VII. Financial intermediation and the Asian crisis

Highlights

Two weaknesses were common to the countries engulfed in the Asian crisis. The first was that excessive expansion of bank credit fuelled overinvestment, leading to the creation of unprofitable industrial capacity and asset price boom-and-bust cycles. The underlying fragility of financial systems in Asia was often overlooked because a high degree of monetary and exchange rate stability, allied with the rapid development of local banking systems, facilitated a long period of investment-led growth. Many years of virtually uninterrupted growth led banks and others to underestimate the risks that were emerging as a new, less regulated and more open environment took shape and as economies became more developed. Expectations that governments would support major financial institutions probably also contributed to this behaviour. Except in Hong Kong, the Philippines and Singapore, capital ratios were generally kept too low to provide an adequate cushion in the event of trouble. Finally, policy-makers failed to realise not only how vulnerable their banking systems were becoming to any appreciable slowdown in growth, but also how the defence of a dollar peg was becoming more demanding with more open capital markets and with the yen/dollar exchange rate moving widely.

The second, and in many ways related, weakness was a reliance on potentially volatile forms of external finance, notably short-term bank borrowing, which made domestic economies increasingly vulnerable to swings of sentiment in the international financial markets. Several countries had to cope with heavy capital inflows for much of the 1990s. Investors' confidence was not at first weakened by rising external indebtedness: risk spreads on Asian emerging market bonds narrowed significantly during 1996 and much of 1997 and there were few downgradings of credit ratings before the crisis. Official surveillance of countries' performance also failed to identify fully the dangers many Asian economies faced. Once the crisis broke, however, markets panicked: exchange rates and equity markets overshot; volatility rose dramatically, with liquidity in some markets drying up; and the credit-rating agencies downgraded the countries most affected.

Policy-makers confronting this crisis faced many difficult dilemmas. The question of how best to deal with sudden and disruptive reversals of private capital flows is a particularly thorny problem. As the scale of international official assistance set new records, the issue of how to hold private investors responsible for their decisions and ensure they bear a share of the costs of emergency assistance to countries in trouble received much attention. How to set monetary policy in the immediate aftermath of a collapse of confidence in the domestic currency was also a source of controversy as the crisis unfolded. A major restructuring of domestic banking systems has begun.

Domestic credit explosion and financial system fragility

A main cause of the crisis was the lack of prudence shown by banks in several countries in expanding credit at an extraordinarily rapid rate during the 1990s. This generally inflated asset prices, with excessive investment in real estate being the most obvious manifestation. Banks also financed (sometimes with official guidance) corporate investment plans that were focused on increasing market share with inadequate attention to the returns generated. The boom was also stimulated by heavy investment by Japanese-linked enterprises. The rising value of the yen in the late 1980s had led Japanese companies, supported by Japanese bank lending, to shift production to lower-wage Asian economies. When the boom came to an end, the underlying fragility of the domestic banking system – analysed in detail in last year's Annual Report – was starkly revealed.

Rapid expansion of bank credit

Bank credit grew by more than 10% a year in real terms during the 1990s in most of the Asian countries shown in Table VII.1; in several countries the expansion was almost 20% a year. In the 1980s, rates of credit expansion had been equally high in many countries but the initial bank credit/GDP ratios were then much lower; by the late 1990s, the ratio of bank credit to GDP in many countries had risen above levels generally seen in developed countries. Although comprehensive and reliable figures are difficult to obtain, the activities of finance companies and similar institutions probably added significantly to the riskiness of overall credit expansion. One important factor behind this expansion was the absence of well-developed local bond markets in many Asian countries, which forced corporations needing debt finance to borrow from banks.

Margins narrow as risks increase

This extraordinary expansion took place not primarily because of new and highly profitable opportunities, but because banks in the countries where credit expanded fastest accepted increasingly narrow interest margins even as riskier business was being undertaken (although margins in Indonesia do appear to have widened). The estimates given in the table show that banks' net interest margins were not much larger than their operating costs, suggesting that little provision was being made for risks. Yet risks were increasing as new areas of business were entered, as corporate sector leverage increased, and as the explosion of asset (especially property) prices exposed both borrowers and collateralised lenders to the risk of subsequent declines.

Liberalisation not supported by other reforms

Prior to liberalisation, intermediation through banks was typically kept profitable by limits on the allocation and volume of bank lending and by interest rate ceilings on deposits. Liberalisation not only gave banks greater latitude of action but often forced a search for new business as margins on traditional business were squeezed. In many cases – as in the industrial world – this profit squeeze did not lead to the restructuring that would take place in other industries. The less efficient banks were not forced to leave the industry or to merge with more efficient banks; instead, government guarantees, implicit or explicit, kept such banks afloat. A second generic problem was that banks that had developed under tight regulation failed to appreciate the extra precautions needed in the new liberalised environment where higher profits can normally be earned only by assuming greater risks and by pricing them accordingly. A herd mentality exacerbated this shortcoming as individual banks felt that they had to

Bank credit expansion and indicators of the banking industry

	Bank credit to the private sector[1]			Indicators of the banking industry			
	Annual rate of expansion[2]		As a percentage of GDP	Operating costs		Net interest margin	
	1981–89	1990–97[3]	1997[3]	1990–94	1995–96	1990–94	1995–96
				as a percentage of assets			
India	8	4	24	2.3	2.5	3.1	3.5
China[4]	12	13	97	1.0	1.4	1.7	2.2
Hong Kong	13	8	157	0.1[5]	0.4	0.2[5]	0.3
Taiwan	15	13	138	1.3	1.3	2.1	2.2
Indonesia	22	18	57	2.3	2.8	3.3	3.6
Korea	13	12	64	1.9[6]	2.1	2.2[6]	2.2
Malaysia	11	16	95	1.6[5]	1.4	4.7[5]	3.2
Philippines	– 5	18	52	4.0	3.5	5.3	4.8
Singapore	10	12	97	0.8	0.7	2.2	2.0
Thailand	15	18	105	1.9	1.8	3.6	3.6
Argentina	– 2	4	18	11.0	6.3	13.1	7.2
Brazil	7	2	24	10.1	6.7	15.5	6.7
Chile	8	11	53	3.1	3.2	6.3	5.7
Colombia	7	9	20	7.5	7.5	8.7	10.0
Mexico	– 2	7	14	4.0	3.0	5.4	4.4
Peru	–13	27	19	9.9	7.0	8.0	7.0
Venezuela	– 3	–9	9	5.9	7.3	9.5	17.2
Memorandum items:							
United States	*5*	*½*	*65*	*3.7*	*3.4*	*4.1*	*3.8*
Japan	*8*	*1½*	*111*	*1.0*	*1.1*	*1.2*	*1.5*
G-10 Europe[7]	*6*	*4*	*89*	*2.1*	*1.9*	*2.3*	*2.0*

[1] Annual average. [2] Deflated by consumer prices. [3] 1997 data are preliminary. [4] Credit other than to central government. [5] 1993–94. [6] 1991–94. [7] Weighted average based on 1990 GDP and PPP exchange rates.

Sources: Central banks, IBCA Ltd. and IMF International Financial Statistics. Table VII.1

match the growth of their competitors, believing, perhaps, that a government rescue would follow if they all got into trouble together.

Long period of growth …

This massive expansion of bank credit took place in the face of positive real interest rates: the average level of real short-term interest rates in Indonesia, Korea, the Philippines and Thailand was around or above 5% during the first half of the 1990s. The main explanation for this was the widely shared optimism about future growth prospects based on long experience without a single year of zero or even a low rate of growth. Before this crisis, the last year in which real GDP growth was significantly less than 5% in Indonesia was 1985; in Malaysia, 1986; in Korea, 1980; and in Thailand, 1972. This consistently good performance contributed to strong increases in asset prices and led firms and households, as well as banks, to underestimate the risks of overinvesting. Economic agents in developed countries going through less intense booms have commonly made the same mistake.

… and booming asset prices …

For several years rising asset prices and expanding bank credit reinforced each other. Banks in a number of countries either invested in equities or acquired equity in other types of financial institution that were less closely supervised and thus took risks not permitted to banks. Similarly, property-related loans rose sharply, fuelling an unprecedented property boom. Borrowers continued to borrow – even at high interest rates – to buy assets that were rapidly appreciating in value and banks continued to lend because the value of their collateral was rising. Lending for other purposes was also stimulated by the asset price boom as both equities and property appeared to offer banks good collateral while prices were rising. Highly profitable property and equity investment in the early stages of the boom in Asia led to renewed rises in asset prices and often induced banks and other financial institutions to compete strongly with each other, driving margins lower just as risks were rising. The point at which property prices exceeded the present value of future returns was all the more uncertain in rapidly developing countries where such returns are hard to gauge.

… lead to complacency about risk

Perhaps the most insidious consequence of this process was that it made borrowers and banks complacent about the risks they were running. Borrowers became too relaxed about the risks of rising interest rates because the rate of increase in asset prices typically exceeded interest rates by a wide margin. They failed to recognise that interest rate risk becomes more important after liberalisation as market-determined interest rates tend to be much more volatile. All too often long-term projects were financed by short-term or variable rate borrowing.

