

Domestic Causes of Currency Crises

Policy Lessons for Crisis Avoidance

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1 Introduction

The 1990s have witnessed three distinct regional currency crises: the Exchange Rate Mechanism (ERM) crises of 1992–93, the Latin American crisis of 1994–95, and now the Asian crisis of 1997–? Obviously, a major currency crisis every 24 months is too much for policymakers' comfort. Exploring the causes of these crises, both domestic and international, should aim at making them less frequent and less severe.¹ Here, we will only succeed if we avoid looking for 'causes' of currency crises in the victim countries alone. We rather need an integrated approach, based on realistic models of the benefits and risks of international capital flows between the rich and the developing countries.

The five countries most damaged by the ongoing Asian crisis – Indonesia, Korea, Malaysia, the Philippines and Thailand – received net private capital inflows worth 6.6 per cent of their combined GDP over the period 1995–96. In the second half of 1997, they suffered net outflows. The reversal from 1996 to 1997 constituted a swing of 11 per cent of their combined GDP. The biggest swing came from commercial banks who had extended loans well into 1997, despite earlier warnings on overexposure from the Bank for International Settlements (BIS) and the Institute of International Finance (IIF). There was also an important reversal of net portfolio investment. The only capital-account component that proved to be stable – just as during Mexico's 1994–95 crisis – were foreign direct investment (FDI) flows. The Thai baht and the Korean won lost half of their value against the dollar, the Indonesian rupiah fell by 80 per cent in the first months of the crisis, fanning a strong rise in non-performing loans in the local banking system and wiping out net capital for unhedged corporate borrowers. The reactive approach of the sovereign rating industry intensified panic by downgrading Asian borrowers to junk status. As has been convincingly argued by Radelet and Sachs (1998), among many others, the reversal in net capital flows, exchange rates and sovereign ratings in such a short period cannot be attributed to changes in the affected countries' fundamentals. The Achilles' heel of the global financial system

¹ History suggests (Kindleberger 1978) that financial and currency crises will never be avoided altogether.

Table 1: Capital flows to Asian countries in crisis^{*}, % of GDP

	1989-94 ^{**}	1995-96 ^{**}	1997
Net private capital flows	4.3	6.6	0.2
- net direct investment	1.2	1.1	1.1
- net portfolio investment	0.9	1.5	-0.6
- other net investment	2.2	4.1	-0.3
Net official flows	0.3	0.0	1.1
Change in reserves	2.0	1.3	-2.0

Sources: IMF and Goldman Sachs

^{*} Indonesia, Korea, Malaysia, Philippines, Thailand

^{**} Annual averages

seems to be the herd behaviour among commercial banks and portfolio investors (Wolf 1998; Wyplosz 1998). But for international financial investors to panic—as they did in Asia—requires weak fundamentals in the affected countries in the first place. This is what this paper will focus on.

One has to be extremely circumspect when writing about 'domestic causes' of currency crises. All too often, the isolated focus on characteristics which have fallen victim to a currency crisis yields portrayed 'causes' that are merely endogenous effects of massive net capital inflows. Current account deficits, overvalued exchange rates (in real terms), overinvestment in real estate and declining capital productivity all figure prominently in the list of culprits of Asia's crisis (see, e.g., Corsetti et al., 1998). That view ignores, however, the endogeneity of such variables. Flows from capital-rich to capital-poor countries can only be effected with corresponding external deficits of the recipient countries, which are produced by a real appreciation of the exchange rate. The appreciation in turn reduces the relative incentive to invest in exportable production and tilts incentives towards non-tradeables, including real estate, whose relative price has to rise. Higher capital equipment of labour, a result of domestic investment financed by foreign savings, reduces the marginal return to capital.

This article, instead, focusses on those countries with excellent macroeconomic fundamentals that recently turned from financial-market darlings to financial-crisis victims within months: Chile 1982, Mexico 1994 and now the five Asian victims. It will be argued that the 'root' cause for their currency crises

resulted from the interaction of boom 'distortions', reinforced by exchange rate pegs that effectively promised super dollar returns, with the weakening of private-sector balance sheets as a result of heavy inflows, disorderly financial liberalisation and weak domestic financial infrastructures. The article first provides a short survey on the currency-crisis literature, then traces the process from boom to financial vulnerability, and finally draws conclusions for improving domestic financial systems (which should become a privileged target for aid flows), for exchange-rate policy and capital controls.

2 Domestic Indicators of Emerging-Market Currency and Banking Crises: A Capsule Survey of the Literature

'A sad commentary on our understanding of what drives capital flows is that every crisis spans a new generation of economic models. When a new crisis hits, it turns out that the previous generation of models was hardly adequate' (Rodrik 1998, p.5). The earliest models of currency crises, in particular the influential paper by former International Monetary Fund (IMF) chief economist Polak (1957), were based on the incompatibility of expansionary fiscal and monetary policies with fixed exchange rates. Excessive money creation would then 'leak out' through overall balance of payments deficits, until the shortage of foreign exchange reserves would force to devalue or to impose controls on capital outflows. The attempts of investors to anticipate the inevitable collapse would generate a speculative attack on the currency when reserves

