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## Currency Boards

A currency board regime is one where the domestic currency (M0 money) is backed (usually 50 percent or more) with foreign reserve currency, and where the currency board is obligated to convert domestic currency into foreign currency on demand at a fixed price. With the exception of Argentina and Hong Kong, currency boards have typically been implemented by small developing economies (e.g., Antigua and Barbuda, Brunei Darussalam, Djibouti, Estonia, and Lithuania).

### Advantages of Currency Boards

In line with the bipolar school's preference for hard pegs over soft ones, currency boards have gained many new supporters in recent years. Their attraction rests on three arguments. First and foremost, currency boards are said to substitute a disciplined monetary policy rule (a gold standard without gold) for undisciplined discretionary monetary policy, thereby eliminating the inflation bias of the latter. Indeed, this promised improvement in inflation performance is the main justification for a currency board.

A number of empirical studies have sought to test the anti-inflationary effects of currency boards. Most of the results look quite favorable for currency boards, but (again) there is a problem of disentangling multiple influences, especially for countries heavily involved with private capital markets. Ghosh, Gulde, and Wolf (1998), drawing on a dataset for all IMF member countries during the 1970-96 period, found that currency boards were associated with an average inflation rate that was

about 4 percent lower than for other pegged exchange rate regimes. Part (about an eighth) of this lower inflation rate was attributable to lower money growth rates under currency boards, but most of it (seven-eighths) reflected a higher demand for money (a so-called confidence effect) at a given money growth rate.

Ghosh, Gulde, and Wolf (1998) also reported that average inflation under currency boards was significantly lower than under floating rates, that inflation volatility was likewise lower under currency boards, and that countries with currency boards actually grew faster than the average of all countries with pegged regimes.<sup>1</sup> Moreover, their results for inflation remain after controlling, *inter alia*, for the endogeneity of the currency regime decision (i.e., that countries with low inflation are apt to be more inclined to adopt a currency board), for the independence of the central bank, and for the openness of the economy.

The rub, however (as was noted in chapter 1), is that when the sample was confined to countries that do not have capital controls in place, then the good anti-inflation results for currency boards disappeared—with currency boards then yielding average inflation rates almost identical to floaters and somewhat higher than other peggers.<sup>2</sup> The authors argue that the abolition of capital controls exerts an independent disciplining effect on the monetary authorities regardless of the currency regime. It is also relevant to note that the better growth performance of currency boards no longer was (statistically) significant when Ghosh, Gulde, and Wolf (1998) removed from the sample a group of very small economies (with 5 million or fewer inhabitants).

A second claimed advantage of currency boards is that the stronger political commitment to the regime—often reflected in a central bank law or constitutional amendment—will make such a regime harder to “undo” than a soft peg, thereby deterring speculative attacks and lowering borrowing costs. The fact that there have been relatively few exits from currency boards, that most have been voluntary, and that the impetus was usually political (e.g., a desire to discard a vestige of colonialism) rather than macroeconomic shocks suggest that there must be something to the notion that they are harder to undo than soft pegs.<sup>3</sup>

But this survival property of currency boards ought not to be interpreted as translating directly into higher credibility. Both of the two most prominent currency boards—namely, those operated by Hong Kong and

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1. Using data for 98 developing countries during the 1950-93 period, Hanke (2002) also reports that economies with currency boards had better inflation and growth performance than those with central banks.

2. Ghosh, Gulde, and Wolf (1998) caution against putting too much weight on the capital-controls results because of the relatively small number of observations in this subsample.

3. See Ghosh, Gulde, and Wolf (2000) on the historical record of exits from currency boards.

(until recently) by Argentina—have been subject to strong speculative attacks during the past 6 years. Berg and Borensztein (2000) have estimated the currency risk on Argentina's bonds by comparing peso and dollar interest rates on otherwise identical securities. They find that currency (devaluation) risk peaked at the time of the "tequila" crisis (the end of 1994 and early 1995), the Russian default (August 1998), and the Brazilian crisis (January 1999); it again spiked up on several occasions in 2001. Even putting aside the period just before the actual collapse of the Argentine currency board in January 2002, Berg and Borensztein show that currency risk premiums surged to the 800-1,000 basis point range during earlier crises—hardly a demonstration that the markets believe that a currency board is immune to the risk of devaluation.

