Deutsche Bank Research

Global Emerging Markets Research

Global Emerging Markets

Date

June, 1998

The Asia crisis can now be ranked among the more notable crises in financial history. Unprecedented movements in exchange rates and asset prices have destroyed more than USD1.5 trillion of financial wealth in the affected Asian countries alone. In many cases, real income is shrinking at an alarming rate, and the social costs are only just beginning to make themselves felt. The fact that this is a debt crisis caused by excessive domestic credit growth driven by massive capital inflows, rather than a more familiar macroeconomic crisis caused by governmental profligacy, will mean that the resolution will stretch well into the new century. The elimination of the unprecedented debt overhang and the reduction of high leverage ratios will be slow and painful. There is little upside potential, and a lot of downside risk coming from the possible devaluation of the Chinese RMB, a continuing slide of Japan into a 1930's type of recession, and the possibility of a G-7 interest rate increase. This inaugural issue of Deutsche Bank's global emerging markets monthly publication examines the causes and evolution of the crisis in Asia and discusses its implications for the rest of the emerging market world.

Global Head of Emerging Markets Research
David Folkerts-Landau

Peter Garber
Stuart Parkinson

Asia
Angus Armstrong
Michael Spencer
Shou-Kang Lin
Sanjeev Sanyal

Emerging Europe
Marcel Cassard
Laura Papi
Bart Turtelboom
Hannah Nixon
Jurgen Conrad
Gerhard Krause
Hanno Sonntag

Latin America
Liliana Rojas-Suarez
Gustavo Canoñero

Consultants
Jose Alberro-Semerena
Michael Dooley
Jose de Gregorio
Ernesto Talvi

June Issue: Asia Crisis Special

The IMF Executive Board in session

Table of Contents

Introduction to Global Emerging Markets Research

This is the first global monthly publication produced by the newly created Emerging Markets Research Group of Deutsche Bank. This publication reflects our views and analysis of the key financial issues arising from current economic and political developments. It is not the intention for this publication to provide a running commentary on developments as they unfold, that task is left to four weekly regional reports covering Asia, Latin America, Eastern Europe/Russia/South Africa, and sovereign credit research. Instead, the focus of this publication, as well as that of our core research activity, is on identifying and analyzing the major economic and political issues that have the potential for precipitating significant moves in financial markets.

The conventional thinking regarding the dynamics of exchange rate and asset prices in emerging markets has been put into question by the Asian crisis. Although there are by now numerous explanations of what went wrong, the truth is that the conventional macro-economic models of open economies can no longer be trusted to provide reliable guidance. The macro-economics profession has been slow and reluctant to accept the fact that the growth of modern finance has profoundly altered the dynamics of market economies. The inability to integrate developments in domestic and international finance into traditional macroeconomics is in large part responsible for the failure to anticipate the Asian crisis. It was not the external or domestic deficits that brought down the Thai baht or the Korean won, instead it was the massive hole in the domestic financial sector and the contingent fiscal liabilities - overlooked by macro-economists - that made the existing exchange rate arrangements unsustainable, with the volatility of international short-term bank lending driving the dynamics of the exchange rate. The failure to anticipate the difficulties is all the more disappointing since the Mexican peso crisis had provided an early warning of how uncovered foreign exchange positions in the banking system could amplify exchange rate movements.

The inability to explain exchange rate movements in Asian currencies with any of the standard macro-economics models suggest that tinkering around the edges of accepted theory is not going to eliminate the intellectual deficit - a far more radical change in approach is required. This is the immediate challenge in the coming years and we hope to use this monthly publication to contribute to this debate. Having been on the public and private side of the fence for a while now, I have become convinced that the iconoclastic approaches to macro-economic dynamics practiced by the prominent directional global macro investors - the macro hedge funds - may tell us more about how to think about macro-financial dynamics than anything currently in the text books.

The current issue of the global monthly publication is devoted entirely to the Asian crisis. The first article by Angus Armstrong, Peter Garber, and Michael Spencer provides an overview of the causes, consequences, and remedies of the crisis, while subsequent chapters discuss the regional implications. In order to achieve a greater diversity of views we have also invited a number of outside contributors to use the monthly publication as a forum for their own views on the main issues of the day. Prof. Michael Dooley's contribution advances the thesis that the Asian crisis will not be over until the problem of the debt overhang is addressed. For those of us involved in the resolution of the 1982 Latin American debt crisis, this view has strong appeal. I too remain convinced that the lack of a more comprehensive solution to the debt overhang problem will ensure that the Asia crisis is far from over, and that under current circumstances the macro-economic stabilization programs, relying as they do on the contraction of domestic demand, may well aggravate the problem. In addition, there are grave downside risks - a devaluation of the Chinese RMB, a continuing recession cum deflation in Japan, an upward adjustment of G-7 interest rates with little potential for upside surprises. I cannot remember a time since 1982 when the international financial environment has been so fragile and vulnerable. It is generally taken as an article of faith that the major central banks can and will avoid a serious international financial disturbance. I would suggest that in light of the continuing failure of the G-8 to forestall a deterioration in Japan's economic and financial conditions, such confidence is a luxury that those with responsibility for the management of investment funds cannot afford.

David Folkerts-Landau, Managing Director, Global Head of Emerging Markets Research

Asia's Debt Crisis: Causes, Consequences and Lessons

By Angus Armstrong, Peter Garber and Michael Spencer

I. Summary and Conclusions

- Asia's financial crisis has provoked a broad reassessment of international financial policies. Economic and social costs are beginning to escalate with recession and rapidly rising urban unemployment. Finding an efficient solution to the debt overhang is the major challenge facing policy makers which will determine both the timing and pace of recovery. Should they fail, another round of destabilizing capital flight is expected to follow.

- Capital inflows and inefficient financial intermediation created a surge in domestic credit in excess of 30% per annum in the five most affected economies. Loans were committed on inflated collateral values and often funded through foreign currency liabilities. Inadequate regulation of non-depositary institutions, often unconsolidated subsidiaries of banks or industrial conglomerates, permitted excessive risk taking on the basis of appreciating asset values.

- Rapid accumulation of domestic and foreign currency debt rendered the corporate sector increasingly illiquid and vulnerable to financial shocks. Higher gearing through bank loans meant interest payments became an increasing share of national income, containable as long as asset values continue to appreciate. Yet the real rate of return from capital investment fell below the cost of capital implying investors were not being adequately compensated for risks.

- Once the illiquidity of the corporate sector and vulnerability of the financial institutions became exposed, speculative attacks triggered capital flight forcing domestic entities to cover foreign exchange positions thereby driving a downward spiral in currencies. Multiple credit downgrades and the unwinding of off-balance sheet derivative contracts intensified the reversal of international commercial bank loans equivalent to some 10% of GDP.

- Policy initiatives todate have been directed to stabilizing the balance of payments. In this particular respect, and with the salient exception of Indonesia, these policies have so far proved successful. However, this has come at the extremely high price of a near doubling in the cost of capital. Any competitive gains from devaluation are overwhelmed by the higher funding costs which threaten to push the corporate sector from illiquidity into insolvency.

- The debt overhang facing the Asia-5 is unprecedented at this early stage of a crisis. The average private sector debt to GDP ratio is almost 200% and total debt to GDP ratio is over 230%. As a result, the interest burden (without amortization payments) is 27% of GDP. With real interest rates comfortably above the real economic growth rates, Asia fails to satisfy the debt stability conditions and "growing out of indebtedness" will fail without debt rescheduling and/or relief.

- Debt service burdens can be reduced either by aggressively lowering interest rates, or through policies aimed at redistributing and preferably nullifying existing debt obligations. Japan's plight shows high savings alone do not ensure recovery if balance sheets are impaired. Under the IMF programs, neither option is on the agenda with interest rates to remain high to maintain currency stability. Prudent economic policy management will count for little if policy makers fail to deal comprehensively and efficiently with the stock of outstanding debt.

- Failure to address the debt overhang can have dramatic economic costs. The Latin American debt crisis was followed by the "lost decade" with per capita GDP still lower 10 years later; real output in Scandinavia took five years to return to pre-crisis levels; and Japan is yet to post any meaningful growth seven years after the asset price bubble burst. Asia need not face the same fate, but ambitious debt restructuring policies are necessary to avoid similar stagnation.

- Non-performing loans are expected to exceed 40% of GDP in some countries, making this one of the most expensive banking crises in recent history. NPLs typically exceed 400% of bank capital implying most of these losses will eventually become fiscal liabilities. The interest burden alone will add around 4-6% of GDP to fiscal expenditure. As long as bank restructuring agencies continue to fund through onshore money markets, the cost of capital cannot fall significantly.

- Economic adjustment will be driven by investment to GDP ratios falling by as much as one-third. Assuming countries follow the IMF programs, Deutsche Bank Research expects recession in four of the five most affected countries. More importantly negligible economic growth is expected next year in contrast to the IMF/Official or consensus forecasts. Economic recovery thereafter will ultimately depend on implementing a far reaching debt restructuring/ relief program.

- Over the long run lower equilibrium of investment to GDP rates implies lower potential GDP growth rates. Based on past contributions to GDP growth, estimates of the long term impact on economic growth can be calculated. Much depends on assumptions made for productivity; even assuming no change in trend productivity we estimate that steady state GDP growth will fall by at least 1.5-2.0 percentage points.

- Several important risks remain. China has lost competitiveness from the regional devaluations. At some stage a currency realignment will be necessary. Potential disruption of capital flows from Japan to the rest of Asia poses another significant policy risk to the region. As well as being a major export market, the need for renewed liquidity inflows makes the recovery of Japan necessary for a full recovery of emerging Asia. Even a moderate tightening of G7 interest rates would greatly weaken capital flows into emerging markets, in particular to Asia.

- The greatest challenge is for policy makers to design an efficient program of debt relief between stockholders, creditors and tax payers. If negotiations between the parties cannot be settled early, the economic outlook will worsen considerably. In this situation, domestic capital flight could overwhelm external surpluses or capital inflows. The current policy, "hoping to grow out of debt", is reminiscent of the initial policy path chosen by Latin America.

- Coming so soon after the Mexico crisis and the introduction of preventative policy measures, many features of the architecture of post-Bretton Woods financial institutions, including crisis prevention and resolution, must be reviewed in a broad reconsideration of international capital markets. Relevant to Asia is the appropriate degree of capital account liberalization for emerging markets. This remains secondary to enforcing globally consistent prudent banking standards.

Deutsche Bank Research
Hong Kong

II. Background to the Crisis: Economic vs Financial Fundamentals

Asia's macro-performance has been exemplary over the past decade

In contrast to previous balance of payments-cum-currency crises where economic mismanagement had resulted in either large fiscal deficits or gross misalignment of exchange rates, the macroeconomic performance of Asia has been exemplary. Over the past decade, record economic growth and development were supported by strong economic fundamentals (see table 1). Most countries ran either balanced or surplus fiscal accounts with little or no government debt, and high private sector savings funded exceptional rates of investment. Even as rising investment surpassed savings, driving current account deficits wider, the fact that growth was investment rather than consumption driven provided a large degree of comfort. Similarly, monetary policy appeared to be coping well, with reported inflation rates under control.

However, corporates and banks became increasingly illiquid through an extended credit cycle

Whereas the macro fundamentals gave little indication of a traditional balance of payments crisis, financial imbalances had created increasingly illiquid corporate and banking sectors.[1] These imbalances developed in three stages (i) rapid credit expansion since 1992 led to a sharp increase in gearing and accumulation of domestic private debt; (ii) latterly, the inflow of mainly short term foreign capital created both maturity and currency mismatches; (iii) weak regulation and opaque reporting practices resulted in inefficient intermediation of capital resulting in excessive investment in unproductive assets. The slowdown in regional exports in 1996/97 exposed the illiquidity of Asia's economies.

1. Excessive leverage in corporate balance sheets

Financial liberalisation created new credit institutions, often beyond regulatory scope

Domestic financial liberalization was an important policy objective throughout Asia in the late 1980s and early 1990s. The most visible outcome of this policy was an expansion in the number of banking licenses and branches. For example, in Indonesia, the number of private commercial banks rose from 74 at end-1988 to 205 at end-1996. Financial liberalisation also increased the scope of banking operations and allowed the establishment of non-deposit taking institutions (e.g. finance companies in Thailand and Malaysia and merchant banks in Korea) that were frequently exempt from the prudential regulations that applied to banks. Loan growth in such institutions was typically far higher than at the deposit banks. Development of securities markets lagged behind that of the banking systems, with the result that local savings are intermediated largely through banks rather than equity or bond markets. Consequently, total credit from the financial system increased rapidly during the past decade (see table 2).

Rising credit/GDP implies increased gearing and accumulation of nonproductive assets

The expansion of credit relative to GDP implies two problematic trends. First, the gearing of the economy increased by an average of over 20% per year over the last seven years (the Philippines figure is overstated by the low base) and, secondly, an increasing share of loans from the financial system was for the accumulation of nonproductive assets. At the level of individual corporations, gearing (debt/equity) ratios were often very high. In Korea, where the government had a long standing policy of using the banking system to fund industrial development, the top 30 chaebols had an average gearing ratio at end-1996 of 470%. The rising domestic debt levels created an environment of declining liquidity, as interest expenses consumed greater amounts of income. Between 1988 and

[1] G. Kaminsky, S. Lizondo and C. Reinhart (1997) Leading Indicators of Currency Crises, IMF Working Paper, found that banking crises were a reliable predictor of currency crises.

Table 1: Asia-5 Summary Macro Indicators

Indonesia	1991	1992	1993	1994	1995	1996	1997E	Avg (1990-97)
GDP (YoY %)	8.9	7.2	7.3	7.5	8.2	8.0	5.0	7.4
CPI (YoY %)	9.4	7.5	9.7	8.5	9.4	7.9	8.3	8.7
Saving (% of GDP)	28.7	27.3	31.4	29.2	29.0	28.8	27.3	28.8
Investment (% of GDP)	27.0	25.8	26.3	27.6	28.4	28.1	26.5	27.1
FDI (% of GDP)	1.2	1.3	1.3	1.2	2.1	2.5	3.0	1.8
Current Account (% of GDP)	-3.4	-2.2	-1.5	-1.7	-3.3	-3.3	-2.9	-2.6
BoP (% of GDP)	0.9	1.3	0.5	0.5	0.7	1.9	1.0	1.0
Fiscal balance (% of GDP)	0.0	-1.2	-0.7	0.0	0.8	1.4	2.0	0.3
Malaysia	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997E**	**Avg (1990-97)**
GDP (YoY %)	8.6	7.8	8.3	9.2	9.5	8.6	7.0	8.4
CPI (YoY %)	2.6	4.7	3.5	3.7	3.4	3.5	3.7	3.6
Saving (% of GDP)	28.4	31.3	33.0	32.7	33.5	36.7	37.0	33.2
Investment (% of GDP)	36.4	36.0	38.3	40.1	43.0	42.2	42.7	39.8
FDI (% of GDP)	8.3	8.9	7.8	5.9	6.7	6.3	4.4	6.9
Current Account (% of GDP)	-8.8	-3.8	-4.8	-7.8	-10.0	-4.9	-5.8	-6.6
BoP (% of GDP)	2.6	11.3	17.7	-4.3	-2.0	2.5	-3.2	3.5
Fiscal balance (% of GDP)	-2.1	-1.2	-1.6	-1.6	-1.4	-0.4	-0.9	-1.3
Philippines	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997E**	**Avg (1990-97)**
GDP (YoY %)	-0.6	0.3	2.1	4.4	4.8	5.7	4.3	3.0
CPI (YoY %)	18.7	8.9	7.6	9.0	8.1	8.4	5.2	9.4
Saving (% of GDP)	18.0	19.5	18.4	19.4	17.8	19.7	21.0	19.1
Investment (% of GDP)	20.0	20.9	23.8	23.6	22.2	23.2	25.1	22.7
FDI (% of GDP)	1.2	1.5	2.3	2.5	2.0	1.7	2.4	1.9
Current Account (% of GDP)	-2.3	-1.6	-5.5	-4.6	-4.4	-4.7	-4.5	-3.9
Fiscal balance (% of GDP)	-2.1	-1.2	-1.6	-1.6	-1.4	-0.4	-0.9	-1.3
BoP (% of GDP)	4.6	2.8	-0.3	2.8	0.9	4.9	-4.1	1.7
South Korea	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997E**	**Avg (1990-97)**
GDP (YoY %)	9.1	5.1	5.8	8.6	8.9	7.1	5.5	7.2
CPI (YoY %)	9.3	6.2	4.8	6.3	4.5	4.9	4.4	5.8
Saving (% of GDP)	35.9	35.1	35.2	34.6	35.1	33.3	32.9	34.6
Investment (% of GDP)	38.4	36.6	36.0	35.7	36.6	36.8	36.6	36.7
FDI (% of GDP)	0.4	0.2	0.2	0.2	0.3	0.2	0.3	0.2
Current Account (% of GDP)	-3.0	-1.5	0.1	-1.2	-2.0	-4.9	-2.9	-2.2
BoP (% of GDP)	0.4	-1.2	-0.9	-1.2	-1.5	-0.3	2.8	-0.3
Fiscal balance (% of GDP)	-1.6	-2.6	-1.0	1.0	0.0	0.0	0.0	-0.6
Thailand	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**	**1997E**	**Avg (1990-97)**
GDP (YoY %)	8.1	8.2	8.5	8.9	8.7	6.4	-0.4	7.1
CPI (YoY %)	5.7	4.1	3.4	5.1	5.8	5.9	5.6	5.1
Saving (% of GDP)	35.2	34.3	34.9	34.9	34.3	33.1	31.8	34.1
Investment (% of GDP)	41.6	39.2	39.4	39.9	41.8	40.8	35.8	39.8
FDI (% of GDP)	1.3	2.3	1.4	0.9	1.2	1.2	1.8	1.4
Current Account (% of GDP)	-7.7	-5.6	-5.0	-5.6	-8.0	-7.9	-3.9	-6.2
BoP (% of GDP)	4.2	2.7	3.1	2.9	4.3	1.2	-4.6	2.0
Fiscal balance (% of GDP)	4.2	2.6	2.1	2.0	2.6	1.6	-0.4	2.1

Source: IMF and DBR

Credit expansion far outpaced even Asia's exceptional nominal GDP growth rates

Table 2: Financial System[1] Domestic Credit (% of GDP)

	1991	1992	1993	1994	1995	1996	1997	CAGR[2] (1991-97)
Indonesia	50.3	50.1	52.6	55.1	57.0	59.3	65.4	21.5
Malaysia	116.7	121.4	136.9	125.8	141.7	142.2	165.4	19.9
Philippines	30.2	33.4	41.9	46.5	53.6	65.3	74.8	30.2
South Korea	94.5	101.6	106.4	115.4	117.9	126.8	137.9	19.0
Thailand	96.3	103.7	116.3	132.0	142.8	147.7	129.4	19.1

Note: [1]Banks & non-bank institutions e.g. finance companies & merchant banks
Source: IFS, [2]CAGR - compound annual growth rate

1996, average interest expenses of the business sector roughly doubled as a proportion of GDP in Indonesia, Korea and Malaysia, and increased 2.5 times in Thailand, reaching 14% of GDP.

2. Importance of foreign capital in financing Asian growth

Foreign capital inflows began in 1994 - relatively late in the credit cycle

Capital inflows began to accelerate at the start of the decade but it was not until 1994 that they became a major source of credit - relatively late in the cycle. Direct investment into Asia-5 countries accounts for less than 23% of total capital inflows in 1996, down from 31% at the start of the decade. Capital inflows over the past six years were dominated by bank lending, portfolio capital and non-bank credit such as bond issuance, private placements, trade credit etc (see table 3). In Thailand, for example, bank lending accounted for almost 80% of capital flows, and Korea, a net exporter of longer term capital with closed securities markets, imported almost all foreign capital as bank loans.

Capital inflows were dominated by commercial bank lending

Table 3: Asia 5[1] - Composition of External Debt (Aggregate)

USD bn	1991	1992	1993	1994	1995	1996
Total external debt	231.7	249.4	289.5	340.5	407.8	464.8
By maturities						
Short term debt	73.3	82.2	98.5	111.3	144.7	168.3
Medium-long term debt	158.4	167.3	191.0	229.2	263.0	296.4
By creditors						
IFIs	33.0	32.5	34.5	36.5	36.7	33.9
Official bilateral	54.9	61.1	68.7	82.5	86.4	80.7
Commercial banks	110.6	118.3	129.6	157.9	208.8	258.8
Other private creditors	33.2	37.4	56.7	63.6	75.9	91.4

Note: [1] Asia 5 incl. Indonesia, Malaysia, Philippines, S. Korea & Thailand
Source: IIF

Portfolio capital flows are self-correcting

The reliance on private bank lending provides no assurance of balance of payments stability since much of the credit is short term. Direct investment is typically hard to reverse and portfolio capital inflows are partially self-correcting as local currency asset prices decline when capital flows out, reducing the dollar volume of outflows. As foreign funds depart from equity and bond markets yields rise helping to reduce the outflow. Incomplete sterilizations of capital inflows into the banking system results in an expansion of the monetary base, and a multiple expansion of credit. Hence, the withdrawal of these foreign funds can have a

Deregulation and basket exchange rates encouraged overseas borrowing

larger impact on the economy than a portfolio capital outflow. To make matters worse, borrowing countries actively encouraged capital inflows through liberalisation and in some cases tax incentives.[2] With exchange rates pegged to the US dollar, the cost of foreign funds was considerably below the local cost of funding, encouraging offshore borrowing. In several countries there was a deliberate policy of using the banking system as a conduit for foreign inflows.

Flows were attracted to Asia in search of yield pick-up

From the lenders' perspective the key motivation for supplying capital to Asia was the declining returns on domestic investments and the search for higher yield. The two greatest sources of bank loans were Europe and Japan from 1994, a period of record low interest rates in both regions. Improving credit ratings on Asian debt and historically low event risk (measured by discrete exchange rate changes) provided banks with an ideal location for yield enhancement to improve their capital bases, assuming no devaluation. Credit risk was further diminished by the perceived or actual official safety net for individual banks in lending countries - especially Korea and Japan - contributing to an excessive narrowing of spreads. Risk assessment had also been distorted by the moral hazard created by the US-IMF "bailout" of Mexico signalling to investors that future funding crises would be financed by international support.[3]

EU and Japan interest rates were at record lows

Table 4: Sources of External Commercial Bank Debt (end-Jun 1997)

	Total	Japan	UK	US	Other EU	Others
	USD bn	% of Total				
Indonesia	58.7	39.4	7.4	7.8	30.9	14.5
Malaysia	28.8	36.4	7.0	8.3	37.0	11.3
Philippines	14.1	14.9	7.6	20.0	40.5	17.0
South Korea	103.4	22.9	5.9	9.6	29.3	32.3
Thailand	69.4	54.4	4.1	5.8	24.5	11.3
Asia 5	274.5	33.6	6.4	10.3	32.4	17.3

Source: BIS

EU and Japan provided two-thirds of bank lending to Asia-5

3. Faulty banking sector financial intermediation

The combination of large capital inflows and immature financial systems was potentially destabilizing. Furthermore, managerial ability often fell short of what is required of well-run banks. An excessive reliance on collateral, rather than on an evaluation of project viability or borrower creditworthiness, meant that banks built up large exposures to property and equity markets through their loan books, without proper consideration of the borrowers' viability in the event of an economic downturn. Similarly, inadequate risk assessment resulted in large maturity mismatches and hidden foreign exchange exposures that placed the banks' capital at significant risk in the event of a turnaround in capital flows.

Banking sector supervision was complicated by rapid institutional development

The vulnerability of banks to financial shocks was heightened by the generally inadequate supervisory and regulatory infrastructures. For most countries financial sectors were liberalized long before supervisory and regulatory capacity was

[2] Malaysia's Labuan and Thailand's Bangkok International Banking Facility gave banks tax incentives to borrow from overseas while Philippine banks were subject to only 10% tax on income earned from onshore foreign exchange loans.

[3] The importance of this kind of moral hazard has been highlighted by the recent admission by one of the major rating agencies that their ratings for emerging markets had assumed that multilateral assistance would be provided for any rated country that encountered external liquidity problems.

Implicit guarantees distorted perceived risk/return to bank lending

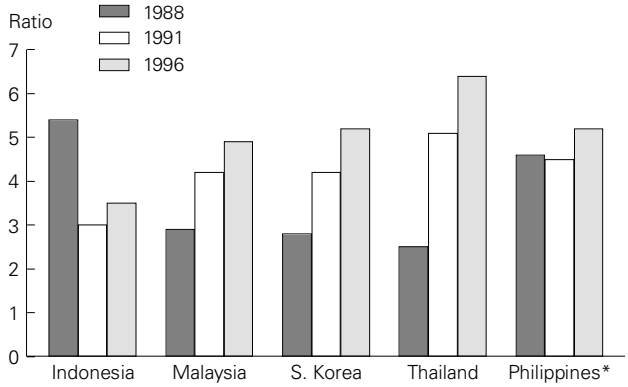
developed. Not only were banks able to accumulate exposures well in excess of prudent regulations, but when regulations were introduced new unregulated non-deposit taking financial institutions emerged (eg. finance companies) often as unconsolidated subsidiaries of banks. In recent years while most countries had bank regulations that in many respects approached international standards, their enforcement was weak.[4] Supervisors often had little authority to intervene in problem banks, and even less authority to close them down.

Bail-outs in the 1980s banking crisis re-enforced expectations of state support

More generally, the financial system was distorted by pervasive implicit guarantees (see Krugman 1998)[5]. While none of these countries had deposit insurance, the expectation of official support for the banking system was widespread. In the rare cases where banks failed, liabilities were generally paid out in full by the official sector. The history of banking crises in the early 1980s in Malaysia and Thailand, and the official assumption of "policy loans" in Korea in the late 1980s reinforced the belief that banks would be bailed out if their investments proved unprofitable. Compounding this guarantee for financial institutions, the prevalence of complex financial/non-financial conglomerates with opaque ownership structures transferred this guarantee to much of the corporate sector. Poor accounting and disclosure standards limited the scope for private market discipline.

Returns from real investment fell (rising ICORs)

Figure 1: Incremental Capital Output Ratios (ICOR)



*Note: *Philippines ICOR (1995-1997)*
Source: Deutsche Bank Research

Investors were not adequately compensated for risk

Poor corporate governance failed to prevent bank lending and investment to inviable projects. One measure of return on capital investment is the incremental capital output ratio (ICOR) which compares the increase in investment relative to the increases in GDP. A rising ratio implies investment is becoming less productive, or of lower quality. As the chart above shows the quality of investment had been deteriorating throughout the decade and yet investment spending both in dollar terms and as a share of GDP showed no sign of slowing down. Note that a different period is taken for the Philippines to reflect the much later start of the credit and investment cycle. The notion that investment was inefficient is supported by the fact that the return on equities over the past four years has been less than the money market returns. This implies that investors were not adequately compensated for the risk of investing in the economies.

This implied excessive risk taking in real investment decisions

[4] For example, Bank Indonesia in recent years has published in its annual report the number of banks that failed to comply with various prudential regulations, suggesting an inability to enforce compliance.

[5] Krugman (1998) What Happened to Asia? Mimeo.

4. Exchange rate management and Investment flows

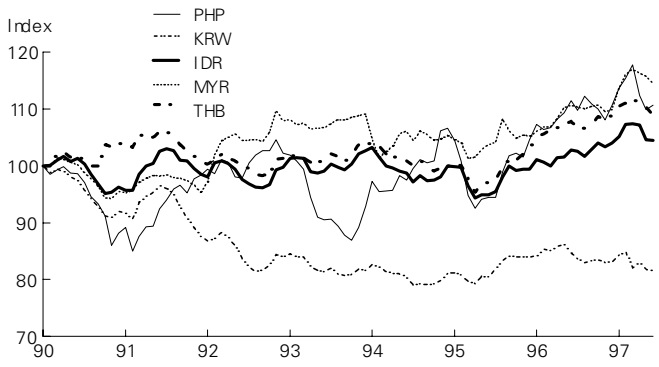
Capital inflows per se do not create financial instability

There is considerable debate over the role of exchange rates in the Asian crisis. Two issues are involved: the rigidity of regional exchange rate baskets encouraging the excessive reliance on foreign funds, and whether the appreciation of the US dollar, the base currency, inevitably caused the currency crisis. Capital account liberalisation had encouraged borrowers to fund from overseas at the lower cost of capital and likewise high onshore interest rates encouraged foreign banks to lend. As noted above, the reliance on commercial bank loans, often short term in nature, left Asia's markets vulnerable to capital flight. However, the foreign borrowing alone cannot explain the extent of the crisis. The misallocation of capital into inefficient investments and excessive gearing is the result of inefficient financial systems whether the source is domestic or foreign capital, as is illustrated by the current difficulties in Japan. Capital inflows per se do not cause financial crises, it is only when misallocated through inefficient financial systems that capital reversals threaten whole banking systems.

But misallocated investment through inefficient banks create instability

Figure 2: Real Effective Exchange Rates

Currency and a financial turmoil cannot be explained by currency appreciation



Source: JP Morgan

Reversal of USD/JPY exposed Asia's illiquidity

In 1996 regional exports slumped revealing the fundamental illiquidity of the regional economies. It would be convenient to argue that the export slowdown was simply due to the severity of the real exchange rate appreciation following the rebound in the US dollar. Yet the degree of appreciation appears to have been relatively small (see Figure 2)[6]. This is compared to the 45% appreciation of the Mexican peso prior to devaluation. However, the reversal of the yen played a large part in revealing Asia's illiquidity. The weak dollar over the previous 10 years not only had supported regional competitiveness, but forced capital inflows from Japan in what was termed the "hollowing out" of Japanese industry.[7] Following the longer term capital flows came short term banking flows. The appreciation of the US dollar was a key factor in reducing the competitiveness of Asian exports along with the abrupt fall in prices of electronics components, a key export for the region. Conversely the depreciation of the yen and the growing prospect of a hike in the discount rate drained investment inflows on which ASEAN had become so reliant.

[6] The absence of price series for traded and non-traded goods complicates this analysis. In countries with productive external sectors, the bidding up of non-traded goods prices will ensure real exchange rate appreciation even without loss of competitiveness.

[7] After the Plaza Accord in 1985 ASEAN currencies enjoyed a 25-30% real depreciation setting the stage for 13% average export volume growth over the next seven years, double the growth rate of the previous decade and of the advanced economies.

