Distinguished Lecture on Economics in Government
Exchange Rate Regimes: Is the Bipolar View Correct?

Stanley Fischer

Each of the major international capital market-related crises since 1994—Mexico, in 1994, Thailand, Indonesia and Korea in 1997, Russia and Brazil in 1998, and Argentina and Turkey in 2000—has in some way involved a fixed or pegged exchange rate regime. At the same time, countries that did not have pegged rates—among them South Africa, Israel in 1998, Mexico in 1998, and Turkey in 1998—avoided crises of the type that afflicted emerging market countries with pegged rates.

Little wonder, then, that policymakers involved in dealing with these crises have warned strongly against the use of adjustable peg and other soft peg exchange rate regimes for countries open to international capital flows. That warning has tended to take the form of the bipolar, or corner solution, view, which is that countries need to choose either to peg their currencies hard (for instance, as in a currency board), or to allow their currencies to float, but that intermediate policy regimes between hard pegs and floating are not sustainable.1

Figure 1 shows the change in the distribution of exchange rate arrangements of the IMF’s member countries between 1991 and 1999. The three categories shown are derived from a more detailed classification of de facto exchange regimes that is presented in the Annual Report 2000 of the International Monetary Fund.

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1 Exchange rate regimes will be defined more precisely below: soft pegs are exchange rates that are currently fixed in value (or a narrow range of values) to some other currency or basket of currencies, with some commitment by the authorities to defend the peg, but with the value likely to change if the exchange rate comes under significant pressure. The adjustable peg exchange rates of the Bretton Woods regime were typically soft pegs.

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**Figure 1**

All Countries: Exchange Rate Regimes, 1991 and 1999

![Bar chart showing exchange rate regimes](chart.png)

**Source:** IMF.

**Note:** The number of countries is in parenthesis.

(pp. 141–143). The arrangements described as "hard pegs" in Figure 1 include currency boards and situations where countries have no national currency, either because they are in a currency union or because they have dollarized by formally adopting the currency of some other country. The floating group contains economies whose systems are described either as independently floating, or as a "managed float," which means that while the central bank may intervene in the exchange market, it has not committed itself to trying to bring about a particular exchange rate or exchange rate range. The "intermediate" group consists of economies with a variety of soft peg currency arrangements: these include a conventional fixed exchange rate peg; a crawling peg, in which the peg is allowed to shift gradually over time; an exchange rate band, in which the central bank is committed to...

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2 Until recently the IMF's categorization of exchange rate regimes was based on self-descriptions by member countries, which are presented in the IMF's *Exchange Arrangements and Exchange Restrictions* (EAER) publication. The categorization used in this paper, taken from the *Annual Report 2000*, is based on the IMF staff's evaluation of the de facto arrangements actually in place, rather than what the authorities say the regime is. Several authors, including Ghosh et al. (1997) and Levy-Yeyati and Sturzenegger (2000), have wrestled with the difficulty that the authorities' own description of exchange rate regimes in EAER is patently inaccurate for some countries, and Levy-Yeyati and Sturzenegger have developed their own categorization, based on aspects of exchange rate and reserve variability. The staff of the IMF is currently developing data for earlier years on de facto exchange rate regimes corresponding to the information provided in the *Annual Report 2000*. 
keeping the exchange rate within a specified range; and a crawling band, which allows the exchange rate band itself to move over time.  

As Figure 1 shows, there has since 1991 been a thinning out of the middle or intermediate range, and increases in the percentage of countries having either hard pegs or floating.  

The percentage of countries with hard pegs increased from 16 to 24 percent; the percentage with floating rate regimes increased from 23 to 42 percent. Correspondingly, whereas 62 percent of economies had intermediate regimes in 1991, only 34 percent did in 1999. Thus, it does appear that during the 1990s, countries were moving away from the intermediate arrangements and toward either hard pegs or floating exchange rate regimes. But the significance of this movement and the specific conditions under which it makes economic sense need to be spelled out and refined.

In seeking to refine the analysis, I will argue that proponents of what is now known as the bipolar view—myself included—probably have exaggerated their point for dramatic effect. The right statement is that for countries open to international capital flows: (i) soft exchange rate pegs are not sustainable; but (ii) a wide variety of flexible rate arrangements remain possible; and (iii) it is to be expected that policy in most countries will not be indifferent to exchange rate movements. To put the point graphically, if exchange rate arrangements lie along a line connecting hard pegs like currency unions, currency boards, and dollarization on the left, with free floating on the right, the intent of the bipolar view is not to rule out everything but the two corners, but rather to pronounce as unsustainable a segment of that line representing a variety of soft pegging exchange rate arrangements.

This version of the bipolar argument accepts that countries are likely to be concerned about the level of their exchange rate. In particular, countries will often have what Calvo and Reinhart (2000) term a “fear of floating,” because they are not willing to accept the extent of exchange rate fluctuations generated by a totally free float of the exchange rate. In this case, monetary policy and possibly foreign exchange intervention policy will respond to exchange market pressures. The formulation also leaves open a variety of exchange rate arrangements. For countries open to international capital flows, it includes as sustainable regimes both very hard pegs and a variety of floating rate arrangements, including managed floats.

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3 Classification of the exchange rate regime may be difficult in marginal cases; for instance, whether a very broad exchange rate band should be classified as a soft peg or a managed float.

4 The exchange rate classifications for 1991 used in Figure 1 were provided by the staff of the IMF, on the same basis as those for 1999—that is, using their judgment of the de facto exchange rate arrangements actually in place in member countries.


6 Several colleagues who commented on the first draft of this paper emphasized that monetary and exchange rate policy should not be regarded as separate, and that the key issue in choosing an exchange rate policy is the consistency of the overall macroeconomic policy framework. This perspective is of course correct, but for expositional reasons I focus more narrowly on the choice of exchange rate regime, taking it for granted that no exchange rate regime can be sustained if it is inconsistent with overall macroeconomic policy.
For countries not as yet open to international capital flows, it includes the full gamut of exchange rate arrangements.

