

# THE ORIGIN OF THE ASIAN FINANCIAL TURMOIL

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## **Abstract**

In the second half of 1997 many Asian emerging economies suffered large declines in both their currency and equity markets. This Asian financial turmoil arose primarily from three interrelated sets of factors, namely: shortcomings in the financial sector at a time when global liquidity conditions were accommodative, concerns about balance of payments developments, and contagion across economies. The major channel of contagion appears to have been the sudden realisation by the market – after the sharp depreciation of the Thai baht – that a number of other Asian economies had vulnerabilities similar to those in Thailand.

JEL Classification Numbers: F31, N25

Keywords: Asia, exchange rates

## Table of Contents

|     |                                       |    |
|-----|---------------------------------------|----|
| 1.  | Introduction                          | 1  |
| 2.  | What Happened?                        | 2  |
| 2.1 | Exchange Rates                        | 3  |
| 2.2 | Exchange Market Intervention          | 7  |
| 2.3 | Interest Rates and Credit Controls    | 9  |
| 2.4 | Equity Prices                         | 12 |
| 2.5 | Real Impact of the Financial Problems | 14 |
| 2.6 | International Rescue Packages         | 16 |
| 3.  | Why did it Happen?                    | 19 |
| 3.1 | Financial Sector Vulnerability        | 20 |
| 3.2 | External Sector Problems              | 27 |
| 3.3 | Contagion                             | 30 |
| 4.  | Conclusions                           | 33 |
|     | References                            | 35 |

# THE ORIGIN OF THE ASIAN FINANCIAL TURMOIL

Morris Goldstein and John Hawkins

## 1. Introduction

As recently as November 1997, the events in Asian financial markets were described as ‘a few little glitches in the road’.<sup>1</sup> Now they are recognised as the third major financial crisis of the 1990s.<sup>2</sup> The main features of the turmoil have some similarities to earlier episodes:

- private capital markets withdrew their support from a group of countries that in the previous several years had been recipients of large capital inflows;
- the defensive package of foreign exchange market intervention, sharp rises in interest rates and selective controls proved inadequate to avert the (downward) floating of some formerly fixed exchange rates;
- large unhedged foreign exchange positions and weak banking and financial systems contributed to vulnerability and sharply constrained the authorities’ room for manoeuvre;
- the trauma quickly spread out from its original locus to affect exchange rates and other asset prices in the region (and for a short while, in major industrial countries as well);
- large, multilateral official rescue packages had to be mobilised; and
- the events have generated calls (both within the region and beyond) for stronger preventative arrangements to reduce the likelihood and severity of future outbreaks.

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<sup>1</sup> President Clinton at the meeting of APEC heads of government in Vancouver.

<sup>2</sup> The others being the crisis in the European Monetary System in 1992–93 and the Mexican ‘tequila crisis’ of 1994–95.

While some of these factors are common to earlier crises, one of the unusual features of the Asian turmoil is that it was centred in emerging economies which had a record of strong economic growth, generally moderate inflation, and disciplined fiscal policy for at least a decade. As is shown, however, mounting weaknesses in other areas eventually took their toll. The most significant of these weaknesses were in the financial sector, where strong capital inflows, extended periods of rapid economic growth, rising property prices and perceptions of implicit government guarantees led in some economies to a degree of complacency by banks in their credit standards, which supervisory systems proved inadequate in disciplining. This was compounded by some loss of confidence by markets in the longer term export potential of some Asian economies. Once these factors started currency depreciations within the region, contagion effects exacerbated and spread them.

This paper presents an interpretation of the origins of the Asian financial turmoil. Section 2 of the paper provides a capsule summary of developments in exchange rates, exchange market intervention and reserves, interest rates and credit controls, equity prices, real economic activity and trade flows, and international rescue packages. Section 3 then turns to an analysis of the factors generating the crisis, including the likely transmission channels for contagion. Section 4 provides some conclusions.

## **2. What Happened?**

When a country's foreign exchange market is under pressure, that pressure is typically reflected in exchange rates, international reserves, interest rates, and the temporary imposition of controls on credit or foreign exchange transactions.<sup>3</sup> The combination depends on the circumstances of the particular country affected and on the defensive strategy chosen by the authorities. In some cases, currency crises also spill over into (or are caused by) other asset markets, including banking, equity and bond markets. When the authorities are unable to regain the confidence of markets on their own, they may ask the IMF and the World Bank, along with other

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<sup>3</sup> Indeed, these variables typically serve as the components of indices of exchange rate crises in the growing literature on early warning indicators of currency crises; see, for example, Kaminsky and Reinhart (1996), Goldstein and Reinhart (1998) and IMF (1998).

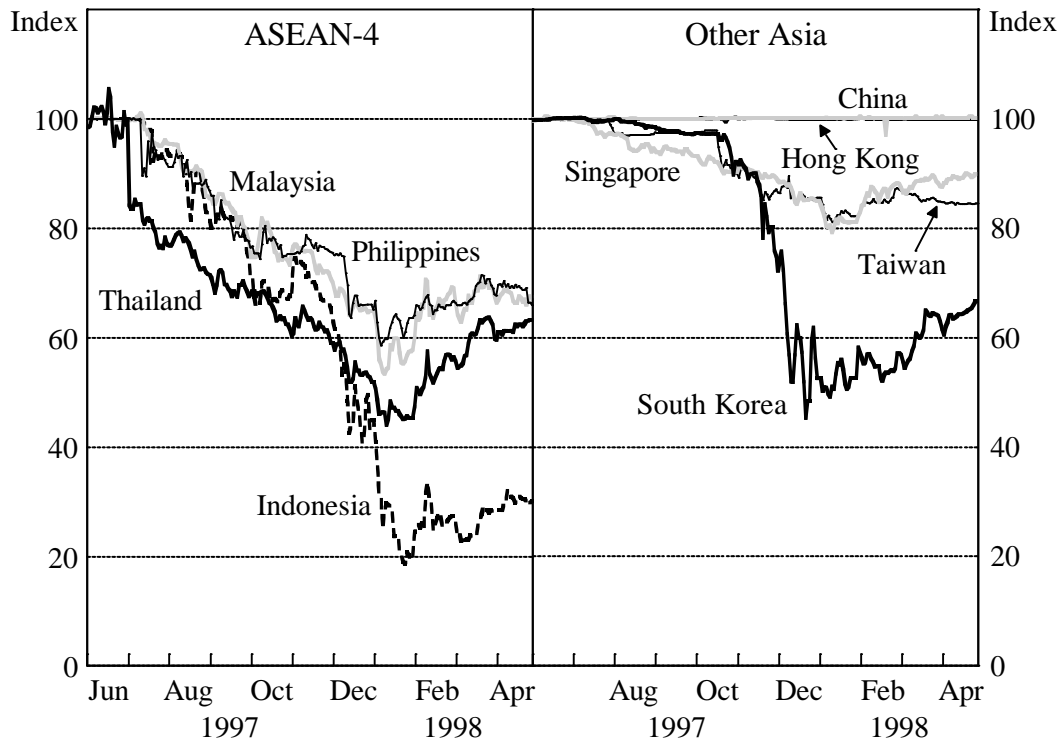
countries, for assistance. As background to the subsequent discussion on origins, this part of the paper reviews the main developments.

## 2.1 Exchange Rates

Although the Thai baht had been subject to episodic pressures during the previous 18 months, it was the intensification of these pressures in May 1997 and the subsequent forced floating of the baht on 2 July that really ushered in the recent turbulence in currency and equity markets. As shown in Figure 1, the second half of 1997 and the first weeks of 1998 witnessed sharp declines in the dollar exchange rates of the ASEAN-4 economies. The worst affected was the Indonesian rupiah, which at one stage was worth only a fifth of its June 1997 value against the US dollar. The baht itself lost half its value while the Malaysian ringgit and Philippines peso were down around 40 per cent at their lows. There were more modest declines in the Singapore and Taiwan dollars over the same period. South Korea's currency initially held up better but depreciated heavily in November and December 1997,

**Figure 1: Bilateral Exchange Rates**

Against US\$, June 1997 = 100



Sources: Bloomberg and Datastream

also losing half its value by the low point. The Hong Kong dollar maintained its parity despite strong market pressure and the Chinese renminbi was little affected.<sup>4</sup> With hindsight, January 1998 now appears to have marked the worst of the depreciations. All the affected currencies regained some strength during the first quarter of 1998. The recovery has been most hesitant in Indonesia, the economy about which most uncertainties remain.

On an effective (i.e. trade-weighted) basis, the ASEAN-4 and Korean currencies recorded slightly smaller depreciations, the Singapore and Taiwan dollars were relatively stable while the Hong Kong dollar and Renminbi appreciated.<sup>5</sup> (Figure 2.)

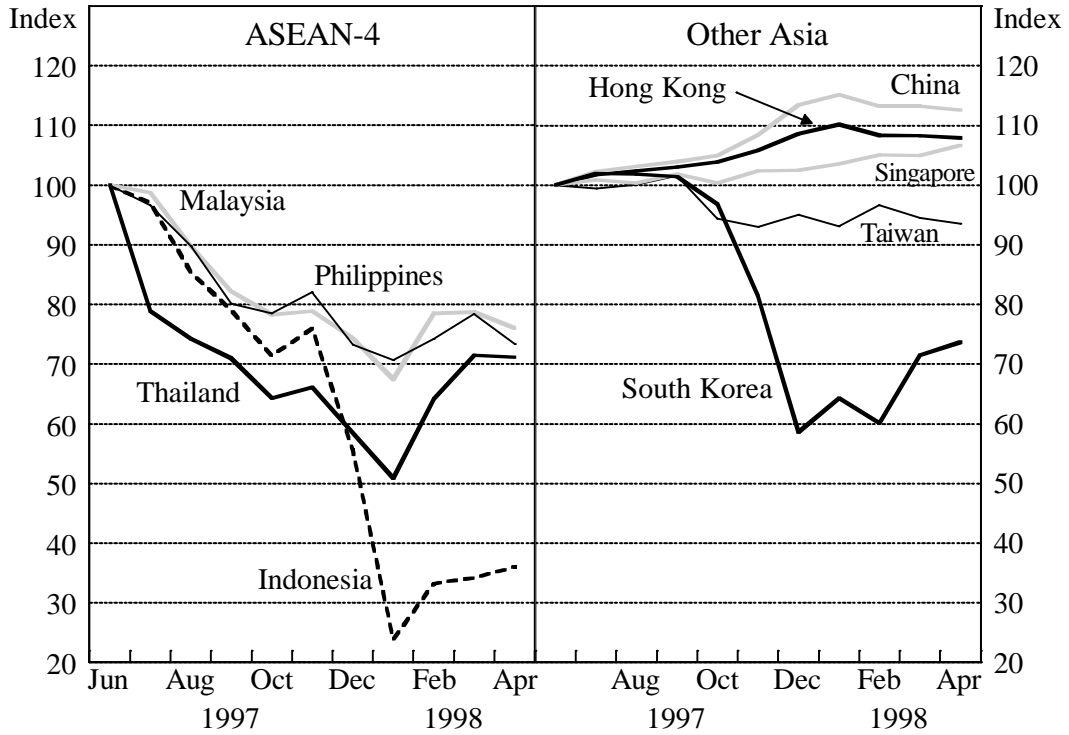
Real effective exchange rates over the 1990s are shown in Figure 3 for seven Asian emerging economies. Two observations merit mention. First, the combination of the close (explicit or implicit) tracking of the US dollar by many Asian currencies and large swings in the yen-dollar exchange rate have meant that the ASEAN-4 currencies have shown marked medium-term fluctuations both with respect to the yen and to a wider trade-weighted basket of exchange rates. Specifically, after depreciating vis-à-vis the yen in the first half of the 1990s, the ASEAN-4 currencies displayed real appreciation relative to the yen between early 1995 and mid 1997. Their real effective exchange rates showed the same pattern, albeit much damped in magnitude. These real appreciations relative to non-dollar currencies in the 18 month run-up to the current crisis are noteworthy because they presumably contributed to any market concerns about overall exchange rate overvaluation.