III. Development of the Crisis

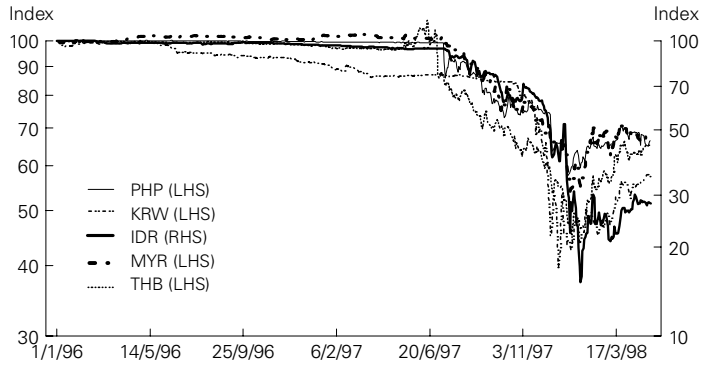
Central banks' measures to limit property exposure only tightened liquidity

The Thai baht came under sporadic pressure in the second half of 1996 as concerns were raised over the sustainability of the current account in light of the regional downturn in exports. By the following January tight liquidity and high interest rates led to the bankruptcy of Somprasong Land, a major property developer in Thailand. Doubts over the sustainability of real estate prices emerged elsewhere in the region and investors became increasingly wary of the exposure of the banking sector. Central banks responded by introducing measures to reduce banks' exposure to real estate in Singapore, Malaysia, Indonesia and the Philippines in the first half of 1997. Rather than reassuring investors, this merely marked the end of the credit cycle which had begun five years earlier. In Korea, two of the thirty largest chaebols declared bankruptcy.

Increasing bankruptcies indicated tight liquidity and potential banking crisis

Figure 1: Asia-5 Currencies

In a period of only six weeks, four currencies were devalued



Note: All currencies are vs USD; logarithmic scale; January 2, 1996 = 100
Source: Deutsche Bank Research

Scale of financial crisis is far in excess of any 'currency misalignment'

Speculation intensified alluring the Bank of Thailand to accumulate USD 23bn of short dollar forward liabilities, and on 2 July 1997 the Bank of Thailand abandoned its currency peg. The fall in the baht immediately raised doubts over other currencies. The Philippine peso was floated on 11 July, as investors recognized the rapid accumulation in foreign liabilities in the banking sector was similar, in form if not amount, to exposures in Thailand. The Malaysian ringgit was next to come under pressure with Bank Negara forced to abandon its interest rate defence after only one week. The Indonesian rupiah followed soon, although the official intervention band was not discarded until the 14 August. Up to this point, all ASEAN currencies had fallen by around 20% against the US dollar. If this was simply a competitiveness issue, the exchange rate mis-alignments had been redressed. However, currencies failed to stabilize despite the introduction of IMF support packages. The crisis eventually spread to Korea where dependence on foreign capital and derivative exposures (see box 1) undermined FX reserves.

1. Financial sector instability and speculative attacks

Currency dynamics were driven by vulnerability of financial sector

Traditional currency valuation models failed to indicate either the breadth or subsequent extent of the downward spiral of currencies. A fuller understanding of the dynamics of the crisis requires a greater role for currency expectations and financial sector instability. Krugman (1998) argues that traditional currency models fall short of an adequate explanation of the Asian crisis and proposes an alternative moral hazard model of banking sector instability. The moral hazard

Krugman argues banking crisis was caused by implicit guarantees of liabilities

problem generated when the liabilities of financial institutions are underwritten by implicit government guarantees (in this case informal political/business relationships) is likely to be an important distortion in the financial system at the core of the crisis. Since the costs of banking losses are not fully borne by the institution, this creates an incentive to increase lending beyond actuarially prudent levels. Banking sectors become increasingly unstable and vulnerable to collapse if the guarantee is doubted.

However, this is hardly unique to Asia and does not explain the extent of the financial collapse

However, this is only a part of the explanation. Ongoing financial support from governments to major banking groups in Europe shows moral hazard is hardly unique to Asia and alone cannot justify the scale of the subsequent currency collapse. The vulnerability of Asia's financial system owed at least as much to the inadequate regulatory framework discussed in section II. Non-deposit financial intermediaries were typically beyond the financial regulatory environment allowing unhindered risk taking. Credit decisions of such institutions were often taken on the basis of collateral inflated by asset prices rather than risk assessment. The lack of enforceable prudent regulations also allowed increasing exposure to foreign liabilities. The inter-connected lending, became increasingly evident in the subsequent collapse (see below). It is no surprise that the two regional convertible currencies not to devalue were the Hong Kong and Singapore dollar. The monetary authorities of both countries partially underwrite the financial sector's liabilities through lender of last resort but also insist on exceptionally high standards of prudence in terms of capital adequacy and loan exposure. In Singapore, for example, bank lending to priority infrastructure projects is mandated, but the return on the loans is such that it has not apparently been allowed to burden the banks.

Derivatives played an important role in the demise of KRW

Box 1. The role of derivatives in the Korean crisis

A common investment strategy for Korean banks in 1996/97 was structured notes that involved taking leveraged positions on currencies. For example, a bank might buy a note tied to the rupiah with a face value of USD 20mn. The note would pay a high coupon, but principal repayment would depend on the dollar-rupiah exchange rate - if the rupiah depreciated, principal and interest would be reduced. Such notes had implicit leverage of between five and ten times. Often, the positions were leveraged even higher through the methods used to finance them: the foreign seller of the note would enter a repurchase agreement with the buyer with a 20% haircut, thus providing five times more leverage.

Currency linked notes and credit derivatives were typically tied to IDR

Profit-hungry Korean banks were attracted to the seemingly sure high returns in a benign rupiah exchange rate environment. When the rupiah devalued Korean banks took a double hit: they lost dollar capital in the structured note and had to deliver dollar margin or wind up their repurchase agreements. Such pressures came to a head in December when the rupiah collapsed, exacerbating the demand for dollars by Korean banks. This sudden drain on official reserves came as a surprise to the authorities who were unaware of these derivative positions. Only in the third week of December did the Bank of Korea force the banks to disclose their full off-balance sheet positions.

Korean banks also took on Indonesian risk in the form of selling credit derivatives to counter-parties. For example, a counter-party might buy Indonesian bonds and pay 2% of the face value to a Korean bank for a put option - if the credit rating of the issuer fell, or if the market value of the bonds fell sufficiently, the counter-party had the right to sell the securities at the exercise price. Again, these were off-balance sheet items, so the dollar claims on Korean banks were unreported. Another common strategy that imposed losses on Korean banks was to buy rupiah paper and transact a foreign exchange forward to create a

Peregrine can be seen as the pioneer of Asia's junk bond market

dollar hedge. In this way they took a credit and not a currency risk. Reportedly, Peregrine Securities was a frequent intermediary in such transactions. In a sense, Peregrine can be seen as the pioneer of Asia's junk bond market. But when Peregrine filed for bankruptcy, the banks lost their hedge and suffered the full extent of the decline in the value of the rupiah.

Central banks could not afford a sustained currency defence

In the months preceding the crisis, speculative attacks were driven in large part by leveraged market participants - hedge funds, proprietary trading desks - and international financial institutions. It is unlikely that such funds were betting on inflation causing a major real exchange rate appreciation at some distant future time, particularly given the impressive low inflation track record over the past two decades. A more plausible strategy was that central banks were considered unable to afford a sustained interest rate defence of the currency. This creates an unstable equilibrium: the greater the speculative attack, the higher the cost of defence encouraging even more speculation. Latterly, as the probability of devaluation increases, banks and corporates are forced to cover net foreign liabilities by hedging through selling foreign currency forward. Residents' purchases of foreign exchange contributed to most of the selling pressure in the Indonesian rupiah and Korean won market in late 1997. This is a simplification of the dynamics involved in speculative attack models (for a full discussion, see Peter Garber's article - Perspectives on Speculative Attacks). While there were no obvious macro instabilities such as unemployment, the regional banking systems were so weak that even a moderate attempt at currency defence would induce a banking collapse and macroeconomic instability.

Hong Kong and Singapore banks are altogether more robust and able to withstand prolonged pressure

2. Post-attack currency dynamics: capital flight

Capital flight triggered raft of credit downgradings

By any traditional macroeconomic interpretation, currencies have far overshot any notion of equilibrium value. However, from a financial markets viewpoint, the extent of depreciation is more understandable. During the period of greatest uncertainty with currencies depreciating and interest rates rising, credit risk escalated to the point that the returns to holding almost any exposure were perceived as being negative in the near term. In addition, the expected domestic economic contraction that was necessary to generate a current account surplus and finance bank recapitalization reduced the expected yield on equity accordingly. More straightforward, a classic liquidity squeeze emerged in which foreign creditors recognized that there were insufficient foreign exchange reserves to cover short term debt, and creditors "ran" the currencies. In the absence of adequate injections of foreign exchange this was a logical strategy.

And rating downgrades triggered loan repayments

Higher interest rates were not a credible defence given the banking sector

The orthodox policy response of increasing interest rates worked in Hong Kong and Singapore but was not credible elsewhere due to high corporate leverage and exposed banking systems. While higher interest rates increase the cost of speculation, this strategy can be successful only if it is credible. This requires the authorities' resolve to allow interest rates to rise sufficiently high and for long enough to squeeze out speculators. In order to be credible, the cost of currency defence must be far less than policy failure. Yet it quickly became clear in Indonesia, Malaysia and the Philippines that such high interest rates simply could not be tolerated. Hence, the likelihood of an eventual abandonment of the defence rose and speculation increased. Additionally, the currency dynamics after the initial devaluation were influenced by contagion. By raising the risk premium on foreign investment this led to further capital outflows from the

Lack of immediate support created one-way trade

Table 1: Moody's and Standard & Poor's Long Term Debt Ratings

	2-Dec-96	24-Jun-97	12-Dec-97	30-Apr-98
Moody's (Foreign currency debt)				
Indonesia	Baa3	Baa3	Baa3	B3
Malaysia	A1	A1	A1	A2
Philippines	Ba2	Ba1	Ba1	Ba1
South Korea	A1	A1	Baa2	Ba1
Thailand	A2	A2	Baa3	Ba1
Standard & Poor's (Foreign currency debt)				
Indonesia	BBB	BBB	BBB-	B-
Malaysia	A+	A+	A+	A-
Philippines	BB	BB+	BB+	BB+
South Korea	AA-	AA-	BBB-	BB+
Thailand	A	A	BBB	BBB-

Source: Moody's and Standard & Poor's

Regional currencies were ultimately defenceless

Reversal of commercial bank lending was equivalent to 10% of combined GDP

region. These concerns were quickly validated by the decisions of the authorities in the Philippines, Malaysia, Singapore and Indonesia to allow their currencies to fluctuate more freely, which initially meant a depreciation.

Table 2: Asia 5[1] - External Financing Flows

USD bn	1994	1995	1996	1997E	1998F
Current account balance	-24.5	-41.4	-55.2	-27.1	30.6
External financing, net	45.2	84.6	95.2	18.1	25.9
Private flows, net	37.9	79.2	97.1	-11.9	-0.3
Equity investment	12.1	15.4	18.7	2.1	16.4
Commercial banks	23.4	49.9	55.7	-26.9	-19.8
Non-bank private creditors	2.4	13.8	22.7	12.9	3.0
Official flows, net	73.0	5.4	-1.9	30.0	26.2
Others	-15.2	-29.2	-21.6	-30.5	-4.6
Change in FX reserves	5.4	14.0	18.4	-39.5	51.9

Note: [1] Asia-5: included S. Korea, Indonesia, Malaysia, Thailand and the Philippines;
Source: IIF. E=estimates; F=forecasts

Equity (portfolio and direct) was relatively stable

Asia's currency crisis may have been triggered by speculators

But real villains were foreign commercial banks

The subsequent exchange rate dynamics were driven by a recognition of the devastating balance sheet impact of devaluations. All corporates and banks with net foreign liabilities were seen to be suffering significant losses, and credit risk assessments rose, leading foreign creditors to withdraw credit lines and demand repayment of loans. Credit rating agencies began to lower country ratings, which triggered early loan repayment clauses or options in commercial bank covenants. According to IIF estimates, Asia-5 repaid USD 27bn to foreign banks, after borrowing USD 56bn in 1996. Despite only a modest decline in longer-term private capital flows, total private capital flows to these five countries fell from an inflow of USD 97bn in 1996 to an estimated outflow of USD 12bn, a

Devaluation may have created a competitive gain

USD 109bn reversal. The shift in capital flows into the region in only one year was equivalent to more than 10% of aggregate GDP.

3. Post-attack currency dynamics: cost of capital

Post-devaluation currency dynamics were also driven by whether devaluations would be positive or negative for economic growth. Under generous assumptions regarding inflationary expectations, devaluations are negative for GDP growth in the near term (as real money balances fall) but positive over the medium term (as real external demand improves). Markets often discount the short term loss in income prior to devaluation and therefore rally after the currency falls. Recent examples of such devaluations are the UK and Italy. However, economists have long known that devaluations can be contractionary. In the case of Asia, devaluation exposed the illiquidity of the corporate sector from excessive gearing and the overextension of the banking system into nonproductive assets funded through foreign currency borrowings. The corporate debt and banking crises more than offset any increased export competitiveness.

But this is minor compared to the increase in the cost of capital

Table 3: Cost of Capital

%	97Q1	97Q2	97Q3	97Q4	98Q1	Current
Cost of Debt[1]						
Indonesia	15.1	15.4	24.0	27.0	39.2	34.0
Malaysia	7.6	7.8	8.6	11.3	13.5	15.0
Philippines	10.4	12.6	17.2	33.7	22.5	22.6
South Korea	13.3	9.6	19.1	31.4	25.5	18.7
Thailand	12.7	20.4	21.5	31.5	28.0	18.8
Cost of Equity[2]						
Indonesia	17.6	16.9	24.0	25.4	25.4	34.9
Malaysia	11.5	11.8	13.7	16.3	16.3	18.5
Philippines	14.0	15.8	20.0	24.0	24.0	22.6
South Korea	11.9	11.1	15.1	18.9	18.9	23.1
Thailand	18.4	22.0	29.3	27.8	27.8	21.5

Note: [1] DBR's calculations are based on 6mo local interbank rates (except for S. Korea, 6mo implied offshore rates) and corporate spread over local interbank rates
Note: [2] DBR's calculations are based upon local risk-free rates (benchmark yankee yields) plus an equity premium (constant 5% plus one year forward premium).
Source: Deutsche Bank Research

Cost of debt has doubled over the past year

Cost of equity has also increased dramatically

Coming after an eight year credit boom, the consequences are disastrous

As currencies fell sharply, the aggressive tightening in monetary policy was necessary not to stop the sudden capital flight but rather to minimize any inflationary pass through. Failure to tighten monetary policy, as Indonesia has shown, would only raise inflationary expectations and subsequently further currency losses. However, it is unlikely the real interest rate will return to its pre-crisis level. Table 3 above shows that nine months after the crisis began the cost of both debt and equity are far greater than before the devaluation. Given the indebted corporate balance sheets as well as the maturity and currency mismatches in bank lending (see section II), the real impact of devaluation is a sharp increase in the region's cost of capital. This is despite looking into the deepest recession the region has faced.

IV. Crisis Resolution and Debt Restructuring

G10 framework for emerging market liquidity crises was applied to Asia

Following the Mexican liquidity crisis the G10 major industrial countries, in consultation with the international financial institutions and private sector, suggested a framework for dealing with external liquidity crises in emerging markets.[1] Recapitalization formed the basis for policies introduced to resolve the Asian crisis. Programs were designed to provide the necessary liquidity to resolve the external funding shortfall, while minimizing moral hazard distortions and addressing the underlying causes. An IMF program therefore involves two stages: (i) restoration of exchange rate stability; and (ii) addressing structural issues to enhance confidence in the medium-term policy framework. Commitment to a credible IMF adjustment program by accepting the conditionality clauses limits the moral hazard on the part of the debtor country.

1. Stabilization in external funding

Aim of program was (1) to provide necessary liquidity support and (2) address structural issues to restore confidence in medium term policy framework

Subsequent to the G10 review of the Mexican crisis the IMF obtained authorization for new emergency funding facilities capable of disbursing funds more rapidly and of much greater magnitude. This facility was utilized in the Asia crisis, enabling the Fund to organize programs in close sequence of an average of 500% of IMF quota for Thailand and Indonesia and almost 2000% of quota for Korea.[2] Nevertheless, the IMF support fell short of fully funding the balance of payments. Rather the Fund saw its role as providing sufficient funding to restore confidence so that private capital flows would themselves cover the financing gap. Indeed, on the announcement of the first program for Thailand it was confidently predicted that less than half of the loan would be needed. This approach relied heavily on voluntary rollovers of bank debt - with moral suasion applied by national authorities if necessary - and a second line of defence of bilateral loans to be used if resources prove insufficient.

Emergency funding facilities fell short of covering balance of payments shortfall

Table 1: IMF Programs — Commitments and Disbursements

	IMF Program Funding			Disbursement		
USD bn	**Indonesia**	**Korea**	**Thailand**	**Indonesia**	**Korea**	**Thailand**
Total	**35.0**	**58.5**	**17.2**	**4.0**	**19.1**	**10.2**
IMF	10.0	21.0	4.0	4.0	13.1	2.7
World Bank	4.5	10.0	1.5	na	3.0	0.4
ADB	3.5	4.0	1.2	na	3.0	0.6
US	3.0	5.0	na	na	na	na
Japan	5.0	10.0	4.0	na	na	2.6
European	0.0	5.0	0.0	na	na	na
Others	10.0 [1]	3.5 [2]	6.5 [3]	na	na	3.9

Note: [1] Incl. Singapore, Australia, Malaysia, China, HK and Indonesia contingency reserves
[2] Incl. Australia, Canada, UK
[3] Incl. Australia, China, HK, Malaysia, Singapore, Indonesia, Korea and Brunei
Source: Deutsche Bank Research

IMF effectively became lender of second last resort

[1] Group of Ten (1996) The Resolution of Sovereign Liquidity Crises

[2] IMF quota refers to the capital subscription of each member country when joining the Fund. This defines voting rights and potential loan quotas. Periodically quotas are reviewed for all countries.

Programs were subsequently renegotiated in response to deteriorating outlook

Faced with further deterioration in their economic conditions, Korea, Thailand and Indonesia renegotiated the terms of their programs, generally relaxing the fiscal conditions, and revising targets in light of worsening economic conditions. Korea went a step further and arranged for an accelerated disbursement of the IMF's loan and bilateral official support. By contrast, the Indonesian support program has been breached on several occasions, the most serious being an attempt to introduce a currency board. This would have been in direct contradiction to the letter of intent which calls for a flexible currency system. In response, the IMF temporarily withheld the second USD 3bn tranche. The program has since been reformulated to strengthen conditionality, including the use of independent auditors to monitor compliance.

External debt rescheduling in Korea and Thailand but de-facto moratorium in Indonesia

In both Thailand and Korea the distribution of external liabilities made debt rescheduling more manageable than in Indonesia. The debt is largely owed by banks to primarily Japanese banks counterparties. In April the Korean government completed a USD 21bn debt exchange in which the government assumed bank liabilities in exchange for longer-term government debt. Rescheduling is more complex in Indonesia where the external debt is spread among at least 230 corporates and over 200 creditors with the government willing only to promote bilateral negotiations but not prepared initially to assume liability for the obligations. As a result of the lack of progress the Indonesian government is proposing a scheme similar to the Mexican FICORCA plan (see Mexico's FICORCA Plan: A Model for Indonesia, by Jose Alberro and Michael Spencer).

2. Structural reforms

Tight monetary policy was aimed at stabilising currency through current accounts

The key element of any IMF program is conditionality. In Asia the Fund programs had the usual combination of tight monetary and fiscal policies which have generally characterized previous programs, although for slightly different reasons. Tight monetary policy was seen as essential for stabilizing the currency by slowing economic growth, reducing import demand and closing the current account deficit. Higher interest rates were also viewed as a mechanism for attracting private capital inflows. The requirement of tight fiscal policy was likewise not considered especially onerous. Contrary to most previous Fund programs, fiscal tightening was motivated not by current account or domestic demand imbalances but by the need to finance bank reform. As we discuss later, the service costs of refinancing the banking system can have very significant implications for fiscal accounts.

Tight fiscal policy is to cover the implicit cost of banking reform

The second platform of the Fund programs addressed the need for structural reforms. Three general types of reforms were common to each of the programs: (i) bank restructuring; (ii) issues relating to market structure including the elimination of subsidies, investment restrictions and trade liberalization; (iii) governance issues including transparency in fiscal accounting and data dissemination. A strategically important part of the programs in all countries was opening up the financial sector to foreign competition, not only because foreign competition can enhance the efficiency of markets, but also because it increases support (particularly for the supplemental, second-tier funding) among the contributing countries by satisfying a demand for greater openness of financial markets in Asia - an objective which had not been reached satisfactorily in the previous GATS negotiations.

Bilateral contributions based on strategic concessions

a. Banking sector re-capitalization

Banking sector re-capitalisation is a prerequisite for recovery

With banking finance the dominant source of funding in Asia, re-capitalization of the banks is a prerequisite for recovery. The high cost of capital (debt and equity) discussed in section III limits the degree to which capital markets can replace bank finance. Without an efficiently functioning banking system, high savings cannot be channelled into investments. Restructuring is perhaps the most advanced of all the domestic policies, being a key role in the IMF's support from the beginning. The Fund insisted on market discipline to the greatest extent possible in each country, which resulted in the closure of 12 finance companies and the nationalization of two commercial banks in Korea, the closure of 56 finance companies and four banks in Thailand, and the closure of 23 banks so far in Indonesia. The scale of official support to the banking systems so far has been very extensive: THB 1.1tn in Thailand and at least IDR 100tn in Indonesia. The resulting losses are likely to be absorbed by the government as fiscal liabilities. Recapitalisation must be implemented as early as possible: Japan amply demonstrates the escalating cost of bad loans if financial intermediation remains impaired.

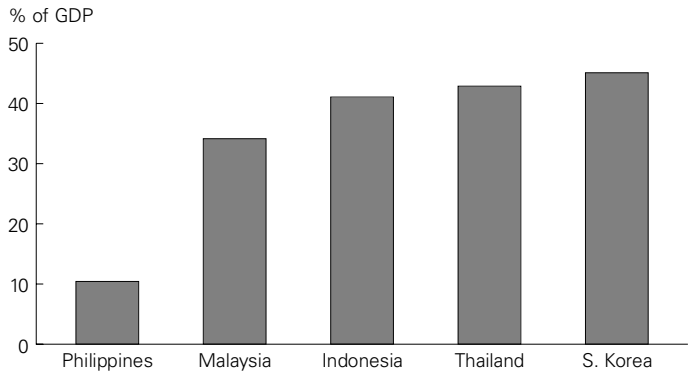
Japan offers an example of how unsound banks undermine high savings rates

As the economic fundamentals have deteriorated, so too has the condition of the banks. Forecasts of non-performing loans (NPLS) are complex and, if past experience is any guide, the outcome is generally worse than forecast. That makes the current forecasts all the more alarming. From approximately 4% mid-1997, NPLs are currently about 20-25% of total bank loans in Thailand. With the definition of non-performing to be tightened to a three-month non-accrual basis from the current six-month standard in July 1998, it is likely that this ratio will reach to 30-40% this year. In Malaysia where approximately 6% of loans were non-performing at end-1997, forecasts now lie in the 15-20% range. In Indonesia, where few corporate loans are being serviced, approximately 60% of loans are expected to be non-performing after the financial system stabilizes. In Korea, recent reports suggest that up to 25% of loans will ultimately be non-performing. Given that bank credit is already an average of 112% of GDP in Asia-5, the potential losses in terms of GDP are alarming. If these forecasts are met (and particularly if they prove to be optimistic) the Asian banking crises will prove to be among the worst ever in terms of shares of bank assets and GDP that must be financed (see Figure 1).

Non-performing bank loans may exceed 40% of GDP

NPLs typically peak two years after the cyclical low point

Figure 1: Non-performing Loans as % of GDP (end-1998 est.)



Source: Deutsche Bank Research

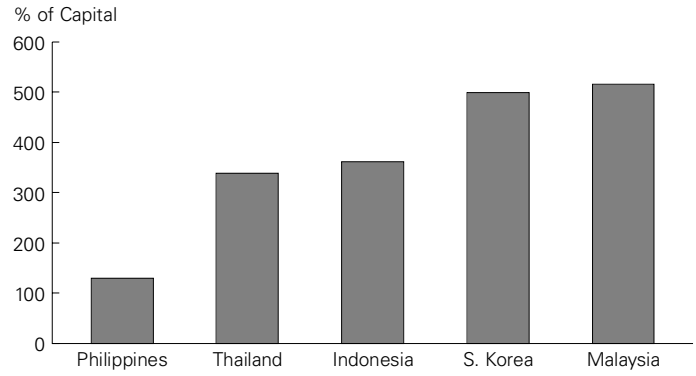
Asia's banking crisis could be one of the most costly in terms of GDP

Failure to take early action results in escalating bailout cost

Allocation of losses among the various interested parties - the government, shareholders, and depositors and other creditors - is an overriding challenge of public policy. Invariably, governments will be responsible for the largest share of the losses as a consequence of the guarantees they have issued for bank liabilities. In Thailand, for example, the government expects to recover about half of the THB 1.1tn exposure to the closed finance companies and banks that have been taken over by the central bank. By contrast, the banks that remain open are expected to have to raise THB 400bn in new capital over the next two years to comply with higher capital requirements. With scarce domestic capital, foreign investment is being sought by most banks, although some potential acquisitions by foreign banks have fallen through. If any more Thai banks should fail, their losses would be assumed by the government. In Indonesia, prospects for private investment are even worse, and the government expects to have to finance almost all of the losses itself.

Capital costs far exceed possible private sector fund raising

Figure 2: Non-performing Loans as % of Bank Capital (end-1998 est.)



Source: Deutsche Bank Research

b. Fiscal costs of bank restructuring

Bank debts will largely become fiscal liabilities

Large as the banking losses may be, they need not present an insurmountable fiscal burden[3]. Figure 3 shows total government debt outstanding including government bonds and loans from the banking system. While higher than generally acknowledged, depending on the recovery rate from the disposal of assets, the issue of bonds worth 15-30% of GDP should not increase government debt to unsustainable levels. However, it may be administratively difficult, and costly, to issue so much debt quickly, and with real GDP growth expected to be negative over the next two or three years at least, debt service costs will initially be relatively high. The interest costs of this debt could be as high as 6-10% of GDP in each of the next three years.

Annual interest cost could reach 6-10% of GDP

[3] There is no general consensus on whether the principal debts should also be included as an expenditure or as a below-the-line financing item. In the standard Government Financial Statistics presentation, an issue of government debt for the purposes of re-capitalizing banks would result in the interest payments being included "above the line" as an expenditure item, but the amortization payments are included as a financing item "below the line." (A direct equity injection, by contrast, would be included as an expenditure item (even if financed by a bond issue)). This financing item would be offset by a decrease in government cash balances or by borrowing from other sources. Therefore, even though only the interest appears in the determination of the fiscal surplus/deficit, the need to make amortization payments requires that the government be able to fund the entire debt service in any given year. In response to the difficulties in monitoring the impact on the fiscal stance of bank re-capitalization operations, the IMF has proposed a parallel "augmented treatment" for the fiscal accounts in which the injection of funds appears as an expenditure item, with an offsetting financing item given by the bond issue.

If governments try to finance bond issuance through the banking system this will impair liquidity

Financing this debt service will be difficult for those countries with relatively small tax bases. This raises the risk of capital flight from residents in anticipation of the forthcoming tax burden or temptation of monetization. How the costs are distributed without triggering flight is a major policy risk facing Asia-5 discussed further in section VI. There is some scope for changing the terms of the debt to reduce this cost, for example, by issuing indexed bonds. If, however, governments choose to push more of the re-capitalization costs onto the private sector (for example, by making banks subscribe to nontransferable bonds at sub-market yields), the banks' liquidity situation may not improve and they may again be forced to seek liquidity support from the central bank. In this way, while the government may not have to resort to central bank credit to finance bank restructuring, the central bank may have to increase its credit to the banking system, which is just as potentially inflationary.

c. Asset Management Corporations

Asset management companies are often used to dispose of assets

Recapitalization costs aside, the principles of bank restructuring are well established. Reforms should be comprehensive, covering weak and insolvent banks as well as improving the legal, regulatory and supervisory framework. Best results have been achieved with the appointment of an independent lead agency so as not to compromise the central bank's monetary policy. Similarly, the use of semi-autonomous asset management companies (or debt-workout offices) has the advantage of preventing scarce bank managerial resources from being preoccupied with the problems of the past rather than rebuilding the banking industry. Successful restructuring also involves closure of insolvent banks to discourage moral hazard.

Disposal must allow market clearing asset prices as soon as possible

A key element of any financial restructuring is the revaluation of assets and liabilities to new market levels. While property values in particular are usually difficult to determine during a liquidity crisis - because there are few if any

Box 1. Thailand's Financial Sector Restructuring

Thailand is the most advanced in bank restructuring

Of the Asia-5 countries, Thailand is furthest advanced in financial restructuring. Prior to agreeing the IMF program, the Thai authorities closed down 16 finance companies and declared a blanket guarantee on all financial institutions' liabilities. Soon thereafter, another 42 finance companies were declared insolvent and all 58 were given a deadline to win central bank approval for a restructuring and re-capitalization strategy. In the end, all but two finance companies were liquidated, and creditors were given the option of having their claims restructured as government guaranteed promissory notes (approximately THB 120bn of claims were handled this way) or as claims on the assets after liquidation. However, intervention to close down these institutions came only after the Financial Institutions Development Fund had lent an estimated THB 530bn liquidity support to these firms and as much as THB 160bn to healthy finance companies. The FIDF also lent substantial amounts to commercial banks, with the result that as of end-February 1998, total FIDF support to financial institutions exceeded THB 1.1tn according to government estimates. The FRA recently estimated the market value of the assets it is disposing of to be approximately 40% of their book value. Hence, the government's cost of financial system support so far amounts to a present value of THB 500bn or more. In February difficulties at four commercial banks led the central bank to take control over these institutions by writing down shareholder capital to the legal minimum and converting FIDF loans to equity. The authorities are committed to the principle that no bank will be permitted to fail. All banks were given until August 1998 to submit re-capitalization plans.

FIDF is currently funded through the THB repo market

Hence the inverted yield curve. How much can be funded through longer term issuance?

transactions - the Thai authorities have introduced a mechanism to ensure rapid valuation of most assets of the financial companies it has closed down. Since mid-February and continuing until the end of this year, a series of public auctions is being held by the Financial Sector Restructuring Authority (FRA) to sell off the assets of the 56 defunct finance companies. Those assets that cannot be sold at auction will be acquired by the government-owned Asset Management Company, whose mandate is to recover as much value from the most impaired assets as possible. The government has also chartered a "good bank" which will raise additional capital from the private sector and participate in the auctions to establish a reservation price for the assets. Unfortunately the FRA has decided not to release detailed information on the winning bids in an effort to maximize receipts from the auctions. Hence, these auctions are less likely to provide price guidelines that can be used to value financial institutions.