The question that then arises is what exchange rate arrangements are excluded by the bipolar view. The answer is: for countries open to international capital flows, exchange rate systems in which the government is viewed as being committed to defending a particular value of the exchange rate, or a narrow range of exchange rates, but has not made the institutional commitments that both constrain and enable monetary policy to be devoted to the sole goal of defending the parity. In essence, the excluded arrangements are fixed exchange rate pegs, adjustable exchange rate pegs, and narrow band exchange rate systems.

I will start this paper by focusing on the critical point that for developed and emerging market countries, adjustable peg exchange rate systems have not proved to be viable for the long term, and should not be expected to be viable. I will then take up a set of other issues: the “fear of floating” argument, and monetary policy under floating rate regimes; the nature of the hard peg arrangements that may be expected to be viable; the use of the exchange rate as a nominal anchor in disinflation; the behavior of exchange rates among the United States, Europe, and Japan; and what can be said about exchange rate arrangements for developing countries that are not open to international capital flows.

Exchange Rate Regimes for Developed and Emerging Market Countries

The fresh thinking about exchange rate regimes that has followed the crises of the last seven years centers on exchange rate systems for countries integrated or integrating into global capital markets.

Two groups of countries can be considered as integrated or integrating into international capital markets: the advanced countries, and emerging market countries. For the advanced countries, I draw on the list of “developed market” economies produced by Morgan Stanley Capital International (MSCI). This contains 22 economies, listed in Table I. The emerging market group is defined as the 33 economies contained in the union of the 27 economies that are in the MSCI emerging markets index and the 17 economies that are in the Emerging Markets Bond Index Plus (EMBI+), which is from J.P. Morgan. These are listed in Table 2. Tables 1 and 2 also list exchange rate arrangements in place at the end of 1999.7

Figure 2 shows the development of exchange rate regimes among the devel-

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7 For further information on indexes from Morgan Stanley Capital International, see (http://www.msci.com). For a general discussion of EMBI+, which tracks total returns for traded external debt instruments in the emerging markets, see (http://www.jpmorgan.com/MarketDataInd/EMBI/embi.html). The MSCI list of developed market economies excludes six that are included in the IMF listing of “Advanced Economies”: Greece, Iceland, Israel, Korea, Luxembourg, and Taiwan POC. Except for Iceland and Luxembourg, these are included in the emerging market economies listed in Table 1. The description of the exchange rate regime for Taiwan POC, which is not listed in the original source, is provided by the author.
Table 1
Developed Market Economies
(as of December 31, 1999)

<table>
<thead>
<tr>
<th>Euro Area</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange Arrangement</td>
<td>Exchange Arrangement</td>
</tr>
<tr>
<td>Austria</td>
<td>No separate legal tender</td>
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<tr>
<td>Belgium</td>
<td>No separate legal tender</td>
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<tr>
<td>Finland</td>
<td>No separate legal tender</td>
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<tr>
<td>France</td>
<td>No separate legal tender</td>
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<tr>
<td>Germany</td>
<td>No separate legal tender</td>
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<tr>
<td>Ireland</td>
<td>No separate legal tender</td>
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<tr>
<td>Italy</td>
<td>No separate legal tender</td>
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<tr>
<td>Netherlands</td>
<td>No separate legal tender</td>
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<tr>
<td>Portugal</td>
<td>No separate legal tender</td>
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<tr>
<td>Spain</td>
<td>No separate legal tender</td>
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</tr>
</tbody>
</table>

Note: Economies listed in the MSCI Developed Markets index.

oped and emerging market countries listed in Tables 1 and 2. In these cases, too, there has been a shift in the bipolar direction, away from the soft peg center, towards harder pegs on one side, and floating arrangements on the other.

Of the 22 developed market economies in Table 1, all of which have complete or nearly complete capital mobility, 10 are in the euro area and are listed as having no separate legal tender. Another 10 countries are listed as having floating rates, either independently floating or managed floating. The other two countries are Hong Kong SAR, with a currency board arrangement, and Denmark, which has not agreed to join the euro zone but is officially still pegging its exchange rate within a band to the other European currencies. Thus, among the developed economies listed in Table 1, and depending on how the euro zone countries are regarded, half the economies have established very hard pegs, and nearly half the countries float.

A decade ago, Table 1 would have looked quite similar for the non-euro area countries. However, the European countries were at that time operating under the European Monetary System (EMS), a set of adjustable exchange rate pegs operating within horizontal bands. Part of the belief in the nonrobustness of adjustable pegs derives from the manner in which EMS currencies were attacked in 1992 and 1993. It proved impossible to hold the adjustable pegs within the EMS after the rise in German interest rates necessitated by Germany's unification had imposed a domestically inappropriate monetary policy on the other EMS members. This example is particularly telling since the attack on the EMS was successful despite

8 Technically, the national currencies for the euro area countries are scheduled to continue as legal tender within each country until the first half of 2002.
Table 2
Emerging Market Countries Grouped by Exchange Rate Arrangement
(as of December 31, 1999)

<table>
<thead>
<tr>
<th>Exchange Rate Regime</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>No separate legal tender/</td>
<td>*Argentina, *Bulgaria, *Panama</td>
</tr>
<tr>
<td>Currency board (3) (3*)</td>
<td>(*3)</td>
</tr>
<tr>
<td>Other fixed pegs (7) (2*)</td>
<td>China, Egypt, Jordan, *Malaysia, Morocco, Pakistan, Qatar</td>
</tr>
<tr>
<td>Pegged rate in horizontal band (1) (1*)</td>
<td>*Greece</td>
</tr>
<tr>
<td>Crawling peg (1)</td>
<td>Turkey</td>
</tr>
<tr>
<td>Rates within crawling bands (5) (2*)</td>
<td>Hungary, *Israel, Poland, Sri Lanka, *Venezuela</td>
</tr>
<tr>
<td>Managed float (3) (1*)</td>
<td>Czech Republic, Nigeria, *Taiwan POC</td>
</tr>
<tr>
<td>Independent float (13) (7*)</td>
<td>*Brazil, *Chile, Colombia, Ecuador, *India, Indonesia, *Korea, *Mexico, Peru, *Philippines, Russia, *South Africa, Thailand</td>
</tr>
</tbody>
</table>