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<sup>4</sup> Changes in exchange rates are calculated in terms of units of foreign currency (e.g. US dollar) per unit of domestic currency, that is, the 'world' price of the domestic currency. This results in smaller changes than using units of national currency per unit of foreign currency. For example, a movement of the baht from 25 to 40 to the US dollar is regarded as a 37.5 per cent depreciation, whereas the latter approach would calculate the depreciation as 60 per cent. A disadvantage of the latter definition of the exchange rate is that changes of 100 per cent might be interpreted as implying that the currency has lost all its value when that is surely not the case.

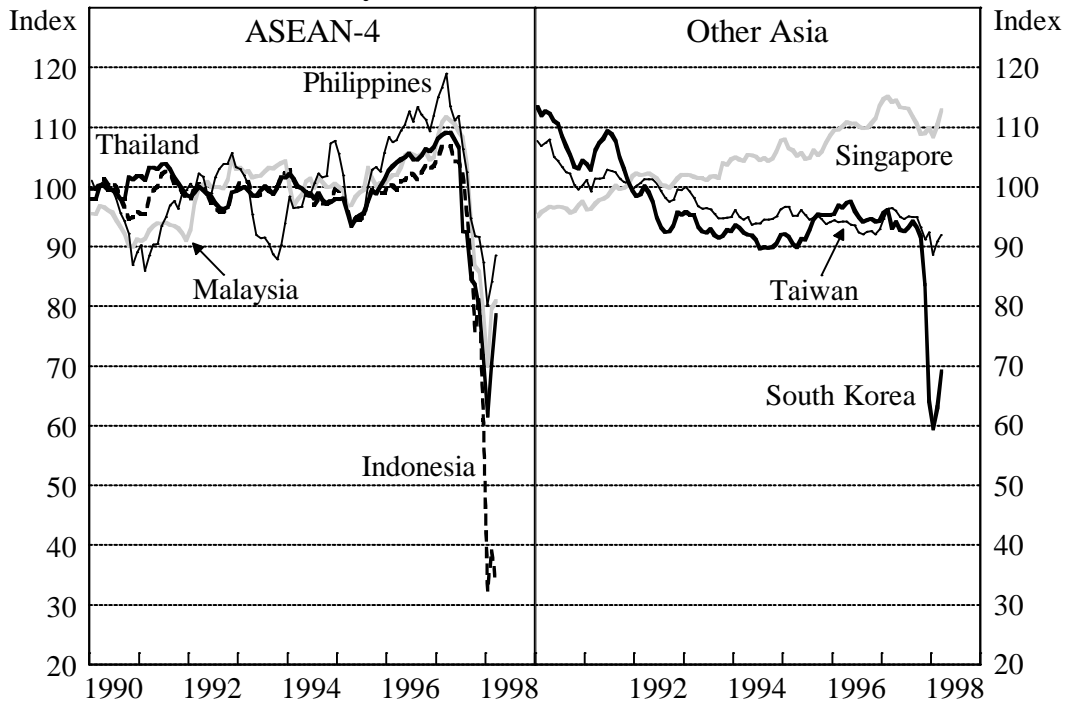
<sup>5</sup> The series used in Figure 2 are calculated by the RBA. The series used in Figure 3 are calculated by JP Morgan and are based on baskets of 45 currencies.

**Figure 2: Effective Exchange Rates**  
June 1997 = 100



Source: Reserve Bank of Australia

**Figure 3: Real Effective Exchange Rates**  
July 1987 – June 1997 = 100



Source: JP Morgan



Second, the recent depreciations of the ASEAN-4 currencies have come from different levels of their real effective exchange rates (relative to historical averages). Whereas the real effective exchange rates of both the Philippine peso and the Singapore dollar were around 15 per cent above their average level of the previous decade prior to the recent fall, the Thai baht and Indonesian rupiah were less than 10 per cent above and the South Korean won was below its medium-term average. (Figure 3).

This comparison of movements of real effective exchange rates in the 1990s suggests that, uncertainty about equilibrium real exchange rates notwithstanding, in mid 1997 the extent of any exchange rate misalignments was quite modest in comparison with the size of the subsequent depreciations.

The size of the Asian depreciations is placed into perspective in Table 1. This shows the 20 largest real effective depreciations over six-month periods since 1970 (excluding countries with inflation over 50 per cent as such calculations are unreliable during hyperinflations). By comparison, the largest six-monthly change in the G3 currencies over this period was the 1995 real depreciation in the yen of around 20 per cent; some European currencies recorded similar real depreciations in the ERM crisis and the Australian dollar had a similar real depreciation in the mid 1980s. Taking Table 1 and Figure 3 together one gets an impression of just 'how large' have been these real depreciations in emerging Asia, both with respect to historical experience and to simple proxies for equilibrium rates.

**Table 1: Real Effective Exchange Rates: 20 Largest Depreciations Since 1970**  
Percentage change over 6 months

|                    |             |            |
|--------------------|-------------|------------|
| Kuwait             | 1990        | -74        |
| Nigeria            | 1986        | -74        |
| <b>Indonesia</b>   | <b>1998</b> | <b>-68</b> |
| Pakistan           | 1972        | -55        |
| Venezuela          | 1986        | -45        |
| Turkey             | 1970        | -42        |
| Venezuela          | 1984        | -41        |
| Mexico             | 1995        | -40        |
| <b>South Korea</b> | <b>1998</b> | <b>-36</b> |
| <b>Malaysia</b>    | <b>1998</b> | <b>-35</b> |
| Nigeria            | 1992        | -34        |
| Indonesia          | 1978        | -33        |
| <b>Thailand</b>    | <b>1998</b> | <b>-33</b> |
| Mexico             | 1976        | -32        |
| Ecuador            | 1984        | -31        |
| Ecuador            | 1986        | -30        |
| Philippines        | 1970        | -29        |
| Indonesia          | 1986        | -29        |
| South Africa       | 1985        | -26        |
| Chile              | 1982        | -25        |

Source: JP Morgan real effective exchange rates based on price indices most closely measuring domestically produced finished manufacturing goods (excluding food and energy). Data up to March 1998.

## 2.2 Exchange Market Intervention

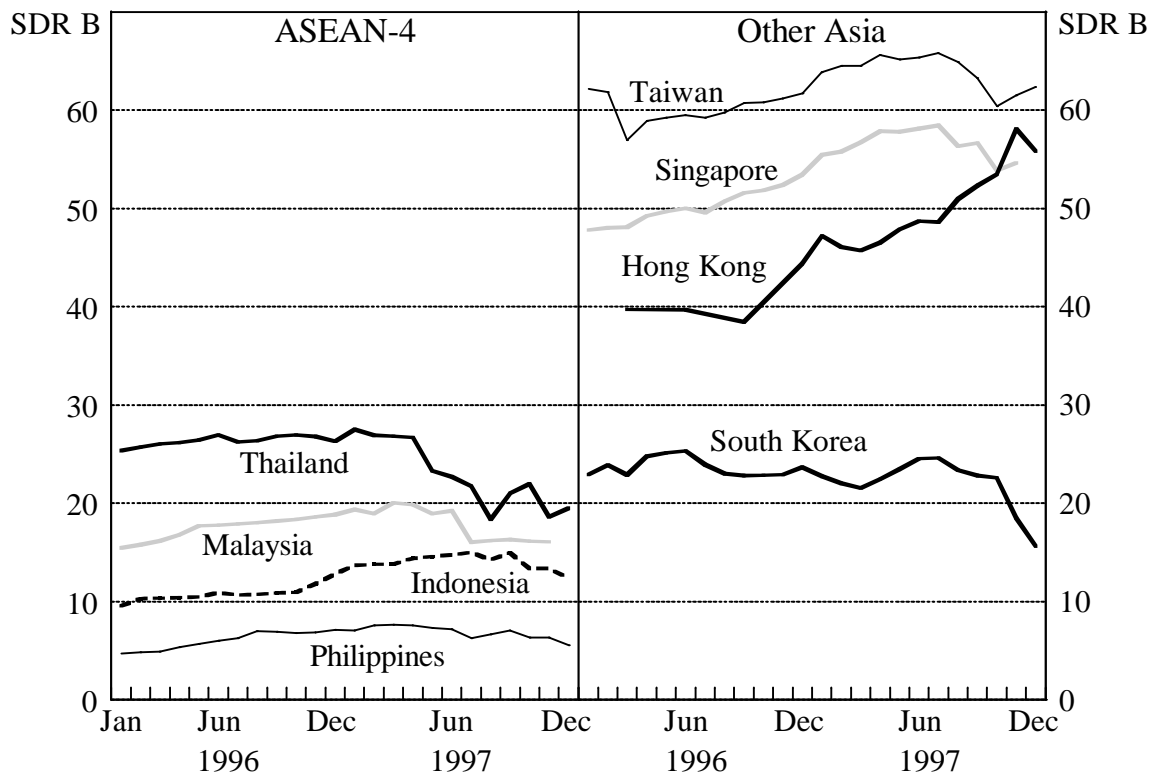
It is not straightforward to describe the role played by exchange market intervention as available data capture only part of these operations. Although the concept most relevant for vulnerability to a speculative attack would be net international reserves relative to some measure of potential liquid liabilities of the authorities (Section 3.1), published data generally refer only to gross reserves and thus miss intervention by the authorities in the forward market. As widely reported, such forward market operations were an important element of the Thai defence, involving a position which peaked at US\$24 billion. The individual-country reserve figures may also miss co-ordinated intervention undertaken in support of currencies by

(third party) monetary authorities or intervention that is funded through a country's fiscal accounts rather than its international reserves. Furthermore, it has been suggested that some of the Korean international reserves were not useable as they had been lent to banks.

