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9 Fixed or floating: is it still possible to manage in the middle?

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INTRODUCTION

The debate over the best choice of exchange rate arrangement, particularly for developing countries, has been given new life in the 1990s with the fast movement of capital around the world and the currency and balance of payments crises in emerging markets. Three prescriptions for developing countries are currently circulating.

Those who blame exchange rate targets, specifically adjustable ('soft') pegs, as contributing factors for the crises in Mexico, East Asia, Russia and Brazil, advocate greater exchange rate flexibility (e.g., Obstfeld and Rogoff 1996; Ito et al. 1998; and Corsetti et al. 1998). In this view many Asian countries lost international competitiveness by continuing the de facto peg of their currencies to the US dollar when the dollar was appreciating between 1995 and 1997, particularly against the yen. Increased flexibility would have dampened the appreciation of their currencies, lessened the one-way bets of speculators, and limited the reversal of capital flows that contributed to the crisis in East Asia.

A second view argues for reducing exchange rate flexibility by rigidly committing to permanently fixed ('hard') rates through institutional arrangements such as currency boards, currency unions or the full abandonment of the domestic currency. Advocates of this view (e.g., Hanke 1999) point out that none of the crisis currencies was formally pegged to the dollar when the crisis hit, while the currency boards of Hong Kong and Argentina successfully weathered the storm.

A third view subsumes the first two and argues that 'intermediate' exchange rate regimes, such as adjustable single-currency and basket pegs, crawling pegs, target bands and even managed floats, are crisis prone and increasingly less feasible (e.g., Obstfeld and Rogoff 1996; Eichengreen 1999: 104–5; Summers 2000; Eichengreen 2000; and Edwards 2000). Consequently, countries must choose between the two extremes of fully fixed or fully flexible exchange rate regimes. That is, countries must be totally committed to the goal of fixing their exchange rates, as Hong Kong and Argentina have been, or they must inevitably allow greater exchange rate flexibility. However, even among

those who believe that the middle range along the spectrum of exchange rate regimes has vanished, there is no apparent consensus on which of the two polar regimes – fully floating or rigidly pegged – might be more appropriate; that is, which countries should adopt which extreme.

These issues have implications for exchange rate and monetary policy in East Asian economies. The East Asian financial crisis of 1997–98 involved a general abandonment of de facto pegs against the dollar by the emerging economies in the region (with the exception of Hong Kong), followed by greater exchange rate flexibility. However, there is still debate about which exchange rate arrangement should be followed in the future. Some advocate continued floating, while others support the restoration of the de facto pegs to the dollar or to a basket including the yen. Another possibility is a regional currency arrangement that would limit fluctuations in intra-Asian bilateral exchange rates but allow flexibility with respect to the major world currencies.

This chapter reviews the conventional arguments for alternative exchange rate regimes and discusses why countries may have difficulties maintaining intermediate exchange rate regimes in the face of open capital markets. It then looks at the empirical basis for the 'missing middle' argument and presents stylised facts concerning the association between exchange rate arrangements and country characteristics. It shows that the middle has indeed shrunk, although a substantial number of developing countries are still engaged in intermediate exchange rate arrangements. However, it has become increasingly more difficult to sustain these regimes, as evidenced by the successive widening of intervention margins by countries with target-band arrangements, by the sizeable number of countries that recently abandoned intermediate arrangements altogether and by the fact that countries remaining in the middle are increasingly able to do only by restricting capital movements. Moreover, effectively controlling capital flows will only become more difficult as market development proceeds. In the long run, it appears that countries with open capital accounts will sooner or later be compelled to abandon the middle ground and allow more exchange rate flexibility, unless they are prepared to go to the opposite pole of a hard peg.

The final section discusses the feasibility of alternative exchange rate arrangements for the developing economies of East Asia. The conclusion drawn is similar to that for developing countries generally. As the openness of the region to global trade and finance continues to grow, these countries have little choice but to allow more exchange rate flexibility in the future than they have permitted in the past. This does not preclude an active but discretionary use of intervention and other policy tools to influence the exchange rate. Monetary policy will still need to take into account and react to exchange rate developments. But policymakers should not make explicit or implicit policy commitments to keep the exchange rate within particular ranges for extended periods of time.

ALTERNATIVE EXCHANGE RATE REGIMES

Benefits and costs

The literature on the advantages and disadvantages of exchange rate regimes has typically considered two highly simplified and extreme cases: (1) a fully flexible exchange rate; and (2) an irrevocably fixed exchange rate. The arguments for and against both are well known.[1]

At the macro level, the main argument in favour of a flexible exchange rate is that it allows a country to retain independent and discretionary monetary policy as a tool for responding to shocks, particularly shocks to aggregate demand.[2] In addition, flexible exchange rates allow faster and less costly price adjustment when shocks necessitate a shift in the real exchange rate, particularly when the nominal prices of goods change slowly.

There are several arguments in favour of a fixed exchange rate. Pegging to a low-inflation currency can provide a credible anchor for restraining domestic inflation expectations, as long as expectations that the fixed exchange rate will not be abandoned are credible.[3] Another argument for a peg is that it fosters fiscal and monetary policy discipline by curbing the temptation to follow excessively stimulatory macroeconomic policies that would lead to an exhaustion of foreign exchange reserves and an end to the peg.[4] At the micro level, a fixed exchange rate may also reduce the transaction costs and exchange rate risks that can discourage trade and investment.[5]

Both regimes have their costs. A flexible exchange rate and discretionary monetary policy usually come at the cost of some loss of credibility, which can lead to an inflation bias. At the microeconomic level, greater exchange rate variability creates uncertainty and discourages international trade and investment.

The main cost of a fixed exchange rate is the loss of macroeconomic flexibility to respond to shocks, particularly those that affect the equilibrium real exchange rate.[6] Giving up an (implicit or explicit) escape clause to exercise a devaluation in response to severe shocks may be undesirable if the short-term cost of defending the peg exceeds the long-term benefit of maintaining the regime. The loss of the domestic central bank as a lender of last resort can also be costly. And, fixed rates lacking credibility leave countries open to speculative attacks on their currencies. In particular, by serving as a 'lightning rod' for concerns about broader debt and banking problems as well as macroeconomic policies, they may spawn crises that greatly amplify the costs of adjustment.[7]

To fix or float? That is the question

The relative advantages of exchange rate fixity and flexibility depend, in large part, on the circumstances and characteristics of the particular country and period. Larrain and Velasco (1999) provide the following set of necessary

conditions for the adoption of a credible fixed exchange rate with a particular anchor currency:[8]

1 Strong trade links with the anchor country, implying that the benefits of reducing the adverse effects of exchange rate variability on international trade competitiveness are great.[9] A peg to a single currency will not be desirable unless there is a strong concentration of trade, because of the effects on international competitiveness of cross-rate fluctuations between the anchor currency and other major currencies.
2 A high correlation of shocks with the anchor country, implying that the costs of giving up macro policy flexibility are low.[10] Thus small open economies and countries sharing common (symmetric) shocks with the potential anchor country have less need for an independent monetary policy and flexible exchange rate than if they had to respond primarily to their own idiosyncratic (asymmetric) shocks. Larger economies that are more likely to experience asymmetric shocks benefit more from exchange rate flexibility.[11]
3 Similar inflation preferences to those of the anchor country. A fixed exchange rate can be desirable for countries with a history of hyperinflation or other economic misfortune that has rendered investor confidence scarce and independent monetary policy no longer tenable. In this case the benefits of improved credibility and a permanently lower inflation rate are likely to be great. Provided the public is willing to give up monetary sovereignty, even full official dollarisation may be attractive for some countries. The benefits are less in countries that have never experienced hyperinflation and if there is less public support for accepting the costs of ensuring greater price stability.
4 Flexible factor markets, in order to lessen the need for other policy measures with which to respond to economic shocks.[12] Countries with factor mobility and price flexibility may have less need for exchange rate and monetary policy flexibility in adjusting to asymmetric shocks.
5 A strong, well-capitalised banking sector in order to lessen the need for a lender of last resort to domestic banks. Countries with poorly regulated, fragile financial systems will find the loss of the domestic central bank as a lender of last resort costly, unless they can obtain contingent credit lines from foreign banks, governments, multilateral institutions or other sources to provide at least limited lender-of-last-resort services.

Countries that fail to satisfy the above conditions have a greater incentive for exchange rate flexibility.

Rationale for intermediate regimes

In reality, of course, there is a continuum of possible exchange rate arrangements between the two extremes of a rigid peg and a pure float. In this middle range are adjustable pegs, crawling bands and various other

regimes that are characterised neither by day-to-day flexibility nor by a commitment to a fixed and unchanging peg, termed 'fixed rates lite' by Obstfeld and Rogoff (1996).

If the trade-off in terms of costs and benefits of exchange rate flexibility varies with the degree of flexibility, ideally each country should pick the optimal degree of flexibility subject to this trade-off. Therefore, as Frankel (1999) argues, optimisation may often, although not always, involve an 'interior solution' between the two 'corner solutions' of pure floating and rigid fixing.