Korea and Indonesia have established an institutional framework

While it remains to be seen how successful the Thai approach will be, no other country in the region is as far advanced in restructuring its financial system. In Korea after initially promising to close down two large commercial banks, the government chose to nationalize them after writing down shareholder equity by 90%. The government owned Korea Asset Management Company (a holding company for government-owned interests) has agreed to purchase up to USD 21bn in non-performing assets from these and other banks and the government has announced these two banks will be privatized and 12 merchant banks closed. Finally, in Indonesia, faced with continuing deterioration in the financial condition of the banks and a flight to quality and currency, the government announced a blanket guarantee for all bank liabilities (foreign currency liabilities are guaranteed in rupiah, not foreign currency) except subordinated debt, and the establishment of the Indonesian Bank Restructuring Agency. In April, seven more bonds were suspended, and seven others were placed under IBRA management. The IBRA has 40 more banks under its direct supervision.

Unfortunately, even bank restructuring does not guarantee recovery

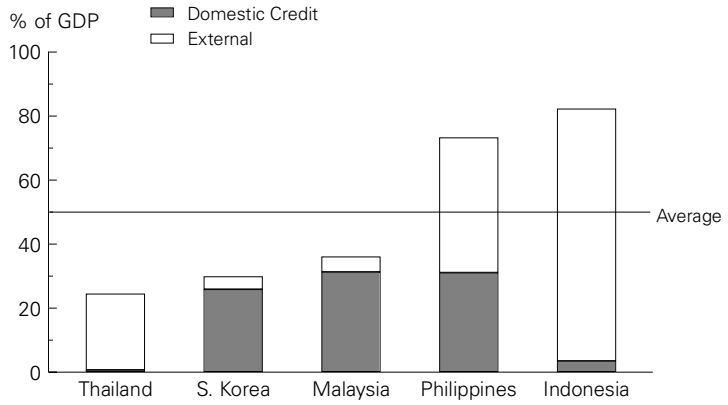
3. Debt overhang and service costs

Whether the region can simply grow out of the crisis depends on economic growth being great enough to fund existing (possibly restructured) debt obligations - the so-called solvency conditions.[4] Figure 3 shows the existing government debt outstanding prior to receiving the IMF emergency loan programs. Note that this includes external debt, bonds plus loans from the domestic banking system. Figure 4 shows the aggregate of private sector domestic and external debt, as a share of GDP. The most striking feature is that even after devaluation the value of external debt is relatively small in respect to domestic debt. However, with almost all debt tied to some floating interest rates the consequences of devaluation have been extremely costly. The local cost of foreign debt increases in proportion to the devaluation while the higher cost of capital sharply increases the cost of servicing both external and domestic debt. Figure 5 is the aggregate of private and public sector debt as a share of GDP. The average total debt to GDP ratio is 237%; of course much of the official debt is at preferential rates, so debt servicing is essentially a private sector issue.

Behind every non-performing loan is a non-performing debtor

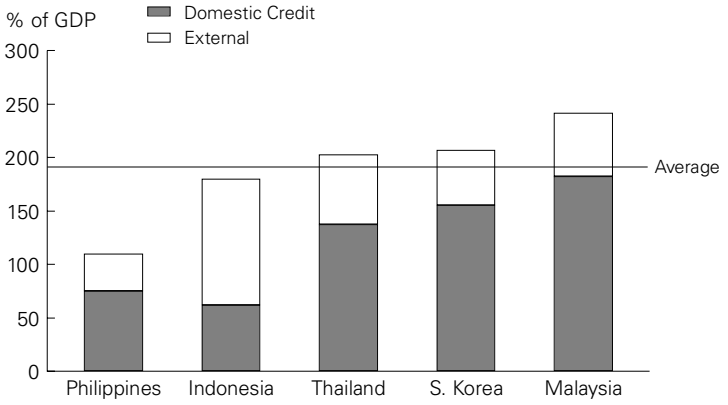
[4] In its simplest formulation, solvency requires that the present value of government debt does not exceed the present value of primary fiscal surpluses. However, in practice knowing future interest rates or surpluses is too difficult; hence solvency is replaced by issue of sustainability, whether a borrower is able to meet interest payments in each period.

Figure 3: Total Outstanding Government Debt (End 1997)



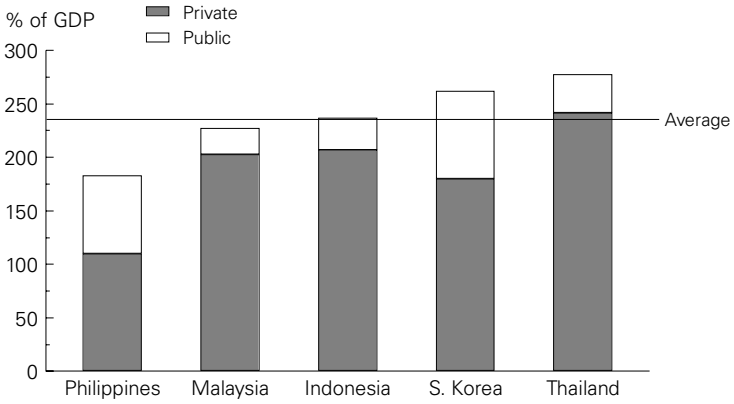
Note: External government debt is calculated by using end 1998 Q1 exchange rates and 1997 GDP
Source: National Statistics and Deutsche Bank Research

Figure 4: Private Sector Debt as % of GDP (End 1997)



Note: External private debt is calculated by using end 1998 Q1 exchange rates and 1997 GDP
Source: National Statistics and Deutsche Bank Research

Figure 5: Total Debt (Public & Private) as % of GDP (End 1997)



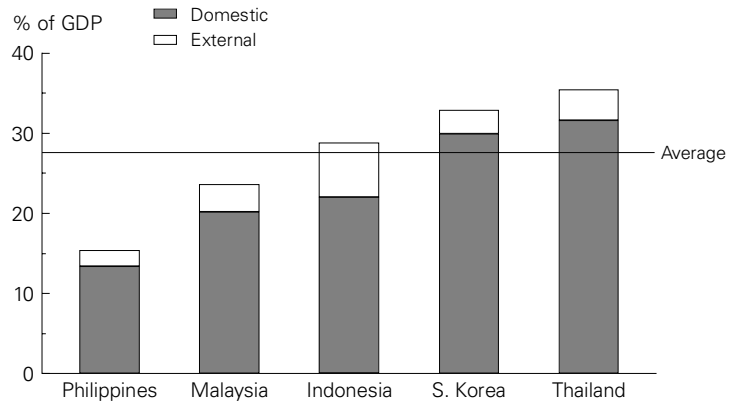
Note: External gov't debt is calculated by using end 1998 Q1 exchange rates and 1997 GDP
Source: National Statistics and Deutsche Bank Research

Asia's approach to 'Growing Out of Debt' mimics Latin America's 1980s strategy

To estimate the private sector debt service ratio we assume all funding is at 3-month local interbank rates and US dollar interbank rate for foreign debt. Note that corporations typically borrow at prime plus a spread which may be several hundred basis points. Nevertheless, using interbank rates the result is striking. On average 27% of GDP must go to service existing debt - assuming no repayment of principal. If interest payments cannot be met, bank loans may be rolled over rather than classified as non-performing, so the total amount of debt increases by the rate of interest. Comparison with Latin America in the early 1980s shows the severity of the domestic debt crunch. External and domestic debt and bank loans for the Asian economies equal more twice than for Latin America. The current emphasis on private debt work-outs and on economies "growing" out of their current "temporary" difficulties parallels closely the initial response to the Latin American difficulties. In reality with the domestic debt structure of the Asian economies, without a major stimulus from external demand growing out of debt will be extremely difficult.

Except Asia has more total debt to begin with

Figure 6: Private Sector Debt Service Cost (End 1998)



Note: Debt services calculation uses the local three month interbank rate for onshore debt and three month US rate for offshore debt
Source: Deutsche Bank Research

Average debt/service ratio is 27% of GDP

Bank restructuring does not reduce private sector debt by one dollar

Bank restructuring will not necessarily resolve this constraint either. Ordinarily, if a bank is healthy but its customer cannot repay its debts, a determination is made whether the company is worth more as a going concern or whether it should be liquidated. If the former determination is made, an agreement to restructure the loan (extending the maturity but lowering the interest rate, keeping the present value of the loan unchanged) or to swap debt for equity can be negotiated. Banks' classification of a loan does not change the legal liability of the firm to make payment in full unless the firm is no longer a going concern. If the corporation recovers, the bank simply writes its reserves back through the income statement and reclassifies the loan. Banks that are themselves insolvent or illiquid may face different incentives, however, being reluctant to recognize any deterioration in loan quality in order to avoid having to set aside provisions against potential losses. Such a strategy may succeed in averting collapse for the bank, it does nothing to alleviate the debt burden of the corporation. For some countries it will be necessary to find some form of debt relief by nullifying and restructuring existing obligations.

Legal status of loans is not changed

4. Debt relief, forgiveness and internal transfers

Private sector debt restructuring/relief is a prerequisite for recovery

In addition to allocating losses from bank restructuring, an important issue is whether debtors can honor existing obligations. With debt-service ratios at an average of 27%, either the cost of debt must fall very sharply or debt relief/ forgiveness will be necessary. Despite the rapid improvement in external balances, existing policy at this stage is comparable to the flawed Latin American strategy of growing out of debt. So far the cost of capital has simply not fallen. Under these circumstances either the currency defence must be abandoned, contrary to IMF programs, or a general debt rescheduling and possibly reduction of debt is necessary to facilitate recovery. The overhang of existing obligations serves as a high marginal tax rate greatly reducing incentives to invest or begin new projects since almost all of the benefits will go to creditors. If creditors do not expect with any confidence that debtors can meet existing obligations in full, partial nullification of existing contracts is economically efficient. Until debt service burdens are no longer a limitation to recovery, the cost of bank restructuring will increase. Both bank and general debt restructuring represent a major political challenge to allocate efficiently and equitably the losses amongst agents within the economy.

In order to achieve recovery without relief, cost of capital must fall

The greatest challenge is to achieve an efficient and politically acceptable debt relief program

Many instances of debt rescheduling have occurred in the past. Between private parties it may even be efficient for creditors to lend additional funds to secure partial payment, or write down existing claims to avoid insolvency. This can occur by reducing the discounted value of the claim (forgiveness), reducing principal (discount bond) or reducing the interest obligation while maintaining principal (par bonds). Debt rescheduling typically involves transfer of title or lengthening of debt maturities but not necessarily write-downs. Debt reduction schemes of broader coverage may be necessary if the objective is to make a meaningful impact on the economy. In this case, announcing restructuring terms for classes of loans rather than negotiating each loan individually has merit. In Chile between 1983-88 two across-the-board debt restructuring programs for firms and one across-the-board restructuring for mortgages and consumer loans were introduced. In some cases mortgages were partially forgiven up to 25% through special facilities at the central bank. In Mexico between 1995-96 commercial, mortgage and consumer loans were rescheduled into unit of investment (UDI) loans with an interest subsidy paid to banks.

Private debt relief will be too piecemeal for economy

Chile and Mexico provide example of across-the-board relief

Such measures represent a considerable redistribution challenge to the authorities. Losses must be allocated between parties, preferably early enough to minimise the costs. In the end much of the debt will end up with the government. Another distribution problem occurs with meeting external debt obligations. The internal transfer problem refers to one set of agents holding foreign currency with yet another being forced to buy currency at a much depreciated rate from the market. Here the distribution rather than the amount of foreign exchange becomes important. For external debt there are conflicting interests of negotiating parties to consider. While case-by-case negotiations imply private sector solutions may be infeasible, willingness to nationalize the debt will strengthen the hand of the creditors. In this way the postponement of any debt solution can be seen as a protracted negotiation between corporates and the state.

Coordination of losses and foreign currency is complex

V. Economic Outlook for Asia-5

Asia faces bigger indebtedness than Latin America in 1980

How long Asia's economic adjustment will last, and how large the eventual economic loss will be depends crucially on macroeconomic policies, particularly with regard to debt relief. Protracted debt crises can have dramatic effects in terms of lost output; the Latin American crisis was followed by the "lost decade" with per capita GDP still lower 10 years after the crisis began. Real output in Sweden and Finland took 5 years to return to pre-crisis levels, while Japan is yet to post meaningful growth 7 years after the bubble burst. This section considers the economic impact of the crisis over both a three year forecast horizon and the longer term steady state growth rates.

Protracted debt crises can have extremely high costs in terms of lost output

1. Forecast Assumptions

The significance of investment to economic growth rates in Asia is illustrated in the table below. Firstly, Asia's growth over the past decade has been investment driven: on average investment spending accounts for almost half of all GDP growth in the Asia-5 countries since 1990. Note that for the Philippines, slightly different dates are taken with 1992 the start of its expansion. As a consequence, the investment contribution to GDP growth has declined from over 500% at the start of the decade to 66% in 1996. Since the incremental capital output ratios are (a) rising (and will have risen sharply in 1998) (b) below the real rate of interest, much of this investment spending was misplaced or speculative (see section II). With the region now facing a much higher cost of capital, a corresponding adjustment in investment will be necessary.

Economic growth in Asia-5 has been driven by investment

Table 1: Contributions to GDP Growth (1990-96)

%	GDP	Consumption Private	Consumption Gov't	Fixed Capital Formation	Net Exports
Indonesia					
contribution to growth	100.0	72.5	3.8	38.4	-10.8
average growth	8.0	10.2	3.2	11.6	-1.9
Malaysia					
contribution to growth	100.0	42.4	12.2	68.0	-21.3
average growth	8.8	7.9	7.3	16.4	-1.3
Philippines					
contribution to growth	100.0	76.2	12.5	49.0	-53.3
average growth	4.2	3.8	5.7	8.2	-2.2
South Korea					
contribution to growth	100.0	55.6	7.7	43.1	-3.3
average growth	7.7	7.9	5.6	10.5	-0.9
Thailand					
contribution to growth	100.0	53.7	7.2	53.5	0.1
average growth	8.5	8.2	6.8	12.4	-0.8

Note: Average growth ratio is in real terms
Source: Deutsche Bank Research

With a doubling of the cost of capital the investment/GDP ratio must adjust

DBR assumes IMF's fiscal targets hold

The impact of the debt crisis is best illustrated through the savings-investment dynamics. Note, this constitutes a structural adjustment and not simply an inventory adjustment which appears to underlie many official forecasts. In the forecast table (see table 2) we have assumed that the IMF's fiscal targets will largely be achieved and interest rates are kept high to support exchange rates (although rates are assumed to fall gradually as inflation declines). This essentially assumes the current Fund programs continue to stand. The IMF does not explicitly

Loss on disposal of non-performing loans is assumed at 50%

state the cost of bank restructuring. Our forecast assumes the NPLs discussed in section IV are subject to a 50% loss which are funded by the issuance of government bonds. The cost of funding is taken as an above the line fiscal cost. For some countries, for example Thailand, the cost can be part funded through running down government balances at the central bank. Importantly no assumptions are made with respect to more general debt relief.

Capital inflows are expected to be modest. Will exports rebound?

The extent of the economic adjustment depends heavily on when large net capital inflows resume. Since the two sources of funding are Japanese and European banks, both face write-downs and enforced roll-over of loans, large capital inflows are a remote prospect. This implies current account deficits must be transformed into surpluses either through a rebound in exports or much lower imports. Several factors mitigate against a rebound in exports. First, the competitive gain from devaluation is far less than supposed owing to the high import component of Asian exports (averaging 40%) and the higher cost of capital. Even assuming no change in profit ratios or local costs, a 30% devaluation will lead to at best a 15% competitive gain. Secondly, exports suffer a fallacy of composition: intra-regional trade accounts for 40% of Asia's exports. Including exports to Japan, this implies over half (54%) are destined for countries in recession. Finally, many Asian countries export similar products which implying minimal scope for margin expansion. Of the Asia-5 countries only the Philippines is showing robust export growth in US dollar terms. In Thailand, Malaysia and Indonesia, exports are declining on a US dollar year on year basis.

Large current account surpluses depend on import collapse

Private sector savings are likely to fall to compensate for fiscal tightening

The final assumption is the trend of private sector savings. Note that prior to the Latin American crisis, private sector savings averaged 26% of GDP, not far behind Asia's 32% (only the government's ran very large deficits hence gross national savings rates being low). Of the several influences on savings, the degree of fiscal tightening in the midst of an economic contraction limits the scope for higher concurrent private sector savings. However, the analysis is complicated by the downturn in income and fall in asset prices. The former, if believed to be transitory, causes the savings ratio to fall while the latter often causes the savings ratio to rise to rebuild balance sheets. Given the low level of private income and evidence from past periods of major fiscal adjustment, private savings are likely to fall. In the forecast we have assumed that private sector savings fall by more in these countries likely to endure the greatest adjustments.

2. Dynamics of short-term investment ratio adjustment

Investment/GDP ratio must fall to new equilibrium, possibly by one-third

Against this background the investment to GDP ratio will decline. If gross national savings fall (due to fiscal expansion and bank restructuring costs) and countries are no longer able to run current account deficits, the investment ratio must fall. This adjustment is similar to previous debt crises. In both Latin America and Europe the investment to GDP ratio fell by one-third (see Figure 1). Of course the adjustment will neither be immediate or smooth. In the near term the outlook is very negative for investment; falling demand, high debt service costs, asset price weakness, credit crunch and therefore weak cash-flows or retained profits, all of which argue for the bulk of the short term adjustment to happen in the earlier years rather than later. In Latin America and Europe, the adjustment process was over four years. The weakness in investment will itself undermine income and consumption and the external account through lower imports of capital goods.

Several points are worth noting from the forecast table. First, not all countries in the region will face the same degree of adjustment and the pace of restructuring

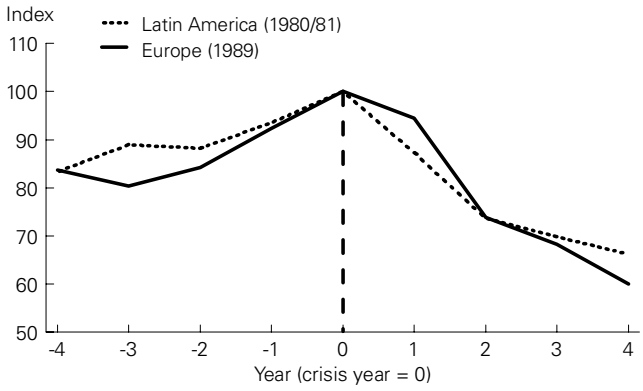
Table 2: Summary Forecast for Asia-5

Indonesia	1996	1997	1998	1999	2000
% of GDP					
Fiscal balance	1.1	1.0	-5.5	-1.5	-1.0
Primary balance	2.6	2.3	-3.5	-0.5	1.5
Gross national savings	31.2	33.4	30.4	25.5	23.9
Private savings	30.1	32.4	35.9	27.5	24.9
Gross national investment	34.0	33.7	27.0	24.1	22.7
Current account balance	-3.4	-3.4	3.4	1.4	1.2
CPI Inflation (YoY%, year avg)	7.9	6.6	89.6	19.5	8.0
GDP (YoY%)	8.0	4.6	-13.0	1.8	2.8
Malaysia	**1996**	**1997**	**1998**	**1999**	**2000**
% of GDP					
Fiscal balance	1.1	2.6	-1.0	-1.0	-1.0
Primary balance	1.4	2.8	-0.5	1.0	1.0
Gross national savings	36.6	38.0	39.0	35.0	33.0
Private savings	35.5	35.4	40.0	36.0	34.0
Gross national investment	42.2	42.4	39.0	36.3	34.5
Current account balance	-5.1	-5.1	0.9	1.3	1.4
CPI Inflation (YoY%, year avg)	3.5	3.2	5.0	4.0	4.0
GDP (YoY%)	8.6	7.8	-3.6	0.4	2.8
Philippines	**1996**	**1997**	**1998**	**1999**	**2000**
% of GDP					
Fiscal balance	0.0	-0.3	-0.2	-1.2	-1.9
Primary balance	3.5	2.9	4.2	4.6	4.1
Gross national savings	18.3	20.7	18.3	17.8	18.1
Private savings	18.3	21.0	18.5	19.0	20.0
Gross national investment	23.3	23.9	20.9	17.2	18.1
Current account balance	-4.7	-5.2	-2.7	0.6	0.0
CPI Inflation (YoY%, year avg)	8.4	5.1	7.5	6.0	5.0
GDP (YoY%)	5.7	5.1	2.0	2.5	3.0
South Korea	**1996**	**1997**	**1998**	**1999**	**2000**
% of GDP					
Fiscal balance	-0.5	0.0	-1.8	-3.0	-2.8
Primary balance	1.0	0.6	-0.4	0.2	0.4
Gross national savings	34.5	34.2	31.2	28.0	27.2
Private savings	34.9	34.2	33.0	31.0	30.0
Gross national investment	39.6	36.2	26.5	24.0	23.8
Current account balance	-4.9	-2.0	5.0	4.0	3.4
CPI Inflation (YoY%, year avg)	5.1	4.4	10.0	8.0	5.0
GDP (YoY%)	5.7	5.1	-5.0	1.5	2.5
Thailand	**1996**	**1997**	**1998**	**1999**	**2000**
% of GDP					
Fiscal balance	2.4	-1.0	-2.0	-2.0	-2.0
Primary balance	n.a.	n.a.	-1.0	1.0	1.0
Gross national savings	34.1	33.5	35.7	32.0	32.1
Private savings	31.7	34.5	37.7	34.0	34.1
Gross national investment	40.8	36.0	32.1	29.0	29.3
Current account balance	-7.9	-1.5	3.5	3.1	2.8
CPI Inflation (YoY%, year avg)	5.9	5.6	12.0	10.0	7.0
GDP (YoY%)	6.4	-0.4	-5.6	-1.1	3.7

Source: IMF, IIF, Deutsche Bank Research

Investment/GDP ratios: typical fall by one-third in adjustment

Figure 1: Investment to GDP Ratio: Latin America and Europe



Source: Deutsche Bank Research

Governments must encourage inflows and discourage outflows

Anything else will prolong the adjustment

will proceed at different rates. For instance, in the Philippines, the fiscal costs of the banking sector bailout and necessary adjustment in the investment ratio are noticeably less than elsewhere. Second, the impact in terms of lost GDP, relative to trend is typically very substantial - far more than inventory recessions, with losses spread over longer periods of time. The GDP profile is far more pessimistic than the IMF or government forecasts. This increases the risk of policy failure discussed in section VI. Third, government's can minimize the output loss by encouraging long term capital inflows and minimising the cost of bank restructuring. Both can be achieved by following IMF the reform programs, including changes in ownership together with whatever measures are necessary to reduce the debt service ratio. To prevent excessive exchange rate losses, the emphasis must lie with debt reform.

3. Long term steady state growth estimation[1]

Steady state growth rate (trend) will also be lower

How will the Asia crisis effect the region's long run potential growth rate? One approach to dealing with this issue is to estimate the impact of a decline in the investment to GDP ratio on the steady state growth rate through the aggregate production function. It should be emphasized that this approach does not consider the impact of the economic shock on demand (through lower investment spending) and therefore GDP growth and is not a substitute for the short run analysis whereby investment directly effects demand. Rather it considers that investment builds capital and that capital serves as one of two factors of production. From this perspective it is a longer term analysis. Specifically, consider the simplest production function:

$$Q = A * f(K,L)$$

As always, the controversy surrounds 'A'

where Q is real output, K is inputs of capital and L is inputs of labor, f is the function by which capital and labor are combined and A is a measure of total factor productivity reflecting the quality of the labor force, the efficiency of the economic environment, state of productive technology etc. For this purpose we assume A is constant[2]. The production function f is assumed to display constant

[1] This section draws on work by Dr David Weil of Brown University.

[2] The size of total factor productivity is of course subject to enormous debate. The well-known Asia critique by Krugman "The Myth of Asia's Economic Miracle" Foreign Affairs (1994) popularized research from Alwyn Young which argued that most of Asia's fast growth could be explained by the growth of inputs.

Capital accumulation has contributed to half of GDP growth

returns to scale and factors are paid according to their marginal product. Using data from the ADB for 1992-96, the ratio can be used to decompose the output growth in recent years into the three factors on the right hand side of the equation. This is translated into contributions in table 3 below.

Likelihood is that in practice, productivity is a function of investment to output ratio

Table 3: Contributions to Output Growth

	Growth Rate of Output (%)	Growth due to Capital (%)	Growth due to Labor (%)	Total factor Productivity (%)	Percentage of Output Growth due to		
					Capital (%)	Labor (%)	Productivity (%)
Indonesia	7.3	2.0	1.5	3.7	27.5	21.0	51.5
Korea	7.1	3.6	1.5	2.0	50.8	21.4	27.8
Malaysia	8.6	3.6	2.3	2.7	41.5	27.0	31.5
Philippines	3.4	1.1	2.4	0.0	31.6	69.8	-1.4
Thailand	8.1	3.6	1.0	3.5	44.3	12.7	43.1

Note: [1]Labor quality, technology, etc
Source: Deutsche Bank Research

This would imply a greater trend loss in output

The impact of changes in the investment to GDP ratio can be calculated from the above information. However, a given percentage point fall in the investment ratio depends crucially on the capital output ratio. Table 4 below looks at the predicted effect on growth rates for reductions in investment which are proportional to the original level of investment. Three scenarios are considered for the decline in investment ratio giving the percentage point loss in steady state output growth. Of course, each scenario assumes the growth of all other variables, most notably A, are constant. Given that A will encapsulate such intangibles as education, market structure, technology etc, many of which are positively correlated to growth, the likelihood is that the impact of the Asian crisis on long run growth will be even greater. The implication from this analysis is that if the investment ratio indeed declines by around one-third, under generous productivity assumptions a first approximation is to reduce long run sustainable GDP growth rates by around 1.5 percentage points (for the Philippines and Indonesia).

Long term growth ratio is expected to be almost 2% lower

Table 4: Effects of Reduction of Investment on Output Growth

	Output/ Capital ratio (Y/K)	Effect on growth of a 10 point fall in I/Y	Effect on output growth rate of a reduction in I/Y of		
			15%	25%	40%
Indonesia	0.612	-0.20	-0.53	-0.88	-1.41
Korea	0.365	-0.12	-0.68	-1.13	-1.81
Malaysia	0.320	-0.11	-0.68	-1.13	-1.81
Philippines	0.358	-0.12	-0.41	-0.68	-1.09
Thailand	0.327	-0.11	-0.68	-1.13	-1.80

Source: Deutsche Bank Research

VI. Risks Remaining

Several risks could yet trigger another bout of instability or capital flight

In a crisis of this magnitude, it is inevitable that several risks are outstanding any of which may trigger another bout of instability or derail the recovery process. One such risk lies with the Japanese economy and prospect of financial disruption or prolonged depreciation of the yen. Another risk is that the change in regional exchange rates implies a competitive loss to China and Hong Kong which has yet to be resolved. There is also the possibility of higher G7 interest rates which may trigger further capital flight from the region. Finally, regional governments must enact bold policy initiatives in the face of escalating social costs. Failing to implement appropriate economic policy, particularly with regard to debt restructuring, may cause further capital flight thereby deepening the economic retrenchment.

The greatest risk is simply failure to enact appropriate debt policies

1. Japan and the risk of financial disruption

Potential disruption of capital flows from Japan into the rest of Asia or prolonged depreciation of the yen poses significant risks to the region. Following the Plaza Accord in 1985, the increasing domestic costs of production encouraged Japanese manufacturers to move operations offshore into emerging Asia. The flows of direct investment into Asia from Japan amount to USD 70bn over the last eight years. However, much investment has been through bank lending and at much shorter maturity. According to the BIS data, Japanese banks have the largest exposure to Asia with USD 93bn in bank loans by mid-1997. Since the outset of the crisis Japanese banks have been persuaded to roll-over existing loans providing some stability against ongoing capital flight. However, given the sharp increase in credit and foreign exchange risk, the vulnerability of Japan's financial system may yet trigger another round of capital flight.

Japanese banks have almost USD 100bn exposure to Asia

Financial reforms may disrupt the lending process to Asia

In the past two years Japan's bank regulators have been more aggressive in trying to increase provisions against bad loans to maintain capital adequacy. However, despite allocating almost all operating profits to increasing loan loss provisions over the past three fiscal years, Japanese banks have been unable to make significant progress in resolving their non-performing loans problems. In January 1998, in an effort to increase transparency, the Ministry of Finance reported that when banks were instructed to value their loan portfolios according to more subjective principles, they reported JPY 76.7tn in problem loans. While not all of these loans would necessarily result in losses, this figure amounted to 11% of total loans in the banking system. Other independent estimates put the size of non-performing loans at over 30% of GDP. Indeed, the irony of Japan's inability to escape from bad debt while having one of the highest savings rates should not be lost on political leaders in Asia-5.

Almost all operating profits are going to loan loss provisions

Authorities are now attempting to liberalize financial sector

As the authorities liberalize the domestic financial system while banks' balance sheets are contracting, there is a risk of financial collapse of one or more institutions, disrupting lending into the Asia. Most recently, the authorities introduced a "Prompt Corrective Action" policy to take effect in April 1998 which forces banks to re-evalue their assets under more stringent accounting rules with the result that provisioning requirements have increased yet again. Also, the Japanese "Big Bang" reforms begin in mid-1998 by deregulating stock brokerage commissions, eliminating boundaries between different segments of the financial services industry and eliminating remaining restriction on international financial transactions. The combination of financially weak banks

Combination of liberalization plus weak institutions often has devastating effects

and rapid deregulation has proved difficult to manage in many other countries. The potential for ever greater yield-seeking behavior by Japanese banks, leading possibly to catastrophic failure of a major institution cannot be discounted. With policy makers in Japan either unwilling or unable to introduce any pro-active measures to strengthen domestic demand, the option of prolonged yen weakness becomes increasingly probable. This reduces any competitive gain of regional currencies to Japan, diminishes the incentive to relocate industry into emerging Asia and adds to the overvaluation of regional currencies that have not devalued against the US dollar (see below).

2. China and Hong Kong devaluation risks

Further depreciation of the yen would add pressure on the RMB and HKD pegs

One of the most widely feared risks to regional stability is devaluation of the Chinese RMB or Hong Kong dollar. Since both currencies have been stable against the US dollar, regional devaluations imply some degree of lost competitiveness. Over the past year the real trade weighted value of the RMB has appreciated by 18%. However, given that China ran vast trade surpluses for the last four years the degree of actual over-valuation is likely to be modest[1].

