the elimination of transaction costs associated with the exchange of currencies to conduct trade and financial exchanges. Other benefits include the greater attractiveness for foreign investment of a more integrated, larger area (as monetary union normally goes together with other forms of integration), and the possibility of a large monetary area to capture additional seigniorage.\textsuperscript{19} The costs are associated with the loss of an independent monetary policy. Whether net benefits are positive or negative is an empirical matter that needs to be judged on a case-by-case basis.

The more two countries trade among themselves the more they will value exchange rate stability. Nonetheless, differences in the production structure and the composition of exports between countries make it more likely that they will be subject to different external shocks and, thus, will need to rely on nominal exchange rate adjustments.\textsuperscript{20} Also, the more diverse is a country’s production base, the less likely that a sectoral shock will require inter-country adjustment and, thus, the better the country is as a candidate for a currency area.\textsuperscript{21}

Currency unions may also have dynamic effects. Fatás (1997) argues that increased regional specialization makes cycles more pronounced, whereas increased demand linkages and intra-industry trade will lead to greater synchronization of regional cycles. Evidence indicates that higher trade integration leads to lower exchange rate variability (Bayoumi and Eichengreen, 1998), but Marsden (1992) argues that regional integration and the resulting product market integration lead to decreased market power so that labor markets become more responsive to short-term conditions. In sum, there may be a better case for currency areas ex-post than ex-ante.
IV. Exchange Rate Flexibility

Currency boards, dollarization, and monetary unions are certainly not the only way forward. The alternative is greater exchange rate flexibility. That is indeed the direction in which many emerging markets, overwhelmed by the difficulties inherent in soft pegs, have been moving. Is there a good case for flexibility?

The Basic Case for Flexibility

Milton Friedman’s (1953) classical argument in favor of flexibility still holds much water: if prices move slowly, it is both faster and less costly to move the nominal exchange rate in response to a shock that requires an adjustment in the real exchange rate. The alternative is to wait until excess demand in the goods and labor market pushes nominal goods prices down, a process likely to be painful and protracted. The analogy that Friedman used is revealing, and accurate: every summer it is easier to move to daylight savings time than to coordinate large numbers of people and move all activities by an hour.

The case for flexibility is especially strong if the country in question is often buffeted by large real shocks from abroad. The logic here is once again due to Mundell (1963). If shocks to the goods markets are more prevalent than shocks to the money market, then a flexible exchange rate is preferable to a fixed rate. Of course,
foreign real variability is likely to be particularly large for exporters of primary products and/or countries highly indebted abroad (a profile that fits many emerging market countries). Indeed, the 1990s so far have produced large fluctuations in the terms-of-trade and international interest rates relevant for these countries. Note also that the preference for flexible exchange rates among countries with a heavy natural resource base extends into the OECD: Australia, Canada, New Zealand, and some of the Scandinavian countries are good examples.

These arguments in favor of exchange rate flexibility for emerging markets have recently come under attack from a number of fronts. One claim is that depreciations, like increases in the money supply, only work if they surprise the public, and of course, no government can surprise all of the public all of the time. Repeated depreciations only cause inflation, without real effects. This claim is correct, but also perfectly irrelevant. The Friedman case for flexibility certainly does not advocate attempting to use the nominal exchange rate to keep real activity away from its natural equilibrium level. On the contrary, it advocates letting the nominal exchange rate move to adjust relative prices to the new equilibrium level, after a shock has rendered the old relative prices obsolete.

Hausmann et al (1999) have recently raised a more relevant objection. They argue that the classic case may be right in theory, but wrong in practice for Latin America. One problem, in their view, lies in the prevalence of wage indexation. Understanding that nominal depreciation is unlikely to lead to real depreciation, central banks are reluctant to use it for countercyclical purposes. Another problem is the classic peso problem: in countries with a skeptical public rendered so by decades of currency debauchery, movements in the nominal exchange rate tend to be anticipated by changes in nominal interest rates, so that real rates do not fall (and may in fact rise) in response to adverse shocks. Hausmann et al (1999) test these two claims with Latin American data, and find some qualified support. Their influential conclusion is that exchange rate flexibility does not deliver much insulation or monetary policy autonomy, while lacking the credibility value of a hard peg. Currency boards or dollarization are a better option.