Note: *indicates country whose weight in either the EMBI+ or MSCI index is 2% or greater. Numbers in parenthesis indicate number of countries in each group; asterisked numbers are self-explanatory.

the political commitment to it by the system's members, who saw the adjustable peg system within the EMS as a stepping-stone towards the goal of monetary union. Part of the empirical support for the view that countries will move away from soft peg exchange rate mechanisms to hard pegs or fixed exchange rate mechanisms is based on the creation of the euro as a single currency for Europe.

The 33 emerging market economies are grouped by exchange rate arrangement in Table 2. The largest group of countries (13) consists of those described as independently floating. Six of those countries (Indonesia, Korea, Thailand, Russia, Brazil and Mexico) became floaters after the major crises of the last decade, while Colombia joined the group in 1999. This is the set of transitions that has most influenced the view that soft pegs are not viable for sustained periods—and it includes many of the largest emerging market economies. Three economies are described as having managed floats. Thus, half the emerging market group of countries has some form of floating rate arrangement. While there is room for judgment over whether these countries should be listed in the "managed" or "independent" floating group, there should be no dispute that all 16 belong in one or other of those categories. Furthermore, there has during the last decade been a significant shift among these emerging market economies from various forms of pegged arrangements towards floating.

Of the remaining 17 countries listed in Table 2, at the end of 1999 three either had currency boards or no independent legal tender. Ecuador and Greece have subsequently joined this group: Ecuador (an independent floater in December 1999) by dollarizing and Greece by joining the European Monetary Union. Eight countries had fixed or adjustable pegs at the end of 1999. Turkey had just instituted a crawling peg regime, which has now given way to a float. Five countries—Hungary, Israel, Poland, Sri Lanka and Venezuela—had crawling bands, which in
the cases of both Israel and Poland have been widening over the years, to the point of considerable flexibility.

The pattern is similar if one looks at the 16 larger emerging market economies, which are identified with asterisks in Table 2. Half of these larger emerging market economies are floaters. Three have hard pegs, a number that by now has risen to four. Two have crawling bands. Only two of the countries in this group of larger emerging market economies have soft pegs: China and Malaysia.

Within the emerging market economies, the number of intermediate exchange rate arrangements declined in the 1990s and the number of floating and fixed regimes has increased. This shift appears likely to continue. Looking ahead from the end of 1999, Greece has joined the euro zone, and Hungary and Poland are likely to. Israel is likely to move to an independently floating rate regime; Turkey is scheduled to move in that direction too, with possible membership in the euro zone a more distant prospect.

It is thus reasonable to say that economies open to international capital flows have been and are in the process of moving away from adjustable peg exchange rate systems, some towards harder pegs and more fixed exchange rates (especially in the creation of the euro zone), more towards systems with greater exchange rate flexibility. But why? The reason is that soft peg systems have not proved viable over any

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Figure 2
Developed and Emerging Market Countries: Exchange Rate Regimes, 1991 and 1999

Source: IMF.
Note: The number of countries is in parenthesis.

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9 Fischer and Sahay (2000) document a very similar pattern over time among the transition economies in the 1990s.
lengthy period, especially for countries integrated or integrating into the international capital markets. The fact that pegged exchange rates have a short life expectancy whether the economy is open to international capital flows or not was emphasized by Obstfeld and Rogoff (1995). But the collapse of the Bretton Woods system in the late 1960s and early 1970s, the repeated crises of the European Monetary System in the 1980s and the successful attacks on currencies within the system in 1992 and 1993, and the emerging market crises of 1994–2000 all drive home the lesson that this problem is especially intense for countries that are more open to international flows of capital.\(^\text{10}\)

In several countries, extensive economic damage has been caused by the collapses of pegged rate regimes that had lasted for a few years. After a few years of exchange rate stability under a pegged regime, a belief gradually arises that the exchange rate will never change, which reduces perceptions of the risk of borrowing in foreign currencies and removes the need to hedge. Then, when an exchange rate crisis does strike, it is exceptionally damaging in its effects on banking systems, corporations, and government finances. In principle, it should be possible to reduce the potential damage through prudential regulations that limit the open foreign exchange positions of banks. But it is harder to control corporate sector international financing through such regulations. Moreover, it is in any case probably unwise to rely too heavily on regulatory supervision to prevent transactions that would otherwise be highly profitable.\(^\text{11}\)

The concept of the “impossible trinity” points out that no economy can simultaneously have a fixed exchange rate, capital mobility, and a monetary policy dedicated to domestic goals. The major explanation for the nonviability of soft pegs is that they are an attempt by a country open to international capital flows to have both a fixed exchange rate and a monetary policy directed at domestic goals—and sooner or later, an irreconcilable conflict arises between these goals. But this insight leaves open three questions. First, if the impossible trinity is correct, why did soft peg arrangements survive for so long, and why did their vulnerability become so much more apparent only in the 1990s? The second question is one of political economy: Why can’t domestic monetary policy be directed credibly solely towards maintenance of the soft peg exchange rate? The third question is whether to seek to combine a fixed exchange rate and a domestically-oriented monetary policy by using capital controls to limit the mobility of foreign capital.