With these caveats in mind, Figure 4 shows the behaviour of gross international reserves over the 1996–1997 period for eight Asian economies. It shows that Thailand and South Korea initially relied much more on their reserves in defending the exchange rate than did Indonesia, Malaysia or the Philippines. One interpretation is that the Malaysian and Indonesian authorities were mindful of the large reserve losses suffered not only by Thailand but also by some other countries in earlier vigorous but ultimately unsuccessful currency defences (e.g., the huge interventions during the ERM crisis) and decided not to go far down that road; that is, they intervened heavily for a short period and then turned to other measures. In

**Figure 4: Gross International Reserves**

SDR billions



Source: IMF *International Financial Statistics*

the case of the Philippines, low initial reserve levels dictated limited reliance on intervention as part of the defensive strategy. Figure 4 also illustrates the large reserve holdings of Hong Kong, Singapore and Taiwan relative to the ASEAN-4 countries. Despite its large stock of reserves, Taiwan opted on 20 October to allow its currency to depreciate.

### 2.3 Interest Rates and Credit Controls

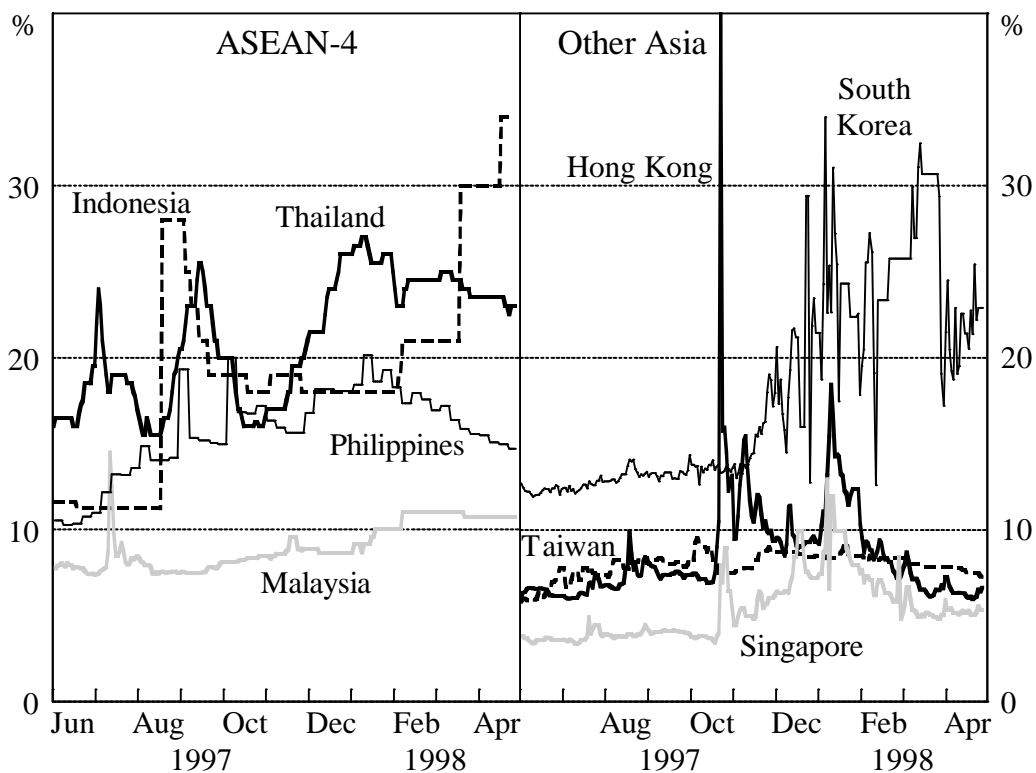
An important element in most currency defences is played by short-term interest rates. These are shown in Figure 5, with corresponding real rates shown in Figure 6.<sup>6</sup> Four developments should be noted. Firstly, the ASEAN-4 countries and South Korea had increased interest rates during 1996, either to rein back excessive credit growth or support the exchange rate. Consequently, they found themselves in the first quarter of 1997 with already high short-term real interest rates. Some might argue these high interest rates increased the vulnerability to attack because efforts by speculators to push up the cost of 'holding on' to exchange rate commitments begun from a relatively high base.

Secondly, as exchange market pressures intensified in 1997, each of the ASEAN-4 countries further increased short-term interest rates to combat those pressures. As shown in Figure 5, short-term (nominal) interest rates in Thailand and Indonesia displayed high volatility in 1997, especially from May onwards; in some episodes, government policies and market pressures drove overnight rates to very high levels (near 100 per cent in Indonesia, and over 350 per cent in the offshore Thai market), albeit for relatively short time periods. Malaysia's use of high interest rates was the most limited among the ASEAN-4 countries. There was a large spike in early July but rates then returned to pre-crisis levels.

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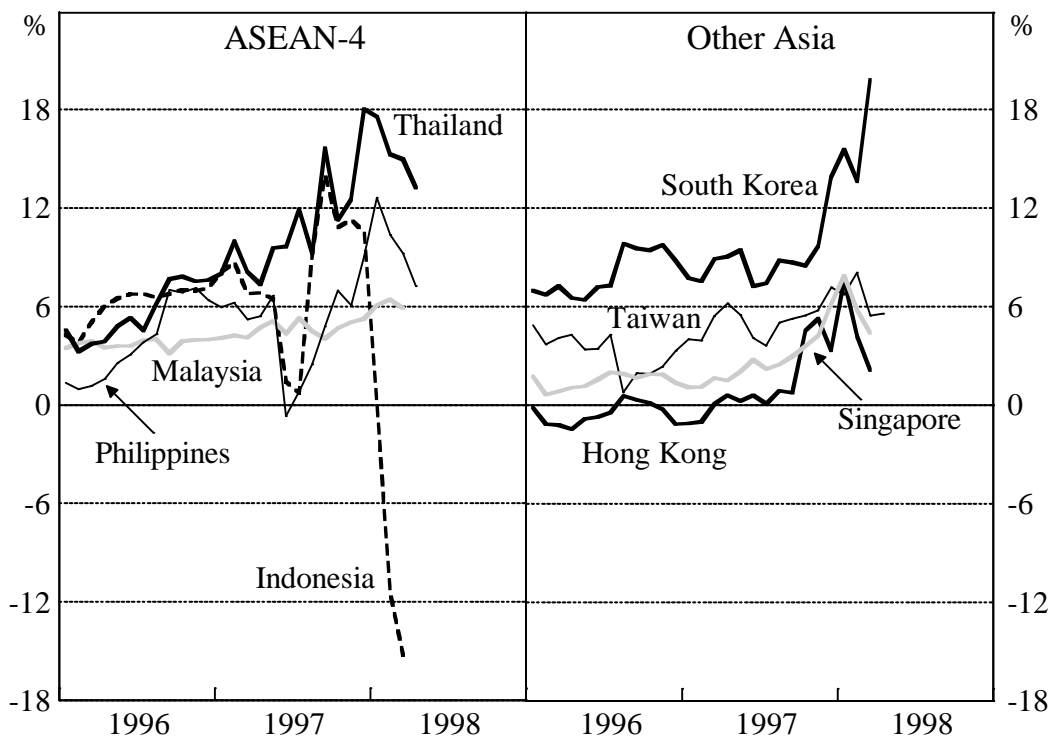
<sup>6</sup> Real rates are calculated by subtracting the most recent 12-month-ended percentage change in consumer prices. They therefore are likely to be overstated in late 1997, by which time **expected** inflation would have incorporated the inflationary impetus from the depreciations.

**Figure 5: 90-day Interest Rates**



Sources: Bloomberg and Datastream

**Figure 6: Real Short-term Interest Rates**



Sources: Bloomberg and Datastream (see footnote 6).

Thirdly, reminiscent of the tactics employed by several European countries during the 1992–93 ERM crisis (e.g., France, Ireland, Portugal and Spain), each of the ASEAN-4 countries resorted to a mixture of administrative controls, taxes, and moral suasion, aimed at discouraging capital outflows and short sales of both the domestic currency and domestic equities, and at reducing the need for even larger increases in domestic interest rates.<sup>7</sup> In May 1997, the Thai authorities introduced restrictions on the ability of local banks to extend baht credit to offshore banks, to conduct foreign exchange swaps (baht for dollars), and to sell baht for dollars to speculators in the spot offshore market. In July, the Philippines authorities prohibited local banks for three months from engaging in offshore, nondeliverable forward peso contracts with offshore banks, and there are reports that the central bank also used moral suasion to discourage local banks from making peso credit available to those who might be expected to use it to speculate against the peso. The Indonesian authorities resisted for longer any temptation to impose capital controls but in August introduced limits on foreigners' access to swap markets. In Malaysia, a ban on short selling of equities was introduced but was soon lifted. A \$20 billion plan was also announced to support stock prices, under which shares sold by Malaysians to state pension and investment funds would fetch a premium whereas shares sold by foreigners would occur at market prices. In addition, Prime Minister Mahathir has threatened on several occasions to introduce controls on foreign exchange trading but these have not been implemented. When the Hong Kong dollar was under strong attack in late October, Hongkong and Shanghai Banking Corporation (a private bank, but one that undertook some central bank functions before the establishment of the Hong Kong Monetary Authority) temporarily restricted withdrawals on time deposits to aid in the currency's defence.

While it is difficult to know how exchange and interest rates would have behaved in the second half of 1997 in the absence of these administrative measures, one thing is clear: as in the ERM crisis, such administrative measures did not prevent ASEAN-4 exchange rates from declining sharply, nor did they obviate the need for domestic interest rates to increase significantly.

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<sup>7</sup> These measures are described more fully in IMF (1997).

## 2.4 Equity Prices

Figures 7 and 8 trace the evolution of equity prices in eight Asian emerging economies, in the short term (since January 1997) and medium-term (since 1990), respectively. The ASEAN-4 countries suffered steep falls in their equity markets in the second half of 1997. As regards the four other Asian emerging economies shown, Hong Kong and South Korea registered falls comparable with those in three of the ASEAN-4 countries, whereas the decline has been more moderate (around 20 per cent) in Singapore and Taiwan. As with their exchange rates, the equity markets turned around in January 1998. By April 1998, most were higher than at the start of the year, but still well down on mid 1997.

Turning to equity prices over the medium term, there are again significant differences across countries. Most dramatically, even before the crisis, Thai stock prices had fallen by over 60 per cent from their peak in early 1994 and by end 1997 were about half their level at the beginning of the decade. In contrast, stock prices had tripled in the Philippines over this decade, doubled in Malaysia and risen by 60 per cent in Indonesia.