This revisionist view has a grain of truth, but does not generally invalidate the claim that exchange rate flexibility, if properly managed, can be stabilizing. The key, as with fixed rates, lies in having credibility. Ongoing depreciations that follow from imprudent or
opportunistic monetary behavior will surely come to be expected by agents, and hence will have no real effect, while occasional depreciations that respond exclusively to unforeseen shocks will, almost by definition, have real effects.

Exchange rate flexibility is relatively new to Latin America, and has been almost always adopted as the emergency response to an exchange rate crisis (Mexico in 1994 and Brazil in 1999 are good examples). Moreover, such regimes are run by central banks that have been legally independent for only a few years. It seems safe to conjecture then, that they lack credibility. If that is so, policy conclusions cannot be extracted from reduced-form econometric exercises. The degree of wage indexation, for instance, is almost certainly a function of past inflation rates, and would probably decline as inflation declines.

Another way of approaching the same issue is to focus on the degree of pass-through from exchange rates to prices. If every movement in the nominal exchange rate is soon reflected in an upward adjustment in domestic prices, then the insulation provided by flexible exchange rates is nil, or close to nil. Both theory and evidence suggest that market structure and the degree of competition in goods markets matter crucially for the degree of pass-through. But just as important is whether exchange rate changes are perceived as permanent or transitory, and this, in turn, depends crucially on the average performance of inflation and monetary policy. Leiderman and Bufman (1996) investigate the issue empirically for a number of countries (both developed and developing), and conclude that other things being equal, the degree of pass-through is likely to be stronger in a high-inflation environment.

Credibility versus Flexibility

The standard theoretical debate on the virtues of alternative exchange rate regimes centers on the alleged tradeoff between credibility and flexibility. Start from the common assumption that full credibility (technically, doing away with the time inconsistency problem) can only be obtained through a hard fix. Combine that with pre-set wages or prices, so that unexpected movements in the nominal exchange rate can have real effects. Then, as Rogoff (1985) convincingly showed, there is a clear tradeoff between the gains from low inflation and those from countercyclical monetary policy. An irrevocable fix robs a country of one adjustment tool. If shocks
buffeting an economy are sufficiently large (technically, if their variance exceeds some threshold), then fixing is not ex-ante welfare-improving. By contrast, if the inflation bias that occurs under discretionary monetary policy is large enough, then flexing is not ex-ante welfare-improving.

Our earlier discussion suggests that while this tradeoff may well be relevant for developed economies, it is not necessarily so for emerging market economies. In this latter class of countries, credibility appears to be a pre-requisite for flexibility to be useful. In its absence, as Hausmann et al (1999) usefully stress, it can become destabilizing.

The crucial policy question, then, is whether a regime of exchange rate flexibility is compatible with sustained monetary credibility, or whether in countries with a weak track record some kind of an exchange rate anchor is needed. Conventional wisdom has often chosen the latter option, emphasizing the political and other costs of reneging on exchange rate commitments. But, as is argued above, neither theory or empirics are conclusive in this regard. Much hinges on the independence with which the central bank can carry out policy, and in turn this depends, to a large extent, on the degree of social consensus regarding the benefits of low inflation.

Flexibility versus Financial Stability

Recent crises in emerging markets have taught that financial factors are key in determining an economy’s vulnerability to shocks. Any advocate of exchange rate flexibility therefore has to wrestle with the question of whether it is compatible with financial stability. After all, financial systems do not respond well to sharp and unforecastable changes in asset prices. Since the exchange rate is the price of that supremely important asset, domestic money, a regime of flexibility, is nothing but a deliberate attempt to allow this asset price to fluctuate freely. Can this be an invitation to financial fragility? Yes and no.

Dollar debt is often presented as an argument against flexibility. Suppose that domestic firms have borrowed in dollars, that some of them are in the non-traded goods sector and have earnings in local currency, as does the government. Then a nominal devaluation, if successful in changing relative prices, drastically increases the carrying costs of this debt, and can generate a wave of corporate
bankruptcies along with a fiscal crisis. This danger has been stressed in some interpretations of the Asian crisis, particularly in that of Corsetti, Pesenti and Roubini (1998). Calvo (1999) also stresses that “liability-dollarized economies are highly vulnerable to devaluation.”