What factors might create an incentive to adopt an intermediate exchange rate arrangement; that is, create a convexity in the cost–benefit trade-off? Calvo and Reinhart (2000b) argue that developing economies are very different from developed countries in key dimensions that give rise to a 'fear of floating', in general, and of devaluing or depreciating, in particular. This fear, they suggest, is justified on several grounds:

1 Devaluations in developing countries are generally contractionary, in contrast to more advanced countries where devaluations are typically associated with export-led booms. The contractionary effects can arise from lower real income or wealth pushing aggregate demand down, as well as from reductions in aggregate supply owing to greater costs of imported inputs or working capital.[13] Depreciations may also be contractionary by worsening the condition of the financial sector – for example, if lending institutions have unhedged foreign liabilities – and reducing the availability of domestic credit.
2 Devaluations result in a loss of credibility and typically a loss of access to international capital markets in response to deteriorating credit ratings. An interruption in the supply of foreign credit – what Calvo and Reinhart term 'the sudden stop problem' – further contributes to economic downturns in developing countries whose currencies are depreciating.
3 In developing countries trade is more adversely affected by exchange rate volatility than in industrialised countries. This is because trade primarily involves exports of primary commodities and/or manufactures to the United States and is invoiced in dollars. Exposure to exchange risk is increased if exchange rate movements against the dollar are volatile. In addition, illiquid or non-existent futures markets limit the available tools to hedge exchange rate risk.
4 Currency swings have higher pass-through effects on domestic inflation in developing countries. If movements in the nominal exchange rate rapidly result in higher domestic prices, then the insulation properties provided by flexible exchange rates are reduced considerably. The degree of pass through depends on the extent to which exchange rate changes are perceived as permanent or transitory and the speed of the transmission between the exchange rate and prices.[14] Thus in developing countries with poor records on inflation and monetary policy and/or pervasive

wage indexation, exchange rate changes will lead to greater and more rapid domestic price increases.

5 The fear of depreciation can also be explained by the fact that government and private sector debt in developing countries is largely denominated in foreign currency. Significant exchange rate movements – and in particular large depreciations – will tend to magnify the burden of liabilities and adversely affect corporate balance sheets.[15]

In addition to concerns about depreciation, developing countries also fear large appreciations because of the effects on international competitiveness. For all of these reasons, Calvo and Reinhart argue that many developing countries who may not find it optimal to adopt a fixed exchange rate will still not find it desirable to adopt an independent float. They will make great efforts, through manipulating interest rates and through other policies, to avoid large exchange rate fluctuations. The implication is that developing countries that do not meet the criteria for a hard peg will have a strong preference for some intermediate, 'middle' form of exchange rate arrangement.

Are intermediate arrangements still feasible?

While intermediate exchange rate arrangements have been perceived as a way of retaining some policy independence while also limiting exchange rate volatility, the feasibility of intermediate regimes has been increasingly questioned in recent years.

In the past two decades a number of developing and transitional economies have moved to currency board arrangements, including Hong Kong (1983), Argentina (1991), Estonia (1992), Lithuania (1994), Bulgaria (1997) and Bosnia and Herzegovina (1998).[16] In addition, the euro was adopted by twelve members of the European Union.

At the other end of the spectrum, many developing countries have moved toward increased exchange rate flexibility in recent years. In December 1994 Mexico adopted a floating exchange rate. In July 1997 Thailand, whose official policy had been a basket peg, dropped its de facto link to the dollar and announced it would move to a floating rate. Korea, Indonesia and the Philippines have also announced more flexible exchange rate policies. Other countries that have abandoned band arrangements of some sort and moved toward greater exchange rate flexibility in recent years include the Czech Republic (May 1997), Russia (August 1998), Brazil (January 1999), Chile (September 1999) and Colombia (September 1999).[17] Also in 1999 Angola, which dropped its crawling peg, and Croatia, which dropped its horizontal band, moved toward increased flexibility. Obstfeld and Rogoff (1996) concluded (even before the most recent series of crises): 'A careful examination ... suggests that even broad-band [intermediate exchange rate] systems ... pose difficulties, and that there is little, if any, comfortable middle ground between floating rates and the adoption by countries of a common currency'.

Various arguments have been offered to explain the greater difficulty of maintaining intermediate exchange rate regimes. At first glance the problems of intermediate regimes can be explained by the impossible-trinity principle that, with greater integration of financial markets, countries cannot simultaneously attain the goals of exchange rate stability and monetary independence. But as Frankel (1999) has observed, this does not rule out allowing greater capital mobility while partially pursuing the remaining two goals of exchange rate stability and monetary independence. That is, the impossible trinity does not rule out a country pursuing a managed float or soft peg in which some of the fluctuation in demand for its currency is accommodated by intervention and the residual is allowed to be reflected in the exchange rate.

However, rising international capital mobility has made intermediate arrangements more vulnerable to shifts in market sentiment and more difficult to operate. Calvo and Mendoza (2000) argue that in a world with capital mobility and asymmetrically informed international investors, countries are subject to herding behaviour and possibly self-fulfilling speculative attacks by investors that misinterpret the behaviour of other agents in the global market.[18] This situation can be remedied, or at least minimised, only by adopting a very transparent and credible policy stance, as displayed by a rigidly fixed exchange rate or a freely floating exchange rate.

A related argument is that most intermediate regimes are insufficiently 'transparent', or 'verifiable' for international investors (Frankel, Schmukler and Servén 2000; Frankel et al. 2000). That is, they are more difficult to monitor than hard pegs or independent floats. For example, if the announced exchange rate regime is a simple dollar peg, investors need only check that the current exchange rate is the same as the exchange rate on the previous day to verify that the central bank is indeed following its announced policy. If the announced regime is a pure float, investors can check whether the central bank intervened in the market by seeing whether its holdings of foreign exchange reserves have changed (assuming information on reserves is accurate and timely). Allowing greater variability in the exchange rate within a horizontal or crawling band and/or a peg to a basket of currencies makes verification more difficult by requiring a longer period of observation for market participants to be able to confirm that the central bank is indeed implementing the announced policy. Thus the credibility of intermediate regimes is more easily cast in doubt.[19]

In addition to problems of verifying their credibility, intermediate regimes, as compared with hard pegs or floating arrangements, may also suffer from providing insufficient incentives for policymakers and private agents to undertake actions that would reduce the vulnerability of the economy to crises (see Eichengreen 2000). In particular, the domestic financial system will be more fragile, foreign borrowing will be greater and fiscal deficits will be larger. In the words of Eichengreen (2000: 13):

> Banks will have limited incentives to raise their capital standards or risk management practices because they think that any exchange-rate-related limits on the capacity of the authorities to act as lenders of last resort are only temporary. Debt managers will not shun short-term debt because they will be aware that the authorities retain the capacity to adjust the exchange rate and monetary policy so as to backstop the market. Fiscal policymakers will have mixed incentives to eliminate excessive deficits, because they will have reason to suspect that the revocation of the inflation tax is only temporary.

In contrast, with a fluctuating exchange rate, banks and other private borrowers will have a greater incentive to hedge their foreign currency exposure. With a hard peg, they will be more willing to improve their capital positions in response to the more limited capacity of the monetary authority to act as the lender of last resort.[20] Thus the endogenous relationship between economic fundamentals/vulnerabilities and the incentives (or lack of incentives) associated with intermediate regimes may also play a role in their demise.

IS THE MIDDLE VANISHING? EMPIRICAL EVIDENCE

Measurement issues

The usual starting point for characterising exchange rate regimes is the official exchange rate arrangements that countries report to the International Monetary Fund (IMF). A potential problem with these classifications is that they accept that countries are doing what they say they are doing. Exchange rates of the East Asian crisis countries prior to the 1997 crisis exhibited very little flexibility with respect to the US dollar for extended periods of time; however, only Hong Kong and Thailand were explicitly classified as maintaining pegs – and the latter to a basket; the Philippines was classified as having a freely floating exchange rate; while Indonesia, Malaysia, Singapore, Korea and (unofficially) Taiwan were all labelled as having managed floats.

According to Calvo and Reinhart (2000a, b), many developing countries that purport to float to some extent are, because of their fear of floating, 'closet peggers'. That is, they make every effort through interest rate manipulations and foreign reserve intervention to avoid large exchange rate fluctuations. Relative to more committed floaters – such as the United States, Australia and Japan – the observed exchange rate variability in these countries is quite low.

Nevertheless, even by Calvo and Reinhart's metric – the proportion of monthly exchange rate changes larger than 1 per cent or 2.5 per cent – countries with different IMF classifications on average show clear differences in exchange rate flexibility.[21] Thus even if most of those countries classified as having independent floats intervene more so than the United States and Japan, they tend to allow more exchange rate variability than countries with managed floats and other exchange rate arrangements that only allow some flexibility. Moreover, in recent years the IMF has reclassified several countries

that purport to be engaged in managed floating as de facto peggers. With these adjustments the IMF classifications are a good starting point for measuring relative degrees of exchange rate flexibility.

Trends in exchange rate arrangements

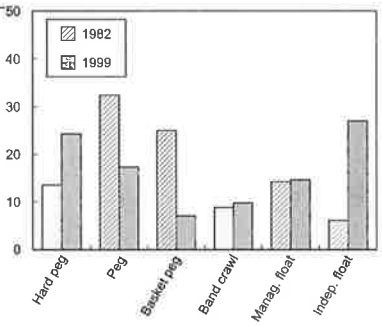
Table 9.1 presents statistics on the different exchange rate regimes in place in 1982, 1990 and 1999, based largely on the IMF's classifications.[22] The regimes are categorised into six groups: (1) rigid currency pegs including countries with currency boards or without legal tender; (2) single-currency adjustable pegs, including de facto pegs;[23] (3) basket-currency pegs to either the SDR (special drawing right) or other composite basket; (4) horizontal bands, crawling pegs, crawling bands and other regimes with announced targets;[24] (5) managed floats; and (6) independent floats. The table reports figures for all countries, industrialised countries, developing and transitional countries, and a subsample of emerging markets.[25] In 1999 the IMF reported regime classifications for 185 countries, including 23 industrialised countries, 26 transitional countries and 136 other developing countries. (For earlier years the totals for the non-industrialised countries were lower because of the ensuing creation of new countries.)

