Lessons for monetary and banking policies from the 1997–98 economic crises in Indonesia and Thailand

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1. Introduction

There is little disagreement that the Asian crisis would not have happened if the financial systems of the affected countries had not been vulnerable to panic and speculative attack (Corsetti et al., 1998; Radelet & Sachs, 1998). Nor is there much disagreement about the factors that helped trigger the attack: because of the generally poor performance of the Japanese economy in 1996–97 and strong competition from China, most other Asian countries experienced a reduction in the demand for their exports. This was exacerbated by the loss of export competitiveness resulting from the weakening of the yen relative to the dollar, given that most Asian currencies had been pegged to the latter. This slowdown in export growth was particularly marked in the case of Thailand, although much less so in Indonesia. A mood change against the excessive optimism of the earlier boom appears also to have been important.

The second generation speculative attack models help to illustrate the kinds of mechanisms that were probably at work.[1] If the government is expected to respond to bank failures by bailing out depositors—and to finance this by money creation for fear that any increase in interest rates due to selling securities would cause bankruptcies and further bank failures—then in conditions of financial vulnerability any small trigger can induce self-fulfilling expectations of bank and corporate losses, monetary expansion, capital outflow and devaluation. Such vulnerability will exist if long-term investments have been financed by short-

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term or variable rate loans, or if projects producing for the home market are financed by unhedged foreign currency denominated loans.

The adverse effects on the financial sector and real GDP are amplified if ineffective bankruptcy procedures prevent creditors from quickly taking over the assets of insolvent firms. The consequent chains of bad debts, together with the inability of insolvent firms to obtain working capital, prevent assets being fully utilized and thus contribute to a fall in real output. Differences in the effectiveness of bankruptcy procedures can thus help to explain why output fell in the Asian crisis countries, but grew strongly in the countries whose exchange rates were devalued as a result of the European Exchange Rate Mechanism (ERM) crisis.

We do not disagree with the view that political events had very important repercussions on economic events and policies, especially in Indonesia. However, we focus only on the two main prescriptions for economic policies for reducing the likelihood of future crises that are implied by the above sketch of the causes of the 1997–98 crisis. First, whether governments decide to fix or to float the exchange rate, they need to make credible commitments to keep to the traditional rules of monetary policy under their chosen exchange rate regime and not to respond to financial problems—should they occur—by large-scale money creation; second, financial sector vulnerability must be reduced. These two prescriptions are the subjects of the two remaining sections of this paper.

In Section 2 we argue that the Bank of Thailand (BOT) failed to keep to the traditional rules of a *fixed* exchange rate system in the 12 months preceding the floating of the baht in July 1997, and that Bank Indonesia (BI) failed to keep to the traditional rules of a *flexible* exchange rate system in the 10 months after the floating of the rupiah in August 1997. These policy failures occurred in the course of last resort lending by the respective central banks in response to runs on financial institutions. We therefore begin Section 2 with a summary of the implications of financial panics and last resort lending for the traditional rules for conducting monetary policy under fixed and floating exchange rate systems. In Section 3 we discuss policies for reducing financial vulnerability. We argue that current proposals for reducing financial vulnerability to future speculative attacks are unlikely to be adequate, and that what is needed is a large increase in the minimum capital adequacy ratios set by the Basle Capital Accord, combined with the complete opening of financial sectors to entry by foreign banks.

2. Monetary policy mistakes

2.1. Last resort lending and monetary policy rules

One important lesson from the crisis is the need for central banks to follow the traditional rules of monetary and exchange rate policy. Under a fixed exchange rate system, they should respond to increases or reductions in the level of their foreign exchange reserves either by allowing base money to rise or fall by the full amount of the change in reserves, as it would under a strict currency board system, or by contracting domestic credit when reserves fall and raising it when they rise, as was supposed to happen under the traditional rules of the gold

standard. Under a flexible exchange rate system, central banks must announce and keep to credible targets for the money supply, or for inflation.

The monetary policy failures of both Thailand and Indonesia occurred during periods in which their central banks were bailing out banks and finance companies that had experienced considerable deterioration of asset quality and were facing large withdrawals of deposits and redemptions of promissory notes. We therefore begin by considering the implications for monetary policy of last resort lending and bail-outs. In practice, these two safety nets get used simultaneously, but for analytical simplicity we analyze each policy in isolation from the other; for brevity, we also focus mainly on banks.

The bailing out of depositors in an insolvent bank imposes a real cost on the government equal to the excess of guaranteed deposits over the true market value of the bank's loans.[2] Provided that this fiscal burden is met by subscribing new equity capital to the bank in the form of bonds so as to repair the asset side of its balance sheet, it has no direct consequences for any monetary magnitude (except to the extent that uncertainty about the completeness of deposit guarantees may induce a simultaneous—but analytically distinct—run on deposits).

In analyzing actual episodes of last resort lending, it is helpful to compare what actually happens with a benchmark that we refer to as 'accommodative last resort lending' (ALRL). Under this benchmark policy the central bank merely accommodates demands by the non-bank private sector to redeem bank deposits for cash by making loans to the commercial banks equal to the excess of the deposits withdrawn over the reserves of base money held by the commercial banks against these deposits. ALRL in response to a bank run would therefore add to the supply of base money (M0), but would not alter the broad money supply (M2), defined as the cash and bank deposits of the non-bank sector. The excess of the broad money supply over base money, $M2-M0$, which measures the net amount of money created by the commercial banks, would therefore contract during a bank run in which the central bank merely accommodated the needs of the commercial banks for last resort loans.

2.2. Monetary policy in Thailand, June 1996–June 1997

From end-June 1996 to end-June 1997, the net foreign assets of the BOT fell by an amount equal to 44 percent of the initial level of the money base. Despite the contractionary effect of this loss of reserves, M0 actually rose by 30 percent over this period because the BOT expanded net domestic credit by BHT 294 billion, or 74 percent of the initial level of M0. This expansion of net domestic credit can be roughly accounted for by the BOT's lending to the finance companies: its claims on non-bank financial institutions, net of their deposits at the BOT, rose by BHT 302 billion in this period, while the other elements of net domestic credit fell slightly, by BHT 8 billion.

