

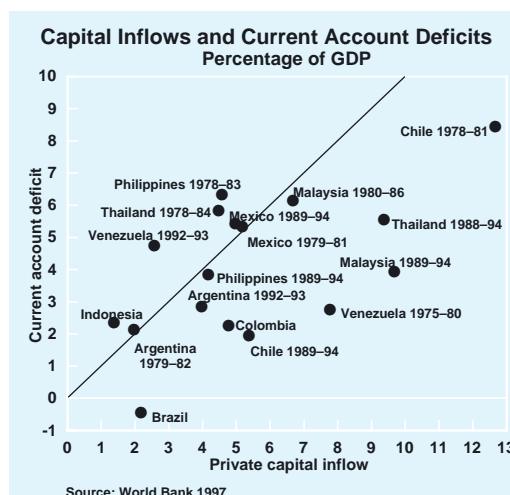
# Capital Flows and Crises\*

*Address by Dr S.A. Grenville, Deputy Governor, to the Credit Suisse First Boston Australia Conference, 'The Global Financial System – The Risks of Closure', Sydney, 13 November 1998.*

There are many things that went wrong for the countries caught up in the Asian crisis of 1997, but out of the myriad causes, two clear central problems can be identified – the fatal combination of large and volatile international capital flows, interacting with fragile domestic financial sectors. Today, I want to focus on the first of these issues – international capital flows.

International flows are now centre-stage in the international economic policy debate. This is certainly a higher profile than capital flows usually have. Traditionally, the focus has been on the *real sector* counterparts of these – the savings/investment balance and the current account surpluses and deficits. Both theory and practical policy-making often assume that these are the 'movers' of the action, with capital flows largely a passive, accommodating residual. But the Asian crisis suggests that the action may, instead, be in the capital flows themselves. The capital flows were certainly excessive in the sense that they were greater than could be absorbed – i.e. the capital flows were substantially larger than the current account deficits (Graph 1).

**Graph 1**



The capital inflows into Indonesia, Malaysia, the Philippines and Thailand in the five years 1990-94 were twice as large as the current account deficits (Calvo, Goldstein and Hochreiter 1996, p. 125). Capital inflows into Thailand in 1996, for example, were equal to 13 per cent of GDP. The 'excess' flows went to increase the foreign exchange reserves of the recipient country (in effect, being recycled back to the capital-exporting countries). But in the process they made the normal cycle in the recipient country much worse – providing the funding to make the expansion-phase of the cycle go stronger and last longer, driving

\* Special thanks to Gordon de Brouwer and Amanda Thornton for their help in preparing this paper.

up domestic demand and asset prices. While there were both 'push' and 'pull' factors for the capital flows, it is clear that the capital flows were not simply a passive accommodating force responding to the fundamental economic factors occurring in the capital-importing countries.

First, let's look quickly at the broad facts (Table 1).

Two things stand out from this overall picture. First, the extraordinary increase in the flows starting in 1990, with this increase being truly phenomenal in Asia. By the mid 1990s, developing countries were taking 40 per cent of global foreign direct investment (compared with 15 per cent in 1990) and accounted for 30 per cent of global portfolio equity flows (compared with 2 per cent at the start of the decade) (World Bank 1997, p. 9). The second aspect to observe is just how volatile the flows could be, even in these multi-year averages.<sup>1</sup> Following the Latin American debt crisis of 1982, inflows to that region turned into outflows nearly as large, and these outflows were sustained until the end of the decade.

Just as the law begins with a presumption of innocence, economics begins with a presumption that market outcomes will be

beneficial: there is an *a priori* case that international capital flows are a Good Thing. Financial flows supplement domestic saving, allowing more investment to be done in those countries where returns are highest; they buffer the variations over time between exports and imports; foreign direct investment brings the advantages of technological transfer; there are gains for savers from diversification; and, to complete the case for free capital flows, we should record the argument that even speculative capital flows can serve a beneficial purpose.

Perhaps the classic model for the beneficial operation of capital flows is illustrated by Singapore in the 1970s and 1980s. The flows were very large – amounting on average to around 10 per cent of GDP and in some years 15 per cent. They were used to substantially increase the rate of investment (i.e. not for consumption), and there was a substantial technological transfer that went with the foreign direct investment which dominated the flows. Following the 'stages of development' academic literature, we can see these flows being used to partially fund the catch-up as Singapore moved towards the technological frontier and its living standards

**Table 1: Capital Flows to Emerging Markets**  
Annual averages, US\$ billion

	1977–82	1983–89	1990–94	1995	1996	1997
<b>All emerging markets</b>						
<b>Total net capital inflows</b>	<b>30.5</b>	<b>8.8</b>	<b>120.8</b>	<b>192.0</b>	<b>240.8</b>	<b>173.7</b>
Net foreign direct investment	11.2	13.3	46.2	96.0	114.9	138.2
Net portfolio investment	-10.5	6.5	61.1	23.5	49.7	42.9
Other <sup>(a)</sup>	29.8	-11.0	13.5	72.5	76.2	-7.3
<b>By region</b>						
Asia	15.8	16.7	40.1	95.8	110.4	13.9
Western Hemisphere	26.3	-16.6	40.8	35.7	80.5	91.1
Other	-11.6	8.7	39.9	60.5	50.0	68.8

(a) Includes bank lending, 1977–89 figures exclude economies in transition and some Middle Eastern emerging markets.

Sources: IMF 1995, p. 33; IMF 1998, p. 13.

1. The sort of volatility that concerns us here is not the day-by-day or week-by-week 'noise', but the big disruptive swings.

rose to equal those of the industrialised Western countries. This sustained increase in living standards is confirmation that the combination of application of capital and education produced very large and sustainable increases in production per head.<sup>2</sup> In a mutually reinforcing process, the profit opportunities fostered the development of the institutional channels which, at the same time, facilitated the capital flows.<sup>3</sup>

This experience might give us some clues to analysing why these flows occurred more generally, why there was a huge increase in the 1990s, and the role capital flows played in the subsequent Asian crisis. There are two broad groupings of factors involved:

- the presence of abnormal profit opportunities as these countries moved towards the technological frontier; and
- an institutional structure which facilitates the flows of capital.