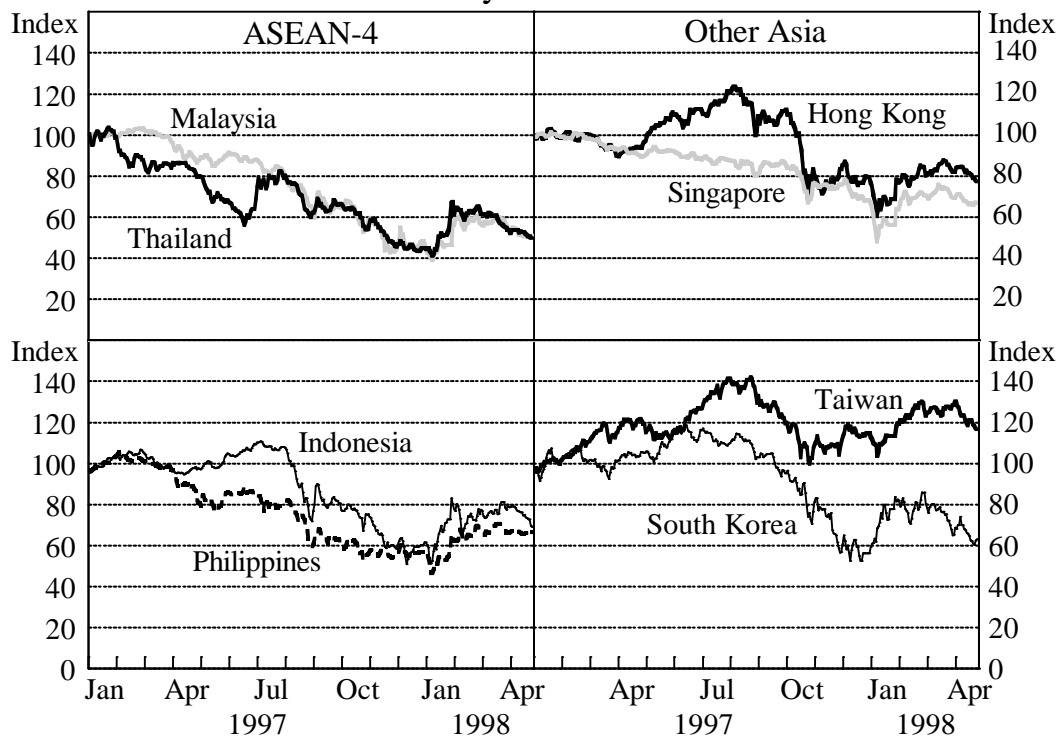
The other east Asian emerging economies whose stock market performance in the 1990s have been as disappointing as Thailand's are South Korea and Taiwan. In the former, stock prices have fallen over 60 per cent since the peak (in late 1994) and by end 1997 were about half their 1990 level. In contrast, even after the sharp fall in late 1997, Hong Kong's Hang Seng index had gone up over threefold since the beginning of the decade.

The behaviour of equity markets is important because they serve as an alternative to bank financing for some companies, because sharp changes in stock prices can generate non-trivial wealth effects, because banks either use equities as collateral for bank loans and/or invest themselves in equities, and because they are an important channel for foreign capital inflows. Moreover, they are often regarded as a barometer of confidence in the domestic economy and as either an early warning signal or precipitating factor in many past financial crises in emerging economies.<sup>8</sup>

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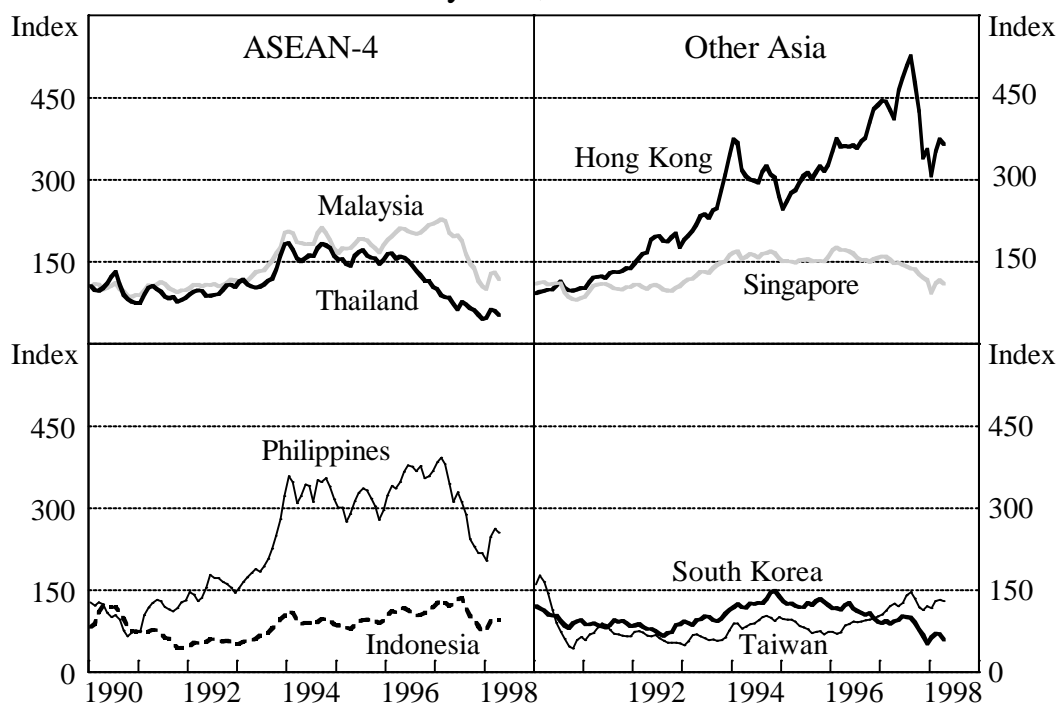
<sup>8</sup> See Mishkin (1996), Kaminsky and Reinhart (1996), and Goldstein and Reinhart (1998).

**Figure 7: Asian Equity Prices**  
January 1997 = 100



Source: Datastream

**Figure 8: Asian Equity Prices**  
Monthly data; 1990 = 100



Source: Datastream



## 2.5 Real Impact of the Financial Problems

One immediate effect of the financial crisis has been a contraction in real activity. In Thailand, this is already apparent in the industrial production data which was 17 per cent lower in January 1998 than in January 1997. The other economies were later to suffer their financial problems and there are longer lags in data releases. However, an indication of the magnitude of the problem can be gleaned from a comparison of the 'consensus' growth forecasts for 1998 made in June 1997 with the latest forecasts made in April 1998. (The revision should capture the impact of the financial crisis rather than any other factors thought likely to slow output before the crisis.) Indonesia, Thailand and South Korea are the economies whose growth has been most marked down, and the downgrades are the most severe recorded in the 1990s. Real GDP is now expected to contract this year, despite the stimulus to net exports from their depreciations, reflecting, *inter alia*, high interest rates, vastly increased foreign currency debt obligations, more widespread corporate and banking failures, higher layoffs, and the generalised uncertainty and loss of confidence associated with such crises.

**Table 2: Real GDP: Consensus Forecasts**

Annual percentage change

|             | 1996 | 1997(e) | 1998                | 1988                 |                              |
|-------------|------|---------|---------------------|----------------------|------------------------------|
|             |      |         | June 97<br>forecast | April 98<br>forecast | (Change in<br>1998 forecast) |
| Indonesia   | 7.8  | 4.6     | 7.6                 | -6.3                 | (-13.9)                      |
| Thailand    | 6.4  | 0.0     | 5.9                 | -4.1                 | (-10.0)                      |
| South Korea | 7.1  | 5.5     | 6.1                 | -1.6                 | (-7.7)                       |
| Malaysia    | 8.6  | 7.8     | 8.0                 | 1.1                  | (-6.9)                       |
| Singapore   | 6.9  | 7.8     | 7.3                 | 2.7                  | (-4.6)                       |
| China       | 9.7  | 8.8     | 10.4                | 7.8                  | (-2.6)                       |
| Philippines | 5.7  | 5.1     | 6.3                 | 2.2                  | (-4.1)                       |
| Hong Kong   | 5.0  | 5.2     | 5.5                 | 3.0                  | (-2.5)                       |
| Taiwan      | 5.7  | 6.8     | 6.5                 | 5.9                  | (-0.6)                       |

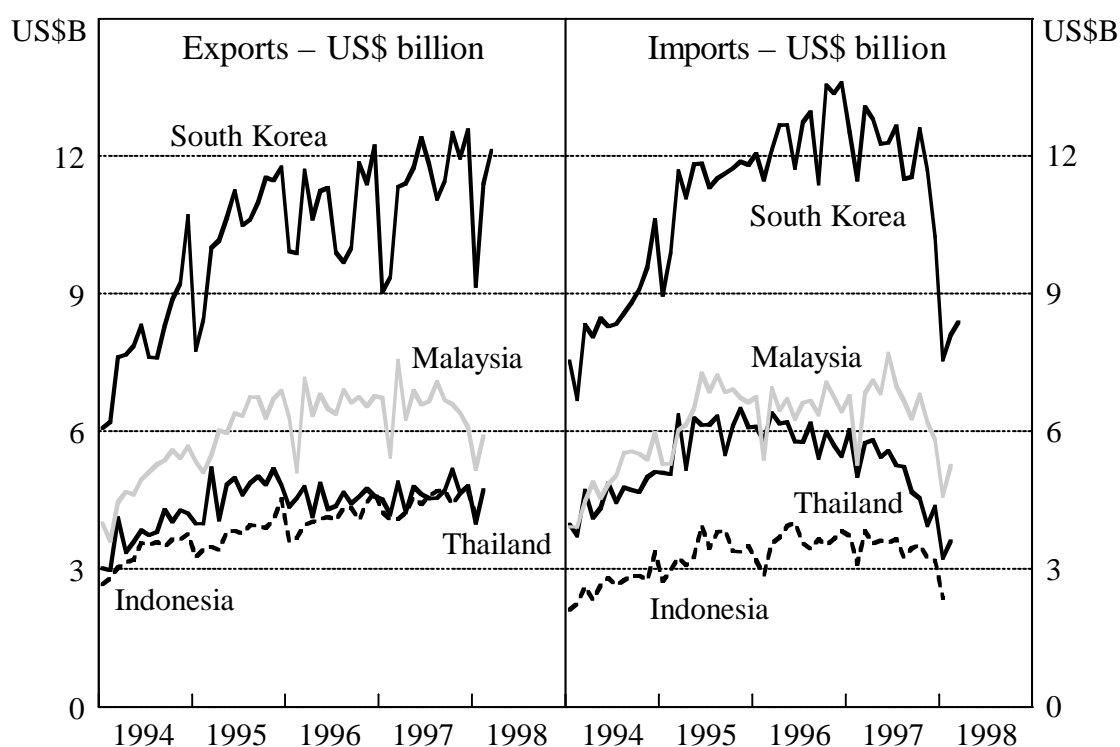
Source: Consensus Economics Inc *Asia-Pacific Consensus Forecasts* June 1997 and April 1998

There should be large movements in the current accounts of the affected economies. Mexico changed its current account position by 6 per cent of GDP in the first year after its mid 1990s crisis. Already South Korea and Thailand have recorded some

monthly current account surpluses. The April consensus forecasts imply the combined merchandise trade balance of Indonesia, Thailand and South Korea would rise by almost US\$50 billion between 1997 and 1999.

