
Managed Floating Plus

What Is a Managed Floating Plus Regime?

Before making the case for managed floating plus as the “least worst” available currency regime option for emerging-market economies, it is necessary to spell out more concretely what the three aspects of such a regime would entail. First, I call it “managed” floating to indicate that, in contrast to pure floating, the authorities could use various policies to counter some short-term movements in the exchange rate. They would be permitted, for example, to intervene in the exchange market from time to time to “smooth” what they regarded as excessive short-term fluctuations in exchange rates or to maintain market liquidity.

Under managed floating, the authorities would not, however, attempt to use large-scale, sterilized exchange market interventions to alter the trend of the exchange rate, which would be determined by market forces. Nor would they attempt to even out almost all short-term volatility in the exchange rate, because such volatility serves to sharpen participants’ awareness of market risk. The timing of interest rate movements decided on domestic grounds could be influenced by the exchange rate. The key constraint on allowing exchange rate considerations to influence interest rate decisions is that such external considerations *not* put in jeopardy the primary objective of monetary policy: the achievement of a publicly announced inflation target.¹

1. This constraint also applies more generally to efforts by the authorities to counter a perceived “misalignment” of the exchange rate, i.e., a departure of the actual exchange rate from its equilibrium level. When a conflict arises between the domestic and external requirements of monetary policy, the domestic requirement must be “king.”

Second, I call the regime “floating” to signify that the authorities would have no publicly announced exchange rate target and that market forces would be the main determinant of exchange rates.²

Third, the “plus” aspect of managed floating plus has two components: an inflation-targeting regime for monetary policy, and an aggressive set of measures to reduce currency mismatching.

Following Bernanke et al. (1999), Mishkin (2000), and Truman (2001), I regard inflation targeting as a framework for monetary policy that constrains discretion in at least four key elements: (1) There is an institutional commitment to low inflation as a primary objective of monetary policy. (2) There is public announcement of a numerical target (or sequence of targets) for inflation, with a specified time horizon for meeting that target. (3) The central bank is given enough independence from political pressures and/or government directives that it can set the instruments of monetary policy as it sees fit in pursuit of its mandate. (4) The conduct of monetary policy is subject to transparency and accountability guidelines, so that the public is informed about both the reasons for monetary policy decisions and the extent to which the objectives of monetary policy have been attained.

Following the Financial Stability Forum (2000), I define a “currency mismatch” as a situation in which the currency denomination of a country’s or sector’s assets differs from that of its liabilities such that its net worth is sensitive to changes in the exchange rate.³ Note that when considering currency mismatches on the part of financial intermediaries (especially banks), it is necessary to consider both their direct and indirect exposure to exchange rate changes, particularly the indirect exposure that comes about when their loan customers (nonfinancial corporations and others) have large currency mismatches. A depreciation of the local currency that renders many loan customers insolvent would impose large losses on banks, even if the currency denomination of bank loans matched that of bank deposits.⁴

2. Note that, in contrast to managed floating plus, most “intermediate” currency regimes (including a BBC regime) have a publicly announced target for the exchange rate.

3. Some analysts combine currency, maturity, and liquidity mismatches into a wider concept of “balance sheet vulnerability” or “international illiquidity”—presumably because of the links among these mismatches in many emerging-market financial crises. E.g., Chang and Velasco (1999) regard international illiquidity as a situation in which actual or potential obligations in foreign currency exceed the amount of foreign currency that can be accessed on short notice; Dornbusch (1998) adopts a similar definition and calls it balance sheet vulnerability.

4. Although it might be argued that such losses on bank loans should be classified as credit losses rather than currency mismatches, these losses would be regarded as currency mismatches under a broader definition that stresses the sensitivity of net worth (and net income) of banks to changes in the exchange rate.

Measures to discourage or limit currency mismatching span a wide field (see discussion below). They can range from allowing the exchange rate to move enough to continually remind market participants of currency risk, to publishing data on indicators of currency mismatching (e.g., the ratio of short-term external debt to international reserves, or the currency composition of interbank loans), to regulatory provisions that limit banks' net open positions in foreign currency, to developing better hedging mechanisms and deeper capital markets in emerging-market economies, to proposing more draconian measures (e.g., prohibiting government borrowing in foreign currency, or making foreign currency obligations incurred by domestic residents unenforceable in domestic courts).⁵

Could one of these two components of the "plus" be discarded in the interest of streamlining the proposed currency regime? I do not think so. Indeed, I would argue that inflation targeting and anti-currency mismatching measures reinforce one another.

If nothing is done to discourage currency mismatching, it is unlikely that exchange rate considerations will consistently play second fiddle to low inflation in an inflation-targeting monetary policy.⁶ Given the high degree of openness in most emerging-market economies and the extent to which liabilities are denominated in foreign currency, it is simply unrealistic to suppose that large exchange rate movements would be ignored. As was suggested above, although some policy actions to counter excessive short-term exchange rate movements can be reconciled with inflation targeting, only one nominal anchor can dominate an inflation-targeting strategy, and that anchor must be low inflation.

Without real progress on reducing currency mismatches, we would likely see a continuation of fear of floating on the part of emerging-market economies. In this connection, the empirical work of Hausmann, Panizza, and Stein (2000) suggests that the greater the dependence on foreign currency borrowing, the greater the fear of floating on the part of emerging economies. Moreover, Hausmann and his colleagues report that currency mismatching explains the cross-country variation in fear of floating better than cross-country differences in the pass-through of exchange rate changes into domestic prices. In short, if we want emerging economies to exercise monetary policy independence in pursuit of a low inflation

5. The theoretical literature on currency mismatching emphasizes several explanations, including lack of monetary policy credibility by the sovereign, implicit or explicit bail-outs of mismatched private borrowers by the government or central bank, lack of domestic financial development in an emerging economy, and commitment or signaling problems on the part of domestic firms in an emerging-market economy; see Jeanne (2001).

6. Mishkin (2000) argues similarly that inflation targeting may not be viable in partially dollarized economies unless prudential or supervisory practices make the system capable of withstanding exchange rate shocks.

objective, something has to be done to decrease their vulnerability to balance sheet crises linked to large currency mismatches.

By the same token, the successful implementation of inflation targeting in emerging-market economies should make it easier, *ceteris paribus*, to reduce currency mismatches. One of the reasons lenders outside the emerging economies seem to be reluctant to denominate a higher share of loans in the borrower's local currency is that this would place excessive currency risk on the lender. In my conversations with a group of large private creditors in the Group of Seven (G-7) countries, they maintained that currency risk was high because many emerging economies did not have a reliable monetary policy framework in place that would limit the prospect of strategic devaluation. Without such a policy framework, it became difficult (in the lenders' view) to price currency risk—more difficult (the lenders say) than pricing credit risk. An inflation-targeting framework that contained a credible commitment to low inflation should be responsive to this concern of foreign lenders. This, in turn, should increase the supply of local currency-denominated loans from abroad and decrease the size of the currency-mismatching problem.

