

Exchange Rates and Crises^{*}

Large movements in exchange rates have been the most prominent characteristic of the current problems in a number of East Asian countries. While there are other important issues,¹ the focus of this talk is these exchange rates.

Why Do These Big Changes in Exchange Rates Occur?

This is a central question, to which there is no clear answer yet. But I want to put forward two issues which may be a large part of the story: the first has to do with large capital flows; and the second has to do with what the technicians would call 'model uncertainty': there is no close, well-established relationship between the *fundamentals* of the economy and the exchange rate. When these uncertainties are great, it is difficult for markets to assess what is the 'right' exchange rate.

First, capital flows. One of the outstanding (indeed amazing) characteristics of the 1990s has been the extraordinary increase in international capital flows, particularly to the

Table 1: East Asian Exchange Rates
Per cent change during 1997

	vs US dollar	Trade-weighted ^(a)
Indonesia	-56	-44
Malaysia	-35	-24
Philippines	-33	-26
South Korea	-47	-43
Thailand	-45	-38

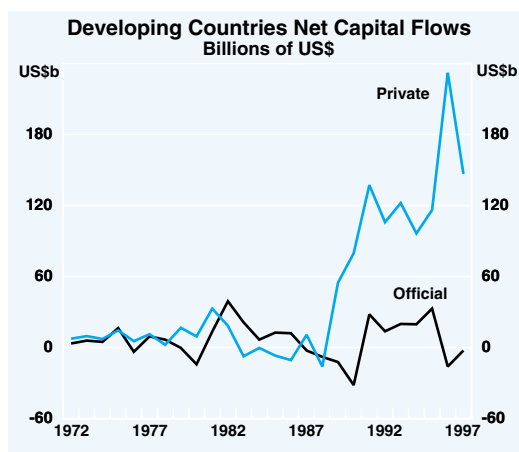
(a) RBA calculation

emerging countries, and particularly to the countries of this region. Graph 1 shows a measure of the increase in overall flows. The ten countries that were the main recipients, shown in Graph 2, accounted for about three-quarters of the total, and half of them are in East Asia. Graph 3 is a reminder that these flows were extraordinarily large relative to the size of these economies – routinely amounting to 6 per cent or more of GDP. The other characteristic of international capital flows (shown in Graph 4) was the greatly increased importance of portfolio investment

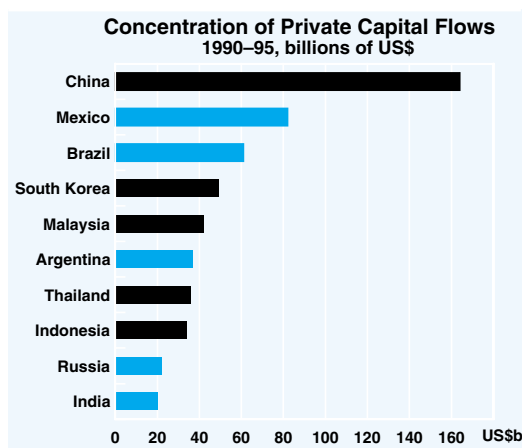
* This is an abbreviated version of a talk by the Deputy Governor, S.A. Grenville, to the Third Biennial Pacific Rim Allied Economic Organizations Conference, Bangkok, 16 January 1998. The full text can be found on the Bank's web site (<http://www.rba.gov.au>). I am grateful for the help of John Hawkins and Amanda Thornton in preparing this paper.

1. See, for example, S.A. Grenville (1997), 'Asia and the Financial Sector', Reserve Bank of Australia *Bulletin*, December.