Banks, holding collateral claims on ever-more-valuable property, were led to neglect proper credit risk assessment. The lack of long-term local currency bond markets meant that those Asian banks whose deposit base was mainly short-term found it difficult to hedge any long-term lending. Banks could and did limit the apparent maturity risk on their own balance sheets by lending at floating rates to long-term borrowers. But the protection this gave banks was partly illusory: a sharp increase in interest rates could simply make long-term borrowers insolvent, transforming an interest rate risk into a credit risk.

Bank assets not well diversified …

A prudent diversification of banks' assets is also essential for a robust banking system. Yet in certain Asian markets the scope for diversification may have been quite limited because of a highly specialised economic structure (e.g. electronics, tourism). Moreover, some banks were overexposed to a single borrower, often linked to the lending bank. And, in several countries, the government persuaded banks to lend heavily to support pet projects, industries or companies.

… and capital too low

As the management of risk becomes more demanding in liberalised systems, a strong framework of prudential oversight assumes even greater importance. Banks operating in riskier or less well diversified environments also need higher capital or liquid asset ratios than banks in more stable environments. Yet ratios have been significantly higher than the minimum set by the Basle Capital Accord only in Hong Kong (18%), the Philippines (17%) and Singapore (19%). Moreover, banks' capital was frequently overstated as provisions were not made for loans that had in effect already become non-performing or were likely to do so. Insufficient allowance was made for the risks of adverse economic developments.

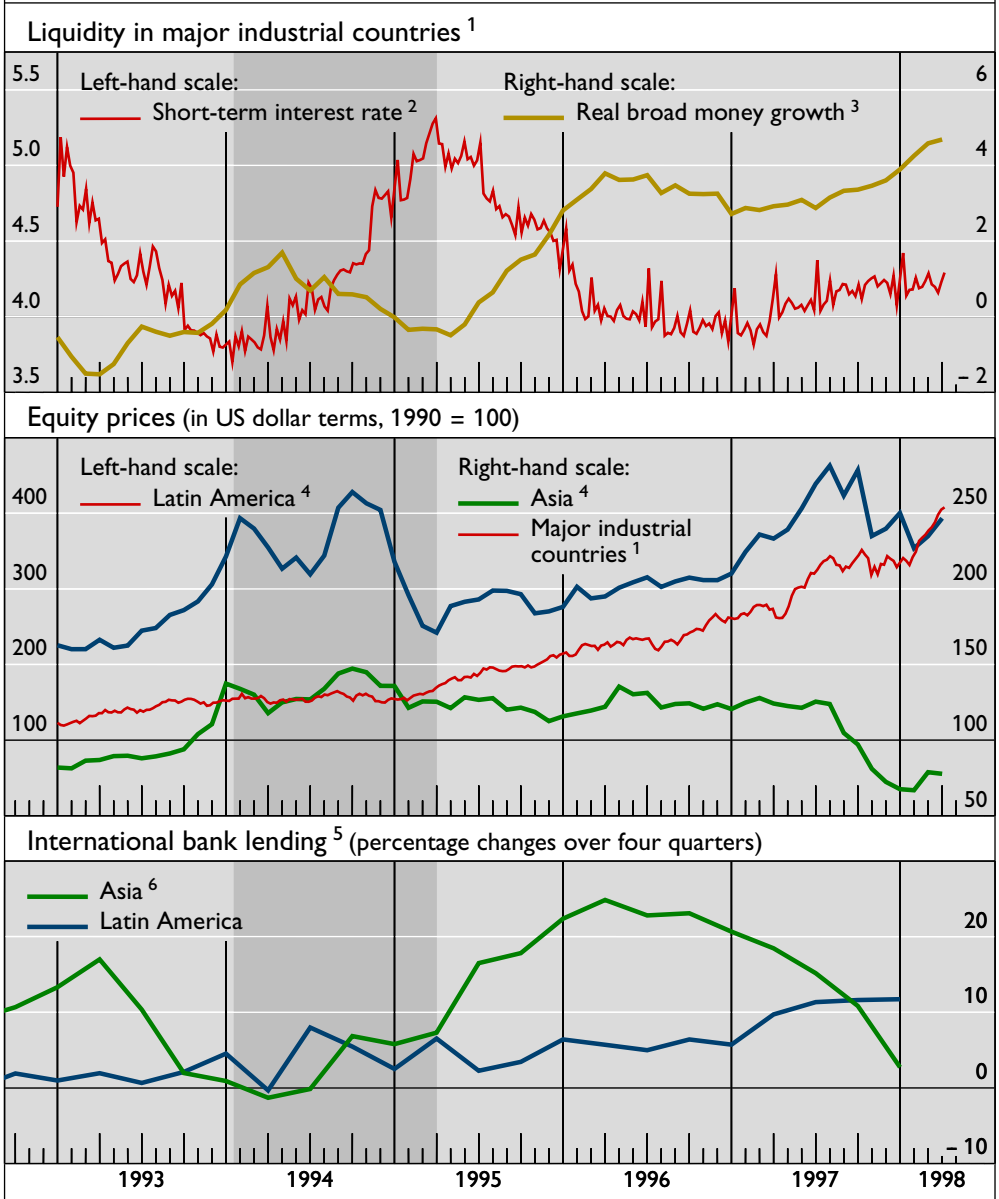
As the recent events have illustrated, a macroeconomic crisis can expose poor banking practices both because recession weakens creditworthiness and because interest rates must rise (or the exchange rate fall) in response to a loss of confidence.

Easy global liquidity

Easy global liquidity …

The build-up of substantial global liquidity during the last few years contributed to the development of large financial exposures in Asia. The decade began with

Liquidity, equity prices and bank lending to the emerging markets



[1] Weighted average of the United States, Japan, Germany, France and the United Kingdom. [2] Overnight rate; the peak and the trough define the shaded area, which represents a period of monetary tightening. [3] Broad money growth deflated by 12-month changes in consumer prices. [4] IFC indices; for Asia, excluding Hong Kong, Japan and Singapore. [5] Exchange-rate-adjusted changes in BIS reporting banks' claims vis-à-vis non-banks in Asia and Latin America. [6] Excluding Japan.

Sources: International Finance Corporation (IFC), national data and BIS. Graph VII.1

a significant easing of monetary conditions in most major financial centres as short-term interest rates declined progressively. The interruption of this trend by the tightening of US monetary policy from early 1994 proved to be only temporary; the renewed reduction of US short-term interest rates from early 1995, combined with steady declines in other major countries, was associated with a rise in the rate of growth of broad money in the industrial world (Graph VII.1, top panel).

… and the overfinancing of deficits by short-term flows

In this environment, the widening current account deficits of several Asian countries were overfinanced by private capital inflows, and official reserves continued to accumulate. At the same time, the structure of external financing changed: reliance on international bank and bond finance increased and the relative importance of net equity inflows (direct investment and portfolio) declined (Table VII.2). Interbank lending was particularly important. Not only did this mean that countries were becoming more dependent on debt rather than equity, but it also meant that capital inflows were becoming more short-term and increasingly denominated in foreign currency. These features, which to some extent were paralleled by the increasing dollar-denomination of Mexican debt during 1994, were to make countries more vulnerable to foreign liquidity pressures. In contrast to the case of Mexico, however, the crisis struck even though global liquidity conditions remained very easy.

Equity markets give early signal of trouble …

Easy global liquidity apparently influenced different markets in different ways. In particular, stock markets in most Asian economies (with the exceptions of China and Hong Kong) remained relatively weak during the worldwide equity boom. Price/earnings ratios for equities in many Asian markets peaked towards the end of 1993, at levels well above the ratios then prevailing in US markets (Graph VII.2). The significant declines thereafter in most markets (at a time when price/earnings ratios in US markets were rising sharply) suggest that investors had already begun to expect lower profit growth from Asian companies. This was perhaps an indication of an early awareness of the vulnerabilities in Asia that were eventually to contribute to the crisis (see also Chapter V). Equities are of course much more responsive to changes in expectations about profitability than