In addition, a lower rate of inflation should contribute to the development of greater financial depth in emerging-market economies, thereby potentially increasing the supply of local currency-denominated loans from domestic sources. In this connection, Caprio and Demirgüç-Kunt (1997) document that developing countries suffer from a shortage (relative to industrial countries) of long-term finance and find that one of the leading reasons for this shortage is high inflation and unstable macroeconomic policies. They conclude that “attempts to increase the supply of long-term credit to developing countries without addressing the inflation problem could easily prove to be short-lived or costly” (6).

Similarly, Khan, Senhadji, and Smith (2001) argue that inflation impedes financial development by increasing the severity of adverse selection, moral hazard, and monitoring problems; in the process, higher inflation reduces the extension of bank credit and exacerbates credit rationing. Using a dataset for 168 countries (comprising both industrial and developing countries) and employing alternative indicators of financial depth (i.e., domestic credit to the private sector as a share of GDP, stock market capitalization as a share of GDP, private and public bond market capitalization as a share of GDP, and combinations of the above), Khan and his colleagues find that after controlling for other factors, inflation rates above the 3-6 percent range have a significant, negative threshold effect on financial development.

Last but not least, managed floating plus is meant to be a long-term currency regime for emerging-market economies that are heavily involved with private capital markets. Although, during a crisis, capital controls can create some breathing space within which to make policy adjustments,

recent research suggests that over time their effectiveness diminishes and the costs associated with their implementation increase.⁷ As such, capital controls are not included as part of the “plus.”

The Case for Managed Floating Plus

In advancing the case for managed floating plus, I maintain that even plain vanilla managed floating has some significant advantages that are worth retaining, and more important, that there are grounds for believing that the performance of a managed floating regime can be improved significantly when the plus elements are added to it.⁸ One important advantage of plain vanilla floating—as was noted above—is the deterrent effect that daily fluctuations in the exchange rate should have on currency mismatching. As Mishkin (1996) argued, such fluctuations “have the advantage of making clear to firms, banks, and the government that there is substantial risk involved in issuing liabilities denominated in foreign currencies.”

Recent empirical support for Mishkin’s proposition has been provided in a paper by Martinez and Werner (2001). They examine the currency composition of corporate debt for firms listed on the Mexican Stock Exchange during the 1992-2000 period. They find that although the share of dollar debt in total debt increased from 34 to 49 percent under the floating rate regime the exposure to depreciation risk for the median firm decreased sharply as the ratio of dollar debt to exports fell from 3.9 in 1994 to 1.6 in 2000. In addition, they report that whereas firm size was the main factor explaining the share of dollar debt during the period of fixed exchange rates (with little attention paid to the distinction between foreign and domestic sales), exports became the only significant variable determining the importance of foreign currency (dollar) indebtedness during the floating rate regime. In short, in the Mexican case, floating seems to have been accompanied by better control of currency risk.⁹

7. See Ishii, Otker-Robe, and Cui (2001) and Edison and Reinhart (2001) for supporting evidence on the effectiveness and costs of capital controls. Gupta, Mishra, and Sahay (2001) present evidence that large private capital flows, which can be detrimental to growth in a crisis environment, are beneficial for economic growth in the long run.

8. Larrain and Velasco (2001) provide a comprehensive review of the track record of floating rates in emerging-market economies.

9. A very different conclusion on currency mismatching was obtained by Arteta (2001). He examines deposit and credit dollarization and their difference (the currency mismatch) on the part of banks in 40 developing economies and economies in transition during the 1990s. His main result is that, after controlling for other factors, the currency mismatch of banks is higher under floating rate regimes—a result that he seems to attribute to the higher cost of hedging under floating.

A second advantage of floating rates worth retaining is the helpful “cushioning” role that exchange rate flexibility plays in the face of external real disturbances, including negative changes in the terms of trade. This of course remains a key concern for those developing countries in which primary products account for a large share of exports. In a study of the experience of 74 developing countries during the 1973-96 period, Broda (2000) found that output losses after negative terms-of-trade shocks were much smaller for countries with flexible rate regimes than for those with fixed rates.

A similar conclusion appears to apply to the post-Asian crisis experience. Here, Larrain and Velasco (2001) document that emerging-market economies with flexible rate regimes (Chile, Mexico, and Singapore) had a more favorable growth experience (as a group) in the 1998-2000 period than did the “hard peg” economies (Argentina and Hong Kong)—and this despite the fact that the former group (and especially Chile) was hit by more adverse terms-of-trade shocks. Ortiz (2000) reports that the correlation between (monthly) exchange rate changes and changes in the terms of trade switched from positive to negative when Mexico moved from an adjustable peg to a flexible exchange rate regime.

All this is also consistent with one of the relatively few robust conclusions that has come from bottom-line comparisons of economic performance under different currency regimes, namely, that emerging-market economies with flexible rates have typically shown higher average growth rates and/or lower volatility of economic growth than economies with fixed rates.¹⁰

Third, floating does seem to increase monetary policy independence. Although they acknowledge that the existing econometric evidence on

I do not find Arteta’s conclusion persuasive, for three reasons. First, as is argued above and as is illustrated by the results of Martinez and Werner (2001), when considering currency risk for financial intermediaries, it is necessary to consider not only the direct exposure (measured, say, by the currency composition of bank deposits and bank loans) but also the indirect exposure related to currency risk incurred by bank loan customers (measured, say, by the ratio of dollar debt to exports and by the share of bank credit going to producers of tradables). Arteta’s database does not apparently allow him to get a good fix on this indirect currency exposure of banks.

Second, though Arteta does control for whether or not foreign currency loans and deposits are allowed in a country, he does not control for specific prudential regulations for banks that limit currency mismatches; as is shown in table 7.2 below, many developing countries have such regulations in effect.

Third, as Arteta acknowledges, his data do not cover off-balance-sheet currency exposure by banks; these also could affect the appropriate (more comprehensive) measurement of currency mismatch. Therefore, until we know whether Arteta’s findings would be robust to inclusion of these factors, I regard the mainstream view of the link between currency regimes and currency mismatching (i.e., that mismatching will be lower, *ceteris paribus*, under floating rates) as the most plausible one.

10. See, for example, Bailliu, Lafrance, and Perrault (2000).

monetary policy independence in emerging-market economies is mixed, Larrain and Velasco (2001) observe that once the estimating equations take careful note of the differences between de facto and de jure exchange rate flexibility and control for the influence of capital controls, floating does seem to reduce the need to adjust domestic interest rates in response to interest rate movements abroad. This reinforces the well-known point emphasized above that a key advantage (or disadvantage) of flexible (fixed) rates remains the greater scope they provide for using independent monetary policy to deal with domestic cyclical conditions that differ from those in the reserve currency economy.

Even more to the main point of this book, managed floating plus should be able to deliver better economic performance than plain vanilla floating for emerging-market economies heavily involved with private capital markets. I base this conclusion on four arguments.