There are a number of important caveats to this argument, however. Dollar debt can be hedged, and a flexible exchange rate gives borrowers an incentive to hedge that may be absent under more rigid regimes. In addition, if an external shock calls for a real depreciation, this will happen regardless of the exchange rate system in place. Policy will only determine the manner of adjustment. Under flexible rates the change in relative prices occurs suddenly and sharply. Under fixed rates or a currency board the real depreciation will take place slowly, as nominal prices fall. Throughout the adjustment period the real depreciation will be anticipated by markets, and hence domestic real rates will rise above world rates. If there are doubts about the sustainability of the peg, interest rates will be even higher. At the end of the day, the real value of debt service will have risen relative to the price of nontradeables. This process can wreck corporate and bank balance sheets just as surely as a devaluation.

We do not know how steep the real devaluation/real interest rate tradeoff actually is. What seems certain is that the answer will depend heavily on specific country circumstances: strength of banks, currency denomination of assets and liabilities, maturities, degree of hedging, etc. A real depreciation may be lethal in Korea and Indonesia, where unhedged short-term foreign debt was the norm, however the same is not true of Chile, for instance, where unhedged short-term foreign debt is minimal.

A related and key point is that the circumstances that affect the steepness of this tradeoff are not God-given, but often the result of deliberate policy design. One common culprit is financial liberalization. Radelet and Sachs (1998) and Chang and Velasco (1998b) have argued, for instance, that changes in financial and tax policies in Thailand and elsewhere created incentives for taking on dollar debt. Similarly, an insistence on fixing, accompanied by frequent official assurances that exchange rates would never be devalued, may have discouraged prudent hedging by private firms. Indeed, observers such as Radelet and Sachs (1998) have claimed that the Asian pegs may have fostered a moral hazard problem among borrowers, who felt protected by the official guarantees on the exchange rate.
Flexible rates may also be helpful in dealing with financial instability. Chang and Velasco (1998a) show that a regime in which bank deposits are denominated in domestic currency, the central bank stands ready to act as a lender of last resort, and exchange rates are flexible, may help forestall self-fulfilling bank runs. The intuition for this is simple. A bank run occurs if each bank depositor expects others will run and exhaust the available resources. Under a fixed rates regime, those who run to the bank withdraw domestic currency, which in turn they use to buy hard currency at the central bank. If a depositor expects this sequence of actions to cause the central bank to run out of dollars or yen, then it is a best response for her to run as well, and the pessimistic expectations become selffulfilling. Under a flexible rates regime plus a lender of last resort there is always enough domestic currency at the commercial bank to satisfy those who run, but since the central bank is no longer compelled to sell all the available reserves, those who run face a depreciation, while those who do not run know that there will still be dollars available when they desire to withdraw them at a later date. Hence, running to the bank is no longer a best response, pessimistic expectations are not selffulfilling, and a depreciation need not happen in equilibrium.

This represents a strong (though not overwhelming) case in favor of flexible exchange rates, but there are caveats. One is that such a mechanism can protect banks against self-fulfilling pessimism on the part of domestic depositors (whose claims are in local currency), but not against panic by external creditors who hold short-term i.o.u.’s denominated in dollars. To the extent that this was the case in Asia, a flexible exchange rate system would have provided only limited protection.26 Proper implementation is subtle, and if they are to be stabilizing, flexible rates must be part of a regime whose operation agents take into account when forming expectations. Suddenly adopting a float because reserves are dwindling, as Mexico did in 1994 or several Asian countries have done recently, may have the opposite effect by further frightening concerned investors.
V. The Practical Implementation of Flexible Exchange Rates

Giving up a peg, whether of the hard or soft variety, means that the economy gives up one nominal anchor. Finding and implementing an alternative anchor is the first task of advocates of exchange rate flexibility. Other issues include the optimal degree of intervention in the foreign exchange market (if any), and the choice of instrument and rules for conducting monetary policy. We deal with them in turn.

Nominal Anchors and Inflation Targets

The choices for a nominal anchor under floating boil down to two: monetary aggregates or inflation targets. The latter is by far the most popular among emerging market countries. To our knowledge, only Mexico follows a policy of quantitative targets.