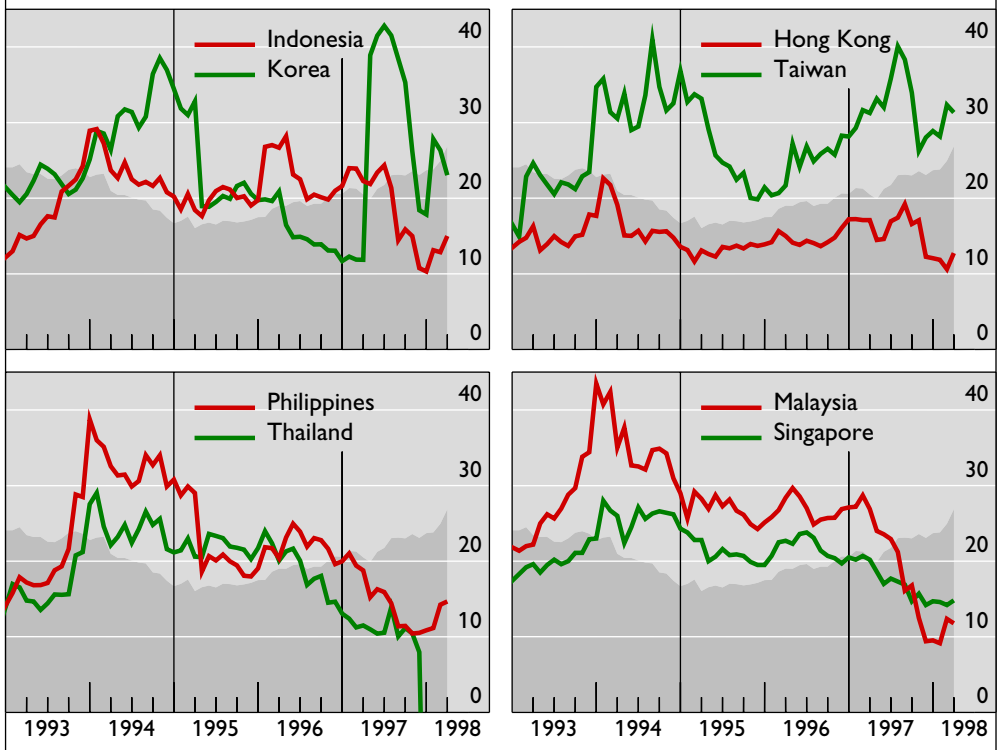
International bank and bond finance for five Asian countries[1]

	1990–94	1995 Q1–1996 Q3	1996 Q4–1997 Q3	1997 Q4
	at annual rates			at actual rates
	in billions of US dollars			
Net interbank lending	14	43	11	–31
Bank lending to non-banks	2	15	11	– 1
Net bond issuance	3	17	32	1
Total	19	75	54	–31
Memorandum item:	1990–94	1995–96	1997	
Net equity inflows[2]	11	17	2	

[1] Indonesia, Korea, Malaysia, the Philippines and Thailand. [2] IIF estimates of direct investment and portfolio equity flows.

Sources: Institute of International Finance (IIF) and BIS. Table VII.2

Price/earnings ratios in selected Asian markets



Note: The shaded area indicates the price/earnings ratio for the United States.

Sources: Datastream, IFC and national data. Graph VII.2

bonds or bank loans. And financial rescues rarely if ever make good the losses suffered by equity-holders when things go wrong.

… but bank lending increases …

The pattern of *international bank lending*, however, closely followed the timing of global liquidity developments. During 1995 and much of 1996, international bank lending to non-banks in Asia rose sharply (Graph VII.1), with flows to Indonesia, Korea, Malaysia, the Philippines and Thailand reaching an annual rate of $15 billion (Table VII.2). In addition, BIS estimates suggest that international interbank borrowing by banks in the five Asian countries most affected by the crisis was running at an annual rate of about $43 billion during the same period. About 40% of total lending was denominated in yen and the remainder mainly in dollars; two-thirds had a maturity of less than one year. European banks, whose involvement in the early stages of the boom had been relatively modest, accounted for more than half of lending to this group of countries between the beginning of 1995 and mid-1997. Banks in Asia onlent these funds to domestic borrowers, often to finance essentially local business. The country in which foreign currency denomination of local loans went furthest was Indonesia, where about one-third of domestic banks' balance sheets was denominated in foreign currency.

… sometimes encouraged by government guarantees

Government guarantees or encouragement doubtless played a part in this expansion. Some foreign banks may have believed that Asian banks enjoyed implicit guarantees for foreign borrowing from their governments (see also Chapter V). In addition, the foreign transactions of domestic banks – long regulated – were often liberalised before bank managers had acquired the proper

skills for managing foreign exchange risks or before the supervisory framework had been strengthened to monitor risks effectively. Government policy was sometimes influenced by the wish to establish an offshore banking market. For instance, the creation in early 1993 of the Bangkok International Banking Facilities (BIBFs), aimed at promoting Bangkok as an international financial centre, allowed local banks to borrow in dollars (however, the authorities were eventually led to tighten progressively the rules governing BIBF onlending to the domestic market). Furthermore, foreign banks were led to believe that the scale of their BIBF operations would affect their chances of receiving a licence to operate in the domestic market.

Exchange rate pegs lead to misperception of exchange rate risk

Various other official policies and practices may have had the effect – albeit unintended – of encouraging Asian borrowers to bear excessive foreign currency and maturity risks. For instance, long-standing policies of fixed or quasi-fixed exchange rates probably nurtured a misperception of exchange rate risk. With a flexible exchange rate, and frequent movements in both directions, firms and households learn from their daily experience to take account of exchange rate risk. But when many years of nominal stability (or steady depreciation at a predictable rate) are followed by a large, discrete shift, the danger that private agents will be caught unprepared is much greater. In Asia, as elsewhere, the combination of a fixed exchange rate with relatively high domestic interest rates and inflation acted as an incentive to residents to borrow foreign currency to finance local currency business or assets. A type of "real interest rate illusion" (that is, dollar or yen interest rates deflated by local inflation rates) further encouraged overborrowing in foreign currency. In several cases, banks in Asia made the mistake of assuming that balancing foreign currency borrowing with foreign currency lending to residents (for domestic currency business) would be sufficient. Banks in Mexico and in certain European countries made the same mistake in the years when the exchange rate was fixed or kept within a band. In the event of a large depreciation, however, the creditworthiness of their customers deteriorates and the exchange rate risk presumed to have been avoided turns up as a credit risk.

Maturity mismatches in bank lending

A very high proportion of international bank lending was either of short-term maturity or, if long-term, carried floating rates. Lending banks naturally regard short-term lending as being safer than long-term lending because it mirrors the maturity of much of their funding and because their exposure can be more readily adjusted. This view is enshrined in supervisory and risk-weighting practice. An individual bank is indeed on safer ground when lending short-term to companies whose other sources of financing are long-term. However, this was often not the case in Asia. Although comprehensive statistics are not available, it appears that long-term investment in real domestic assets (e.g. property) was often financed almost entirely through short-term bank loans – a maturity mismatch that carries fundamental risks. When the crisis induced foreign banks to reassess the risks in lending to Asia, certain borrowers had difficulties in renewing their credits or had to pay much higher interest rates. Some borrowers defaulted.

Bond spreads narrow …

Movements in global liquidity also appear to have been reflected in spreads on emerging market *debt instruments*. Spreads, which had tended to rise during

1994 when monetary policy was tightening, generally narrowed significantly from early 1995 (Graph VII.3). This trend is most evident in the spread on Brady bonds, often used as a barometer of the cost of funding for emerging market economies: it declined steeply after the first quarter of 1995 (when the immediate after-effects of the Mexican crisis had been reflected in a sharp jump). Although secondary market spreads on emerging market eurobonds also narrowed, new issue spreads tended to widen – perhaps because borrowers with lower credit ratings became willing and able to tap the market. At the same time, the apparent maturities of bonds issued by emerging market countries tended to lengthen: as the perceived creditworthiness of emerging market countries improved, investors became prepared to lend at longer maturities.

… and issuance increases

These developments created a favourable environment for much-increased bond issuance by entities in Asian developing countries in the second half of 1996 and the first half of 1997 as the growth of international bank lending tapered off. On the face of it, the international financial markets served the useful function of permitting Asian borrowers to lengthen the maturity of their foreign debts and to lessen their relative dependence on international bank loans. However, some long-term international bonds contained provisions (e.g. becoming repayable at short notice if the country's credit rating was reduced below investment grade) that made them effectively short-term in a crisis. As other forms of loan contract contained similar clauses (e.g. medium-term loans with an option for the creditor to require repayment at specified points of time during the contract), the distinction between long-term and short-term finance became blurred.

Spreads widen after the crisis

It was only in the fourth quarter of 1997 – well after the onset of the crisis – that spreads on emerging market debt widened sharply. Expressed as a simple average, secondary market spreads on international bonds issued by major emerging market countries widened from almost 130 basis points on average during June 1997 to 375 basis points by January 1998 before falling back moderately in subsequent months. The spreads on Asian bonds rose above those on Latin American bonds, reversing the earlier pattern. The spreads on Indonesian bonds continued to widen during the first few months of 1998, reaching an average of 750 basis points in March. Accordingly, bond issuance dropped sharply (see Chapter VIII for further details).