Devaluations and Severe Currency Mismatches

The first argument: If one seeks an explanation for the finding (highlighted, e.g., in Calvo and Reinhart 2001) that devaluations in developing countries have typically been more contractionary and have been associated with larger credit-rating downgrades than those in industrial countries, the most likely suspect is severe currency mismatches.¹¹

By now, we have a set of theoretical models that demonstrates how the combination of large unhedged financial liabilities denominated in foreign currency (i.e., a large currency mismatch) and a large depreciation can play havoc with balance sheets, lead to a fall in creditworthiness, and produce both an output contraction and a financial crisis.¹² In addition, there have been enough recent real world examples linking currency mismatches to contractions or growth slowdowns to illustrate the connection. And recent empirical work also points to a link between currency mismatches and output contraction.

As is often noted, in the run-up to the crisis, almost all the Asian crisis countries (Indonesia, Malaysia, the Philippines, South Korea, and Thailand) had relatively large and rising currency or liquidity mismatches (as indicated by ratios of short-term external debt to international reserves and of M2 money balances to reserves); and in 1998, they suffered

11. It is worth noting that not all currency crises in emerging-market economies are contractionary. Examining a sample of 195 crisis episodes for 91 developing countries during the 1970-98 period, Gupta, Mishra, and Sahay (2001) found that more than 40 percent of crises have been expansionary; for the large emerging markets, the corresponding (expansionary) share of crises was 30 percent.

12. See, e.g., Chang and Velasco (1999); Cespedes, Chang, and Velasco (2000); and Krugman (2001).

unprecedented declines in growth rates.¹³ Currency or liquidity mismatches also deteriorated in the run-up to the 1994-95 Mexican peso crisis and contributed to the deep recession experienced by Mexico in 1995.¹⁴ Turkey's banks had a large currency mismatch before their crisis in 2000 and recent projections point to a deep contraction in the Turkish economy in 2001.¹⁵

In Latin America, currency or liquidity mismatches on the eve of the Asian crisis were on average much smaller and so too was the extent of the growth slowdowns. A plausible explanation for why Brazilian economic growth did not fall off the cliff in 1999 (it rose by 0.5 percent) in the face of a huge depreciation of the Brazilian real is that very large currency mismatches in the private sector had already been much reduced by the time the depreciation took place.¹⁶ Concentrating on currency crises in the 1990s, Cavallo et al. (2001) find that output contractions were larger in countries with both large devaluations and high foreign currency debt burdens.

Gupta, Mishra, and Sahay (2001) looked at currency crises for a much larger sample of developing countries and a longer time period (1970-98). They report that output contractions are significantly related to some currency-mismatch or debt variables (short-term debt to reserves) but not to others (the change in the external long-term debt). In this case, however, potential multicollinearity problems may mean that some of the effects of currency mismatches are being picked up by other explanatory variables (e.g., the precrisis level of private capital inflows, much of which probably took the form of debt denominated in foreign currency). Finally, Berg and Patillo (1999) suggest that currency mismatch variables rank relatively high as leading indicators of currency crises in emerging-market economies.

Another factor that probably contributed to the contractionary nature of many past devaluations in developing countries is a sharp decline in both confidence and capital inflows. Part of that decline, in turn, may stem from the problem that once a country was forced to abandon the nominal anchor of the exchange rate peg and had to let the exchange rate float, there was often no new credible nominal anchor to replace it (i.e., a monetary growth target was not viewed as a good commitment

13. See Eichengreen and Hausmann (1999), Goldstein (1998), Chang and Velasco (1999).

14. See Calvo and Goldstein (1996) and Goldstein and Turner (1996) for measures of currency-liquidity mismatch in the run-up to the Mexican crisis.

15. See Bank of England (2001) for net losses on foreign exchange transactions in Turkish banks. The IMF's *World Economic Outlook* for December 2001 estimates that the Turkish economy contracted by about 6 percent in 2001.

16. See, e.g., Bevilaqua and Garcia (2000); in addition, Krugman (2000) speculates that the relatively good growth outcome in Brazil probably also reflected the relatively small size of the banking sector there.

mechanism). And without such an anchor, there could only be a weak expectation that monetary stability would soon be restored.

The lesson I take away from this is that currency depreciations would become more expansionary in emerging-market economies if currency mismatches were much reduced in size. Establishing a credible nominal anchor (i.e., inflation targeting) to replace the nominal exchange rate would likely also help. This is of course just what managed floating plus seeks to do.

Currency Mismatching and Crisis Management

The second argument: We should recognize that, as long as the currency-mismatching problem remains unattended to, crisis management in emerging-market economies—including the role of the IMF—will be in an uncomfortable box. Again, this was driven home dramatically during the Asian crisis. When there is a lot of (unhedged) debt denominated in foreign currency, the appeal of lowering domestic interest rates to alleviate the interest rate burden of highly leveraged firms and to counteract the anticipated contraction in the real economy needs to be weighed against the worrisome prospect that lower interest rates could initiate a free fall of the currency and spawn a wave of bank failures and corporate insolvencies.

Conversely, raising interest rates to support the exchange rate threatens to exacerbate debt burdens and to reduce aggregate demand in the face of an already weakening economy. But if the currency mismatch is small, the prescription of lower interest rates is much easier to implement, because the adverse balance sheet effects of a lower exchange rate become less relevant than the traditional expenditure-switching effects of a depreciation. Because Australia was not faced with a serious currency mismatching problem, during the Asian crisis it was able to lower interest rates and to allow the exchange rate to depreciate and to play its buffering role. As a result, the Australian economy grew by more than 5 percent in 1998.

Krueger (2000) has argued that until the international community finds a mechanism for preventing the buildup of foreign currency-denominated liabilities in the domestic financial systems of developing countries, the IMF's crisis role will be complex and difficult. Again, managed floating plus is aimed in good measure at reducing this crisis-management dilemma by addressing directly the currency-mismatching problem.

Currency Mismatching and Market Imperfections

The third argument: I do not find persuasive the contention that the currency mismatching problem in emerging-market economies (what

Eichengreen and Hausmann 1999 call “original sin”) reflects a fundamental market imperfection that is here to stay.¹⁷

The fact that a thriving market for local currency-denominated borrowing (from abroad) does not presently exist for most emerging-market economies does not mean that such a market could not develop in the medium term. Recent history is replete with financial markets—ranging from asset-backed securities to credit derivatives—that did not exist for long periods but quite rapidly became sizable once they got off the ground. Creditors in industrial countries already engage in a wide variety of high-risk activities, including the purchase and underwriting of junk bonds.

It is hard to imagine that domestic currency lending to emerging-market economies is so “special” that its appropriate pricing will forever remain outside the realm of the feasible—especially if the threat of strategic devaluation were reduced by the adoption of inflation-targeting regimes in more of the larger emerging economies and if the ongoing effort to strengthen domestic banking systems in developing countries were to produce more creditworthy counterparties. Australia and South Africa have long been able to borrow internationally in their own currencies (and now run floating rate regimes). It has to be admitted that both countries developed local markets early; but why is it such a great leap of faith to expect that large emerging economies with relatively good credit standings (e.g., Chile, China, Hungary, India, South Korea, Mexico, and Singapore) would soon be able to follow their example? Perhaps it took the Asian crisis to convince emerging-market economies of the high vulnerability associated with heavy reliance on foreign currency-denominated borrowing; indeed, popular indicators of currency mismatching (such as the ratio of short-term external debt to international reserves) now suggest smaller mismatches (in Asia) than in the 1996-98 period.