Table 9.1 clearly shows that the proportion of countries with hard pegs and independent floats has increased over time. In 1982, 14 per cent of all countries maintained a hard peg and only 6 per cent had independent floats; in 1999 the figures had risen to 24 per cent and 27 per cent, respectively. Correspondingly, the proportion of countries with a single-currency or basket peg has declined significantly, from a total of (32 + 25 =) 57 per cent in 1982 to (17 + 7 =) 24 per cent in 1999. The proportion of arrangements involving bands, crawls and managed floats has remained roughly constant at around 23 per cent.[26] Thus between 1982 and 1999, the frequency of regimes at the 'corners' (that is, hard pegs and independent floats) has risen, while the frequency of intermediate arrangements (that is, single-currency and basket-adjustable pegs, bands, crawling pegs and managed floats) has declined. The same general pattern of a shrinking middle is observable for the country subgroups, with the difference being that the frequency of intermediate regimes noted for developing and transitional countries (53 per cent) and emerging markets (61 per cent) in 1999 was much greater than for industrialised countries (17 per cent).

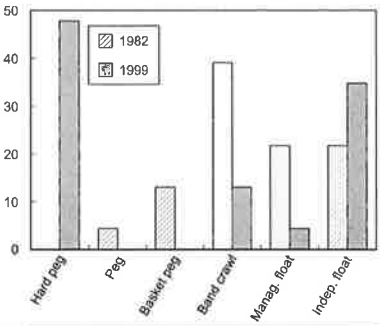
To control for the effects on the analysis of the growing number of new countries, it is also useful to describe the regime changes decided on by individual countries over the course of the period.[27] Table 9.2 presents the transition matrix of regime decisions between 1982 and 1999. Results are reported for all countries as well as for developing countries (transitional economies were excluded from the latter group since almost all were established after 1990). To be included in the table, a country must have had its exchange rate regime arrangement classified by the IMF in both 1982 and

Table 9.1 Exchange rate regime frequencies (per cent)

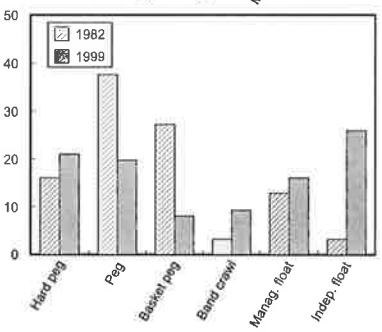
	1982	*1990*	*1999*
A. All countries			
Hard peg	14	15	24
Peg	32	19	17
Basket peg	25	26	7
Band or crawling peg	9	10	10
Managed float	14	13	15
Independent float	6	17	27
Total	100	100	100
No. of countries	148	155	185



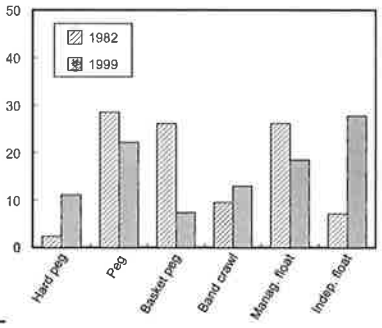
B. Industrialised countries			
Hard peg	0	0	48
Peg	4	4	0
Basket peg	13	17	0
Band or crawling peg	39	43	13
Managed float	22	9	4
Independent float	22	26	35
Total	100	100	100
No. of countries	23	23	23



C. Developing and transitional countries			
Hard peg	16	18	21
Peg	38	22	20
Basket peg	27	27	8
Band or crawling peg	3	4	9
Managed float	13	14	16
Independent float	3	15	26
Total	100	100	100
No. of countries	125	132	162



D. S&P Emerging markets			
Hard peg	2	4	11
Peg	29	11	22
Basket peg	26	33	7
Band or crawling peg	10	4	13
Managed float	26	24	19
Independent float	7	24	28
Total	100	100	100
No. of countries	42	46	54



Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions.*

Table 9.2 Exchange rate regime transition matrix, 1982 to 1999

A. All countries									
Regime in 1999		*Hard peg*	*Peg*	*Basket peg*	*Bands and crawls*	*Managed float*	*Independent float*	*1982 totals (freq. in %)*	
	Hard peg	20	0	0	0	0	0	20	(14%)
	Peg	2	19	0	5	9	12	47	(32%)
Regime	Basket peg	2	6	9	4	6	10	37	(25%)
in 1982	Bands and crawls	8	0	0	1	0	4	13	(9%)
	Managed float	3	1	2	5	1	8	20	(14%)
	Independent float	0	1	0	2	0	6	9	(6%)
	1999 totals (freq. in %)	35 (24%)	27 (18%)	11 (8%)	17 (12%)	16 (11%)	40 (27%)		

B. Developing countries									
Regime in 1999		*Hard peg*	*Peg*	*Basket peg*	*Bands and crawls*	*Managed float*	*Independent float*	*1982 totals (freq. in %)*	
	Hard peg	20	0	0	0	0	0	20	(17%)
	Peg	1	19	0	5	8	12	45	(37%)
Regime	Basket peg	1	6	9	3	5	9	33	(27%)
in 1982	Bands and crawls	0	0	0	0	0	4	4	(3%)
	Managed float	2	1	2	3	1	6	15	(12%)
	Independent float	0	1	0	2	0	1	4	(3%)
	1999 totals (freq. in %)	24 (20%)	27 (22%)	11 (9%)	13 (11%)	14 (12%)	32 (26%)		

Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions.*

Note: The entry for cell (x, y) indicates the number of countries with regime x in 1982 and regime y in 1999; e.g., cell (2, 6) = 12 shows that 12 countries had a peg in 1982 and an independent float in 1999.

1999; this reduces the number of countries to 146, including 121 developing countries. The diagonal cells of the table capture the number of instances in which the exchange rate regime remained unchanged. The off-diagonal cells capture the extent to which countries adopted greater exchange rate flexibility (moved rightward) or less exchange rate flexibility (moved leftward).

Table 9.2 provides further proof of a shrinking middle. The proportion of countries with hard pegs rose from 14 per cent to 24 per cent; while those choosing floating exchange rates rose from 6 per cent to 27 per cent. Moreover, among countries with intermediate regimes in 1982, more (almost twice as many) moved in the direction of greater flexibility (rightward) than toward less flexibility (leftward). The lower panel of Table 9.2 shows similar results for developing countries, but with even more movement to greater flexibility.

It should also be noted that of the 146 countries, 56 (the sum of entries along the diagonal) did not change their regime classification between 1982 and 1999, including 20 that maintained hard pegs and 28 that maintained adjustable pegs to single currencies or to baskets. However, this does not imply that these countries never exercised exchange rate flexibility. As Obstfeld and Rogoff (1996) observed, aside from some very small countries, very few have maintained an unchanged parity for more than five years. Even the fourteen hard-pegging members of the CFA Franc Zone devalued in 1994.[28]

Country characteristics and exchange rate arrangements

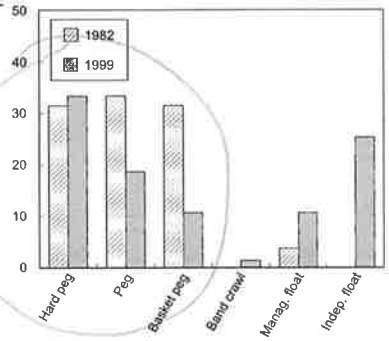
The above discussion highlighted the roles of various factors in the choice of exchange rate arrangements. Table 9.3 presents data on the frequency distribution of exchange rate arrangements in 1999 while slicing the country sample in different ways. The frequency distribution for small countries, defined as countries that had a nominal GDP of less than US$5 billion in 1998, is presented in Table 9.3a. Corresponding results for large countries are presented in Table 9.3b, and for large non-industrial countries in Table 9.3c.

Observe first that the frequency of single-currency and basket pegs declined between 1982 and 1999 for both small and large countries, including large developing and transitional countries. Correspondingly, the frequency of countries with independent floats has risen. However, the middle ground of intermediate regimes shrunk less for large countries, particularly for developing and transitional countries, as the frequency of band arrangements or managed floats either stayed constant or rose. Thus small countries have moved to the poles more frequently than large countries. As discussed above, small countries with strong trade links and correlated shocks with an anchor country are likely to have a strong preference for a hard peg.

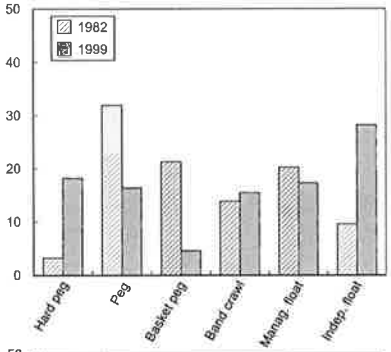
However, Table 9.3 also shows that a very high percentage (25 per cent) of small countries have chosen independent floats. Why? One explanation may have to do with the commodity concentration of their trade. Developing countries dependent on the exports of a few primary commodities are especially vulnerable to terms-of-trade shocks. For these countries exchange rate flexibility may be relatively desirable. Table 9.3d presents regime frequencies for small and large exporters of primary commodities, as identified by the IMF. The frequency of floating rate regimes – almost 40 per cent – is higher than that of any other type of arrangement. Approximately two-thirds

Table 9.3 Exchange rate regime frequencies by country characteristics (per cent)

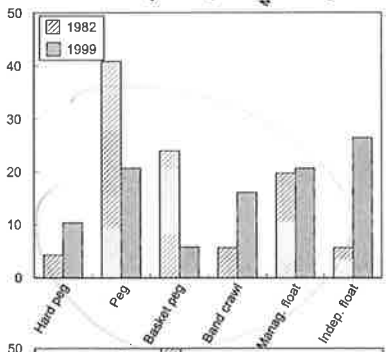
	1982	*1990*	*1999*
A. Small countries			
Hard peg	31	34	33
Peg	33	21	19
Basket peg	31	24	11
Band or crawling peg	0	5	1
Managed float	4	9	11
Independent float	0	7	25
Total	100	100	100
No. of countries.	54	58	75