To analyze last resort lending to accommodate a run on finance companies—such as the run that occurred in Thailand in the first half of 1997—it is helpful to look separately at $M3-M0$ and $M3-M2$, where M3 measures the liquid liabilities of the financial system, defined to include non-bank financial institutions as well as commercial banks and the central bank. $M3-M2$ measures the liquidity created by the non-bank financial institutions. The relevant data are shown in Table 1. Between end-June 1996 and end-June 1997, the run on the finance companies did indeed result in a fall of $M3-M2$, but this fall was only slightly

Table 1
Thailand: money supply measures, 1996–97

	End-June 1996	End-June 1997	Increase June 1996 to June 1997	
	BHT bill	BHT bill	BHT bill	%
Net FA, BOT	1009	833	−176	
Net DC, BOT	−613	−319	294	
M0	396	514	118	29.8
M2−M0	3141	3444	303	9.6
M2	3537	3938	421	11.9
M3−M2	1277	1129	−148	−11.6
M3−M0	4418	4573	155	3.5
M3	4814	5087	273	5.7

Source:
Bank of Thailand *Quarterly Bulletin*, December 1997, statistical section.
Net FA, BOT is the reported net foreign assets of the Bank of Thailand (BOT), which exclude its swap liabilities.
Net DC, BOT is the BOT's net domestic credit, estimated residually from Net FA, BOT and M0, which is reserve
money. M2 is the liquid liabilities of the BOT and the commercial banks. M3 is the liquid liabilities of the BOT,
the commercial banks and other financial institutions.

over half of the additional lending from the BOT to the finance companies, and both M2 and
M3 increased in the 12 months to end-June 1997—the former by 11.9 percent and the latter
by 5.7 percent. The true fall in the BOT's net foreign assets was much larger than the fall
reported above and in Table 1, because the officially reported net foreign assets of the BOT
exclude its swap liabilities. Instead of falling to BHT 833 billion by end-June 1997, as
reported, true net reserves had fallen to only about BHT 250 billion because the Bank of
Thailand had by then incurred swap liabilities of about $23 billion.[3] The true increase in
domestic credit was therefore correspondingly larger than the reported increase.

   The BOT flouted the traditional rules for the prudent management of a fixed exchange rate
system, as summarized above, by expanding domestic credit in the face of a loss of reserves.
This credit expansion magnified the capital outflow which would otherwise have occurred
and was so large that it more than offset its effect on base money. The reason for the BOT's
reluctance to allow the capital outflow to drain liquidity from the system was its fear that high
interest rates would produce a spate of bad loans that would lead to the collapse of weak
finance companies. Interbank rates did rise substantially from an average of 7.2 percent in the
second quarter of 1996 to an average of 11.4 percent in the third quarter, but average
interbank rates then remained at about this level for the rest of 1996 and the first two quarters
of 1997, before rising sharply to an average of 19.3 percent in the third quarter, after the
devaluation of the baht. The rates on 3-month time deposits and the minimum loan rates of
the four largest commercial banks actually fell during 1996 and the first half of 1997.[4]

   By maintaining the fixed exchange rate system while breaking the conventional rules for
operating such a system, the BOT probably achieved the worst of all possible outcomes.
Either it should have devalued in early 1997 or, if it was determined to defend the exchange
rate of 25 baht/dollar, it should have done so by selling securities to help maintain its
reserves. In the event, the BOT was forced to abandon the fixed exchange rate and also felt

obliged to suspend 16 finance companies in June 1997 and another 42 in August. All but two of these finance companies were eventually closed down permanently.

2.3. Monetary policy in Indonesia after the float

Proponents of floating exchange rates have usually based their advocacy on the assumption that a government adopting this policy will set a credible target either for monetary growth, or for inflation. This is particularly important when the government is forced to float the exchange rate because of a speculative attack driven in part by fears that money creation will be used to finance a bail-out of commercial banks and other financial institutions. This subsection reviews the record on monetary targeting in Indonesia following its decision to float the currency, and briefly compares this record with those of Thailand and Korea.

BI did not make any announcement about monetary targets at the time it floated the exchange rate in August 1997. However, when this policy resulted in an alarming depreciation of the rupiah, it almost immediately implemented an unprecedented tightening of monetary policy by requiring public sector enterprises to shift their deposits from the commercial banks to BI. In effect, the central bank took over some of the commercial banks' deposits and most of their reserves, but did not take over any of their loans.[5]

As a result of this liquidity squeeze, commercial banks' deposits at BI fell by 66 percent during August—an amount equivalent to 20 percent of the total base money supply at the beginning of the month (McLeod, 1998, pp. 922–3). Because currency in circulation rose slightly, the overall fall in the supply of base money during the month was a more modest 16.5 percent. Many banks' deposit balances at the central bank became negative at this time, and the appearance of small excess reserves in the official data was achieved by means of 'creative' accounting techniques. The annualized interest rates on interbank call money jumped from 16 percent in July to 65 percent in August, before falling to around 40 percent in October and November.[6] *Ex post*, these interest rates were not sufficient to compensate depositors for the collapse of the rupiah, but the extent of this collapse was not anticipated at the time.

The rise in domestic interest rates and the depreciation of the rupiah—17 percent in August alone—made it impossible for heavily indebted corporations to maintain debt service payments on either domestic or foreign currency loans, leading to severe deterioration of loan quality for all banks.[7] BI tried to restore the soundness of the banking sector by closing down 16 private banks at the end of October. But since the criteria for closing the banks were not transparent, and since the soundness of the remaining banks was not known to depositors, this move—determined in consultation with the IMF—provoked a run on the private banks and a transfer of deposits to the state banks.

Indonesia's first policy agreement with the IMF, announced on 31 October 1997, contained targets for base money for the coming 12 months. Table 2 summarizes these targets and those set out in Indonesia's subsequent plans. The October 1997 target was to restrict the growth of base money in the nine months starting from the end of September 1997 to 7.7 percent. The actual increase over this period was 92.1 percent. The margin by which the target was missed was so wide that any anti-inflationary effects of the earlier monetary contraction were more than undone.