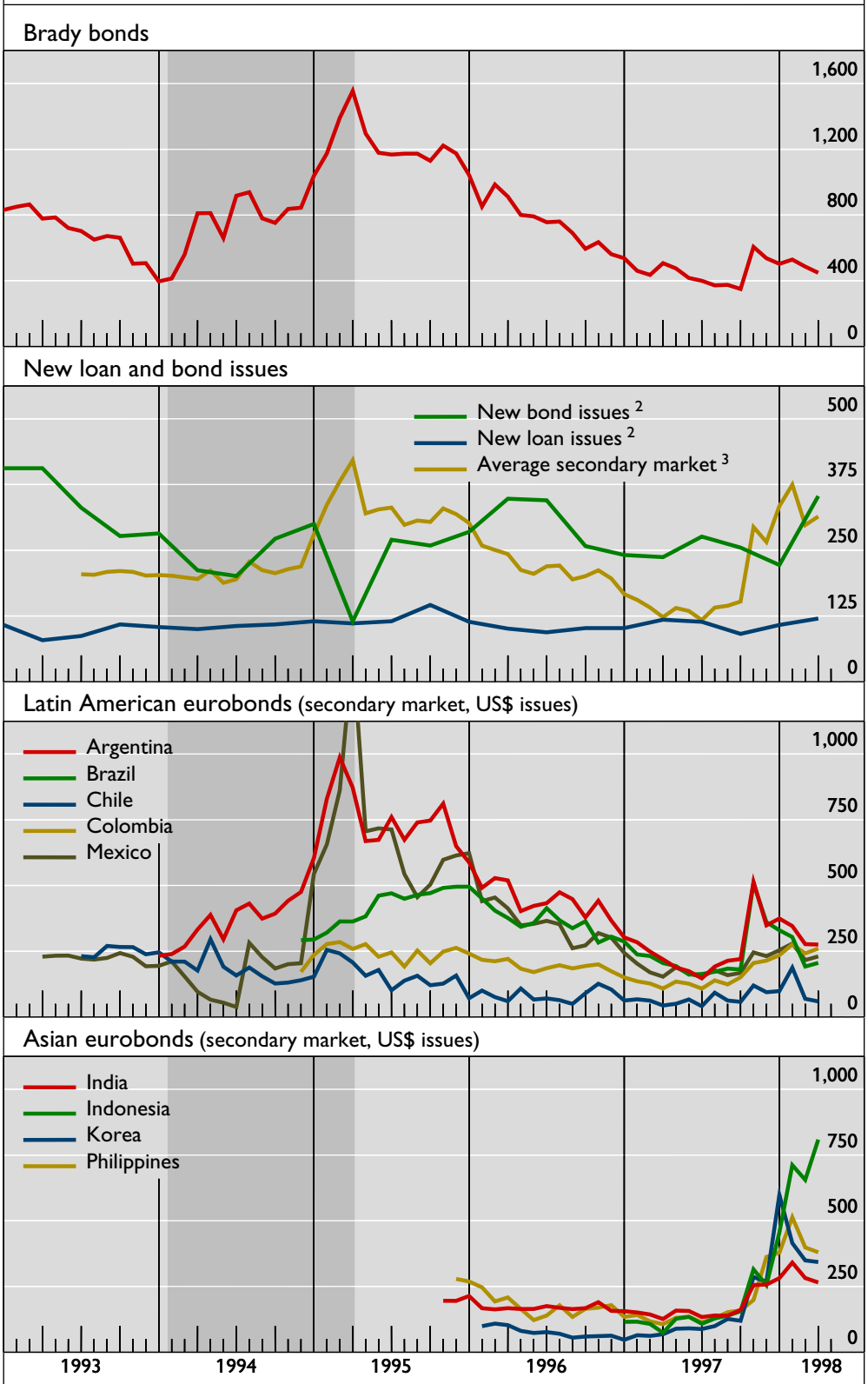
Such large movements in interest rate spreads demonstrate the difficulties financial markets had in pricing risk. Some have suggested that the narrowing of average spreads in 1995 and 1996 reflected a significant underpricing of risk. However, a BIS comparison of spreads for different categories of emerging market risk (reported in last year's Annual Report) did not find any evidence that the interest rate spread/credit-rating gradient flattened in the mid-1990s: the differential paid by higher-risk borrowers over that paid by better-risk borrowers had not narrowed.

Credit-rating agencies

Furthermore, the performance of the major credit-rating agencies before and during the crisis has illustrated all too well the great difficulties even expert observers had in assessing risk. There has been much comment to the effect that widely available knowledge about widening current account deficits and increasing short-term external indebtedness of several Asian countries from 1995

Spreads on emerging market debt instruments [1]

In basis points



Note: The shaded area represents a period of monetary tightening as defined in Graph VII.1.

[1] Over US Treasury bonds of appropriate maturity (for new loan issues, over LIBOR). [2] Based on a subset for which spreads were available. [3] Unweighted average of the countries shown in the lower two panels.

Sources: Datastream, Euromoney Bondware and Loanware and J.P. Morgan. Graph VII.3

did not lead the rating agencies to alter in any major way their assessment of the risks of long-term foreign currency debt. Indeed, certain pre-crisis rating decisions upgraded Indonesia (in April 1995), Korea (May 1995) and Thailand (December 1994). Nevertheless, Thailand was downgraded a notch in April 1997. It should also be recognised that a number of the rating changes in the mid-1990s did appear to be justified by subsequent events: for example, the Philippines, which weathered the crisis better than others, had been upgraded (by both major agencies) twice since May 1995.

Only several months after the crisis broke did assessments of Indonesia and Thailand radically change. When the crisis hit Korea, the credit-rating agencies reacted: during the last quarter of 1997 and the first quarter of 1998, Indonesia, Korea and Thailand were all subject to a series of downgrades which took their credit standing down to non-investment grade (Table VII.3). These sharp reassessments appear to have mainly reflected concerns that the extremely precarious international liquidity situation of these countries created greater risks of default or of payment delays. At all events, decisions were typically taken after a substantial tightening of macroeconomic policy under IMF programmes had probably improved their long-term ability to service their foreign debts. (Korea was upgraded in February 1998 after the conclusion of an arrangement lengthening the maturity of its bank debt.)

The Asian crisis and sovereign credit ratings*

	Moody's		Date	S&P		Date		Moody's		Date	S&P		Date
China	A3		18.5.88				Malaysia	Baa1		18.11.86			
	Baa1		8.11.89	BBB		20.2.92		A3	↑	12.3.90	A–		26.6.89
	A3	↑	10.9.93	BBB+	↑	14.5.97		A2	↑	11.3.93	A	↑	8.7.91
								A1	↑	15.3.95	A+	↑	29.12.94
Hong Kong	A2		9.11.88	A		9.2.90		A2		21.12.97	A		23.12.97
	A3		8.11.89	A+	↑	14.5.97							
							Philippines	*Ba3*		1.7.93	*BB–*		2.7.93
Indonesia	Baa3		14.3.94	BBB–		20.7.92		*Ba2*	↑	12.5.95	*BB*	↑	30.5.95
				BBB	↑	18.4.95		*Ba1*	↑	18.5.97	*BB+*	↑	21.2.97
				BBB–		10.10.97							
	Ba1		21.12.97	*BB+*		31.12.97	Singapore	Aa3		20.9.89	AA		24.5.89
	B2		9.1.98	*BB*		9.1.98		Aa2	↑	24.5.94	AA+	↑	6.9.91
				B		27.1.98		Aa1	↑	18.1.96	AAA	↑	6.3.95
	B3		20.3.98	*B–*		11.3.98							
							Taiwan	Aa3		24.3.94	AA		20.4.89
Korea	A2		18.11.86	A+		1.10.88					AA+	↑	2.8.91
	A1	↑	4.4.90	AA–	↑	3.5.95							
				A+		24.10.97	Thailand	A2		1.8.89	A–		26.6.89
	A3		27.11.97	A–		25.11.97					A	↑	29.12.94
	Baa2		10.12.97	BBB–		11.12.97		A3		8.4.97	A–		3.9.97
	Ba1		21.12.97	*B+*		22.12.97		Baa1		1.10.97	BBB		24.10.97
				BB+	↑	18.2.98		Baa3		27.11.97			
								Ba1		21.12.97	BBB–		8.1.98

* For long-term foreign currency debt. Other categories of debt had different grades.

↑ = upgrade; otherwise downgrade. A non-investment-grade rating is shown in italics. Table VII.3

External portfolio management

The crisis was exacerbated by two shortcomings in the management of external assets and liabilities: insufficient external liquidity and an inadequate diversification into foreign financial assets.

Illiquidity

Short-term external debt in several countries rose well above the level of foreign exchange reserves (Table VII.4). This debt had been incurred largely by the private sector, which would, in theory, bear the consequences of its own risk assessments. In practice, however, it worked out rather differently. Once it became apparent that the economies were extremely vulnerable to shocks, and sentiment about the sustainability of the exchange rate peg reversed, residents with uncovered short-term foreign liabilities sought to hedge their positions. Because neither interest rates nor the exchange rate were allowed to move sufficiently, they were often able to hedge at the expense of the central bank's foreign exchange reserves, both spot and forward. In Thailand, the central bank's short forward position in foreign currency reached an estimated $24 billion by mid-year (about $15 billion in offshore obligations). This amounted to about four-fifths of the foreign exchange reserves at that time. Cumulative intervention by Korea in the spot and forward markets exceeded $21 billion in the second half of 1997. Moreover, by the end of November 1997, almost $17 billion of the Bank of Korea's $24.4 billion of reserves had been placed on deposit at the overseas branches of Korean banks which had had difficulties meeting their foreign currency obligations. The authorities in Indonesia, with limited foreign exchange reserves, could do little. A massive overhang of private foreign currency debts (which the central bank estimated at $73 billion) contributed to a collapse in the exchange rate that had very dangerous inflationary and other consequences. Foreign currency obligations of Indonesian corporations falling due simply could not be honoured. Malaysia and the Philippines, by contrast, had maintained foreign exchange reserves well above the level of short-term external debt. Even before the outbreak of the crisis, the Malaysian currency was not rigidly fixed: under pressure, the authorities preferred to allow the exchange rate to drop and limited their foreign exchange market intervention.