However, the available data thus far, illustrated in Figure 9, as well as the forecasts for 1998, indicate that in the short term the change in trade balances will mainly come from a sharp reduction in imports. At least thus far, the competitiveness benefits for exporters seem to be outweighed by other factors such as difficulties in exporters attracting finance or collapse of neighbouring markets.

**Figure 9: Asian Merchandise Trade**



Sources: Bloomberg and Datastream

These data refer to the **US dollar** value of merchandise exports and imports. Stability in US dollar value of exports would be consistent with increased export volumes (and so greater real GDP) if prices are being cut in US dollar terms, but still mean that exports are not helping to rebuild reserves or increase national income.

## 2.6 International Rescue Packages

IMF-led rescue packages have been assembled for Thailand, Indonesia and South Korea. Table 3 compares them with the previous largest rescue package, for Mexico

**Table 3: International Rescue Packages**

|                                   | Thailand        | Indonesia               | South Korea | Mexico             |
|-----------------------------------|-----------------|-------------------------|-------------|--------------------|
| Date agreed                       | 20 Aug 97       | 5 Nov 97                | 4 Dec 97    | 1 Feb 95           |
| Latest revision                   | 24 Feb 98       | 10 Apr 98               | 7 Feb 98    |                    |
| <b>Total (US\$bn)</b>             | 17              | 35                      | 58          | 52                 |
| of which:                         |                 |                         |             |                    |
| IMF                               | 3.9             | 9.9                     | 20.9        | 17.8               |
| World Bank                        | 1.5             | 4.5                     | 10          | 2.8 <sup>(a)</sup> |
| ADB                               | 1.2             | 3.5                     | 4           |                    |
| BIS/G10                           |                 |                         |             | 10                 |
| USA                               |                 | 3                       | 5           | 20                 |
| Europe                            |                 |                         | 6.3         |                    |
| Canada                            |                 |                         | 1           |                    |
| Australia                         | 1               | 1                       | 1           |                    |
| Brunei                            | 0.5             |                         |             |                    |
| China                             | 1               | 1                       |             |                    |
| Hong Kong                         | 1               | 1                       |             |                    |
| Indonesia                         | 0.5             |                         |             |                    |
| Japan                             | 4               | 5                       | 10          |                    |
| Malaysia                          | 1               | 1                       |             |                    |
| New Zealand                       |                 |                         | 0.1         |                    |
| Singapore                         | 1               | 5                       |             |                    |
| South Korea                       | 0.5             |                         |             |                    |
| IMF disbursements as at 10 Apr 98 | 2.7             | 3.0                     | 15.1        |                    |
| Time period                       | 34 months       | 36 months               | 36 months   |                    |
| % of IMF quota                    | 505             | 490                     | 1 939       | 688                |
| <b>Targets (1998)</b>             | <b>original</b> | <b>(latest revised)</b> |             | <b>(1995)</b>      |
| Real GDP <sup>(b)</sup>           | 3.5 (-3)        | 3 (-5)                  | 2.5 (-1)    | 1.5                |
| Inflation <sup>(b)</sup>          | 5 (11)          | 9 (45)                  | 5 (<10)     | 9 by end 95        |
| Current account <sup>(c)</sup>    | -3 (+4)         | -2 (+3)                 | -2 (+5)     | -4                 |
| Budget balance <sup>(c)</sup>     | 1 (-1½)         | 1 (-4)                  | 0 (-2)      | 0.5                |

Notes: (a) World Bank and Inter-American Development Bank

(b) Annual percentage change

(c) Per cent to GDP

Sources: Compiled from IMF website ([www.imf.org](http://www.imf.org)); Commonwealth Treasury of Australia (1998); Banco de Mexico.

in 1995. The IMF contributions are large, especially relative to the size of their quotas (usually loans do not exceed two or three times a quota) and the contributions from the rest of the world are also substantial. Japan has been the largest contributor, followed by the US, although the latter was not involved with the Thai package. It is noteworthy that Japan also has the largest share of bank lending to the crisis countries, followed by Europe (principally Germany, France and the United Kingdom), Hong Kong and the United States (Table 4).

**Table 4: Nationality of Banks Providing Loans**  
US\$ billion, end June 1997

|                         | Japan     | Germany   | France    | United States | United Kingdom | Hong Kong | Total      |
|-------------------------|-----------|-----------|-----------|---------------|----------------|-----------|------------|
| to:                     |           |           |           |               |                |           |            |
| Indonesia               | 23        | 6         | 5         | 5             | 4              | 6         | 61         |
| Thailand                | 38        | 8         | 5         | 4             | 3              | 18        | 99         |
| S. Korea                | 24        | 11        | 10        | 10            | 6              | 23        | 117        |
| Malaysia                | 10        | 6         | 3         | 2             | 2              | 3         | 33         |
| Philippines             | 2         | 2         | 2         | 3             | 1              | 4         | 17         |
| <i>Total</i>            | <i>97</i> | <i>32</i> | <i>25</i> | <i>24</i>     | <i>16</i>      | <i>53</i> | <i>326</i> |
| <i>Memo</i>             |           |           |           |               |                |           |            |
| <i>Mexico (June 94)</i> | <i>4</i>  | <i>4</i>  | <i>3</i>  | <i>20</i>     | <i>10</i>      | <i>0</i>  | <i>71</i>  |

Sources: G5 data from Bank for International Settlements *The Maturity, Sectoral and Nationality Distribution of International Bank Lending: First Half 1997*. Basle January 1998. Hong Kong data from *Hong Kong Monetary Authority Monthly Statistical Bulletin* September 1997. Totals from OECD/BIS *Statistics on External Indebtedness* January 1998. (Mexico data from earlier issues.)

The packages have been subject to substantial revision, notably making the budgetary demands less onerous, as the economic outlook for the economies has deteriorated. No international package has been sought by Malaysia, although it has voluntarily undertaken some reforms. The Philippines agreed in July 1997 to strengthen an ongoing IMF adjustment programme and received access to over US\$1 billion in additional financing.

The IMF's assistance is subject to policy conditionality and in many cases the supplementary facilities offered by other countries are also contingent on compliance with these conditions. The performance criteria on monetary and fiscal

policies have presumably been set with an eye toward improving the current account, providing some government contribution to the cost of bank restructuring, maintaining control of inflation, and braking the downward slide in exchange rates. The original growth targets in these programmes have had to be revised downward, as evidence accumulated that the breadth and depth of the crisis would be greater than anticipated. The international rescue targets, in effect, put constraints not only on exchange market intervention but also on the extent to which IMF resources can be used for other purposes.

A distinguishing feature of these rescue packages is that they go much further into reform of the financial sector and corporate governance than most IMF programmes; see Tables 5 and 6. Common elements of the required conditions include improved prudential supervision of the financial system, privatisation and removal of anti-competitive practices.

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**Table 5: Financial Restructuring Elements of IMF-led Rescue Packages**

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|             |  |
|-------------|--|
| Thailand    | Up-front separation, suspension and restructuring of unviable institutions ... broader structural reforms to restore a healthy financial sector ... all remaining financial institutions to strengthen their capital base expeditiously.   |
| Indonesia   | The establishment of the Indonesian Bank Restructuring Agency ... [which] intervened in the 54 banks that had [large] emergency borrowings from Bank Indonesia ... some 250 examiners were placed in these banks to monitor the banks' compliance with additional prudential restrictions on, for instance, new credits and payments of dividends ... the Government will establish an Asset Management Company to focus on the debt recovery of troubled assets ... the government is also proceeding with the merger of state owned banks ... BI promulgated new classification and loan loss provisions based on international standards ... by June the Government will introduce into parliament a law eliminating existing restrictions on foreign ownership of banks.   |
| South Korea | [An exit policy] to ensure the rapid resolution of troubled financial institutions in a manner which minimises systemic distress and avoids moral hazard ... the restructuring and recapitalisation of all banks that fail to meet the Basle Committee capital standards ... this policy will include mergers and acquisitions by domestic and foreign institutions ... eliminate the [deposit] guarantee by the end of 2000 and replace it by a regular deposit insurance system that will only protect small depositors and be financed solely by contributions from the financial sector. [Large banks] will be required to have their financial statements audited by internationally recognised firms. Disclosure standards will require the publication of ... non performing loans, capital adequacy and ownership structures and affiliations. [Legislation will] consolidate the supervisory functions [and] allow prompt close of insolvent financial institutions. The authorities will allow foreigners to establish bank subsidiaries and brokerage houses by mid 1998. |

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Source: Compiled from documents on the IMF website ([www.imf.org](http://www.imf.org))

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**Table 6: Corporate Governance Conditions of IMF-led Rescue Packages**  
Some extracts

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|             |  |
|-------------|--|
| Thailand    | New bankruptcy law will permit corporate reorganisations; increase the scope for out-of-court workouts and ensure fair treatment of creditors.   |
| Indonesia   | Over the longer term, at a minimum, all enterprises that operate in competitive markets will be privatised, with the government retaining only selected public utilities and strategic companies ... the Government will eliminate all restrictions on foreign investment in wholesale trade and establish a level playing field in the import and distribution of essential food items ... the Government will implement by September 1998 the necessary regulations establishing guidelines and clear procedures and mechanisms for mergers, acquisitions and exit which facilitate efficient corporate restructuring while safeguarding against anti-competitive or predatory behaviour.  |
| South Korea | Require financial statements of listed companies to be prepared and audited in accordance with international standards, require publication of combined financial statements for associated companies, further reduce the use of mutual guarantees by affiliates/subsidiaries, increase the degree of independence of CPAs ... require listed companies to have at least one outside director, remove restrictions on voting rights of institutional investors in listed companies, strengthen minority shareholders' rights by substantially lowering the thresholds on exercising these rights, review the possibility of allowing for class action suits against corporate executives and auditors ... ensure that all corporate restructuring is voluntary and market-oriented, liberalisation of the domestic mergers and acquisitions by removing the mandatory tender offer requirement, permit takeovers of non-strategic Korean corporations by foreign investors without government approval ... amend bankruptcy law to facilitate more rapid resolution of bankruptcy proceedings. |

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Sources: Compiled from letters of intent sent to IMF from Thailand on 24 February and South Korea on 7 February 1998 and the Memorandum of Economic and Financial Policies of the Government of Indonesia of 10 April 1998. These are on the IMF website ([www.imf.org](http://www.imf.org))

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The rationale for including corporate governance and transparency elements in these programmes reflects the view that weaknesses in this structural area (non-consolidated accounting statements, overleveraged conglomerates, cross-company shareholding arrangements and guarantees, inefficient government monopolies and cartels, absence of official subsidies from published government budget accounts, etc) were one of the underlying elements of vulnerability.