It is also worth noting that the same constraints that make currency boards more "permanent" than soft pegs also make it more costly for a country to exit a currency board if and when it decides to do so. The higher the costs of renegeing on the exchange rate commitment, the longer the country may delay needed corrective action to bring the real exchange rate into line, and the larger could be the size of the devaluation when it occurs. In this connection, both Eichengreen et al. (1998) and Kuttner and Posen (2001) found that the harder the peg among countries with publicly announced exchange rate targets, the larger the depreciation upon exit. Judging from very early results, the behavior of the Argentine peso after the collapse of its currency board may well fit this pattern. The fact that (during their tenure) currency boards are often associated with real exchange rate appreciations reinforces the point.<sup>4</sup>

The third selling point for currency boards is that they will generate fiscal discipline—because the currency board law prohibits direct monetary financing of government expenditures, because the monetary policy rule will severely restrict the scope for credit expansion as a whole, or because the authorities will be sensitive to the external visibility and cost of a devaluation in a fixed rate regime. It is not surprising that proponents of exchange rate flexibility do not concede any ground on this issue. Tornell and Velasco (2000), for example, argue that fiscal discipline should actually be stronger under flexible rates: Whereas fiscal policy excesses under fixed rates will only show up in a lagged and relatively nontransparent fashion (in published figures for international reserves), movements in the exchange rate will reveal those same excesses in a more immediate and transparent way under flexible rates.

On this fiscal discipline issue, the available empirical evidence is mixed but is on balance favorable to currency boards. Examining large country samples, both Ghosh, Gulde, and Wolf (1998) and Culp, Hanke, and Miller (1999) found that economies with currency boards tended to run smaller

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4. Ghosh, Gulde, and Wolf (2000) document the appreciation of real exchange rates after the implementation of currency boards.

fiscal deficits or larger surpluses than economies operating under other currency regimes. Along the same lines, the empirical tests of Fatas and Rose (2000), which controlled for other factors influencing fiscal positions, showed that countries operating under currency boards had more disciplined fiscal positions (smaller fiscal deficits and lower ratios of government spending to GDP) than countries with flexible rates or with other kinds of fixed rate regimes. Fatas and Rose acknowledge, however, that the results could be influenced by an endogeneity problem; that is, countries with disciplined fiscal policies may be more likely to adopt a currency board.

On the more skeptical side, the IMF (*World Economic Outlook*, May 2001) examined the evidence on the link between fiscal deficits and exchange rate regimes in developing countries and concluded that it was “ambiguous” and differed from one country group to another.<sup>5</sup> And Gavin and Perotti (1997) presented evidence that suggests that fiscal policies in Latin America have been more prudent under flexible rate regimes than under fixed rate ones.

## Drawbacks of Currency Boards

Arrayed against these advantages of currency boards are several well-known drawbacks. First, if the real exchange rate becomes substantially overvalued under a currency board, it becomes very difficult to correct it, because the adjustment must come exclusively from domestic costs and prices, with no help from the nominal exchange rate. Although a few emerging-market economies (e.g., Hong Kong) have enough flexibility to make up a considerable amount of lost ground (on competitiveness) in this way, most do not. Escude (2001) documents that during the 1997-99 period when Argentina’s nominal GDP declined by 4.6 percent, nominal and real wages in the private sector increased, as did real pension payments for federal public employees.

Recall also that those countries that adhered to the gold standard during the Great Depression had low output and high real wages (because declines in price levels were not usually matched by comparable falls in nominal wages), whereas those countries that left gold early showed the **opposite outcome of high output and low real wages**. Even more to the point, Goldfajn and Valdes (1996) show that when real exchange rate appreciations in developing countries are undone, the predominant share of the correction comes from nominal exchange rate depreciation—not from a change in inflation differentials. Unless the country enters a currency

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5. The IMF study’s conclusion applies to fixed versus flexible rates more generally—not specifically to currency boards versus other regimes.