Challenge of limiting imprudent foreign currency borrowing

A key issue is how to ensure that proper prudential safeguards apply to private sector borrowers in foreign currency. One approach is to use controls or taxes in borrowing countries in order to limit foreign currency borrowing or to lengthen its maturity. In the past, this has been done in several ways: by imposing quantitative restrictions, by allowing only those corporations and banks with high credit ratings to borrow abroad, or by requiring borrowers to maintain unremunerated accounts at the central bank equal to a certain percentage of

Short-term external debt as a percentage of foreign exchange reserves

	Indonesia	Korea	Malaysia	Philippines	Thailand	*Memo item: Mexico*	
End-1993	171	148	28	52	89	*End-1992*	*124*
Mid-1997	182	214	62	88	153	*Mid-1994*	*173*

Table VII.4

the borrowing. The authorities have sometimes designed such mechanisms to discriminate against short-term and potentially volatile inflows. A second approach is to put in place insurance mechanisms against liquidity risk. One example of this is the policy pursued by Argentina, where commercial banks are required to hold 20% of their liabilities (the peso is convertible one-to-one against the dollar) in liquid assets: at the end of 1997, half of these assets were being held in New York. They are also required to take steps to ensure that they have access to adequate foreign currency liquidity (e.g. through pre-negotiated credit lines) in the event of trouble. A third approach is to tighten regulatory constraints on creditors, particularly on creditor banks.

Exposure to sudden outflows

A more fundamental problem than excessive short-term external debt is that a country's exposure to sudden capital outflows increases whenever foreigners hold any domestic assets, short-term or otherwise. It also increases whenever residents build up large portfolios of domestic financial assets that, when the currency has become convertible for capital account purposes, can be exchanged for foreign currency. For instance, even financial instruments not considered short-term (e.g. equities) can be sold instantly. Moreover, even those holding assets that are difficult to dispose of quickly (e.g. direct investment) can hedge their local currency exposure at very short notice.

Lack of investment in foreign financial assets

Vulnerability to such shifts in sentiment may be all the more acute when domestic investors have not diversified their portfolios by acquiring foreign assets. Although high saving ratios in all the countries affected by the crisis led to rapid asset accumulation in the private sector, virtually all was invested at home. Household financial savings, in particular, were channelled mainly through banks, which in turn lent domestically. Property investment and investment in local equity markets were other outlets.

Nor apparently did non-bank financial institutions invest significantly abroad. The limited diversification by Asian institutions into foreign financial assets may in part have reflected market distortions. Financial institutions such as pension funds and insurance companies are often still subject to restrictions on investment in foreign assets – as they are in several industrial countries. However, the main explanation for their relatively low rates of investment in non-Asian financial assets may be that the long history of obtaining high returns from investing in the dynamic Asian economies blinded investors to the risks of non-diversification. Asian investors preferred to hold domestic assets, real as well as financial. This is hardly surprising as even a sophisticated appraisal of risks based on past volatilities would not have prepared investors for the scale of the 1997/98 shock. Latin American experience also suggests a marked preference for domestic assets: Chile found that local institutional investors did not choose to invest significantly in foreign financial assets once they were free to do so.

Whatever the reason, and data on international portfolio investment are never very complete and may be subject to deliberate under-reporting, it appears that in Asia (apart from Japan) only Singapore (where the public pension fund in effect invests in foreign securities as well as local housing mortgages) and Hong Kong (where pension funds invest heavily in foreign securities) had built up a large stock of foreign financial assets. Even though many of the other Asian economies had high and rising saving ratios, relatively little appears to have been

Cumulative external flows in Asia

	Indonesia	Korea	Malaysia	Philippines	Singapore	Taiwan	Thailand	Japan
	in billions of US dollars							
Current account[1]	–29	–48	–27	–19	58	62	–64	664
as a % of GNP	*19*	*12*	*41*	*30*	*86*	*29*	*50*	*16*
Portfolio investment[2]								
Assets	–	1	–	3	37	12	–	512
Liabilities	10	53	– 4	5	6	13	16	362

[1] 1990–96. [2] 1990–96 except for Indonesia, Malaysia and the Philippines (1990–95). Table VII.5

invested in non-Asian equities or bonds (Table VII.5). In many countries, the official foreign exchange reserves make up a high proportion of the country's total stock of foreign financial assets. Institutional investment (notably by pension funds) appears to have been concentrated at home or in other similar Asian economies. This concentration in local paper (or real estate) helped to inflate the asset price bubble and exposed investors to the risks inherent in concentrating assets at home. It may also have intensified capital flight during the crisis, when the perils of having invested so much at home became more obvious.

Local financial investors in Asia might have further diversified their portfolios if the exchange rate and other risks of investing so heavily at home had been properly perceived. The excessive domestic investment ratios noted in Chapter III would have been moderated. Not only would this have helped to attenuate the asset price boom, it would also have increased capital outflows to offset inflows. Net inflows and current account deficits would therefore have been smaller – which is more appropriate for high-saving economies – even in the context of heavy gross inflows. Economic growth would have been slower but more sustainable. One durable consequence of the crisis may be greater Asian investment in foreign financial assets in the medium term, implying perhaps significantly lower current account deficits in the future than seen in most of this decade. Any shift of household savings from banks to capital markets might reinforce such a trend.

The stages of the crisis

The exchange rate crisis came after a marked slowdown in activity had already set in and asset prices were under heavy downward pressure. The authorities' reluctance to raise interest rates in such circumstances was reinforced by a financial structure in which debt was predominantly short-term (or contracted at floating rates), implying that higher rates would immediately hit borrowers and threaten the viability of banks. Since foreign exchange market participants knew that the authorities were thus constrained, many central banks found it difficult to mount credible defences of their currency. In some instances, credibility was further undermined by uncertainties about political leadership, which created doubts about the government's ability to pursue any coherent economic policy.

Resort to administrative controls, moral suasion and so on to discourage capital outflows or to separate the offshore and onshore markets (in the hope of insulating domestic markets from substantial increases in interest rates in offshore

Chronology of the crisis

1997	
Early 1997	Pressure on the Thai baht met by heavy intervention in spot and forward markets.
15th May	Thailand introduces controls aimed at segmenting the onshore and offshore markets but strong pressure continues. Similar measures introduced in other countries at various stages in the crisis prove ineffective.
2nd July	Floating of the Thai baht. Pressure spreads to the Philippine peso, Malaysian ringgit and Indonesian rupiah.
11th July	Band of the Philippine peso widened to unspecified range.
11th July	Band of the Indonesian rupiah widened from 8% to 12%.
July	Malaysian ringgit falls by 4.8% by end-July.
August	Equity prices peak in Hong Kong on 7th August and in Taiwan on 26th August.
14th August	Floating of the Indonesian rupiah.
20th August	IMF standby credit for Thailand of $3.9 billion approved.
17th October	Authorities stop supporting the New Taiwan dollar, which falls by 6%. Pressure on Hong Kong dollar and equity markets intensifies.
20th–23rd October	Financial turbulence in Hong Kong. Hang Seng index falls by 23% in three days. Pressure on Korean won mounts.
27th October	7% decline in US equity prices. Sharp declines in Latin American equity markets.
28th October	23% decline in Russian equity prices.
31st October	After intense pressure on the real the Central Bank of Brazil doubles the central bank intervention rate to 43%.
5th November	IMF standby credit for Indonesia of $10.1 billion approved; $3 billion made available immediately.
10th November	Interest rates raised by 7 percentage points in Russia and authorities announce that the intervention band for the rouble will be widened from ±5% to ±15%.
20th November	Daily fluctuation band for the Korean won widened from ±2¼% to ±10%.
21st November	Korea applies for IMF standby credit.
4th December	IMF standby credit for Korea of a record $21 billion over three years approved; $5.6 billion disbursed immediately.
16th December	Floating of the Korean won.
1998	
27th January	Indonesian corporate debt "pause".
29th January	Agreement between Korea and its external creditors to exchange $24 billion of short-term debt for government-guaranteed loans at floating rates of 2¼–2¾ percentage points over six-month LIBOR.
9th–10th February	Indonesia's plan to create a currency board opposed by the IMF and several creditor governments, which threaten to withdraw financial assistance.
4th March	In a second review of Thailand's economic programme the IMF relaxes certain macroeconomic policy targets and approves disbursement of second tranche.

Table VII.6

markets) was far from successful and contributed to a further erosion of investor confidence.

A chronology of the key financial events during the crisis is presented in Table VII.6 and a fuller review of individual country experiences is given in Chapter III. There were three main waves. First, the floating of the Thai baht in early July triggered pressure on the Philippine peso, the Malaysian ringgit and the Indonesian rupiah. Secondly, the New Taiwan and Hong Kong dollars came under intense pressure during October (leading to renewed pressure on the South-East Asian currencies that had been first affected); Russian and Latin American markets were also hard hit, with the equity markets of Argentina, Brazil and Mexico falling by one-fifth or more. Finally, the Korean won came under attack and Indonesia's difficulties deepened.