### 3. Why did it Happen?

Like most other financial crises, the Asian financial turmoil was not due to one or two isolated factors. Its multiple origins can be conveniently grouped under three interrelated headings: (i) **financial-sector vulnerabilities** such as poor credit

assessment in some Asian emerging economies concurrent with relatively easy global liquidity conditions; (ii) **external sector problems** which generated some concern about these economies; and (iii) **contagion** from Thailand – first to its near neighbours (Indonesia, Malaysia, and the Philippines), thence to some other Asian economies to the north (South Korea, Taiwan, Hong Kong, Japan), and finally much further afield (ranging south to Australia, east to Brazil and west to Russia). For a time, there was even an impact on equity markets in the major industrial countries.

### 3.1 Financial Sector Vulnerability

Indonesia, Thailand and the Philippines experienced a **credit boom** in the early 1990s while one developed in Malaysia in the mid 1990s. Table 7 shows that while nominal GDP growth was rapid, bank and non-bank credit to the private sector grew even faster.

|             | 1990–1994 | 1995 | 1996 |
|-------------|-----------|------|------|
| Indonesia   | 10.4      | 4.4  | 5.7  |
| Thailand    | 10.0      | 11.1 | 5.8  |
| South Korea | 2.6       | 2.2  | -0.6 |
| Malaysia    | 3.1       | 10.5 | 13.1 |
| Philippines | 10.7      | 27.4 | 31.5 |
| Singapore   | 0.8       | 7.8  | 5.7  |
| Hong Kong   | 8.8       | 8.9  | -6.1 |

Source: Bank for International Settlements (1997, p. 108)

With such an overextension of credit, the ASEAN-4 economies left themselves vulnerable to a shift in credit conditions. When concerns about overheating and the defence of exchange rates (with high interest rates) against strong market pressures led to such a shift, it brought with it slackening economic activity, falls in property prices, and a rising share of non-performing bank loans. Because the credit boom began and ended earlier in Thailand and Indonesia than in Malaysia, the effects were first visible in the former two countries.

Large net private capital inflows (Table 12) provided an important component of the credit boom and a significant portion of the lending was directed to real estate and equities. Exposure to the property market through loans to homebuyers is not particularly high in Asia. What is high is the exposure of banks to property developers, which is a much riskier form of exposure. It has been estimated that total exposure to the property sector accounted for between 25–40 per cent of bank loans in Thailand, Indonesia, Malaysia and Singapore, and even more than that in Hong Kong (JP Morgan’s estimates are shown in Table 8). Also, in Thailand, Malaysia and Indonesia this exposure was compounded by high loan-to-collateral ratios. With a lot of office space still under construction, the decline in real property prices in the region may have not finished yet, although some governments are taking action to moderate the fall in property prices.

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**Table 8: Bank Lending to the Property Sector**

Per cent of total bank lending

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|                | Home mortgages<br>(1993) | Total property | (Loan as per cent of<br>collateral) |
|----------------|--------------------------|----------------|-------------------------------------|
| Hong Kong      | 9                        | 40–55          | (50–70)                             |
| Thailand       | 8                        | 30–40          | (80–100)                            |
| Malaysia       | 14                       | 30–40          | (80–100)                            |
| Singapore      | 15                       | 30–40          | (70–90)                             |
| Indonesia      | 4                        | 25–30          | (80–100)                            |
| South Korea    | 13                       | 15–25          | (80–100)                            |
| Philippines    | n.a.                     | 15–20          | (70–90)                             |
| Australia      | 32                       |                |                                     |
| Germany        | 16                       |                |                                     |
| Japan          | 9                        |                |                                     |
| United Kingdom | 56                       |                |                                     |
| United States  | 30                       |                |                                     |

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Sources: Kamin, Turner & Van’t dack (1998) Table 14; Reserve Bank of Australia *Bulletin*, December 1997  
JP Morgan *Asian Financial Markets* 16 Jan 1998

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Data is scarce on banks’ exposure to the equity market but the Korean banks are believed to have large holdings of equities and Malaysian banks have reportedly lent large amounts to finance stock purchases. This has contributed to the strains in both these economies.



In several of the Asian economies, financial vulnerability was exacerbated by banks and/or their customers trying to reduce their funding costs by borrowing in foreign currencies and at short maturities.

In Thailand there were several incentives for undertaking this kind of foreign borrowing strategy. Firstly, interest rates abroad were much lower (about half as high) than in Thailand. Secondly, the long-running stability of the baht relative to the US dollar presumably led borrowers to believe that the risk of baht devaluation was low. While the exchange rate between the US dollar and the yen was subject to substantial fluctuation, only a sharp appreciation of the yen would wipe out the savings from very low Japanese interest rates. Thirdly, as part of the government's effort to promote Bangkok as a regional financial centre, the Bangkok International Banking Facility had been established in 1993, with a mandate (and special incentives) to borrow abroad in foreign currency and to lend to other borrowers in the region (so-called 'out-out' operations); in the event, while facilitating such foreign borrowing, most of the proceeds appear to have been lent to Thai entities ('out-in' operations). Finally, in two earlier banking crises, the government had a track record of intervening to support troubled financial institutions and of not allowing banks to fail; in other words, an official safety net might have been expected to reduce if not eliminate risk.

Currency mismatching by companies was the greater problem in Indonesia. Once the rupiah was floated, belated efforts by Indonesian firms to hedge their large short foreign-currency position in the market helped accelerate its decline. This established a vicious circle, whereby the currency weakened further, prompting more defensive selling.

In South Korea, the vulnerability arose from the short-term foreign currency borrowings by banks and the *chaebol*. In Malaysia and the Philippines, the scale of foreign borrowing over the 1990s was also considerable, but on the whole, maturity and currency mismatches were apparently kept under better control than in Thailand or Indonesia.

Table 9 provides several measures of liquidity and currency mismatches for the Asian emerging economies (as well as some other developing countries). In short it supports the view that South Korea, Thailand and Indonesia were particularly

vulnerable to liquidity and currency mismatches in the run-up to the recent turmoil.<sup>9</sup> Thailand and South Korea would look even more vulnerable in these comparisons if commitments in forward markets or loans to commercial banks were netted off the gross reserves used in such ratios.

**Table 9: Liquidity and Currency Mismatch Variables**  
Ratios; end June 1997

|             | Broad money /<br>international reserves<br>(a) | Short-term external<br>debt to international<br>reserves<br>(b) | External debt:<br>short-term / total<br>(c) | Borrowings from<br>overseas banks:<br>short-term / total<br>(d) |
|-------------|--|---|---|---|
| Indonesia   | 6.2  | 1.6   | 0.2   | 0.6   |
| Thailand    | 4.9  | 1.1   | 0.5   | 0.7   |
| South Korea | 6.2  | 3.0   | 0.7   | 0.7   |
| Malaysia    | n.a.   | 0.6   | 0.4   | 0.6   |
| Philippines | 4.9  | 0.7   | 0.2   | 0.6   |
| China       | 8.2  | n.a.  | n.a.  | 0.5   |
| Taiwan      | 5.8  | n.a.  | n.a.  | 0.9   |
| Argentina   | 3.6  | 1.1   | 0.2   | 0.5   |
| Brazil      | 3.5  | 0.7   | 0.2   | 0.6   |
| Chile       | 1.8  | 0.4   | 0.3   | 0.4   |
| Mexico      | 4.2  | 1.3   | 0.2   | 0.5   |

Sources: (a) IMF *International Financial Statistics* April 1998 and *Taiwan Financial Statistics* February 1998. 'Broad money' is 'money plus 'quasi-money' (lines 34 plus 35). International reserves are total reserves less gold (line 11.d.).

(b) and (c) World Bank (1998)

(d) BIS *Maturity, Sectoral and Nationality Distribution of International Lending, First Half of 1997*, January 1998.

The conclusion that it was the composition of foreign borrowing – and not so much the total external debt burden – that underpinned the vulnerability of the crisis countries is reinforced by the external debt figures shown in Table 10. In terms of

<sup>9</sup> Calvo and Goldstein (1996) show that such liquidity and currency mismatches made Mexico more vulnerable to attack in 1994 than its Latin American neighbours.

**Table 10: External Debt Burden**

|             | Total external<br>debt as per cent<br>to 1996 GDP | Total external<br>debt as per cent<br>to 1996 exports | 1997 repayments<br>due as per cent<br>to 1996 exports |
|-------------|---|---|---|
| Indonesia   | 49  | 189   | 67  |
| Thailand    | 59  | 154   | 90  |
| South Korea | 23  | 72  | 37  |
| Malaysia    | 38  | 42  | 19  |
| Philippines | 59  | 140   | 61  |
| Singapore   | 11  | n.a.  | n.a.  |
| Hong Kong   | 21  | 15  | 7   |
| China       | 16  | n.a.  | n.a.  |
| Argentina   | 30  | 320   | 133   |
| Brazil      | 15  | n.a.  | n.a.  |
| Chile       | 31  | 117   | 14  |
| Mexico      | 44  | 139   | 46  |

Source: Debt and repayments (i.e. short-term debt plus long-term debt repayments due) from OECD *External Debt Statistics 1997*, GDP and exports from IMF *International Financial Statistics*, March 1998 (lines 99b, 90c). China's GDP from national source.

external debt to GDP Thailand and the Philippines had higher burdens than their neighbours but those were not far outside the range experienced by many emerging economies. Similarly, only Indonesia among the five most adversely affected economies has a high debt burden relative to exports (and still below that of both Argentina and Brazil). The figures on the currency composition of external debt shown in Table 11 likewise reinforce the point that the vulnerability of the crisis countries was not tied to the foreign-currency denomination of external debt *per se*, but rather to the imbalance between short-term foreign-currency denominated liabilities and liquid foreign-currency denominated assets (international reserves).

These credit booms, asset price bubbles and liquidity/currency mismatches were unlikely to have gone so far were it not for the accompanying **long-standing deficiencies in financial-sector supervision**. Common problems in emerging

**Table 11: Currency Denomination of Foreign Debt**  
Per cent of total long-term debt (1996)

|             | US\$ | Yen | Major European | Other <sup>(a)</sup> |
|-------------|------|-----|----------------|----------------------|
| Indonesia   | 24   | 35  | 11             | 30                   |
| Thailand    | 32   | 45  | 4              | 19                   |
| Malaysia    | 56   | 28  | 4              | 12                   |
| Philippines | 34   | 35  | 3              | 28                   |
| China       | 65   | 16  | 2              | 17                   |
| Argentina   | 58   | 9   | 18             | 15                   |
| Brazil      | 69   | 6   | 8              | 17                   |
| Chile       | 46   | 9   | 5              | 40                   |
| Mexico      | 68   | 8   | 7              | 17                   |

Note: (a) includes SDRs and other multi-currency.