The evidence shown in Figures 1 and 2 raises the question of what happened in the 1990s to cause exchange rate arrangements to shift in a bipolar direction. The beginnings of that move can be dated much earlier, to the breakup of the Bretton Woods system in the early 1970s. In the 1990s, the creation of the European Monetary Union accounts for much of the shift towards hard pegs. Among emerging market countries, the growing openness of capital accounts, combined with the associated development of private sector capital flows towards the emerging mar-

\(^{10}\) John Williamson (2000) offers an alternate argument for the movement away from soft pegs, suggesting that it is because of pressure from the IMF and U.S. Treasury.

\(^{11}\) I return to a closely related point below in discussing the potential use of capital controls.
kets, made the force of the inconsistency expressed in the impossible trinity much more apparent and led to the collapse of several important soft pegged exchange rate arrangements in major crises.

The answer to the second question, the political economy question of why it is difficult for macroeconomic policy to protect a soft peg, must be that if the option of changing the exchange rate is open to the political system, then at a time when the short-run benefits of doing so appear to outweigh the costs, that option is likely to be chosen. Both foreign and domestic economic shocks (including policy actions) may move the equilibrium nominal exchange rate away from the official rate. If the official or pegged exchange rate is overvalued, then a government that wishes to prevent a devaluation typically has to raise interest rates. As long as the extent of the disequilibrium is small, and the requisite policy actions are taken in time, they can be expected to stabilize the situation. But if the disequilibrium has become large, either because policy was slow to react or because the country has been hit by a strong and long-lasting shock, the required high interest rates may not be viable—either for political reasons or because of the damage they will inflict on the banking system or aggregate demand. Under those circumstances, speculators can be expected to attack the currency, selling it in the anticipation that the government will be forced to devalue. If the disequilibrium is large, such a speculative attack on the exchange rate is likely to succeed.

Third, why not impose capital controls to protect the exchange rate from the effects of unwanted capital flows? Among the 16 larger emerging market economies identified in Table 2, China successfully maintained its pegged exchange rate through the Asian crisis with the assistance of long-standing capital controls, providing an important element of stability in the regional and global economies. Malaysia’s imposition of capital controls and pegging of the exchange rate in September 1998 has attracted more attention. However, evaluation of the effects of the Malaysian controls has been difficult since they were imposed after most of the turbulence of the first part of the Asian crisis was over—that is, after most of the capital that wanted to leave had done so—and when regional exchange rates were beginning to appreciate.

In discussing capital controls, I shall assume that countries will in the course of their development want to liberalize the capital account and integrate into global capital markets. This view is based in part on the fact that the most advanced economies all have open capital accounts, which suggests that this is an appropriate goal for emerging market economies. It is also based on the view that the potential benefits of integration into the global capital markets—importantly including the benefits obtained by allowing foreign competition in the financial sector—outweigh the costs.

This question is examined by Edwards (2000), Mussa et al. (2000) and Williamson (2000). For more detailed discussion of experience with capital controls, see Ariyoshi et al. (2000).

See Kaplan and Rodrik (2000) for a relatively positive appraisal of the Malaysian controls.

The argument is developed at greater length in Fischer (1998). The point has been much disputed, including by Jagdish Bhagwati (1998).
It is necessary to distinguish between capital controls on outflows and on inflows. For controls on capital outflows to succeed, they need to be quite extensive, to cover potential loopholes. Even so, experience shows that controls on capital outflows cannot prevent a devaluation of the currency if domestic policies are fundamentally inconsistent with maintenance of the pegged exchange rate. Some countries have attempted to impose controls on outflows once a foreign exchange crisis is already underway. It is generally believed that this use of controls has been ineffective (Ariyoshi et al., 2000, pp. 18–29; Edwards, 1999, pp. 68–71). In addition, the imposition of controls on capital outflows is likely to have an effect on capital inflows to the country, since investors who are concerned about not being able to withdraw their capital from a country may respond by not sending it there in the first place.

Moreover, as an economy develops and experiences a growing range of contacts with foreign economies, controls on capital outflows are likely to become both more distorting and less effective. At some point the controls will need to be removed. Where controls on capital outflows are reasonably effective, they would need to be removed gradually, at a time when the exchange rate is not under pressure. The removal of controls on outflows sometimes results in a capital inflow, a result of either foreigners and/or domestic residents bringing capital into the country in light of the greater assurance it can be removed when desired. If the country is moving from a fixed exchange rate regime with controls on capital outflows to floating exchange rates, it is desirable to begin allowing some flexibility of exchange rates as the controls are gradually eased. Moreover, prudential controls that should be put in place for the efficient operation of the financial system often have a similar effect to some capital controls—for instance, limits on foreign exchange positions taken by domestic institutions. More generally, to reduce the economy's vulnerability to crises, a strong domestic financial system should be in place when capital controls are removed.

The IMF has supported the use of market-based capital inflow controls: for example, those that impose a tax on capital inflows. The typical instance occurs when a country is trying to reduce inflation using an exchange rate anchor. For anti-inflationary purposes, the country needs interest rates higher than those implied by the sum of foreign interest rates and the expected rate of currency depreciation. In such circumstances, the high interest rate will attract an inflow of foreign capital, which will tend to cause an exchange rate appreciation; alternatively, the country can permit the inflows and try to sterilize their monetary impact, but this typically becomes costly. A tax on capital inflows can in principle help a country maintain a high domestic interest rate without experiencing a substantial inflow of capital. In addition, by taxing short-term capital inflows more than longer-term inflows, capital inflow controls can also in principle influence the composition of inflows.

Evidence from the Chilean experience with controls on capital inflows suggests that controls on capital inflows were for a time successful in allowing some monetary policy independence, and also in shifting the composition of capital inflows
towards longer-term investment. However, the Chilean controls eventually seemed to lose their effectiveness (Edwards, 2000), and they have recently been removed.