Table 2: 'Traditional' crisis indicators

	Indonesia	Korea	Malaysia	Philippines	Thailand
1. Government budget, % of GDP					
– average 1990–94	0.4	–0.4	–0.7	–1.4	3.2
– average 1995–96	1.7	0.1	0.8	0.4	2.6
2. M2, annual growth					
– average 1990–94	19.4	18.0	21.4	20.6	16.7
– average 1995–96	27.2	15.7	20.9	23.7	14.8
3. Inflation rate, CPI					
– average 1990–94	8.8	5.3	4.1	11.1	4.6
– average 1995–96	8.7	4.7	4.4	8.3	5.8
4. Change in official foreign reserves, % of GDP (sterilised in parentheses)					
– average 1990–94	1.8 (0.8)	0.9 (0.0)	6.2 (3.0)	1.8 (0.4)	3.4 (2.2)
– average 1995–96	2.0 (1.0)	0.4 (0.4)	1.3 (0.0)	2.6 (1.8)	0.6 (0.0)
5. Real exchange rate appreciation, accumulated %					
– 1990–94	8	9	14	38	11
– 1994–3/97	18	2	16	15	16
6. GDP growth p.a.					
– average 1987–96	6.9	8.3	8.5	3.7	9.5
– EIU consensus expectations (7/97)	7.8	6.3	7.6	n.a.	6.8
7. Current account, % of GDP NIA definition					
– average 1990–94	–2.7	–1.5	–7.4	–4.5	–7.5
– average 1995–96	–3.8	–3.4	–9.7	–5.5	–9.1
– difference	–1.1	–1.9	–1.7	–1.0	–1.6
8. Efficiency*					
– average 1990–94	21.1	20.4	24.3	9.6	20.1
– average 1995–96	25.0	18.9	19.0	24.6	15.0

* defined here as GDP growth divided by the inverse of the investment rate of the preceding year

Sources: Davies (1998), Corsetti *et al.*, (1998); Radelet and Sachs (1998)

fell to some critical level (Krugman 1979; Flood and Garber 1984). These 'first-generation' crisis models accounted well for the many currency crises in the 1970s and also for the 1982 developing-country debt crisis. But the models failed to explain Chile's 1982 crisis, the 1992 ERM crisis, or the Mexican peso crisis 1994–95.

Table 2 shows that the 'first-generation' crisis model also fails to explain what happened in the five Asian crisis economies. Government budgets were balanced or moving into surplus (partly in appropriate fiscal response to higher net private capital flows). Growth in monetary aggregates was fairly high in all crisis countries, but cannot be described as runaway monetary expansion. Except in Thailand,

inflation rates were coming down, nominal GDP growth was largely at levels corresponding to money creation, and all countries were at a stage of development where money demand was still growing.

The logic of the 'second-generation' crisis model (Obstfeld 1994) does not apply to the Asian crisis either. This literature, developed in the aftermath of the ERM crisis, stresses the trade-offs between the benefits of a credible exchange rate peg and the costs in terms of higher interest rates, higher unemployment or lower growth of defending the peg. There was no such trade-off in the five Asian crisis countries before the crisis erupted. Past and expected growth was enviably high, interest rates

and sovereign yield spreads were going down not up, and unemployment was informal (as usual in developing countries). Traditional crisis models cannot explain the Asian crisis.

Nor do conventional flow explanations, which rely on current account sustainability or real overvaluation problems, explain the Asian crisis well. To be sure, there has been considerable appreciation of real effective exchange rates, in particular during the 1995–96 period. The effective appreciation resulted largely from the rise in the US dollar to which the Asian currencies were effectively pegged and from the depreciation of the yen, a key competitor currency. The inappropriateness of a dollar peg for the Asia Pacific Economic Community (APEC) currencies had long been recognised (Reisen and van Trotsenburg 1988), although it had prevented beggar-thy-neighbour policies through competitive devaluations in the region. But in no way did the estimated overvaluation of the victim currencies reach Latin American or East European dimensions. On Goldman Sachs estimates (Davies 1998), the estimated overvaluation did not exceed 5 per cent by mid-1997; by early 1998 Asian currencies were undervalued by up to 70 per cent on these estimates.

Current account deficits had been large in Malaysia and Thailand. That did not imply, however, that they were unsustainable in the sense of exploding total foreign debt/GDP ratios above sustainable thresholds (Reisen 1998). Moreover, cyclically adjusted and corrected for underlying FDI cover, current account imbalances were not held to be excessive in the region, given the high past growth and expected growth potential. Rather than a crisis due to conventional current-account sustainability or real overvaluation (flow) problems, the Asian crisis seems primarily a capital-account crisis of stocks.

Broad aggregate efficiency numbers (as defined in Table 2) also fail to support the notion that capital flows reversed as investors perceived that they were not invested efficiently. While efficiency dropped somewhat in Korea, Malaysia and Thailand, that drop may simply be explained by a decline in marginal productivity of capital, as high net capital flows added to high domestic investment rates. In the two (capital-) poorest sample countries, Indonesia and the Philippines, capital efficiency

actually rose during 1995–96 relative to the 1990–94 period.

As the speculative attacks of the 1990s, including the Mexican peso crisis, challenged the view that currency crises were due largely to the government's inability to achieve monetary and fiscal discipline, a number of researchers have turned to exploratory empirical models in order to identify crisis predictors. This literature points to indicators which are more likely to be representative of the current Asian crisis than the indicators emphasised by the traditional currency crisis literature:

- In a panel of annual data for over 100 developing countries from 1971 through 1991, Frankel and Rose (1996) find that a high ratio of FDI to foreign debt inflows is associated with a low likelihood of a currency crash. Note here that this ratio deteriorated on average in the five crisis countries from roughly 1:2 over 1989–94 to 1:4 over 1995–96 (Table 1). By contrast, Frankel and Rose do not find evidence for the size of the current account deficit to predict currency crashes. It is interesting to recall that, from 1970 to 1982, Singapore ran a current account deficit worth 12.1 per cent of GDP on average; almost half of the corresponding net capital inflows consisted of FDI.
- Since the 1980s, the link between banking crises and balance-of-payments crises has strengthened. Kaminsky and Reinhart (1996) trace 71 balance-of-payments crises and 25 banking crises during the period 1970–95; while they report only 3 banking crises vs. 25 balance-of-payments crises during 1970–79, they find 22 banking crises vs. 46 payments crises over 1980–95. They find that financial liberalisation (which occurred mostly since the 1980s) plays a significant role in explaining the probability of a banking crisis preceded by a private lending boom. A banking crisis, they find, in turn helps predict a currency crisis. The Kaminsky and Reinhart findings are largely confirmed by Sachs, Tornell and Velasco (1996) who identify real exchange rates, bank loan growth (as an indicator of bank fragility) and the ratio of country M2 to reserves (indicating reserve adequacy) as significant crisis predictors. Banking crises, in turn, have been identified to be preceded by low growth, high real interest rates, high inflation,