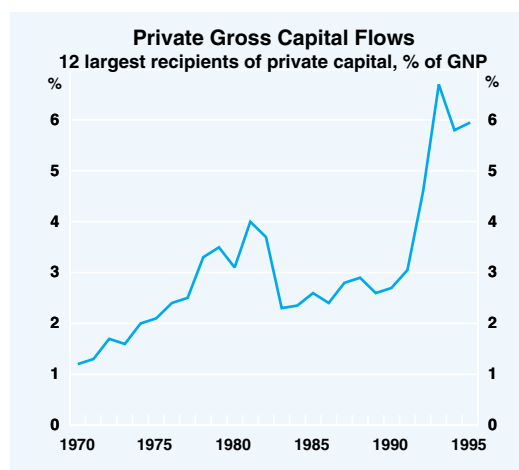
Graph 1



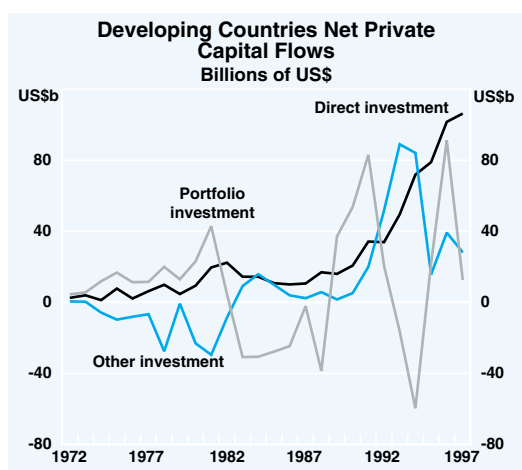
Graph 2



Graph 3



Graph 4



– first channelled through banks and, more recently, directly from funds management institutions. One of the characteristics of these professional fund managers is that they have applied more formal, structured principles to portfolio management, including the idea that *diversification* will protect fund holders from some volatility. At the same time, few of these fund managers are experts in the individual emerging markets – they tend to treat these markets as an investment class, rather than develop country-specific detailed information. In this world, contagion is common and changes of sentiment can be driven by herd behaviour. It is a bold fund manager who stands his ground when the herd is stampeding.

At the same time as these large mutual funds were discovering the attractions of diversification, the financial infrastructure to implement this was also being put in place, mainly driven by international financial institutions searching out expansion opportunities. They were encouraged in this by the general intellectual climate which promoted globalisation, and by the official international financial institutions (IMF, World Bank, and so on) who saw freeing up of financial capital as an important part of the development process. The recipient countries were happy enough to see these flows, as they themselves embraced the increasing sophistication of their financial infrastructure as a symbol of modernity and as a driving force

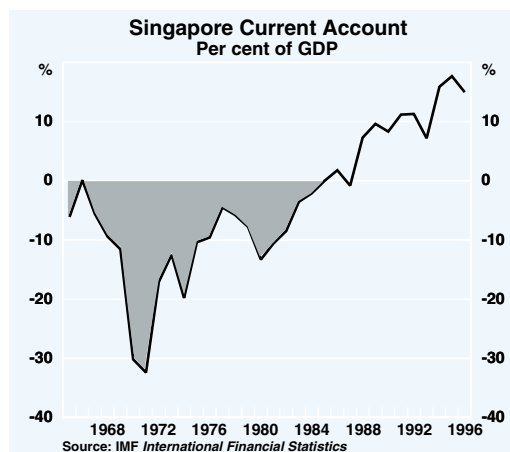
for the growth. Progressive dismantling of capital controls in the recipient countries was a factor, but in a number of cases the capital accounts had already been substantially opened.

It was not so much change of regulation but change of *attitude and perceptions* that was the driving force of the enormous increases in capital flows. By 1990, a number of these countries had recorded two decades of high growth and had established an enviable track record of political stability, balanced budgets and lowish inflation. If there was an 'economic miracle' occurring (cf. World Bank²), it is not surprising that foreign investors wanted a slice of the action.

Not least, domestic investors in these countries took the opportunity of what looked like extremely low borrowing rates on these overseas funds to finance an investment boom, including, inevitably, a good share of over-investment and misplaced investment.

These big flows (and the big current account deficits that went with them) were not some kind of aberration, but reflected the *normal working of market forces*. For those who find these deficits to be aberrant behaviour, could I remind you of the Feldstein and Horioka (1980) analysis,³ which suggested that the true aberrant behaviour was the close correspondence between saving and investment within most countries in the world. In other words, the amount of capital flow between countries has been *smaller* than optimal behaviour would seem to suggest. While a number of poor investment opportunities were certainly undertaken (most notably, excessive real estate investment), at an aggregate level it is still correct to say that there were many high profit opportunities available in these countries, as they moved from well inside the technological frontier towards the frontier itself, driven by an eagerness to adopt all sorts of productivity-enhancing techniques.

Graph 5



If all this sounds a bit textbook-ish, consider the experience of Singapore. As shown in Graph 5, they ran a current account deficit averaging more than 10 per cent of GDP for two decades, in a period of policy-making which would universally be regarded, with hindsight, as extremely successful. I should remind you also that all these countries ran, in the textbook sense, 'good' deficits – i.e. they were used to fund investment and not consumption, and were certainly not funding budget deficits.