Table 2
Indonesia: targets for base money in successive plans (trillion rupiah)

Plan	Oct 31 1997	Apr 10 1998[a]	Jun 24 1998[b]	Jul 29 1998	Sep 11 1998	Oct 19 1998	13 Nov 1998	Actual
Jul 97								39.6
Aug 97								33.3
Sep 97	**41.1**							36.6
Oct 97								33.6
Nov 97								33.8
Dec 97	42.7							46.1
Jan 98								56.0
Feb 98								49.6
Mar 98	42.7	59.4		**61.8**				59.4
Apr 98		59.4						61.1
May 98		59.4	68.0					68.0
Jun 98	44.2	59.4	68.0					70.3
Jul 98			68.0	68.6	**72.6**			72.6
Aug 98			68.0	68.9				68.6
Sep 98	45.8		68.0	69.7	69.7	**69.9**	**69.9**	70.2
Oct 98					71.5	71.5	71.5	70.5
Nov 98					73.0	73.0	73.0	
Dec 98				74.3	74.3	74.3	74.3	
Jan 99							75.4	
Feb 99							76.5	
Mar 99				77.6				

Data on the various plans are taken from the letters of intent and memorandums of economic and financial policies sent by the government to the IMF at the dates indicated in the column headings. These letters and memorandums are available on the IMF web site.

Numbers in bold type are described in the plans as being the then actual outcomes. These data may differ from those in the last column because of revisions.

[a]These 'targets' were not explicitly stated; rather, they are derived from the statement in *Indonesia–Supplementary Memorandum of Economic amd Financial Policies, 10 April, 1998* that both NDA (net domestic assets) and NIR (net international reserves) would be broadly constant during the second quarter.

[b]These 'targets' were not explicitly stated; rather, they are derived from the statement in *Indonesia–Second Supplementary Memorandum of Economic and Financial Policies, June 24, 1997* that both NDA and NIR would be broadly constant during the third quarter.

At the time of drawing up the revised plan announced on 15 January 1998, the failure to meet the 31 October monetary targets was already apparent. Without addressing the reasons for this failure, the revised plan dropped the quantitative target for base money. The new target was to keep inflation in 1998 to less than 20 percent. This was to be achieved by using base money to contain the growth of broad money to 16 percent in 1998. In the event, the CPI rose by 20.5 percent in only the first two months of 1998, and broad money grew by 26.7 percent during the month of January 1998 alone.

In its plans of 10 April and 24 June, the government again avoided addressing the reasons for its failure to keep to its earlier targets. In these plans it reverted to quantitative targets for base money. In each plan, however, these targets were set only for the next 3 months. Instead of remaining constant during the second quarter of 1998, as envisaged in the April plan, base money actually rose by 18 percent—an annual growth rate of 96 percent. Since mid-1998 the
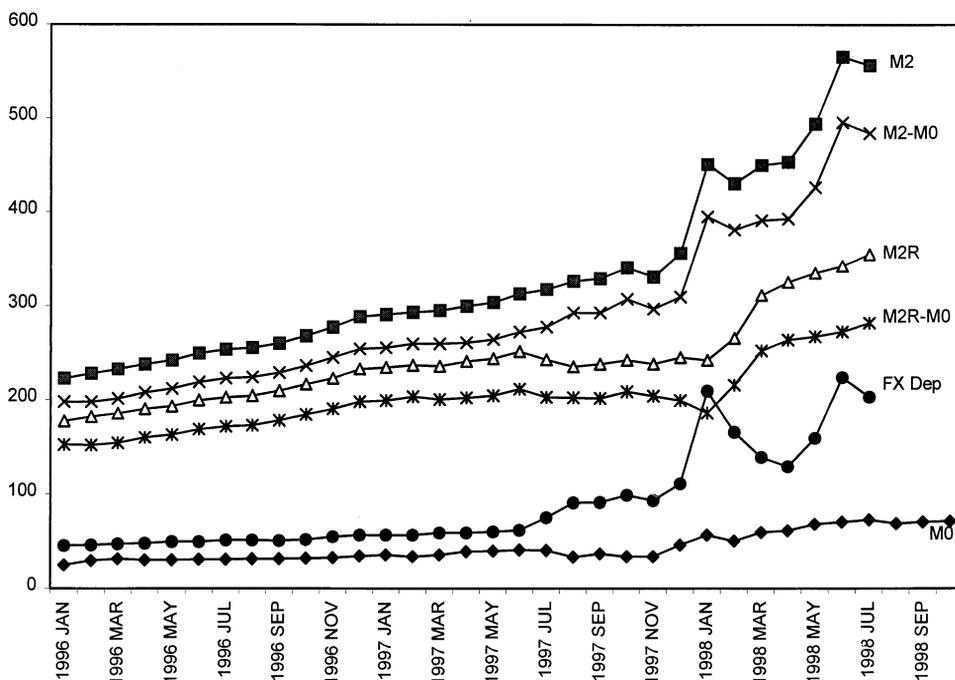
Fig. 1. Indonesia: money supply (Rp trillion) 1996–98. M0 is base money, M2 is broad money, M2R is the rupiah-denominated components of broad money, i.e., M2 minus foreign currency deposits. Source: Bank Indonesia.

situation has improved, however. The June targets were only narrowly exceeded, and in July the horizon was extended to end-March 1999. So far these targets have been achieved, and in the second half of 1998 the rupiah stabilized and then appreciated.

When the exchange rate varies, our earlier benchmark for judging whether last resort lending is merely accommodative, M2−M0, becomes unsatisfactory because exchange rate depreciation causes M2 to grow, even in the absence of any banking sector transactions. This happens simply because M2 includes foreign currency deposits. Figure 1 distinguishes between M2 and M2R, which is defined as the rupiah component of M2. Although M2−M0 continued to grow during the banking crisis of October to January, this growth was attributable to the depreciation of the rupiah: the amount of rupiah broad money created by the banks, M2R−M0, did indeed decline during this period. However, in the next 6 months through to the end of July, all the monetary measures grew rapidly. BI expanded the supply of base money by much more than was required by a policy of ALRL. As a result, far from contracting, the banks were able to add significantly to the supply of rupiah broad money.

In part, the expansion of broad money occurred because base money was increased not only to finance ALRL by BI to the banks, but also because BI was providing loans to certain banks at rates below those at which they could borrow in the inter-bank market, and in amounts that far exceeded what was needed to counter the runs on deposits (*Jakarta Post*, 9 November 1998). It appears that these loans were then used either to repay existing offshore loans, or to finance speculation against the rupiah.

Table 3
Thailand: targets for base money in successive plans (billion baht)

Plan	Aug 4 1997	Nov 25 1997	Feb 24 1998	May 26 1998	Aug 25 1998	Dec 1 1998	Actual
Sep 97	455	**422**					434
Dec 97	489	489	**455**				474
Mar. 98	499	499	480	**451**			448
Jun 98	489	489	464	468	**445**		428
Sep 98	502	502	469	471	460	**445**	
Dec 98				505–512	495	485	
Mar 99						490	

See general notes to Table 2.