It is not surprising that inflation targets are very popular. Given the instability of money demand in most economies, targeting aggregates is neither theoretically optimal nor easy to do in practice. Inflation targets may prevent the time inconsistency problem that leads to an inflation bias, while avoiding the pitfalls of fixed exchange rates. They may also have some of the attributes of hard pegs, in particular transparency and observability. The inflation rate may be published with a lag, but it is just as accessible and
comprehensible to the proverbial taxi driver as is the nominal exchange rate.

As mentioned, a number of developed countries, including Canada, Finland, New Zealand, Spain, Sweden and the UK, have experimented with inflation target policies of slightly different sorts. Performance has been reasonably good, according to most published academic evaluations. Inflation targets are less common among emerging market economies. According to Masson, Savastano and Sharma (1997), Chile comes closest to conducting its monetary policy by way of an inflation target. Colombia, Indonesia (before the crash), Mexico and Philippines have regimes that in some ways resemble an inflation target.

Is there scope for more widespread and successful use of inflation targets among developing countries? That is a difficult empirical question. Masson, Savastano and Sharma (1997) identify two requirements for successful inflation targeting in such countries: freedom from commitment to another nominal anchor like the exchange rate or wages, and the ability to carry out a substantially independent monetary policy, especially one not constrained by fiscal considerations. The former is obviously less troubling to the extent that many countries are moving toward exchange rate flexibility. There are also grounds to be optimistic on the second count: legally independent central banks are increasingly common, and the reliance on seigniorage to finance government spending has lessened, even in traditionally inflationary regions like Latin America.

**Dealing with Short-Term Exchange Rate Fluctuations**

The conclusion that a clean float (where authorities avoid taking actions designed to influence the exchange rate’s behavior) is the only alternative to a hard peg is largely academic. In the real world clean floats do not exist. Major industrialized countries such as Canada and the UK, smaller OECD countries such as Australia and New Zealand, and middle income countries such as Peru and Mexico, all practice floating with varying degrees of “dirt.” Even the U.S., usually regarded as the cleanest of the floaters, intervenes occasionally in the foreign exchange market.

The main reason for this is clear. Clean floating means high volatility of nominal exchange rates, much higher than early advocates such as Friedman (1953) and Johnson (1969) anticipated. As Mussa
(1986) was the first to point out and many have documented since, that high volatility of the nominal exchange rate almost always means greater volatility of the real exchange rate; as prices move sluggishly. To the extent that this volatility in relative prices is costly, either directly or because it causes volatility in output or in the health of the financial system, policymakers typically want to mitigate it.

Under inflation targeting there are additional reasons for managing the exchange rate to some degree. The exchange rate affects inflation through two channels, as Svensson (1998) has pointed out:

- In an open economy, the real exchange rate affects the relative price between domestic and foreign goods, which in turn affects both domestic and foreign demand for domestically produced goods, and hence affects aggregate demand and inflation.

- There is also a direct channel, in that the exchange rate affects domestic currency prices of imported foreign goods, which enter the consumer price index.

Hence, any scheme to control the rate of inflation at a short horizon must control, to some extent, the behavior of the nominal exchange rate. That helps explain the prevalence of managed or dirty floats in the real world.

**Dealing with Long Swings in the Exchange Rate**

A harder question is whether authorities should attempt to mitigate not just short-term volatility, but longer swings in the nominal and real exchange rate. The question has much practical and empirical justification. Most observers agree that under floating the exchange rate can be subject to persistent movements that are only weakly related to fundamentals. One often-mentioned example is the behavior of the dollar in the Reagan years. Obstfeld (1995) writes: "Exhibit A in the case for irrational exchange rate misalignment has long been the dollar's massive appreciation between 1980 and 1985, which amounted to somewhere between 40% and 60%, depending on the measure used."

Something similar could be said of the sharp real appreciation suffered by most Latin American currencies in the first half of the
1990s. Part of it could be plausibly justified by the productivity gains that liberalizing reforms presumably brought; but a good part of it followed from very large capital inflows, which kept coming because of the expectation that currencies would appreciate even further. When expectations reversed and so did the capital flows, currencies crashed: Mexico 1994, and Brazil 1999.