Some of these countries understood, perhaps intuitively more than by rigorous logic, that big current account deficits made them vulnerable: Indonesia, for instance, was uncomfortable if its current account deficit was above 3 per cent of GDP. Korea, too (in recent years at least), ran quite modest current account deficits. But by and large, once these countries accepted the idea of financial deregulation and open markets, they were going to be on the receiving end of very substantial capital inflows.

The second major issue behind exchange rate fluctuations revolves around perceptions of how the economy works – 'the model'. What is the 'mind set' of participants in the market

2. World Bank (1993), *East Asian Miracle: Economic Growth and Public Policy*, World Bank Policy Research Report.

3. M.S. Feldstein and C.Y. Horioka (1980), 'Domestic Saving and International Capital Flows', *Economic Journal*, June, 90, pp. 314–329.

Table 2: Saving, Investment, Current Account and Budget Balances
1991–1995 average

	Saving % of GNP	Investment % of GNP	CAB % of GDP	Budget balance % of GDP
Indonesia	31.8	34.1	-2.5	0.8
Malaysia	34.2	40.5	-6.3	0.1
Philippines	18.7	21.7	-3.4	-0.6
South Korea	35.4	36.9	-1.3	-0.2
Thailand	34.9	41.8	-6.4	2.9
<i>Memo:</i> Mexico	17.6	19.4	-5.2	0.1
United States	15.5	16.0	-1.2	-3.6
Germany	21.8	22.2	-0.9	-2.0
Japan	34.8	30.4	2.6	-0.6

– what do they think is the ‘proper’ exchange rate? This is based not just on their views about some ‘fundamentals’, but also their guesses about other market participants’ views, so there is certainly plenty of opportunity for exchange rates to move very significantly, and stay away from the underlying fundamentals for significant periods of time. This has happened, also, in the case of countries such as the United States, Japan and Australia, where there are well-developed views about how the economy works and detailed analytical and econometric studies of what proper pricing relativities should be. The ‘models’ or ‘mind sets’ for the countries in question are much less fully developed and universally held, so there is far more opportunity for prices to shift sharply, and stay at rates which, earlier, would have seemed abnormal. On top of this, there are substantial *information asymmetries*, asymmetries which made market participants very nervous about going against the run of the market or taking significant contrarian positions.

This combination – very large, footloose capital flows and an exchange rate not firmly anchored by ‘fundamentals’ – goes a long way to explain the big exchange rate moves. When sentiment and confidence changed and the original investors began to pull out their capital, the exchange rate fall did nothing to induce new inflows. In the absence of a firmly defined ‘fundamental’ equilibrium exchange rate, as the exchange rate fell, the market

changed its view on what was the ‘correct’ equilibrium rate. Even when most market participants agreed that exchange rates had gone too far, they recognised the possibility that they could go further still. To stand against the run of the market in a contrarian position might be ultimately vindicated, but in the short run required a degree of courage and confidence that no fund manager (whose performance is evaluated more-or-less constantly) could afford to take. In short, there were no equilibrating flows to anchor the exchange rates.

Lessons

I have tried to put the case that the capital inflows that occurred into these countries in the first half of the 1990s were not some aberration of policy-making, but were more-or-less to be expected. But we now know, with hindsight, that they were unsustainable. Where did it go wrong? What should be done?

The first lesson is that whatever the ‘model’ suggests is the norm for capital flows, when these flows get large, economies are vulnerable to changes in sentiment. The model does not say much about how policies should handle changes of sentiment which bring very large *variance* to capital flows and GDP. Wherever

there are large foreign capital flows, there is a high probability of rapid changes of mood, because – whoever bears the exchange rate risk (whether borrower or lender) – *one* of the parties to the transaction is holding an exchange rate position which is not ‘natural’. This makes that party flighty and quick to re-assess their position.