For comparison, Tables 3 and 4 summarize the base money targets adopted by Korea and Thailand after they had decided to float their currencies. In sharp contrast to the Indonesian situation before mid-1998, Thailand and Korea announced tight limits on the rate of monetary growth over periods of up to 12 months ahead and then kept to these targets. Indonesia's failure to set out credible monetary targets and then implement them was a tacit admission that bail-outs of depositors might be financed by money creation; in the event, both base money and broad money almost doubled in the year from mid-1997 to mid-1998, and the rupiah lost 82 percent of its dollar value in the year to end-July 1998.

2.4. Avoiding further monetary policy mistakes

While excessive monetary contraction—combined with panicky private sector capital flight and panicky fiscal contraction—helped create the logjam of bad debts that is blocking productive activity, it is doubtful that monetary expansion would now help to revive economic activity. The ineffectiveness of bankruptcy procedures has produced a situation in the Asian crisis economies that has strong similarities with the problems of the countries of the former Soviet Union and Eastern Europe in their transitions from communism to market economies. In the Asian crisis countries, potentially valuable assets are underutilized because of a lack of clear and effective property rights. In Indonesia, in particular, creditors have not been able to take over corporations that have defaulted on their debts,[8] but nor are the

Table 4
Korea: targets for base money in successive plans (trillion won)

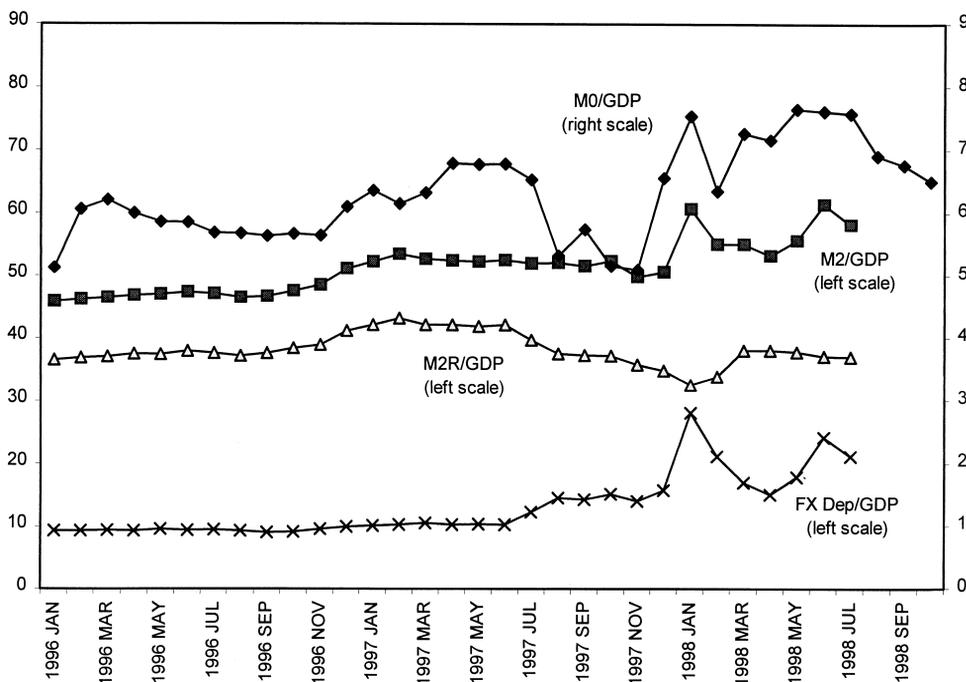| Plan	Dec 3 1998	Feb 7 1998	May 2 1998	Jul 24 1998	Actual
Sep 97	**22.275**				22.274
Dec 97	23.270	**22.519**			22.519
Mar 98		23.580	**22.035**		22.035
Jun 98		24.000	23.540	**20.798**	20.799
Sep 98		25.430	25.430	25.430	
Dec 98		25.640	25.640	25.640	

See general notes to Table 2.

Fig. 2. Indonesia: money/annual GDP (%) 1996–98. GDP is measured at an annual rate. Monthly data were obtained by interpolating official quarterly data. M0 is base money, M2 is broad money, M2R is the rupiah denominated components of M2, FX Deps is the rupiah value of foreign currency deposits. Therefore M2 = M2R + FX Deps. Source: Bank Indonesia.

insolvent corporations able to obtain new working capital. As a result, these corporations are in a limbo in which productive assets are underutilized. This situation is analogous to that which occurred in the transition economies after the collapse of communism, when assets of state enterprises lay idle because the old state order system had broken down, and because privatization took time.[9]

Rapid monetary expansion did nothing to help GDP growth in the transition economies: it just produced inflation.[10] Similarly, until the Asian crisis countries have restructured their corporate debts so that enterprises are again able to obtain trade credit and working capital, further monetary expansion would be less likely to stimulate output growth than to produce further inflation, as it did in Indonesia in the first half of 1998.

Figure 2 shows the ratios to nominal GDP of base money, and the rupiah and foreign currency components of broad money in Indonesia. The only large change in any of these ratios over the period of the crisis was the temporary fall in the ratio of M0 to GDP that followed the severe monetary contraction in the third quarter of 1997, when BI temporarily allowed banks to breach their supposed minimum legal reserve requirements.[11] The stability of these ratios confirms the appropriateness of monetary targeting.

In the situation faced by the Asian crisis countries, it is especially important that the authorities' commitment to monetary stability is credible. Given this, and given that M0 can be directly controlled by the authorities, we think that M0 is the most appropriate variable

to target. However, the announced plans should allow for the possibility that, in the event of a run on financial institutions, M0 will be allowed to exceed the provisional targets by just enough to provide ALRL. It is very important that the authorities are strongly committed not to expand M0 by more than this and, above all, not to use monetary expansion to finance either on-budget deficits or the off-budget deficits associated with bailing out insolvent financial institutions.

3. Reducing future financial vulnerability

Anxiety about the volatility of capital flows raises the question as to how a country can possibly be harmed by foreigners wanting to lend to it, even if the flows are liable to be reversed. By far the most important part of the answer involves the moral hazard created by explicit or perceived government guarantees of bank deposits and other financial institution liabilities.[12] Particularly in economies in which risks are large and supervision is weak, government-guaranteed bank deposits provide a relatively cheap source of finance. The guarantees act as subsidies because they allow the bank to pay lower interest rates on deposits than would otherwise be necessary. To ensure their access to subsidized deposits, conglomerates often set up their own banks.