Table 3: Indicators of financial vulnerability

	Indonesia	Korea	Malaysia	Philippines	Thailand
1. Lending to private sector, % of GDP					
– end 1993	49	54	74	26	84
– end 1996	55	62	90	48	
2. Foreign liabilities/foreign assets (towards BIS reporting banks)					
a. non banks					
– end 1994	9.9	5.9	1.9	0.9	5.3
– mid 1997	14.0	8.5	2.4	1.5	6.7
b. banks					
–end 1994	2.2	2.6	1.3	1.0	8.6
–mid 1997	2.8	2.7	1.8	2.6	12.4
3. Short-term foreign debt/reserves					
– mid 1994	1.7	1.6	0.3	0.4	1.0
– mid 1997	1.7	2.1	0.6	0.8	1.5
4. M2/reserves					
– end 1993	6.1	6.9	2.1	4.9	4.1
– end 1996	6.5	6.5	3.3	4.5	3.9

Sources: Corsetti *et al.* (1998); Radelet and Sachs (1998)

deteriorating terms of trade, explicit deposit insurance and by lax law enforcement (Demirgüç-Kunt and Detragiache, 1997).

It seems that the crisis prediction literature can partially, but not fully, account for the Asian crisis. It rightly points to the strong nexus between banking and currency crises. But low growth, high real interest rates and high inflation can definitely not be blamed for the Asian crisis. Table 3, by contrast, shows clearly that currencies become vulnerable to speculative attacks because of rising imbalances between real cash balances, short-term debt and official reserves. The importance of stock imbalances for vulnerability to speculative attacks had been driven home clearly already by the Mexican crisis (Calvo and Mendoza 1996a). In Asia's case, in particular during 1995 and mid-1997, lending to the private sector had clearly paced ahead of (fast) GDP growth. The two countries which experienced the highest net capital inflows – Malaysia and Thailand – also experienced the most rapid expansion in the commercial bank sectors.

Abundant foreign supply of capital (offered at rapidly falling sovereign yield spreads) and the greater ability of Asian non-bank and bank

borrowers to tap the international financial markets interacted to fuel a rise in non-bank and bank foreign liabilities (toward BIS reporting banks). In terms of foreign assets, non-bank foreign liabilities exploded in Indonesia, Korea and Thailand, while bank foreign liabilities grew quickly in the Philippines and again in Thailand during 1995 and mid 1997.

Rapid bank and non-bank foreign borrowing finally made Asian currencies vulnerable to attack. When short-term foreign debt starts to exceed official reserves (indicated by a ratio higher than one), each creditor knows that there are not enough liquid foreign exchange reserves, so each rushes to the exit door to be the first. Table 3 indicates that such a situation clearly held for Indonesia and Korea already by mid-1994, and for Thailand thereafter. While Malaysia and the Philippines displayed a short-term debt/reserves ratio lower than one, they were financially open. Openness implies that M2/reserves becomes the relevant indicator for financial vulnerability, as residents may try to obtain foreign currency for their domestic currency holdings. The M2/reserves ratio exceeded one by far in all five crisis countries, even though it had stopped growing over 1995–96 except in Indonesia and Malaysia.

3 From Boom to Financial Vulnerability

In the new global-markets era with intense capital mobility, yesterday's financial-market darlings, including new OECD entrants, have repeatedly become financial-crisis victims. I will argue here that the 'root' cause for emerging-market currency crises is the interaction of:

- Boom 'distortions' with excessively optimistic expectations by market participants, reinforced by exchange rate pegs in the presence of sustained interest differentials
- The loosening of portfolio discipline in weak domestic banking systems as a result of heavy capital inflows and disorderly financial liberalisation

This explanation seems to fit well the crises in Chile 1982, in Mexico 1994–1995 and the ongoing Asian crisis. In all three cases, market-friendly economic reform coupled with fiscal and monetary discipline went along with effective dollar pegs and financial liberalisation.

Chile, Mexico and the Southeast Asian countries had been widely celebrated as models of economic reform and high-growth performance before they crashed. Asia was the centre of admiration and rosy forecasts in the Asian Miracle Study by the World Bank (1993) and in the New Global Age Study by the OECD (1997). Governments in Europe incited their firms and banks to take a larger claim in the promising Asian economies. In fact, Southeast Asia had not only been leading the world GDP growth league, but such growth had also been more stable than elsewhere in the developing world (Gavin and Hausmann 1996). Asia's deep ignorance of Latin America's experience with currency crashes seemed no cause for concern. Chile's and Mexico's experience with twin payment and banking crises had originated in the explosive mix of domestic financial deregulation, implicit deposit insurance and super returns for foreign investors as a result of dollar pegs in the presence of sustained interest differentials (Reisen 1997).