China continues to enjoy enormous trade surpluses

Much depends on the direction of the yen since one fifth of China's exports are destined for Japan. Policy makers in China have made a virtue out of explicitly resisting devaluation despite the loss in competitiveness. Since the RMB is non-convertible for capital account transactions, devaluation will only occur as a matter of policy choice. Comparisons with the Korean foreign exchange market

But currency stability is not an open ended commitment

are not justified since the ratio of Korea's short term debt to foreign reserves was 213% compared to China's ratio of 26%. In return for a commitment not to devalue, China gains political standing both within the region and G7 although with an overvalued currency this is not an open-ended commitment.

The challenges facing China's policy makers are acute: the banking sector is in worse shape than any in the region after years of directed lending. Efforts to commercialize the banking system will restrict loan growth due to a lack of credit worthy borrowers and reforms imply massive job displacement. Last year domestic demand rose by only 6% and is weakening further this year. There is already evidence of slowing capital inflows with lower direct investment applications. Foreign exchange reserves have failed to rise over the first four

Even if the CNY is not overvalued, 60% of exports are to Asia (incl Japan)

months of the year despite a cumulative trade surplus of USD 15bn suggesting either repayment of foreign liabilities or increasing capital outflow. Deteriorating trade will intensify the economic downturn. Even if the RMB is only 5-10% overvalued in real terms, with 60% of exports destined for Asia markets facing recession (including Japan), net exports will no longer be a stimulus to growth just as the economy is turning down. The incentive to devalue will increase in line with the weaker domestic economy.

Premier Zhu acknowledges the cost of defending HKD

Premier Zhu recently acknowledged the cost of defending the Hong Kong dollar to the mainland economy. History is full of exchange rate regimes where the cost of defence became to great to accept. The mechanics of the currency board are well established and the currency board mechanism has proved itself able to deal with most shocks in the past. The inter-bank cartel effectively

HKD currency board cannot be broken from the outside

prevents international funds from directly destabilizing the currency board, although persistent pressure could cause a domestic loss of confidence which

[1] L. Liu et al. Asian Competitive Devaluations, IIE, Working Paper 98-2 use a computable general equilibrium model to calculate post devaluation relative competitiveness and argue that the RMB is between 5-10% overvalued in real terms.

Real interest rates and unemployment in HK are the highest for a decade

could conceivably break the link. A legitimate issue is whether the size of the competitiveness shock from Asia crisis is such that the necessary adjustment in the real economy is too great. Unemployment of 4% and real interest rates of 5% are the highest in a decade and imply further economic slowdown ahead. While defence of the peg in the past has always had public support, this may yet be less assured if unemployment rises much faster than expected.

Gradual depreciation of the CNY is expected from mid-99

If current monetary and fiscal policy measures fail to strengthen domestic demand, then devaluation of the RMB to strengthen net exports in China is the final option. This is certain to be resisted under current conditions, indeed it would be hard to justify while still running substantial trade surpluses since a mini-devaluation would yield few if any benefits but trigger plenty of risks for the rest of the region including the Hong Kong dollar. There will of course come a time when China must redress the exchange rate loss and it is incumbent for regional economies to return to growth before this occurs. Timing is an issue of how fast and to what extent the domestic economy is slowing. Our projection of the trade balance implies gradual depreciation from mid-99 onwards. The risk for the region (and Hong Kong) is that without a return to economic growth currencies will be vulnerable to further losses.

3. Higher interest rates in G7 markets

Asia crisis has occurred in a benign interest rate environment

A distinguishing feature of the Asian crisis is that it occurred during a period of record low interest rates in both Japan and Europe and stable rates in the US. In Section III we argued that the era of record low rates had encouraged banking flows from Europe and Japan into Asia in search of higher yields but the subsequent reversal occurred without any tightening of monetary policy. While in May 1997, two months prior to the crisis, the December Euroyen futures contract discounted a 50bp tightening in monetary policy no change materialized. This benign interest rate environment is in stark contrast to both the Latin America and recent Mexico crises; while the financial and economic imbalances were already cast, both crises were triggered by aggressive tightening of US monetary policy. While the future direction of G7 policy is uncertain, the US Federal Reserve has a bias toward tightening policy and the markets are discounting a modest tightening of European rates by year end. In Japan the official discount rate of 0.5% implies limited scope for reduction although a pre-emptive rate hike is unlikely.

Higher G7 interest rates could withdraw capital from emerging markets, including Asia

This begs the question what tighter monetary policy in G7 would imply for Asia. The risk is that significantly higher interest rates would trigger even more capital flight from the region. While it may be argued that the capital flight has already occurred and the higher risk attached to lending in Asia imply that the withdrawal would have limited impact, at a minimum this would limit the scope for any reduction in the cost of capital and more realistically force rates higher or cause renewed flight. Higher interest rates may also indirectly effect Asia through destabilizing global financial markets many of which are at record high valuations. While regional equity markets have followed almost opposite trends to the global equity market, widespread losses in international markets would likely trigger flight of portfolio capital from emerging markets and the region.

4. Policy error and capital flight

Asia's debt burdens are increasing all the time

The greatest threat to the economic outlook in Asia-5 lies not in an exogenous shock, but in domestic policy risk inducing capital flight. Given the degree of indebtedness and the prolonged period of economic weakness ahead, there are

So far there are no coherent plans to reduce the debt overhang

enormous risks that policy will be diverted. This may be through political pressure to address rising unemployment or simply that the cost and enormity of debt restructuring are simply too great. While the Asia-5 countries appear to have learnt that policy has more chance of success following the IMF - strategy, interest rates have not fallen even with the rebound in regional equity markets. The longer countries delay reducing the domestic debt burdens, the greater the eventual problem will become. Only through resolute efforts to reduce the debt burden can capital flight be avoided.

Bank restructuring inevitably implies higher taxes

Private individuals will be acutely aware that the fiscal implications of bank restructuring are essentially claims against current and future income, either through higher inflation or taxation. Simply transferring the liabilities of the banking system to the public sector does not resolve the amount of credit due without some form of debt forgiveness. It does however increase the future tax charge. The logical response to future tax is to minimise exposure which implies domestic capital will head offshore. Experience shows that capital is internationally mobile whenever under threat of confiscation. This typically occurs when residents believe the value of their domestic assets could be subject to discrete loss if they continue to be held onshore. Loss can arise through higher taxes, inflation or exchange rate loss. The challenge facing authorities is to maintain confidence in domestic policy to prevent capital flight. Once this has begun, it is extremely difficult to prevent further outflows. Higher interest rates cannot prevent outflows as capital preservation is the primary motive.

Risk of further devaluation puts a premium on capital preservation

Preventing capital flight is a necessary condition for recovery. Over the medium term, interest rates can fall by the amount of net capital inflows. Even the most optimistic forecasts are hoping for current account surpluses of between 3-4% of GDP. If only 10% of Asia-5's domestic private sector savings were to become capital flight, this will more than offset the full current account surplus. High profile purchases of Asian companies are certainly welcome, but liquidity will only improve if the paid funds are held domestically. If governments opt to reduce interest rates aggressively to force a lower cost of capital, the anticipated exchange rate loss again would threaten capital flight. Aggressively printing money would trigger a similar response, but with debt at floating rates this would not be a rational policy decision. The greater the outflow of domestic capital the greater need be the decline in the investment ratio and economic adjustment as discussed in Section V. (For a full discussion, see Indonesia: Is the Light at the End of the Tunnel Oncoming Traffic for a further discussion of the risks of capital flight by Michael Dooley).

VII. Issues Raised by the Crisis

Asia crisis began only two and a half years after Mexican crisis

The Asia crisis has forced an in-depth review of the operation of international capital markets. On this occasion the review has greater urgency coming only two and a half years after the Mexican crisis and several initiatives intended to prevent such an event occurring again. One puzzle is why did foreign investors not gradually withdraw capital as problems began to build up to allow an orderly workout of the debt overhang? The IMF's resolution strategies have come under criticism from some Asian leaders and prominent economists from G10 industrial nations as either delivering inappropriate deflationary policies or unnecessary interference beyond the Fund's jurisdiction. The speed at which international capital can reverse and the potential economic losses this can inflict has reopened the debate over the optimal exchange rate policy and whether capital account liberalization is appropriate for emerging markets. Both issues are subsidiary to the more important policy of meeting global banking standards.

G10 review of Mexican crisis was intended to prevent such events occurring again

1. Surveillance and the IMF

IMF is charged with surveillance and failed to issue a clear warning

The IMF has a mandate to conduct surveillance over the international financial system. It does so primarily through regular consultation (e.g., during annual missions) with the authorities of member countries. The results of these discussions are generally kept confidential in the interests of promoting frank discussion. However, as the relative importance of private capital flows has grown to dominate official flows, the Fund has been slow to both incorporate the views of members of the private sector in its assessment of economic prospects and to make its findings available to market participants. Thus, there has been a tendency for policy recommendations to be discussed with little regard to the views or positions of agents who exercise increasing influence over key economic variables. Similarly, the basic framework of Fund surveillance continues to focus on macroeconomic variables, often to the exclusion of the variables of prime importance to financial flows in the short run. Such disregard for high frequency financial data can easily result in a situation in which the Fund's assessment of economic prospects differs qualitatively from that of market participants possibly with disastrous results.

IMF framework focuses on macro variables rather than financial flows

Decisions were taken with inadequate information

After the Mexican crisis, Fund staff conducted extensive research into the determinants of the crisis and incorporated many of these lessons into their surveillance. Again, however, most of the emphasis was on macroeconomic variables (e.g., current account sustainability). While financial fragility emerged as a key policy issue and the Fund published volumes of material on bank supervision and restructuring, this was less easily incorporated into bilateral surveillance. Despite considerable effort to learn and communicate the lessons from the Mexican crisis, the Fund issued no clear public warning of the risk of an impending Asian crisis.[1] As an institution, the Fund failed to understand the growing financial vulnerabilities in Asia or to prepare for a crisis. This lack of preparation hampered the official response to the currency crisis and the formulation of appropriate corrective measures.

The IMF is also responsible for data dissemination

[1] Rising risks in Asia were not entirely ignored by IMF staff. In its bilateral discussions with Asian governments their vulnerability to financial crisis was discussed in terms of the risk factors that had been identified after the Mexican crisis. Thailand, more than the others, was strongly cautioned by Fund staff. The annual International Capital Markets surveillance report identified some of the weaknesses in Asian banking systems in 1995 and in 1996, for example, warned that Thailand was especially vulnerable.

This is miserably lacking crucial financial data

After recognizing that an important catalyst for the Mexican crisis was the lack of adequate data on key financial variables, the Fund elaborated a Data Dissemination Standard to which Fund members would voluntarily adhere. However, more than two years after the Standard was agreed crucially important data relating to the external positions of the affected countries are still not available on a regular and consistent basis. While the target date for compliance with DDS is December 1998, progress is known to have been slow. The support programs were therefore agreed without key data being available to Fund staff. For example, programs to Indonesia and Korea were signed before the amount of external debt was known and in Thailand before forward exposure or undisclosed financial institution support was known. It may be necessary to raise the cost of non-compliance by restricting any future IMF support until full compliance is achieved.

Should non-compliance to data standards be punished by withdrawing IMF support?

2. Surveillance and the private sector: failure of credit assessment

One permissible defence is the opacity of corporate statements

It has been argued that the Asian crisis was not predictable because these countries did not exhibit the kinds of vulnerabilities normally associated with external crises. The same claim was made after the 1992-93 ERM crisis and the 1994-95 Mexican crisis. A more defensible argument lies in the non-transparency of corporate financial conditions. Because disclosure of asset quality by financial institutions was inadequate it was difficult to accurately assess just how weak the banking systems were. While there may have been widespread doubts about asset quality, these were hard to quantify, and therefore hard to persuasively communicate to investors. Similarly, data on banks' exposure to "nonproductive" sectors are still nebulous. As a result, even those analysts that did anticipate that the banking system was vulnerable were unprepared for the extent to which the crisis could unfold.[2] However, lack of transparency begs the question why did commercial banks continue to lend increasing sums of money without full information.

While risks were hard to quantify, the devaluations were predictable

Commercial banks increased exposure aggressively immediately prior to the crisis

Commercial banks increased their net claims on Indonesian, South Korean and Thai borrowers by 25% in the 30 months preceding the crisis. Yet given the lack of data transparency, exposure limits were set without full assessment of country risks and mistakes were inevitably made. Fed Chairman Greenspan noted that "it is clear that more investment monies flowed into these economies than could be profitably employed at reasonable risk." Spreads in credit markets astonishingly failed to widen until October, some 4 months after the crisis began and after four of the five currencies had devalued. Paradoxically, the equity market had already discounted the growing risks: in the previous eighteen months the MSCI Emerging Market Asia index rose 11%, almost unchanged in real terms and far below returns elsewhere in the world. This apparent divergence may be explained if banks assumed that they would be bailed-out should their portfolio deteriorate sufficiently to threaten the bank's future. A more mundane possibility is that credit risk research is relatively new, at least compared to the volume of research in the equities business, and ill-prepared to cover the 2.5 fold increase in loan volumes in the two years prior to the crisis. Research tends not to be sufficiently well integrated into firms' risk management function to influence the general direction of their business.

Monies flowed into these economies that could not be profitably employed at reasonable risk

[2] Deutsche Morgan Grenfell 1996, Asia's Exchange Rates, discussed the increasing vulnerability of Asian currencies to capital flight and argued that three of the affected currencies were overvalued and exchange rate reform was necessary. However, this is far from predicting the severity of the subsequent crisis.

Rating agencies failed to adequately understand risks and responded too slowly

Much criticism has been levied upon the major rating agencies for failing to monitor credit risks adequately. The table on page 15 shows that ratings were only downgraded well after the economic outlook had deteriorated. The decision to downgrade these countries by many notches at once made a mockery of the rating process. In fact, the rating agencies share some of the same problems with the IMF's surveillance, including irregular monitoring and reliance upon macroeconomic indicators of vulnerability and an outdated perception of capital market risks. For example, one recent study of the determinants of sovereign credit ratings concluded that "the ordering of risks they imply is broadly consistent with macroeconomic fundamentals." Ratings are still based on interest cover or external debt ratios rather than capital structure of the financial system. There is also a perceived commercial bias toward positive country assessments to encourage greater business and subscribers.

3. Criticisms of the IMF programs

Was the IMF's strategy appropriate?

An alternative strategy emerged at the height of the crisis that was almost diametrically opposite to the Fund strategy (see section IV). Proponents of the alternative strategy argue that the liquidity crisis was exacerbated by the Fund's prescriptions. The alternative resolution strategy is to inject large amounts of liquidity into financial systems without the elements of conditionality that the IMF insisted upon. It should be noted that at times it appears that in fact it was this Asian strategy that was actually implemented rather than the IMF program. Critics have levied at least five charges against the Fund programs:

New Paradigm approach argues restrictive policies are inappropriate

- Insufficient funds to resolve the liquidity shortage;
- Bank restructuring measures were ill-timed and worsened the crisis;
- Interest rate increases turned the liquidity crisis into a solvency crisis;
- Fiscal policy should have been eased rather than tightened;
- Unnecessary interference with sovereign policy issues;

Proponents ignore inherent moral hazard, and the lack of adequate funding

The first criticism effectively suggests that a complete financing of the external liabilities should have been provided as in Mexico's program. However, such a strategy would have exacerbated moral hazard in international financial markets by solidifying expectations of future bailouts of both creditors and borrowers, and had been rejected not just by the IMF but also by the G-10 in their 1996 review. Neither had the Fund sufficient resources to meet this commitment (a point discussed below). The notion that the banking systems in each of these countries was not in need of serious restructuring can easily be refuted. Investors reacted very negatively for example, to the long delays in setting up the FRA/AMC structure in Thailand and the Korean decision to nationalize KFB and Seoul Bank; and to the Indonesian budget in early January, which contained none of the Fund measures. The criticism levied at the Fund's fiscal policy prescriptions is similarly misguided. The fiscal tightening was necessary to ensure a strong degree of prudence was sustained even after accounting explicitly for the costs of financial sector restructuring. The Fund demonstrated a willingness to relax performance criteria on fiscal deficits to allow for a more accommodative stance as economic conditions deteriorated.

Indonesian policy was a close approximation of the alternative strategy

The criticism of the Fund's interest rate policies is more pointed. Drawing on the experience in the United States during the Depression, critics have argued that what was needed was an injection of liquidity into the banking system, not a withdrawal of liquidity. Conventional theory would suggest instead, however, that higher interest rates were the most effective instrument available for slowing

Interest rates were tightened to generate external surpluses and prevent inflation

the economy sufficiently to generate the current account surplus that would be needed to repay the large stock of short term foreign debt that was coming due. Under the alternative accommodative monetary policy, the outcome would likely have been higher rates of inflation and therefore exchange rate depreciation, and greater debt costs, precisely the opposite the alternative strategy is designed to achieve. It is important to note that all three countries had pursued accommodative policies prior to the introduction of the Fund programs through central bank liquidity support to financial institutions and that had not prevented the exchange rate from depreciating.

Is the Fund interfering unnecessarily? Arguably even greater interference is justified

The criticism that the Fund is interfering unnecessarily within the jurisdiction of a sovereign government implies the structural reforms, especially bank reform, are either unnecessary or the sole responsibility of national authorities. On the contrary the failure of national governments to provide adequate regulation, the presence of market contagion and potentially systemic banking sector risk all argue for an international capital market functioning under a standardized set of rules. Indeed we would go further and argue that the Fund should include conditions, or at a minimum policy recommendations, to deal with the domestic debt overhang. As our discussions in section IV to section VI make clear, domestic debt reform will be necessary to return to a full recovery within the program years. While debt work-outs are ultimately a sovereign issue, the provision of Fund resources without some from of debt restructuring commitment is an abrogation of responsibility toward other member countries.

a. Reforms at the IMF, funding and moral hazard

Architecture of Bretton Woods institutions is under review

Given the above issues is it not surprising that IMF procedures are under review. Leaders of the industrial nations are re-thinking the "architecture" of the international financial system including the appropriateness of the Bretton Woods institutions. One proposal is to integrate the work of the World Bank's and IMF's financial market experts more closely to the point of establishing a new joint Fund-Bank financial market surveillance and technical assistance team. One potentially fruitful outcome of this review is the possibility of greater independence (and openness) of the Fund and World Bank. If such institutions are to protect the interests of the membership as a whole (and contagion shows a common interest) they must be empowered to communicate their concerns forcefully and openly. The need for confidentiality of discussions must be tempered by the broader interests of restoring discipline in policies. Ultimately, public discussion of surveillance documents and market reaction will both improve the quality of members' policies and the surveillance. This would remove the charge of possible "clientitis", where the support for a country becomes increasingly tied to the perceived success of the Fund program.

The Fund must become more independent and empowered to communicate

Global markets currently have no lender of last resort

Whatever the eventual architecture one guideline is essential: multilateral agencies' financial resources must be compatible to their objectives. Under-funding simply increases the vulnerability of the financial system, the very reason to support the agencies in the first place. Currently the Fund's financial resources are at historically low operating levels with additional funds necessary in the event of further bail-outs. Global financial markets no longer have an international lender of last resort due to funding expediency rather than policy design. It may be that objectives should not include full funding of payments crises. Since the Mexican support program capital markets have experienced a greater degree of moral hazard as investors perceived that international official support would be

IMF funding has been neglected and must be consistent with remit

made available to countries experiencing payments difficulties. Bail-outs were forthcoming but the losses to the private sector financial community have also been considerable.[3] It can be reasonably argued that the haste which the Fund reacted prevented adequate consideration of burden sharing between different classes of creditors. Consequently bank creditors have actually suffered less than equity and bond holders. However, the IMF members must decide whether to have an international lender of last resort rather than simply under funding the institution.

3. International capital mobility and exchange rate policy

Re-occurrence of crisis will question wisdom of capital account liberalisation

At a time when the IMF is seeking approval to broaden its mandate to allow it to pursue the objective of capital account liberalization, the Mexican crisis and now the Asia debt crisis will undoubtedly cause many policy makers to question the wisdom of liberalization. While there are undoubted benefits from relatively free international capital transactions, the Asian debt crisis illustrates the danger of premature liberalization at least, if not liberalization in principle. Countries that have avoided spill-overs in recent crises are those that have restricted capital transactions. In Chile and Colombia, taxes on the reversal of short-term capital investments have lengthened the maturity of external liabilities, while the closed capital accounts of China and India have prevented sudden large-scale capital outflows. However, China, Colombia and India are among the poorest countries in their region and Chile's management of capital controls is applied assiduously with conflicting results. Half-way liberalization of capital account transactions in Korea has been shown to be ultimately no less vulnerable than fully liberalized currencies, as the absence of restrictions on capital outflows allowed domestic investors and firms to acquire foreign currency.

How can policy makers reap the benefits of capital flows, but minimise the costs?

The challenge for policy makers is to reap the benefits of capital account liberalization, higher investment and inward transfer of technology, while protecting the economy from the disruptions of changes in market sentiment. Financial markets also play an important disciplinary role but the USD 107bn reversal in commercial bank flows from Asia was surely destructive (see section III). No perfect solution exists as international capital, unlike international trade, is subject to speculative excesses and can accentuate business cycles for small countries. If there were to be capital controls then ideally the maturity structure of foreign capital could be extended removing the risk of capital flight. Yet regulation is only effective to the extent that it prevents round-tripping (circumventing controls) which is increasingly difficult with the multitude of contracts. The most important objective is to minimise the reliance on short-term foreign borrowings. Clearly, prudential regulations on financial institutions' foreign liabilities, covering both on- and off-balance sheet transactions, need to be strengthened and more closely monitored. It may also be desirable to introduce explicit taxes on foreign investment in short-term bank liabilities, despite the evidence that such taxes increase short-term interest rates.

Capital controls are becoming less effective due to round-tripping

Key is to reduce short term FX liabilities in the banking system

Capital account and currency management are inextricably linked

Openness of capital accounts is also inextricably linked to exchange rate management. Policy makers in developing countries have long argued that their vulnerability to external shocks, particularly when their production base is not well diversified, makes the volatility of prices under flexible exchange rates undesirable. The difficulty for policy makers in emerging markets is that there

[3] The Institute for International Finance estimate foreign equity investors lost USD 80-100bn, foreign bond holders lost USD 10-15bn and leading banks USD 10bn in the Asia-5 countries alone.

Currency markets can ultimately exploit any inconsistency

are enough large investors willing to attack any kind of exchange rate rule if they perceive that the fundamentals no longer support that rule, but at the same time Asian governments are clearly dissatisfied with their experience with floating exchange rates.[4] However the determination of whether to follow a fixed or flexible exchange rate rule ultimately is irrelevant. Foreign investors/speculators, and especially domestic investors, can clearly overwhelm most central banks' defences and either break a fixed exchange rate rule or drive a floating currency downward. The success of either regime depends upon the ability of the authorities to ensure that their policies are consistent with exchange rate stability. Minimizing short term foreign currency inflows is necessary to allow exchange rate management to become a solution to currency pressures rather than the problem.

4. International capital mobility and banking policy

Minimising short-term FX inflows is necessary to allow currency and interest rate policies

Another possible solution to the problem of unstable capital movements lies with domestic banking policy. Capital inflows into equity and bond markets are largely self-correcting and not a policy concern (see section II). Indeed as sources of market discipline they encourage better policy making. However, capital flows into the domestic banking sector require close monitoring. Banks' unique role in channelling savings through the economy also bring unique risks of systemic collapse if banks fail, and the authorities' implicit or explicit guarantee of deposits implies a constant source of moral hazard. Banking system regulation is already advanced in several countries under the Basle Committee Core Principles for Effective Banking Supervision soon to be extended to security markets through IOSCO. Appropriate banking regulations provide the best response to currency disruptions: without short term foreign currency liabilities, exchange rate management becomes a viable policy option and interest rate policy has greater flexibility. Those countries with the strongest banking standards, Hong Kong, Chile, and Singapore have the greatest defences against currency attack, despite having varying degrees of capital account openness.

Quality of banking supervision is paramount

The lesson is that capital flows do not cause crises: only when capital is grossly misallocated through inefficient banks

Regardless of whether exchange rates are fixed or flexible, it is clear that monetary authorities need to rethink reserves adequacy. The usual rule of thumb that reserves should exceed four months' imports, for example, reflects a historical preoccupation with current account sustainability. The Mexican and Asian crises have highlighted capital account dynamics. Hence, what is needed is a measure of reserves adequacy that is related to the stock of external debt, particularly short-term debt (that maturing within one year). While ordinarily a relatively high rollover rate is experienced, during times of adverse sentiment, rollover rates decline. Hence, to be prudent, a relatively conservative estimate of adequate coverage should be employed. For example, the original IMF program for Korea initially targeted end-97 reserves of only USD 11bn or 27% of short-term debt, which investors clearly believed was too little. Employing a coverage ratio of 100% of short-term debt would have meant that reserves should have been increased to USD 41bn. Using the same coverage ratio, net foreign reserves should have been targeted at close to USD 34bn for Indonesia and USD 29bn for Thailand in order to halt the run on currencies. Viewed this way, the rapid accumulation of reserves by Asian central banks may have appeared prudent but was in fact insufficient.

At a minimum, reserve coverage ratios need re-thinking

[4] The Mexican and Asian crisis have also raised the profile of highly leveraged investors, including proprietary trading divisions of major banks and hedge funds. Given the small size of many emerging markets' financial markets, such investors can take speculative positions that can move markets or break exchange rate pegs. It appears to be impractical to establish regulations that would eliminate this class of investors from the markets. Hence, prudential regulations should rather be introduced to improve disclosure by banks of large positions that they have financed.

Latin America in the Wake of the Asian Crisis

By Liliana Rojas-Suarez, Gustavo Canoñero and Jose de Gregorio, New York

The impact of the Asian crisis on Latin America is largely economic, not financial ...

Though its major exchange rate regimes have and will continue to survive in our view, the Asian crisis will lead to a growth slowdown in the region - to 3.5 percent in 1998 from 5.4 percent in 1997 - and an increase in its external financing needs (to US$ 100 billion, a 25% increase from 1997). Latin America has been able to weather the storm from Asia as the economies in the region are now sounder and better prepared to face adverse shocks after the significant progress achieved in structural reforms in the last few years. However, important fragilities still remain and they are a source of concern as they could threaten the consolidation of the stability process in Latin America. Fortunately, the potential risk of increasing fragilities is not necessarily a precursor to a crisis, and there is room for corrective action in most Latin countries.

... though the region does have some remaining political and financial vulnerabilities ...

Amid lower growth and higher external financing needs for the region, there are important remaining vulnerabilities for Latin America stemming from the Asian crisis. These vulnerabilities are related to weaknesses in banking sectors, the widening of spreads between domestic and foreign interest rates, and the closeness to elections in most of the countries of the region. Higher interest rates and slowdown in economic growth increase vulnerability in domestic banking systems and limit the use of tight monetary policy. Likewise, increased domestic interest rate spreads create incentives to raise unhedged foreign currency exposure, placing higher cost on a potential currency devaluation. In addition, an active electoral year ahead (with presidential elections in Ecuador, Colombia, Brazil, Venezuela, and Argentina) is likely to constrain further policy-makers' capacity to react appropriately to adverse shocks.

... with elections in Argentina, Brazil, Colombia, Ecuador and Venezuela in the coming year

To analyse current developments and perspectives in Latin America, we first present a description of the shocks originating from the Asian crisis. Then we focus on the regional strengths that have allowed the Latin American economies to adjust with manageable costs to the new environment. Finally, we discuss the risks from the remaining vulnerabilities and the viability of a corrective policy response. This last section concludes with an outlook for individual countries.

I. The Nature of the Shocks to the Region

External shocks to the region can be classified according to the component of the balance of payments they affect. In particular, are they shocks to the trade balance or shocks to the capital account? In fact, the Asian crisis has affected Latin American economies through both channels.

The impact on trade

Both volumes and values of Latin America's exports are potentially altered by the Asia crisis

Since mid-1997, Latin America has been hit by two types of shocks to its external trade accounts. First, export volumes have been directly affected from low growth in Asia and the gain in Asian competitiveness since the currency crisis. Second, the value of exports has fallen as result of declinig commodity prices. Additional pressures on policy management come from the continued strength of the US dollar. In countries pegged to the dollar (Argentina and Brazil), this has

resulted in a real appreciation of their currencies or a dampening of the depreciation that resulted after the crisis. Together these effects have put pressures on external accounts and, as a result, current account balances of most countries in the region are projected to deteriorate during 1998 (Table 1).

Table 1: Macroeconomic Indicators 1981-82, 1996-98

Current Account Balance (% of GDP)	**80**	**81**	**96**	**97**	**98F**
Argentina	-2.3	-2.8	-2.0	-3.9	-4.7
Brazil	-5.7	-4.7	-3.2	-4.5	-3.9
Chile	-7.2	-14.5	-4.1	-5.1	-6.5
Colombia	-0.6	-5.4	-5.6	-5.8	-4.9
Ecuador	-5.5	-7.2	1.6	0.4	-2.6
Mexico	-5.4	-6.5	-0.6	-1.8	-3.1
Peru	-0.5	-6.9	-5.9	-5.5	-6.4
Venezuela	8.0	6.0	13.1	5.4	-1.0
General Fiscal Balance (% of GDP)	**80**	**81**	**96**	**97**	**98F**
Argentina	-2.6	-6.0	-1.8	-1.4	-1.6
Brazil	-2.8	-3.4	-6.1	-5.9	-5.6
Chile	5.4	2.6	2.2	2.0	1.2
Colombia	-0.7	-0.5	-1.9	-3.7	-2.7
Ecuador	-1.4	-4.8	-0.3	-2.0	-4.0
Mexico	-3.0	-5.9	-0.9	-0.7	-1.7
Peru	-2.4	-4.0	-1.2	-0.2	-0.4
Venezuela	1.4	-4.1	7.4	-1.5	-4.1
Inflation, End of Year (%)	**80**	**81**	**96**	**97**	**98F**
Argentina	87.6	131.3	0.1	0.3	1.0
Brazil	86.3	100.6	10.0	4.8	3.5
Chile	31.2	9.5	6.6	6.0	5.0
Colombia	25.9	26.3	21.6	17.8	19.0
Ecuador	13.0	16.4	24.4	30.7	32.3
Mexico	29.8	28.7	27.7	15.7	14.5
Peru	60.8	72.7	14.8	6.5	8.7
Venezuela	19.6	10.5	103.2	37.6	30.0
Growth Rates (%)	**80**	**81**	**96**	**97**	**98F**
Argentina	4.0	-5.4	4.3	8.4	4.5
Brazil	9.7	-4.5	3.0	3.3	1.0
Chile	7.7	6.7	7.2	6.6	5.3
Colombia	4.1	2.3	2.1	3.2	3.5
Ecuador	4.9	3.9	2.9	3.8	2.1
Mexico	8.3	8.5	5.1	7.0	4.6
Peru	4.9	5.1	2.8	7.4	3.5
Venezuela	-1.0	-0.3	-0.4	5.1	1.8

Source: Deutsche Bank Research

Most countries in Latin America will see a deterioration in their current account this year

The sharp depreciation of Asian currencies has resulted in a loss of competitiveness for Latin American countries, and the recession in Asia adds to the reduction in their demand for imports from the rest of the world, including Latin America. An expected increase in exports from Asia will, in turn, increase competition in world markets. Thus, weaker markets in Asia and stronger competition in global markets will take a toll on Latin America's foreign trade.