Because governments subsidize deposits, bank owners have an incentive to operate with as little of their own capital as possible, and to lend to risky projects. If as a result of these moral hazard problems, banks are very highly geared (as measured by the ratio of deposits to equity), a small deterioration in loan quality or a small increase in the cost of servicing liabilities can make them insolvent; and if cash reserves are a small fraction of assets, a small run on deposits can make them illiquid. In such circumstances, any adverse shock can precipitate a financial crisis.

If this diagnosis of the causes and dangers of volatile capital movements is correct, the appropriate cure is to tackle the problem at its source by strengthening financial systems, rather than by indirect methods such as trying to reduce or regulate capital flows. Accordingly, this section considers how to reduce financial system vulnerability.

3.1. Deposit guarantees and deposit insurance

In a given situation of financial weakness, a bank run is less likely to happen if depositors are protected by guarantees or insurance. But such safety nets induce banks to take risks which they would otherwise avoid; particularly if prudential supervision is weak, the long-term consequences of these safety nets may be to make financial institutions more vulnerable to speculative attacks of the type described above. It is the perceived existence of government guarantees, combined with the presumption that they are capable of inducing the authorities to resort to monetary expansion to bail out depositors, that is at the heart of the speculative attack mechanism outlined earlier. The most obvious solution might seem to be to remove the government guarantees. The evidence suggests, however, that the political pressures to bail out depositors in a crisis are almost irresistible: full deposit guarantees help

alleviate a crisis in the short run and, since the political process forces governments to have short time horizons, this initial gain outweighs the long-run costs of adding to moral hazard.

Before the onset of the recent crisis there were no formal guarantees of depositors in Malaysia, Thailand, or Indonesia; the Indonesian government had actually strongly denied that any bail-out would be provided. However, when the financial crises broke, the governments of all three countries provided formal deposit guarantees.

In Thailand the generosity of the government's guarantees was increased as the crisis developed: when 16 finance companies were suspended in June 1997, the government announced that holders of promissory notes would be allowed to use them as collateral to borrow from 40–60 percent of their face value to meet liquidity requirements from a government-owned finance company, but would have to wait to redeem them for lengthy periods. Other creditors in these 16 institutions were not bailed out and no general guarantee was issued (*Asian Wall Street Journal*, 30 June 1997). But when another 42 finance companies were closed in August 1997, the holders of promissory notes were fully bailed out, and a general guarantee was issued to depositors and other creditors in all financial institutions (*Asian Wall Street Journal*, 7 August 1997).[13]

Like Thailand, Indonesia has never had a compulsory deposit insurance scheme, although the government formally guaranteed deposits at the state banks until December 1989. When this guarantee was withdrawn, the interest premium on deposits at private domestic banks (other than foreign and joint venture banks) relative to the rate on deposits at state banks fell slightly from an average of 1.6 percent to 1.5 percent (Marshall, 1994, p. 194). The fact that the fall in the interest rate differential was so small appears to have reflected a belief that the government would always come to the aid of the state banks—formal guarantee or not. On the other hand, the non-negligible premium on deposits at private banks suggests that, even though depositors at such banks had been saved from losing money in the occasional bank failures that occurred in the decade preceding the 1997 crisis, they could not be absolutely certain that the government would always bail them out.

When the Indonesian government closed 16 banks in November 1997, it bailed out depositors in these banks for amounts up to Rp20 million (i.e., less than $US6,000), but did not issue any general guarantee. By the end of January 1998, however, many banks were suffering severe liquidity problems as a result of deposit withdrawals, and the government tried to restore confidence by issuing a general guarantee of all deposits and other liabilities (except equity and subordinated debt) at domestically owned banks. Repayment of foreign currency deposits was guaranteed in rupiah—although it was not clear whether there might be delays in making repayments, and what exchange rate would be used in calculating the rupiah equivalents of foreign currency amounts.

The IMF programs in Thailand and Indonesia call for the eventual replacement of general guarantees issued during the crisis by compulsory, but limited, deposit insurance. The aim of limiting deposit guarantees is unlikely to be achieved, however, since the same forces that led governments to replace informal guarantees by extensive formal ones when crises occurred can also be expected to induce them to replace limited deposit insurance by more extensive bail-outs in similar circumstances in the future.

3.2. Financial repression

A very crude form of protection against the vulnerability of financial sectors to panics and speculative attacks was provided by the policies of financial repression that were widespread in developing countries until they began to be changed in the 1980s. The 1997–98 Asian crisis fits the pattern, previously detected by Kaminsky and Reinhart (1995), that the liberalization of financial sectors is often followed by a financial crisis. Moral hazard is an important part of the explanation for this pattern because many of the regulations relaxed when financial sectors are liberalized can be thought of as means of restricting the scope for aggressive banks to take advantage of the opportunities for exploiting government safety nets for depositors.

Quantitative limits on bank lending and on the establishment of branch networks restrict attempts by banks to expand their scale in order to take advantage of the subsidies implicit in deposit safety nets. Interest rate ceilings can have similar effects. If all lending rates are at a controlled ceiling, banks will prefer safe loans to risky ones; but if lending rates are not controlled and risks are partly borne by the government, competition will force banks to charge risk premia which reflect only the part of the total risk that is borne by the bank. As a result, excessively risky investments will be undertaken and will be financed by government guaranteed deposits. Similarly, if all banks must offer the same deposit rate, depositors with less than complete confidence in implicit government guarantees will avoid supplying funds to more risky banks; but if deposit rates are not controlled, and if depositors have high (but not total) confidence in government guarantees, then small increases in interest rates will enable risk-taking banks to attract more deposits and expand their loan portfolios. Finally, regulatory barriers to entry provide existing banks with valuable monopoly rights that they will be reluctant to lose by excessive risk-taking; in effect the 'franchise value' of scarce banking licences will make true capital higher than the book value of capital.

The challenge for policymakers is to find effective ways to contain moral hazard without maintaining or restoring financial sector repression.[14] The IMF programs for Indonesia, Thailand and Korea are attempting to do this by strengthening direct prudential limits on risk-taking, backed up by surveillance.