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## Profit Differentials

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The countries of Asia, with their high rates of growth, provided high profit levels and many opportunities for profitable investment. Expected returns on equity in emerging markets were consistently higher than those in mature markets, and their volatility was slightly below that of the mature markets, indicating high risk-adjusted returns (IMF 1998, p. 32). Equity and stock

prices were also performing strongly (IMF 1998, p. 38).

Growth and foreign investment certainly went hand-in-hand, although it might be noted that there was a stronger relationship in the 1980s than during the 1990s.<sup>4</sup> Of course, on top of these potential returns, there was also a question of exchange rate expectations, and we will return to this issue when we look at reasons for the volatility of flows. For the moment, it is enough to record that there were *ex post* large excess returns on investment in the emerging Asian markets, taken as a whole.

While it might seem, at first sight, that the main action in terms of profit differentials would come from the great opportunities available in the capital-receiving countries, it seems that quite a bit of the action – at least in the variability of the flows – came from changes in interest rates and exchange rates in the *capital-supplying countries* – ‘push’ factors rather than ‘pull’ factors. A powerful force encouraging greater flows was the lower interest rates in most developed countries in the early 1990s (US interest rates fell by 200 basis points between 1991 and 1993). The low rates made some investors search out higher returns overseas, and in seeking higher returns, they were ready to accept greater risks. Such was this new attitude that spreads on Brady bonds were bid down sharply in the early 1990s.

As the decade progressed, an important source of capital flow was Japan. Not only was it intrinsically a large saver, but the drawn-out

2. This is not to take sides in the Krugman debate on Singapore productivity: whether this came from more capital or total factor productivity, the result – in terms of higher living standards – is not in dispute.
3. Foreign direct investment has been the key form of capital inflow for Singapore in its rapid development from the 1970s onwards. Foreign direct investment accounted for around 50 per cent of net capital inflows in the 1970s and were the bulk of capital inflows in the 1980s, largely in manufacturing, trade and financial and business services. Direct investment flows surged from 1987 onwards, spurred by Japanese and European investment, particularly in financial and business services and, to a much lesser extent, in electronics manufacturing, reflecting the changes in Singapore’s industrial structure and comparative advantage. Foreign direct investment as a proportion of investment accelerated during the late 1980s. (This was also the period of the great surge in Singapore’s share accumulation index, which captures capital and income gains from shares.) Excluding cyclical effects, the incremental capital-output ratio for Singapore steadily fell from the 1970s to the 1990s – which suggests that the marginal efficiency of capital was still rising and investment opportunities were there to be exploited. Moreover, real interest rates were relatively high in this period. During the 1990s, however, real interest rates have come down, and in recent years at least, Singapore’s incremental capital-output ratio seems to have started to rise. At the same time, portfolio flows also rose substantially, in both an absolute and relative sense.
4. See, for example, BIS June 1998, p. 36.

recession meant that interest rates were extremely low (reaching half a per cent) during most of the 1990s. Much of this capital flow went initially to the United States, but with the size of the US current account deficit set by the savings/investment balance, these extra inflows were recycled and, in effect, funded the outflows to emerging countries. The interest differential between the major industrial countries and the emerging countries was greatest for Japan – hence the rise of the ‘yen carry’ trade – borrowing at low interest rates in yen, and on-lending at high returns in other currencies, particularly in Asia. When local-currency borrowing rates were around 20 per cent (which was the case, for example, in Indonesia), yen-based interest rates seemed extraordinarily attractive.<sup>5</sup>

There was another important structural change in Japan which began in the late 1980s but accelerated in the first half of the 1990s. With the very rapid and sustained appreciation of the yen, Japanese manufacturers recognised that they needed to transfer a large proportion of Japan’s manufacturing production (particularly at the low end of the technology spectrum) to the lower-labour-cost countries of Asia. This was a fundamental factor in driving the increase in foreign direct investment to the region.<sup>6</sup>

Was ‘push’ or ‘pull’ more important? In a structural sense, the high-profit ‘pull’ of the capital-receiving countries was clearly fundamental. But short-term variation (surges and reversals) was often triggered by events in world markets. A number of researchers have found a close relationship between interest rate movements in the

capital-exporting countries and capital flows.<sup>7</sup> The rise in US interest rates in early 1994 was an important trigger in the Mexican problems, and the strengthening of the yen in May/June 1997 was a factor in calling into question the continuing profitability of the ‘yen carry’.

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## Institutional Structure

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We noted earlier that profit opportunities in the emerging countries were probably greater in the 1980s than in the 1990s, yet the surge of capital did not come until 1990. This would suggest that, while relative profit prospects were important, other factors were also involved. In this section, we explore the importance of the institutional channels of transmission – did the institutions exist to facilitate, in a fairly frictionless way, flows which were attracted by the high profit opportunities? This is, of course, a chicken-and-egg issue: as the capital flowed, it encouraged the further development of financial infrastructure. In the ten years between 1985 and 1994, for example, the combined market capitalisation of the eighteen major developing countries in the IFC Emerging Markets Index increased by a factor of thirteen. This process was spurred by greater knowledge about these countries. One measure of this was the increase in formal credit ratings given by major agencies: eleven countries had ratings in 1989; by 1997 this had risen to over fifty.<sup>8</sup>

5. In thirteen of the twenty quarters to mid 1997, the ‘yen carry’ trade for yen/baht was profitable (i.e. exchange rate changes did not outweigh the interest differential), and for the equivalent yen/US dollar transaction, it proved profitable in eighteen of the twenty quarters (IMF 1998, p. 44).