6. See Bernanke and Carey (1996).

board at a very undervalued real exchange rate, the prospect of a real appreciation—without a good mechanism to correct it—is a worrisome one.<sup>7</sup>

A second important drawback of a currency board is that the country loses the ability to gross-tune monetary policy to deal with asymmetric shocks. This loss of monetary policy independence can be costly during periods when monetary policy in the reserve currency country is responding to cyclical conditions that are quite different from those prevailing in the country operating the currency board. Two examples underscore the point. As Williamson (1995) explains, Hong Kong's currency board meant that it imported low interest rates from the United States in the early 1990s. Although such easy monetary policy was appropriate for the recession in the United States, Hong Kong was dealing with an asset price boom and monetary restraint—not monetary easing—was what was called for. Much to the relief of the Hong Kong authorities, US interest rates finally rose in 1994, but an earlier tightening of monetary policy would clearly have been preferable from Hong Kong's perspective.

Argentina's situation in 1999 and 2000 tells a similar story. US monetary authorities were understandably raising US interest rates to deal with the booming and overheated US economy. But Argentina was (and still is) suffering from a recession, and it needed lower interest rates—an option not available to it because of its currency board. By the time (January 2001) the US Federal Reserve began reducing interest rates in the United States, Argentina's recession had already become protracted, and the absence of growth in the presence of a large external debt had taken a heavy toll—not least in increasing Argentina's crisis vulnerability.<sup>8</sup>

Empirical work by Eichengreen (1998) and Bayoumi and Eichengreen (1994) suggests that most emerging-market economies are aware of the fact that asymmetric output shocks (between them and the G-3 countries) create potentially large costs when exchange rates are fixed (and when monetary policy decisions are made elsewhere); indeed, these authors find that the more asymmetric are business cycles between an emerging economy and the United States, the greater (other things remaining equal) will be the flexibility in the emerging economy's exchange rate.

But to say that currency boards severely constrain monetary policy independence is not the same as saying that floating rates will necessarily deliver a lot more of it. In this connection, defenders of hard pegs argue that the credibility of monetary policy in most emerging-market economies is sufficiently poor that efforts under flexible rates to decouple domestic monetary policy from monetary policy in the G-3 countries will be

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7. E.g., Ghosh, Gulde, and Wolf (2000) note that, in the first year of its currency board, Argentina experienced a real appreciation of 36 percent; for Estonia, the comparable figure was almost 60 percent. At the same time, Ghosh et al. (1997) find that export growth was, on average, better in countries with currency boards than in those without them.

8. In 1999 and 2000, Argentina's real GDP fell by 3.4 and 0.5 percent, respectively.

no more effective than under a hard peg; indeed, the insulation could even be weaker under flexible rates (so the argument goes), because the currency risk premium will then adversely affect the country risk premium.<sup>9</sup>

To this point, the empirical evidence on monetary policy independence for emerging-market economies under alternative currency regimes is mixed. The tests typically attempt to measure independence by estimating the response of domestic interest rates to both US interest rates and to measures of the risk premium facing emerging economies as a group (e.g., the spread in various emerging-market bond indices), with an eye toward gauging whether the size of the domestic interest rate response is lower for countries with more flexible currency regimes. Using monthly data for 11 countries during the 1960-98 period, Hausmann, Panizza, and Stein (2000) did not find that currency regimes mattered for the domestic interest rate response to US interest rate changes. Moreover, comparing three Latin American emerging economies in 1998-99, they found that the highest reaction to the international risk premium occurred in Mexico, the country with the most flexible exchange rate regime. Frankel (1999) reported that the domestic interest rate response to US rate changes was larger for emerging economies with flexible or intermediate regimes than for those with hard fixes.

In a more extensive set of tests, Frankel et al. (2000) obtained more ambivalent conclusions: flexible regimes did show more monetary policy independence for a heterogeneous country group over a long sample period (1970-99) but not for developing countries during the 1990s. In a recent paper, Borensztein, Zettelmeyer, and Philippon (2001) adopted a different approach to the same issue. Because they were concerned that previous tests might have been flawed, *inter alia*, by not identifying significant differences in (de facto) currency regimes across the sample group, they compared monetary policy independence for two sets of economies with polar regime choices: Argentina (hard peg) versus Mexico (managed float) in Latin America, and Hong Kong (hard peg) versus Singapore (managed float) in Asia. Their results indicated that interest rates in Hong Kong reacted much more to US interest rate shocks and to international risk premiums than interest rates in Singapore. The conclusions for the Argentina-Mexico pair were less clear-cut: whereas Mexican interest rates reacted less to US rate shocks than Argentine interest rates, they reacted about the same to international bond-spread shocks.