3.3. Prudential regulation and supervision

Indeed, given that it is very difficult for governments to resist pressure to bail out depositors in the event of bank failures—that is, that they are *de facto* if not necessarily *de jure* insurers of their banking sectors—there is an overwhelming case for some form of prudential regulation and supervision. The conventional approach is to set quantitative prudential limits on various risks taken by banks and to operate surveillance systems to monitor banks' compliance with these limits. It is also common to attempt to impose norms of what the supervising agency considers to constitute good management practice. The most widely used quantitative limits are those on currency exposure, maturity mismatches, exposures to individual borrowers and groups, and exposure to closely related entities.

Since the crisis, there has been a spate of criticisms of the existing prudential controls and of calls for tighter controls to be implemented in the future. The IMF and many observers

currently emphasize the need for 'orderly liberalization' of financial and exchange controls, by which is meant that prudential controls such as those just mentioned should be in place before financial systems are liberalized or controls on international capital movements are removed. But it is easy to lose sight of the fact that the case for prudential regulation has been widely argued for a long time, and that as a consequence, elaborate prudential controls had already been set up in Malaysia, Korea, Indonesia and Thailand well before the crises of 1997–98. Influential and well-informed commentators such as Cole (1995, p. 251), Djiwandono (1997, pp. 342–5), Browne (1997, pp. 349–52) and Montgomery (1997, p. 4) expressed at least guarded praise for the controls themselves, subject to reservations about the effectiveness of their implementation. It turned out, however, that there had indeed been a chasm between the controls that existed on paper and those that were actually implemented.

The failure to enforce prudential regulations is not new, and will not be easily overcome. An earlier example from Indonesia was provided by the failure of a prominent private bank, Bank Duta, in 1990 as a result of foreign exchange speculation. This failure was one of the catalysts for a raft of new prudential regulations introduced in 1991 (McLeod, 1999). However, the problem had been one of failure to enforce regulations, not lack of them: there had already been rules in place to limit foreign exchange speculation by banks before the failure of Bank Duta. The onset of the current crisis has confirmed that the new prudential regulations introduced in 1991 were flouted just as the earlier ones had been. The most blatant examples of evasion of prudential regulations involve excessive lending by banks to related firms—a practice known about even before the crisis, but which has achieved much greater prominence in the course of subsequent bank restructuring activities.

One reason for the evasion of prudential controls is that bank supervisors are reluctant, or unable, to act against politically well-connected banks. A second is that the financial institutions involved in the day-to-day business of making loans, or providing various forms of risk cover, necessarily have an informational advantage over the supervisors to whom they report—especially when, as is common, the supervisors are bureaucrats lacking commercial working experience. In short, therefore, although attempts at direct regulation of risk-taking by financial institutions may help slightly to strengthen developing countries' financial systems, they have often failed in the past—as they did again in Asia in 1997–98—and it is unrealistic to think that they can provide an adequate check on moral hazard.[15]

3.4. The inadequacy of the Basle capital adequacy requirement

There is one particular component of current prudential regulation practice, however, that is of crucial importance—namely, capital adequacy. The Basle Capital Accord, designed for the major industrial countries and now also adopted in varying degrees by most developing countries, recommends that bank supervisory authorities should require the capital of every bank to be at least 8 percent of its risk-weighted assets. The implied maximum debt-to-equity ratio allowed by the Basle Accord is 11.5 (that is, 92/8). This is about three times as high as that of the Korean *chaebol*, whose high debt exposure has been widely cited as a contributory factor in the Korean crisis, and almost 10 times the average for U.S. manufacturing industry.[16]

The recent problems of the Japanese banks and the financial crises in Finland, Norway,

Spain, Sweden and the United States in the 1980s and 1990s suggest that the leverage permitted by an 8 percent capital adequacy ratio (CAR) is much too high, even in the industrialized countries for which the Basle Accord was designed. Assets need only decline in value by 8 percent to make such banks insolvent, and even the most tightly regulated and supervised bank cannot be sure that the risk of such a small fall in asset values (or a similar rise in liability values) is negligible. Moreover, if the rules governing provisions which banks must make against possible loan losses are not enforced, or if they are inadequate to ensure that provisions are realistic, then the balance sheet capital on which CARs are calculated may be considerably overstated. Indeed, the requirement in the IMF programs for the Asian crisis countries that banks and finance companies move gradually towards international best practice on provisioning for losses, as set out in the Basle Committee's *Core Principles*, has resulted in substantial reductions in measured CARs.[17]

In developing countries, the risks of low CARs are much greater than in the industrialised countries. Developing countries are subject to relatively large terms of trade and GDP fluctuations; their bankruptcy procedures are often ineffective; expert bank supervisors and managers are in short supply; banking sector regulations are hard to enforce because many banks are owned either by governments or by politically well-connected businessmen; and the political systems that govern their economies are less stable. For these reasons, requiring simply that the crisis countries meet the industrialised countries' CAR standards—themselves much too lax—seems quite inadequate.

3.5. Adapting market driven insurance arrangements

Starting from the premise that governments are *de facto* insurers of the financial system, our preferred approach for reducing the moral hazard created by government safety nets for holders of financial institution liabilities is to copy the market-based arrangements for limiting moral hazard used by insurance companies, rather than rely on the ability of bank supervisors to directly limit risk taking. Private insurance contracts typically try to limit moral hazard by setting 'deductible' amounts that the purchaser of insurance must bear in the event of a claim—thus leaving the insurance provider to pay the net claim after subtracting the deductible from the gross loss. In a system of government-provided safety nets for depositors, the analogue to the deductible in a private insurance contract is the bank's capital: a government which has guaranteed deposits only has to meet losses in excess of capital.

Banks can partially evade minimum CAR requirements (and also partially evade all prudential controls that relate risks to capital) by understating the extent of bad and doubtful loans, thus making the deductible available to the government as insurer less than the amount implied by the CAR—a problem that does not arise with deductibles in private insurance contracts. This strengthens the case for setting relatively high minimum CARs: if loan quality can be overstated when reporting to supervisors by, say, 5 percent, a reported CAR of 8 percent may correspond to a true CAR of only 3.2 percent (i.e., 3/95), but a reported CAR of 16 percent corresponds to a true CAR of 11.6 percent (i.e., 11/95).

CARs have two major advantages over other prudential controls. First, high CARs reduce the need for these other controls because the larger a bank's capital, the greater the incentive for it to avoid excessive risks, whether or not these can be observed by supervisors. To put

it differently, high CARs harness the self-interest of bank owners, rather than relying heavily on the effectiveness of bureaucratic regulation. Second, only minor distortions are created if minimum CARs exceed the levels that would be chosen in a hypothetical first-best situation in which all risks could be perfectly observed and charged for: indeed, these distortions would have no economic cost under the assumptions of the Modigliani-Miller theorem. We therefore believe that a large increase in minimum CARs would be the best way to reduce the likelihood of future financial crises. The fact that banks are usually reluctant to raise their CARs—and that they could be expected to oppose the present proposal to increase the required minimum—reflects the fact that government guarantees make deposits a heavily subsidised source of finance.