Such concerns have led to policies to limit exchange rate movements via flotation bands. If such bands crawl, so that their center remains close to an estimate of the "equilibrium" exchange rate, then medium-term misalignment can be avoided. Avoided, that is, to the extent that the edges of the band are defensible, and in the aftermath of the Mexican, Asian, Russian and Brazilian crises, the consensus in the profession seems to be that they cannot. Bands with hard edges (that must be defended) eventually fall prey to the pressures of the marketplace.

Williamson (1998) has recently proposed "monitoring bands" as a possible compromise solution. This is a band that attempts to target the real exchange rate, but with a twist. As he puts it,

The key difference between a crawling band and a monitoring band is that the latter does not involve an obligation to defend the edge of the band. The obligation is instead to avoid intervening within the band (except in a tactical way, to prevent unwanted volatility). There is a presumption that the authorities will normally intervene to discourage the rate from straying far from the band, but they have a whole extra degree of flexibility in deciding the tactics they will employ to achieve this.

At one level, Williamson's proposal seems unexceptionable. In practice most central banks use bands of this sort in deciding their intervention policy, although the degree to which they do it explicitly varies widely. In any managed float the authorities will likely intervene if the exchange rate "strays too far" from their perceived medium-term equilibrium value.

But two issues immediately arise. One is how a central bank can avoid drawing a "line in the sand," however fuzzy, if the exchange rate diverges systematically, and in the same direction, from its estimated equilibrium level. Consider again the case of several Latin currencies in the first part of this decade. The central banks of several countries, including Colombia and Chile, were concerned about real appreciation. At the same time they used
fairly broad bands, and were not shy about widening the bands from time to time when market pressures demanded it. This avoided some of the problems of hard-edged bands, but not all. At several instances markets believed they identified thresholds for central bank intervention, and occasionally mounted speculative attacks against these perceived thresholds. When the monetary authorities retreated, as they often did, some credibility was plausibly lost.

The other key question, as Williamson himself points out, is how much difference such a band would make to the day to day movements in the exchange rate. The main result of literature on target zones pioneered by Krugman (1991) was that the presence of the band may be stabilizing (in the sense of making the exchange rate less responsive to movements in fundamentals) even when the currency price was well within the edges of the band. But the less credible or the less clearly defined the boundaries of the band, the weaker presumably is this stabilizing effect. Does a band with very fuzzy edges approach, in the limit, the workings of a clearly floating exchange rate? It seems likely the answer is yes, but the issue clearly merits further research.
VI. Capital Controls

Choosing the appropriate exchange rate regime improves a country's macroeconomic management, and ultimately, its growth prospects. But no exchange rate mechanism is immune to problems. In trying times, hard pegs may result in unnecessary contraction, while flexible schemes may result in large devaluations and renewed inflation. A common problem to both is the sudden reversal of capital flows. Thus, economies may require complementary policies to increase the chances of success of their chosen exchange rate regime.

The most crucial and least controversial of such policies is prudential regulation of the financial system. In emerging markets, a healthy banking system requires strong regulation in areas such as loan-loss provisions, capital adequacy standards (where the Basle criteria may not suffice), limits to the banks' ability to assume exchange rate risk, and exposure to short-term foreign loans. These prudential measures are as important as they are widely ignored: recall the recent experience of Mexico, Thailand, or Russia. However, these issues are clearly beyond the scope of this paper.

Capital controls have been suggested as another way to protect the economy from sudden capital flow reversals. In spite of their recent popularity, however, the effects of capital controls remain a hotly debated issue. With a flexible exchange rate regime, excess volatility of capital flows translates into high volatility of the
nominal exchange rate, which, under price rigidity, implies big fluctuations in the real exchange rate. Perhaps the best-known case for capital controls is Tobin (1978). Other economists followed Tobin's lead, among them Krugman (1987), and Summers (1988). The main case for controls is their potential to reduce the volatility of the real exchange rate.

**Normal Times versus Crises**

A key difference needs to be established between capital controls in "normal" times and during times of crisis. During a crisis, there is little role for capital controls. Increasing controls on outflows is likely to reduce net inflows, for the same reasons that a liberalization of outflows encourages net inflows. On the other hand, there is little use for restrictions on capital inflows, simply because there are no significant capital inflows.