Another line of argument (e.g., see Calvo and Reinhart 2001) is that whatever the outcome of the debate on how much monetary policy independence (if any) is lost under a hard peg, countries that choose a currency board (or dollarization) are not left without a countercyclical policy instrument. Fiscal policy is still at their disposal.

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9. See Hausmann, Panizza, and Stein (2000) and Calvo and Reinhart (2001).

I find this argument unpersuasive. Although it applies to emerging-market economies with strong fiscal and debt positions, it surely does not apply to those emerging economies with more questionable fiscal credentials. If an emerging economy has a high ratio of external debt to GDP (or to exports) and a large fiscal deficit, the likelihood is that it will be constrained from implementing significant pump priming for fear of worsening investor concerns about long-run debt sustainability and of increasing its borrowing spread. Indeed, for hard peggers in such straits, the more likely response is that they will *tighten* fiscal policy in a recession in an effort to reduce their country risk premium.

Again, Argentina's recent experience is instructive. With a ratio of external debt to exports that is extremely high (450-500 percent) by international standards, and with a long history of imprudent fiscal policy, Argentina aimed for primary budget surpluses in 1998-2000 while the economy was in recession in a largely unsuccessful medium-term effort to lower its fiscal deficit and improve its external debt profile.<sup>10</sup> And in 2001, with the economy still mired in recession and with Argentina's risk spread surging (to nearly 1,800 basis points in the fall and to more than 4,000 basis points by the end of the year), former economy minister Domingo Cavallo finally made a public commitment to do whatever was necessary to cut the total fiscal deficit (then running at about an \$8-12 billion annual rate) to zero; that is, when cyclical and external financial conditions worsened, the public policy response was to pledge tighter—not looser—fiscal policy.

More generally, we see that when emerging-market economies have high external debt burdens (e.g., 60-70 percent or more relative to GDP and/or 300 percent or more relative to exports), they are afraid to step on the fiscal accelerator very hard; instead, they usually grope for the brake. In this regard, Turkey's ongoing effort to rein in its double-digit fiscal deficit and stabilize its government debt-to-GDP ratio—in the face of an estimated downturn in real GDP of more than 6 percent in 2001—is right on the regression line. Ecuador, Indonesia, the Philippines, and Thailand are all now in the 60 percent plus (of GDP) camp for external debt, and Chile, Israel, and Russia are not far behind. It is one thing to say that China (with an external debt-to-GDP ratio of 14 percent) and Hong Kong (with no government debt and huge international reserves) can make active use of countercyclical fiscal policy; it is another to ascribe that scope to emerging economies more generally.<sup>11</sup>

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10. See Mussa (2002) for an analysis of Argentina's fiscal problems in the 1990s. In Goldstein (2001b), I argued that Argentina's external debt burden was clearly unsustainable in 2001.

11. As noted by Escude (2001), Hong Kong made active use of countercyclical fiscal policy to help cushion the impact of the Asian crisis. In 1997 Hong Kong had a fiscal surplus in excess of 6 percent of GDP; application of countercyclical fiscal policy in 1998 changed the fiscal stance to a deficit equal to roughly 2.5 percent of GDP.

If the foregoing discussion of the limits of countercyclical fiscal policy is right, then proponents of hard pegs would seem to be left with either of two less comfortable arguments. One is that a precondition for successful hard pegging should be a strong fiscal position (so that any loss of monetary independence could realistically be offset by fiscal policy autonomy and effectiveness); but then the relevant candidate pool for currency boards would be much smaller than usually assumed by its champions. A second tack is that countries with shaky fiscal fundamentals can get an expansionary boost by tightening fiscal policy. Although the IMF (*World Economic Outlook*, May 1995) has shown that cases of large reductions in fiscal deficits generating an expansionary effect are not unknown in recent history, the more typical response is the conventional (procyclical) Keynesian one.