Contagion …

It has been a complicated and in many ways unprecedented crisis. It is not yet over. The channels by which it spread were several and are more fully discussed in other chapters: the responses of institutional investors are examined in Chapter V; the foreign exchange market aspects in Chapter VI; and the international bank and bond market aspects in Chapter VIII. The initial contagion from Thailand to Indonesia, Malaysia and the Philippines appears to have reflected mainly the fact that foreign and other investors tended to group these countries together (only partly because of similarities in their underlying economic situations). Even before the crisis, weekly movements in equity markets in the other three countries tended to be correlated with movements in Thailand's stock market (Table VII.7). The activities of a large number of Asian non-bank financial institutions in other Asian markets may well have accentuated contagion. Several specific cases have been widely reported: for example a major Hong Kong securities company which failed was revealed to have been lending to an Indonesian company in dollars and then selling the high-yield loan participations to Korean banks.

… in three waves

Once the currencies of all four countries had fallen, concerns about the competitiveness of other Asian countries became more acute: this was probably a significant element of contagion in the second and third waves of the crisis. The revelation of major banking problems in the countries hit by exchange rate depreciation drew attention to banking sector fragility everywhere in Asia, and particularly Korea. Despite only a modest current account deficit in Korea, low inflation and an exchange rate that had been allowed to fall since 1995, the Korean won came under intense pressure. At the same time, the onset of the crisis increased the correlations in the movements of the different stock markets.

Correlation with weekly movements in equity prices in Thailand

Equity markets	Philippines	Singapore	Indonesia	Malaysia	Hong Kong	Taiwan	Korea
Pre-crisis*	0.38	0.38	0.35	0.34	0.26	0.06	–0.06
Post-crisis*	0.66	0.53	0.64	0.61	0.42	0.22	0.57

* The Thai baht was floated on 2nd July 1997. The pre-crisis period taken is January 1995–June 1997; the post-crisis period taken is July 1997–February 1998. Table VII.7

This intensification of correlation, also observed in other episodes of market turbulence, presumably reflected the activities of investors managing portfolios of assets of several countries. This may account for the transmission of shocks to Latin America and Eastern Europe (see Chapter III).

Some tentative signs of stabilisation?

At the time of writing, the exchange rate of the Indonesian rupiah had not stabilised and the country's political difficulties had deepened. Although other financial markets remained very volatile, it appeared that the successive waves of contagion had lost some of their earlier force. Both China and Hong Kong had held their exchange rate; the Singapore and Taiwan dollars had fallen only moderately; and Brazil had withstood a major assault on the real.

The policy response

Sharp reversal in capital flows …

Economic policy in most Asian countries has had to address a difficult external financing environment in recent months. Between 1996 and the second half of 1997, capital movements to Asia swung from inflows at an annual rate of almost $100 billion to outflows of about the same size (Table VII.8).

… as bank lending contracts

International bank loans to non-banks in Asia (excluding Japan but including Hong Kong and Singapore) fell by more than $9 billion in the final quarter of 1997, the largest drop ever, and some countries experienced substantial difficulties even in obtaining trade finance. At the same time, deposits from Asian non-banks (other than those in Japan, Hong Kong and Singapore) with BIS reporting banks rose by almost $15 billion, reflecting the belated hedging of foreign currency liabilities and, perhaps, capital flight. In addition, net international interbank lending fell by $29 billion. Average spreads on emerging market international bonds in the secondary market rose sharply and have remained high.

The financial and monetary responses during the crisis can be considered under two main headings: short-term official liquidity assistance and the response of monetary policy, in particular the level of short-term interest rates. A major restructuring of domestic banking systems is under way.

Net private capital flows to Asia and Latin America

	1980–90	1991–93	1994	1995	1996	1997	
	Average					1st half[1]	2nd half[1]
	in billions of US dollars						
Total	13	83	75	79	166	138	– 13
China	2[2]	6	13	13	19	8	6
Other Asia[3]	5	32	24	38	77	62	–108
Brazil	4	7	8	32	34	26	27
Other Latin America[4]	2	38	30	–4	36	42	62

Note: Capital flows are calculated as the difference between the current account and the change in reserves; private flows are calculated as a residual from an estimate of official flows.

[1] At annual rates. [2] 1982–90. [3] India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan and Thailand. [4] Argentina, Chile, Colombia, Mexico, Peru and Venezuela.

Sources: IMF Balance of Payments Statistics and Institute of International Finance. Table VII.8

Official liquidity assistance

Liquidity assistance …

While the scale of official international liquidity assistance provided to the Asian countries set new records, the packages shared some common features with the earlier Mexican package. First, IMF standby credits were extremely large relative to the countries' IMF quotas (loans do not normally exceed three times quota) (Table VII.9). Secondly, IMF credits were complemented by substantial additional multilateral and bilateral assistance. A total of $117 billion was offered to Thailand, Indonesia and Korea with the size of commitments growing with each successive package. One reason for this was to ensure that the announced size of the package was such as to have a psychological impact on markets, and thus halt the erosion of foreign confidence. How large a package needs to be to do this is difficult to judge. International official support offered to the Asian countries was not large enough to cover all their short-term foreign obligations as had the Mexican package, a difference that did not pass unnoticed in the markets. In the Korean case, market disappointment at the size of its initial request for financial assistance forced Korea to ask for supplementary support.

… massive …

… but effective only when supported by other steps

However, the efficacy of liquidity assistance depends less on its size than on the credibility of the borrowing country's commitment to implementing effective policy adjustment. It is significant that exchange rates tended to weaken further (sometimes sharply) in the weeks following the announcements of the packages of large-scale financial assistance for all three countries. (However, the Indonesian rupiah did enjoy a short-lived rally when joint intervention by several Asian central banks supported the currency after the IMF programme had been announced.) As noted above, the rapid downgradings by the major credit-rating agencies occurred after the packages had been announced (see Graph VI.7). Confidence returned and exchange rates stabilised only after specific policy steps (including substantial increases in overnight interest rates, discussed below) combined with agreements with creditor banks had convinced markets about both the appropriateness of macroeconomic policies and the viability of external debt servicing.

The relative contributions of the official and the private sectors to international financial rescues have been a matter of much debate in the wake …

Official financing commitments

	IMF	IBRD	ADB	Bilateral commit-ments	Total
	in billions of US dollars				
Thailand	3.9 (505% of quota)	1.9	2.2	12.1	20.1
Indonesia	10.1 (490% of quota)	4.5	3.5	22.0[1]	40.0
Korea	21 (1,939% of quota)	10.0	4.0	22.0	57.0
Total	35	16.4	9.7	56.1	117.1
Memo item:					
Mexico	*17.8 (689% of quota)*	*1.5*	*1.3*[2]	*21.0*[3]	*51.6*

[1] Including the use of a $5 billion Indonesian contingency reserve. [2] IADB. [3] In addition, there was a credit facility of up to $10 billion with G-10 central banks, which was never activated.

Table VII.9

Banks contributed to crisis support in the 1980s

of the Mexican and Asian crises. A central aspect of the response to the 1980s debt crisis was that financial arrangements were, at official instigation, concluded between creditor banks and the sovereign borrowers who could no longer service their bank debts. The negotiations were long and difficult and it took several months for debt restructurings to be achieved. Liquidity assistance from official sources was to some extent made contingent on creditor banks' agreement to roll over bank debt (or provide new funds).

… more than in the 1990s

It did not happen this way after the Mexican crisis because the country's foreign liabilities took the form of widely dispersed holdings of largely marketable short-term paper. Massive foreign official assistance then allowed holders of short-term dollar-linked Mexican government paper to escape without any loss. The scale of official assistance, covering all of the country's short-term external liabilities, may have set a standard by which financial markets could later judge the adequacy of the subsequent packages for Asian countries. Some observers felt that the Mexican bailout weakened investors' sense of responsibility for their own actions (moral hazard). And because holders of other forms of Mexican paper (equities, long-term bonds or peso-denominated debt) did suffer heavy losses, it may also have distorted the pattern of capital flows from equity to debt, from long to short-term and from local to foreign currency. Such effects would subsequently make borrowing countries more vulnerable to sudden liquidity crises.

Concern about cost and moral hazard of international rescue packages

In any event, several Asian countries did indeed come to rely much more on short-term foreign currency borrowing from banks. When the Asian crisis struck, widespread worries about the burden on the public sector of several large and simultaneous international rescue packages, and some concern about moral hazard risks, encouraged the search for solutions that involved private lenders as well as the official sector. International banks did come to some arrangements to extend the maturities of their loans, but the restructuring of bank debt was not as radical as it had been in the 1980s debt crisis. There have been certain arrangements to roll over the bulk of Thailand's short-term bank debt. Secondly, the Korean Government guaranteed bank debt in return for the foreign banks' agreement to lengthen the maturities of their loans. Both arrangements appear to have contributed to the restoration of some degree of confidence, with exchange rates stabilising in the periods immediately following the announcements. The sharp depreciation of the rupiah was also reversed for a brief period after the announcement of a "temporary pause" in the servicing of corporative offshore foreign currency debt in January. But subsequent negotiations about the restructuring of Indonesian debt proved to be very protracted, not least because a large number of Indonesian corporations were involved.