Direct controls on inflows are also used by some countries. These may be aimed at specific types of inflows, for instance, short-term (hot money) flows, or sometimes foreign direct investment. Direct investment inflows are typically quite stable, and indeed at the aggregate level continued rising even during the Asian crisis; they also bring advantages in the form of new technology. Most countries that seek to control inflows prefer long-term direct investment to short-term inflows. Nonetheless, some countries have liberalized short-term flows, while seeking to keep long-term flows out, thereby exacerbating the volatility of short-term capital flows as market uncertainties increased.

There is little question that capital controls—whether on outflows or inflows—can for some time help a country sustain a soft peg exchange rate regime. Nonetheless, such controls tend to lose their effectiveness over time. Moreover, as countries develop, they are likely to want to integrate further into global capital markets. Countries in these circumstances would be well advised to move away from a soft peg exchange rate, typically towards a more flexible exchange rate regime.

Fear of Floating

Many countries that claim to have floating exchange rates do not allow the exchange rate to float freely, but rather deploy interest rates and intervention policy to affect its behavior. As long as such interventions are not undertaken to defend a particular exchange rate, or narrow range of exchange rates, this paper has categorized such behavior as a managed float. But such fear of floating behavior has been described as demonstrating that many—particularly emerging market—countries are not willing to allow their exchange rates to float.

It is hardly a surprise that most policymakers in most countries are concerned with the behavior of the nominal and the real exchange rates. Changes in the nominal exchange rate are likely to affect the inflation rate. Changes in the real exchange rate may have a powerful effect on the wealth of domestic citizens, and on the allocation of resources, which may have not only economic but also political effects—especially in the case of currency appreciations, in countries where exporters matter.

Thus in most countries, even those with floating exchange rate regimes, monetary policy is likely to respond to some extent to movements of the exchange rate. The United States is one of the few examples of a country that largely ignores its exchange rate in the conduct of monetary policy. But most of the other G-7 countries (Canada, France, Germany, Italy, Japan, and the United Kingdom) and emerging market economies do pay attention to exchange rates in the conduct of monetary policy. Canada, for example, until recently used a monetary conditions index to guide monetary policy, which was based on movements in both the exchange rate and the interest rate.

Many of the recent converts to floating exchange rates (several of whom were
forcibly converted) have opted for inflation targeting, and that system seems to be working well and has much to commend it. With the inflation targeting approach to monetary policy, movements in the exchange rate will be taken into account indirectly in setting monetary policy, because the exchange rate affects price behavior. This will generally produce a pattern of monetary tightening when the exchange rate depreciates, a response similar, but not necessarily of the same magnitude, to that which would be undertaken if the exchange rate were being targeted directly.

Why should monetary policy not target both the nominal exchange rate and the inflation rate? Central banks may face this issue with particular force in a situation with an appreciated real exchange rate and the current account in large deficit. The first answer must be that monetary policy fundamentally affects the nominal exchange rate and not the real exchange rate, and that if any part of macroeconomic policy should take care of the current account balance by redressing an imbalance between domestic savings and investment, it is fiscal policy.

However, there is an unresolved issue about whether monetary policy in a floating rate system should be used in the short run to affect the real exchange rate. If the nominal exchange rate moves faster than the real exchange rate, then monetary policy can influence the real exchange rate in the short run. In many respects, this issue is similar to that of how monetary policy in an inflation-targeting framework should respond to movements in output and unemployment. There is almost certainly a short-run tradeoff between the real exchange rate and inflation, analogous to the Phillips curve, although it has not received much empirical attention. This is not the place to pursue the issue, but just as answers have been developed to how to deal with the short-run Phillips curve in an inflation-targeting framework, so that a central bank can take into account the short-run impact of its actions on output and unemployment while recognizing that the long-run effects are negligible, it remains necessary to answer the question of how to deal with the short-run tradeoff between the real exchange rate and inflation, recognizing that in the long run greater inflation will not affect the real exchange rate.

Beyond the use of interest rates, some countries intervene directly from time to time in the foreign exchange markets to try to stabilize the exchange rate. So long as they are not perceived as trying to defend a particular rate, such interventions can be useful in reducing the degree of volatility in exchange rate markets. This is one of the remaining areas in which central bankers place considerable emphasis on the touch and feel of the market, and where systematic policy rules are not yet common. There is of course controversy over whether exchange rate intervention works at all—and even if it does, whether it is wise to use it. The Banco de Mexico has developed a method of more-or-less automatic intervention designed to reduce day-to-day movements in exchange rates, which could provide lessons in this area.

Recognizing the difficulty for an emerging market country of defending a

\footnote{Cushman and Zha (1997) contain vector autoregressions from which the implied tradeoff can be calculated in the Canadian case. See also Calvo, Reinhart and Végh (1995).}
narrow range of exchange rates, John Williamson (2000) proposes alternative regimes. He calls these BBC arrangements: basket (that is, a peg to a basket of currencies rather than a single currency), band, and crawl. He also recommends that countries if necessary allow the exchange rate to move temporarily outside the band, so that speculators cannot predict with certainty when the central bank is going to intervene. In these circumstances, a moving and elastic band would be serving as a weak nominal anchor for the exchange rate, but it is not at all clear why such a system is preferable to an inflation-targeting framework. Possibly the exchange rate band could be thought of as a supplement to an inflation-targeting framework, but it would need to be demonstrated what benefits that brings, if any. One possibility—which is not very plausible—is that by committing weakly to some range of exchange rates, the authorities make it more likely that fiscal policy will be brought into play if the real exchange rate moves too far from equilibrium.

**Viable Hard Pegs**

At the end of 1999, 45 of the IMF’s then-182 members had hard peg exchange rate systems, either with no independent legal tender, or a currency board. Except for the 11 countries in Europe, all of the 37 economies with no independent legal tender were small. But the exception of the European single currency, the euro, is a very big one. Argentina and Hong Kong SAR are the biggest economies with currency boards. Since the end of 1999, Ecuador and El Salvador have dollarized, so that over a quarter of the IMF’s 183 members have very hard pegs; the proportion in terms of GDP is similar.