Would an earlier float of the exchange rate have avoided these problems? With hindsight, it is hard to argue against this view – the actual path proved unsustainable, so any alternative looks attractive. But this does not tell us whether the alternative would, in fact, have handled the situation more satisfactorily: for this, we would need to sketch out what the exchange rate path over time would have been under this alternative scenario. Given the capital-transfer process underway, how much would the exchange rate be expected to appreciate? This is hard to think through, but the key idea here is that an interest rate differential should be balanced by an expectation of exchange rate depreciation if portfolios are to be held in balance. Portfolio equilibrium could not be achieved by lowering domestic (local currency) interest rates, because these were set – in effect – by the high domestic marginal efficiency of capital: high interest rates were needed to rein in the intrinsic dynamism of the domestic economy. If the interest differential was expected to be maintained for a significant period of time (say, a decade or more), then there would need to be a very large appreciation of the exchange rate to balance the likelihood that interest differentials would be maintained over this period of time. How far would it have had to appreciate before foreign investors would have stopped extrapolating the appreciation and begun to expect depreciation? Would this process have been smooth, without the over-shooting we have seen? What sort of knife-edge equilibrium would this have been, in which portfolio managers’ calculations teeter between the recent history of appreciation, but incorporate a steady, gentle, expected depreciation from here on? Would

the even-higher current account deficits that would have occurred during the appreciation phase have spooked the market? There are no answers to these ‘what if’ questions, but it seems naive to argue that markets would have maintained a smoothly evolving equilibrium exchange rate through the extraordinary changes of the 1990s. Greater exchange rate flexibility may well have provided a better outcome (or, more likely, brought on the crisis earlier), but it needed to occur within a financial infrastructure which had the capacity to withstand the exigencies of real-world flexible markets.

I now turn to more immediate issues, particularly the events of 1997. Once exchange rates were floated, why didn’t higher interest rates work more effectively to stabilise the exchange rates of these countries? There are new lessons and old lessons to be re-learned:

- If the market does not believe that high interest rates will be sustained, then there is no encouragement to capital inflows (and, in fact, the market may think that the exchange rate will fall further when the unsustainable interest rates are lowered).
- High interest rates are supposed to work by encouraging domestic borrowers to roll over their foreign exchange debt and borrow more overseas, and by encouraging foreigners to lend more, denominated in domestic currency. But foreigners are now worried about *credit* risk: higher local-currency interest rates do not encourage them to roll over their foreign exchange loans (in fact, will cause them to worry more about the financial health of their debtors), and it seems unlikely that many foreigners will be tempted to lend in local currency and only the most daring (and therefore risky) borrowers will be willing to pay higher interest rates.⁴

None of this, of course, argues for low interest rates – but it is a reminder that simple manipulation of interest rates will not always protect an exchange rate.

4. The Stiglitz and Weiss ‘adverse selection’ argument is relevant here (J.E. Stiglitz and A. Weiss (1981), ‘Credit Rationing in Markets with Imperfect Information’, *American Economic Review*, 71, pp. 393–410).

It is also clear that the proper answer is not to restrict capital flows, although these countries may be, in future, less enthusiastic about encouraging some of the more footloose and volatile forms of capital inflow. These countries should move forward with financial deregulation, although the central lesson from this experience is that the prudential framework should advance in step with the opening up of the financial sector.⁵ The *sine qua non* of smooth adaptation to large capital flows must be a resilient and robust formal financial sector, with risk-averse conservative banks forming a large stable core.

To put this point in different words, we need to enlarge our view of 'the fundamentals'. To the conventional list of 'fundamentals', we need to add another vital one – some assessment of the health and resilience of the financial system. Whether these countries can afford to return to their old pace of growth depends very largely on their ability to cope with *variance* – particularly variance of capital flows and exchange rates. So the constraint on growth will not be the conventional one of available resources, but whether the financial sector has proven itself to be able to withstand vigorous 'stress testing' – can it withstand big exchange rate changes? Can it cope with asset booms and busts? It also needs to be able to handle big swings in perceived company

profitability, because we know that a project which is performing well in an environment of 8 per cent growth can turn into a loser when growth slows.

In Short

Large and volatile capital inflows are an inevitable part of the international context in which these countries operate. Even with a floating exchange rate, very large medium-term exchange rate changes can be expected. This will put a lot of pressure on the solvency of firms and, more particularly, banks. You therefore need a sound, well-supervised and risk-averse banking system. This is an essential part of a deregulated financial market, but one that many Asian countries lack.

It may not be possible to return to the highest of the growth rates seen in the previous three decades, but fast rates of growth are still possible, and eminently desirable. The countries which get back there quickest will be those which are able to put in place institutions which can withstand the changes of sentiment which are part-and-parcel of a globalised economy. ✧

5. When people used to argue about the correct *sequencing* for the deregulatory process, they recognised that financial deregulation should come last, because if there remained any opportunities for disequilibrium profits in the meantime, a very open financial sector would allow these to be exploited.