In Southeast Asia, as in Chile and Mexico before, domestic financial reform, low levels of international interest rates (in particular in Japan) and excellent growth prospects contributed to a large increase in the supply of loanable funds throughout

the 1990s. Due to the existence of market and policy failures, that mix can easily explode into (1) overborrowing, (2) a banking crisis, and then (3) a full-blown currency crisis:

(a) Private borrowers do not internalise the rising marginal social cost of their private borrowing that comes from the increasing vulnerability to speculative attacks and the cost of fending these off (e.g. by increasing foreign reserves accordingly). This is known as the 'Harberger externality', already driven home from Chile's 1982 crisis (Harberger 1985).

b) Excessively optimistic expectations about 'permanent' income levels (e.g. after major changes in the policy regime, or new membership in a First World club) lead to overborrowing, because financial market institutions fail as efficient information conduits between depositors and borrowers (McKinnon and Pill 1996). Financial market bubbles add to such boom mentality through the wealth effect on current income. Firms with a high risk–return profile have an incentive to borrow and invest heavily, as their exposure is limited by bankruptcy laws or implicit guarantees (this is the focus of Krugman 1998, but the theory is not new). Likewise, when the government insures deposit against adverse outcomes, it reduces incentives to ration credit and reduce credit risk. This results in higher bank lending, which in turn can underpin excessively optimistic expectations about future growth prospects.

(c) Exchange rate pegs, in combination with sustained interest rate differentials (on which more below), tend to reinforce bank lending and spending booms. They constitute an incentive for offshore borrowing by creditworthy banks and non-banks as well as for foreign lenders. Central bank intervention on the foreign exchange market, to peg the currency in view of net inflows, unless sterilised fully, is intermediated into the banking system. The exchange rate peg provides the incentive to allocate those funds disregarding currency and maturity risks, as these are being implicitly transferred to the central bank (Calvo and Mendoza 1996b). Such incentives for currency and maturity mismatches may have been reinforced in Asia by its experience of sustained and stable growth. Catch-up growth should result in real exchange-rate appreciation (through the Balassa–Samuelson effect), explaining

why short-term liabilities were foreign-currency denominated, unhedged. As growth went along with a high degree of stability, maturity mismatches (short-term debt for long-term investment) were ignored as well.

(d) The persistence of high interest rate differentials after and despite financial opening can in theory be explained by sovereign risk premia, currency devaluation risk, inflation inertia or by structural determinants. However, bond-yield spreads and syndicated loan-rate spreads for Southeast Asia fell well into mid 1997 (Cline and Barnes 1997). Sovereign ratings by the leading rating agencies did not signal increased sovereign risk until after the crisis erupted (Reisen 1998). With regard to exchange rates, the market failed to anticipate the extent to which currencies would depreciate, even once the crisis began (Radelet and Sachs 1998). And high real interest rates could hardly reflect inflation inertia (as it often had done in Latin America), because inflation had been fairly low for years, except in the Philippines perhaps. This leaves us with microeconomic explanations of deviation from interest parity and persistently high domestic lending rates, just like those experienced by the Southern Cone countries in Latin America 15 years earlier (Fischer and Reisen 1993). The major structural determinants there were:

- the persistence of *segmented credit markets*, where creditworthy borrowers could tap global financial markets at low borrowing cost, while smaller and service-sector firms stayed confined to expensive domestic credit, with a corresponding concentration of bank loan portfolios
- the existence of economic *conglomerates* (Chile's *grupos*, for example), with a group of firms organised around one or more domestic banks, resulting in weak portfolio discipline and over-exposure by the conglomerate banks
- *non-performing loans and distress borrowing*, as banks capitalise debt service on bad loans and increase interest charges on healthy borrowers, in order to avoid explicit bankruptcies of important borrowers that could result in a major bank run by depositors
- *restricted entry* into the banking sector, in particular for foreign banks, resulting in oligopolistic structures and correspondingly large interest rate margins

In a financially closed economy, the market and policy failures presented above are reflected in higher financial yields, but their effect on quantities – borrowing and spending – is ambiguous, depending on offsetting income and substitution effects (McKinnon and Pill 1996). In an open economy, by contrast, the boom distortion leads to excessive spending (consumption or investment), financed by excessive borrowing from the rest of the world. The McKinnon-Pill solution to the distortion is similar to a Pigou-Harberger tax, a reserve requirement on foreign deposits.

From a macroeconomic perspective alone, up to 1994 it was difficult to 'read' that Asia was heading for trouble. This is nicely shown by the *IMF Occasional Paper* No. 122 (Kahn and Reinhart 1995) where the almost prophetic warnings by Folkerts-Landau and co-authors about the deteriorating credit quality and rising financial risks in the APEC countries were preceded (and to a certain extent discounted) by the macroeconomic analysis of Khan and Reinhart, who concluded:

The above discussion has highlighted that the risks associated with capital inflows create policy dilemmas. However, the overall picture is much more positive, as many Asian countries and a smaller number of Latin American countries have used these inflows to finance productive investment [sic!] and achieve higher growth . . . to limit some of the risks associated with short-term flows, a reasonable sequencing of policies would consist in initially limiting the intermediation of those flows through sterilised intervention, greater exchange rate flexibility, and/or increased marginal reserve requirements, followed by a gradual monetization of these flows (that is, nonsterilized intervention), accompanied perhaps by an appreciation of the currency (p.29).

In fact, my own analysis largely concurred (Reisen 1996) as there was fiscal restraint to constrain appreciation pressures, considerable sterilisation of inflows and/or reserve requirements on foreign-currency deposits, no signs of CPI-adjusted real currency overvaluation, higher investment rates (rather than consumption) resulting from net inflows and a variety of capital inflow controls in the Asian crisis countries. Only from 1995 did real exchange rate

misalignment develop as the dollar started to rise relative to the yen, while the terms of trade (for semiconductors, etc.) deteriorated. And only from 1995, did Asian domestic lending rates start to rise (after converging towards international levels before) and short-term borrowing become the dominant feature in Asian capital accounts. To be sure, most analysts had failed to perceive the extent to which portfolio discipline in the weak domestic financial systems had deteriorated as a result of heavy capital inflows and disorderly financial liberalisation.