6. Foreign direct investment from Japan tripled in the decade to 1997, rising from US\$22.3 billion in 1986 to US\$66.2 billion in 1997. While the United States and Europe remain important destinations for Japan’s foreign direct investment, the Asian share noted the largest rise, increasing from around 10 per cent of the total in 1986 to 25 per cent in 1997. The rise is most spectacular in foreign direct investment into China, with its share jumping from 1 to almost 9 per cent over this period. Indonesia was another important beneficiary. These flows were very important to the countries concerned; Japanese total foreign direct investment to Korea, Malaysia, the Philippines, Singapore and Thailand accounted for around 46 per cent of total net foreign direct investment to these countries between 1990 and 1995.

7. See World Bank 1997, pp. 81–83.

8. See IMF 1997, p. 244.

Part of the increase in the 1990s reflects the conclusion of the Latin American debt crisis of the 1980s, marked by the issue of Brady bonds in 1989. With these, previous debt was settled in a way that could give new investors confidence that their debts would be honoured. Not only did the Brady bonds settle the longstanding debt problems from the 1982 crisis, but they also signalled that the authorities in the capital-exporting countries (particularly the United States) might help to sort out problems when they arrived. This would have given institutional investors some comfort.

One reason often cited to explain the increase in capital flows in the 1990s was the reduction in various forms of capital controls in the emerging countries. This must certainly have been a factor.<sup>9</sup> But a number of these countries had an accommodating attitude to many forms of capital flows well before the 1990s (Indonesia, for example, had essentially open capital markets since 1970).

While all of these factors played a part, the dominant new factor of the 1990s, not present

in earlier episodes, was the greatly increased importance of institutional funds managers.

With around US\$1 – 2 000 billion *increase* in the portfolios of the institutional investors (Table 2) each year during the 1990s, there was clearly great potential to fund flows to emerging markets, when attention turned to them. And turn to them it did. Not only were there big increases in these funds, but during the 1990s they became more focused on the need for portfolio diversification and shifted from having almost no exposure to emerging countries to having significant exposure (although still substantially less than most rules of thumb for portfolio diversification would suggest)<sup>10</sup>. At the general level, we can see the increase in international integration from measures of cross-border transactions in bonds and equities. For the United States, these were equal to less than 10 per cent of GDP in 1980, around 100 per cent by 1989, and 200 per cent by 1997.<sup>11</sup> Another general measure: non-resident holdings of US public debt were around 15 per cent of total in the 1980s, but 40 per cent by 1997.<sup>12</sup>

**Table 2: Assets of Institutional Investors**

	1980	1988	1990	1991	1992	1993	1994	1995
<b>Total (US\$ billion)</b>	<b>2 454</b>	<b>7 466</b>	<b>12 347</b>	<b>13 840</b>	<b>14 687</b>	<b>16 805</b>	<b>18 217</b>	<b>20 641</b>
<b>Total (per cent of GDP)</b>								
Canada	35.2	52.2	60.3	66.9	72.6	81.2	85.6	89.2
Germany	20.3	37.1	39.5	37.4	37.5	42.5	44.9	48.9
Japan	23.1	50.3	77.9	75.6	79.1	84.1	85.2	87.0
United Kingdom	64.1	118.3	117.5	129.7	143.3	175.2	156.1	176.0
United States	59.3	88.1	118.7	128.3	132.8	141.4	141.7	158.6

Note: Figures from 1990 onwards include other forms of institutional saving outlined in IMF (1998) and include figures for France and Italy.

Sources: IMF 1995, p. 166; IMF 1998, p. 184; see also BIS June 1998, p. 84.

9. For example, the index of capital controls calculated by the IMF fell significantly in 1992–94 (see IMF 1997, p. 242).

10. The usual rule is that diversification should match the capitalisation of equity markets. French and Poterba (1991) point out that at the end of the 1980s, US investors held 94 per cent of their equity wealth in US securities, and for Japanese, the figure was 98 per cent. It was higher still for French, Germans and Canadians.

11. See IMF 1998, p. 187.

12. The details of diversification, see World Bank 1997, p. 75; BIS June 1998, p. 89; IMF 1998, p. 185.

**Table 3: International Bank and Bond Finance for Five Asian Countries<sup>(a)</sup>**  
US\$ billion

	1990-94	1995:Q1 – 1996:Q3	1996:Q4 – 1997:Q3	1997:Q4	1998:Q1
	At annual rates			At actual rates	
Net interbank lending	14	43	11	-31	-31
Bank lending to non-banks	2	15	11	-1	-4
Net bond issuance	3	17	32	1	-2
<b>Total</b>	<b>19</b>	<b>75</b>	<b>54</b>	<b>-31</b>	<b>-37</b>

(a) Indonesia, Korea, Malaysia, the Philippines and Thailand.

Sources: BIS August 1998; BIS June 1998.

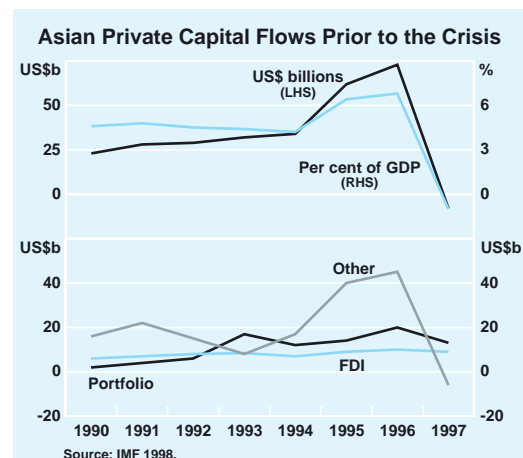
In addition to these institutional investors, *banks* have become more internationalised – readier to lend to emerging countries (Table 3). The high profile of the mutual funds (and, in particular, the hedge funds) may distract attention from the central role of the banks. We will see, in a moment, that the bank flows were not just large, but were very volatile.

## Variability

While the general case in favour of capital flows is a powerful one, the practical problem is their *variability* – the surges and reversals. There has always been variation in capital flows, as relative interest rates changed over the cycle, as profit opportunities opened up and were competed away, and in response to general factors of confidence and exchange rate expectations. However, for the most part, the variability is not enormous. Picking an example close to home, even when international financial markets lost confidence in the Australian dollar in the mid 1980s (the ‘Banana Republic’ episode), the exchange rate reacted significantly, but capital continued to flow to Australia – in fact, enough to fund a larger current account deficit as the crisis proceeded.