At the end of 1990, plans for a single European currency did not yet exist, and there were only three currency board economies. The appraisal of the performance of currency boards, once regarded as a historical curiosity, has undoubtedly changed, as a result of several factors: the tireless proselytizing by Steve Hanke and others (for instance, Hanke and Schuler, 1994); examination of their historical record; and their performance in a number of economies, including Hong Kong SAR, Argentina, and the transition economies of Estonia, Lithuania, Bulgaria, and Bosnia-Herzegovina. Ghosh, Gulde and Wolf (2000, p. 270) provide a balanced summary:

First, the historical track record of currency boards is sterling . . . Countries that did exit . . . did so mainly for political, rather than economic reasons, and such exits were usually uneventful. . . . Second, modern currency boards have often been instituted to gain credibility following a period of high or hyper-inflation, and in this regard have been remarkably successful. Countries with currency boards experienced lower inflation and higher (if more volatile) GDP growth compared to both floating regimes and simple pegs. . . . The GDP growth effect is significant, but may simply reflect a rebound from depressed levels. Third, . . . the successful introduction of a currency board
The great strength of the currency board arrangement, the virtual removal of the nominal exchange rate as a means of adjustment, is also its principal weakness. In the case of an internal or external macroeconomic shock, the economy can adjust via a change either in exchange rates or domestic prices and wages. The nominal exchange rate adjustment is typically much quicker, and that via wages and prices more prolonged and, certainly in the case of the need for a decline in the real exchange rate, more difficult. In late 2000, this difficulty was evident in Argentina, where a currency board arrangement prevents the nominal exchange rate from moving, but even in Argentina, the adjustment is taking place as domestic prices and costs decline relative to foreign prices and costs.

It is difficult to make a general evaluation of the benefits and costs of the constraints imposed by the commitment to a currency board. For a country with a history of extreme monetary disorder, a currency board appears to be a means of obtaining credibility for a low-inflation monetary policy more rapidly and at lower cost than appears possible any other way. For a country like Argentina, with a long and unhappy inflationary history, the society may be willing to accept the occasional short-run costs of doing without the exchange rate as a means of adjustment in exchange for lower inflation, just as the memory of the German hyperinflation in the 1920s has colored German attitudes to inflation ever since.

The extensive discussion leading up to the European single currency emphasized how member countries, when deprived of exchange rate flexibility, would need to adjust to shocks with wage and price flexibility, the mobility of labor and capital, and fiscal compensation. A currency board country is unlikely to have access to fiscal compensatory measures from abroad, and nor is its labor likely to be as mobile internationally as that in the European Union will be—but we should not exaggerate the role of geographical labor mobility as a means of short-run adjustment to shocks even in large national economies. For such a country, the emphasis has to be on wage and price flexibility as well as internal labor market mobility. Domestic fiscal policy can play a countercyclical role in a currency board economy, provided the fiscal situation is strong enough in normal times for fiscal easing during a recession not to raise any questions about long-term fiscal sustainability.

Policies to this end—to encourage internal factor mobility, wage and price flexibility, and fiscal prudence in normal times—are entirely possible, and can help ensure the sustainability of a currency board over time. Such policies are of course generally desirable in any economy, but the need for them is greater if the exchange rate is not available as a tool of adjustment.

Another disadvantage sometimes cited for a currency board arrangement is that since the central bank cannot create money, it may not be able to act as lender of last resort. However, the circumstance envisaged by the classic argument for lender of last resort—a pure panic-based run on banks into currency—is rare. Most often financial crises have a real basis, and take real resources to resolve, as Goodhart and Schoenmaker (1995) have shown. One way or another, these re-
sources come from the fiscal authority. The absence of a central bank capable of acting as lender of last resort can be compensated for in various ways: by the creation, typically with fiscal resources, of a banking sector stabilization fund (as has been done in Bulgaria); by setting up a deposit insurance scheme, financed by the banks and if necessary in the final resort by the treasury; by strengthening financial sector supervision and prudential controls; by allowing foreign banks to operate in the economy; and by lining up contingency credits for the banking system.

The discussion so far has implicitly centered on how the goods and factor market and the current account would adjust in world of floating or fixed exchange rates. Those who strongly favor hard pegs, such as Calvo and Reinhart (2000) or Eichengreen and Hausmann (2000), tend to focus on international flows of capital and on asset markets. Their argument is that with respect to asset markets, a country obtains essentially no benefit—seigniorage aside—from exchange rate flexibility. For example, emerging market economies cannot borrow abroad in their own currencies, and so the exchange rate creates a source of additional risk and higher interest rates for all foreign borrowing. Given this, they argue for going beyond currency boards to dollarization and perhaps in the longer run to wider currency unions.

If a country intends never to use the exchange rate as a mechanism of adjustment, then retaining exchange rate flexibility is clearly counterproductive. Hence the argument for dollarization relative to a currency board must turn on an appraisal of the gains from dollarization that would be obtained in the capital markets, for example in the reduction of spreads between domestic and foreign interest rates and by the strengthening of the financial system, versus the losses implied by forgoing both seigniorage and the option of changing the exchange rate in extremis by giving up a national currency. The balance of the argument would be tilted if a politically acceptable means could be found of transferring seigniorage to dollarizing countries; the Mack bill in the previous Congress would have done that, suggesting that, at least in the case of the dollar, some means of transferring seigniorage from the use of the dollar could eventually become politically feasible.