The failure of Southeast Asia to adjust in a timely manner to changing external conditions and to domestic overheating was also rooted in the weak bank and non-bank balance sheets that had developed over the early 1990s. Currency devaluation would have drastically reduced the net worth of banks and non-banks as their foreign-currency liabilities were a multiple of foreign-currency assets already by end 1994, except in the Philippines (recall Table 3). Increases in interest rates, and related declines in asset values that were heavily used as collateral for domestic lending, would have promoted a banking and financial crisis. As higher interest rates tend to intensify adverse selection problems in developing countries (Mishkin 1996), they lead to a steep decline in domestic lending, investment and aggregate activity. Governments in Asia's crisis countries were not (yet) prepared to face these problems head on, and global financial markets were happy to provide enough money to delay the day of reckoning. A precise replay of Mexico (Calvo and Mendoza 1996a).

Financial opening throughout Asia had encouraged short-term capital inflows, even if they were at times restricted:

- In Thailand, the authorities approved the establishment of the Bangkok International Banking Facility (BIBF) 'which greatly eased access to foreign financing and expanded short-term inflows' (Johnston *et al.* 1997). In 1995, the Provincial International Banking Facility was established which could extend credit in both baht and foreign currencies with funding from overseas.
- In Korea, the 1994–97 surge in short-term inflows can be attributed to acceleration in

financial liberalisation by allowing domestic financial institutions greater freedom in asset and liability management, in particular in borrowing from international financial markets (Park 1998).

- Indonesia relaxed over the 1990s foreign borrowing for trade finance by private entities, including sales of securities to non-residents and liberalisation of FDI and portfolio investment through the stock markets (Johnston *et al.* 1997). On the other hand, the authorities reimposed in 1991 quantitative controls on offshore borrowing by banks and state enterprises.
- In mid-1994 Malaysia lifted reserve requirements on foreign financial institutions' accounts in Malaysian banks as well as a ban on issues of short-term securities to non-residents (Folkerts-Landau *et al.* 1995).

Concerns that financial opening in developing countries would run ahead of the financial infrastructure required to constrain financial risks have been voiced permanently since Chile's 1982 crisis (see, e.g., Edwards 1990; McKinnon 1991; Fischer and Reisen 1993). In the context of Asia's crisis countries, early warnings by IMF and World Bank staff were clear enough:

The APEC developing countries face the policy challenge of building a supervisory and regulatory infrastructure that (1) ensures the efficient allocation of bank credit, and (2) safeguards the integrity and stability of capital markets. Although many of these countries have made great strides in liberalizing and strengthening their financial systems in recent years, much remains to be done. . . . In many countries, banking problems have most often been the result of bad credit decisions and inept management of credit risk, including overexposure to certain types of risk, and have caused major losses. Large and relatively volatile capital flows can contribute to these problems, especially when bank balance sheets are badly structured, by causing large swings in bank liquidity that result in alternating periods of credit expansion and contraction. Two major areas of concern are the ability of the banking systems to assess, price and manage risk, and the adequacy of the supervisory frameworks to prevent and contain systemic risk, particularly in the presence of

Table 4: Bank system risk exposure and financial infrastructure

	Indonesia	Korea	Malaysia	Philippines	Thailand
1. Bank system exposure to risk, % of assets end 1997					
- non-performing loans	11	16	8	6	15
- capital ratio	8-10	6-10	8-14	15-18	6-10
- real estate exposure	25-30	15-25	30-40	15-20	30-40
- collateral valuation	80-100	80-100	80-100	70-80	80-100
2. Regulatory features during the 1990s					
- bank lending to connected firms	high	high			
- government-directed bank lending	yes	yes	yes	yes	yes
- bank deposit insurance	none	none	none	yes	none
- importance of state-owned banks	high			high	
- accounting standards	weak	weak		weak	weak
- enforcement of existing regulations	weak	weak	weak	weak	weak
3. Incentives for capital flows					
- short-term inflows	limited	limited (promoted)			promoted
- long-term inflows	limited	limited			promoted
- outflows	free	limited			limited

Sources: Folkers-Landau *et al.* (1995), Johnston *et al.* (1997), Corsetti *et al.* (1998)

safety nets and the problem of moral hazard. (Folkerts-Landau *et al.* 1995, p.32.)

Liberalization is inexpensive, fast and easy to implement; building institutional capacity is expensive, slow and complex. Thus many countries have done the quick and easy reforms first. However justified this sequence may be on political grounds, and even though it increases demand for a better infrastructure for finance, it undermines the stability of the financial system. (Claessens and Glaessner 1997.)

The only aspect which was underemphasised in these prophetic warnings was the lack of corporate governance in the Asian crisis economies. More concerned with raising market share than with maximising profits, and reluctant to issue equities as this would dilute their management control, non-bank firms greatly contributed to overborrowing by raising offshore short-term debt. As shown in Table 3, this problem was particularly visible in Indonesia and Korea. As, in addition, commercial banks imported substantial amounts of capital (rather than merely intermediating capital inflows), the heavy capital inflows contributed less to

monetary-aggregate imbalances (M2/reserves) as emphasised by Calvo and Mendoza (1996b), but to increasing bank and non-bank debt imbalances.

Nevertheless, the domestic financial systems contributed heavily to weak balance sheets and financial vulnerability in Asia, not just through the excessive quantity, but also through the low quality of foreign capital intermediation. Table 4 represents the extent of risk exposure in the Asian bank systems at the outbreak of the crisis. Non-performing loans were the highest in 1997 in Korea (16 per cent of total assets), Thailand (15 per cent) and Indonesia (11 per cent); they are expected to increase sharply over 1998. This compares to a non-performing loan ratio of 9.3 per cent in Mexico early 1995, where the cost of rescuing banks has been estimated at ca. 15 per cent of GDP on a net present-value basis (Caprio and Klingebiel 1996). As the banks, with the exception of the Philippines and possibly Malaysia, were severely undercapitalised in the Asian crisis countries (with capital-to-asset ratios estimated at 6-10 per cent), the non-performing loans had on average already wiped out the total capital of banks in Korea, Thailand and Indonesia.