The recent experience in Asia has been very different, with strong surges (Graph 2) and major reversals of the flows.<sup>13</sup>

**Graph 2**

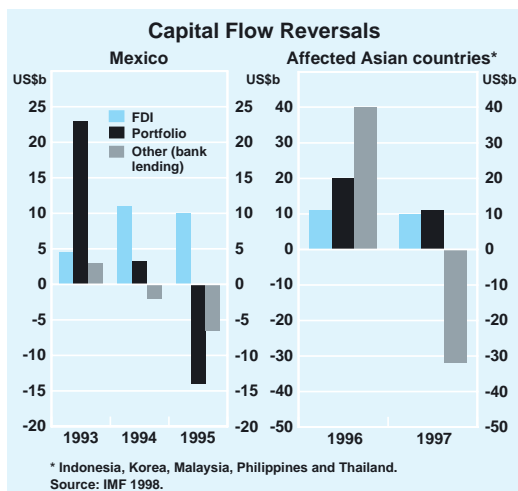


Worth noting is the difference of behaviour between banks and institutional investors, on the one hand, and foreign direct investment, on the other. In this episode at least, foreign direct investment has proven to be the most resilient inflow and bank inflows the most flighty (World Bank 1997, p. 31). This accords with the presumption that direct investment is harder to reverse and is more focused on the ‘fundamentals’.

13. For the experience elsewhere, see IMF Occasional Paper No. 108 and World Bank 1997, p. 28.



Graph 3



It was the banks which reversed their positions dramatically as the crisis broke (Graph 3): having averaged US\$16 billion annual inflow to the five troubled Asian countries, it rose to US\$58 billion for most of 1995 and 1996, fell to an annual rate of US\$22 billion in the last quarter of 1996 and for most of 1997, but by the last quarter of 1997 and the first quarter of 1998 recorded an actual outflow of over US\$75 billion.<sup>14</sup> This might give us the first clue as to reasons for the much sharper variation in flows in the 1990s. Not only did these institutional developments mean that the volume of flows increased, but, with the greatly increased importance of portfolio and banking flows, its nature (and particularly its volatility) changed.

In this section, I will argue that the volatility of flows was a product of:

- The tiny size of financial markets in the emerging countries, relative to the capital-exporting countries. Size – or relative size – *does* matter. Minor portfolio adjustments for fund managers were large changes for the recipient countries.
- There was a lack of information and understanding about the emerging markets, which meant that opinion was fickle and not well anchored by the fundamentals.

- Risk premia do not seem to follow a monotonic process, increasing steadily as risk increases. Rather, risk seems to be more like a binary ('on or off') process.
- Finally, the emerging economies were in such a state of transition or flux that it is not sensible to think of this as an equilibrium process, with profit expectations continuously equilibrated across international markets. This disequilibrium manifests itself most clearly in the exchange rate (what Obstfeld (1998, p. 6) calls 'an open economy's most important price'). This central linking price which is at the heart of cross-border profit calculations is uncertain and unanchored – it could shift sharply, and there were no strong forces at work bringing it back towards its starting point. As exchange rate expectations changed, capital flows responded strongly.

### Relative size

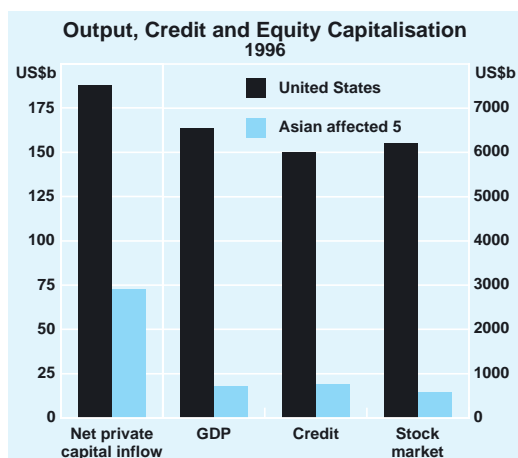
These recipients of the capital inflows were small relative to the size of the flows. While net capital inflows into the United States were over US\$180 billion,<sup>15</sup> this figure was only a little over twice the size of the flows going into Indonesia, Korea, Malaysia, the Philippines and Thailand. Compare this to the size of these economies, credit systems and share markets, where the United States dwarfs these countries by a ratio of around ten to one (Graph 4).

The problem has been described by the BIS this way: 'This asymmetry, coupled with the ebbs and flows that have historically characterised portfolio investment in emerging countries, highlights the potential for instability as a marginal portfolio adjustment by the investor can easily amount to a first-order event for the recipient' (BIS June 1998, p. 90). 'The sums involved were relatively small from the perspective of individual investors, even if of dangerous size from the perspective of the recipients' (BIS June 1998, p. 169).

14. See BIS June 1998, p. 122.

15. Measured as the sum of foreign direct investment, portfolio flows and other.

Graph 4



### Information

Some of the explanation for the reversals can be found in the paucity of information, among investors, about the emerging markets. For the most part, their knowledge was so superficial that it could be (and was) overwhelmed by the arrival of relatively small amounts of new information. More importantly, investors without their own knowledge-base simply followed the herd. In such a world, it is rational for any individual player to shift with the herd when new perceptions arrive. Whatever the fundamentals, when the herd is running, you run with it. In its usual understated way, the BIS observed that: 'highly correlated strategies across different players may have contributed to an aggravation of asset price movements' (BIS June 1998, p. 95).