Devising an effective strategy for times when capital is stampeding out of a country is entirely different from times of growth, when capital is readily attracted to emerging markets. In times of crisis, the risk premium of emerging markets grows enormously, squeezing out most short-term arbitrage. Thus, the principal effect of a tax on capital inflows is to raise the cost of foreign funds for domestic companies borrowing in world markets.

Chile's tax is often cited as a leading example of the benefits of controls on capital inflows, partly because the Chilean economy remained stable in the wake of the Mexican crisis of 1995. In 1991 Chile applied a 20% non-remunerated reserve requirement on foreign credits, and increased it to 30% in 1992. Larraín, Labán and Chumacero (1999) report that, in the short run, these controls have been effective mainly in changing the composition of short-term capital inflows away from those subject to taxes, but not in affecting the overall volume of short-term inflows. Over the medium term, however, there exists an overall deterrent effect on short-term inflows, which affects the overall composition of capital flows toward the long term. In a study for Colombia, Cardenas and Steiner (1999) report that taxes on capital inflows have had a significant effect only in the composition of capital outflows, not on their overall level.

After the effects of the global crisis struck, the Chilean central bank acted pragmatically by reducing the reserve requirement on foreign capital from 30% to 10% in June 1998, and to zero two and a half months later. Note, however, that the instrument (the tax)
was left in place, to be used at a later date if conditions change, only
the rate was reduced to zero.

Is There a Case for Controls?

Is there, then, a case for controls? Increased controls on outflows
actually reduce net inflows, as Labán and Larraín (1997) have
shown; not the desired net outcome when a country needs foreign
capital. But the evidence indicates that while controls on inflows do
not significantly affect total flows, over the medium term they can
change the composition of inflows from short to long-term flows.

This second item is good news and bad news. To start with the
bad news, if controls cannot affect volumes, then they probably
cannot affect the magnitude of real exchange rate movements in
response to changes in investor perceptions or world real interest
rates. Hence, the counter-cyclical role for controls is probably
limited.

But the good news is that controls can play a useful (though
limited) role in crisis prevention. Sachs, Tornell and Velasco (1996b),
found that a shorter maturity of capital inflows was a helpful
predictor of vulnerability to the Tequila effect in 1995, while the
size of those inflows was not. Similarly, Furman and Stigliz (1998)
and Rodrik and Velasco (1999) found that the presence of large
short-term debts seem to increase the probability of a large and
sudden reversal in capital flows. Hence, if controls can achieve a
lengthening of average maturities, that change in composition is
highly desirable.

One danger of capital controls is that they may be considered
a substitute for other sensible policies: which they are clearly not.
Solid prudential regulation of the financial system has no substitute.
Guaranteeing the strength of the banking system is one of the best
antidotes against a balance of payments crisis and the collapse of
the exchange rate regime (under a peg) or a massive depreciation
(under floating rates).
VII. Conclusions

This paper has explored the question of which exchange rate arrangement emerging market countries should adopt. Our short answer is in two parts. Revocable pegs are rightly discredited, as they are unable to resist massive capital flow reversals. Attempted defenses almost always result in large reserve losses and huge interest rates, which prompt major recessions and weaken the banking system. This leaves hard pegs and floats as the only true options. Yet, the choice between one and the other is not a matter of indifference. While hard pegs are most recently in fashion, we find more overall virtue in exchange rate flexibility. Yet pure floats do not exist, and in practice flexibility is accompanied by varying degrees of intervention.

How to attain credibility has become paramount in the design of an exchange rate regime. To ensure credibility, policymakers seem increasingly willing to forego the benefits of flexibility and adopt hard pegs. Yet the cost of doing so may be too high. Much of the current enthusiasm for currency boards is based on the experience of Argentina, and to a lesser extent, of Hong Kong. But a quick look at the evidence reveals that currency board countries confronted with sharp terms-of-trade declines have tended to suffer bigger contractions of output than flexible rate economies. While currency board countries show a better inflation record than Chile or Mexico,
their inflation performance is no better than that of flexible rate economies such as Australia and New Zealand.