As before in Latin America (see Ffrench-Davis and Reisen 1998), excessive real estate exposure has been a prominent feature of the lending and spending boom in Asia as well. Real estate exposure is estimated at 30–40 per cent in Indonesia, Malaysia and Thailand, while it is somewhat lower in the Philippines and in Korea (where the bad loans are concentrated with the *chaebols*). The high real estate exposure of Asian banks indicates to what extent loans were used not to finance productive investment, but speculative demand of existing assets in fixed supply. Thus, part of the foreign inflows went into feeding speculative asset price bubbles. The excessive real estate exposure was clearly related to excessive collateral valuations; the Philippines, which had the lowest real estate exposure, also had the lowest collateral valuation (Table 4). As the asset bubble burst, the deflating values of real estate and other assets, reducing the value of loan collateral, clearly determined the extent of the non-performing loans.

In Indonesia and Korea, as in Chile in the early 1980s, balance sheet weakness in the banking system was also related to credit exposures to borrowers connected to the lending bank (Folkerts-Landau *et al.* 1995). Although there were regulatory restrictions on bank ownership, they did not prevent banks from becoming controlled by non-bank firms. In Korea, where the use of dummy accounts was widespread, this prevented the enforcement of restrictions against concentrations of lending to the bank shareholders.

Loosening portfolio discipline and debt imbalances which were fuelled by heavy inflows can partly be traced to government intervention in bank lending and corporate finance. Folkerts-Landau *et al.* (1995) point to the fact that many APEC developing countries, in fact all five crisis victims, have regulatory requirements to allocate fixed proportions of bank loan portfolios to particular sectors (see Table 4). As mandated loans carry an implicit bail-out guarantee and as they are usually refinanced by the central bank at below-market interest rates, banks have little incentive to limit their credit risk. The pursuit of growing market shares has led to a neglect of the cost of capital, in particular where government allocation of credit played an important role for industrial policy. 'Picking the winners' may be fairly easy during the very early stages of

development, and even then it invites moral hazard and rent-seeking behaviour (Vittas and Wang 1991). Once countries have moved up the global product cycle, the chances that government-led credit allocation leads to capital waste increase disproportionately. As problem loans develop as a result of mandated lending, the implicit guarantees given by governments to the banks often obviate the need to identify such problem loans properly and to build reserves against them.

As already emphasised by the IMF in 1995 (again, Folkerts-Landau *et al.*) 'many of the APEC developing countries . . . are not well equipped to manage the increased risks inherent in intermediating volatile capital flows and to absorb high asset price volatility' (p.39). The report then points to incentive problems that arise from existing deposit insurance in the Philippines and from the high importance of state-owned banks in Indonesia as well, where a bail-out presumption can be assumed to play a particularly important role.

Even more endemic, it seems, are the poor accounting standards and limited disclosure requirements in the emerging markets (for Latin America, see Rojas-Suarez and Weisbrod 1996). Inconsistent financial reporting, the limited power of auditors (or tax collectors) to examine company records, the lack of sanctions for incorrect reporting of information, the use of borrowed names and the maintenance of multiple accounts greatly diminish the reliability of reported information. Poor accounting standards imply that even detailed examination by supervisors and regulators may not reveal much information.

Another endemic shortcoming in most emerging markets is the lack of enforcement of existing regulations. In fact, the Asian crisis countries had tried to strengthen the supervisory and regulatory infrastructure during the 1980s and 1990s, partly in response to costly banking crises (such as in Indonesia and Malaysia) a decade ago (see Fischer and Reisen 1993, for details). Bank regulators had imposed limits on bank lending, including liquidity requirements and exposure limits. Moreover, the countries now in crisis introduced risk-based capital requirements (note, however, that foreign exchange exposure was missing from the Basle accords on these requirements).

However, capital requirements are ineffective as long as accounting standards are ineffective. Inaccurate reporting on non-performing loans, with interest rate recorded as accrued for bad loans rolled over, or unclear definitions of what can be included in capital, will show up in high capital-adequacy ratios but disguise the extent of non-performing loans. Fictitious names in bank accounts make it impossible to enforce restrictions on over-exposure by banks to individual or corporate counterpart.

4 Conclusions for Reducing the Frequency and Severity of Currency Crises

Private spending booms, fuelled by overborrowing, have increasingly led to twin banking and currency crises in developing countries, which were acclaimed as star performers until the crises erupted. Private capital inflows, attracted by financial opening and by exchange rate pegs, have repeatedly reinforced such pre-crisis booms. Domestic financial systems have tended to prove too weak as a *conduit* for heavy capital inflows, resulting in declining credit quality and financial fragility. As long as herding behaviour remains a prominent feature of global capital markets, developing countries with strong macroeconomic fundamentals are advised to pay close attention to indicators of financial vulnerability, in particular to short-term debt/reserve levels as well as to currency and maturity mismatches. To avoid a rise of these indicators above critical threshold levels, several avenues can be pursued.

Some of these avenues are uncontroversial, but deceptively hard to implement, in particular in the context of developing countries' political, institutional and legal backgrounds.

- Good accounting standards and complete, accurate and timely information disclosure are a necessary precondition for prudential regulation and supervision. Moreover, they can stabilise market expectations. This, however, requires two things, both pointed out by Rivlin (1998): 'In actual fact a great deal of information usually turns out to have been available which no one ever looked at or effectively analyzed. For transparency to be useful, people need to actually

want to look – and too often those who are making high profits would rather not hear bad news.' And: 'A culture of transparency and timely, accurate information . . . can restrain the boom by enabling investors to assess risk more accurately, and it can cushion overreaction once a downward slide begins. But such a culture cannot be built quickly, and even where it exists, has to be assiduously maintained.'