A third weakness of currency boards is that unlike floating rate regimes, currency boards do not discourage currency mismatching; and unlike dollarization, currency boards do not eliminate the mismatching problem. In this respect, currency boards may be no worse than an adjustable peg, but there is little to suggest that they are better either. As highlighted by the IMF (*World Economic Outlook*, May 2001), many emerging-market economies saw their share of foreign currency-denominated liabilities and assets increase markedly in the 1990s. In several emerging economies with hard pegs (Hong Kong since 1982, Argentina from 1991 to 2001, and Bulgaria since 1997), residents have been allowed for some time to hold domestic bank accounts and conduct transactions in either domestic or foreign currency. In Argentina, for example, it was estimated that in 2001 approximately two-thirds of bank deposits and loans were denominated in US dollars.<sup>12</sup>

The problem, of course, is not with the share of assets or liabilities denominated in foreign currency but rather with mismatches. These mismatches can occur in the banking system, in the corporate or small business sector, in the household sector, or in the official sector (via the currency composition of government borrowing and debt management). The point is that wherever these mismatches get large, there will be strong reluctance to accept a devaluation, even if the real exchange rate is widely regarded to be overvalued. Yet if the devaluation finally comes, the mismatches will render the cost to be much larger than if the private and official sectors were better hedged.

Once again, the recent situation in Argentina is worthy of comment. Even though the Argentine peso was regarded by most observers as being significantly overvalued, it was often argued that a devaluation (combined with the jettisoning of the currency board) would be either useless or very costly—useless because the economy was already quite dollarized

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12. See Catao and Terrones (2000). These authors also provide estimates of the extent of deposit and loan dollarization for a group of other emerging-market economies.

and dollar prices would be unaffected by a devaluation, or costly because the share of exports in GDP was very low (10 percent or less) whereas the dollar share of total liabilities was very high (more than two-thirds).

Yet those who dismissed a devaluation out of hand found it difficult to explain how Argentina's huge foreign debt could be serviced without adequate export earnings, how the country could expect to attract a healthy volume of foreign direct investment if investors regarded its competitiveness as lagging others in the region, and how it could respond to large real exchange rate changes by its (floating rate) competitors if the nominal exchange rate were fixed. In the end, a currency board does not make it any easier to avoid getting into a significant currency mismatching problem. And once the problem is there, a currency board makes it harder to get out of it.

Disadvantage number four for currency boards is that they constrain the ability of the monetary authority to act as a lender of last resort to fragile financial institutions. This constraint occurs because currency boards minimize the discretion accorded to the monetary authorities; that is, they cannot increase the domestic money supply unless there are increased inflows of foreign exchange. And if capital flows out of the country and domestic interest rates rise in turn, the financial sector will face the same strains as under other regimes.

## Currency Boards and Lender-of-Last-Resort Situations

Defenders of currency boards reject the lender-of-last-resort criticism given just above on three grounds. One line of defense is to argue that if the base money supply is backed less than 100 percent by foreign currency, the currency board can use the unbacked portion (sometimes referred to as "excess reserves") to carry out discretionary, lender-of-last-resort operations. Argentina, for example, required a minimum of 75 percent cover for the peso. But here there is a trade-off. The *raison d'être* of a currency board is that it replaces a discretionary monetary policy with a rule-based one. To the extent that the currency board engages in discretionary monetary operations (e.g., partially sterilizing reserve outflows)—whether motivated by lender-of-last-resort factors or otherwise—the currency board's credibility may suffer, particularly if the deviation from the rule-based policy is large. Indeed, purists have maintained that Argentina and Hong Kong at times eroded confidence in their currency boards by engaging in discretionary monetary operations.<sup>13</sup>

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13. See Hanke (2002).

Likewise, a domestic currency that is only partially backed by a foreign reserve currency provides less assurance of convertibility than one that is fully (or more than fully) backed. When the domestic currency is under attack and the threat of devaluation is in the air, market participants may contemplate conversion of a wide range of domestic currency-denominated assets into foreign currency. Similarly, as stressed by Caprio et al. (1996), a large (systemwide) fall in the value of bank assets presents the currency board with a convertibility challenge, because depositors may then seek conversion into foreign currency. The more limited are the currency board's liquid assets, the greater the risk, *ceteris paribus*, that a "run" takes place. In short, the constraint on acting as a lender of last resort can be relaxed somewhat by providing less than 100 percent cover—but at a price.