It should also be recognized that data on the currency composition of debt (which are typically used to document the presence of “original sin” in emerging-market economies) are not synonymous with currency mismatching in the presence of hedging markets. Table 7.1 (taken from Hawkins and Turner 2000) shows the currency composition of debt for both international bank loans and for international debt securities (as of the end of 1999). Unlike most studies, table 7.1 also breaks down external debt by the type of borrower or issuer. It can be seen that emerging economies have much smaller shares of debt denominated in their own currency than do industrial countries, that domestic currency debt is more

17. More precisely, Eichengreen and Hausmann (1999) define “original sin” as “a situation in which the domestic currency cannot be used to borrow abroad or to borrow long term, even domestically” (p. 330). They argue that as long as “original sin” prevails, investments in emerging-market economies will inevitably carry either a currency mismatch or a maturity mismatch. Knight, Schembri, and Powell (2000) and Kenen (2001) conclude (as do I) that the “original sin” hypothesis is excessively pessimistic.

Table 7.1 Share of external debt denominated in the domestic currency, end of 1999 (percent)

Economy	Loans from international banks		International debt securities ^a		
	Banks	Other borrowers	Corporate issuers	Financial institutions	Public sector
Argentina	5	0	3	1	2
Chile	8	0	0	0	0
China	0	9	0	0	0
Colombia	3	0	0	0	0
Czech Republic	23	5	0	0	0
Hong Kong	3	18	14	18	25
Hungary	4	1	0	0	0
India	9	2	0	0	0
Indonesia	0	7	2	0	0
Israel	1	1	0	0	0
Mexico	9	0	0	0	0
Peru	2	0	0	0	0
Poland	14	3	12	0	0
Russia	27	1	0	0	0
Saudi Arabia	4	3	0	0	0
South Africa	30	11	37	73	0
South Korea	2	8	0	0	0
Thailand	3	7	0	28	1
Venezuela	8	1	0	0	0
<i>Memorandum:</i>					
Australia	19	29	13	17	43
Canada	10	28	7	8	19
France	44	75	73	54	63
Germany	61	62	64	56	99
Japan	61	29	44	28	16
United Kingdom	10	26	44	36	13
United States	81	85	78	83	95

a. By country of residence.

Note: For some emerging-market economies, the figures may be overestimates because it is assumed that all loans not denominated in a major currency are denominated in the domestic currency.

Source: Hawkins and Turner (2000).

prevalent in emerging economies for international bank loans than for international debt securities, and that South Africa and Australia do indeed show (relative to the majority of emerging economies) high shares of debt denominated in domestic currency. But note that, for some types of borrowing, Hong Kong, Thailand, the Czech Republic, and Poland also show some nontrivial shares of domestic currency debt.

Even more to the point at hand, table 7.1 gives the *original* currency composition of the debt—not the final composition. Suppose, for example,

that a Polish or Czech corporation issues debt denominated in US dollars but would really prefer to have a debt denominated in local currency (i.e., Polish zlotys or Czech koruny). It might then swap out of the dollar debt into zloty or koruna debt (using the swap market); alternatively, it could hedge its exposure by purchasing a forward exchange contract or a foreign exchange option.¹⁸ The original currency composition of debt would then not be a reliable indicator of the ability to avoid a large currency mismatch.¹⁹

The existence of hedging markets would be only a minor technicality if these markets were tiny relative to hedging demand, if available maturity was very short, and if creditworthiness requirements were so stringent as to qualify only very few emerging-market borrowers. But in conversations with traders and market-makers, I did not get the impression that such a characterization fit what is happening on the ground, at least in some subset of emerging economies.²⁰ For example, one market participant who specializes in currency hedges for European emerging economies observed that if recent trends continue, the market for hedging instruments in Poland would soon (within a year or two) be larger than that in South Africa.

More broadly, discussions with market participants suggest that there is now a top tier of emerging-market economies where currency hedging facilities have relatively good liquidity and maturity. Without pretending to much precision, this top tier would include Hong Kong, Mexico, Poland, Singapore, and South Africa;²¹ for a few of these economies, maturities on swaps could even go out as far as 5 to 10 years. A second tier would include Brazil, the Czech Republic, Hungary, South Korea, and Taiwan, where liquidity and other desirable market characteristics are improving but are not as good as in the top tier. Yet a third tier might encompass Argentina, Chile, Indonesia, Malaysia, Russia, Thailand, Turkey, and Venezuela. And so on.

18. See Morales (2001) for a discussion of derivative instruments in the Czech Republic and Poland.

19. In evaluating the original sin hypothesis, one also needs to take into account local currency denominated loans made in emerging economies by affiliates of foreign owned banks. These have become much more important relative to international bank loans during the past decade, see Goldstein and Turner (2002).

20. See Goldstein and Turner (2002) for further discussion of hedging markets in emerging-market economies.

21. According to the most recent Bank for International Settlements survey of foreign exchange and derivative market activity, the emerging-market economy currencies with the highest (total) foreign exchange market turnover in (April) 2001 were (in descending order) Hong Kong dollar, Singapore dollar, South African rand, Mexican peso, Korean won, and Polish zloty. (Bank for International Settlements, "Central Bank Survey of Foreign Exchange and Derivatives Market Activity in April 2001: Preliminary Global Data," press release, Basle, October 2001.)

The hedging instruments that were available and/or are most in use seem to depend, *inter alia*, on an economy's capital market policies as well as on its macroeconomic and debt histories. For example, wherever emerging-market economies have adopted measures to limit the offshore trading of their currencies or to restrict capital flows, nondeliverable forwards were usually the hedging instrument of choice (rather than instruments that require actual delivery of the currency).²² Where there has been a recent history of pronounced macroeconomic instability and where inflation rates are still relatively high, there are unlikely to be maturities available beyond, say, 1 year (and often shorter). Where relatively liquid bond and money markets exist and span much of the yield curve, one sees more interaction between currency and interest rate products. And where legal arrangements for attaching collateral and for efficient and creditor-friendly bankruptcy are weak, there is naturally more selectivity in choosing local counterparties for such hedging contracts.

My point is not to claim that the availability and cost of hedging currency risk in emerging markets are anywhere near as good as those in industrial countries. They clearly are not.²³ It is instead to argue that strict interpretations of the "original sin" hypothesis—which suggest that emerging markets find it impossible to hedge currency risk and/or that South Africa is the only emerging-market economy now able to borrow in its own currency—seem far too pessimistic about currency hedging possibilities (present and future).²⁴

Although most of the market participants interviewed described hedging activity as "opportunistic" (i.e., as undertaken mainly on those occasions

22. See Ishii, Otker-Robe, and Cui (2001) on the use of such measures in Asian emerging-market economies.

23. In one of the few studies comparing emerging-market currencies with G-3 currencies, Galati (2001) found that bid-ask spreads on a group of emerging-market currencies during the January 1998-June 1999 period were considerably higher and more volatile than those for the yen-dollar exchange rate. E.g., average spreads for the Mexican peso were about two and a half times higher than for the yen-dollar pair. Drawing on the 1995 Bank for International Settlements survey of foreign exchange market turnover, Koch (1997) reports that whereas about 40 percent of total turnover occurs in spot markets for industrial countries, the corresponding figure for emerging economies is closer to 75 percent (i.e., derivative markets are less developed for emerging economies than for industrial ones). Koch suggests that the share of turnover accounted for by derivative markets should rise over time for emerging economies.