Only with reliable accounting systems and disclosure requirements to ensure transparency will it be possible to strengthen bank and non-bank balance sheets and to enforce prudential regulation through serious, independent supervisory arrangements. But it is safe to assume that basic ingredients for effective enforcement of prudential regulation will meet resistance from affected interest groups. Still, the basic requirements are: independent internal oversight of lending decisions by a credit review committee; vesting the supervisory agency with the authority to examine bank operations and balance sheets, close banks and establish entry criteria, define capital adequacy and exposure limits, enforce asset classification, provisioning rules and prudent collateral valuation that fully reflects the volatility of developing-country asset markets. To be sure, the 'wish list' is long, and has been lengthening (Goldstein and Turner 1996).

These largely uncontroversial prescriptions, actively promoted since Mexico's crisis by the G10 Working Party on Financial Stability in Emerging Market Economies (with the participation of several Asian crisis countries), will take years or decades to implement and will be hard to maintain. Quick fixes will not do the job. Progress with respect to information disclosure and strengthened public and private-sector balance sheets should determine to what extent countries can diversify the sources of capital inflows with added net benefit. First principles are the most reliable guide here, whatever the pressure from money managers.

According to the debt-cycle hypothesis, rarely validated empirically, external savings raise domestic investment and growth, which in turn stimulates savings that eventually contribute to the elimination of net foreign debt. Such a virtuous circle hides five requirements, again rarely complied with in practice (Devlin *et al.* 1994):

- First, external capital flows should consistently augment investment, rather than be diverted to consumption
- Second, the investment must be efficient
- Third, the country must invest in tradeables (or trade-related infrastructure) to create a trade surplus that will accommodate the subsequent switch in transfers required to service the debt
- Fourth, an aggressive domestic savings effort is called for, with the marginal savings rate exceeding the average savings rate
- Fifth, the virtuous circle requires capital exporters willing to provide stable and predictable flows at terms in line with the recipient country's factor productivity.

These demanding requirements seem best fulfilled by FDI flows (Reisen 1997). First, FDI is by long-term profitability expectations, it is less dependent on financial market sentiment than debt or portfolio equity flows. Second, in a largely undistorted real economy, FDI improves the host country's production function and produces positive external spillovers, comparable to agglomeration benefits. Thus, the Harberger externality does not apply to FDI.

At the other extreme, short-term debt-creating flows may have a positive role for consumption smoothing in theory (although they tend to be excessive in boom times and unavailable when a country is in a bust situation). Their contribution to growth, however, is dubious at best; that holds, in

particular when short-term debt adds to high domestic savings so that marginal capital returns can be presumed to be declining fairly fast. On the other hand, short-term debt adds clearly to financial vulnerability. To avoid speculative attacks, and when the short-term debt/reserves ratio dangerously approaches 1, this implies the need to put every dollar of increased foreign debt into official reserves to prevent the vulnerability ratio from growing. This implies borrowing at a higher rate of interest than, say, the rate for reinvesting it into US Treasury bills. The net benefit of such a swap would be clearly negative to the country.

How to influence the structure of capital inflows, then, towards long-term equity? The Latin American experience, in particular more recently, shows that two mutually reinforcing policies can do the trick (Ffrench-Davis and Reisen 1998). First, keep nominal exchange rates flexible enough, and even introduce noise through central bank intervention if they are on a too stable appreciating trend. Managed flexibility raises the currency risk for short-term investors chasing high local returns. Second, discourage excessive inflows by an implicit tax that varies inversely with maturity. There is strong evidence that policy management can impact strongly on the composition and also overall size of flows. This is important because reducing the size of flows will contain real appreciation and the relative decline in the profitability of tradeables. Biasing the composition of flows towards FDI will stimulate the investment response and reduce volatility.