To examine trade relationships between Latin America and Asia, Table 2 shows the destinations of Latin American exports (comparing 1990 to 1996). The following facts emerge:

- Latin American exports are oriented mainly to non-Japan industrial countries, on average about two thirds of total exports. Among industrial countries, the largest share goes to the U.S., especially for Mexican exports.

Only a small fraction (less than 10%) of Latin America's exports go to the so-called Asia 5

- The second largest share consists of exports among Latin American countries. The main commercial relationship is between Argentina and Brazil. Somewhat less than a third of Argentine exports are sold in Brazil, a magnitude that results directly from Argentine growth and the incentives from MERCOSUR.

Intra-regional trade has grown sharply in Latin America in recent years

- Japan has never been an important importer from Latin America. The exception is Chile, of whose exports about 16 percent are sent to Japan and one-third go to Asia.

- Exports to Asian countries that have experienced large depreciation of their currencies (Indonesia, Korea, Malaysia, Philippines and Thailand) are rather small.

- The country with most links with Asia is Chile, but it is too small to ignite a regional crisis. Moreover, as we discuss below, Chile's economic indicators show that the country can overcome significant deterioration in international trade without major risks.

- Overall, direct trading relationships with Asia do not seriously threaten Latin American exports.

Table 2: Exports Destinations of Latin American Countries

	Total Exports 1996 (USD bn)	% of Total Exports											
		Latin America		*of which* Brazil		Asia		*of which* Asia-5		Ind. Countries		*of which* Japan	
		1990	1996	1990	1996	1990	1996	1990	1996	1990	1996	1990	1996
Argentina	23.8	26.3	47.6	11.5	27.8	7.0	10.0	3.1	4.0	49.7	30.7	3.2	2.2
Brazil	47.7	11.6	24.5	-	-	9.3	9.9	4.2	4.3	68.1	55.5	7.5	6.4
Chile	15.4	12.4	19.7	5.6	6.1	10.3	17.1	-	8.4	72.9	58.7	16.0	16.2
Colombia	10.4	16.9	28.5	0.4	1.1	0.7	1.0	0.3	0.4	78.5	67.8	3.8	3.3
Mexico	96.0	6.6	6.1	0.6	0.9	1.2	1.9	0.5	-	90.0	91.2	5.5	1.4
Peru	3.3	15.4	17.1	3.9	4.1	7.5	17.2	2.9	5.7	69.5	61.9	13.4	6.7
Venezuela	23.1	20.6	32.6	1.8	4.2	1.4	0.7	-	-	64.2	64.3	2.5	1.1
Total	219.7	14.2	19.5	2.4	4.4	5.1	5.7	2.2	2.2	71.8	70.2	6.2	3.6

Source: IMF, Direction of Trade Statistics. ASEAN-4 and Korea are: Indonesia, Korea, Malaysia, Philippines and Thailand.

Chile and Peru have the largest exposure, in terms of exports, to Asia

However, the depreciation-cum-recession in Asian countries will over time (once trade finance returns) result in increased export market penetration of Asia into the world economy. This increases the competition that Latin American exports will face in third markets. To assess the magnitude of this effect, Table 3 presents the destination of Asian exports. Following are the main features:

As well as the direct impact of trade with Asia, there is also the question of competition in third countries

- Exports from Asian-4 and Korea to Latin America are small in relative and absolute terms. About US$ 10 billion out of the US$ 270 billion of exports from the world to Latin America countries come from these five Asian countries.

Exports from Asia to Latin America are small

- Out of the US$ 335 billion exported by the five-Asian countries, only one third is sold to industrialized countries other than Japan, which implies that only a fraction of trade competes with Latin America exports.

- Most of trade occurs within Asian countries, with China and Japan the main tination markets.

Table 3: Exports Destinations of ASEAN-4 and Korea

	Total Exports 1996 (USD bn)	% of Total Exports							
		Latin America		Asia		Ind. Countries		*of which* Japan	
		1990	1996	1990	1996	1990	1996	1990	1996
Indonesia	49.8	0.4	1.6	25.1	34.5	70.3	58.4	42.5	25.8
Korea	130.5	3.1	5.5	17.6	37.8	69.8	42.7	19.4	12.3
Malaysia	78.2	0.7	1.3	44.6	46.8	50.9	48.1	15.3	13.4
Philippines	20.5	0.9	1.1	17.8	25.7	79.2	69.7	19.8	17.9
Thailand	55.8	1.3	1.0	22.1	36.8	67.1	54.4	17.2	16.8
Total	334.8	1.8	2.9	24.8	38.5	66.3	49.9	22.2	15.6

Source: IMF, Direction of Trade Statistics

This additional evidence suggests that there will be a moderate increase in competition for Latin American exports. With its close proximity to the US, Mexico will be one of the most affected countries. Nevertheless, the basket of goods exported by Asian countries is rather different from that exported by Latin America. Therefore, for the region as a whole, the effects on trade are limited.

Mexico will likely be most affected by competition in the US market from Asian exports ...

In fact, the slow down in world trade triggered by the Asian crisis will primarily affect Latin America through the more depressed state of international commodity markets. Around 45 percent of Latin American exports are commodities, and most of the countries in the region are principal suppliers of a few goods. In particular, Chile is the most affected country by copper prices as copper represent about 40 percent of total exports, and a 10 cent decline in price corresponds approximately to one percentage point of GDP of lower exports earnings. The price of copper fell from a peak of 133 US cents per pound in 1996-97, to reach levels below 80 US cents per pound in recent months, and it is likely to remain below 90 US cents per pound during the second quarter of 1998. Although the current account deficit in Chile is projected to increase beyond 6 percent of GDP in 1998 from 5 percent in 1997, the roughly 2.3 percent of GDP accumulated in the copper stabilisation fund, put in place to absorb the fiscal impact of changes in copper prices, insures continued surpluses in the fiscal accounts. The other exporter of copper in the region is Peru; but copper exports represent less than 20 percent of the total, so the effect on the current account is more limited now.

In fact, commodity price changes are of more importance to Latin America ...

... particularly Chile (Copper) and Ecuador, Mexico and Venezuela (oil)

The price of oil has also declined sharply in recent months (from US$20/barrel, to below US$ 14/barrel at times). Current expectations are also for a continued depressed market. The effect of these developments is uneven across countries. The countries most affected by the decline in the price of oil are Colombia, Ecuador, Mexico, Venezuela, and to a lesser extent Argentina. For most of the other countries in the region, including Brazil, which are net importers of oil, the reduction of the price of oil brings good news on inflation and the trade accounts.

The decline of soy bean prices has affected primarily the trade accounts of Argentina and Brazil. Soy beans account for about 7 percent of exports in Brazil and over 10 percent in Argentina. For Brazil, the adverse effect on export revenues only partially offsets the benefits from the reduction in oil prices. Coupled with an expected slowdown in growth, the net effect is likely to result in a moderate improvement in Brazil's current account balance in 1998.

In contrast, Brazil's current account may benefit from the commodity price changes

Finally, the El Niño phenomenon is having very negative effects on fishing activities in Chile, Ecuador and Peru. Latest figures show that the fish catch has declined in the north of Chile by about 70 percent and in Peru by 90 percent. The decline in world supply has raised the price of fishmeal by 25 percent, but with very limited production. At least for 1998, prospects are pessimistic, although it is still uncertain when and what will be its more permanent effects in terms of fish population growth. Climate changes have also affected agriculture, but the effects are relatively small compared to the effects on fishing.

The continued strength in North America is clearly good news for Latin America

Notwithstanding negative shocks to trade, the good news for Latin America is the continued strong performance of industrialized countries. The average growth for the world economy during 1998 is expected to be about 3 percent, somewhat less than the 4 percent that it grew in 1997, but still a sound path compared to recent history. This healthy rate of economic growth implies good prospects for Latin American exports to industrial countries.

The impact on the capital account

In addition to the threat to Latin American trade, the region also faces shocks to the capital account arising from changes in external financial conditions. First, there has been a reduction of capital inflows to the region. Second, the cost of external financing for the region has increased.

Quite apart from the impact on their current accounts, Latin American countries may also face changes in the amount of foreign capital available to them

Latin America as well as other emerging economies have been receiving large amounts of capital during the 1990s. On average during 1990 to 1996 net private inflows were about US$ 46 billion, which financed both the current account deficit and an increase in reserves of US$ 19 million on average per year. Table 4 shows that capital flows to developing countries have declined since late last year. Compared to the monthly average of capital inflows to Latin America during the period January-October 1997, inflows to the region almost halved in the last two months of the year. This trend, however, partially reversed during the first quarter of 1998, but it is still unlikely that inflows will return to their pre-crisis level in the month ahead.

Table 4: Gross Private Capital Flows to Developing Countries in 1997

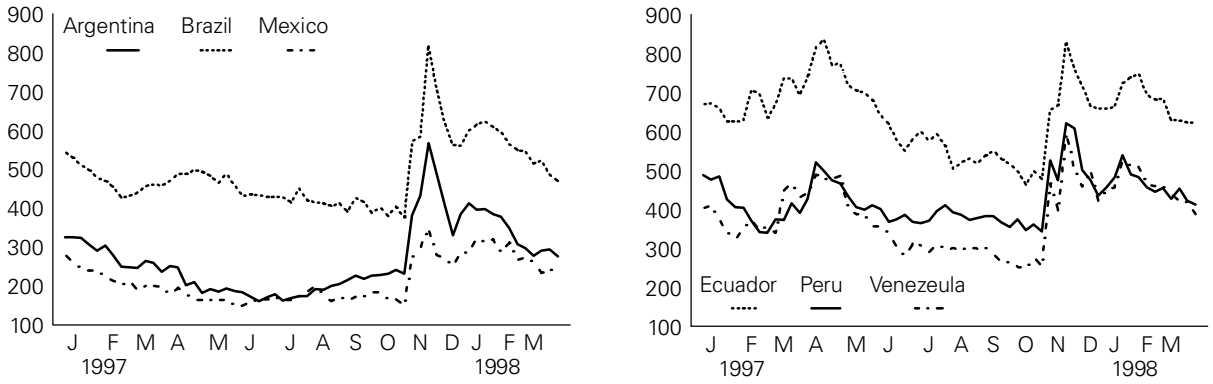
	(USD bn, Monthly Averages)			
Region	**Jan - July**	**Aug - Oct**	**Jan - Oct**	**Nov - Dec**
All developing countries	17.5	18.1	17.7	12.0
East Asia	6.3	5.1	5.9	2.5
East Asia 5 excl. Korea	4.2	2.9	3.8	1.5
Latin America	7.3	8.9	7.8	4.2
Europe & Central Asia	2.2	2.5	2.3	3.0

Source: Guillermo Perry and Daniel Lederman, "Financial Vulnerability, Spillover Effect, and Contagion: Lessons from the Asian Crises fro Latin America", The World Bank, 1998

Foreign capital has become more scarce since the Asia crisis began, and the cost of funds has risen

The cost of foreign financing has also increased after the Asian crisis (Figure 1). The spread on government bonds reached a peak in late-1997 at the beginning of the crisis. Although spreads have been declining in recent weeks, they are still above the pre-crisis levels, imposing additional cost to foreign financing and reflecting increased risk perceptions in markets. The rising supply of debt from the Asian economies and the downgrading of some of these countries to non-investment grade has further tightened liquidity in global markets. The latter alone is estimated to have increased the stock of non-investment grade debt by 25 percent almost overnight.

Figure 1: Sovereign Eurobond Spreads (bps over US Treasuries)



Latin America's external financing needs will rise in 1998 as a whole

With larger current account deficits, the external financing needs for Latin America during 1998 are significantly larger than in 1997, amounting to about US$ 100 billion (an increase of about 25 percent relative to 1997). The more limited availability of foreign funds to developing countries, following the Asian crisis, will exert some pressures on Latin America. In cases where inflows decline further and resources dry up, countries may need to depreciate their currencies beyond the depreciation that has already occurred in the region in the aftermath of the Asian crisis.

II. The Region has Managed to Absorb the Shocks

External developments are only one component in the equation to determine a country's economic performance. Perhaps the most important factor to the

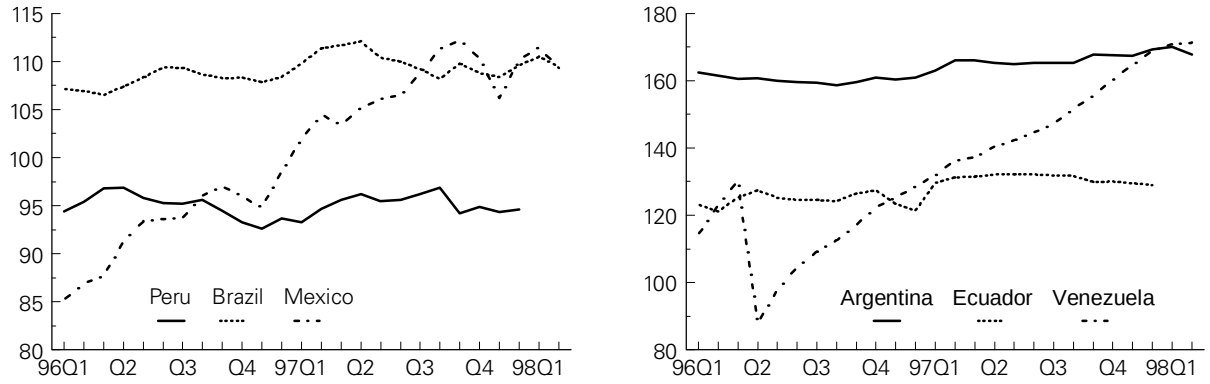
Latin America is in much stronger shape now to absorb external shocks than it was ten years ago

final outcome is the ability of the domestic economies to absorb these changing conditions. A fragile economy may turn upside down with a small shock, while a strong one may be able to absorb most adverse events. Two factors dominate any analysis: soundness of the macroeconomic situation and the structural characteristics of the economy.

Current accounts in Latin America are generally widening this year

The combination of adverse shocks to trade and capital accounts has resulted in a deterioration of current accounts in most Latin American countries as well as a slowdown of economic activity (Table 1). However, due to the response of policymakers in most Latin American countries, the consequences of the Asian crisis appear to be under control and the overall economic conditions do not indicate that a systemic crisis in the region is in the making. Of course, if economic conditions deteriorate further, they will generate political as well as fiscal pressures. Indeed, as we discuss in the next section, the Asian crisis has opened up a new set of financial and fiscal fragilities in the region, posing new challenges to the management of economic policies.

Figure 2: Real Effective Exchange Rates (Avg 1990 = 100)



Only Argentina and Venezuela have real exchange rates much higher now than they were in 1990

The Asian crisis forced significant real depreciation in some currencies, notably Mexico (Figure 2). While raising concerns among policymakers about inflation, this development had the beneficial effect of partially correcting for the real exchange rate appreciation that a number of countries had experienced during most of 1996. Among the largest countries in the region, only Argentina and Venezuela have not reversed the pattern of real exchange rate appreciation seen earlier in the decade. In Argentina, the rigid exchange rate regime tightly links the peso to the U.S. dollar. In Venezuela, insufficient fiscal and monetary adjustment have kept inflation running at more than 30 percent per year, well above the region's average.

But the region's response went beyond allowing some currency depreciation. Several countries implemented tight fiscal and monetary policies. Tight monetary policies had the objective of limiting the depreciation of the exchange rate while preventing significant losses in foreign exchange reserves. This policy resulted in significant increases in real interest rates in the region.

Real interest rates in Latin America have generally increased recently

As we show in Figure 3, real interest rates have significantly increased in most Latin American countries, notably in Brazil and Chile, and more recently in Colombia and Venezuela. Cuts in government expenditures were also implemented in several countries affected by the decline in export prices. In

particular, Mexico and Colombia responded most promptly to the decline in oil revenues through significant reductions in government expenditures. At the beginning of the year, Mexico announced a spending cut of 15.3 billion Mexican pesos to offset the loss of revenues from Pemex. Likewise, the Colombian authorities announced a significant cut in infrastructure expenditure. The Venezuelan authorities have been reacting more slowly, and although two fiscal packages have already been announced this year, it is still unclear whether the adjustment will be sufficient to generate market confidence about the sustainability of the current exchange rate regime. As we will discuss, political constraints have limited the necessary fiscal adjustments in Ecuador.

Figure 3: Real Domestic Interest Rates

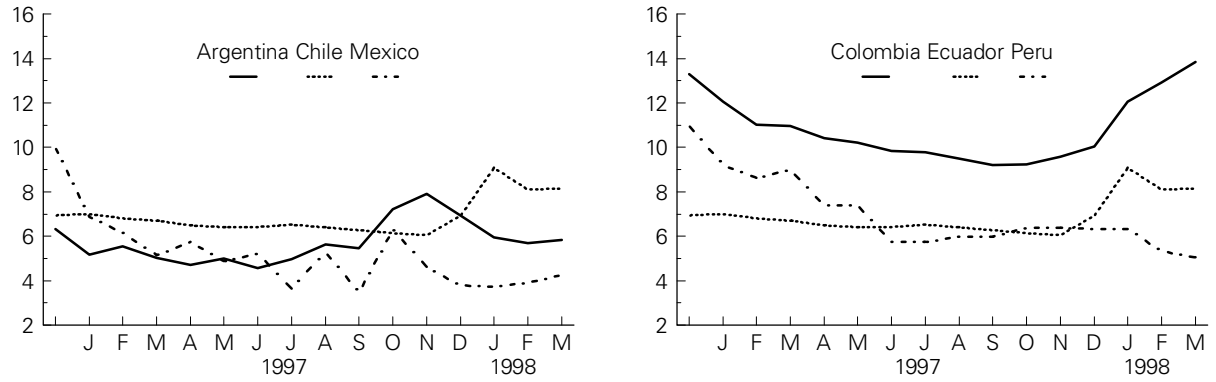
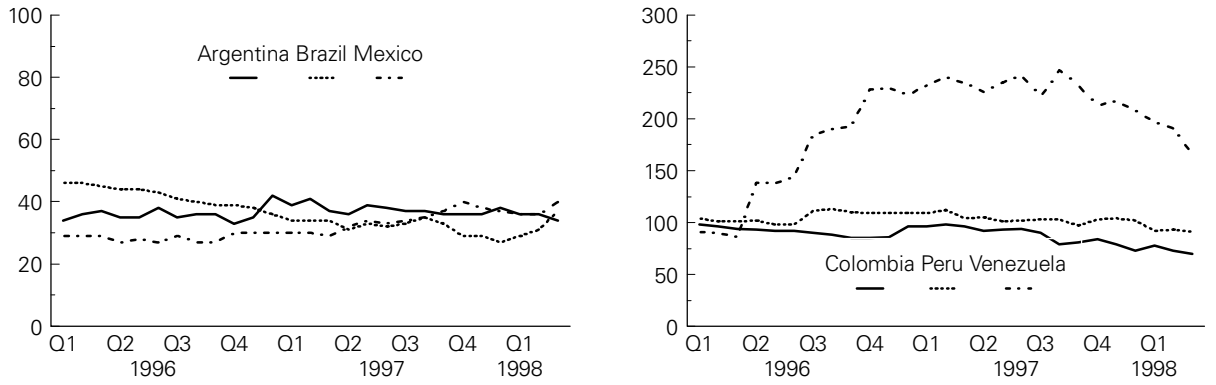


Figure 4: Gross Reserves of Gold (% of M2)



Some countries - notably Mexico, Brazil and Colombia - have already tightened fiscal policy in response to the changed environment

Foreign exchange reserves have risen in recent years

It is worth emphasizing that the improved economic performance over the last years has allowed the region to accumulate a significant stock of foreign exchange reserves. Therefore, it has some potential to face falls in the capital account surplus in the face of market turbulence. Indeed, the stock of reserves relative to M2 has reached high levels, especially in Venezuela, Peru, Chile and Colombia, where the ratio is close or above 70 percent (see Figure 4). This ratio is currently below 40 percent only in Argentina and Ecuador. The significance of this ratio is that it provides an indicator of a central bank's capacity to defend the exchange rate in the presence of an speculative attack - the figure for Argentina does not include a line of credit for US$ 7 billion agreed to with international banks.

III. Improved Economic Performance in Latin America

Thorough reform was the eventual policy response to the Debt Crisis in Latin America

The stronger economic conditions that characterize Latin America today and its ability to respond promptly to an adverse external shock is the result of an ongoing process that was initiated in the late 1980s and early 1990s. Crippled by severe recessions and periods of hyperinflation that followed the debt crisis of the early 1980s, Latin America started a serious process of building macroeconomic stability. It implemented structural policies oriented to a market-based economy with a high degree of integration to the global economy. Helped by the surge of capital inflows during the 1990s, the pace toward more stable economies speeded up, with several successful stabilisation policies, most notably Argentina, Brazil and Peru.

An IADB-constructed index of structural policies has increased sharply in recent years ...

Based on an index constructed by the Inter American Development Bank we can evaluate the state of structural reforms. The index takes values from 0 for no reforms to a maximum of 1. The state of the economy is analysed in five areas: trade openness, financial reform, tax reform, privatization, and labour market reforms.

... and it is second-generation reforms that are now on the main agenda

The index of structural policies, available until 1995, is presented in Table 5. The index increased 38 percent until 1990 and a further 31 percent in the 1990s. Major progress has been made on trade, where most non-tariff barriers have been removed. Free trade agreements have been put in place, and the average tariff in the region fell from 38 percent in 1985 to 12 percent in 1995. In the financial sector there has also been significant liberalization. At the same time, laws for prudential regulation have been enacted and improvements in the capacity of supervisory agencies have been made. Most countries have simplified tax structures and have moved toward VAT taxation. The area of slowest progress is in labour market reform. The dialogue now is about second generation reforms, those involving subtle but deep institutional changes, rather than the most basic ones which have been already accomplished to a significant extent.

Table 5: Index of Structural Policies

	1985	1990	1995
Argentina	0.367	0.476	0.679
Brazil	0.348	0.353	0.584
Chile	0.489	0.530	0.628
Colombia	0.443	0.549	0.590
Mexico	0.328	0.498	0.563
Peru	0.232	0.252	0.712
Venezuela	0.304	0.389	0.457
Latin America	0.345	0.476	0.621

Source: IADB

From a macroeconomic point of view, the Asian crisis has some similarities with the debt crisis of the early 1980s in Latin America. A number of countries in Asia share one or several of the main characteristics of Latin America during the early 1980s. Heavy indebtedness of foreign banks, weak bank supervision, misalignments of exchange rates, and rapid expansion of domestic credit.

Table 6: Stock of Short Term External Debt and Foreign Exchange Reserves 1981-82, 1996-97

	Short Term External Debt (% GDP)				Reserves (months of imports)			
Region	**80**	**81**	**96**	**97**	**80**	**81**	**96**	**97**
Argentina	4.9	6.3	5.3	5.0	5.0	2.4	6.0	6.0
Brazil	4.8	5.3	8.0	7.6	1.9	2.0	8.1	6.0
Chile	6.1	9.2	3.7	3.4	4.4	3.6	7.7	8.5
Colombia	5.3	6.8	6.0	4.8	9.2	7.8	5.6	5.4
Mexico	9.3	12.5	11.6	9.4	1.0	1.0	2.0	2.5
Peru	7.5	6.2	10.3	7.2	4.7	2.4	10.5	10.3
Venezuela	33.2	22.7	3.7	2.7	4.9	5.5	8.6	8.9

Source: DMG estimates based on IIF and National Sources

Macroeconomic performance has improved dramatically in recent years

In contrast to the current situation in Asia and to the economic features of Latin America in the 1980s, during the 1990s most Latin American countries have complemented their structural reforms with significant progress in the macroeconomic front. To illustrate this point Table 1 allows a comparison of macroeconomic performance for the Latin-7 in 1980-81, at the onset of the debt crisis of the 1980s, and in 1996-97 (see Table 1 for 1998 projections and Table 6 for additional indicators of external conditions). Potential sources of instability are under tighter control, and dispersion across countries is also smaller. Given the large increase in foreign exchange reserves, current account deficits, while affected by the current Asian crisis, are now significantly more manageable than in 1981. In most countries, overall external indebtedness, including short term debt, has been reduced considerably. Therefore vulnerability to external shocks is smaller. Efforts on fiscal consolidation are underway, and although there remain some countries where significant fiscal reforms are still necessary, the majority of countries show a much stronger fiscal stance than in the early 1980s. After the large declines in output that followed the 1980s debt crisis, growth has resumed in the region, but the key feature is that it is happening simultaneously with a decline of inflation to historic lows.

Reserves are up ...

... short-term debt is down

No recession in Latin America this year

While we have revised down our growth projections in response to the Asia crisis, we are not predicting a recession. Recent developments confirm the region's ability to absorb the shock. After growing at an average of 3.8 percent per annum between 1991 and 1994, growth in Latin America declined to 1.2 percent in 1995, and then recovered to 4.2 percent on average during 1996-97. Our expectations for 1998 are that growth will be about 3.5 percent, with Brazil bringing sharply down the weighted average. Of course, a longer term decline in capital inflows would have a more significant effect, but our projections for 1998 show that there will not be a threatening shortage.

Latin America recovered quickly after the 1995 peso crisis ...

The Mexican crisis also shows how domestic economies react to more instability in the markets. The sharp decline of stock markets throughout the region in 1995 demonstrated that although economies depend more heavily on international capital markets to finance investment, they are also better prepared to cope with volatility. Notwithstanding large declines in stock prices, the region was able to deal with financial problems in a relatively short period of time. In the

... but it is still not completely immune from risks

immediate period after a shock, economies grow less, some of them go into recession, as the case of Argentina in 1995, but they can recover and return to a path of sustained progress relatively quickly.

IV. The New Risks Faced by Latin America

All the developments and progress in structural reforms point to Latin America being a much stronger region than it was in the 1980s and early 1990s. This is the fundamental reason that Latin America is more prepared than many Asian countries to withstand adverse shocks. Despite these advances, however, there is no room for complacency. As we discuss below, the Asian crisis has opened up new sources of vulnerabilities that may threaten the consolidation of the stability process.

High interest rates and slower economic growth increase vulnerability in domestic banking systems

Latin America's banks are still under-capitalised

Although the process of financial reform continues, important financial fragilities still remain in many Latin American countries. Perhaps the most important one is the severe undercapitalisation of domestic banking systems. Indeed, one of the most important challenges in a number of countries is how to attract foreign capital into the banking sector to make up for the scarcity of domestic capital. For example, noteworthy is recent efforts by the Mexican authorities to introduce a law aimed at reducing existing limitations on foreign ownership in a system that, as it is still the case in many Latin American countries, remains relatively closed.

Higher real interest rates and slower growth generally hurt banks

This mix of higher real interest rates and slower growth that has resulted from the region's response to the Asian crisis and the shock on commodity prices will have an adverse effect on banks' balance sheets. Facing higher real interest rates and a decline in economic activity, borrowers may be facing increasing difficulties in servicing their payments on bank loans. With an insufficient capital base in banking systems, the danger of weaker loan portfolios is that they provide an incentive for banks to increase their risk taking activities at the expense of explicit or implicit public safety nets. After all, the uncontrolled increase in riskier activities by banks has been at the core of practically all banking crises in Latin America in the past, including those in the early and mid-1990s.

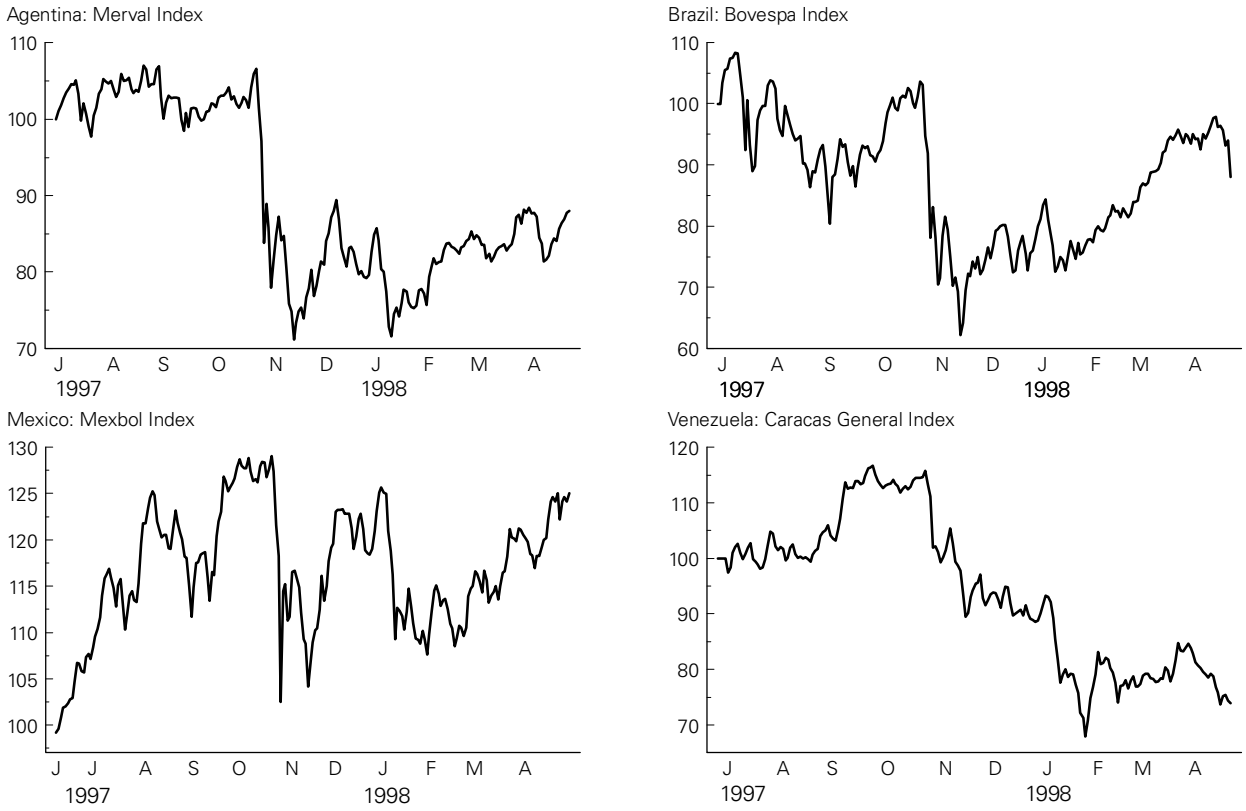
Banking crises are not imminent in Latin America ...