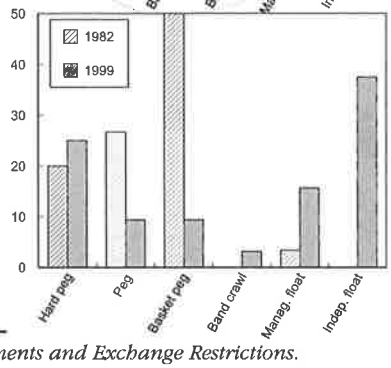
B. Large countries			
Hard peg	3	4	18
Peg	32	19	16
Basket peg	21	27	5
Band or crawling peg	14	12	15
Managed float	20	15	17
Independent float	10	23	28
Total	100	100	100
No. of countries.	94	97	110



C. Large developing and transitional countries			
Hard peg	4	5	10
Peg	41	23	21
Basket peg	24	30	6
Band or crawling peg	6	3	16
Managed float	20	18	21
Independent float	6	22	26
Total	100	100	100
No. of countries.	71	74	87



D. Commodity exporters			
Hard peg	20	23	25
Peg	27	13	9
Basket peg	50	35	9
Band or crawling peg	0	6	3
Managed float	3	13	16
Independent float	0	10	38
Total	100	100	100
No. of countries.	30	31	32



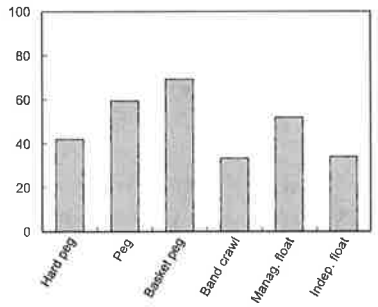
Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions.*

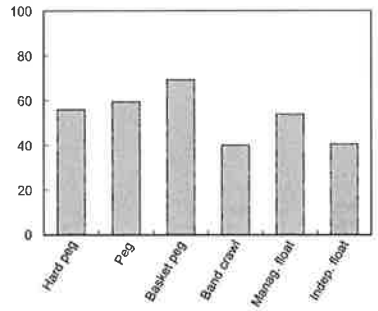
of these countries are small, showing that many countries that export commodities have found a floating rate regime preferable to a hard peg.

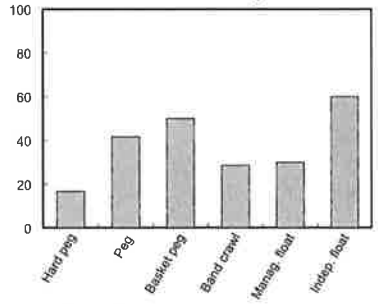
The discussion earlier in the chapter implied that countries with intermediate regimes are likely to resort to capital controls to contain speculative pressures that would otherwise force them to the 'corners'. Table 9.4 compares the frequency with which countries with different exchange rate regimes in 1999 employed balance of payments controls, as indicated by the reporting of surrender requirements for export proceeds (at the end of the prior year) in

Table 9.4 Frequency of controls by exchange rate regime, 1999 (per cent)

	No. of countries	*% with controls*
A. All countries		
Hard peg	45	42
Peg	32	59
Basket peg	13	69
Band or crawling peg	18	33
Managed float	27	52
Independent float	50	34
Total	185	45
B. Developing and transitional countries		
Hard peg	34	56
Peg	32	59
Basket peg	13	69
Band or crawling peg	15	40
Managed float	26	54
Independent float	42	40
Total	162	52
C. S&P Emerging markets		
Hard peg	6	17
Peg	12	42
Basket peg	4	50
Band or crawling peg	7	29
Managed float	10	30
Independent float	15	60
Total	54	41







Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions.*
Note: Controls are defined by the IMF as surrender requirements for export receipts in 1998.

the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*.[29]

Capital controls were more frequently employed by countries with intermediate regimes than with either hard pegs or independently floating exchange rates. In 1999, 42 per cent of countries with hard pegs and 34 per cent of those with floating rates imposed controls, compared with 53 per cent of countries with intermediate regimes (for countries with single or basket pegs, 62 per cent employed controls). For developing countries alone, the discrepancy only exists among those with floating exchange rates: countries with hard pegs or intermediate regimes employed controls roughly 60 per cent of the time, compared with 40 per cent of those with floating rates.[30]

Interestingly, 60 per cent of emerging market economies that had independent floats employed controls, a frequency higher than those that had intermediate regimes or hard pegs. One explanation is that a number of emerging markets were forced by recent crises to adopt flexible exchange rates while also maintaining or reimposing controls.[31]

Clearly, those countries experiencing greater integration with international capital markets have found the requirements for sustaining intermediate exchange rate regimes more demanding.[32]

Questioning the vanishing middle

Some economists have questioned whether the characterisation of a missing middle has been overdone. Calvo and Reinhart (2000a), for example, argue that because most managed floats resemble non-credible pegs, the so-called demise of the fixed exchange rate is a myth. Even those classified as independent floaters in fact frequently intervene in the foreign exchange market. Thus they state that the middle is not disappearing. Frankel (1999) and Mussa et al. (2000) argue that though the middle is shrinking, it is still quite large – many countries choose something in between rigid fixity and free floating.[33] Indeed, as Table 9.1 shows, roughly half of the countries classified in 1999 operated some kind of intermediate regime.

However, this seems to be an issue of whether a glass is half full or half empty. Quibbles over the accuracy of IMF classifications of exchange rate arrangements notwithstanding, there is no denying that the number of countries adopting hard pegs or exercising greater exchange rate flexibility has increased over time. Many countries remain in the middle, but they have found it more difficult to sustain intermediate regimes, as evidenced by the successive widening of intervention margins in crawling band arrangements and by the number of countries that recently abandoned intermediate arrangements altogether.[34] In addition, many of the countries remaining in the middle are able to do so only by restricting capital movements. Effectively controlling capital flows will only become more difficult as market development proceeds.

Thus in the long run, it appears that all countries with open capital accounts will ultimately experience an episode of capital flow reversal, leaving little

alternative but to abandon their pegs, baskets, bands and crawls, and move to a float, unless they are prepared to go to the opposite pole of a hard peg.[35]

EXCHANGE RATE ARRANGEMENTS IN EAST ASIA

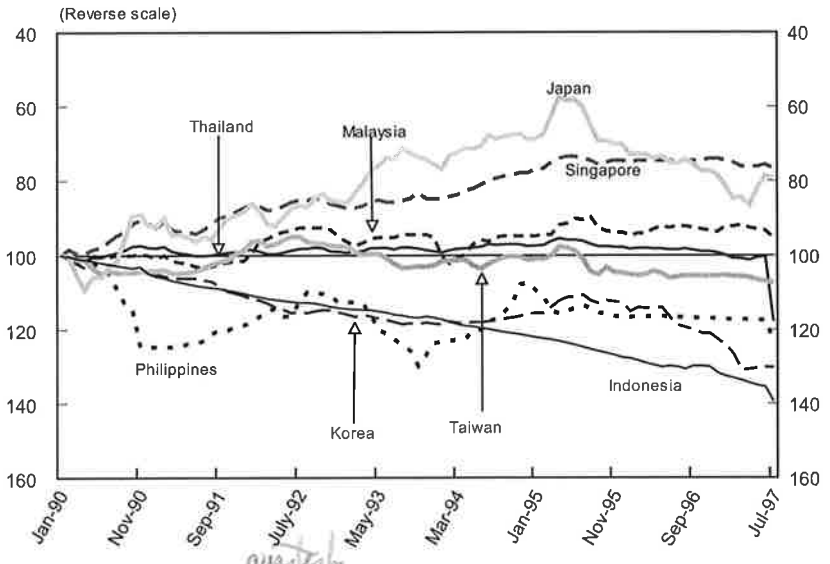
The suitability of various exchange rate arrangements has been of particular concern to East Asia, especially since the recent crisis put into question the appropriateness of past policies.

Pre-crisis behaviour

Prior to the 1997–98 crisis, all East Asian economies generally limited the movements of their currencies against the dollar. Most responded very little to changes in other currencies, such as the yen. According to the IMF classifications, however, only Hong Kong explicitly adhered to a dollar peg in the form of a currency board. Thailand officially pegged to a currency composite (although without explicitly disclosing weights), Indonesia maintained a crawling band and Malaysia, Korea, the Philippines, Singapore and Taiwan all officially had managed floats.

Figure 9.1 plots quarterly movements of nominal dollar exchange rates of selected East Asian countries, including Japan, from 1990 to mid-1997. The currencies of Thailand and, to a lesser extent, Malaysia changed little against

Figure 9.1 East Asian exchange rates against the US dollar (Jan. 1990=100)



Source: IMF monthly data, averages.

the dollar over the period.[36] Those of Korea and the Philippines showed more flexibility, although both were also relatively stable in the two to three years before the crisis.[37] Taiwan had allowed a steady but modest depreciation, while Indonesia had exhibited a larger downward crawl of 4–5 per cent a year,[38] and Singapore showed a slower upward drift.[39]

Frankel and Wei (1994) estimate the implicit weights of the dollar and the yen in the exchange rate targets of selected Asian countries by regressing daily changes of each currency against the dollar and yen (using the Swiss franc as an arbitrarily chosen numeraire) over the period 1972–92. They find that the weight attached to the US dollar in the currency baskets of most of these countries was 0.9 or higher. Only Singapore and Malaysia maintained true basket systems, with weights on the dollar of less than 0.8, and additional weights on both the yen and deutschmark. Later work by Ohno (1999) and Beng and Yin (1999) confirms these results using data to mid-1997.