Currency boards also face serious implementation problems. Pegging to an appreciating currency can be very costly, as witnessed by many of the Asian economies in the recent crisis. Dollarization takes the currency board one step beyond in its irrevocable commitment to a fixed parity. The lure of dollarization for an economy that already has a currency board is that it removes the devaluation risk premium from interest rates. Interest rates, however, do not converge to U.S. levels because other risks, such as country risk, remain. Well-known problems with currency boards have not gone away in response to current fashion: lack of a lender of last resort, loss of seigniorage and difficulty adjusting to real shocks.

Capital controls, used as a policy to support the exchange rate regime, appear to have some, though limited, usefulness. Such controls affect the composition of a country’s inflows towards long-term maturities. Once a crisis strikes, having few short-term liabilities helps limit the stampede of capital outflows.
End Notes

1 Other currency board countries include Estonia, Lithuania and Bulgaria.

2 The theory of optimum currency areas was first developed by Mundell (1961). In an optimum currency area shocks affect symmetrically its different regions (or countries) and factors of production move freely to address regional pockets of unemployment. If the regions face similar shocks, and if concentrations of unemployment can be overcome through wage or price flexibility, relinquishing the ability of changing the exchange rate does not impose a considerable cost. In terms of adjustment, nominal exchange rate movements, nominal wage or price changes, and labor mobility between regions are substitutes.

3 Dornbusch (1999) and Barro (1999) have argued in favor of a currency board for Brazil.

4 See, for example, Leiderman and Bufman (1996).

5 On Chile, see Landerretche, Morandé and Schmidt-Hebbel (1998); on Mexico, see Aguilar and Juan-Ramón (1997) and Edwards and Savastano (1998).

6 Larraín (1999a) makes these arguments for Australia and New Zealand.

7 The Club-Med countries are France, Italy, Portugal, and Spain.

8 One can think of exceptions. There may be shocks that are so clearly observable and exogenous that they pass the test. For instance, Sachs, Tornell and Velasco (1996a) argue that the assassination of presidential candidate Luis Donaldo Colosio in Mexico in March 1995 could have plausibly justified the abandonment of the exchange rate band.

9 A situation (often associated with self-fulfilling expectations) in which the economy has multiple resting points.

10 Some coincide with the conditions put forth by Williamson (1998).

11 See Corsetti, Pesenti and Roubini (1998a,b).

12 Banking rules, common in most countries, under which only a fraction of the deposits are kept at the bank to be used as reserves, and the rest are lent out.

13 This sub-section is partially based on Larraín (1999a).

14 The other three are Marshall Islands, Micronesia, and Palau – all with populations below 125,000.
Seigniorage refers to government profits earned by printing and coining money.

The Mercosur customs union includes Argentina, Brazil, Uruguay and Paraguay.

The North-American Free-Trade Agreement includes the United States, Canada and Mexico.

In the case of NAFTA, however, a monetary union would imply dollarization.

The seigniorage benefit, however, only applies for large regions such as EMU.

Kenen (1969) emphasizes this point.

See Bofinger (1994).

Some empirical evidence suggests exactly this. For the case of Mexico, Aguilar and Juan-Ramón (1997) show that increases in the nominal exchange rate are followed by higher nominal interest rates, not lower as the standard model would suggest. Inflationary expectations tend to rise as well. One explanation is that agents infer from temporary depreciations a permanent relaxation of monetary policy.


See also Velasco (1996).

Buitr, Corsetti and Pesenti (1998) concur: “Is an exchange rate commitment more easily established or more credible than a commitment to other nominal anchors? The short answer is that we have no satisfactory theoretical arguments or empirical evidence to argue convincingly on either side of the issue.

Floating is not totally useless in this case, for panic by foreign creditors could perfectly well be triggered by a run by domestic depositors, with the outcome being self-fulfilling. For details on this line of argument, see Chang and Velasco (1998a)

See Leiderman and Bufman (1996) and the references contained therein.

Mexico relies mostly on quantitative targets, but also announces an inflation forecast that is meant as a loose guide to expectations. See Aguilar and Juan-Ramón (1997) and Edwards and Savastano (1998).

See the insightful historical discussion in Obstfeld (1995).

For a broader discussion on the role of capital controls, see Larraín (1999b).

Valdes and Soto (1999) show no effect of controls on total short-term flows in Chile (consistent with Larraín et al’s short-term result) but do not distinguish a separate medium-term impact.
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