A deterioration in the loan portfolio of banks is likely to arise in many countries in the region. Among the countries most affected are Brazil and Venezuela, where real interest rates have increased significantly (Figure 3) and economic activity is projected to slow (Table 1). Moreover, bank balance sheets in Ecuador have already deteriorated: The combination of a slowdown in economic activity with large uncertainties about the conduct of economic policy have generated significant bank runs. Mexico and Argentina will also experience a reduction in the rate of growth of real GDP. However, the adverse impact on their banking systems is projected to be less severe as real interest rates have not changed significantly relative to pre-Asian crisis levels.

The increased fragilities in the region's banking systems, however, do not mean that a banking crisis is imminent in these countries. The outcome will depend on the policy response to these vulnerabilities. If the authorities increase

surveillance and monitoring of individual banks, the problem can be contained. Current efforts to strengthen the banking supervisory capacities in the region are a step in the right direction.

Figure 5: Equity Markets in Latin America (Jan 97 = 100)



... though lower equity prices do concern policy-makers

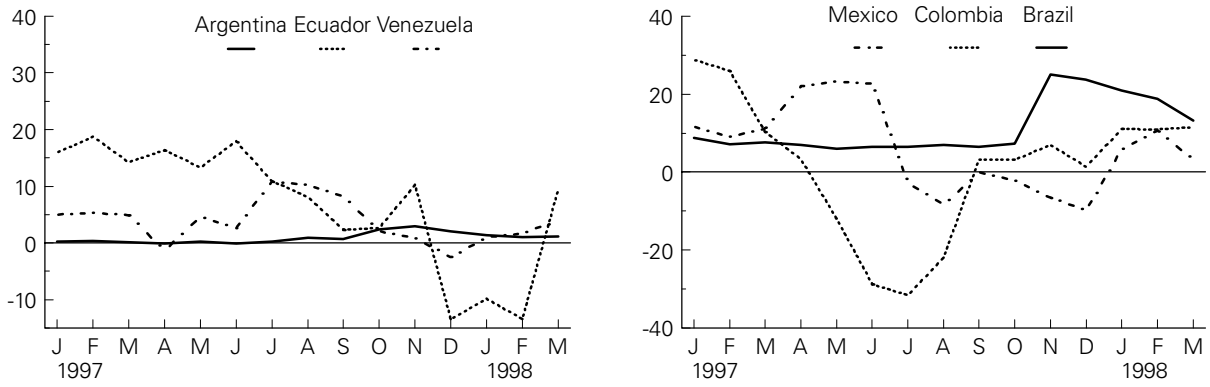
The decline of stock prices also has raised concerns among policymakers. As shown in Figure 5, in most countries in the region, stock markets have not fully recovered from the Asian shock. If depressed stock markets further constrain economic activity, this factor may exacerbate the incapacity of borrowers to service their loan payments to banks. Moreover, lower stock prices weaken the value of firms' collateral, imposing additional limitations to their capacity to increase their indebtedness levels.

Higher interest rate spreads create incentives for increased unhedged foreign currency exposure

High interest rates in defence of a fixed exchange rate can lead to more foreign borrowing ...

Increasing interest rates to defend an exchange rate is a perfectly appropriate response. Nonetheless, the persistence of high rates can create incentives for the private sector to increase its foreign currency indebtedness. Figure 6 shows the recent evolution of spreads between domestic and foreign interest rates in Latin American countries. The increase in spreads is evident in Brazil, Colombia and Argentina, and most recently Ecuador. The incentive to increase foreign currency exposure will continue as long as markets are confident in announced exchange rate policies. In this context, banks and corporations find it profitable to either fund their activities in the foreign markets or to arbitrage between the rates by borrowing abroad to buy high-yield short-term debt.

Figure 6: Domestic - Foreign Interest Rates Spread



... and this can be dangerous if it is unhedged

This strategy may not be a problem if firms and financial entities hedge their exposures. Although we do not believe that large and financially sound entities in the region are taking such unbalanced positions (improved regulations in a number of banking systems actually forbid such open positions for banks), the incentive is clearly there for unregulated firms experiencing weak financial positions. These firms may find it attractive to finance investment in non-tradable goods with foreign currency.

If large enough, the resulting currency mismatch in the private sector will have two undesirable effects. First, it reduces the capacity of the authorities to devalue their currencies if necessary. The authorities are then forced to keep defending the exchange rate with further increases in interest rates. In a vicious circle, this accentuates the problem as the incentive for unhedged indebtedness in foreign currency continues to increase. Second, if market sentiment shifts to an increased probability of devaluation, firms with unhedged foreign indebtedness have a strong incentive to reverse their positions. Naturally, this weakens the capacity of the central bank to defend the exchange rate.

The closeness to elections limits the governments capacity to react appropriately to adverse shocks

The region faces a number of key elections in the year ahead

Latin American countries are afflicted with the political cycle: Efforts to win elections often lead to a relaxation of macroeconomic policies. Mexico is an archetype, but the problem is common to many countries in the region. Cases abound of the failure of otherwise sound economic programs from the weakening of political support during elections.

Some central banks in Latin America need more independence

From this political economy perspective, the Asian shock has hit Latin America at a weak time in the electoral cycle. The calendar of elections presented in Table 7, shows that 1998-99 are election years in several countries. With upcoming Presidential elections in Ecuador, Colombia, Brazil, Venezuela and Argentina and local elections in Mexico and Peru, the steadiness of economic policy will certainly be challenged.

The conflict between political ambitions and adequate policy-making has already started to appear in the region. Ecuador, the first country in Latin America to have Presidential elections in 1998, is a case in point. Because of the Asian

crisis and the "El Niño" phenomenon, Congress failed to pass a needed increase in the VAT rate. In an attempt to counteract the lack of fiscal action, the Central Bank devalued the sucre, in a pre-emptive fashion to avoid losses in foreign exchange reserves, and raised interest rates. This effort, however, was not supported by President Alarcon and resulted in the dismissal of the President of the Central Bank. This outcome reinforces the need for true autonomy of central banks to delink the political cycle from the management of monetary and exchange rate policies.

Table 7: Political Calendar

	1998 Elections	1999 Elections	2000 Elections
Argentina		***May:*** Congressional & Presidential	
Brazil	***October 4:*** Presidential, first round ***October 25:*** Presidential, second round		
Chile		***December:*** Presidential	
Colombia	***May 31:*** Presidential, first round ***June 14:*** Presidential, second round		
Ecuador	***May 31:*** Congressional and Presidential, first round ***July 12:*** Presidential, second round		
Mexico	***July - Nov:*** 14 States		***September:*** Presidential
Peru	***October:*** Local		***April:*** Presidential
Venezuela	***December 6:*** Congressional & Presidential		

Policy makers may at times be constrained in the policy options they have available

The management of macroeconomic policy has become more complicated

The extent of the arising vulnerabilities described above could certainly be dealt with through a variety of policy initiatives. Nonetheless, the set of policy options at hand may be reduced just to a few because of different existing constraints. In particular, a strong commitment regarding the exchange rate value not only forbid an important option from the policymaker tool box, but it also rules out the most natural policy aimed at facing a temporary terms of trade shock. Indeed, a devaluation may not be perceived as a desirable policy, as it leads to increases in the price level and generates losses in the real value of wealth of an important segment of the population, but a weaker currency could moderate considerably the negative impact of a terms of trade shock on the real economy. Likewise, a country's present fiscal stance could be an additional limitation to a fiscal response to the shock, as any expenditure cut or tax increase proposal would have to overrule already existing budgetary commitments – and gathering broad

Fiscal policy, in particular, may be difficult to adjust

political support to these proposals may not be trivial at a time when the effect of the shock is already reducing voters income. In the same manner, a country's level and structure of debt as well as the level of international reserve holdings by the monetary authority could impose further constraints to the implementation of a tight monetary policy.

V. Outlook for Latin America

Countries with more rigid exchange rate regimes have to increase interest rates

The ability to use exchange rate policy is a fundamental asset for policy making in countries like Mexico and Peru. In Mexico, for instance, a flexible exchange rate regime has spared the authorities from having to resort to sharp increases in interest rates to defend the value of the currency. It has also allowed the peso to slide, partly offsetting the competitiveness erosion caused by weaker oil prices. The decline in oil prices is also the most important shock affecting the public finances in Mexico as public revenue from oil amounts to 40 percent of total public revenues (Table 8). Nonetheless, Mexico has also been able to deal with the shock by reducing government expenditures. Keeping low real interest rates in Mexico reduces the cost of rolling over a relative large stock of domestic short-term public debt, and more importantly, avoids any further deterioration in the balance sheets of a still fragile banking system.

Table 8: Public Revenue from Commodities

	% of Total
Argentina	0
Brazil	na
Chile	7
Colombia	15
Ecuador	35
Mexico	40
Peru	na
Venezuela	80

Source: National sources and Deutsche Bank Research estimates

Brazil has lots of short-term debt

The opposite is the case for countries that have chosen rigid exchange rate regimes, such as Argentina, with a fixed exchange rate mandated by a convertibility law, and Brazil, with a very narrow exchange rate band.

The flexible exchange rate in Mexico has spared policy-makers from having to increase interest rates

In Brazil, the government's straight jacket is even more pronounced: It is the country most affected by potential increases in domestic interest rates, with local market government debt maturing in 1998 at about 34 percent of GDP. With a rigid exchange rate system, any external shock, such as the Asian crisis, complicates the conduct of monetary policy as the necessary increase in interest rates to defend the exchange rate aggravates the fiscal problem. Brazil has been able to deal with this problem by a partial reversal of the increase in interest rates introduced after the October sell-off. But the fiscal fragility imposed by the large stock of short-term domestic debt remains a problem to be solved by the authorities. Even the strong international reserve position, over US$ 70 billion by the end of April, 1998, could be insufficient to face a failure to roll-over the debt. Constitutional reforms have to be approved and implemented promptly

to deal with an endemic fiscal imbalance. In addition, Brazil should look for room to allow depreciation without risking overall stability. The recent slight widening of the exchange rate band is a step in the right direction. While productivity gains may compensate for loss of competitiveness in the medium run, without the help from a depreciation of the nominal exchange rate, a further slowdown in economic activity may be required.

Argentina's main problem is its widening current account deficit ...

Argentina's major fragility lies in its increasing current account deficit and its large external sector financing needs. The widening spread on external debt has exacerbated this fragility. However, there are two factors that mitigate the weakening of Argentina's external position. First, Argentina has successfully increased the average maturity of its foreign debt: By end 1997, short term debt only accounted for 5 percent of GDP. Second, the authorities have proven a strong commitment to the convertibility scheme and their priorities are very clear: if forced to choose, policymakers will prefer a large recession before giving up the cornerstone of economic stability. However, as uncertainty about such commitment will always exist, the real question is whether, due to market concerns, the authorities will actually have to exercise this option. With President Menem seeking reelection, politicians do not want to see a sharp reduction in growth. However, it is most likely that in the face of severe market pressures, a consensus between policymakers and politicians will be achieved and a tightening of fiscal policies (one of the few policy tools fully available in Argentina) will follow. As market forces understand this process, Argentina will not face a severe speculative attack. Nonetheless, increasing financing costs for Argentina seem unavoidable in the months ahead.

... but convertibility will survive

Venezuela is in a very vulnerable position

Among the countries with some flexibility in its exchange rate regime, Venezuela is the one where the external accounts and the fiscal balance are most affected by the recent decline in oil prices (80 percent of revenues for the consolidated public sector derive from oil exports). The latter combined with a sharp appreciation of the real exchange rate has placed Venezuela in a very vulnerable position. The government has been able to keep its exchange rate target at the cost of continuous losses in international reserves (about US$ 2.5 billion during the first quarter of 1998). Despite the latter, however, Venezuela still holds a large stock of international reserves. *Nevertheless, this policy is not sustainable over the medium term*. To restore market confidence, Venezuela will need to implement a strong fiscal adjustment and devalue its exchange rate in a faster pace than the announced path. Although the Government has already announced two fiscal packages in 1998, it still remains uncertain whether these will be enough. The recently announced package relies on an expected increase in revenues from improved tax collections and increases in import tariffs, whose success depends on the performance of the economy. Meanwhile, the economy is suffering from higher real interest rates and lower income from oil revenues. Part of the expenditure restraint and the new tax measures need approval from Congress, which is dominated by the opposition party and is highly politicized in the current election year.

The situation in Colombia is more comfortable ...

The situation in Colombia and Chile, the other two countries with wide exchange rate bands, is more comfortable than in Venezuela. In Colombia, the exchange rate is already trading at the most depreciated side of the exchange rate band. Currency misalignments have largely been already corrected as the peso has weakened by considerably more than domestic inflation in 1997. The Central Bank has ample international reserve holdings, and it is strongly committed to

... as in Chile

keep the exchange rate within the band. The exchange rate policy is the only tool to keep inflation under control because of limited progress in reducing the fiscal deficit.

In Chile, the authorities have enough degrees of freedom to choose any policy reaction to the Asian shock. The peso has already depreciated significantly from its level a year ago, and the bands still have enough room to accommodate any new shock. In addition, the Chilean Central Bank's international reserve holdings, covering over 60 percent of M2, give the authorities sufficient power to take any stand in the classical policy dilemma between inflation and economic activity. In both Colombia and Chile, relatively healthy banking systems provide further room to use tight monetary policy.

In summary, there is room for preventative action in most of the Latin American countries. The risk of increased fragilities does not ordain a crisis. Timely prudent macroeconomic management will almost surely guarantee that no systemic crisis will occur. It also means regulators are able to control the expansion of credit activities in banks where loan portfolios are weakening.

Emerging Europe: The Impact of the Asian Crisis

By Marcel Cassard, Laura Papi and Bart Turtelboom, London

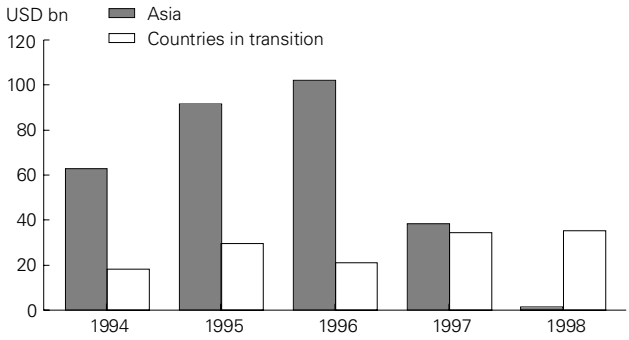
I. Introduction

Emerging Europe has so far weathered the Asian crisis relatively well ...

Emerging Europe has weathered the Asian crisis relatively well. While financial and foreign exchange markets in a number of countries came under considerable pressure, major currency crises have been avoided and most markets have since recovered lost ground. The impact of the crisis on growth and trade in the region, although negative, was also minor. Overall, the Asian crisis has had a limited impact on capital flows to the region, which increased by 84% in 1997 to USD 35bn, despite the postponement of over 100 mandated bond issues (about USD 25bn) and equity issues in the last quarter (Figure 1). In addition, in the first quarter of 1998, several countries in the region benefited from a re-direction of international capital flows, resulting in upward pressure on their exchange rates and strong rallies in their bond and equity markets.

... and the region's major financial markets have recovered strongly in the past six weeks

Figure 1: Net Capital Flows



Source: IMF World Economic Outlook, April 1998

Investors worried about Russia and Ukraine in particular during the recent sell-off

The extent of spillover has differed widely across countries in the region, however, depending on their existing macroeconomic imbalances and policy weaknesses, the integration of their domestic markets in the international financial system, the amount of foreign holdings of domestic assets, and their trade links with countries in crisis. Russia and Ukraine experienced the most serious liquidity and financial difficulties, as investor confidence was weakened by their dependence on short-term foreign borrowing, over-exposed banking sectors, and delayed fiscal and structural reforms. In the Czech Republic, which shares several of Asia's economic characteristics, the Koruna was successfully attacked as early as May 1997. Similarly, amongst the Baltic countries, the spillover from Asia on interest rates and equity prices was felt most strongly in Estonia, where external imbalances predated the onset of the Asian crisis and where international financial integration had progressed relatively far. In contrast, although Hungarian and Polish equity markets suffered from the Asian flu, sound macroeconomic fundamentals and policies prevented major interest rate and currency movements. In a number of countries that remain less advanced in their transition and that maintain capital account restrictions, spillover effects were limited; this was the case in Slovakia, despite its sizeable current account deficit and large short-term external debt.

The CZK had already been devalued in May 1997

Hungary and Poland escaped relatively lightly (indeed both have recently been performing very well)

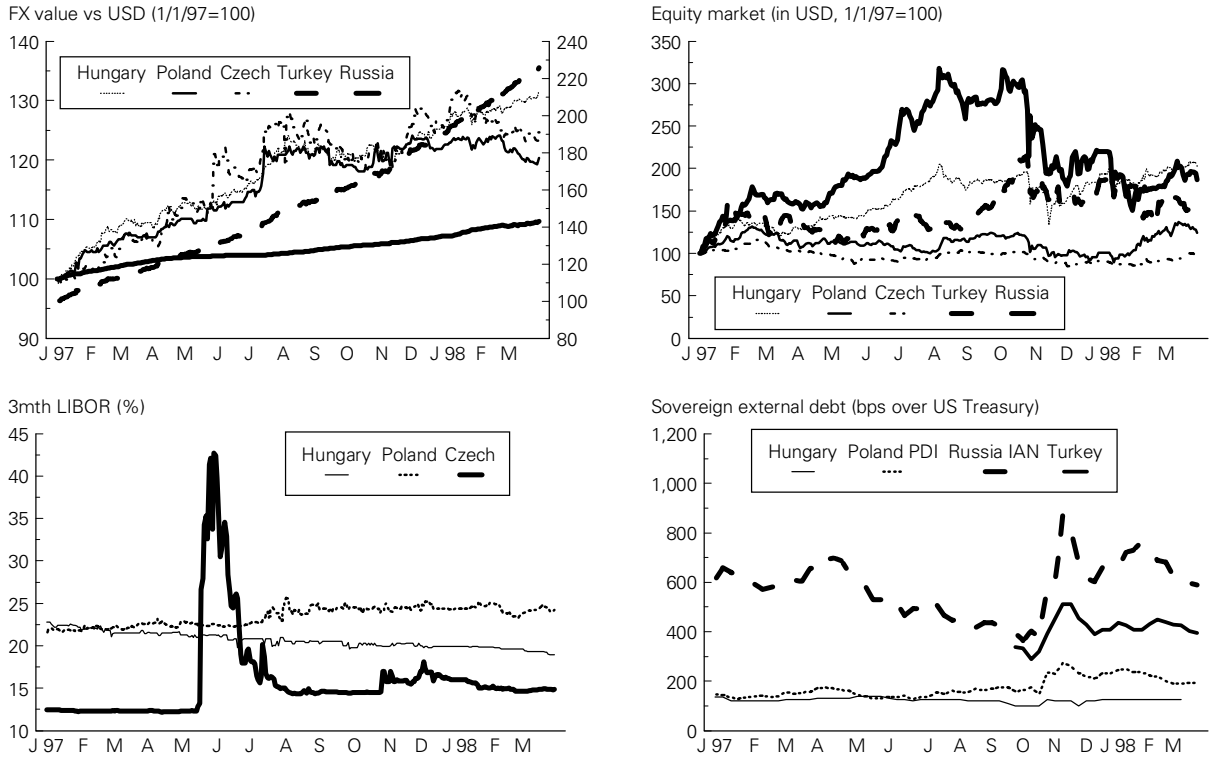
II. Limited Spillover Effects on Financial Markets

Though ultimately it prevailed, Russia's Central Bank lost almost half of its reserves at one stage ...

... and the local equity market also fell by 50%

Russia and Ukraine were particularly vulnerable to contagion because short-term borrowing has been the main source of financing for the government, and foreign investors contribute significantly to such financing. In Russia, the rouble came under intense pressure both in October 1997 and in January 1998. Although the rouble remained stable during the period, its defence was costly: the central bank lost USD 8bn of foreign reserves (from USD 18.7bn as of October 1997 to a low of USD 10.2bn in March 1998) before regaining about USD 2bn in April, and interest rates increased sharply from 20% in October 1997 to more than 40% in February 1998. Equity prices also fell dramatically after the Asian crisis, with the RTS equity index declining from a high of 572 in October 1997 to a low of 266 by end-January 1998 (Figure 2). Since then, the stock market has appreciated by about 20%.

Figure 2: Performance of Financial Markets



Source: Deutsche Bank Research

Korean banks were relatively large holders of GKOs - this didn't help Russia's plight

As a whole, foreign investors are estimated to have pulled out of Russia more than USD 7bn between October 1997 and February 1998. Russian local Treasury bill markets were particularly affected by the crisis because of the large component of foreign holdings and the tenuous state of domestic finances. At the outset of the Asian crisis, about a third of the domestic treasury bill market (GKOs and OFZs) was held by non-residents - USD 20bn out of USD 60bn - and another USD 15bn of foreign funds was estimated to have been invested in the stock market. Out of the USD 20bn, about USD 6bn were held by Korean and Brazilian entities, which unloaded their holdings in the early days of the crisis.

Ukraine's poor economic fundamentals made it another obvious target for devaluation ...

As in Russia, the combination of fiscal imbalances, heavy reliance on short-term foreign borrowing, and political instability made Ukraine highly vulnerable to contagion from Asia and shifts in investor confidence. Large outflows from domestic markets at the beginning of the crisis placed severe pressure on the currency. The central bank's response - which included intervention in the foreign exchange market, an increase in reserve requirements, and a hike in the refinance rate from 16% in October 1997 to 44% in February 1998 could not prevent a widening of the exchange rate band, resulting in a 7% devaluation. Equity and bond markets also came under pressure in October 1997, with share prices falling by 18% during the month, and dropping an additional 35% by the end of the first quarter of 1998.

... and the authorities were forced into issuing new debt at unprecedented spreads

The impact of the crisis was strongest in the treasury bill market, where yields rose from under 20% at the end of October 1997 to about 45% in early December and have since remained at that level. Panic selling, however, was difficult as the secondary market remains shallow. Investors' reluctance to roll over their debt holdings resulted in large-scale net outflows in late 1997, and net inflows have been negligible in 1998. Ukraine's severe need for external financing led to the issuance of a DM Eurobond in the first quarter of 1998, following a postponement of the issue from the fourth quarter of 1997, with an unprecedented spread of 1275 basis points above Bunds.

Having been at the centre of attention in May 1997, the CZK was relatively unaffected in the recent turbulence

Having already experienced a domestic financial crisis in May 1997 and implemented a forceful policy response, the Czech Republic was only modestly affected by the October crisis.[1] The PX50 fell by about 12%, the exchange rate depreciated by about 5% and the spread on the City of Prague dollar Eurobond rose by about 70 basis points. Market trends soon became disconnected from Asia and dominated by domestic events, which included the resignation of the Klaus government in late November. Once a new government was appointed in early January, the Czech Republic benefited from a redirection of flows, and the Czech Koruna appreciated by some 5.5% in the first quarter of 1998.

Aggressive intervention in Turkey saved the day for the TRL ...

The Asian turbulence triggered a sharp downturn in Turkey's stock market, which fell by 24% in the first two weeks following the crisis. Pressure on the exchange rate led to a faster depreciation of the Turkish Lira, and to a loss of reserves (around USD 3bn) following heavy central bank intervention in the spot market. Secondary market T-bills yields rose by about 15% age points to 128%, while Eurobond spreads widened by 230 basis points in the dollar sector and by 150 basis points in the DM sector.

... but the price (still) being paid is higher yields

As Turkey's problems were quite different from those of Asia and foreign holdings of domestic assets were several times lower, contagion was short-lived. At present, the only scar remaining is a higher external debt spread; in the DM sector, spreads are some 80 basis points higher than before the crisis, while they have tightened to almost pre-crisis levels in the dollar sector. The Turkish stock market has recovered its earlier losses and rallied strongly recently, while treasury bill yields have fallen sharply to below 100%, well below pre-crisis levels. Access to international capital markets, following a short interruption, has also resumed and government foreign borrowing was ahead of the official target for the first quarter of 1998.

[1] Large capital inflows in 1993-96, equivalent to about 12 percent of cumulative GDP, an overvalued real exchange rate, a sizeable current account deficit, and a weak banking sector placed the Czech Republic in a very fragile position. Following an attack on the Koruna in May 1997, the central bank lost more than US$2 billion of reserves and overnight interest rates rose to 75 percent before the peg was abandoned.

In Poland, the Zloty has been strengthening rather than weakening in recent months ...

... and the stock market's weakness was thus only temporary

Given Poland's improving fundamentals, the impact of the Asian crisis has been minor. Only the stock market was seriously affected, falling by about 25% in October-November 1997. By end-March 1998, the stock market had regained all its losses. Despite minor pressure on the Zloty in October and November 1997, the currency has been trading on the strong side of the band since end-1997. The National Bank of Poland has taken advantage of the situation by reducing the rate of crawl to 0.8% per month on February 25, 1998. Brady bond spreads rose to 274 basis points in October-November 1997, but have come down substantially since then (192 basis points at end-March 1998).

Hungary's forint weakened somewhat at the end of 1997, but has since strengthened

For similar reasons to Poland, Hungary was also only temporarily affected by the Asian crisis. The equity market, which had more than doubled in the first eight months of 1997, lost over 20% of its value in October-November 1997, but has since recovered its 1997 losses. The Forint also felt some pressure in the last quarter of 1997 but held up fairly well, and has traded on the strong side of the band during 1998. Brady spreads barely budged during the crisis.

Low foreign participation and immaturity of local financial markets have generally allowed Eastern Europe to escape from the ravages of the Asia crisis

In most other Eastern European countries, spillover effects from Asia were limited because of the immature state of domestic financial markets, the low level of integration into international financial markets, and limited foreign participation in local equity and bond markets. In most Eastern European bond markets with the exception of Russia, foreign participation is generally under 10%. The Baltic countries, particularly Estonia (because of the large current account deficit), experienced declines in equity prices and a rise in interest rates. A significant external imbalance also put Slovakia's pegged exchange rate regime under pressure, but restrictions on domestic currency borrowing by foreigners and strong moral suasion of domestic banks prevented a devaluation.

III. Reasons Behind Limited Spillover Effects

Emerging Europe benefits from ...

The resilience of Emerging Europe to contagion from the Asian crisis can be explained by several factors:

... low external debts ...

- The external position of most countries in the region appears comfortable, with external debt levels and the share of short-term debt at relatively low levels.

... economies that are generally under-leveraged ...

- As the banking sector plays a limited role in financing the private economy of most Eastern European countries, capital inflows have not yet led to excessive credit growth and bubbles in real estate and equity prices. Therefore, in contrast to Asian central banks whose scope for raising interest rates was hindered by the weak and exposed balance sheets of the corporate and banking sectors, most Eastern European central banks were able to muster a credible interest defence against speculators, as the impact of interest rate hikes on the real economy was reasonably contained. Furthermore, relatively closed capital accounts, limited integration in international capital markets, and underdeveloped derivative markets reduced the scope of speculative attacks in most economies.

... more comfortable external positions in terms of current account financing ...

- Unlike the Asia-5 economies at the outset of the crisis, current account deficits, although high in some countries, have been mostly financed by foreign direct investment and other long-term capital flows. Further, several

of the countries had already experienced serious domestic macroeconomic and financial crises over the past four years and had taken the necessary measures to restructure their economies and banking sectors.

... and an improving economic neighbour in the EU

- With the EU as its main trading partner, Eastern Europe has not been significantly affected by contagion through the trade channel.

Lower short-term external debt

Emerging Europe as a region has low external debts ...

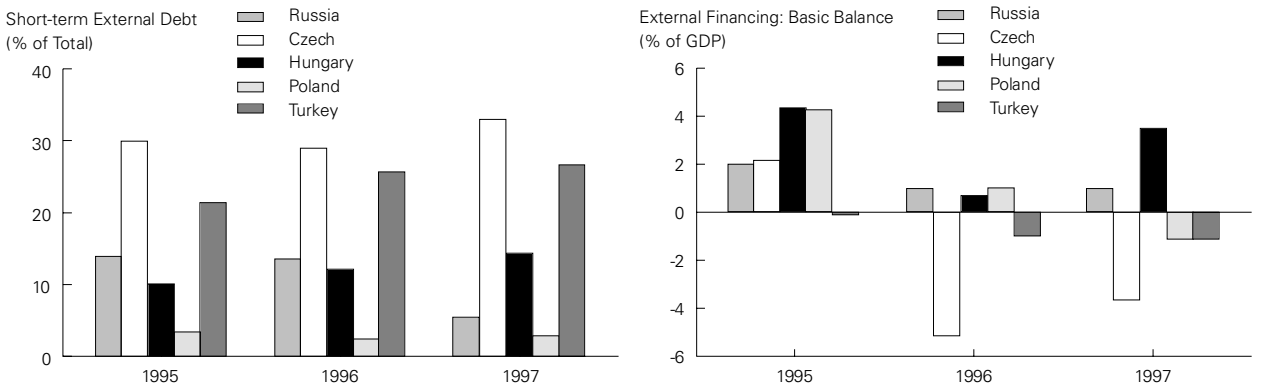
The external debt of most countries in Emerging Europe is not high by international standards. At end-1996, the average external debt to GDP ratio for the region was about 32%, close to the level of Asia and Latin America. By the same token, the debt-to-export ratio of Eastern Europe stood at below 100%, comparing favourably with that of Latin America and Asia, at around 250% and 110%, respectively.

... both in terms of GDP and exports ...

... and the maturity structure is generally longer than in other regions

The maturity structure of the external debt in Emerging Europe also has reduced the vulnerability of Emerging Europe to contagion. Short-term external debt accounts for about 17% of total external debt for most Emerging Europe countries, compared to 36 in Asia-5 countries (Figure 3). The external debt service ratio for Emerging Europe, at around 10%, also compares favourably to that of Asia and Latin America, at around 45% and 15%, respectively. Turkey stands out in the region, however, with a debt service ratio of 24%, due to a bunching of medium- and long-term debt repayments in 1997-98 (Figure 3).