Both Ecuador and El Salvador dollarized in 2000, but under very different circumstances. Ecuador’s decision was essentially one of desperation (Fischer, 2000); El Salvador’s was based on careful consideration. The Ecuadorian case provides much food for thought about what it takes for dollarization to succeed. It was implemented without many of what were thought of as the prerequisites for success, such as a strong banking system, being in place. Much work remains to be done, particularly in the banking sector, to ensure the long-term success of Ecuador’s dollarization. But at least in its first year, it has worked reasonably well.

Hard peg exchange rate systems have become more attractive than had been thought some years ago. For a small economy, heavily dependent in its trade and capital account transactions on a particular large economy, it may make sense to adopt the currency of that country, particularly if provision can be made for the transfer of seigniorage. While the requirements for the effective operation of such a system are demanding, in terms of the strength of the financial system and fiscal soundness, meeting those requirements is good for the economy in any case. To be
sure, careful consideration needs to be given to the nature of the shocks affecting the economy. For example, even though the Canadian economy is closely connected to the U.S. economy, Canadian policymakers regard their country as benefiting from the shock-absorber role of the floating exchange rate with the U.S. dollar. But there is clearly a trend, which can be expected to accelerate if the euro zone succeeds, in the direction of hard pegged exchange rate regimes. This trend is already reducing the number of currencies in existence, and further reductions should be expected in future.

The Exchange Rate as a Nominal Anchor for Disinflation

The benefits and risks of using the exchange rate as a nominal anchor to disinflate from triple-digit inflation, as well as the real dynamics associated with such stabilizations, have been extensively studied (for a summary, see Mussa et al., 2000, Appendix III, pp. 44–47; Calvo and Végh, 1999). There are few instances in which a successful disinflation from triple-digit inflation has taken place without the use of an exchange rate anchor, particularly in countries that have suffered from chronic monetary instability. The exchange rate anchor in such disinflations sometimes takes the form of a very hard peg, for instance a currency board, but is more often a softer peg, often a crawling peg regime.

Of the eleven major exchange rate-based stabilizations since the late 1980s studied in Mussa et al. (2000), four of them—Argentina in 1991, Estonia in 1992, Lithuania in 1994 and Bulgaria in 1997—entered currency boards and disinflated successfully. The other seven countries (and Israel in 1985 could be added to this sample) generally either undertook exchange rate devaluations a step at a time, or introduced crawling exchange rate bands, which in many cases have widened over time. The disinflations of three countries—Mexico in 1994, Russia in 1998 and Brazil in 1999—ended in a currency crash, though in each case low inflation was preserved or rapidly regained following the crisis.

Countries which disinflate using a soft peg exchange rate strategy must consider their exit strategy from the pegged arrangement. An IMF study of exit strategies in this case showed that exit is best undertaken when the currency is strong, something which is quite likely to happen as the stabilization gains credibility and capital inflows expand (Eichengreen et al., 1998). This was the pattern for instance in Poland and Israel, where the band was widened as pressure for appreciation mounted. However, the political economy of moving away from a peg is complicated, even in this case. When the currency is strong, the authorities generally see no reason to move off the peg; when it is weak, they argue that devaluation or a widening of the band under pressure would be counterproductive. But the longer the peg continues, the more the dangers associated with soft pegs grow. In some cases in which the currencies of disinflating countries crashed, the IMF had been pushing unsuccessfully for greater exchange rate flexibility.

The need to move away from a soft peg is one of the reasons an exit mechanism was built into the Turkish stabilization and reform program that began
in December 1999. Nonetheless, as a result of unresolved banking sector problems, the failure to undertake corrective fiscal actions when the current account widened, and political difficulties, the crawling peg failed to hold and in February 2001, Turkey was forced to float its exchange rate.

**Big Three Exchange Rates**

The remarkable instability of exchange rates among the major currencies is a perennial topic of concern and discussion. Movements in exchange rates among the big three—the United States, Europe, and Japan—can create difficulties for other countries, particularly for those that peg to one of those currencies. Thus the exports of east Asian countries were adversely affected by the appreciation of the dollar that began in 1995, and the strengthening of the dollar was also a factor in the difficulties faced by Argentina and Turkey in 2000.

There have been frequent proposals for target exchange rate zones among the dollar, the euro and the yen. If the target zones were to be narrow, monetary policy in each currency area would have to be dedicated to maintenance of the exchange rate commitment. There is no political support for a commitment to narrow target zones; it is not clear that monetary policy could maintain the desired exchange rate commitment; and there is not a persuasive case that the gains from maintaining a narrow commitment would be large. But given the extent of exchange rate movements among the major currencies, even wide target zones could be stabilizing.

In practice, something akin to such a system appears to operate, informally and loosely. When exchange rates get far out of line with fundamentals, two or three countries of the big three agree to intervene in the currency markets. This happened in mid-1995 when the yen-dollar exchange rate reached 80, implying a yen that was significantly appreciated relative to estimates of its equilibrium value, and in the fall of 2000, when the euro was significantly depreciated relative to its estimated equilibrium value.16

This informal system differs from a formal target zone system in three important ways. First, there are no preannounced target zones, and so no commitment to intervene at any particular level of exchange rates. This removes the possibility of one-way bets for speculators, but of course also removes the certainty about future exchange rates that a credible target zone system would provide—if such a system were possible. Second, the informal system operates more through coordinated interventions in the foreign exchange market than through coordinated monetary policy actions. While exchange rate movements may influence interest rates in the big three, both through their implications for inflation, and probably more directly

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16 For the IMF’s methodology for estimating equilibrium exchange rates, see Isard and Faruqee (1998). These estimates come with a wide confidence interval, but from time to time discrepancies between actual and estimated equilibrium exchange rates can be clearly identified. Several private sector financial institutions also estimate equilibrium exchange rates; see Edwards (2000) for discussion of the methodologies and the range of estimates provided by different sources.
in the cases of the Bank of Japan and the European Central Bank, coordinated interest rate changes with the sole purpose of affecting exchange rates do not appear to be on the current agenda. Third, such interventions are rare. All of which is to say that the system is indeed informal and loose. Nonetheless it provides some bounds on the extent to which exchange rates among the United States, Europe and Japan are likely to diverge from equilibrium.