Limiting his analysis to periods when the yen fluctuated sharply against the dollar, Takagi (1996) finds that Korea and Malaysia attached higher weights to the yen when it depreciated, suggesting a concern about losing competitiveness to Japan. Singapore attached a higher weight to the yen when it appreciated, suggesting a concern about imported inflation. These asymmetric responses, reflecting different priorities toward export competitiveness and price stability, imply complications for efforts to establish a regional currency peg.

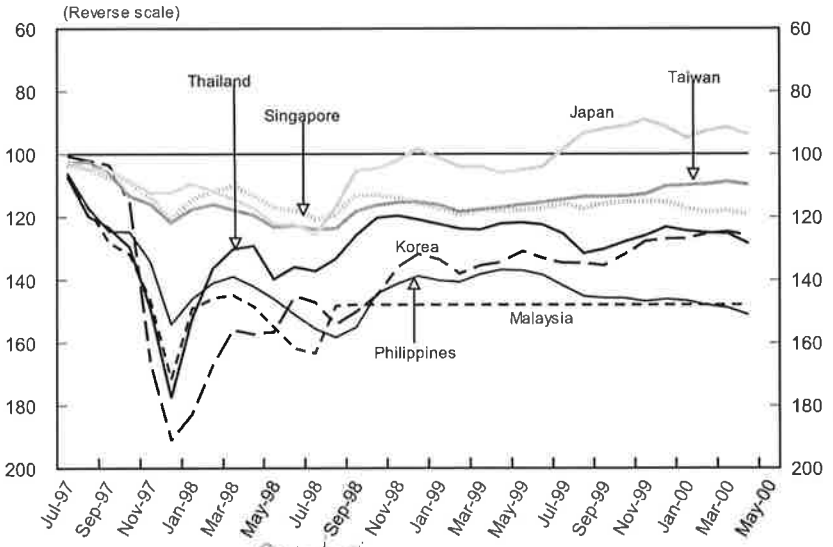
Why did East Asian policymakers maintain quasi- or de facto dollar pegs? One factor was the competitive advantage conferred to these currencies when the dollar was relatively weak in foreign currency markets from the mid-1980s. However, the sharp appreciation of the dollar against the yen after April 1995 led to appreciations in the effective exchange rates of countries that were de facto pegged to the dollar, upsetting the relative competitive positions of these countries and contributing to the crisis that followed.[40]

Post-crisis behaviour

Following the major depreciations between the onset of the crisis, in mid-1997, and the middle of 1998, currency values in East Asia rebounded somewhat and stabilised against the dollar for various periods under the flexible exchange rate arrangements that replaced the implicit pegs (see Figure 9.2; Indonesia's exchange rate is not included to avoid skewing the scale). However, aside from Malaysia, which established a formal peg to the dollar in September 1998 (and Hong Kong, of course), moderate swings have continued to occur. In the first half of 2000, several currencies in the region – particularly the baht, peso and rupiah – have depreciated, while the won and Singapore dollar have appreciated.[41]

Are countries in Asia now engaged in pure floating? In principle, the variance of reserves should be zero in a pure float. To assess the extent of policy intervention to smooth out exchange rate fluctuations, Calvo and

Figure 9.2 East Asia exchange rates against the US dollar (July 1997=100)



Source: IMF monthly data, averages.

Reinhart (2000a) report figures on the frequency of monthly changes in foreign reserves (in dollars) for selected countries.[42] They find that over the period of July 1997 to April 1999, the probability of the monthly change in reserves being less than ± 2.5 per cent was less than 41 per cent in Thailand, 30 per cent in Indonesia, and only 6 per cent in Korea. This compares with figures of 62 per cent for the United States and 74 per cent for Japan (over the period February 1973 to April 1999).[43] The implication is that, even under more flexible exchange rate arrangements, East Asian policymakers are still intervening substantially.[44]

Factors affecting choice of exchange rate arrangements

The cost–benefit calculation for any particular exchange rate arrangement depends on many factors, including the diversity of trade, the degree of openness and exposure of the economy to disturbances, the degree of price flexibility, the willingness to employ controls, the fragility of the financial system, and so on.

While many East Asian countries were compelled to adopt more flexible exchange rate arrangements in the midst of the recent crisis, policymakers in the region must still consider what future arrangements are feasible as well as desirable. Of particular concern is the extent to which in the long term it is feasible and desirable to achieve stable inter-regional exchange rates through a peg to any of the three major global currencies as well as stable intraregional exchange rates through the adoption of some common intervention

arrangement or common currency in the region. In addition, to what extent do countries in Asia have a greater or lesser fear of floating than other developing countries and/or more advanced countries?

Trade links

How strong are the trade links of East Asian economies with potential currency anchors and within regional groupings? Table 9.5 shows the regional

Table 9.5 Regional trade patterns (per cent of total regional trade)

	1990		*1995*		*1998*	
	Exports	*Imports*	*Exports*	*Imports*	*Exports*	*Imports*
Asian-5[a]						
Within Asian-5	6.7	6.6	8.4	8.1	10.2	12.5
With Japan	22.2	26.1	15.9	25.8	11.6	17.8
With the US	23.9	18.2	19.5	17.3	20.2	14.4
With euro area	11.8	11.3	10.4	11.6	10.7	8.6
With other industrialised countries	8.3	10.6	6.6	9.4	8.1	7.4
With other developing countries	25.0	24.1	36.9	26.1	36.5	36.6
ASEAN[b]						
Within ASEAN	19.0	15.2	24.6	18.0	22.1	24.1
With Japan	18.9	23.1	14.2	23.8	11.1	16.9
With the US	19.4	14.4	18.6	13.8	20.6	13.8
With euro area	11.7	11.2	10.8	11.1	11.9	8.9
With other industrialised countries	7.6	9.8	6.9	8.1	8.6	6.7
With other developing countries	23.1	25.2	24.3	24.3	25.2	28.5
Mercosur[c]						
Within Mercosur	11.6	17.5	22.6	20.2	26.8	22.7
With the US	20.4	19.3	15.0	20.6	15.1	21.6
With euro area	28.8	20.1	21.3	22.3	21.3	22.0
With other industrialised countries	14.6	15.4	14.3	13.7	10.6	13.3
With other developing countries	23.2	26.6	26.0	22.1	25.0	19.5
Euro area[d]						
Within euro area	54.1	52.8	51.2	50.7	48.7	48.5
With Japan	2.0	4.1	2.0	3.8	1.6	3.8
With the US	6.1	6.7	5.9	6.8	7.6	7.8
With other industrialised countries	19.5	16.7	18.3	16.8	18.9	16.6
With other developing countries	17.2	19.1	21.3	21.0	22.0	22.4

Source: Bayoumi and Mauro (1999).

Notes

a Asian-5: Indonesia, Korea, Malaysia, the Philippines and Thailand.

b ASEAN (Association of South East Asian Nations): Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam (Brunei data are not available).

c Mercosur: Argentina, Brazil, Paraguay, Uruguay, and associate members Bolivia and Chile.

d Euro area: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain.

distribution of trade for the five East Asian countries (the Asian-5) most affected by the recent crisis and for the Association of South East Asian Nations (ASEAN) (for comparison purposes, trade data for Mercosur countries in Latin America and the countries in the euro area are also presented). The data shows that in 1998 the United States was the largest export market for both the Asian-5 and ASEAN countries, receiving roughly 20 per cent of each group's exports. However, exports to Japan and Europe were still substantial at 11–12 per cent each.[45] Japan was a more important import source than the United States in 1998, accounting for 17–18 per cent of imports by East Asian economies, which rely on supplies of intermediate goods and capital equipment from Japan. This diversification of trade implies that exposure to cross-rate movements between the dollar and yen will be important.[46]

The ASEAN countries trade a great deal with each other – intraregional trade is almost 25 per cent of ASEAN's total trade. The growing importance of this trade has increased the real effects of fluctuations in bilateral exchange rates within the region. However, the share of regional trade is still much less than the roughly 50 per cent magnitude for the countries of the European Union.[47]

Correlation of shocks

The desirability of exchange rate coordination also depends on the extent to which countries are affected by common shocks. If the correlation is high, a rigid exchange rate or a single currency could be appropriate.

Bayoumi and Mauro (1999) analyse the pattern of disturbances for countries in Asia over the 1968–96 period using structural VARs (vector autoregressive models).[48] They focus on the correlation of aggregate supply shocks, which they regard as more useful for assessing exposure to common shocks since supply shocks are less sensitive to the impact of macroeconomic policies. As shown in Table 9.6a, similarities in macroeconomic shocks were found for two sets of countries – Taiwan and Thailand, and Hong Kong, Indonesia, Malaysia, Singapore and Taiwan. The Philippines and Korea experienced more idiosyncratic shocks. In none of the countries (except Australia) were shocks significantly correlated with shocks in Japan.[49] In Europe there is a similar variance – shocks appear to be more highly correlated in Austria, Belgium, Denmark, France, Germany and the Netherlands, and more idiosyncratic in Italy, Portugal and Spain (Table 9.6b). However, the number of countries with significantly correlated shocks is smaller in Asia. Nor does Japan appear able to play the role of an anchor country in an Asian union, as Germany does in Europe, at least by the measure of correlated shocks.