The informational problems were compounded by the biased and ill-founded nature of much of the information and commentary. Looking back on it, it might seem surprising that there were not more pundits, highlighting the excessive nature of the flows and the domestic policy-making deficiencies of the recipient countries. But who would these pundits be? Among the policy officials in the recipient countries, the flows (and the development of sophisticated financial sectors) were a sign of progress and

modernity: who would want to express doubts about that? In academic circles, the dominant paradigm was 'efficient markets' – who would be bold enough to question the outcome of the market? Any unexplained differential was passed off as a 'risk premium' – the academic 'fifth ace' that could square any circle and explain any regression result, no matter how different from the 'priors'. In the financial markets themselves, who was going to bite the hand that fed them?<sup>16</sup> Some of the subsequent commentary suggests naivety on the part of the investors (they 'received repeated assurances that the financial sector was well supervised ... and that there would be no changes in exchange rate policy' (IMF 1998, p. 41)). In hindsight, the degree of ignorance is so great as to border on the comic. *Business Week* (22 September 1998) reports a fund manager's response to the Russians' halting of trade in their domestic debt market in this way: 'Nobody in the history of the world has ever done anything this foolish'. Some sense of history!

At the same time, it should be noted that information that *was* available was not used. The BIS banking data provided a comprehensive view on what turned out to be the most volatile element of the flows, but the existence of these data was either unknown or ignored.<sup>17</sup> As far as the outcome is concerned, however, unused information was as irrelevant as unavailable information.

### The behaviour of risk premia

The process of assessing and reassessing risk is captured, to some extent, in the pricing of emerging market debt (Graph 5).

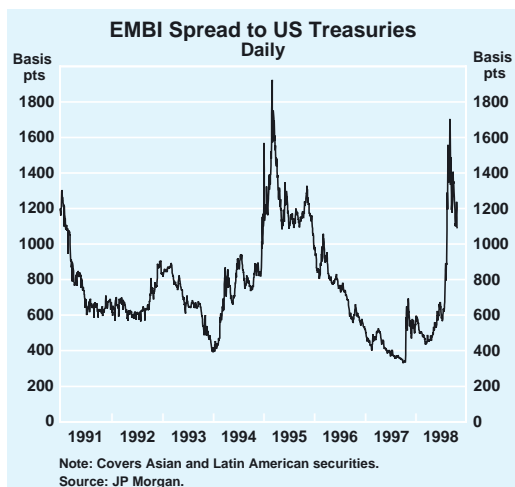
But this does not capture the full extent of the problem. As Sachs (1997) observed: 'euphoria turned to panic without missing a beat'. One of the characteristics of capital flows in the crisis was their *reversal* – it was not simply a matter of the capital-receiving countries being forced to pay somewhat more for the capital, because of a changing perception of risk. New flows dried up and existing capital fled, and could not be lured

16. See Fox (1998).

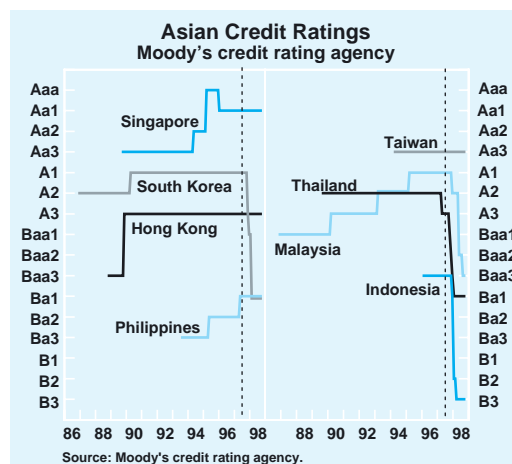
17. For an exception, see Radelet (1995).



Graph 5



Graph 6



back at any price. Considerations of risk seem to be a binary (on/off) process, rather than a monotonic function. In part, this was a rational response by lenders. Even well-run enterprises had their profit (and repayment) prospects radically altered by the new environment of high interest rates, massive falls in exchange rates and shattered growth prospects. Once interest rates rose sharply, a different calculus became relevant – the *credit* risk overwhelmed any risk-premium calculation. Credit lines were cut. This is in keeping with the theoretical work of Stiglitz and Weiss (1981), who show that when interest rates go up sharply, lenders recognise that the only borrowers who are willing to pay these high rates are those who do not intend to pay back.

This process was not helped by the behaviour of credit-rating agencies, who went along with the general pre-crisis euphoria, and exacerbated the turnaround of opinion by substantial down-gradings *after* the crisis had occurred (Graph 6). As these downgrades shifted some financial instruments below investment grade, institutions with portfolio constraints on asset quality were forced to sell – at any price. The fact that many of these portfolios were judged month-by-month or even day-by-day led to strong short-termism.

It may be useful to recall, also, the old distinction between risk and uncertainty – it

was the latter (whose characteristic is unpredictability) rather than the former that was relevant, and perhaps we should not be surprised that uncertainty premia can shift dramatically.

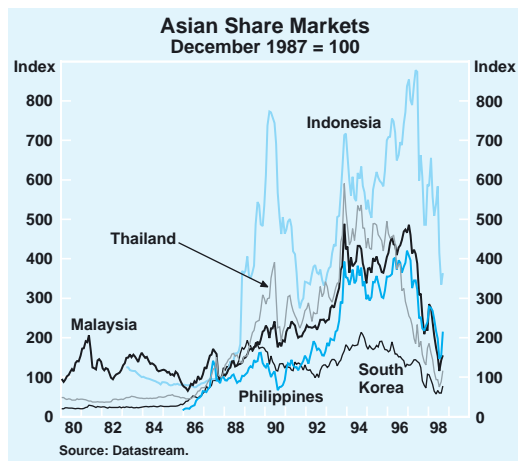
### A disequilibrium process

These capital-receiving emerging countries were being transformed at such a pace that it is not sensible or realistic to see the process in terms of the usual textbook notions of returns equilibrated at the margin and smooth allocation of resources, particularly capital. Systems were in flux, and production functions were changing continuously. This general notion manifested itself in various ways, but three examples will illustrate the issue.

The first example of apparent disequilibrium in capital flows was identified nearly two decades ago – the Feldstein/Horioka paradox (1980) – there seemed to be too much correlation between domestic saving and investment rates in individual countries, with the implication that capital flows between countries were smaller than would occur in a well-integrated world. So here, perhaps, is another clue to the puzzle. It is not so much that capital flows rose suddenly to achieve abnormally high levels, but that they were – for some reason – less than optimal earlier, and so the big increase

was a move towards a more normal or equilibrium situation.<sup>18</sup> These are asset or stock equilibria. When these ill-defined and easily changeable temporary equilibria are displaced by a shift of confidence, the *flow* requirements to shift from the old to the new stock equilibrium may be very large (and very disruptive).