24. E.g., Eichengreen and Hausmann (1999, 330-31) argue as follows: "Critically, these mismatches exist not because banks and firms lack the prudence to hedge their exposures. The problem rather is that a country whose external liabilities are necessarily denominated in foreign exchange is, by definition, unable to hedge. . . . Similarly, the problem is not that firms simply lack the foresight to match the maturity structure of their assets and liabilities; it is that they find it impossible to do so." Hausmann, Panizza, and Stein (2000, 16) also observe that "South Africa is the only developing country with a significant amount of debt securities denominated in its own currency."

when participants expected the local currency to come under pressure), in an increasing number of emerging-market economies there seem to be markets and instruments available for those so inclined. Moreover, the distribution of hedging facilities (by liquidity, maturity, etc.) across emerging economies is better described as falling along a spectrum (or as dividing itself into tiers) rather than as conforming to a zero-one pattern (i.e., one or two emerging economies can do it but all others cannot).

Taking the argument a step farther, I do not believe the currency mismatching problem is largely beyond the control of emerging economies. There is a whole set of measures (beyond letting the exchange rate move) that could be taken to reduce the size and/or effects of such mismatches.

To begin with, prudential regulations on banks' open foreign exchange positions (relative to capital) could be tightened and enforced more consistently. As is shown in table 7.2, many emerging-market economies have made use of such regulations. Although it is true that modern derivative and capital markets offer mechanisms for those wishing to evade such regulations and that there have been some notable cases of circumvention (see, e.g., Garber 1998), it is far from clear that more rigorous enforcement of those regulations is doomed to failure. Also, as Krugman (2000, 96) points out, there is a seeming inconsistency in arguing (as does the "original sin" hypothesis) that modern-day capital markets are too "imperfect" to hedge local currency risk but "perfect" enough to undo any regulations on foreign currency exposure:

You can't assert that firms must borrow abroad in dollars because they lack the credibility or institutional means either to borrow in local currency or to hedge their dollar debts, and then at the same time assert that if dollar borrowing is discouraged those firms will borrow in local currency and hedge it back to a de facto dollar debt.

A more telling criticism is that regulations or capital charges on banks' open foreign exchange positions will not necessarily reduce crisis vulnerability if banks do not carefully monitor their clients' foreign exchange exposure.²⁵ Banks need to exercise particular oversight of dollar loans to firms in the nontradable sector because the latter do not earn foreign exchange.

In some cases, regulations on banks' currency exposure may induce corporations to borrow foreign currency directly. If corporations have big currency mismatches when a large devaluation takes place, they will become insolvent; and when they cannot pay, they also will not be able to repay their existing bank loans. Indonesia's banks were apparently

25. Chang and Velasco (1999) argue that regulations forcing banks that borrow in a foreign currency to also lend in a foreign currency will be ineffective in reducing vulnerability to crises if this currency risk is simply passed on to firms in the nontradable sector (which borrow in a foreign currency but receive revenues denominated in the local currency).

Table 7.2 Foreign exchange regulations for banks

Economy	Foreign currency exposure
Argentina	No formal guidelines; K requirement associated with foreign exchange position
Brazil	Limits on bought and sold positions. New policy will relate foreign exchange exposures to K requirements
Chile	Absolute weighted sum of net currency positions less than 20 percent of K, with weights reflecting currency volatility and ratings of the country of issuance
Colombia	OP between 5 and 20 percent
Czech Republic	OP in any currency should =15 percent of K; OP of nonconvertible currency = 152 percent of K; overall OP = 20 percent of K
Hong Kong	Overnight OP (excluding HK\$/US\$ position) of local banks over 5 percent of K (15 percent for experienced institutions)
Hungary	Absolute sum of OPs = 30 percent of K
India	Bank must obtain approval for its OP limits
Indonesia	Maximum net OP 20 percent of K
Israel	No formal limits
Malaysia	Each bank has individual net OP limit
Mexico	Limit of 1.83 times core K
Peru	Net liabilities = 2.5 percent of K; net assets = 100 percent of K
Philippines	Maximum short position of 20 percent of K temporarily suspended; maximum long position of 5 percent
Poland	Limit of 15 percent K in any currency; limit of 30 percent for overall net position; limit of 40 percent for absolute sum of OPs
Russia	Maximum OP 30 percent of K
Saudi Arabia	No formal limits
Singapore	No normal limits; banks must establish, monitor, and report self-determined limits
South Africa	Maximum net OP 15 percent of K
South Korea	15 percent of K (overbought or oversold)
Thailand	Maximum overbought position of 15 percent of K; maximum oversold position of 15 percent
Venezuela	Maximum OP of 15 percent of K

K = capital
OP = open position

Source: Hawkins and Turner (1999).

reasonably hedged on the eve of the crisis, but Indonesian corporations took on heavy dollar exposure themselves; and when the exchange rate started falling, belated simultaneous action to hedge in the spot market only drove the rupiah down faster.

Some analysts have gone farther in advancing proposals to limit currency mismatching in the private sector. Krueger (2000), for example, has put forward two suggestions. The first is for emerging-market economies to make foreign currency obligations incurred by domestic entities within their borders unenforceable in domestic courts. This would shift foreign exchange risk to lenders in the industrial countries that are presumably better able to absorb and to manage that risk.

Krueger's second suggestion is that G-7 authorities could pass and enforce legislation that would require their financial institutions to accept liabilities abroad only if they were denominated in the emerging market's local currency; these G-7 financial institutions could then hedge their foreign exchange risk in the marketplace. My preference would be to see whether more rigorous prudential regulation and credit oversight of currency mismatches by banking supervisors and by commercial banks in emerging-market economies could pare down the size of the mismatching problem before considering the more radical proposals advanced by Krueger.

In some cases (e.g., the Mexican crisis of 1994-95), the primary source of the currency mismatching problem is government borrowing. Dooley (1997) has argued that because tax receipts are denominated in local currency and because the shadow price of increased financial crisis vulnerability from currency mismatching is far higher than what could realistically be saved in market borrowing costs by denominating government debt in foreign currency, emerging-market economies should eschew foreign currency borrowing altogether (as do most G-7 countries).

In March of 2001, the IMF issued *Guidelines for Public Debt Management* (IMF 2001). Although this document recommends that debt managers "should carefully assess and manage the risks associated with foreign-currency and short-term or floating rate debt," and "should regularly conduct stress tests of the debt portfolio on the basis of the economic and financial shocks to which the government—and the country more generally—are potentially exposed," the report stops far short of either discouraging emerging markets from issuing foreign currency debt or even of suggesting what might be considered "excessive" reliance on foreign currency-denominated debt.