Source: World Bank (1998)

economies include lax loan classification and provisioning practices.<sup>10</sup> ‘Connected lending’ (making loans to major shareholders, bank directors, managers, and their related businesses) was allowed to flourish, with the concomitant dangers of concentrated credit risks and lack of impartial credit decisions. Too many banks were owned by governments and became the ‘quasi-fiscal’ agents of governments, providing an oblique mechanism for channelling government assistance (off-budget) to ailing industries. In some cases this directed lending was also undertaken by privately owned banks. With the exceptions of Hong Kong and Singapore, the riskiness of banks’ operating environment was not matched by an appropriate level of capital. History led to the strong expectation that depositors and creditors would get bailed out should banks get into trouble. In the face of strong political pressures for regulatory forbearance, bank supervisors lacked the mandate to resist. Adding to these problems, the quality of public disclosure and transparency was questionable. There have been sharp rises in reported non-performing loans recently; although many private sector estimates are higher still.

Of course, every borrower of foreign funds in these economies had a corresponding lender overseas. These lenders’ enthusiasm for emerging markets recovered

<sup>10</sup> See Goldstein (1997).

surprisingly quickly after the Mexican crisis. Indeed 1996 was a record year for private net flows to emerging economies. Spreads on emerging economy bonds narrowed markedly between 1995 and mid 1997; according to Cline and Barnes (1997) by more than can be explained either by upgradings by ratings agencies or by fundamentals. Moreover, maturities were extended and loan covenants were watered down. East Asian economies accounted for half the top ten recipients of private capital flows. (Table 12 and Figure 10)

**Table 12: Five Asian Economies: External Financing**  
Indonesia, Malaysia, Philippines, Thailand, South Korea; US\$ billions

|   | 1994 | 1995 | 1996 | 1997(e) | 1998(f) |
|---|------|------|------|---------|---------|
| Current account                             | -25  | -41  | -55  | -27     | 31      |
| Private flows, net                          | 38   | 79   | 97   | -12     | 0       |
| <i>direct equity</i>                        | 5    | 5    | 6    | 6       | 7       |
| <i>portfolio equity</i>                     | 7    | 11   | 12   | -4      | 10      |
| <i>bank lending</i>                         | 23   | 50   | 56   | -27     | -20     |
| <i>other private lending</i>                | 2    | 14   | 23   | 13      | 3       |
| Official flows, net                         | 7    | 5    | -2   | 30      | 26      |
| <i>International financial institutions</i> | 0    | 0    | -2   | 23      | 23      |
| <i>Bilateral creditors</i>                  | 8    | 6    | 0    | 8       | 3       |
| Other flows (balancing item)                | -15  | -29  | -22  | -31     | -5      |
| Reserves (- is increase)                    | -5   | -14  | -18  | 40      | -52     |

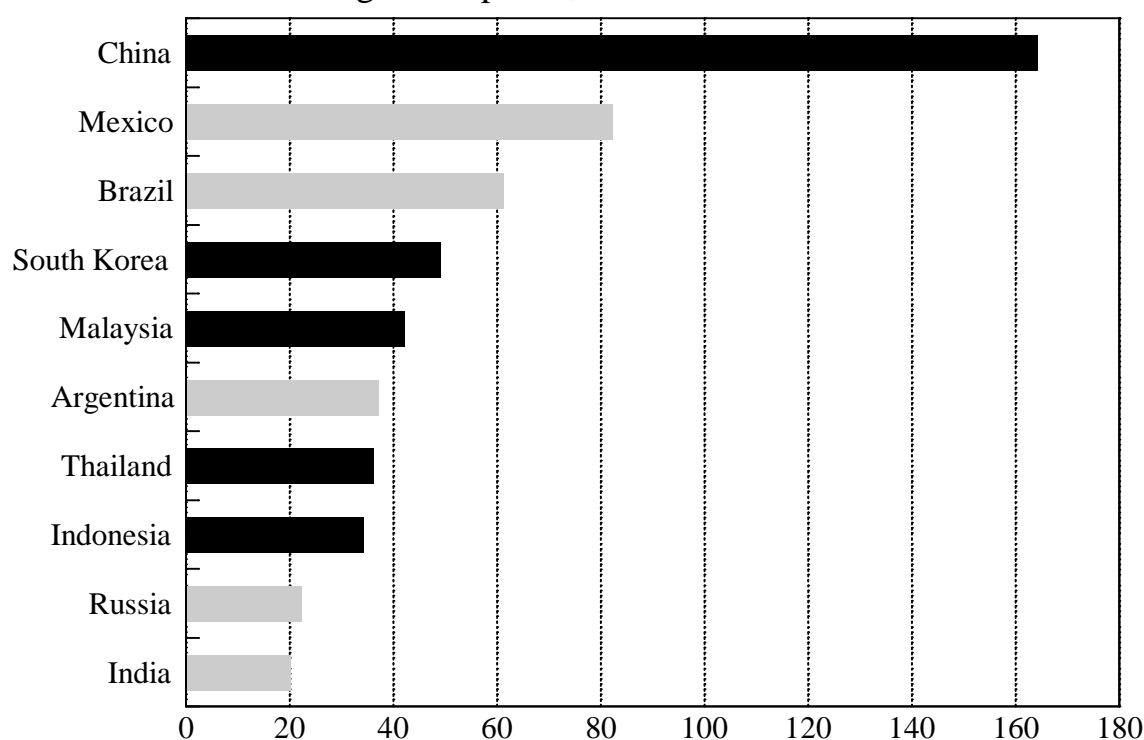
Source: Institute of International Finance (1998)

The proximity of Tokyo, a large financial centre offering extremely low interest rates, also proved a temptation. The combination of weak economic activity, a huge stock of bad loans in the banking system, and a public antipathy to bailing-out banks, seemed to point to the continuation of low interest rates there. (The large share of bank lending coming from Japan is shown in Table 4 and the high proportion of debt denominated in yen in Table 11.) Furthermore, as had been the case with Mexico, the ASEAN-4 economies were generally regarded by lenders as in the first tier of sovereign borrowers among emerging markets. There were

certainly some good reasons for this; over the previous decade they had been the star performers in terms of economic growth, plugged themselves into global markets, and had high saving and investment rates, and enviable fiscal positions.<sup>11</sup> The modest levels of public debt may have (falsely) assured lenders that if local financial institutions encountered troubles, the public sector had the capacity to mount a prompt and comprehensive rescue. All these positive attributes led bankers to overlook their weaknesses almost until (or in some cases after) the crisis hit.

**Figure 10: Concentration of Private Capital Flows**

10 largest recipients; US\$ billion 1990–1995



Source: World Bank (1997)

### 3.2 External Sector Problems

As Table 13 shows, Thailand's current account deficit reached 8 per cent of GDP in 1996, with the other ASEAN-4 countries also having significant deficits.

<sup>11</sup> See Grenville (1998).

**Table 13: Saving and Investment**  
Per cent to GDP; 1996

|                | Current account<br>balance | Government<br>budget balance | Saving | Investment |
|----------------|----------------------------|------------------------------|--------|------------|
| Indonesia      | -3.8                       | 1.2                          | 28.7   | 32.1       |
| Thailand       | -8.0                       | 2.3                          | 33.6   | 42.5       |
| South Korea    | -4.8                       | 0.1                          | 34.3   | 38.2       |
| Malaysia       | -6.3                       | 0.7                          | 37.8   | 41.5       |
| Philippines    | -4.5                       | 0.3                          | 19.6   | 24.2       |
| Singapore      | 15.2                       | 7.0                          | 51.3   | 35.1       |
| Hong Kong      | (a)                        | (a)                          | (a)    | 32.4       |
| Taiwan         | 4.0                        | -0.7                         | 25.9   | 21.2       |
| Argentina      | -1.4                       | -1.8                         | n.a.   | 17.6       |
| Brazil         | -2.5                       | n.a.                         | 13.5   | 19.1       |
| Chile          | -4.1                       | 2.2                          | 22.6   | 27.7       |
| Mexico         | -0.6                       | n.a.                         | n.a.   | 20.9       |
| Australia      | -4.1                       | -1.0                         | 17.5   | 20.6       |
| Germany        | -0.6                       | -2.1                         | n.a.   | 22.6       |
| United Kingdom | 0.0                        | -4.7                         | 16.3   | 15.8       |
| United States  | -1.9                       | -1.5                         | 16.0   | 17.2       |

Notes: (a) Full balance of payments and timely GNP statistics are not compiled yet for Hong Kong but Ma and Hawkins suggest the current account may have been in surplus in 1993 and in deficit of the order of 1 per cent of GDP in 1994 in 'Hong Kong's Balance of Payments: Some Research Estimates' *Hong Kong Monetary Authority Quarterly Bulletin* February 1997. Using GDP as a proxy for GNP, saving/GDP is 31%. Government accounts are not given in the IFS but the budget is in surplus.

Sources: IMF *International Financial Statistics* April 1998; Taiwan data from domestic authorities; current accounts are JP Morgan estimates for Indonesia, Malaysia and Philippines.

However, these current account imbalances were widely viewed as benign (at the time) in two respects. Firstly, there was a belief (known variously as the 'Lawson doctrine', 'Pitchford critique' or 'consenting adults view') that current accounts were only a concern if they reflected public sector deficits. This was not the case in the ASEAN-4 economies. Secondly, the funds borrowed offshore were being employed to increase investment (rather than consumption), thereby building the

potential capacity to service the debts. In both these dimensions, Asian current account deficits were said to be more sustainable than those in Latin America.

Gradually, however, this sanguine interpretation was challenged on at least five counts;

- The **quality** rather than just the quantity of investment assumed greater importance. Investment ratios of 30–40 per cent plus began to look less attractive when much of it was directed toward speculative activities such as golf resorts and expensive condominiums, industries where overcapacity was threatening or over-ambitious infrastructure projects.
- Real effective exchange rates pointed to some deterioration in competitiveness in much of emerging Asia in 1996 (Figure 3). These overvaluations were not particularly large but, when accompanied by large imbalances in the balance of payments, they nevertheless increased vulnerability.<sup>12</sup>
- Merchandise export receipts slowed in 1996 (Figure 10). In Thailand, they were almost unchanged in 1996, after rising 24 per cent in 1995. While it was acknowledged at the time that some of the slowdown was attributable to temporary factors, such as a slowdown in global trade and an inventory glut in the worldwide electronics industry (which was especially important as electronics account for a large share of exports in many Asian emerging economies) the export slowdown did raise questions about longer term projections.
- Competition from China became more of a concern. More specifically, some analysts detected a shift in perceived regional comparative advantage toward China and away from the ASEAN-4 economies.<sup>13</sup> Closer analysis by Fernald,

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<sup>12</sup> Empirical analyses of early-warning indicators of currency crises in emerging economies (see Goldstein and Reinhart (1998), Kaminsky, Lizondo and Reinhart (1997) and IMF (1998)) find that real exchange rate overvaluation has historically been among the best performing crisis signals.