International comparisons provide at least some guidance as to an appropriate new level for the minimum CAR. The actual risk-based capital ratios of the banking sectors of Singapore, Hong Kong and Argentina in 1995 were 18.7 percent, 17.5 percent and 18.5 percent, respectively; in Indonesia, Korea and Thailand the reported values of these ratios were just 11.9 percent, 9.3 percent and 9.3 percent, respectively (Goldstein & Turner, 1996, p. 26). The actual ratios in Indonesia, Korea and Thailand were far lower because of the ineffectiveness of the rules on making provisions for bad and doubtful loans. This suggests that a gradual doubling of the minimum CAR to 16 percent would not be an unreasonable initial objective. Even with CARs of 16 percent, banks and finance companies would remain very highly geared relative to most non-financial institutions. Our guess is that financial crises would still occur occasionally, but less frequently; if this guess proved accurate, it would strengthen the case for a further increase in the minimum CAR.

If a single country raised the minimum CAR for its own banks, this would put them at a competitive disadvantage relative to foreign bank branches allowed to operate with higher ratios of government-guaranteed deposits to assets. Since this would be politically difficult, and since it would be undesirable to impose different regulations on institutions registered in different countries, it would be greatly preferable for the Basle 8 percent CAR convention to be amended. Nevertheless, in practice, individual countries can and do set CARs both above and below the level recommended in the Basle Accord. Indonesia's target prior to the crisis, for example, was to raise the minimum CAR to 12 percent; its current target is to get all banks' CARs—many of which are now negative as a result of the crisis—back to 4 percent. The IMF programs for Korea and Thailand have each set targets for gradually raising CARs to minimum levels of more than 8 percent over the next two years or so. Malaysia is voluntarily adopting a similar approach.[18]

The use of minimum reserve ratios (RRs) is often regarded as a form of financial repression, rather than a prudential control, because it imposes a tax on holding bank deposits.[19] In the absence of any other government intervention in the financial system this criticism would be fully justified; but in a financial system with safety nets for depositors, economic efficiency requires that banks pay a charge equal to the marginal cost of providing deposit insurance or ad hoc bailouts. This charge offsets the general subsidy to banking that government safety nets otherwise provide; it also counters the incentive for banks to hold less than the socially optimal proportion of reserves to assets, and to gamble on being bailed out in a crisis. The charge can be implemented either by making banks cover the cost of an explicit deposit insurance scheme or by requiring them to hold non-interest bearing reserves.

Required reserves also provide collateral against which the central bank can make last resort loans.

In principle, the moral hazard problems created by contingent subsidies could be completely solved if the authorities charged each bank an amount equal to the expected cost of having to insure, or guarantee, its deposits. The information needed to implement such bank-specific charges could be estimated from the risk premia that each bank must pay on its subordinated debt. The charge could be levied in the form of explicit insurance premia, or by requiring each bank to place a non-interest bearing deposit at the central bank, with the amount of the deposit fixed in proportion to the expected cost to the monetary authorities of the deposit insurance. Following the reform of the U.S. deposit insurance system in 1991, the premia charged do depend on banks' CARs, although the variation in these premia across banks is much smaller than the variation in market assessments of their deposit risk (Benston & Kaufman, 1997, pp. 149–150).

3.6. Government protection of financial sectors as a source of fragility

The setting of low CARs when deposits are formally or informally guaranteed is a form of input subsidy for banks, since it gives them access to artificially cheap finance. Just as the Final Act of the Uruguay Round contained rules to limit the extent to which governments could subsidize their agricultural sectors, so the extent to which a government can favor its own banking sector is limited by the convention in the Basle Capital Accord that a bank's capital must not be less than 8 percent of its risk-weighted assets. Risk weights aside, the limitation on subsidies comes from the fact that for each $8 of a bank's own capital, the government may provide subsidies—in the form of deposit guarantees—for no more than $92 of deposits.[20]

Many developing countries have also offered more overt protection to their financial sectors by imposing tight limits on the number of branches that international banks may open. This is an important additional source of financial weakness in developing countries. If banks are globally diversified, a downturn in one economy or region does not have such adverse effects on the quality of their loan portfolios as it does in a closed system, in which all banks are lending only to domestic firms that are all exposed to the same economy-specific risks. In Singapore, Hong Kong and Argentina, the shares of foreign banks in the total assets of all banks were 80 percent, 78 percent and 22 percent, respectively; in Indonesia, Korea and Thailand these shares were far lower—just 4 percent, 5 percent and 7 percent respectively (Goldstein & Turner, 1996, p. 35).

The WTO's General Agreement on Trade in Services requires a gradual opening of closed banking sectors to foreign competition, and the IMF agreements with Indonesia, Thailand and Korea provide for accelerated financial opening in these countries. These reforms will make financial sectors less vulnerable by increasing the diversification of bank assets. In addition, the new bankruptcy laws in Indonesia and Thailand and the improved bankruptcy procedures in Korea have the potential to make bank lending less risky in these countries than it has been in the past. But even with improved bankruptcy arrangements, more open financial sectors and tighter bank supervision, it is most unlikely that the risk of an 8 percent

fall in the value of bank assets will ever become negligible. It is therefore important, as already argued, to raise minimum CARs well above 8 percent.