Figure 3: External Debt and Financing



Source: Deutsche Bank Research

Banks in Emerging Europe generally take less risk than their Asian brethren

The immature state of development of the banking system in Emerging Europe has meant that the recycling of short-term inflows through domestic banks into less liquid, and often speculative, assets - as was the case in Asia - has been limited. As a result, the short-term external debt of the banking and corporate sectors in Eastern Europe was small and compared favourably to that of the Asia-5: external short-term external debt is less than 6% of GDP compared to 16% in Asia-5. Furthermore, most Central and Eastern European banks do not carry large net open currency exposures and off-balance sheet activity is limited. Of the capital inflows that were channeled to Eastern Europe over the past few years, a significant proportion was used to finance budget deficits.

Debt restructuring has been positive ...

Indeed, most of the external debt in Eastern Europe is held by the official sector. The financing of large public deficits in Russia and Ukraine by foreign investors and the large net negative foreign exchange exposure of Russian and Turkish banks were key factors in exposing these countries to contagion from Asia.

... and strong FDI flows are positive for the stability of the external accounts

The manageable external debt level and composition of Eastern European countries partly reflects debt restructuring undertaken by several countries (e.g., Hungary, Poland, Bulgaria, and Russia) over the past few years through London and Paris Club agreements. In contrast to the Asia-5, most Central European countries have relied on FDI flows and long-term debt to finance their current account deficits. In Poland and Hungary, FDI flows between 1993 and 1996 even exceeded current account deficits. In contrast, the Asian-5 relied heavily on non-FDI flows to finance their current account deficits.

In Russia, Turkey and Ukraine, FDI flows have been negligible and the majority of capital flows have been short term. Turkey was less affected by contagion than Russia not only because of lower foreign holdings of Turkish T-bills, but also because Turkish banks and expatriates hold a considerable proportion of Turkish Eurobonds. Indeed, the spread on Turkish Eurobonds widened considerably less than that on Russian bonds in the aftermath of the crisis, despite a similar spread at its outset.

Real sector insulated from interest rate hikes

Limited financial intermediation in the Transition economies means they are not highly leveraged

The short-lived experience of Eastern European and CIS countries with market-based economies, the incomplete transformation of their banking systems from administrative state-owned entities into private commercial banks, and the highly inflationary period that preceded stabilization have limited the role of financial intermediation in the region. A large number of Eastern European and CIS countries remain under-monetized compared to Asia, with an average ratio of bank credit to GDP about half that of Asia. This is particularly the case for Russia and Ukraine where banking sector claims on the private sector stand at 9% and 5% of GDP, respectively, but it is also true for Hungary, Poland and Turkey where private credit is between 20 and 25% of GDP (Figure 4). Notable exceptions are Czech Republic and Slovakia, which did not experience high inflation and where credit to the private sector accounts for two-third of GDP in both countries.

Figure 4: Private Sector Credit in Emerging Europe

Source: Deutsche Bank Research

Consumer and corporate lending are both limited

Concerns regarding the exposure of Eastern European banks to over-valued property or equity markets were largely non-existent at the outset of the crisis. In most countries in the region, consumer and corporate lending is limited, mortgage markets are small, and stock markets represent a small share of the economy. As such, the degree of leverage of the corporate and household sectors is generally low, which together with small capital markets, has prevented the emergence of asset bubbles in the region.

This all means that the transmission of monetary policy to the real economy is less painful in Emerging Europe

In view of the limited role of the banking sector and the low level of leverage among banks and corporates, the transmission of monetary policy to the real economy in Emerging Europe was less painful than in Asia and generally did not hinder central banks' ability to raise interest rates. Indeed, as banks' balance sheets are less responsive to changes in interest rates, the central banks of the currencies under attack (including Russia, Ukraine, and Turkey) were able to muster credible interest rate defences against speculators. The lack of liquid domestic derivative markets in several Eastern European countries and the existence of capital controls (e.g., Poland and Russia until January 1998) facilitated the defence as it made it difficult for foreign investors to short domestic currencies.

High interest rates just do not hurt the Russian economy (the RUB did not devalue) ...

... as they did in the Czech Republic (the CZK did devalue)

The experience of Russia during the past few months and that of the Czech Republic in May 1997 are cases in point. As discussed earlier, the ability of the Russian central bank to double interest rates and maintain them at that level until the tension subsided was largely due the limited impact of interest rate hikes on the real economy. The determination of the central bank to defend the currency was also strengthened by the cost of a devaluation on the economy, which would have unwound most of the disinflationary achievements of the past two years, and weakened a banking system with a large net foreign currency exposure. In contrast, the Czech National Bank was unable to sustain high interest rates for a sufficiently long period to fend off the speculative attack against the Koruna in May 1997, because of its strongly leveraged corporate sector and weak banking system (non-performing loans accounted for about 27% of total assets).

Favourable macroeconomic conditions at the outset of the crisis

The region's major economies were by no means overheating

When the Asian crisis struck, countries in Emerging Europe were at very different stages of economic development and had achieved varying degrees of success at stabilisation. Hungary, Poland, and Slovenia were probably furthest ahead in the transition process; others, like Bulgaria, were in the midst of determined efforts to reverse an extensive period of economic mismanagement and output decline. Still others, like Romania and Ukraine, had not yet achieved a sufficiently strong policy consensus to implement drastic reforms.

In addition to the aforementioned factors, the impact of the Asian crisis on the region was related to macroeconomic conditions in each country (Table 1). To a different degree, the size of current account deficits and fiscal deficits have all contributed to making some countries in the region more susceptible to the Asian crisis.

Table 1: Macroeconomic Indicators

Russia	1995	1996	1997	1998F
GDP (YoY %)	-4.1	-4.9	0.4	1.2
CPI (YoY %)	131.3	21.8	11.0	8.0
CA Balance (% of GDP)	2.2	2.6	0.9	-0.5
Fiscal Balance (% of GDP)	-5.2	-7.7	-6.8	-5.5
Czech Rebublic	**1995**	**1996**	**1997**	**1998F**
GDP (YoY %)	6.4	3.9	1.0	2.0
CPI (YoY %)	7.9	8.6	10.0	12.0
CA Deficit (% of GDP)	-2.7	-7.6	-6.1	-4.7
Fiscal Balance (% of GDP)	0.6	-0.1	-1.0	-1.0
Hungary	**1995**	**1996**	**1997**	**1998F**
GDP (YoY %)	1.5	1.0	4.0	4.1
CPI (YoY %)	28.3	19.8	18.4	15.0
CA Deficit (% of GDP)	-5.6	-3.8	-2.4	-3.3
Fiscal Balance (% of GDP)	-3.7	0.1	-4.2	-4.9
Poland	**1995**	**1996**	**1997**	**1998F**
GDP (YoY %)	7.0	6.1	6.9	6.1
CPI (YoY %)	28.1	18.7	13.0	10.5
CA Deficit (% of GDP)	3.3	-1.2	-3.5	-5.1
Fiscal Balance (% of GDP)[1]	-2.7	-2.2	-2.0	-1.2
Turkey	**1995**	**1996**	**1997**	**1998F**
GDP (YoY %)	7.2	7.0	7.2	5.0
CPI (YoY %)	78.9	79.8	98.9	76.0
CA Deficit (% of GNP)[2]	-0.6	-1.4	-1.4	-2.5
Fiscal Balance (% of GNP)	-3.8	-8.4	-7.7	-8.5

Notes: [1] Includes privatisation proceeds
[2] Includes shuttle trade
Source: Deutsche Bank Research

Russia's fiscal accounts remain a source of concern for foreign investors

In this regard, it is interesting to contrast Russia and the Czech Republic. In Russia, despite hard won achievements in lowering inflation and stabilizing the exchange rate, little progress has been made in reducing the budget deficit, which relies heavily on foreign flows. Cash revenue collections remain under 10 percent of GDP, expenditure management continues to be inadequate and debt servicing absorbs an increasing share of revenues. Furthermore, weak corporate governance and a lack of transparency in business transactions have made foreign investors weary of long-term involvement in Russia. Thus, while the overall transition to a market economy was not in danger of being reversed, and the external position was manageable — the current account has been in surplus for the past few years, the real effective exchange rate is not over-valued, and external debt is manageable — poor fiscal accounts were the main factor in explaining investors exit from Russia.

In many respects, the Czech Republic has the most similarities with Asia

The Czech Republic, on the other hand, is in many respects the country in the region with the most similarities to Asia and was one of the first to be affected. The country was very successful at macro-economic stabilisation, bringing down inflation to single digit levels by 1994 and achieving satisfactory growth (an annual average of 4.2 percent in 1994-96) spurred by high investment levels. A hasty privatisation process, however, led to close links between privatisation funds, the government and the financial sector. Weak corporate governance led to poor investments and rapid increases in labour costs, translating into a sizeable real exchange rate appreciation and a widening current account deficit (7.6 percent of GDP in 1996 and an annualised 8.2 percent of GDP in the first quarter of 1997).

Hungary and Poland both have strong fundamentals in our view

Hungary and Poland, in contrast, were helped by strong macro-economic fundamentals when the crisis struck. In Poland, economic growth has averaged over 6.5 percent in 1995-97 and is expected to remain over 5.5 percent in 1998-99. Inflation, which averaged 30 percent in 1994-95 has been coming down continuously and is expected to be around 10 percent at the end of 1998, although the current account deficit widened to 3.2 percent of GDP in 1997 - a relatively low level given the larger than expected growth. Although Poland has experienced a modest real exchange rate appreciation over the past 3 years, the latter has been more than offset by strong productivity growth. The fiscal position has been improving as well, with a deficit of 2 percent of GDP in 1997.

Though Hungary's fiscal deficit is still deteriorating somewhat, its external accounts are improving

Though Hungary has not experienced the same growth as Poland, growth has exceeded 4 percent since 1996. Inflation has also been coming down more slowly than in Poland but substantial progress has been made on this front. The fiscal deficit has increased over the past few years standing at over 4 percent of GDP in 1997, a relatively high level in the region. The current account deficit has improved dramatically, however, from a peak of 9.4 percent of GDP in 1994 to 2.4 percent in 1997. On the structural front, the Government has almost completed the privatisation process and has tackled social security reform as well.

Turkey still has high inflation and poor fiscal control

Turkey's economic problems are different from those of Asian economies, which partly explains its emergence from the crisis relatively unscathed. The country suffers from more traditional macro-economic mismanagement which has produced high inflation (averaging 95 percent in 1994-1997) and a weak fiscal position (with the PSBR averaging 7 percent of GNP in 1994-97).

Small trade effects from the crisis on the real economy

The trade impact of the Asian devaluations on Emerging Europe will be only small ...

As mentioned earlier, the impact of the Asian crisis on the real economy has been limited by the low degree of leverage in the economy. In addition to the capital account channel, the current account is another transmission channel for spillover, as the real exchange rate depreciation of Asian currencies has improved the competitiveness of their exports both in Emerging Europe and in common third markets.

As trade with the Asian-5 economies accounts on average for less than 10 percent of Eastern European countries' overall trade, the direct trade effect on the region is likely to be minimal. Moreover, pass-through effects have been limited to date, as Asian exporters appear not to have cut prices substantially in their export markets, but rather to have used increased profits to shore up their foreign exchange positions and balance sheets.

The indirect impact on Eastern European countries - the increased competitiveness of Asian countries in Emerging Europe's export markets and the negative impact of the Asian crisis on growth in those markets - is unlikely to be much stronger, as multilateral organizations estimate that the impact of the Asian crisis on OECD output will be between 0.5 and 1 percent of GDP.

IV. Outlook

The Indirect trade impact of the Asian crisis is also small

In 1998 Eastern Europe is likely to remain a recipient of large inflows even though overall flows to emerging markets may decline. The region will continue to benefit from strong economic fundamentals and a reallocation of capital away from Asia. Capital inflows are likely to rise as activity expands and new companies enter the capital market.

The outlook for Eastern Europe is generally bright ...

Among countries preparing to enter the EU, tight monetary policies and the ongoing benefits of structural reform will lead to declining inflation and interest rates and turn them into attractive poles for investment. Hungary and Poland are likely to be the main recipients of foreign flows in 1998, as growth remains well-sustained, buoyed by rapid export growth, and monetary policy remains tight, slowing of inflation and appreciation of currencies. The Czech Republic, however, is more at risk of policy reversals in light of the forthcoming elections that are likely to bring to power the untested Social Democrats and remaining corporate and banking weaknesses.

... though election in the Czech Republic may cause difficulties....

Current account deficits are likely to deteriorate in the region, partly on account of the Asian situation, but also because of the stage of the economic cycle of the region, the expected faster growth, and large capital importing needs. Financing of such current account deficits should continue to be manageable, relying largely on foreign direct investment and long-term flows.

... and current account position are likely to deteriorate somewhat

Developments in Russia, Ukraine and Turkey will be largely determined by political events and progress on the fiscal front. This is particularly the case in Russia, where the recent political crisis (dismissal of the government) risks endangering investor confidence and slowing down the reform process. Notwithstanding the current political crisis, the Russian economy is likely to improve in 1998. Recent indicators point towards faster growth in output and a pick-up in domestic demand as well as a decline in inflation to single digits. The main challenge for the authorities remains to increase cash revenues which, although higher than a year ago, continue to fall below targets.

The situation in Russia should continue to improve

While the outlook for Emerging Europe for 1998 is positive, we foresee three downside risks. First, the situation in East Asia remains an important source of vulnerability to the region. Second, an increase in interest rates in industrial countries or a sharp correction in equity prices in the United States and in Europe would take a significant toll on capital flows to emerging markets, including Emerging Europe. Finally, negative developments in Russia are an important factor influencing flows to the region and could darken the outlook for the region.

Looking beyond the next couple of years, economies in the region are likely to incur an increase in domestic credit growth, current account deficits and external debt. Unlike in Asia, this may not lead initially to asset-price bubbles, as it

As demand strengthens, policy-makers need to ensure that asset bubbles are not given the leeway to develop

would reflect an adjustment to a new equilibrium. Indeed, credit growth and increase in consumption in Eastern Europe and CIS is necessary over the next few years to finance the upgrade and expansion of the capital stock in the region that is necessary to bring the level of consumption and investment to those of market economies. Steady structural and financial policies and macroeconomic rigor will be required, however, to avoid the pitfalls that led to the Asian crisis.

Indonesia: Is the Light at the End of the Tunnel Oncoming Traffic?[1]

By Professor Michael Dooley, UCLA at Santa Cruz

I. Introduction

While the 1994 correction in Mexican asset prices was certainly sharp ...

Investors in Mexican equities made about 25% in dollar terms last year and spreads on Mexican Brady bonds continued to narrow to levels reached before the 1994 meltdown. Will Asian markets respond in a similar manner? In this note I argue that Mexico 1994 is not a good model for what is likely to happen in Asia and particularly not a good model for Indonesia. The difference, in a nutshell, is the amount of official money available to stabilize domestic credit markets in the debtor countries. There isn't enough to go around this time and Indonesia is very likely to be left out. In this environment capital flight from Indonesia and other Asian Tigers will generate a long and serious economic depression. Korea will get enough official money but may not use the money to clean up decisively its domestic financial system. Japan's political inability to recognize and allocate financial losses is a potent reminder that governments that have the means to stabilize financial markets will not always do so. Recent developments in Japan also demonstrate what paralysed financial systems can do to high growth and high savings economies. The Asia-5 economies are much more likely to follow the extended economic depression in Mexico and Latin America after 1982 than Mexico after 1994.

... it was also short

The Asian crisis is much more likely to be a drawn-out affair

Conventional outlooks on the ability for Asian developing countries to weather the current storm share a common and serious defect. In every case forecasts from the IMF, the countries themselves and others focus on the external accounts. Analysts try to guess whether or not a combination of current account surpluses, new official credits and reserve draw-downs will be sufficient to finance the flow of private debt service payments. What these calculations miss is the fact that success or failure in these countries will be determined by their residents' confidence in domestic financial markets. If confidence in the domestic markets is not restored quickly, capital flight will overwhelm official assistance and improvements in the current account balance.

While Asia's current account position has improved significantly, it is the prospects for capital flight

This is what happened in Latin America after 1982 and there are clear signs that a similar pattern is developing in Asia today. Capital flight from the Asian Tigers has been a little noticed but important development for several years. Conventional outlooks uniformly assume that capital flight will fall to zero this year and in future years. This seems to me an heroic assumption. Following the 1982 crisis, Asian debtors recovered quickly in large part because flight capital actually flowed to Asian markets. Given the well known weakness in these markets today, a dramatic increase in capital flight seems the much more likely outcome this time.

II. The Lessons of Crises Past

There are several important lessons that can be drawn from the 1982 debt

[1] Professor of Economics at the University of California Santa Cruz. Professor Dooley is a consultant to the Emerging Markets Research Group. The views contained herein reflect those of Professor Dooley and are not necessarily those of Deutsche Bank.

crisis. First, immediately following the crisis creditors had strong incentives to restructure debt so that debtor country governments were liable for repayment. Second, uncertainty about who would be taxed to service the governments' debt provided strong incentives for resident and nonresident flight from any source of income within the debtor governments' reach. Third, capital flight deprived the economies of debtor countries of the investment needed to grow out of debt. Finally, depressed economic performance of the debtor countries eventually convinced friendly creditor governments that it was in their interests to mount an effective rescue package. But this did not happen until 1989 and even then declines in international interest rates were more important in stabilizing the financial systems of debtor countries. In my view a similar sequence of unfortunate events is likely to overtake some of the Asian countries in 1998 and beyond.

Historical evidence suggests that bad private sector debt will ultimately be guaranteed in some way by the public sector

In 1982 conservative governments in the US, the UK, Germany, and Japan agreed that bailouts were not the right answer for the debt crisis that rocked Latin America. The view that "if we bail them out they will do it again" is a correct and powerful argument. For this reason very little official money was initially put forward. Instead, "muddling through" and "growing out of debt" were the preferred solutions.

The initial market reaction to the refusal of creditor governments to mount a rescue was the rapid transformation of debt of private residents of developing countries into government debt. This happened even in countries such as Chile where there was no formal guarantee and the government had said that it would not step in to bail out private debtors. The lesson for the present situation in Asia is that it will be difficult for governments to distance themselves from private debt even where there is no explicit government guarantee. Creditors have very strong incentives to obligate the debtor government and in the past have usually succeeded in doing so.

In the 1980's the Baker Plan hoped to inspire renewed private sector lending after an initial push from the official

The nationalization of the debt set the stage for a prolonged struggle between the private sector and creditor governments over the provision of new credits. The preferred official policy was "concerted rescheduling" in which all creditors were expected to share the burden of rolling over credits until the debtor could resume normal market access. This strategy was formalized in the Baker Plan

Table 1: Real Debt of Developing Countries with Debt-Servicing Difficulties

	To Commercial Banks	To Official Creditors
1982	278	115
1983	290	129
1984	286	143
1985	276	162
1986	278	187
1987	283	224
1988	254	232
1989	241	236
1990	222	251
1991	213	251
1992	200	252

Source: IMF, World Economic Outlook

announced in 1985. The essence of the plan was that industrial country governments would provide (a little) new lending to the debtor countries, both directly and through the international institutions they both financed and controlled, and would thereby "catalyse" a (large amount) of new credits from the private sector.

It was and is easy to miss the essential nature of this game between private creditors and their governments. The argument did not usually explicitly focus on which creditor would receive interest payments but instead on the mirror image question of which creditor would make or roll over a loan. Table 1 shows the gradual transfer of country risk exposure from the commercial banks, the dominant private lenders, to industrial country governments after 1982. The real value of private credits declined at about the rate of inflation as debtor countries made almost all their interest payments.

Private sector creditors are generally not in a rush to settle outstanding debts (they accrue interest)

Private lenders did not forgive any of the debt and (before 1989) only small amounts were exchanged for nondebt claims on the debtor governments. But in most cases debtor countries made all their interest payments to commercial banks. Given an average inflation rate of about four percent in industrial countries, this means that a debt of USD100 in 1982 on which all interest payments were made would still have a nominal value of USD100 in 1989 but the real value would have fallen to about USD79. This is roughly what happened after 1983. From where did the interest payments come? They must have come partly from new credits provided by the official lenders and partly from earnings through net exports. In short, creditor governments were unwilling to bail out private creditors quickly but were willing to do so slowly. If this process had continued it would have taken about forty years for the banks to shift all the exposure to governments. The lesson is that private creditors have strong incentives to wait rather than agreeing to a quick settlement.

The third market reaction was a general flight from any asset that might be taxed by the debtor government in order to pay off the existing debt overhang. While governments and existing creditors negotiated, residents and nonresidents placed what they could beyond the reach of the debtor government and the economies of the debtor countries languished.

Capital flight was a huge problem for Latin America in the 1980's, contributing to the "Lost Decade"

The ability of capital to avoid taxation was clearly demonstrated by the magnitude of capital flight from Latin America before the 1982 crisis. In retrospect, the most important element that seems to have been entirely missing from the evaluation of debtor countries during the years when debt was growing rapidly, was the fact that the private sector of the debtor country was typically accumulating gross claims on the rest of the world at an impressive rate. There are several reasons why what later came to be known as capital flight was entirely missed at the time. Private capital outflows from the debtor countries were largely unrecorded and did not show up in balance of payment statistics of debtor or creditor countries. Perhaps more surprising, in many cases medium and long term borrowing were also not reported in debtor country balance of payments statistics even where it carried official guarantees.

The lack of attention to gross capital flows may be explained by the fact that as long as all goes well there is no particular reason to be concerned about the scale of financial intermediation. It is only after an accident that we have to sort out the consequences for different groups of debtors and creditors. The cost of the debt crisis to debtor countries arose largely because of the perverse incentives

generated by the participants jockeying for position in this workout process. We return to this experience below because there are important similarities between Latin America in the 1980s and developing countries in Asia in recent years. The lesson is that capital flight before the crisis is a warning that even greater flight is likely after the crisis.

Capital flight, in turn, contributed to the dismal economic performance of the debtor countries. Table 2 shows that per capita GDP fell on average during the 1980s and, in fact, did not even begin to recover until two years after debtor countries regained access to international credit markets in 1989.

Table 2: Per Capita GDP Growth in Developing Countries, 1972-91

	All Developing Countries	Countries with Debt-Servicing Difficulties	Countries without Debt-Servicing Difficulties
1972-81a	2.3	1.7	3.5
1982	-0.2	-2.0	3.3
1983	-0.1	-3.9	5.1
1984	1.8	0.4	5.8
1985	1.7	1.1	4.8
1986	1.7	1.3	4.2
1987	1.4	0.3	5.3
1988	2.1	-0.2	5.6
1989	0.9	-0.5	2.6
1990	0.4	-2.5	3.5
1991	1.9	0.8	3.4

Source: IMF, World Economic Outlook

In 1994, a huge injection of public sector foreign money saved the day

Policy following the 1994 Mexican crisis

In 1994 the US Treasury led by Robert Rubin, Larry Summers and Jeff Shafer were determined not to make the same mistakes. In part they feared that the financial crisis would drag their NAFTA agreement with Mexico down the drain. In my view they were right. Immediately following a crisis it is not possible to distinguish good credits from bad. The long tradition of the lender of last resort is that credit must be offered generously until expectations stabilize. The proof in the pudding is that Mexico did recover and repaid the US early. A similar rescue program in Asia now would be equally successful but it is not going to happen, at least not soon enough to allow all these countries to recover from the crisis. There is simply too much money at stake for the political process in the US and other industrial countries to support packages large enough and unconditional enough to restore confidence in the domestic financial systems. Without massive bailouts we should expect a sequence of events similar to that described above. Uncertainty will drive residents of debtor countries from their domestic financial markets. Capital flight will generate a long-lasting and deep economic depression in the region.

In Asia, there isn't enough official money to go around

III. Can the IMF Save the Day?

Asian governments have a big problem - how to finance the banking losses ...

President Suharto's defiance of the IMF is entertaining but tends to obscure the more fundamental problem. Even if Suharto listens to the Fund there is not enough money in the international political trough to prevent Indonesia's financial

disaster from turning into a long and deep economic depression. Even if Fund conditions are met, the Fund Program for Indonesia will only provide net about USD 5.4bn in 1998, other multilaterals will provide about USD 3.0bn net. Bilateral official net lending will be only about USD 1.5bn. This official lending, along with a severe compression of imports, might permit Indonesia to make most of its interest payments to external creditors but this is not the important issue. Indonesia's external debt is conservatively estimated at just under USD 140bn and unless conditions change dramatically the market value of this debt cannot be more than USD 40bn. This overhang of unwilling lenders is the real threat to financial stability in Indonesia. The threat is basically a fiscal problem. The government of Indonesia will eventually assume a large part of this loss. How will the government of Indonesia raise USD 100bn?

... money printing (and inflation) is the usual last resort

It is easy to criticize the Fund's approach to Indonesia. Trying to liberalize the clove monopoly seems a strange response to a financial panic. One wonders what the Fed would have said during the Penn Central crisis if the Fund staff had walked down 19th Street and observed that confidence would be restored if the US liberalized textile imports. But the fact is that the realized and potential losses in the Indonesian financial and corporate sectors dwarf the Fund's resources. In this environment perhaps the best the Fund can do is push for reform and hope for a restoration of confidence.

The unfortunate fact is that IMF orthodoxy can fix many of Indonesia's structural problems over the next decade but only huge amounts of official money can clean up the financial mess left behind by years of neglect and exploitation of Indonesian financial markets by the government and its friends. Indonesia will be last in line for this money, and there must also be a question-mark over the current government's ability to use effectively whatever money it may receive

The real adjustment program

The more likely scenario is that Indonesia's problems will be solved the old-fashioned way. Domestic hyperinflation will wipe out the domestic financial system. Residents and other unfortunate holders of domestic currency denominated debt have no effective defence against hyperinflation. Even indexed debt is usually not perfectly indexed and a few days' lag in the index adjustment can wipe out the real value of the debt. Moreover, even if investors see the trouble coming an immediate exchange rate depreciation will turn expected inflation into immediate losses in terms of foreign currencies. The inflation rate reached 40% in February and while analysts have emphasized the one-time effect of nominal exchange rate depreciation it is likely that more fundamental factors are at work.

High inflation was a common result in Latin America

While not all Latin debtors resorted to hyperinflation the list is impressive. Argentina, Bolivia, Brazil, Nicaragua and Peru all experienced inflation for one or two years of more than one thousand percent between 1982 and 1991. These countries might have avoided hyperinflation by adhering to IMF programs. But experience suggests that such programs are often contradictory in that they mandate full foreign debt service for governments that can only service foreign debt if domestic debt and other domestic expenditures are "serviced" through money creation. Jeff Sachs, for example, has argued convincingly that the Bolivian hyperinflation was a direct consequence of the Fund's insistence on foreign debt service.

In the chaos following these inflationary episodes creditor governments and international institutions could buy enough of Indonesia's foreign debt to return the country to solvency. But only years of economic hardship in the debtor country will likely generate the political will to do so. The unwillingness of creditor governments, and the inability of the Indonesian government, to clear away the tangle of financial losses will be a persistent drain on Indonesia's ability to function as a market economy.

Had Indonesia implemented a currency board, the results would likely have been disastrous

A currency board is a particularly unlikely solution in this regard. President Suharto has apparently abandoned a plan to stabilize the Rupiah at 5000 by making all government liabilities convertible into dollars at a "permanently" fixed exchange rate. This was a wise decision. The Indonesian government's implicit liabilities include the entire existing loss in the domestic banking system and the corporate sector. Corporate external debt alone is estimated to be almost USD 60bn. The government's USD 18bn in reserves will last about fifteen minutes unless access to foreign exchange is severely restricted.

IV. Growing and Saving Out of Debt?

In 1982 predictions that the Latins would grow out of debt were the intellectual basis for inaction from the US and other powerful creditor countries. Once again it seems plausible that high growth, high savings Asian economies will succeed in putting this unfortunate incident behind them.

Korea may be able to grow its way out of its debt problem

Some of them probably will. Korea, for example, will get enough official assistance to give the growing out of debt story a chance. More important, Korea has a recent history of effective capital controls and has a tradition of patriotic appeals to keep domestic savings at home that may well be effective. Indonesia, in contrast, will get much less official money, has a relatively long history of open capital markets and enjoys very little political cohesion. It is likely that Indonesia will not escape the debt/capital flight trap.

The central problem is that a market economy cannot function unless domestic savings are smoothly intermediated by the domestic financial system. The abrupt loss of access to international capital markets is a blow to the development plans of an economy. But Indonesia and most other developing countries have not depended much on foreign capital inflows to support domestic capital formation.

The relative importance of domestic and international financial intermediation is illustrated in Table 3. The first entry for each country is average net private and

Table 3: Capital Flows, Reserves & Savings (% of GDP)

(1989 - 1995)	Chn	Indo	Kor	Malay	Phil	Tai	Thai
Net private capital flows	2.5	4.2	2.1	8.8	2.7	-4.0	10.2
Net official capital flows	0.5	0.8	-0.3	-	2.0	-	-
Change in reserves	-2.2	-1.4	-0.8	-4.7	-1.1	-0.6	-4.1
Net foreign savings	0.8	3.6	1.0	4.1	3.6	-4.6	6.1
National savings	39.0	31.5	35.9	31.7	20.8	28.3	34.6

Source: IMF's World Economic Outlook and author's calculations based on figures from IIF Database.

official capital inflows (percent of GDP) from 1989-1995. At first glance the inflows are impressive. But even in the six countries with large private inflows - China, Indonesia, Korea, Malaysia, Philippines and Thailand - nearly one-half of this money was sent directly back offshore by governments in the form of reserve accumulation. The remaining net provision of private funds from abroad for the "average country", about 2.8% of GDP, is dwarfed by domestic savings rates.

High savings in Asia left a lot of room for ineffeciency

There is an important lesson in these simple calculations. It will always appear easy to recover from a loss of access to international lending. In aggregate terms the external accounts are a relatively unimportant component of aggregate savings and capital accumulation in the first place.

Capital flight may well be a problem in Indonesia

In Indonesia about 32% of domestic GDP is saved and all of this is intermediated by the domestic financial system. Knowing what we do now about the quality of the financial decisions made in the Indonesian market it is a miracle that the economy performed as well as it has until now. The lesson is that high domestic savings rates leave lots of room for waste and inefficiency in the financial markets. Suppose financial institutions manage to "misplace" a quarter of the funds entrusted to them. This will build huge losses on the banks' balance sheets over time but 24% of GDP will make it through the system and be transformed into useful and productive capital. Add one to three percent of GDP in foreign capital and you get an impressive growth rate in a capital-starved economy. Nevertheless, the loss in the banking system is a bomb that will certainly explode when the private sector calculates that the government will not be able to insure the value of domestic bank deposits.

Capital flight is very difficult to measure

The very bad news is that once the bomb explodes there is no cheap and easy way to put the system together again. Indonesia will not grow out of debt because residents of Indonesia will hide every dollar they can offshore. Exports will surely grow and imports contract given recent changes in real exchange rates and the collapse of output. But much of this external savings and a share of domestic savings will find its way to Singapore and London not Jakarta.