Bayoumi and Mauro also find evidence of relatively quick adjustments to shocks in Asia. Almost half the changes in output and prices caused by shocks took place within two years, suggesting relatively flexible labour markets. However, the disturbances experienced in Asia were considerably larger than in Europe. On balance, they conclude that East Asian countries are currently less suited to a regional currency arrangement than Europe was

Table 9.6a Correlations of aggregate supply shocks, East Asia, 1968–96

	Malaysia	*Indonesia*	*Singapore*	*Philippines*	*Thailand*	*Hong Kong*	*Japan*	*Taiwan*	*Korea*	*Australia*	*New Zealand*
Malaysia	1.00										
Indonesia	0.49*	1.00									
Singapore	0.40*	0.32	1.00								
Philippines	0.05	0.16	0.01	1.00							
Thailand	0.02	0.16	0.33	0.14	1.00						
Hong Kong	0.12	0.40*	0.42*	0.00	0.33	1.00					
Japan	-0.02	0.03	0.02	0.03	0.32	-0.23	1.00				
Taiwan	0.00	0.32	0.42*	0.15	0.54*	0.40*	0.23	1.00			
Korea	0.17	0.11	0.21	0.07	0.21	0.18	0.17	0.01	1.00		
Australia	0.00	0.14	0.08	-0.16	0.25	0.13	0.36*	0.27	0.04	1.00	
New Zealand	0.04	0.22	0.19	-0.01	0.21	0.00	0.22	0.07	0.01	0.07	1.00

Table 9.6b Correlations of aggregate supply shocks, Europe, 1969–89

	Germany	*France*	*Netherlands*	*Belgium*	*Denmark*	*Austria*	*Italy*	*United Kingdom*	*Spain*	*Portugal*	*Ireland*
Germany	1.00										
France	0.52*	1.00									
Netherlands	0.54*	0.36	1.00								
Belgium	0.62*	0.40*	0.56*	1.00							
Denmark	0.68*	0.54*	0.56*	0.37*	1.00						
Austria	0.41*	0.28	0.38*	0.47*	0.49*	1.00					
Italy	0.21	0.28	0.39*	0.00	0.15	0.06	1.00				
United Kingdom	0.12	0.12	0.13	0.12	-0.05	-0.25	0.28	1.00			
Spain	0.33	0.21	0.17	0.23	0.22	0.25	0.20	0.01	1.00		
Portugal	0.21	0.33	0.11	0.40	-0.04	-0.03	0.22	0.27	0.51*	1.00	
Ireland	0.00	-0.21	0.11	-0.02	-0.32	0.08	0.14	0.05	-0.15	0.01	1.00

Source: Bayoumi and Mauro (1999).

Note: * Significant at 5 per cent level.

in 1989 prior to the Maastricht Treaty, although they do not totally dismiss the prospects of an Asian currency union.[50]

More supportive results for an Asian currency area are provided by Loayza et al. (1999), who present evidence from an error components model of the importance of country-specific, sector-specific and common shocks for groups of East Asian, Latin American and European countries over the period 1970–94.[51] They find significant short-run and also long-run co-movements within East Asia, comparable to those found within Europe. In particular, roughly half of the short-run fluctuations in East Asia have a common origin.[52] They interpret this finding as evidence of a high degree of symmetry of shocks in the region, and that the East Asian countries are at least as good candidates as the European economies for the establishment of a currency area.

Pass through

Another reason why developing countries may fear floating, in general, and devaluations or depreciations, in particular, may be traced to concerns about the effects of large currency swings on domestic inflation. Calvo and Reinhart (2000b) explore this issue by estimating bivariate VAR models for inflation and exchange rate changes. They find that the average pass-through effect of lagged exchange rate changes on inflation is about four times as large for developing countries (0.228) as for Australia and New Zealand (0.065), the industrialised countries in the sample. Taken together, these results may help understand developing countries' intolerance to large exchange rate fluctuations – especially devaluations.

However, the reported pass-through estimates for Indonesia, Malaysia and Korea were much lower than for other emerging markets, and in fact similar to the estimates for New Zealand and Australia.[53] Thus the pass-through concern may be much less relevant for these countries, which have had quite low inflation, even during the large depreciations following the East Asian crisis.

Role of controls

Table 9.7 presents IMF classifications of exchange rate regimes for the Asian-5, ASEAN and Japan for the years 1982, 1990 and 1999. It shows that a number of countries have been exercising greater exchange rate flexibility, although most of these still had intermediate regimes in 1999. However, consistent with the finding in Table 9.3, virtually all of the countries with intermediate regimes also employed balance of payments controls (the exception being Singapore). The countries with hard pegs or independent floats did not employ controls (with the exception of Thailand). The conclusion is that, as with developing countries in general, balance of payments controls are critical to limiting the currency pressures that otherwise would compel Asian countries to adopt more flexible arrangements.

Table 9.7 Exchange rate regimes and controls in East Asia

	1982	*1990*	*1999*
Hard peg		Hong Kong Brunei	Hong Kong Brunei
Peg	Indonesia Laos **Thailand**		China Malaysia
Basket Peg	China **Malaysia** Myanmar Singapore Vietnam	China Malaysia Myanmar **Thailand**	Myanmar
Bands and Crawls			**Vietnam**
Managed Float	**Philippines**	Indonesia **Laos** Korea Singapore Vietnam	**Cambodia** **Laos** Singapore
Independent Float	Hong Kong Japan	Japan Philippines	Indonesia Japan Korea Philippines Thailand
Total	11	13	14

Source: IMF, *Annual Report on Exchange Arrangements and Exchange Restrictions.*

Note: China is classified as a having a de facto peg in 1990 and 1999 by the author; bolding indicates the presence of export proceed surrender requirements at the end of the previous year.

Exchange rate policy prescriptions for East Asia

What exchange rate arrangements are desirable and feasible in East Asia? A number of suggestions have been offered.

Pegs and bands

Given the predominance of East Asian trade with the United States, McKinnon (1999) and others have advocated the restoration of dollar-based exchange rate regimes in which countries individually (or collectively) adopt soft dollar pegs.[54] However, a prerequisite for a successful return to dollar pegging appears to be greater stability of the yen/dollar rate,[55] which currently seems unlikely. Moreover, any such exchange rate arrangement will always be

susceptible to speculative attacks. A return to an announced peg is an open invitation for future speculative attacks that would have significant adverse effects. The loss of credibility generated by the recent crisis and uncertainty about the correct level of the exchange rate suggest that defending an exchange rate peg has not become any easier. An exclusive peg to the yen makes even less sense, given trade patterns and the evident asymmetry of shocks between Japan and the rest of the region.

Alternatively, some have suggested pegging to a basket (e.g., Ito et al. 1998; Kwan 1998) of the region's major currencies, including the yen and the dollar, to offset the effects of cross-rate movements, particularly between the dollar and yen.[56] In theory, this arrangement would reduce the volatility of the nominal real effective exchange rate. But the neat theoretical formulas used to calculate basket pegs are not always easy to implement in practice. In particular, the virtues of simplicity, transparency and observability are lost to the extent that the weights used to calculate the basket are not public information and may change over time in response to structural changes. Discretionary manipulation of weights can be perceived as arbitrary and can undermine the credibility of the regime and reduce the benefits of maintaining stable bilateral exchange rates.

Some advocate that allowing pegs to move within a wide band could cushion the effects of speculative movements and offer monetary authorities greater monetary independence than would be possible with very narrow bands. Before the East Asian crisis, Dornbusch and Park (1999) and Williamson (1999) had advocated a hybrid basket-crawl-band regime that would take account of the region's diversified trade destinations, allow bilateral exchange rates to adjust to intraregional inflation differentials and permit some room for domestic monetary policy independence. Ohno (1999) also recommends that developing countries in East Asia adopt inflation-adjusted crawling basket rates within bands, but not necessarily using a common basket of currencies.

However, band arrangements, including crawling bands, are not immune to speculative attacks. When the exchange rate is pushed to the limits of the band, these arrangements face the same type of problems as a standard exchange rate peg. The monetary authorities can, of course, realign the bands before the exchange rate reaches any kind of region where an attack might be likely. But if agents come to expect that the bands will always be changed or believe they are too broad, such an arrangement will not stabilise the currency and will differ little from an independent exchange rate.

In response to this problem, Ohno (1999) has suggested that 'pragmatic exchange rate policy rules' be applied differentially in normal and crisis periods. In normal periods the exchange rate would be managed to stabilise the real effective exchange rate and allowed to adjust in response to real shocks. During a crisis the normal arrangement could be suspended. McKinnon (1999) advocates a similar approach, as long as there is a 'restoration rule' about the long-run exchange rate target in place to guide market expectations

back to the normal target after the crisis. However, it is precisely the inability to predict crises and know how much effort is needed to defend any particular exchange rate target that makes such a system crisis prone. At the same time, once the exchange rate has moved away from the target following a crisis, it is unclear when intervention should resume to restore the economy back to the target. Thus the credibility of a restoration rule seems no easier to sustain than the initial exchange rate target.

In this regard it should be recalled that the currencies of Mexico before December 1994, Indonesia before August 1997 and Russia before August 1998 were all engaged in crawling band arrangements. In August 1997, when capital was flowing out of Indonesia after the devaluation of the Thai baht, the rupiah went from the upper edge of its band (which had been widened to 6 per cent in July 1997) to the lower edge in one day (3 August). As outflows continued and further interest rate increases to defend the currency proved too costly, the band was abandoned altogether.

Can the prospects for some form of peg be enhanced by adopting a collective approach? If a group of countries repegged their currencies to the dollar or a basket of foreign currencies at the same time, concerns might be reduced about the effects of bilateral exchange rate changes within the group. However, a dollar peg will not eliminate the problem of cross-rate movements between the dollar and other major currencies. If a collective peg to a basket is proposed, it will be difficult to agree on its composition without a degree of political consensus that does not currently exist. Because the East Asian economies were affected differently by the recent crisis, have recovered at different speeds and remain subject to different domestic and external shocks, market pressures on their exchange rates are unlikely to be uniform over time. Moreover, as the work of Takagi (1996) suggests, countries in the region have traditionally displayed different priorities to the goals of export competitiveness and price stability. Without firm political commitment, any regional pegged currency arrangement would likely be viewed as another fixed exchange rate regime, open to speculative attacks.