<sup>13</sup> For example, Thurow (1998) asserts the ASEAN-4 economies swing from trade 'surplus to deficit is directly traceable to mainland China's decision to concentrate on increasing exports as the engine of its economic growth'. Some others emphasised the rising share of China (versus



Edison and Loungani (1998) suggests this concern may have been misplaced. They conclude that China's export growth is similar to that in other developing Asian economies, rather than gaining at their expense.

- Overproduction and intense export competition in certain industries was seen as a looming threat to the sustainability of Asian external deficits. Industries for which concerns were voiced about global overproduction included some (automobiles, memory chips, petrochemicals, steel, cement, wood products, frozen chickens, etc) of importance for the Asian economies.

### 3.3 Contagion

The factors discussed in the last two sections provide an explanation of why some Asian emerging economies and currencies were vulnerable. But most of these factors did not appear overnight in July 1997. Why did so many Asian currencies come under attack in so short a space of time? Here some kind of contagion must surely be part of the answer.

Past empirical work on this topic has established that contagion is typically greater during turbulent periods than more tranquil times, that it operates more on regional than on global lines, and that it usually runs from large countries to smaller ones.<sup>14</sup> In this last respect, the Asian currency crisis is unusual, in that it originated in a relatively small country (Thailand) and spread to a wide set of economies, both large (Korea, Japan, Brazil, Russia) and small.

There are three ways contagion might spread. The first is via direct linkages, the second is through competitive devaluations, and the third is through signalling. The first of these does not seem to provide a good explanation for the recent Asian experience. Table 14 shows some indicators of the importance of the bilateral relationship with Thailand. In terms of their bilateral links, Malaysia, Singapore, Taiwan and Hong Kong would have been more vulnerable than Indonesia and South Korea; but this is not consistent with the observed impact of the crisis across

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the static share of the ASEAN-4 countries) in Japanese FDI. Other examples are cited by Fernald, Edison & Loungani (1998).

<sup>14</sup> See Calvo and Reinhart (1996).

economies (e.g. the size of currency and equity declines, the downward revision of 1998 growth forecasts).

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**Table 14: Bilateral Relationships with Thailand**

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|             | Distance | Flying time | Export market | Telephone calls | Export similarity |
|-------------|----------|-------------|---------------|-----------------|-------------------|
| Malaysia    | 1 180    | 125         | 4.6           | 2.5             | 0.40              |
| Singapore   | 1 430    | 135         | 3.0           | 3.7             | 0.43              |
| Taiwan      | 2 530    | 330         | 3.1           | 4.2             | 0.50              |
| Hong Kong   | 1 730    | 160         | 0.4           | <2              | 0.50              |
| Philippines | 2 210    | 195         | 1.8           | <2              | 0.39              |
| Indonesia   | 2 310    | 295         | 2.2           | 1.3             | <0.4              |
| South Korea | 3 720    | 440         | 1.8           | 1.3             | 0.44              |

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Sources and definitions: **Distance and flying time:** kilometres between capital cities and flight times (minutes) on common flights between them. Source: Microsoft, Bloomberg. **Export market:** per cent share of country's exports which went to Thailand in 1996. Source: IMF *Direction of Trade Statistics. 1997* **Telephone calls:** Incoming calls to Thailand in millions of minutes as a percentage share of all international calls from that country. Source: TeleGeography Inc *TeleGeography 1997/98: Global Telecommunications Traffic Statistics and Commentary* October 1997 **Export similarity:** A measure of the similarity of the product composition of exports with those of Thailand, and hence, its role as a competitor in world markets, taken from Williamson (1996) using a 4-digit industry classification and 1992 data.

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The second means by which contagion could arise is through the competitiveness dynamics of devaluation. As one country after another in a region succumbs, those countries surviving find themselves less competitive which in turn makes their currencies more vulnerable to speculative attack, a sort of 'domino theory' of devaluations.<sup>15</sup>

A third possible cause of contagion is signalling; international investors were startled by events in Thailand, leading them to reassess the creditworthiness of all

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<sup>15</sup> Some (e.g. Thurow 1998) argue that the initial trigger for the devaluations in the region was the Chinese official devaluation in January 1994. However, because of the large share (perhaps 80 per cent) of transactions conducted at the market rather than the official rate before the two were unified by a devaluation of the official rate, the true devaluation was much less. See Liu, Noland and Robinson (1998) and Fernland, Edison and Loungani (1998). In addition the latter show that export competition between China and the rest of emerging Asia was much greater in 1989–93 than in 1994–96.

Asian borrowers.<sup>16</sup> They found a number with similar weaknesses, in kind if not in degree, and thus wrote the other economies down as well.

There are at least two reasons for favouring this third characterisation. One is that markets appeared to be ‘asleep at the wheel’ in terms of monitoring latent risks in emerging Asian markets prior to the Thai crisis.<sup>17</sup> Eschweiler (1997), for example, documents that interest rate spreads gave no warning of impending difficulties for Indonesia, Malaysia and the Philippines, and produced only intermittent signals for Thailand. Similarly, Wolf (1997) comments ‘two leading credit rating services, Moody’s and Standard and Poor’s failed to downgrade long-term debt ratings of Indonesia, Malaysia or Thailand in the year and a half to June 1997. Instead, downgradings followed the crisis – and exacerbated it’. (Figure 11).

A second reason for favouring the third characterisation is based on some calculations involving ranking seven Asian emerging economies according to fourteen fundamentals identified as important in the literature.<sup>18</sup> A simple average ranking, which places Thailand (the first economy to get into trouble) as most vulnerable, indicates Indonesia (the economy subsequently worst affected) as second-most vulnerable. Fundamental-based rankings correspond much more closely to the observed impact on economies than do rankings of the economies on the basis of their bilateral relationship with Thailand.

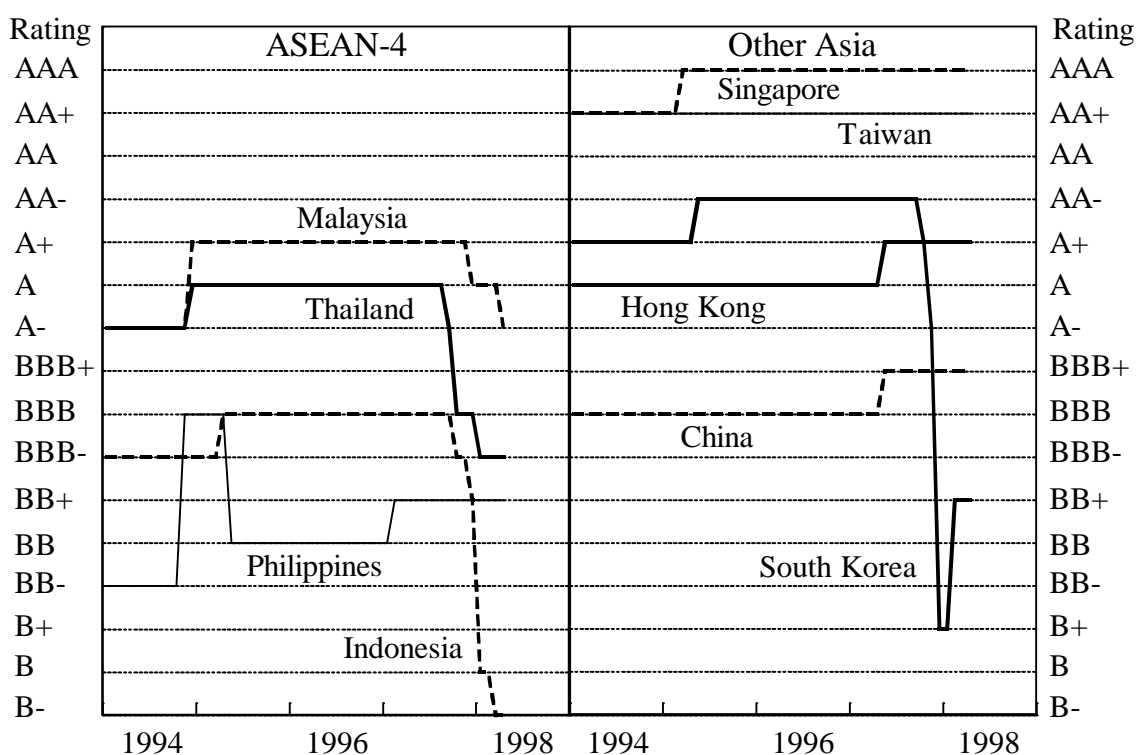
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<sup>16</sup> The impact of the news in Thailand was exacerbated by how much of it was received so quickly – the loss of reserves, the float, the approach to the IMF, the problems in the financial system etc. The fact that the rapid growth in the economies was termed by many ‘the Asian miracle’ implied that its basis was not that well understood, which perhaps exacerbated the tendency to panic when it seemed to be faltering.

<sup>17</sup> See Radelet and Sachs (1998) for a comprehensive discussion of how unexpected was the Asian crisis.

<sup>18</sup> The fundamentals used were excess credit growth, the ratio of short-term external debt to international reserves, the ratio of broad money to reserves, the ratio of external debt to GDP, the banking sector’s risk-weighted capital ratio, the share of non-performing loans, the importance of state-owned banks, bank credit-ratings, the ratio of the current account to GDP, international reserves, the extent of the 1996 export slowdown and three measures of the overvaluation of the real effective exchange rate. Data on most of these factors are presented in Figures 3, 4 and 9 and Tables 7, 9, 10 and 13. Details of the calculations are available from the authors. Another result of this exercise worth mentioning is that Hong Kong and Singapore consistently rank higher on the fundamentals than do the other economies, suggesting there were good reasons for their being less affected.

**Figure 11: Country Credit Ranking**  
Standard and Poors: long-term foreign currency rating



Source: Bloomberg

#### 4. Conclusions

Asian financial turmoil arose primarily from three interrelated sets of factors. The first factor was shortcomings in the financial sector, including deficiencies in the supervision of banks which allowed a degree of exuberance to translate into an excessively rapid expansion of credit. This was compounded by a second factor, a reassessment by markets of the longer term export potential of some Asian economies. These concerns were initially manifest in Thailand but then quickly spread across the other economies in the region. The major channel for this contagion appears to have been the sudden realisation by the market that a number of other Asian economies had vulnerabilities similar to those in Thailand.

Just as the crisis did not arise from a single source, there is not a single response that will fix it. Resolution of the current problems in Asia is likely to require, *inter alia*, recapitalisation of banks, structural reforms in the financial sector and to corporate governance, greater transparency, and some debt rescheduling that

involves appropriate burden-sharing on the part of private sector creditors. These issues are beyond the scope of this paper but are taken up in Goldstein (1998).

The better we can understand the origins of the Asian financial crisis, the more likely are policy-makers to learn from it rather than to repeat the mistakes in another context.

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