A second tack is to argue that, whereas a lender of last resort is a necessity, this function need not be assigned to the monetary authority (the currency board); moreover, banks themselves can be required to hold their own liquidity insurance. Contingent credit lines can be arranged with commercial banks to make up for the more limited capacity of the currency board to supply liquidity assistance. Argentina has had such an arrangement since the mid-1990s; other emerging-market economies also (e.g., Mexico) have experimented with such private lines of credit.

Aside from their cost, the question about such private contingent credit lines is their reliability. Even if commercial banks supply the credit line at a time of crisis, net lending to the official sector will not necessarily be increased if the banks cut back on their exposure for other credits (or hedge their contingent lines). Some have argued that the less than happy experience with the cost and reliability of private contingent credit lines strengthens the case for official contingent credit lines. Indeed, in 1999 the IMF created its own contingency credit window, the so-called Contingency Credit Line.

By requiring domestic banks to meet rigorous reserve requirements, liquidity can be injected into the banking system during a crisis simply by easing these requirements. During the tequila crisis of 1995, for example, the Argentine banking system experienced a withdrawal of 16 percent of deposits; a relaxation in reserve requirements helped the system to weather that crisis. Some emerging-market economies with relatively high shares of foreign currency deposits (e.g., Bolivia, Croatia, Honduras, and Peru) have also imposed higher reserve requirements on foreign currency deposits than on domestic currency deposits.<sup>14</sup> After the tequila crisis, Argentina switched to a broadly based liquidity requirement for banks.

Here also, however, self-insurance mechanisms carry a cost. If reserve requirements are set very high, banks in that country will in effect be paying a tax higher than their competitors (both at home and abroad);

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14. See Balino, Bennet, and Borensztein (1999).

this could put them at a competitive disadvantage and merely shift deposits either to less regulated domestic nonbank financial intermediaries or to offshore banks. Also, there is no guarantee that lowering of reserve and liquidity requirements in a crisis will be sufficient to deal with a very large liquidity shock.

A third argument is that the lender-of-last-resort scenario about hard fixes has been miscast. It is said that what really differentiates emerging-market economies from industrial ones is the more limited access of the former to international capital markets at the time of crisis; the ability to print domestic money is much less important.<sup>15</sup> If the country can borrow hard currency internationally, it can be an effective lender of last resort; if it cannot, it cannot.

Although this argument has some merit in drawing attention both to the currency denomination of bank liabilities and to the creditworthiness of the guarantor of bank deposits, it goes too far in suggesting that the loss of traditional lender-of-last-resort operations would be irrelevant to most emerging-market economies. As Balino, Bennet, and Borensztein (1999) have documented, domestic currency deposits remain an important and often dominant share of broad money in most emerging-market economies.

Moreover, bank runs—reflecting (inter alia) the poor quality of deposit insurance arrangements and the seriousness of banking and debt problems—are hardly unknown during financial crises in emerging-market economies.<sup>16</sup> Indonesia's experience during its 1998 crisis was a dramatic case in point. And when a bank run does occur—be it against domestic currency or foreign currency deposits—the speed of the official response is often crucial.<sup>17</sup> In this connection, even when an emerging economy does maintain access to international capital markets, the ability to issue, say, bonds to fund a bank recapitalization is not a close substitute for the ability to print money; the former takes much longer than the latter (unless contingent lines of credit are already in place). For all of these reasons, the diminution of lender-of-last-resort capability under a currency board is apt to carry a nontrivial cost.

## Summing Up

To sum up, any emerging-market economy with a poor track record of discretionary monetary policy and with decent fiscal and financial-sector

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15. See Calvo and Reinhart (2001).

16. See Garcia (1999) for an analysis of deposit insurance systems, including the problems frequently encountered in many developing countries.

17. Caprio et al. (1996) also stress the importance of speed of response in a lender of last resort.

fundamentals should give the currency board option a close look. But currency boards are not likely to be the preferred option for those emerging economies with a high incidence of asymmetric shocks (vis-à-vis the reserve currency country), with heavy capital market involvement, and with a shaky fiscal and external debt situation.

For this last group of emerging-market economies, a currency board may well leave a country with an “Argentina problem”: the country will have no effective instrument to deal with a recession because monetary policy is made elsewhere, because the external debt situation prohibits countercyclical (expansionary) fiscal policy, and because the domestic economy is not flexible enough to correct a significant real exchange rate overvaluation by adjusting domestic costs and prices.