Notes

1. See, for example, Obstfeld (1986, 1995).
2. Consider a stylized bank balance sheet in which loans equal 100, deposits equal 92 and equity equals 8. If loans deteriorate in quality so that their real value falls to 50, the fiscal burden to the government of guaranteeing deposits is 42. Many analysts include in the cost of bank restructuring not just the cost of restoring capital to zero, but of raising it to, say, 8 percent. However, capital in the now-government-owned bank can be raised to 8 percent, or more, by a purely bookkeeping transaction which provides the bank with a bond issued by the Ministry of Finance in exchange for equity in the bank owned by the Ministry of Finance.
3. The estimate of $23 billion for the Bank of Thailand's total swap liabilities was reported in *The Wall Street Journal* (8/22/1997).
4. Average annual rates on 3-month time deposits fell from a range of 10.0 to 11.5 percent in 1996 quarter 1 to a range of 8.25 to 9.25 percent in 1997 quarter 2; over the same period, the minimum lending rate of the 4 largest commercial banks fell from 13.75 percent to 12.75 percent (Bank of Thailand, *Annual Economic Report, 1997*).
5. This crude method of monetary contraction had been used to counteract speculation against the rupiah in June and July 1987 and again in March 1991 (Cole & Slade, 1996, pp. 53, 59, 67).
6. Bank Indonesia, *Weekly Report*, No.2000, 23 December 1997, p. 27.
7. Indonesian banks undertook a large volume of foreign currency lending prior to the crisis: foreign currency loans accounted for 20 percent of the total in June 1997.
8. It appears that there have only been a few hundred judicial bankruptcy decisions in the entire period between 1905 and 1998 (Lindsey, 1998, p. 120).
9. This explanation for some of the problems of the transition economies is applied to the case of Georgia by Fane and Nash (1998).
10. We ran an OLS regression of annual real GDP growth on annual monetary growth in transition economies for the years and countries for which data on both these growth rates are available from the World Bank's *World Tables,* beginning at 1989–90. Excluding cases of hyperinflation (defined as those in which monetary growth exceeded 250% p.a.), the estimated coefficient implies that an extra 10 percentage points of inflation (e.g., from 15% p.a. to 25% p.a.) reduces GDP growth by 0.7 percentage points (e.g., from 3.7% p.a. to 3.0% p.a.). This coefficient is significant at the 5 percent level; however the explanatory power of the equation is weak: $R^2 = 0.20$. If hyperinflationary cases are included, the statistical significance of the negative effect becomes even stronger, but the magnitude of the estimated coefficient is reduced by a factor of 4.

11. The rise in M0/GDP in February 1996 and again during the five months to April 1997 is explained by increases in the banks' required reserve ratio.

12. A second possible answer is that additional borrowing by any one domestic resident makes international lenders reluctant to lend to other domestic borrowers, and that this pushes the contract interest rates facing all domestic borrowers above those paid by relatively risk-free borrowers, even for borrowings in common currencies and for similar periods. The small country-specific risk premia faced by the Asian countries before mid-1997 show that this effect was not very important.

13. According to Goldstein (1998, p. 38), the IMF persuaded the government to reduce the subsidy to creditors by paying them out with bonds carrying well below market interest rates.

14. The dramatic expansion of retail deposit-taking activity in Indonesia following banking deregulation revealed the extent of repressed demand for banking services, and thus gave a strong indication of the implicit costs of holding back financial development (McLeod, 1999).

15. The proposal to formalize a role for the IMF as international lender of last resort (Fischer, 1998) would, in effect, extend prudential regulation to the international level; there is little reason to believe this would be any more successful than it has been nationally.

16. At its peak in 1980, the debt-equity ratio of manufacturing companies listed on the Korean stock exchange was almost 5; by 1996, the ratio for all companies was 3 (Smith, 1998, p. 71). The US data are cited by Dewatripont and Tirole (1994, p. 23).

17. Before the crisis Korean banks did not have to classify loans as 'precautionary' and 'substandard or doubtful' until debt service payments were overdue by 3 months and 6 months, respectively. These periods have been reduced to 1 month and 3 months, respectively. More stringent classifications are to be introduced in 1999 (Ji, 1998, p. 7). Similar regulatory tightening is under way in Indonesia and Thailand.

18. The various IMF country CAR targets are as follows. Indonesia: 4 percent by end 1998, 8 percent by end 1999, and 10 percent by end 2000; Thailand: 8.5 percent (set for four troubled banks at various dates during August–September 1998); Korea: 6 percent by March 1999, 8 percent by March 2000, and 10 percent (by way of 'encouragement') by December 2000.

19. Rojas-Suarez and Weisbrod (1996, p. 65) criticize reserve requirements as a distorting tax on banking.

20. The restriction on the extent of government subsidisation is actually less tight than this, because some asset classes are assigned a risk-weight of less than one.

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July 1997, and raised fears of a worldwide economic meltdown due to financial contagion. ïƒ˜ The Asian financial crisis involves four basic problems or issues Political uncertainty at Korea, Thailand, Philippines ï,—Policy mismanagement at Thailand and Korea â€" to defend their pegged Rebuild foreign exchange reserves ï,—Reform the banking sector Why was India not affected ï,—Full capital convertibility is not allowed ï,—Lock in period for foreign investment in real estate ï,—Floating exchange rate with some influence by the RBI during periods of crisis ï,—Strong fundamental growth with services sector being the prime reason ï,—External debt to GDP has been declining for the past few years. Learning's ï,—The lessons from developing country crises are summarized as: ï,—Choosing Economic crisis of 1997 in south korea. At the end off 1997, South Korea companies were unable to pay off their loans, the stock market crashed and the Korean currency lost half of its value. After the Economic Crisis of 1997-98, the chaebols went through profound changes, many of them mandated by the government. They slimmed down, sold off divisions and concentrated on their core businesses. They were broken into pieces and each unit had to stand on its own. Companies went bankrupt, the property market and banks teetered on the edge of collapse and prices of basic food skyrocketed. Banks ran out of money as people panicked and withdrew all their saving, poor people shouting "We Are Hungry!" rioted in the streets. This paper surveys the post-crisis monetary and exchange rate policies of Indonesia, Thailand and Malaysia. Malaysia has pegged the ringgit while Indonesia and Thailand have adopted heavily managed exchange rates. Under their IMF programs, Thailand and Indonesia set base money targets, but Thailand has moved, and Indonesia is now moving, to inflation targeting, using interest rates as the short-term instrument. Malaysia also sets interest rates. The ability of the three central banks to set interest rates and also pursue an exchange rate target with an interest rate target has been bolstered b The currency crises also has revealed severe problems in the banking and financial sectors of the troubled Asian economies. The International Monetary Fund has arranged support packages for Thailand, Indonesia, and South Korea. The packages include an initial infusion of funds with conditions that must be met for additional loans to be made available. This financial crisis is of interest to the U.S. government for several reasons. Jan 15 - IMF and Indonesia sign an agreement strengthening economic reforms. Jan 29 - South Korea and 13 international banks agree to convert $24 billion in short-term debt, due in March 1998, into government-backed loans. Jan 31 - South Korea orders 10 of 14 ailing merchant banks to close. Feb 2- The sense of crisis in Asia ebbs.