Monetary policy

Reluctance to support the exchange rate by higher interest rates …

Although maintaining exchange rate pegs was an announced objective of government policy, there was a certain reluctance to tighten monetary policy in Asia in the early stages of the crisis. With some notable exceptions, overnight rates were often raised only after the depletion of usable foreign exchange reserves left little other choice. Moreover, overnight rates were typically allowed

to fall back as soon as the immediate pressures had subsided. At the same time, efforts were being made to prevent increases in interest rates from feeding fully through to the domestic interest rate structure.

… leads to dangerous reliance on heavy intervention …

The Thai baht had been under periodic pressure for many months before the final crisis and at least two major attacks were successfully repelled by central bank intervention in the foreign exchange markets. When pressure intensified in mid-1997, the central bank intervened massively in both the spot and forward markets but resisted upward pressure on interest rates. Overnight rates, which were allowed to rise to 20% during the crisis, had, by early August, fallen back to 10%. The run-up in Malaysian rates in the days surrounding the floating of the Thai baht was even more short-lived. However, the Philippines kept overnight rates high in the period immediately after the outbreak of the crisis for longer than either Malaysia or Thailand. Indonesia raised overnight rates to 300% in August but this measure failed to stop the exchange rate from plummeting, probably because of doubts about other domestic policies and because of the provision of liquidity support (at lower rates) for weak banks. Korea failed to increase interest rates significantly until the crisis was well under way. In many countries, subsequent bouts of renewed downward pressure on the exchange rate finally forced substantial increases in interest rates, often in the context of an IMF programme. In most cases, interest rates reached a peak only in the later stages of the crisis (Table VII.10), and exchange rates did not touch bottom until January 1998.

… but some exceptions

One notable exception to this pattern of interest rate policy was Hong Kong, where there were sharp and sustained increases. Interest rates rose along the maturity spectrum (with three-month rates reaching 25% at one point). This served to successfully defend the dollar peg, in the face of steep declines in asset prices.

Interest rate policy after a crisis depends on …

The question of how to set the level of interest rates when the exchange rate is falling and cost inflation pressures are rising was the source of much

Interest rates and the exchange rate during the crisis

	Interest rates					Exchange rate	
	Overnight rate		Three-month rate			Low[1] between July 1997 and March 1998	
	Peak	Date	1st half 1997	Peak	Date	Depre-ciation[2]	Date
Hong Kong	100.0	23.10	5.8	25.0	23.10	0	–
Taiwan	11.5	7.10	6.1	9.8	7.10	–19.3	12.1.98
Indonesia	300.0	25.8	13.7	27.7	31.10	–84.3	23.1.98
Korea	27.2	30.12	12.7	25.0[3]	23.12	–54.6	23.12
Malaysia	50.0	10.7	7.2	8.8	20.11	–46.3	8.1.98
Philippines	102.6	6.10	14.0	85.0	8.10	–41.8	7.1.98
Singapore	50.0	23.10	3.6	10.3	19.12	–21.0	12.1.98
Thailand	27.4	5.9	13.1	26.0	25.12	–55.0	12.1.98

Note: Dates refer to 1997 unless otherwise indicated.

[1] Closing rate. [2] Percentage change in the US dollar/local currency exchange rate since June 1997. [3] Not unique.

Table VII.10

controversy as the crisis unfolded. From mid-1997, authorities in the region grappled with a difficult dilemma. Higher interest rates might restore confidence in the currency but only at the cost of exacerbating recessionary tendencies that were already undermining corporate viability and adding to serious banking sector problems.

… the currency denomination of flows …

How effective is raising interest rates in limiting currency depreciation? The link between interest rates and the exchange rate is complex and depends, among other things, on the currency denomination of capital flows and on expectations. As noted above, much of the earlier inflow into Asia (both borrowing from banks and the issuance of international bonds) was denominated in foreign currency. Preventing a steep drop in the exchange rate is desirable if companies with heavy foreign currency debts are not to be pushed into bankruptcy. However, higher domestic interest rates needed to support the exchange rate could undermine the creditworthiness of debtors in domestic currency, and even weaken the currency through this channel.

… expectations …

The issue of expectations is even more complex. It could be argued that only substantial increases in interest rates can effectively support a currency under pressure. Increases in interest rates that are only moderate run the risk that the market will expect further increases; investors might then delay moving into domestic currency assets until they believe that interest rates have peaked and that the likely future direction will be downwards. On this view, the reluctance in several Asian countries to raise interest rates in the early stages of the crisis, and to keep them up for long enough to rebuild reserves, created unfavourable expectations and thus weakened policy-makers' credibility. Brazil's experience with its sudden doubling of interest rates seems to support this interpretation: the reflow of funds into real-denominated assets, at first rather modest, gathered strength only when interest rates began to drift down and the market came to expect further falls. Another example from Latin America is Chile, where downward pressure on the currency was resisted by an increase in its inflation-indexed interest rate. Even Hong Kong, with its very large foreign exchange reserves, raised interest rates sharply when its currency came under pressure.

… and the speed of asset price adjustment

A second consideration is that a prolonged period of high interest rates tends to depress the value of domestic assets. How this affects capital flows depends on the speed of adjustment of asset prices to their new, lower level. If this is relatively slow (as it often is for property prices), expectations of further falls tend to reduce net capital inflows and so further depress the exchange rate.

Policy in an unstable setting

Nor is there a simple way of gauging the domestic appropriateness of interest rates in an environment of an unstable exchange rate and uncertain inflation prospects. One example of the complications is that measures of the level of real interest rates depend on the definition of the rate of inflation used to deflate nominal rates. The standard definition, of the rate of inflation over the previous twelve months, suggests that real short-term interest rates in the countries most affected by the crisis rose steeply towards the end of 1997 and into early 1998 (see the left-hand side of Table VII.11). It also suggests that real rates remained significantly lower in economies which maintained their exchange rate peg (China and Hong Kong). However, inflation rates have changed sharply

as a result of recent exchange rate movements. Deflating by the rate of inflation over the previous three months shows a quite different picture (see the right-hand side of the table). Real interest rates thus measured were significantly negative in Indonesia and somewhat below zero in Korea and Malaysia.

In contrast, real interest rates in China, Hong Kong and Singapore (where inflation has fallen in recent months) appear somewhat higher than on the first measure. High real interest rates, if maintained beyond the immediate crisis period, would be a significant change for all three economies, where real rates in the past have been very low or even negative. The change is most marked in the case of Hong Kong, where real short-term rates have risen to 5%, compared with minus 3½% in 1990–95. Other things equal, a shift of this size should have a major effect on asset prices.

The choice of deflator depends in part on trends in underlying inflation, which may have remained rather moderate in many Asian countries because the initial depreciation shock does not appear to have been amplified by wage-price inflation spirals (see Chapter III). A further complication is that the consumer price index may not be an appropriate deflator for interest rates when asset prices are changing rapidly. In any event, such wide discrepancies in the different measures of real interest rates create considerable additional uncertainty for investment decisions and may depress investment even if, ex post, the level of real interest rates turns out to be moderate.

Bank credit contraction …

Recent developments in the growth of bank credit to the private sector are rather diverse. A tightening of monetary policy would normally be expected to produce a significant slowdown in bank credit expansion, particularly after the