Before endorsing the more radical (Dooley) proposal of no foreign-currency-denominated foreign borrowing, I would like to see the IMF issue much tougher guidelines that put presumptive upper bounds on foreign currency-denominated borrowing in government debt management and then report on compliance with those guidelines in its Article IV and other surveillance reports (see the discussion below). Both Alan

Greenspan (1999) and Pablo Guidotti (1999), for example, have suggested that simple rules of thumb for reserve and foreign debt management be considered—such as having countries without a good track record of international borrowing maintain unencumbered foreign exchange reserves equal to meet all repayments and interest on foreign debt falling due during the next year.²⁶

Although all such simple rules have problems (e.g., no account is taken of potential capital flight), they have the virtue of establishing a transparent, easily understood target and of focusing attention on noncompliance with that target. In view of the risks involved, the current IMF approach to government debt management seems both too general and too weak.

Dependence on foreign currency borrowing in the corporate sector would presumably be reduced if emerging economies could accelerate the development of domestic bond markets (for both government and private debt). This would increase the supply of local currency-denominated finance. Relative to GDP, bond markets are much smaller (and less liquid) in emerging-market economies than in industrial countries.²⁷ However, two of the key factors that have historically inhibited the development of bond markets in Latin America and in Asia—that is, bouts of high inflation and lack of government budget deficits, respectively—are likely to be much less important in the future.

Whereas average inflation rates in Latin America reached more than 600 percent in the second half of the 1980s and still stood at nearly 200 percent in the first half of the 1990s, that average fell to 14 percent for the 1996-2000 period; for 2001, the IMF (*World Economic Outlook*, May and December 2001) projected that average inflation would fall to about 6 percent. And those emerging-market economies in Asia that have suffered a crisis have had to issue large amounts of government bonds to help finance their bank recapitalization programs.²⁸ Because they serve as benchmarks, larger issues of government bonds ought to make it easier to price corporate debt.

As is detailed in Hawkins and Turner (2000), many emerging-market economies have also taken a variety of measures in recent years to make their bond markets more attractive. These measures include upgrading trading and settlement systems, making tax changes favorable to trading

26. Guidotti was formerly a senior official in Argentina's Finance Ministry.

27. See Karacadag and Shrivastava (2000); e.g., in 1995-97 the average ratio of total bond market capitalization (public plus private) to GDP was 90 percent for 12 industrial countries versus 20 percent for 43 emerging economies.

28. According to data put together by the Emerging Markets Traders Association (EMTA 2001), only Hong Kong and South Korea appear in the top 10 list of the most-traded emerging-market bonds (and then only in 7th and 9th place, respectively). Note also that relative to Latin America, Asian emerging-market economies have relied more on bank loans and less on bonds in their external borrowing.

and interest income, introducing standard procedures to originate home mortgages, encouraging the use of international rating agencies, and promoting pension funds (to create natural buyers for long-term paper). It is noteworthy that in 2000 local market instruments accounted for the largest share (35 percent) of trading in emerging-market bonds—more than trading in either eurobonds (33 percent) or in Brady bonds (25 percent).²⁹

Mexico's experience in managing a floating rate system during the past 6 years illustrates some of the measures that can be taken by emerging-market economies themselves to limit and to deal with currency mismatching problems.³⁰ In reviewing this experience, Ortiz (2000) highlights several points. He argues that the volatility of the exchange rate (under managed floating) reduces perceptions by the private sector of implicit guarantees and avoids one-sided bets against the currency. He recommends the development of derivative markets to allow domestic agents to better insure themselves against exchange rate movements. Peso-dollar futures and options are now actively traded on the Chicago Mercantile Exchange, and a domestic derivative market started operating in December 1998.³¹

As evidence that a flexible exchange rate regime increases incentives for firms to internalize the risks involved in foreign currency borrowing, Ortiz (2000) notes that (in August 1999) approximately 70 percent of corporate foreign currency debt was held by firms that export most of their products, and that these firms' annual ratio of sales to foreign debt had increased markedly (relative to that in 1991-94 under the adjustable peg regime). Regulations on foreign currency mismatches of banks were made more stringent, so that loans to nonexporting firms could no longer be accounted as full offsets to foreign currency liabilities; in measuring foreign currency exposure, different weights were assigned to bank assets of different quality.

The development of long-term markets for domestic debt was also encouraged to reduce currency or maturity mismatches. The Mexican government had for many years issued domestic long-term debt linked to the consumer price index, and in 1999 it started issuing domestic nominal debt with 3- and 5-year maturities. The World Bank issued a long-term bond denominated in Mexican pesos, and efforts continue to

29. See EMTA (2001).

30. Mexico's efforts to reduce currency mismatching, though more extensive than those of other emerging-market economies, are not unique. E.g., Chile has long issued local currency indexed bonds, and many Asian emerging economies (in the wake of the Asian crisis) have taken measures to promote a local currency corporate bond market.

31. Goldstein (1995) argues that the development of hedging instruments is one of the key reasons short-rate exchange rate variability has had such a small effect on trade volumes in industrial countries.

develop benchmarks for long-term private debt denominated in domestic currency.

The IMF can also do more to discourage large currency mismatches. As proposed in Goldstein (2001), every request for an IMF program should contain data on the extent of currency mismatching in the banking, corporate, and public sectors; analysis of the sustainability of these mismatches (including scenarios and stress tests of what the consequences of a devaluation of sizes x and y would be); and explicit conditions for reducing the mismatch (if the existing and/or prospective mismatch is judged to be too large). Furthermore, in its *World Economic Outlook* and its *International Capital Markets Report*, the IMF should be drawing attention on a regular basis to currency mismatches for all countries that have significant involvement with private international capital markets.

The Bank of England's *Financial Stability Review* has presented some summary figures on currency mismatches along these lines, and this work could profitably be extended by the IMF. If the existing data on currency mismatching are not adequate, the IMF or the Bank for International Settlements should immediately initiate plans to fill in those data gaps.³² The more private market participants are aware of the magnitude of currency mismatching, the better the chances that corrective market pressures will be brought to bear before a crisis erupts.³³

To sum up, the extent of currency mismatching on the part of emerging markets is not a given dictated by the imperfections of international capital markets. Nor is dollarization the only way to deal with such mismatches. If emerging economies and the international financial institutions regarded the currency mismatching problem as one of sufficiently high priority, the size of the problem could be much reduced. It will not happen overnight, but it can happen. In contrast to the second best approach of dollarization, managed floating plus seeks to address the root causes of balance sheet vulnerability and to pursue the first best policy prescription.

Inflation Targeting as a Nominal Anchor

My fourth argument is that—though emerging-market experience with inflation targeting is still limited, and though it must be admitted that

32. At present, the main data bottleneck on currency mismatching seems to be in the corporate sector. If banks do not have adequate information on currency risk for their loan customers, it would be useful to conduct surveys to get a handle on aggregate corporate exposure. Note that this would stop far short of regulating foreign currency borrowing in the private, nonfinancial sector.