Exchange Rate Regimes for Other Countries

I have focused so far on exchange rate regimes for 55 developed and emerging market economies, which account for the bulk of global GDP, trade, and international capital flows. Figure 3 shows the distribution of exchange rate arrangements among the other members of the IMF as of end-1999 and end-1991, respectively. Table 3 groups these countries by their exchange rate regime at the end of 1999. The pattern is a familiar one: There has been a mild shift towards hard pegs on one side and a stronger shift to more flexible exchange rate regimes on the other.

These countries represented in Figure 3 are developing economies that are not classified as emerging market, which means that they typically have low per capita incomes. Many of them are also small economies and not very well integrated into the world economy. Such countries will display a wide range of situations and experiences, which makes it hard to make any definite recommendations on what
Table 3  
All Other Countries Grouped by Exchange Rate Arrangements  
(as of December 31, 1999)  

<table>
<thead>
<tr>
<th>Exchange Rate Regime (Number of countries)</th>
<th>Countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other fixed pegs (38)</td>
<td>Aruba, Bahamas, Bahrain, Bangladesh, Barbados, Belize, Bhutan, Botswana, Cape Verde, Comoros, El Salvador, Fiji, Iran, Iraq, Kuwait, Latvia, Lebanon, Lesotho, Macedonia FYR, Maldives, Malta, Myanmar, Namibia, Nepal, Netherlands Antilles, Oman, Samoa, Saudi Arabia, Seychelles, Solomon Islands, Swaziland, Syrian Arab Republic, Tonga, Trinidad and Tobago, Turkmenistan, United Arab Emirates, Vanuatu, Zimbabwe</td>
</tr>
<tr>
<td>Pegged rate in horizontal band (4)</td>
<td>Cyprus, Iceland, Libya, Vietnam</td>
</tr>
<tr>
<td>Crawling peg (4)</td>
<td>Bolivia, Costa Rica, Nicaragua, Tunisia</td>
</tr>
<tr>
<td>Rates within crawling bands (2)</td>
<td>Honduras, Uruguay</td>
</tr>
<tr>
<td>Managed float (23)</td>
<td>Algeria, Azerbaijan, Belarus, Burundi, Cambodia, Croatia, Dominican Rep., Ethiopia, Guatemala, Jamaica, Kenya, Kyrgyz Republic, Lao PDR, Malawi, Mauritania, Paraguay, Romania, Slovak Rep., Slovenia, Suriname, Tajikistan, Ukraine, Uzbekistan</td>
</tr>
<tr>
<td>Independent float (29)</td>
<td>Afghanistan, Albania, Angola, Armenia, Congo (Dem. Rep.), Eritrea, Gambia, Georgia, Ghana, Guinea, Guyana, Haiti, Kazakhstan, Liberia, Madagascar, Mauritius, Moldova, Mongolia, Mozambique, Papua New Guinea, Rwanda, São Tome and Príncipe, Sierra Leone, Somalia, Sudan, Tanzania, Uganda, Yemen, Zambia</td>
</tr>
</tbody>
</table>


exchange rate regimes would work best for countries in this group. In a review of exchange rate arrangements in these economies, Mussa et al. (2000, p. 31) state:

Reflecting wide differences in levels of economic and financial development and in other aspects of their economic situations, no single exchange rate regime is most appropriate for all such countries, and the regime that is appropriate for a particular country may change over time.17 Because of their limited involvement with modern global financial markets, some form of exchange rate peg or band or highly managed float is generally more viable and more appropriate for them than for most of the emerging market countries. Even this conclusion, however, leaves a wide range of possible regimes—for a diverse range of developing and transition countries.

17 At this point the authors note that this is the conclusion reached by Frankel (1999).
They add: "IMF advice to members . . . reflects this ambiguity and diversity. Consistent with the Articles of Agreement, the IMF generally respects the member’s choice of exchange rate regime and advises on policies needed to support that choice."

There is room for further research on the characteristics of exchange rate systems and accompanying financial sector structural policies most suited to particular types of countries that are not yet integrated into the global financial system, taking into account the likelihood that as the country develops, it will want to open up its capital account.

Summary and Conclusions

In the last decade, there has been a hollowing out of the middle of the distribution of exchange rate regimes in a bipolar direction, with the share of both hard pegs and floating gaining at the expense of soft pegs. This is true not only for economies active in international capital markets, but among all countries. A look ahead suggests this trend will continue, certainly among the emerging market countries. The main reason for this change, among countries with open capital accounts, is that soft pegs are crisis-prone and not viable over long periods.

A country’s choice between a hard peg and floating depends in part on the characteristics of the economy, and in part on its inflationary history. The choice of a hard peg makes sense for countries with a long history of monetary instability, and/or for a country closely integrated in both its capital and current account transactions with another or a group of other economies. However, countries with a historical tradition of monetary stability, or no obvious subset of other countries with which to form a monetary union, or a belief that a flexible exchange rate helps their economy adjust to the sorts of macroeconomic shocks that it experiences, may be better off with a floating exchange rate.

As more countries adopt very hard exchange rate pegs of one sort or another, including dollarization and currency unions, there will in the future be fewer independent national currencies. Exchange rates among the remaining independent currencies will mostly be floating, and for all but the biggest countries, monetary policy—and occasionally exchange market intervention—will react to and sometimes seek to affect the nominal exchange rate.

In the medium term, as in recent years, as the center of the distribution of exchange rate regimes hollows out, the shift will likely be more towards the floating than the hard peg end of the spectrum. However, over the longer term, and depending on how well the euro area and dollarized economies operate, the trend could well be to move from the floating to the hard peg ends of the spectrum.

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