Short-term interest rates[1] in real terms: alternative deflators

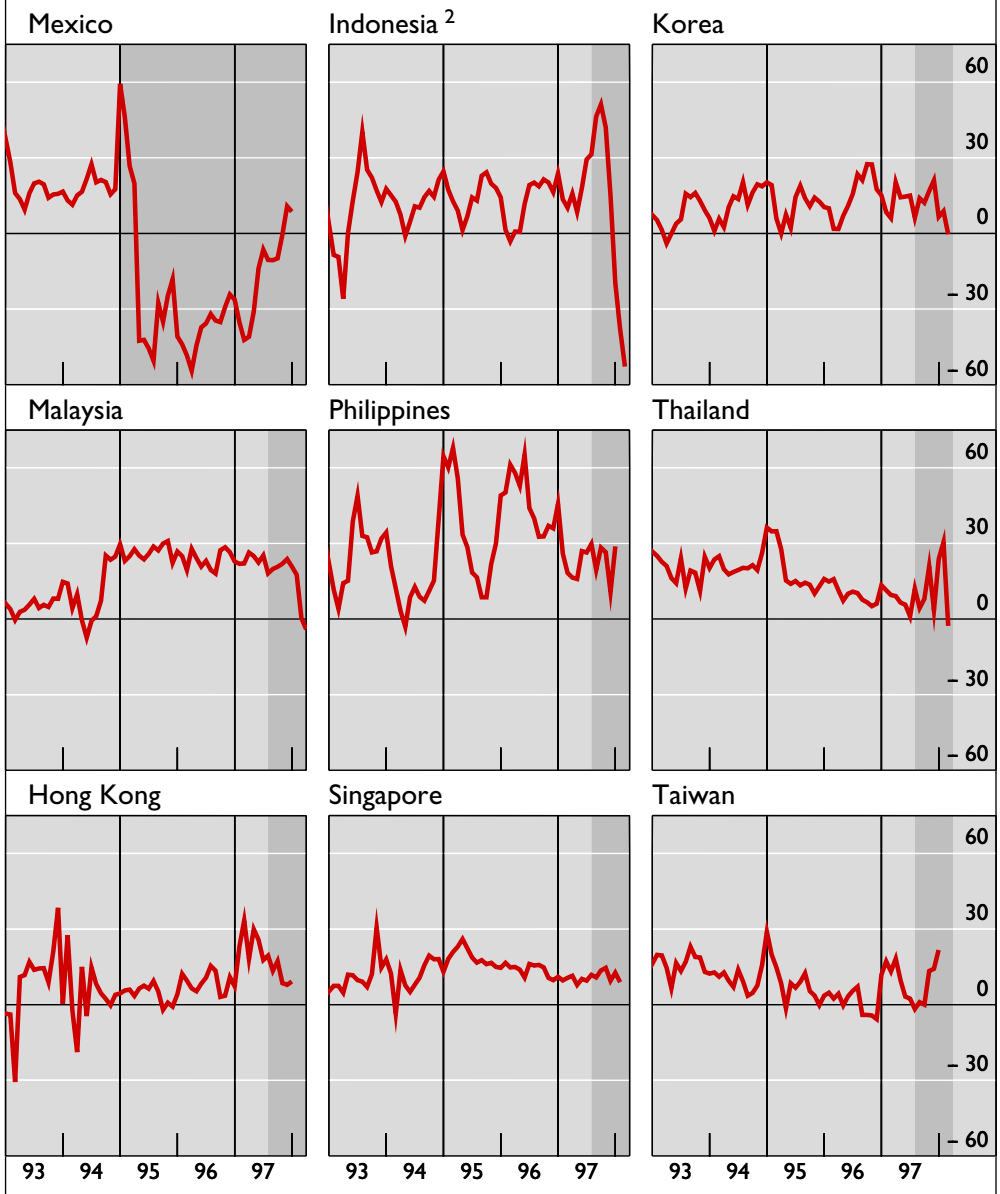
Deflated by:	(a) year-on-year inflation[2]						(b) quarterly inflation[3]			
	1990–95	1996	1997			1998	1997			1998
			Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
	annual rates of interest									
India	2.7	4.8	0.8	3.1	2.6	1.9	3.6	2.2	0.3	– 0.4
China	–2.4	0.7	4.4	5.2	4.6	5.6	9.3	–2.0	10.7	8.9
Hong Kong	–3.4	–0.5	0.6	1.2	4.8	3.8	0.6	0.3	7.2	4.7
Taiwan	3.2	2.3	5.4	6.4	7.4	5.5	3.7	2.5	12.0	4.0
Indonesia	8.1	7.3	8.5	17.3	12.4	2.1	9.9	16.4	1.8	–36.6
Korea	6.9	7.3	8.2	8.3	10.0	12.6	8.1	8.3	9.1	– 0.1
Malaysia	2.7	3.5	4.8	5.2	5.9	4.1	6.7	5.7	4.2	– 1.8
Philippines	4.7	3.6	5.7	8.6	10.0	10.8	5.4	6.7	9.9	8.1
Singapore	1.1	1.6	1.9	1.8	4.0	5.2	1.6	0.6	4.9	9.2
Thailand	5.1	4.7	10.4	12.3	12.4	14.5	10.5	6.5	9.2	14.2
Brazil	13.1	10.1	13.3	15.7	29.9	27.3	14.7	18.5	32.0	24.0
Other Latin America[4]	–1.2	4.9	4.6	4.6	5.6	6.7	6.0	6.1	7.7	4.6

[1] Rates on three-month paper with the following exceptions: China, the one-year deposit rate; Taiwan, the overnight rate and, before November 1994, a weighted average of six money market rates with maturities ranging from overnight to six months; Brazil, the overnight rate. [2] Short-term rates deflated by the year-on-year change in the CPI. [3] Short-term rates deflated by the change in the CPI over three months (annualised). [4] Unweighted average of Argentina, Chile, Colombia, Mexico and Peru.

Sources: IMF International Financial Statistics, national data and BIS estimates. Table VII.11

Rate of expansion of bank credit in real terms [1]

In percentages



Note: The shaded areas indicate the period from the outbreak of the crisis, i.e. from December 1994 for Mexico and from July 1997 for Asia.

[1] Four-month annualised percentage change in bank credit to the private sector deflated by the same percentage change in consumer prices. [2] For 1998, excluding credit in foreign currency.

Sources: IMF and national data. Graph VII.4

very high growth rates seen in much of Asia during the 1990s. In addition, many banks in Asia have become overextended and some are no longer viable. If the experience of other countries is any guide, the process of bank restructuring is likely to involve a sharp contraction of credit. For example, the real value of bank credit in Mexico dropped precipitously in the two years after the crisis (Graph VII.4). Although it is too early to judge, there does not yet appear to have been any marked contraction in domestic bank credit in most of the Asian countries shown in the graph. One exception is Indonesia. However, the latest figures suggest that the rate of expansion in several countries has fallen abruptly

Property prices*

	Trough		Peak		Trough or latest value	
	Index	Date	Index	Date	Index	Date
	Commercial property prices					
Hong Kong	100	1995 Q4	155	1997 Q2	111	1997 Q4
Korea			100	1990 Q1	77	1997 Q4
Singapore	100	1993 Q4	164	1996 Q1	146	1997 Q4
Indonesia			100	1992 Q3	65	1997 Q2
Malaysia			100	1995 Q2	86	1997 Q4
Philippines	100	1995 Q2	113	1996 Q1	104	1997 Q4
Thailand	100	1989 Q4	180	1991 Q4	93	1997 Q4
Memorandum items:						
Japan	*100*	*1977*	*328*	*1990*	*104*	*1997*
France	*100*	*1982*	*248*	*1990*	*107*	*1996*
Sweden	*100*	*1980*	*532*	*1989*	*131*	*1993*
United Kingdom	*100*	*1984*	*197*	*1988*	*62*	*1992*
	Residential property prices					
Hong Kong	100	1995 Q4	150	1997 Q2	144	1997 Q4
Korea			100	1994 Q1	93	1997 Q4
Singapore	100	1988 Q2	272	1996 Q2	238	1997 Q4
Indonesia	100	1994 Q1	170	1997 Q3		
Malaysia			100	1995 Q3	91	1997 Q4
Philippines	100	1995 Q3	124	1996 Q3	117	1997 Q4
Thailand			100	1992 Q1	53	1997 Q4
Memorandum items:						
Japan	*100*	*1977*	*214*	*1990*	*152*	*1997*
France	*100*	*1986*	*126*	*1992*	*114*	*1997*
Sweden	*100*	*1985*	*137*	*1990*	*103*	*1993*
United Kingdom	*100*	*1982*	*187*	*1989*	*136*	*1995*

* Based on prices (in local currency) in inflation-adjusted terms.

Sources: Colliers Jardine, Sydney, Jones Lang Wootton and national data. Table VII.12

in recent months. Moreover, the underlying strength of bank credit may be overstated by certain temporary factors such as the more intensive use of existing credit facilities by distressed borrowers, by the capitalisation of interest arrears and by valuation effects from foreign-currency-denominated loans.

… property price slump …

It appears that property prices in some countries are being supported by the capitalisation of interest arrears and perhaps even new loans to keep heavily indebted developers afloat in certain markets (Table VII.12). In a number of centres, unsold or unused properties are being held off the market in order to prevent a collapse in prices; moreover, current construction plans in some cities imply further additions to supply in an already depressed market. However, several large-scale projects – notably in the public sector – have been postponed or cancelled in recent months.

The experience of industrial countries has been that property price bubbles were followed by protracted and substantial declines in prices: average falls of almost 70% in real terms for commercial property and 30% for residential property spread over about five or six years. The future evolution of property

prices will have a major impact on the financial sector of most Asian countries, not only because of banks' past property lending, but also because of the use of property as collateral for other loans. With interest rates at present levels, highly leveraged investors are under very heavy pressure to sell, thereby triggering further price declines. How far asset prices fall and how long they remain at low levels may depend in part on the ease with which foreign investors can buy local property since purchases by foreign buyers will tend to limit the decline in prices.

… and recession interact

The deflation of an asset price bubble and the necessary contraction of the banking industry are likely to depress demand in the countries affected for a significant period of time. The collapse of equity values in many centres has saddled banks with large unrealised losses that are a potential claim on already weak bank capital. As some property developers default on their bank loans, banks could be left holding real estate that may not be salable at its collateral value. The effects of economic slowdowns, asset price collapses and banking crises tend to be mutually reinforcing as the curtailment of bank credit depresses asset prices and further deepens recessions. This in turn creates additional problems for banks that are forced to retrench still further. "Vicious circle" has been an overworked term but it describes this banking crisis/asset price collapse/recession interaction all too well.