33. King (1999) argues along similar lines that when governments and markets alike are informed of the potential for future financing difficulties, they will have time to take preventive action.

emerging-market economies face greater challenges in implementation than industrial countries—there is good reason to believe that such targeting can serve as a good nominal anchor in most emerging economies that are heavily involved with private capital markets.

Chile and Israel began their transitions to full-fledged inflation targeting in 1990 and 1991, respectively.³⁴ Since then, a number of other emerging-market economies have joined in, including Brazil, the Czech Republic, Poland, South Africa, South Korea, and Thailand. Some analysts (Corbo, Moreno, and Schmidt-Hebbel 2001; Mishkin and Schmidt-Hebbel 2001; Truman 2001) have also classified Colombia, Mexico, and Peru as either “active” or “transition” inflation targeters. Moreover, the group of emerging markets seen as “potential” candidates for inflation targeting is larger still. For example, Truman’s (2001) potential inflation targeting group includes Argentina, China, Ecuador, Hong Kong, Hungary, India, Indonesia, Malaysia, Nigeria, the Philippines, Romania, Singapore, Taiwan, Turkey, and Venezuela.

Those who champion the adoption of inflation targeting by emerging-market economies argue that it has significant advantages over other nominal anchors and competing monetary policy frameworks. Mishkin (2000), for example, points out that (unlike an exchange rate anchor) monetary policy under inflation targeting can respond appropriately to domestic considerations and shocks; that (unlike monetary targeting frameworks) inflation targeting does not presuppose a strong relationship between money and inflation (i.e., the monetary authority can use all available information in forecasting inflation); that (unlike eclectic monetary policy strategies) inflation targeting is highly transparent and more easily understood by the public; that (unlike fully discretionary monetary policy frameworks) inflation targeting avoids the time-inconsistency trap; and that (unlike frameworks underpinned by broad mandates) inflation targeting focuses on what the monetary authority can do (i.e., control inflation)—not on what it cannot do.

Skeptics—though not necessarily rejecting the advantages of inflation targeting—stress that an inflation targeting regime also has disadvantages and that the requirements for the successful implementation of inflation targeting are less likely to be satisfied in many or even most emerging-market economies. As Truman (2001) and others argue, inflation (unlike, say, the monetary base) is not under the direct control of the central bank—particularly when the authorities are trying to bring it down from a high level. Corbo, Moreno, and Schmidt-Hebbel (2001) acknowledge that it takes much longer for inflation rates to stabilize when the initial inflation rate is high (say, 20 percent or more); for example,

34. These are the dates of their announcements of a first inflation target; see Schaechter, Stone, and Zelmer (2000).

it took about 9 years from the inception of inflation targeting for the inflation rate to stabilize in Chile; it took about 6 years in Israel.

Many advocates of inflation targeting concede that the long lag between monetary instruments and outcomes blunts the accountability of an inflation targeting framework. Masson, Savastano, and Sharma (1997) maintain that prospects for the successful implementation of inflation targeting are dim in most developing countries because seigniorage remains an important source of fiscal revenue (i.e., contributing to so-called fiscal dominance over monetary policy) and because there is no consensus that attaining low inflation should be the overriding objective of monetary policy; they point out that measures of central bank independence are typically much lower in emerging markets than in industrial countries. Masson and his colleagues also report the results of an IMF staff survey that concluded that (at least in 1997) only 5 of 150 developing economies and economies in transition would be good candidates for inflation targeting.

Continuing the same line of argument, other writers argue that

- the transmission mechanism of monetary policy is less well understood in emerging-market economies than in industrial countries,
- other necessary elements in the institutional preparation for inflation targeting (e.g., monitoring of incoming data, evaluation of inflation forecasts) are also lacking in many emerging economies,
- the relatively high fragility of the financial sector and the relatively high pass-through of exchange rate changes into domestic prices make attainment of low inflation objectives less likely,
- more rapid structural change and partial dollarization impede the ability to forecast inflation accurately,
- the greater concern for exchange rate movements (fear of floating) will prevent the low-inflation objective from being “king” of monetary policy,
- the higher incidence of government-controlled prices and of supply shocks will complicate the choice of appropriate price indices for measuring inflation, and
- short target horizons and narrow bands are likely to produce “instrument instability” and/or excessive output losses.³⁵

The response to these criticisms of inflation targeting for emerging markets has taken a variety of forms. It has been argued that many of the

35. Many of these criticisms are discussed in Corbo, Moreno, and Schmidt-Hebbel (2001); Mishkin (2000); Mishkin and Schmidt-Hebbel (2001); Schaechter, Stone, and Zelmer (2001); and Truman (2001). Also see the IMF's *World Economic Outlook*, May 2001.

problems raised are less serious today than even 5 years ago, and that some of the alleged “required preconditions” for the successful implementation of inflation targeting also apply to other currency regimes and/or monetary frameworks, whereas the importance of some others has been exaggerated (as evidenced by several successful counterexamples). In addition, supporters of inflation targeting note that some accommodation in the design of the inflation targeting framework can be made to lessen the handicaps or special problems of emerging economies, and that “warts and all,” the overall performance to date of inflation targeting in these emerging economies has been quite good.

As was noted above, one of the striking developments of the 1990s was the sharp decline in inflation among emerging markets. According to the IMF’s figures (*World Economic Outlook*, May 2001), average inflation rates in emerging-market economies fell from triple-digit numbers in the late 1980s to less than 8 percent in 2000; if a few outliers (Bulgaria, Indonesia, Turkey, and Venezuela) are excluded, the average inflation rate in 2000 would be 5 percent. This means that most emerging economies considering a move to inflation targeting could begin at an initial inflation rate much lower than 5 to 6 years ago.

Reliance on seigniorage has likewise fallen, reducing the risk of fiscal dominance of monetary policy. And for those emerging-market economies that would have to start from a high inflation rate, Chile’s experience should be encouraging: A gradual but consistent application of the inflation-targeting regime (beginning with just inflation projections and then formalizing and tightening the inflation target as credibility was earned) yielded a significant reduction in inflation (from more than 20 percent in 1991 to about 3.5 percent in 1999-2001), while maintaining good growth performance. The greater volatility of inflation rates in emerging economies can be compensated for by (at least initially) making the target ranges for inflation somewhat wider than in industrial countries.

Central bank independence in emerging-market economies has increased along with the decline in inflation rates. Mishkin (2000) argues that central bank independence and inflation targeting (with the latter’s heavy emphasis on transparency and accountability in monetary policy) have been mutually reinforcing.

As was argued in chapter 1, as long as the exchange rate does not challenge the primacy of the low inflation objective, emerging-market economies practicing inflation targeting can engage in some smoothing and leaning-against-the-wind operations in the exchange market. Indeed, a few economies (Chile, Israel, and Poland) have even made a successful transition from crawling exchange rate bands to a floating rate combined with inflation targeting.

Although exchange rate pass-through effects are generally found to be significantly higher in emerging economies than in industrial countries, the IMF (*World Economic Outlook*, May 2001) and others report that the

size of these pass-throughs also fell sharply in the 1990s—to an average of roughly 20 percent during 1 year and perhaps 25-50 percent during 2 years.³⁶ Output contractions after the devaluation, and relatively low inflation and appreciated real exchange rates before it, seem to explain these relatively encouraging pass-through outcomes.