References

- Borensztein, E., J. De Gregorio and J.-W. Lee (1995) 'How does foreign direct investment affect economic growth?', *NBER Working Paper* No. 5057
- Calvo, G. and E. Mendoza (1996a) 'Petty crime and cruel punishment: lessons from the Mexican debacle', *The American Review, Papers and Proceedings*, May, pp. 170–85
- Calvo, G. and E. Mendoza (1996b) 'Mexico's balance of payments crisis: a chronicle of death foretold', *Journal of International Economics*, Vol. 41, Nos. 3/4, pp. 235–64
- Caprio, G. and D. Klingebiel (1996), *Bank Insolvency: Bad Luck, Bad Policy, or Bad Banking?*, Washington, D.C.: The World Bank
- Claessens, S. and T. Glaessner (1997), *Are Financial Sector Weaknesses Undermining the East Asian Miracle?*, Washington, D.C.: The World Bank
- Cline, W. and K. Barnes (1997), 'Spreads and risks in emerging markets lending', *Institute for International Finance Research Paper* No. 97–1
- Corsetti, G., P. Pesenti and N. Roubini (1998) 'What Caused the Asian currency and financial crisis?', mimeo, <http://www.stern.nyu.edu/~nroubini/asia/AsiaHomepage.htm>
- Davies, G. (1998) *Causes, Cures and Consequences of the Asian Economic Crisis*, London: Goldman Sachs
- Demirgüç-Kunt, A. and E. Detragiache (1998) 'The determinants of banking crises: evidence from developing and developed countries', *IMF Staff Papers*, Vol. 45.1, pp. 81–109
- Devlin, R., R. Ffrench-Davis and S. Griffith-Jones (1994) 'Surges in capital flows and development: an overview of policy issues', in R. Ffrench-Davis and S. Griffith-Jones (eds), *Coping with Capital Surges: Latin American Macroeconomics and Investment*, Boulder and London: Lynne Rienner
- Edwards, S. (1990) 'The sequencing of economic reform: analytical issues and lessons from Latin American experience', *The World Economy*, Vol. 13 (1), pp. 1–14
- Ffrench-Davis, R. and H. Reisen (1998) *Capital Flows and Investment Performance: Lessons from the Latin American Experience*, Paris: OECD Development Centre Studies
- Fischer, B. and H. Reisen (1993), *Liberalising Capital Flows in Developing Countries: Pitfalls, Prerequisites and Perspectives*, Paris: OECD Development Centre Studies
- Flood, R. and P. Garber (1984) 'Collapsing exchange-rate regimes: some linear examples', *Journal of International Economics*, Vol. 17, pp. 1–13
- Frankel, J. and A. Rose (1996) 'Currency crashes in emerging markets: empirical indicators', *NBER Working Paper* No. 5437
- Folkerts-Landau, D. et al. (1995) 'Effect of capital flows on the domestic financial sectors in APEC developing countries', in M. Khan and C. Reinhart (eds), *Capital Flows in the APEC Region, IMF Occasional Paper* No. 122, pp. 31–57
- Gavin, M.K. and R. Hausmann (1996) 'Securing stability and growth in a shock-prone region: the policy challenge for Latin America', in R. Hausmann and H. Reisen (eds), *Securing Stability and Growth in Latin America*, Paris: OECD
- Goldstein, M. and P. Turner (1996), 'Banking crises in emerging economies: origins and policy options', *BIS Economic Papers* No. 46
- Harberger, A. (1985), 'Lessons for debtor-country managers and policymakers', in G. Smith and J. Cuddington (eds), *International Debt and the Developing Countries*, Washington, D.C.: The World Bank
- Johnston, R., S. Darber and L. Echeverria (1997) 'Sequential capital account liberalization: lessons from the experiences in Chile, Indonesia, Korea and Thailand', *IMF Working Paper* WP/97/157
- Kaminsky, G. and C. Reinhart (1996) 'The twin crises: the causes of banking and balance-of-payments problems', *International Finance Discussion Paper* No. 544, Board of Governors of the Federal Reserve System, Washington, D.C.
- Khan, M. and C. Reinhart (1995) 'Macroeconomic management in APEC economies: the response to capital flows', in *IMF Occasional Paper* No. 122, op. cit., pp. 15–30
- Kindleberger, C. (1978) *Manias, Panics and Crashes*, New York: Basic Books
- Krugman, P. (1979) 'A model of balance-of-payments crises', *Journal of Money, Credit and Banking*, Vol. 11, pp. 311–25.
- Krugman, P. (1998) 'What happened to Asia?', mimeo, <http://web.mit.edu/krugman/WWW/>
- McKinnon, R. (1991) 'The order of economic liberalization: financial control in the transition to a market economy', Washington: J. Hopkins

- McKinnon, R. and H. Pill (1996) 'Credible liberalizations and international capital flows: the overborrowing syndrome', in T. Ito and A. Krueger (eds), *Financial Regulation and Integration in East Asia*, Chicago: University of Chicago Press
- Mishkin, F. (1996) 'Understanding financial crises: a developing country perspective', *NBER Working Paper* No. 5600
- Obstfeld, M. (1994), 'The logic of currency crises', *Cahiers Economiques et Monetaires, Banque de France*, Vol. 43, pp. 189–213
- OECD (1997) *The World in 2020: Towards a New Global Age*, Paris: OECD
- Polak, J. (1957) 'Monetary analysis of income formation and payments problems', *IMF Staff Papers*, Vol. 6.4, pp. 1–50
- Park, Y. (1998) 'The financial crisis in Korea: from miracle to meltdown?', mimeo
- Radelet, S. and J. Sachs (1998) 'The onset of the East Asian financial crisis', mimeo, <http://www.hiid.harvard.edu/>
- Reisen, H. (1996) 'Managing volatile capital flows: the experience of the 1990s', *Asian Development Review*, Vol. 14.1, pp. 72–96.
- Reisen, H. (1997) 'The limits of foreign savings', in R. Hausmann and H. Reisen (eds), *Promoting Savings in Latin America*, IDB/OECD, Washington/Paris, pp. 233–64
- Reisen, H. (1998) 'Sustainable and Excessive Current Account Deficits', *Empirica*
- Reisen H., A. van Trotsenburg (1988) 'Should the Asian NICs peg to the yen?', *Intereconomics*, July/August 1988, pp. 172–77
- Rivlin, A. (1998) 'Lessons drawn from the Asian financial crisis', reprinted in *BIS Review* No. 41, 13 May 1998
- Rodrik, D. (1998) *Who Needs Capital Account Convertibility?*, University of Harvard, <http://www.nber.org/~drodrik/essay.pdf>
- Rojas-Suarez, L. and S. Weisbrod (1996) 'Building stability in Latin American financial markets', in R. Hausmann and H. Reisen (eds), *Securing Stability and Growth in Latin America*, Paris: OECD
- Sachs, J., A. Tornell and A. Velasco (1996) 'Financial crises in emerging markets: the lessons from 1995', *NBER Working Paper* No. 5576
- Vittas, D. and B. Wang (1991) 'Credit policy in Japan and Korea: a review of the literature', *World Bank Working Paper Series* No. 747
- Wolf, M. (1998) 'Flows and blows', *Financial Times*, 3 February 1998.
- World Bank (1993) *The East Asian Miracle*, Oxford: Oxford University Press
- Wyplosz, C. (1998) 'Globalized financial markets and financial crises', mimeo, <http://heiwwww.unige.ch/~wyplosz/>