Graph 7



Second, profits (or even expected profits) were not equilibrated across countries. For a sustained period (through the 1980s), excess profits had been earned, illustrated by equity returns (Graph 7) and high domestic real interest rates (Table 4) in Indonesia, Korea and Thailand.

The high interest rates were imposed by the authorities to rein in very dynamic economies, where many investors wanted to borrow to exploit the profit opportunities.<sup>19</sup> The capital flows which occurred were not sufficient (or could not be absorbed sufficiently quickly) to exploit all the opportunities. There was a widespread belief (based on actual experience, pre-crisis) that whatever factory or office building was constructed would prove profitable, because of the tremendous growth of these economies. No matter how much

Table 4: Average Real Interest Rates<sup>(a)</sup>

	1980–89	1990–98
South Korea	4.6	7.7
Thailand	6.1	5.0
Indonesia <sup>(b)</sup>	5.3	6.6
Malaysia	2.7	3.0
Philippines	-6.2	2.4

- (a) Average of end-month short-term real interest rates.
- (b) 1980–89 average for Indonesia starts from 1983 and has thirteen monthly observations missing over the period.

Source: IMF *International Financial Statistics*.

capital flowed, the marginal investor did not feel that his actions had used up the last abnormal profit opportunity, and that a 'normal profit' equilibrium had been reached. Investors could not tell if what they were seeing were temporary abnormal profits (in which they should try to get themselves a share of the action), or high return because of high risk. Too many assumed it was the former. To the extent that markets acted to equilibrate returns, they did so by bidding up asset prices (thus reducing the profit return of the investor who paid the higher price). But this was a knife-edge equilibration: as asset prices rose, investors extrapolated the rise, so that even if the profit flow on the asset was normal, investors expected to benefit from continuing asset price increases. So investment continued until obvious excess capacity emerged, and the bubble burst.

The third manifestation of disequilibrium was in the exchange rate. What is the 'right' exchange rate for a country receiving large capital inflows and likely to go on receiving them for a protracted period – perhaps a decade or more – before investment returns are reduced to 'normal'? This relates to the old issue of the 'transfer problem' – how to bring about the current account deficit that

18. Indeed, the constant revisiting of the Feldstein/Horioka result has found less correlation between domestic saving and investment rates over time, implying increasing international capital integration (Fujiki and Kitamura 1995; Ghosh 1995).

19. They were not, as is sometimes claimed, high to support exchange rates; exchange rates were under *upward* pressure for most of the period.

is the real-resources counterpart of the *financial* capital inflow. For this, the exchange rate probably has to appreciate from its underlying value. But how far? Portfolio equilibrium would suggest that the appreciation must be enough to create the expectation of a subsequent depreciation, at a rate to balance the higher expected returns on domestic, compared with foreign, assets – i.e. to balance the differential between the domestic interest rate and the foreign rate. If this view-of-the-world captured reality, we would see a once-off appreciation followed by a long drawn-out steady depreciation, at a rate equal to the difference between domestic and foreign interest rates. It hardly needs saying that this – with its implication of a continuous, enduring, finely balanced calculus – did not fit reality, even remotely. True, exchange rates in these countries were under continual upward pressure in the first half of the 1990s. But this was, by-and-large, resisted (and did not happen much in real terms, covertly, via faster domestic inflation). Then, more-or-less once-off and suddenly, exchange rates experienced massive falls.

So what story fits the facts better? Capital flows involve, for one or other of the parties, a foreign exchange risk.<sup>20</sup> For the period of inflow during the first half of the 1990s, the authorities in these countries were holding more-or-less fixed exchange rates in order to stop an over-appreciation which would have cut into their international competitiveness and the dynamism which the tradeables sector was providing to the economy (and, incidentally, made them vulnerable to changes of confidence when markets became concerned about overvaluation). Investors knew this (as did borrowers in these countries), so they were prepared to take the risk of having a foreign exchange exposure without covering it (*c.f.* the ‘yen carry’), on

the view that these exchange rates were more likely to appreciate than depreciate.<sup>21</sup> Herd behaviour was important in the capital surge, as well as in the withdrawals of capital. The smart money went to these countries in response to the profit opportunities, and lots of dumb money followed along for the ride, financing dubious investment projects. Once there was a turning-point in confidence, there was a rush for the exits. The herd charged in the reverse direction. As well, the elements of leverage which had built up during the capital-inflow stage made it imperative that positions be unwound quickly when the reversal came – leveraged investors cannot wait for the market to return to its senses: they sell or they are sold. To make matters worse, these forced sales took place in markets which had become illiquid – when no-one wants to take on these risks, the price falls a long way. In textbook markets, price falls bring out bargain-hunters: in these markets, price falls just confirmed the worst fears.

The problem is that asset prices (whether real estate or the exchange rate) are quite random in the short run, and the short run is the investment horizon relevant to fund managers – they are judged on their quarter-by-quarter (or month-by-month) performance. In a market dominated by such investors, there are no Friedmanite stabilising speculators to buy when the price falls. Even rational investors join the herd.