Thus, it does not seem likely that any system with a soft (adjustable) single-currency or basket peg with or without a band will provide a durable arrangement without the widespread maintenance of exchange controls. The implication is that those East Asian countries that wish to continue their growing involvement with international financial markets must accept the increasing infeasibility of intermediate exchange rate arrangements. The recent crises have forcefully illustrated the same lessons learned by Western Europe in the Exchange Rate Mechanism (ERM) crisis of 1992–93 – that the policy requirements for maintaining pegged and band exchange rate arrangements are very demanding in circumstances of high international capital mobility.

What are the prospects for adopting a hard peg? None of the crisis countries at present appears suited to a currency board arrangement using a single foreign currency. Almost all are relatively large economies (by developing

country standards) with diversified trade and exposure to a variety of shocks that such an arrangement would be ill equipped to counter. A basket-based currency board is conceivable, but has the same transparency and credibility problems as a soft basket peg.

Even more problematic is the ongoing financial fragility in the region. Cleaning up the existing bad-loan problems and raising prudential standards in the region's financial systems is a prerequisite for the success of a hard peg, since during a financial crisis central banks would be constrained in lending to domestic banks by the availability of excess reserves, while deposit insurance is limited by the availability of fiscal savings.[57] While problems at individual financial institutions could still be handled if the central bank or other government agency had resources beyond the backing required for the currency or could draw on established lines of credit with foreign banks or international organisations, a bank run in the future involving a shift from bank deposits to foreign currency would be no less difficult to deal with than during the most recent crisis.

The floating rate alternative

Thus, for most emerging markets in East Asia, a floating exchange rate appears to be the most plausible option.[58] Such a policy does not imply or require 'benign neglect' of the exchange rate and no intervention in the foreign exchange market. That is, it does not exclude an active but discretionary use of intervention and other policy tools to influence the exchange rate. Monetary policy may still take into account and react to exchange rate developments. Nor does a flexible exchange rate policy imply there is no need to accumulate and hold foreign exchange reserves. Responding to contagion effects during an unwarranted crisis warrants efforts to increase international liquidity either by building up reserves through current account surpluses or by establishing credit lines. Nor does it matter whether the exchange rate policy is referred to as a managed float or an independent float. What matters is that policymakers not make any explicit or implicit policy commitments to keep the exchange rate within some range or crawling band for any extended period of time.

For a floating exchange rate to function effectively and avoid the problems that tend to develop over time with exchange rate pegs, it is important that its particular level not become a lightning rod for speculators and that it actually moves – in both directions – in response to market forces. Such movements will lead economic agents to recognise and properly manage the foreign exchange risks that arise with open capital markets. Excessively tight management of the exchange rate that limits exchange rate volatility may foster complacency about foreign exchange risks and the build-up of foreign liabilities. Of course, there will be concerns about the effects of any further depreciations on the burden of foreign-currency-denominated foreign debts in the region. But since the crisis began, most of the hardest hit economies have steadily reduced their stocks of foreign borrowing.[59]

More ambitious efforts at floating on a regional basis through the formation of a currency union, however, do not seem feasible at the moment, as much for political as for economic reasons. The region currently lacks a natural focal country for the convergence of policies. In addition, a monetary union requires political commitment to build a regional central bank for formulating a common monetary policy and region-wide political institutions to hold it accountable. Given the diversity of development and the historical tensions in Asia, it is difficult to see the region moving toward significantly stronger political integration in the near future.

In the short run, less formal means of coordinating exchange rate policies may be feasible, along the lines of the recent system of currency swaps announced by the ASEAN-plus-three (Japan, China and Korea) grouping. It is even possible that an Asian monetary fund might evolve to identify and respond to crises on a regional basis. Such cooperation may be useful, but not if it increases pressure for the adoption of common pegs.

Of course, if the exchange rate is not used to provide a nominal anchor by either a country or a region, monetary credibility must be established through other means, such as an inflation target.[60] This requires the ability to implement the sometimes complicated feedback rule typically required for an effective inflation-targeting system. This may prove difficult, given the uncertain transmission mechanisms through which monetary policy affects the economy and inflation, particularly as financial system liberalisation and structural change is ongoing. Nevertheless, the record of relatively low inflation and strong fiscal responsibility in most East Asian countries implies that stabilising inflation expectations and maintaining an inflation target may be more easily achieved than in other emerging markets.

NOTES

The views presented in this chapter are the author's alone and do not necessarily reflect those of the Federal Reserve Bank of San Francisco or the Board of Governors of the Federal Reserve System.

1 For recent discussions of the relative merits of different exchange rate regimes, see Larrain and Velasco (1999) and Mishkin (1999).

2 Of course, money and exchange rate changes work only as short-term policy tools. In the long run, repeated nominal depreciations or increases in domestic credit will only cause inflation and have no real effect as they come to be expected by the private sector.

3 By reducing speculation and exchange rate risk, a credible peg may also lower domestic interest rates relative to alternative regimes. This will be reinforced to the extent that lower exchange risk also lowers the country risk premium.

4 However, Tornell and Velasco (2000) argue that flexible rates may provide greater fiscal discipline through the more immediate effects of lax policies on the exchange rate and the price level. They point to the experience of the hard-pegging African CFA countries, which have exhibited less fiscal discipline than other developing countries without hard pegs.

5 Eichengreen and Hausmann (1999) argue that there is another very important benefit for emerging markets to giving up the currency altogether for a hard currency such as the US dollar. Such countries may suffer from what they refer to as 'original sin' – the inability to borrow long term in local currency either from abroad or domestically, creating a mismatch between assets and liabilities. According to Eichengreen and Hausmann, this problem can be partly overcome by giving up the domestic currency and dollarising. However, while dollarisation may solve the problem of currency mismatch, it does not necessarily eliminate maturity mismatch or country risk.

6 In this regard, it has been argued that fixed exchange rate regimes may be particularly prone to real overvaluation. For example, countries using an exchange rate peg as an anti-inflation mechanism typically experience sustained, sharp appreciations in the real exchange rate, in part because domestic inflation is initially above the world rate and comes down only gradually over several years. Exogenously motivated capital inflows may also appreciate the real exchange rate if the inflows help finance an increase in traded-goods consumption and investment, leading to a rise in domestic inflation. See Edwards and Savastano (1999).

7 A fixed exchange rate regime also eliminates the ability to collect seigniorage revenue.

8 In addition to the economic conditions listed below, credibility also requires legal and political commitment to the peg.

9 The role of trade links and openness in the formation of optimal currency areas was first emphasised by McKinnon (1963).

10 The commodity composition of trade may affect these costs. When the commodity composition of production and trade differs greatly across counties, sector-specific shocks are likely to affect them differently and increase the benefits of exchange rate flexibility. See Kenen (1969).

11 However, some empirical work (e.g., Frankel and Rose 1998) suggests that currency arrangements and observed cross-country correlations are endogenous; that is, when a country adopts the currency of a neighbour, the creation of the monetary union promotes trade between them over time, which in turn promotes a convergence in income. The implication is that this optimum currency area criterion may be satisfied *ex post* even if it fails *ex ante*.

12 The need for flexible labour markets in currency areas was first pointed out by Mundell (1961).

13 A depreciation can reduce real financial wealth by increasing domestic prices and reducing real money balances; if domestic interest rates are not anchored by world interest rates, the reduction in money balances will tend to create excess demand in the loan market, raising domestic interest rates and thereby reducing investment and aggregate demand. See Agénor and Montiel (1996).

14 The degree of pass through also depends on the market structure and the degree of competition in product markets.

15 An opposing view argues that the dollarisation of liabilities in developing countries is itself partly an endogenous result of pegging, magnified by moral-hazard problems and the underestimation of currency risk that pegging fosters. This is another example of possible endogeneity between the nature of exchange rate arrangements and the conditions affecting their relative desirability.

16 Ecuador recently announced its intention to be the first of what may be several countries in Latin America to adopt the US dollar as its currency. Montenegro is said to be considering adoption of a currency board.

17 The Czech Republic officially adopted a managed float; the other countries moved to independent floats.

18 In so-called first-generation currency crisis models (e.g., Krugman 1979), speculative attacks occur in response to ongoing balance of payments difficulties and the anticipated exhaustion of foreign exchange reserves. In second-generation models of self-fulfilling crises (e.g., Obstfeld 1994), the speculation can precipitate a devaluation that would not have occurred in the absence of the attack by raising the costs of defending the peg. Herding raises the frequency of attacks that are successful.

19 Frankel, Schmukler and Servén (2000) and Frankel et al. (2000) check the verifiability of exchange rate regimes with Monte Carlo simulations. Their results confirm the intuition that the amount of information necessary to verify the regime increases with its complexity, as reflected by the number of parameters to be estimated concerning the rate of crawl, band margins, weights in a basket, and so on. In their words, 'verifiability is a partial means to the Holy Grail of credibility'.

20 Looking at Europe's experience, Eichengreen concludes that hard pegs do not necessarily accelerate the pace of financial-sector and fiscal-policy reform that would reduce these vulnerabilities. Consequently, he argues, greater exchange rate flexibility is more likely to give emerging markets the incentive to make such reforms. This is supported by the observation that many small countries with hard pegs have experienced fiscal debt problems as well as banking crises.

21 For their sample of observations across 154 exchange rate arrangements for 36 countries during the January 1970 to April 1999 period, monthly exchange rate changes were within a ± 1 per cent (± 2.5 per cent) band, 52 per cent (79 per cent) of the time for independently floating rates, 60 per cent (88 per cent) for managed floats, 65 per cent (92 per cent) for limited flexibility pegs, and 83 per cent (96 per cent) for pegs. They find that the difference between independent floats and pegs is statistically significant, but not between managed floats and limited-flexibility pegs, or between limited-flexibility pegs and hard pegs. A limitation of their measure of exchange rate flexibility is that only short-term monthly changes are assessed and not longer-term changes.