With some scope under inflation targeting for both smoothing exchange rate movements and paying attention to currency mismatches, and with lower than expected pass-throughs of exchange rate changes, the probability that the implementation of targeting would be thrown off course by exchange rate concerns has been reduced.

Financial-sector fragility and a lack of fiscal prudence are always impediments to the conduct of monetary policy and/or to the performance of the exchange rate regime; there is no reason to believe that inflation targeting is going to be any less successful than competing regimes in the presence of financial-sector or fiscal policy problems. Likewise, and as was argued above, a regime of managed floating plus inflation targeting is likely to cope better with external volatility and external shocks than less flexible currency regimes.

Consider, for example, the shocks faced by Brazil (from Argentina and otherwise) during 2001; would any regime (other than managed floating combined with inflation targeting) still be left standing? Rapid structural change in emerging markets will not only make it harder to control and to forecast inflation; it will also make it harder to gauge appropriate monetary growth targets (under a monetary targeting regime) or to calculate the equilibrium exchange rate under publicly announced exchange rate targets (in adjustable peg or BBC regimes).

Potential instrument instability under an inflation-targeting regime can be avoided or minimized in two ways. First, the maturity (length) of inflation targets can be set close to the estimated time lag in the effect of monetary policy on inflation. Second, the target range specified for inflation should not be too narrow.³⁷

Although sound underlying conditions and good institutional preparation make any monetary policy or currency regime work better, it is easy to overstate the necessary preconditions for implementation. As Mishkin and Schmidt-Hebbel (2001) note, the Bank of England began implementation of inflation targeting before it had full instrument independence, some countries that use inflation targeting (e.g., Colombia, South Africa) still do not publish inflation forecasts, and Brazil implemented inflation targeting with most of the bells and whistles within 4 months of announcing its intention to do so—and this in the face of both

36. These pass-through figures apply to the 1990s group averages for the devaluations in Brazil, Indonesia, Malaysia, Mexico, the Philippines, South Korea, and Thailand; see IMF, *World Economic Outlook*, May 2001.

37. See Mishkin and Schmidt-Hebbel (2001).

formidable fiscal and debt problems and a good deal of exchange rate volatility.

Schaechter, Stone, and Zelmer (2000) conclude that (relative to industrial countries) emerging-market economies

- have opted for more formal institutional frameworks in support of inflation targeting (e.g., usually granting formal independence to the central bank before adopting targeting),
- have relied less on statistical models in the conduct of monetary policy,
- have intervened more frequently in foreign exchange markets,
- have adopted inflation targets with shorter time horizons, and
- have preferred bands to point (inflation) targets.

Perhaps most telling, most analytical reviews of inflation-targeting experience in emerging markets give it relatively high marks.³⁸ More specifically, most studies conclude that countries adopting inflation targeting have been relatively successful in meeting their announced inflation targets; that the track record on meeting inflation targets has been much better than that in meeting announced monetary growth targets; and that inflation targeting is associated with reduced expectations of inflation and with lower inflation forecast errors. They also conclude that countries adopting inflation targeting are not “inflation nutters” (to borrow a term from Mervyn King), that is, they still allow monetary policy to respond to falls in output; that “sacrifice ratios” (i.e., the change in output associated with a 1 percent fall in inflation) are more favorable after the adoption of inflation targeting than before and more favorable than under monetary targeting (but not as good as under exchange rate-based stabilizations); and that inflation targeting has rarely been associated with a subsequent loss of fiscal prudence.

A final piece of evidence supporting the effectiveness of inflation targeting as a nominal anchor comes from a recent study by Kuttner and Posen (2001). Two features of their work differentiate it from other “bottom-line” regime comparisons. First, the authors compare the effects not only of alternative currency regimes (hard fix, soft fix, float) but also of alternative monetary policy regimes (narrow money target, broad money target, inflation targeting, and other) and of different degrees of central bank independence. Second, they measure the effects of alternative monetary frameworks (where such a “framework” is a combination of a currency regime, a monetary policy regime, and a degree of central bank

38. See IMF, *World Economic Outlook*, May 2001; Corbo, Moreno, and Schmidt-Hebbel (2001); Mishkin (2000); Mishkin and Schmidt-Hebbel (2001); and Schaechter, Stone, and Zelmer (2000). Truman (2001) arrives at a more mixed overall verdict.

independence) not only on the variability of the nominal exchange rate and the average level of inflation but also on the persistence of inflation (where “persistence” refers to the extent to which inflation returns to its target after an inflation shock occurs).

The advantage of looking at currency regimes and monetary policy regimes simultaneously is that it allows their separate effects to be disentangled. The advantage of using inflation persistence as a metric is that (unlike the average inflation rate) it should normalize for the different incidence of shocks across time periods. Kuttner and Posen’s (2001) data sample covers 124 monetary frameworks in 41 countries (including members of the Organization for Economic Cooperation and Development and countries in Latin America and East Asia) during the 1973-2000 period.

Three findings of Kuttner and Posen’s (2001) study are relevant for the subject of this book: Soft pegs reduce the level of inflation and attenuate exchange rate fluctuations but are characterized by large devaluations. Central bank autonomy is associated with both a more stable exchange rate and a lower level of inflation. And inflation targeting is the only monetary policy regime associated with both lower inflation and lower inflation persistence. In the end, Kuttner and Posen conclude that a monetary framework that combined a floating exchange rate, inflation targeting, and central bank autonomy (i.e., two thirds of managed floating plus) might offer the same anti-inflation benefits as an exchange rate peg on its own, without the proclivity to occasional large depreciations.

To sum up, inflation targeting is hardly a panacea for all the ills that currently beset emerging-market economies. Yet on the basis of the experience gained thus far, inflation targeting does appear to be a good nominal anchor and better than either of the leading alternatives (i.e., monetary targeting under a floating rate or an exchange rate peg of one kind or another).

Concluding Remarks

Given the number of serious currency crises in emerging-market economies during the past 7 years, it makes no sense to talk about reforming the international financial architecture without addressing currency regimes. Adjustable peg and crawling band regimes are just too fragile for a world of large and sudden shifts in private capital flows and of sometime serious slippages in economic policy reform. Currency boards and dollarization solve some problems but are impotent in dealing with Argentina-type crises characterized by recession, an overvalued real exchange, limited flexibility of domestic costs and prices, and too much public debt to permit countercyclical fiscal policy. And plain vanilla floating has limited appeal to many emerging economies because of their

balance sheet vulnerability to large exchange rate changes and because of their dissatisfaction with monetary targeting as a nominal anchor.

The best of the currency regime options is managed floating plus. It would give emerging-market economies a deterrent to currency mismatching and to balance sheet vulnerability, a much reduced fear of floating, enough monetary independence to engage in gross-tuning of monetary policy to counter recessions, sufficient “flex” to deal with large shifts in capital flows, and a workable nominal anchor to control inflation. If not managed floating plus, tell me what will work better?