While we might be amazed at the extent of the movements in exchange rates (the rupiah falling to less than a fifth of its initial value, which no-one at the time thought was significantly overvalued), we should not be surprised by the failure of the portfolio model of exchange rate behaviour (or any other exchange rate model, for that matter). The most basic and central idea in any view relying on the efficient-markets hypothesis is

20. Even hedging simply shifts this to another party.

21. Some have described this process of fixed exchange rates as ‘guarantees’, but this misunderstands the nature of the problem: certainly, investors did not expect the exchange rate to depreciate much, but they knew that depreciations had occurred in the past, and those who had exposures in currencies other than the US dollar (by far the majority – see Goldstein and Hawkins (1998)) had been continually experiencing changes in the relevant exchange rate. But few of them saw any reason, in a world in which capital flows were putting *upward* pressure on exchange rates, to take out expensive cover against the possibility of the exchange rate falling sharply.

uncovered interest rate parity – that interest rate differentials are the best predictor of subsequent exchange rate movements. Despite the most diligent, strenuous efforts on the part of those who have built models and academic reputations on the efficient-markets hypothesis, the data inconveniently but consistently refute it.<sup>22</sup> So is it any surprise that, once fixed exchange rates were dislodged (by a combination of large adverse terms-of-trade shifts, some modest over-appreciation through inflation, and adverse international commentary), the unanchored rates could swing to absurd values: there were no accepted views on fundamentals. Investors had seen how much the yen/US dollar rate moved during the 1990s (in well-understood, deep markets): it is hardly surprising that they would not stand in the way of huge swings in Asian currencies. By the time extrapolative expectations took hold, demand curves for foreign exchange sloped the wrong way: as the price became cheaper, people bought less.

Once this was teamed with large open exposures, the fragile financial sectors of these countries collapsed, under the weight of their own open foreign exchange positions in some cases, but more often under the collapsing creditworthiness of their commercial-sector borrowers (who *did* have large uncovered foreign exchange exposure). This collapse of the financial system interacted with the real economy: even good investment projects (and there were plenty of bad ones) turned sour in the face of credit withdrawal and deep economic recession. The rest, as they say, is history.

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## Conclusion

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More than a century ago, Bagehot observed: ‘the same instruments which diffused capital

through a nation are gradually diffusing it among nations’. He went on to warn that while ‘the effect of this will be in the end much to simplify the problems of international trade ... for the present, as is commonly the case with incipient causes whose effect is incomplete, it complicates all it touches’ (Bagehot 1880, p. 71).<sup>23</sup> This encapsulates a key insight: as countries integrate their financial markets with international markets – itself an eminently desirable process – there is a longish period of transition, during which an economy is extremely vulnerable to changes of confidence.

There had been plenty of hand-wringing about this issue beforehand. *Before* the 1997 crisis, the World Bank summarised the situation this way: ‘The world’s financial markets are rapidly integrating into a single global marketplace, and ready or not, developing countries, starting from different points and moving at various speeds, are being drawn into this process. If they have adequate institutions and sound policies, developing countries may proceed smoothly along the road to financial integration and gain the considerable benefits that integration can bring. Most of them, however, lack the prerequisites for a smooth journey, and some may be so ill-prepared that they lose more than they gain from financial integration’ (World Bank 1997, p. 1).

Substantial capital inflows to the emerging countries were not irrational, unnatural or undesirable. While all sensible observers point to the benefits of capital flows, the *variability* is clearly harmful, but hard to correct: ‘boom and bust cycles are hardly a sideshow or a minor blemish on international capital flows: they are the main story’ (Rodrik 1998, p. 56). As Bhagwati (1998a) notes: ‘the ‘panics, manias and crashes’ that characterise capital flows have no counterpart in trade flows’. The issue is: what to do?

Any policy that attempts to isolate an economy from international capital markets

22. The staunchest supporters of interest rate parity must have had their faith sorely tested by the extraordinary movements of the yen in the 1990s, in a climate of interest rate stability.

23. Quoted by World Bank (1997).

would be costly, in terms of forgone growth. The need, now, is to devise an institutional structure which can reap the benefits of capital flows while diminishing the risks to those countries whose financial infrastructure is not yet resilient enough to cope. What needs to change?

One early response was to try to identify some *technical deficiency* whereby the real world did not mimic the efficient markets of the textbooks, and assume that correcting this will fix the problem. We noted that information deficiencies were one reason why opinions, confidence and critical prices (such as the exchange rate) were unanchored and subject to violent change. After the Mexican crisis of 1994/95, there was a line of argument that came very close to saying that if Mexico had revealed its foreign exchange reserve levels more explicitly during 1994, somehow the crisis would have been averted. A variant of this emerged in the early days of the Thai crisis: if only Thailand had revealed its forward foreign exchange position, markets would have operated smoothly to avoid crisis. This seems to be naïve, but we have to be careful in pointing this out: to question the benefits of greater transparency is like arguing against peace, freedom and motherhood. So let me be quick to say that more transparency would help. But it is another thing again, in a world of complex causality, to see this as a fundamental solution. After all, it is hard to explain the extraordinary movements in asset prices in sophisticated markets (US equities in 1987; the yen in 1995–98). How much more information is needed to prevent swings of this sort?

A similar 'fix it' has been suggested, in the form of elimination of 'guarantees' and 'moral hazard'. We have already noted that many of the so-called guarantees were, more accurately, misassessments by optimistic market players – they were guarantees only in the eyes of the investors. Moral hazard is a more believable market deficiency, at least in some specific cases. For example, financial markets were confident, based on experience, that countries do not devalue or renege on foreign debts while they are under the tutelage of an IMF program, and this gave investors

in Russia earlier this year a false sense of security. The answer, on the surface, seems simple: make sure investors lose money from time to time. This, like many solutions, is supported in general but difficult to apply in specific cases. As George Soros (1998) has noted: 'Financial markets ... resent any kind of government interference, but they hold a belief that, if conditions get rough, the authorities will step in'. Once governments have helped, moral hazard is part of investment decisions from then on. So let us, by all means, try to reduce it by requiring 'burden sharing' on the part of private sector investors (see below). But let us not fool ourselves into thinking that it can be entirely eliminated.

A further variant on the fix-the-market approach suggested that markets were not sufficiently open. In the early days of the Asian crisis, a common argument held that the problem was simple deficiencies in domestic policy-making and open capital accounts are the best discipline on errant policy-makers. There is truth in this argument – countries which do not make policy mistakes certainly stand a better chance of weathering the international storms (*c.f.* Stiglitz's rowboats). But it is not realistic to hope for continuously perfect policies. We need a framework that can cope with the inevitable imperfections of the policy process. As well, with the crisis much further developed, we can now see that even countries with good policies, sound infrastructure and high openness can come under enormous pressure (*c.f.* Hong Kong). So, even if policy-makers (working as they do in imperfect, politically driven worlds) were able to produce consistently good policies (a big ask), this is no assurance against volatility in capital flow.