22 The IMF first distinguished between managed and independent floating arrangements in 1982. In addition, some countries were reclassified by the author as having de facto pegs based on information in the *Annual Report on Exchange Arrangements and Exchange Restrictions* and other IMF studies.

23 In 1999 the IMF classified fourteen developing countries as having de facto pegs.

24 The distinction between a peg and a band is somewhat arbitrary, but a peg is generally defined as a band in which the margins on either side of the central parity are less than or equal to 2.25 per cent.

25 The emerging market subset consists of countries included in the S&P 500 global and frontier emerging market stock indices in 1999, with the omission of Taiwan and Greece and the addition of Hong Kong and Singapore, giving a total of 54 countries.

26 Within the category of countries with band arrangements, these figures do not capture any increases in exchange rate flexibility through a widening of band margins.

27 Frankel, Schmukler and Servén (2000) assert that, as a result of the break-up of the Soviet Union, Czechoslovakia and Yugoslavia, and the creation of the euro, roughly as many independent currencies have been created in the 1990s as have disappeared. In their words, 'One might assert a sort of Markov stasis, in which independent currencies are always being created and disappearing, but the overall pool remains roughly steady'. This is clearly not the case, as many more currencies have been created in the past two decades even taking into account the formation of the European Monetary Union.

28 The number of member countries increased to fifteen with the accession of Guinea Bissau in 1997.

29 The various binary indicators of balance of payments controls reported by the IMF are problematic as they capture neither the breadth nor the intensity of controls in place. Export proceeds and surrender requirements are narrow enough in their focus to overcome some of these limitations. Nevertheless, better measures of controls on specific forms of capital flows are desirable.

30 The frequency figures for intermediate regimes are averages of the frequencies for pegs, basket pegs, bands, crawling arrangements and managed floats, weighted by the number of countries in each category.

31 The countries with independently floating rates in 1999 and export surrender requirements (in 1998) included Brazil, Chile, Colombia, Ecuador, Ghana, India, South Africa, Russia and Thailand.

32 These observations are supported by results of probit regressions. In a multivariate probit containing binary indicators of balance of payments controls and smallness, and a measure of trade openness (the average of exports and imports as a share of GDP), the probability of having an intermediate regime is positively associated with the presence of controls and the degree of openness, and negatively associated with being small. These results are significant at better than 1 per cent for the full sample as well as the developing and transitional country sample, with the exception that the controls variable is not significant in the latter.

33 In more recent writings (Frankel, Schmukler and Servén 2000; Frankel et al. 2000), Frankel appears to have become more sympathetic to the 'disappearing middle' view.

34 For example, Indonesia widened the margins of its band to ± 5 per cent in June 1996, ±8 per cent in September 1996 and ±12 per cent in July 1997, before entirely floating its currency in August 1997. Chile widened its margins from ± 0.5 per cent in 1984–85, to ±2 per cent in 1985–87, ±3 per cent in 1988–89, ±5 per cent in 1989–91, ±10 per cent in 1992–97, and ±12.5 per cent in February 1997, and abandoned the band altogether in September 1999. Colombia widened its band from ±14 per cent from early 1994 to mid-1999 to ±20 per cent in the latter part of 1999, before abandoning the band in September 1999. Israel widened its margins from 0 per cent in 1986–88 to ±3 per cent in 1989–90, ±5 per cent in 1990–95, ±7 per cent in 1995–97 and ±29 per cent in June 1997.

35 The shortcomings of soft pegs and bands as a longer-run strategy for monetary policy does not rule out their use as a tool in the initial phases of an anti-inflation stabilisation program.

36 Malaysia's currency moved in a 10 per cent range of 2.7 ringgit per US dollar to 2.5 ringgit for most of the period between 1990 and the beginning of 1997. The Thai baht was effectively fixed in a narrow range of 25.2 baht per US dollar to 25.6 baht from 1990 until 1997.

37 The Korean won depreciated in nominal terms from 1990 until the beginning of 1993 (from 700 to almost 800 won); then traded in the very narrow range of 800–770 won per US dollar between the beginning of 1993 and the middle of 1996, and thereafter depreciated by about 10 per cent, reaching a rate of 884 at the end of 1996. The Philippine peso fluctuated in a 15 per cent range of 28 peso to the dollar to 24 peso between 1990 and the beginning of 1995, but was practically fixed at 26.2 from the spring of 1995 until the beginning of 1997.

38 Taiwan allowed its currency to fall from a rate of 24 New Taiwan dollars per US dollar in 1990 to a rate of 27.8 by the end of 1996. Indonesia's policy can be described as a policy of explicit real exchange rate targeting, with the nominal rate falling from 1,900 rupiah to the dollar in 1990 to 2,400 by the beginning of 1997.

39 In Singapore the currency appreciated in nominal terms throughout the 1990s, going from a rate of 1.7 to the US dollar in 1990 to 1.4 by the end of 1996.

40 The cheaper yen had other trade and financial effects as well. It lowered the cost of intermediate products and capital equipment. In addition, by raising the cost of Japanese overseas production, it reduced foreign direct investment from Japan. Estimates of the extent of real overvaluation in the region and its role in the crisis vary. See Sachs et al. (1996), Corsetti et al. (1998), Chinn (1999), McKinnon (1999) and Edwards (2000).

41 After finishing 1999 at more than 7,000 to the US dollar, the rupiah fell to around 9,000 as of July 2000, a depreciation of more than 25 per cent. The Thai baht depreciated almost 8 per cent from 36 baht to the US dollar to 41 baht, and the Philippine peso fell 10 per cent between January and July 2000. The won and the Singapore dollar have appreciated 1 per cent and 4 per cent, respectively.

42 There are measurement problems in relying on reserve changes to capture the degree of intervention in the foreign exchange market. The analysis can overstate the degree of intervention to the extent that reserve changes reflect valuation fluctuations and interest earnings, and can understate intervention by excluding 'hidden' transactions involving lines of credit or the futures market. It also does not take account of other policy measures, such as interest rate changes, utilised to influence the exchange rate.

43 The corresponding figure for Australia over the period of January 1984 to April 1999 was 50 per cent.

44 Korea's apparently substantial intervention, despite its floating exchange rate, largely represents the accumulation of foreign exchange reserves. This likely reflects an effort to build up reserves during the currently 'good' state, that is, higher credibility associated with a strong economic recovery and sizeable capital inflows.

45 Exports to Japan in 1998 and 1995 were no doubt depressed by Japan's economic stagnation, but exports to the United States were higher even back in 1990.

46 Invoice patterns may also matter in determining the effects of exchange rate fluctuations on trade. Both US exports and imports are largely invoiced in dollars. In contrast, relatively little of Japan's trade is invoiced in yen. In fact, 51 per cent of Japan's exports to East Asia and 71 per cent of imports from the region were invoiced in dollars (Ohno 1999). Hence the trade of East Asian economies with the United States, and to a great extent with Japan, is in dollars. McKinnon (1999) believes this justifies placing a low or no weight on the yen in the exchange rate targets of developing countries in East Asia. At the same time, he recognises the impact of dollar/yen exchange rate fluctuations on trade by emphasising the need for the rate to be stabilised (by the United States and/or Japan).

47 Bayoumi and Mauro (1999) show that ASEAN's intraregional trade as a share of regional GDP is similar to that of the euro area, and higher than that of Mercosur members.

48 They apply the structural VAR methodology of Blanchard and Quah (1989) to identify temporary disturbances to output as aggregate demand shocks and permanent disturbances as aggregate supply shocks.

49 Bayoumi and Eichengreen (1999), using data only to 1993, find high correlations for Japan with Taiwan (0.61) and Korea (0.46); clearly the inclusion of more recent data has reduced the correlation of shocks with Japan.

50 This contrasts with the conclusion of Bayoumi and Eichengreen (1999), who believed the prospects of an Asian currency area were favourable on economic grounds in an analysis written before the 1997–98 crisis. However, they strongly questioned the political commitment to such an arrangement.

51 The East Asian countries in the sample are Indonesia, Korea, Malaysia, Singapore, Thailand, Taiwan and Japan.

52 In contrast, they find that the variability of output growth in Latin America has country-specific origins. The latter finding is supported by the work of Ahmed (1999), which finds no evidence that the business cycles of Argentina, Brazil and Mexico (over the period 1981–98) are driven by output shocks in export markets, including the United States.

53 Ito et al. (1998) also estimate pass-through equations that consider the response of export prices to changes in the bilateral (real) exchange rate with respect to the yen as well as the dollar. They found pass-through coefficients to the dollar of less than 0.15 in Thailand, Indonesia and Korea, but 0.49 in Taiwan. In general, they find that the degree of export-price adjustment varies across countries.

54 McKinnon (1999) also emphasised the accompanying need for greater prudential regulation of the banking system and short-term capital flows.

55 McKinnon (1999) has referred to the fluctuations in the dollar/yen rate as a 'loose cannon'.

56 Ito et al. (1998) calculate the optimal currency-basket weight of the yen for several East Asian countries, based on the criterion of minimising the variance of the trade balance of these countries. Their estimates of the optimal weight for the yen are much greater than the implicit weights estimated by Frankel and Wei (1994) and others.

57 Certainly, any exchange rate arrangement benefits from establishing high prudential standards for banks.

58 The following discussion presumes that imposing greater controls on international capital flows – Malaysian style – is not an option.

59 By the end of 1999, the Asian-5 countries had reduced their outstanding debt to international banks by over 40 per cent (from US$329 billion to US$190 billion) since the onset of the crisis, as investment fell and banks and firms restructured their balance sheets. The outstanding foreign debt of domestic Asian banks has fallen even more (Bank for International Settlements, *70th Annual Report*, 2000).

60 For discussions of the advantages and disadvantages of inflation targeting in developing countries, see Mishkin (1999) and Mishkin and Savastano (2000).

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