We have to accept that markets, even under as favourable conditions as are likely to be found in the real world, have not – and will not – consistently act as a smooth, well-informed, far-sighted Walrasian auction process to maximise benefits and minimise the costs of capital flows. 'Given the troubling way in which economic, political and social factors interact, it is simply not prudent to assume



that everything will turn out for the best' (BIS June 1998, p. 170). So, while we strive for good policy-making, and urge more information disclosure (including on the private sector players in international markets), we need to explore other possibilities.

Part of the problem in coming to grips with these issues has been the insistent voices of an accidental coalition of academics, and vested interests who used the efficient-markets paradigm as an intellectual battering ram to open new commercial opportunities. The intellectual climate is now undergoing a shift. When the doyen of the hedge funds, George Soros, describes capital flows as 'a wrecker's ball', you know the debate has changed.

What specific measures might be explored? Among the spectrum of possibilities, let us start with the least controversial. Much of the focus should be on improving prudential measures – the 'rules of the game' governing the financial sector, and banks in particular. Much hard work is needed to make existing rules work properly – limiting connected and government-directed lending; getting asset valuations (and hence provisioning) right; and enforcing foreign-currency open-position limits. As well, the rules need to be reinforced. Banks have to be made to take account of their borrowers' *overall* balance sheet position, so that the bank is not brought down, at one remove, by the foreign exchange exposure of its borrowers. Poor credit appraisal was clearly a central factor in the Asian crisis, which now has to be addressed. None of this can be done effectively without a good accounting and legal (including bankruptcy) framework, and realistically, none of it will be put in place quickly. Here is the rub. It is difficult – perhaps impossible – to put in place fully effective

supervision *before* financial development occurs: the markets will be pushing ahead faster than supervisors. The deregulation process itself is a difficult environment in which to get this right: at the same time that one set of regulations is dismantled, another set (the prudential rules) has to be put in place. Hence the debate about sequencing has an academic ring to it. Let's work hard on the prudential framework. It will be important. But it may not be enough.<sup>24</sup>

When things go wrong (as they will from time to time, in even the best-managed system), there must be clear methods of rapid resolution. This should include a readiness to institute stand-fast and work-out arrangements for private debt. Just as bankruptcy arrangements should not be too easily available for resolution of domestic debts, such international stand-fast and work-out arrangements should only be instigated by some internationally endorsed process (say, as part of an IMF standby arrangement). But we need to be ready to do this promptly when circumstances warrant. Again, textbook ideas have been unhelpful in practice – the idea that private sector borrowers and lenders ('consenting adults') will work things out satisfactorily has proved naïve: the collateral damage is too great. Private sector debt was (and remains) a festering sore which inhibits the return to health of some Asian economies. This is not to argue that the private sector should have been bailed out. Rather, that it should have been quickly and decisively 'bailed in', to bear its full share of the costs of crisis resolution, through stand-fast and work-out arrangements.

Many of these measures will remind lenders of the risks involved, and this will raise the cost of borrowing in good times: but that would be no bad thing. In the same vein, the

24. What of the hedge funds – the butt of both strong attack and spirited defence? It might have been possible, once, to argue that these funds were playing a useful role as stabilising speculators, buying cheap and selling dear, to help markets find equilibrium values and smooth the flows. This position is no longer tenable, at least as a generalisation. There are enough examples, now, of them shorting already undervalued currencies, in the hope (assisted by vigorous self-serving market commentary) that the undervaluation could be pushed further. While they may not be big players in the immediate future, this may be the moment to emphasise that whatever arguments there are for disclosure of official market positions (reserves and forward positions), these apply with equal force for large private players. If fully informed markets work better, then let us aim to ensure that markets are fully informed about the hedge funds.

existence of well-defined international stand-fast and work-out arrangements (and 'collective action' clauses in bonds which make the possibility of work-outs explicit) may cause lenders to focus on the possibility of loss, but wouldn't that help the moral hazard problems? If more carefully designed and rigorously enforced prudential controls inhibit some short-term flows, would there be any great loss in that? Clearly, part of the capital surge of the 1990s could, with benefit, have been done without. Is the problem – like advertising – that you do not know which part to stop? No. We can see elements – short-term root-less flows – which had minimum benefits and greatest costs. A case can be made that it would have been no great loss if the Asian countries had received *only* the foreign direct investment flow. While it is technically true that 'speed doesn't kill – it's the stopping', we should recall that the problems come from excessive inflows, so if the net result of more rigorous 'rules of the game' is smaller inflows in the boom times, then that will be a plus. If something has to give way in the 'open economy trilemma' (Obstfeld and Taylor 1997), then some limits on the variance of capital flow seem a good place to start.

The third – and most controversial – set of possibilities are those which smack of capital controls. Even here, the debate has shifted. Now, Chilean-type controls seem to be acceptable to international opinion. What

distinguishes these? They are market-based, up-front and *ex ante*, and are on inflows rather than outflows. This is all still a lively topic of debate. The consensus view is changing, but slowly. While now acknowledging that temporary controls may be required in certain circumstances, the international consensus has a rather disparaging tone. Just as 'real men don't eat quiche', real countries don't resort to capital controls. If such short-term capital controls *are* a legitimate instrument of policy, we need to define more clearly the circumstances, and be readier to endorse their use in these conditions.

The alternative to implementing these ideas is inaction – either in the hope that these problems will go away or because of some ideological position based on the preservation of market purity. This risks losing the very real benefits of capital flows, if it leads to ill-designed measures by emerging countries to isolate themselves from these problems. At the same time, the crisis tarnishes the complex international trading structure, and adds to the growing voices damning 'globalisation'. Krugman (1998) has reminded us that Keynes saw his interventionist active fiscal proposals as necessary to save the market system. Now, changes are needed in international financial markets to safeguard the continuance of international capital flows, with all the benefits they bring.

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