V. Capital Flight - The 1980's vs the 1990's

Capital flight seldom shows up in official statistics and never shows up in official projections. Latin Americans "recycled" a substantial share of the large capital inflows before the 1982 crisis but the real damage from capital flight followed the crisis. Table 4 from a recent Federal Reserve Board working paper shows the history of capital flight from Latin America and Asia before and after the 1982 crisis. There are several ways to measure capital flight but as these data show the different measures tell a similar story. My favourite, the "Dooley" measure, is based on the idea that capital flight is best measured as the stock of external assets held by residents that do not report the income earned on such assets to the government. The "Dooley" measure is quite similar to the World Bank measure which is much easier to calculate so I have updated this second best measure for selected Asian countries (Table 5) and focus on this measure of capital flight in the following discussion.

Table 4: Capital Flight (% of GNP)

Year	Latin America			Asia		
	World Bank	Modified World Bank	Dooley Flow	World Bank	Modified World Bank	Dooley Flow
1978	1.2	-0.3	1.3	1.3	0.8	2.1
1979	2.2	1.0	2.6	1.0	0.7	2.0
1980	3.1	1.0	1.2	2.4	1.1	1.7
1981	1.6	1.2	0.9	1.5	1.6	0.8
1982	4.0	3.5	0.6	2.0	1.5	0.4
1983	4.1	5.8	5.1	0.9	0.4	-0.2
1984	1.7	-0.5	1.0	-1.1	-1.7	-0.8
1985	3.2	1.0	0.9	2.9	0.8	1.1
1986	3.0	2.3	1.1	2.8	1.4	1.8
1987	3.8	4.6	5.2	2.7	2.3	3.1
1988	-2.0	-2.6	-3.3	-0.9	-0.8	1.0
1989	-0.8	-0.2	0.1	0.2	-0.3	1.1
1990	1.2	-3.1	-1.7	0.8	-2.5	-2.0
1991	-0.6	-4.5	-2.8	-0.6	-4.7	-2.8
1992	-3.3	-7.6	-5.4	-1.7	-7.5	-4.8
1993	-0.7	-2.1	-0.4	-1.2	-2.0	0.4

Table 5: Capital Flight in Selected Countries, 1989-97

% of GDP	1989	1990	1991	1992	1993	1994	1995	1996	1997
China	0.09	4.18	3.13	6.05	4.00	6.08	4.80	3.44	3.29
Indonesia	0.26	6.98	1.63	-1.87	3.30	9.07	4.95	0.93	1.73
Korea	1.10	1.43	0.13	-0.03	3.28	2.55	3.34	2.34	0.13
Malaysia	-3.93	1.90	-0.15	-1.63	2.42	0.59	-0.16	-0.31	-0.64
Philippines	-2.41	-1.05	-1.31	-3.38	8.60	6.33	4.43	-2.46	-0.40
Taiwan	2.53	7.29	2.57	3.34	4.28	3.57	2.20	3.76	3.01
Thailand	-3.08	-1.97	-3.07	-0.67	3.12	1.33	2.03	-2.07	1.13

Source: Author's calculations based on figures from IIF Database.

In Latin America, capital flight peaked five years after the outbreak of the region's crisis

Latin Americans continued to move a large share of domestic savings offshore after recorded net private capital flows fell to zero in nominal terms and negative in real terms after 1982. Moreover, the problem got worse as the debt crisis dragged on. In 1987 capital flight reached four and one quarter percent of GDP for the region. Moreover this average number contains some really spectacular flurries of capital flight from individual countries. Since the gross savings rate was only about 20 percent in Latin America during this time period, new investment probably did not cover depreciation. The fall in per capita GDP documented in Table 2 should not be surprising.

Asia has in fact had a growing capital flight problem in recent years

Capital flight from Asia following the 1982 crisis was much less of a factor. In 1983 and 1984 there were unrecorded capital inflows to Asian developing countries and, once again, in 1991 and 1992 unrecorded inflows were substantial. This historical tendency for flight capital to move into Asia was dramatically reversed after 1992. Like Latin America before 1982, the years leading up to the recent Asian crisis were marked by an obvious rapid buildup of external debt and a much less obvious build up of flight capital (see Table 5). The data for Indonesia

are particularly interesting. Since 1992 flight capital has averaged about four percent of GDP. In dollar terms this was a cumulative outflow of about USD 40bn.

Lower international interest rates eventually brought capital back to Latin America, but that seems unlikely now

The Latin American experience does provide some room for optimism. Reversals of flight capital were substantial after 1987. In fact most of the surge in capital inflows to Latin America in recent years may have been a return of flight capital. When things get better they get better in a hurry. But even here the news is not really encouraging. Several statistical studies have concluded that the largest cause of this return of capital flight to the victims of the 1982 crisis was the fall in international interest rates in 1989. Brady Plan debt restructuring and domestic policy reforms in the debtor countries seem to have played a much less important role in encouraging residents of debtor countries to return to domestic financial markets. If this research is correct there will be no such turnaround in the cards for Asia. It is hard to imagine real international interest rates much lower than they are today.

Capital flight from Asia?

Will capital flight turn out to be a decisive factor in Asia? Clearly residents of Asian developing countries have saved a large share of their income. If residents could be assured that the financial system was no more inefficient than usual they would presumably return to the market in a few months. In Indonesia, for example, firms can now be bought at fire sale prices and the real depreciation of the rupiah makes the export outlook very strong. It would be very surprising if there were not many transactions in which, for example, non-resident investors purchase relatively strong firms at bargain prices. But this change of ownership means little if the seller places the funds offshore. Even an active market does not mean that net inflows to the economy are contributing to a recovery.

The question remains: Who will ultimately pay for the gap between the guaranteed value of government and banks' liabilities and the market value of assets? The same firms that look attractive are the most likely tax base. Investors will join this unfortunate club of potential Indonesian tax payers only if gross returns are exceptional. Since such opportunities are limited, the simple intuitive solution is to place new and old wealth beyond the reach of the governments that have not resolved their debt problems. This intuition gets strong support from empirical estimates of the causes of capital flight. Fiscal deficits encourage capital flight and adherence to IMF programs discourages capital flight. Again Korea and Indonesia seem to be polar cases.

VI. Debt Restructuring: Cure or Curse?

Secondary market trading of impaired debt generally is of no use to the debtor

Existing debt will be sold by holders that are impatient to be rid of the problem to investors that enjoy a long drawn out fight with the debtor and other creditors. The impatient will sell out early at a substantial loss. Do-gooders will gloat that the banks and other private creditors have taken a hit. What they will fail to notice is that this does the debtor country absolutely no good. In fact just the opposite will occur. Creditors that buy the debt will certainly not forgive any of it. They will keep careful track of interest arrears, accumulate interest on interest at penalty rates and wait for better times. Common sense and experience suggest that the new owners of old debt are good at waiting and collecting.

What are they waiting for? A good hyperinflation might clear away lots of creditors that are stuck with domestic currency denominated debt. A thumping depression will generate the kind of social unrest that the international community cannot ignore. They will eventually come up with the bailout. Economic depression and political instability caused by the debt overhang is the reason creditors can count on an eventual bailout.

Debt does not melt away over time. It could be that corporations will disappear in Indonesia and other Asian countries. But creditors are surely already looking for ways to merge their claims into an obligation recognized by governments. This is called "restructuring" and is often confused with a solution to the problem. In this game my money is on the creditors finding a way to obligate the debtor government. Once it is government debt the government will threaten to default. But creditors will not believe it. In times of trouble governments come and go. Somebody will eventually get enough foreign assistance to make paying the preferred strategy.

Bankruptcy, lending into arrears and other fairy tales

A proper work-out mechanism for international debt is very unlikely

There will be a rash of studies on a new international bankruptcy proceeding imposed by the IMF or a mythical international organization. This is a way to make the debt melt away. These arguments have the right problem in mind. Unless existing losses are allocated and existing claims legally nullified, new domestic saving will fly to locations beyond the reach of the tax collector. The logical solution is for fair-minded people to estimate the size of the loss, distribute it equitably among claimants and legally extinguish the current debt.

This is a perfectly good solution and one which we have in place to resolve bankruptcies within market economies. But we are more likely to be hit by an asteroid than establish an effective workout mechanism for international debt. The conflict of interests between private and official creditors in itself ensures that no official institution, itself a creditor, will be trusted to allocate losses.

VII. The Outlook

The outlook for Asia is thus not promising ...

There remains significant growth potential in Indonesia and the other Asian Tigers. But there is no assurance that this is sufficient to solve their problems. To grow an economy needs investment in productive capital. Capital requires someone, and usually that someone is a resident, to take a chance that ownership of capital brings rewards similar to those available offshore. In an environment where an existing loss might be stuck on anyone, everyone will try to get their wealth out. Capital flight will enforce a low investment, low growth equilibrium. Equity values measured in domestic currency will remain depressed. The rupiah which has lost more than half of its value in terms of dollars will also remain depressed and subject to bouts of selling pressure. The level of real exchange rate depreciation will continue as it did in Latin America for nearly a decade.

... and this in a calm international background with low interest rates

Only a remarkable combination of official lending, decisive policy reform focused on the domestic financial system, and good luck can defuse this situation. Korea might be able to put such a combination in place but other Asian developing counties are much less likely to be able to do so.

Are there any external accidents that might brighten the outlook? Unfortunately, this is unlikely. An important feature of this crisis is that it was not triggered by an increase in real interest rates in industrial countries. To the contrary, inflation-adjusted interest rates are remarkably low in Japan and Europe and are about at their historical average in the United States. It is sobering to recall that the 1982 crisis was largely caused by the dramatic tightening of US monetary policy and cured by the dramatic easing of US monetary policy in 1989. No such help is in the wings this time. Moreover oil prices have fallen and many point to the decline in demand in Asia as an important reason. This is surely bad news for Indonesia.

Mexico's FICORCA Plan: A Model for Indonesia?[1]

By Jose Alberro-Semerena and Michael Spencer

I. Introduction

On February 17, 1982, the Mexican peso was devalued by 43% and then depreciated rapidly during the rest of the year. As a result, the external debt service requirements proved too much for many firms as the domestic economy began to shrink. Faced with a choice between widespread private and even sovereign defaults and the crushing domestic contraction that would have been necessary to accommodate continued debt service, the Mexican government in August 1982 declared a moratorium on principal payments and opened discussions on a concerted debt restructuring agreement with creditors.

Indonesia is considering following Mexico's example in external debt rescheduling

An important element of the agreement that was reached in 1983 was the provision by the government of a mechanism for eliminating exchange rate risk on external debt service payments - the Exchange Risk Coverage Trust Fund (FICORCA), whose structure we analyze in this paper. This institution is particularly relevant to the Asian debt crisis because it has been proposed as a model for the solution to the current Indonesian external debt crisis.

II. Indonesian External Debt

Suspension of debt service was officially sanctioned in January

The depreciation of the rupiah since July 1997 - peaking at 75% in January - has dramatically increased the cost of servicing external debt for Indonesian banks and companies, since most of this debt is unhedged. By the end of 1997, most firms had ceased making payments. Recognizing this, in January, the Indonesian government announced a temporary "pause" in external debt payments to give firms time to negotiate a restructuring of their debts.

Table 1: Indonesian External Debt (End January 1998)

	(USD bn)
Total	**133.7**
Government	53.5
Nonfinancial public enterprises	5.8
Banks	
State-owned	6.6
Private	8.9
Private corporations	58.8
Memo:	
Domestic securities held abroad	7.4
Short-term debt	15.6

[1] This article was co-authored with Dr. Jose Luis Alberro-Semerena, Diseno de Estrategias, S.C., who is a consultant to the Deutsche Bank Emerging Markets Research Group.

Indonesia's external debt burden is the worst among the Asia-5

Indonesian external debt was estimated at USD 133.7bn at end-January 1998, making Indonesia the most heavily indebted country among the Asia-5, with external debts equal to about 197% of 1997 GDP.[2] As the possibility that tight fiscal and monetary policies would bring the rupiah back to an exchange rate near the pre-crisis level waned, the importance of restructuring this external debt grew. While Korea was able to reschedule USD 21.5bn in private debt (more than 25% of the total short-term debt) in January, a similar agreement in Indonesia is unlikely, owing to the greater dispersion of debtors: 65% of Korean external debt was owed by banks, compared with 11% for Indonesia. Since the IMF accepted the use of official guarantees to facilitate debt rescheduling by banks, the Korean government assumed the banks' short term debt and issued medium - and long-term government debt in exchange. While Indonesia announced an official guarantee of bank debt in late January, this covered a much smaller proportion of total debt, and suffered from the perception that Bank Indonesia had insufficient reserves to back up the guarantee.

Since less of the debt is interbank credit, it's harder to roll over

The initial reluctance to participate in rescheduling has given way to reality

The Indonesian government initially avoided participating in rescheduling negotiations except by acting as an information broker between creditors and debtors. In January, the government's senior advisor on external debt announced the creation of a Steering Committee of foreign banks and a Contact Committee of Indonesian debtors who would discuss the principles under which bilateral negotiations between creditors and debtors would take place. It soon became clear, however, that an approach relying solely on bilateral negotiations would take too long to have a significant impact on Indonesian external finances: there are at least 1000 separate entities with foreign debts. It was also soon clear that some foreign banks would not accept a deal that did not involve some sort of government guarantee or subsidy.

In the review of the IMF program in April, the Indonesian government stated that it would be willing to be involved in some capacity in corporate debt restructuring agreements. In the subsequent mid-April discussions between the Indonesian team - now including representatives of the government and the central bank, supported by IMF representatives - and a smaller committee of foreign creditors represented by three international banks, a proposal was made to provide an official mechanism for eliminating exchange rate risk for Indonesian firms using the Mexican FICORCA plan as a model.

Mexico's economic fundamentals were worse in 1982 than Indonesia's were in 1997 ...

Table 2: Selected Macroeconomic Indicators

% of GDP	1956-72	1973-76	1977-81	1982	1983
Public Finance Deficit	2.5	8.0	10.2	17.6	9.0
net of interest payments on the public debt	na	6.1	5.3	9.4	-3.3
M1 (Growth rate)	10.7	21.4	32.6	43.5	44.1
Real GDP growth rate	6.7	6.1	7.4	-0.5	-5.3
Inflation Rate	3.1	16.7	23.8	58.9	101.9
Current account Deficit	-2.5	-4.1	-3.4	-3.8	3.7
Exchange rate devaluation	0.0	5.4	9.7	130.1	166.5

[2] Evaluated at the average exchange rate during 1998 Q1. By comparison, Thailand's external debt was about 80% of GDP and that of Korea was about 56% at end-1997.

III. Backround to the Mexican Debt Crisis

By the early 1970s, the import substitution strategy that had been followed by Mexico for over a decade and a half had generated severe economic distortions. Above all, public finances had become fragile as a result of growing expenditures that were not met by revenues. The ensuing deficits were financed by both (i) money creation which brought about inflation, overvaluation of the peso and external deficits; and (ii) growing indebtedness.[3]

... but Indonesia's debt load is much higher than Mexico's was

Table 3: Mexican Foreign Debt

USD mn	1979	1980	1981	1982	1983
Public Foreign Debt	29,757	33,873	52,156	58,146	62,632
Private Foreign Debt	7,900	11,800	14,900	18,000	17,500
Commercial Banks	2,600	5,100	7,000	8,000	7,500
Total	40,257	50,773	74,056	84,146	87,632
Annual increase	6,635	10,516	23,283	10,090	3,486
(% of GDP)	31.4	31.3	39.1	43.1	50.7

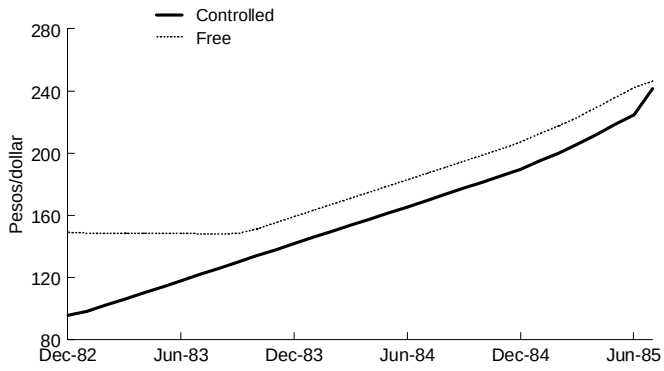
Source: Solis and Zedillo, 1984

Capital controls were introduced in Mexico when the economy failed to stabilize

An adjustment program was introduced in late 1981 but the international financial community reacted slowly and lent only USD 6bn to the government during the first half of 1982. Capital flight continued in earnest: USD 20bn left the country during 1982. On September 1, the President nationalized the banking system and introduced foreign exchange controls that required that all foreign currency inflows and outflows had to be conducted through Bank of Mexico. Two fixed exchange rates were established - an ordinary one and a preferential one - and all economic transactions were classified in one of these two categories.

In 1983, the system of foreign currency controls was replaced with a dual market: all exports, imports and foreign debt transactions took place in the "controlled market" while all others had to go through the free market. As shown in Figure 1, the difference between the two prices started at around 50% in January 1983 but shrank to less than 10% within two years.

Figure 1: Mexico - Dual Exchange Rate



[3] For more on the background to the crisis, see Alberro, José L. and Jorge E. Cambiaso "Características del Ajuste de la Eocnomía Mexicana", in Políticas Macroeconómicas y Brecha Externa : América Latina en los Años Ochenta, CEPAL (ECLAC) UN, Santiago de Chile 1989.

The government introduced an orthodox IMF - supported macroeconomic adjustment program in December 1982 that had three main objectives: generating a public sector surplus to renew the service of government debt; increasing the price of tradeable goods to bring about a foreign trade surplus; and restructuring public and private debts to pave the way for an eventual return to international financial markets. By the second quarter of 1983, GDP had fallen more than 10% below its previous high, reflecting the structural weaknesses of the economy.

Fiscal austerity led to a sharp improvement in government finances ...

The adjustment in government finances was dramatic. Between 1982 and 1983 revenues were increased by 4.5 percentage points of GDP by raising taxes - the value added tax went from 10% to 15% and a 10% surtax on high incomes was imposed - and cutting subsidies - prices of goods and services produced by the government grew 15% in real terms; and expenditures were reduced by 3.4 percentage points of GDP. They decreased an additional 2.1 percentage points during the following two years. Since it was felt that direct cuts in employment would cause social unrest this was accomplished by allowing inflation to diminish the real wage.

Table 4: Mexican Fiscal Indicators

% of GDP	1980	1981	1982	1983	1984
Revenues	28.5	27.5	29.9	34.4	34.2
Expenditures	35.5	41.1	46.1	42.7	41.5

... and a reversal of the trade deficit

The adjustment in the trade balance started in 1982 with a 40% decline in imports, mainly from lower imports of intermediate goods. Since oil exports grew by USD 1.9bn, for the first time in 12 years the trade balance showed a surplus of USD 6.8bn.

Table 5: Mexican External Accounts

USD mn	1980	1981	1982	1983	1984
Exports					
Oil	10,441	14,573	16,477	16,017	16,601
Non-oil	5,071	5,529	4,753	6,295	7,595
Total	**15,512**	**20,102**	**21,230**	**22,312**	**24,196**
Imports					
Consumption Goods	2,448	2,808	1,517	614	848
Intermediate Goods	11,275	13,566	8,417	5,740	7,833
Capital Goods	5,174	7,574	4,503	2,197	2,573
Total	**18,897**	**23,948**	**14,437**	**8,551**	**11,254**
Trade Balance					
Public	4,550	6,956	12,388	13,053	13,014
Private	-7,935	-10,802	-5,595	708	-72
Total	**-3,385**	**-3,846**	**6,793**	**13,761**	**12,942**

Source: Realidad Economica de Mexico 1991, Macro Asesoria Economica S.C.

Imports declined by a further 40% in 1983 as the currency depreciated; the burden of this USD 5.9bn adjustment was shared by smaller imports of intermediate goods (40%) and smaller imports of capital goods (45%). Contrary to what had happened the previous year, however, during 1983 exports of manufactured goods started to increase - by USD 1.5bn - more than compensating for the decrease in oil revenues, so for the second year there was a significant trade surplus (USD 13.8bn). In 1984, both imports and exports increased (by USD 2.7bn and USD 1.3bn respectively) but the trade balance remained in surplus by USD 12.9bn.

Debt restructuring

Mexico initiated the Latin American debt crisis on August 20, 1982

By the third quarter of 1982, foreign reserves had dipped below USD 2bn, the equivalent of less than two months of imports or three months of interest payments on the government's foreign debt.[4] On August 20, 1982, the Secretary of the Treasury of the outgoing government met with representatives of the major banks and declared a three-month moratorium on the amortization of its foreign debt and requested negotiations on a comprehensive debt restructuring agreement.[5] By the end of 1983, USD 23bn of public foreign debt had been restructured and, pressured by the IMF, a syndicate of 526 banks had extended new credits for USD 5bn to strengthen the process.

To facilitate private bilateral rescheduling negotiations, the Mexican government provided exchange rate protection

Nonbank debtors accounted for about USD 18bn in external debt, of which two thirds came due before January 1, 1985. Thousands of firms were involved. In order to limit the impact of this devaluation on the real sector of the economy, a comprehensive restructuring process had to be put into place to lengthen payment schedules and restore corporate solvency. Since a significant share of the resources needed to repay this foreign debt were expected to be generated in the domestic economy and thus be peso denominated (export receipts were expected to be insufficient), management of exchange rate risk over a long period became a critical problem. No forward or other markets existed at the time that could transfer adequately the exchange risk inherent in multiyear contracts. Policymakers determined that unless the government intervened and took on that risk itself, the restructuring process would be drawn out too long. To manage that source of risk, the government decided to take on all exchange rate risk, and to implement this policy, it established the Fideicomiso para la Cobertura de Riesgos Cambiarios (Exchange Risk Coverage Trust Fund (FICORCA)). However, the government did not assume the credit risk, leaving that to be priced into the bilateral negotiations between debtors and creditors.

IV. Mechanics of the Exchange Risk Coverage Trust Fund (FICORCA)

Under FICORCA, firms could buy dollars forward at a more appreciated exchange rate

The Exchange Controls Decree of December 13, 1982 provided for the establishment of a program to cover the exchange rate risk faced by firms operating in Mexico, which had contracted long-term dollar denominated debt or had restructured their foreign obligations into long-term dollar denominated debt prior to December 20, 1982. On March 11, 1983 the Ministry of Programming and the Budget authorized the creation of FICORCA to implement that policy. It

[4] Solís, Leopoldo and Ernesto Zedillo, La Deuda Externa de Mexico, Instituto de Investigacion Economica y Social Lucas Alemen A.C., December 1994.

[5] During the last quarter of 1982, interest payments, but few principal payments, on government debt were made, and all payments on private debt were suspended.

provided an initial endowment and announced that it would make any contribution necessary to guarantee its viability.[6] Dr. Ernesto Zedillo, presently President of Mexico, was its first Director.

FICORCA created two main programs: one to cover exchange rate risk derived from debts with foreign financial institutions; and another for the payment of overdue debt to foreign suppliers.

Program to cover Exchange Rate Risk derived from Foreign Debts
Participation in this program was limited to:

- firms operating in Mexico with long-term dollar-denominated debt (or long-term restructured debt) contracted before December 20, 1982; or

- firms operating in Mexico with debt obligations as described above, even if they had been contracted after December 20, 1982, as long as they had previously been authorized by the Bank of Mexico, and the proceeds had been applied toward the payment of principal and interest of dollar denominated debt.

In both cases, the debts had to be registered with the Ministry of the Treasury. The term of amortization had to be at least 6 years in which case it had to include a grace period of 3 years; if the term was 8 years, the grace period had to be of 4 years. Once the grace period had elapsed, the principal had to be repaid in equal and consecutive quarterly installments. The principal portion of the restructured debt could include all accrued interest payments corresponding to the original debt and on which the debtor had been unable to effect payment.

This program included four types of coverage: the first two eliminated exchange risk only on the amortization of the principal while the last two included interest payments; within each of these categories, in one case upfront payment was required while in the other credit was granted to the debtor.

1. **Coverage of debt principal, by means of a cash payment.** Firms enrolled in this program acquired dollars from authorized banks with pesos up to the amount necessary to pay the principal of their authorized foreign debt. The exchange rate was determined by FICORCA according to the schedule of amortizations agreed upon by the creditor.[7] At the end of the grace period, the bank was obligated to deliver to the creditor enough dollars to amortize the debt, by means of equal and consecutive quarterly deliveries, payable in funds made immediately available in New York.

   From the date on which the contract was subscribed, the firm irrevocably instructed the bank to deliver to the creditor the quantity of dollars needed to make the amortization payments.

2. **Coverage of debt principal, by means of a credit in national currency made available to the debtor.** This type of coverage shared the

[6] To contain bureaucratic pressures, FICORCA was not authorized to contract directly with interested parties, but, rather, it had to channel all transactions through Mexican banks, which acted on account and by order of the Trustee of the Fund.

[7] On June 5, 1983, those prices were 77 pesos to a dollar in the case of an 8 year repayment term, 84 pesos to a dollar in the case of 7 years and 87 pesos to a dollar in the case of 6 years. These corresponded to about 35%, 29% and 26% respectively, below the controlled exchange rate.

characteristics of the previous one, but included the granting of a credit to the debtor firm by FICORCA to facilitate its participation in the Program.

3. **Coverage of debt principal and accrued interest due, up to a limit indicated below.** As in type 1, firms acquired dollars from authorized banks with pesos up to the amount necessary to pay the principal of their authorized foreign debt. Unlike the first case, the exchange rate was set at the controlled rate and the firm had to utilize the dollars to pay a restructured loan with the foreign bank. The term of that loan was eight years with a four year grace period with the interest rate accruing on the outstanding balance being the three-month LIBOR with at most a 2% spread.[8] Accrued interest was payable quarterly to the creditor.

4. **Coverage of outstanding principal and interest due, up to the limit determined in type 3 above.** This type of coverage duplicated the conditions outlined in type 3 above, but allowed the firm to receive a credit to facilitate its participation in the Program. The conditions of the credit were the same as those described in type 2 above.

Program for payment of outstanding debt owed to foreign suppliers
As in the case of outstanding dollar denominated obligations derived from debts with financial institutions, debtors of foreign suppliers, were authorized to acquire dollars at the controlled exchange rate. To do so, they had to register their liability with the Ministry of Commerce and Industrial Development, and the Program only included debts with a due date before June 30, 1983.

The payment mechanism entailed the creation of dollar-denominated deposits in banks and was paid for in pesos. Debtors then transferred the rights to those deposits to the suppliers. The suppliers would be paid according to terms and conditions established by the Bank of Mexico, taking into consideration the total value of the transactions to be effected under the Program, the availability of foreign exchange, and the seniority of the debts corresponding to said transactions. In no case would the payment schedule extend past two years.

In fact, half of the debts were paid before September 8, less than two months after the July 15 deadline for creating the deposits and the other half was paid within six months later. Transactions of less than one thousand dollars, however, were settled immediately.

V. Debt Service under FICORCA[9]

By all accounts, FICORCA was successful

Twelve hundred firms with operations in Mexico - 90% of the potential total number - enrolled in FICORCA before the October 25, 1983 deadline set by the Mexican government. While FICORCA benefitted large firms - the fifty largest accounted for 60% of the total debt - the liabilities of 43% of the firms were smaller than USD 1mn. Two-thirds of corporate dollar-denominated debts, USD 11.6bn, were restructured through 4,800 operations with over 300 financial institutions and 200 foreign suppliers. Almost 40% of total debt was renegotiated for periods that were longer that the minimum prescribed by FICORCA.

[8] If the rate paid by the bank included that spread the sale price at which the debtor acquired the dollars had to inflated.

[9] See El Mercado de Valores, Año XLIII, NUM.34, November 14, 1983 and Banco de México, Informe Anual 1992.

Almost all firms opted to finance their forward purchases with a loan from FICORCA ...

Coverage types 2 and 4 were the most commonly employed, accounting for 98% of the operations. A total of MXP 1.6 tn in credit was granted by FICORCA - almost equal to the total domestic credit provided by the banking system.[10] During the grace period, interest payments were made either by FICORCA - if the creditor had accepted the 200 bp cap on the interest rate spread - or by the debtor directly. Subsequently, FICORCA made quarterly principal payments after each borrower had made corresponding principal payments on its debt to FICORCA. To reduce the frontloading of amortization payments that occurs in an inflationary environment - because the real value of the principal decreases with the inflation rate - up to half of the nominal interest payments were rolled into the principal during the grace period. If a company failed to service its peso-denominated loan, FICORCA ceased making dollar payments to its foreign creditors.[11]

... which allowed FICORCA to close its books in 1992 with a modest profit

In those cases where the currency conversion was made at the controlled exchange rate, FICORCA essentially subsidized the debt service. However, because domestic interest rates by the end of the program were above those that prevailed initially, the interest income FICORCA earned on its loans exceeded the cost of this subsidy.

On August 24, 1992, the Ministry of the Treasury announced the termination of FICORCA because the Exchange Controls Decree had been repealed on November 10, 1991 and it had accomplished the mission for which it had been established. Not only had FICORCA been financially self-sufficient but upon liquidation it turned a profit of USD 2.4bn at the 1992 exchange rate (0.7% of GDP), on interest charges and foreign exchange profits.

VI. Assessment

The FICORCA trust appears to have been successful in speeding up the process of negotiating a very large number of individual debt rescheduling agreements. While there may have been more firms involved in the Mexican situation, the stock of debt compared with GDP is much higher in Indonesia than it was in Mexico, making it all the more important that this process be concluded quickly.

FICORCA shows that large-scale rescheduling over a short period of time is possible if exchange rate uncertainty is removed

In Indonesia as in Mexico in 1982, exchange rate uncertainty is an important obstacle to debt restructuring. Firms that are insolvent at an exchange rate of 10,000 IDR/USD may be solvent at a rate of 5,000, so the need for debt relief depends crucially on the level of the exchange rate. The FICORCA trust appears to have been a successful mechanism for eliminating this uncertainty so that bilateral negotiations could proceed quickly. It also has the advantage of not influencing firms' and investors' decisions on new investments or capital allocations - the exchange rate at which payments other than those resulting from the rescheduling process are made is not fixed, so the incentives to borrow heavily abroad that existed under the previous exchange rate regime are not replicated. Unlike Mexico in 1982, however, forward exchange markets for long maturities do exist for the rupiah, and it is not obvious that the government should have to make this market.

[10] Only 2% of FICORCA's operations did not involve such loans. In these few cases, the firms simply paid the peso-equivalent amount of their debt service requirements to FICORCA, which made the dollar payments to the external creditors.

[11] In fact, two large companies (Alfa and Moctezuma) defaulted on USD 3bn worth of peso loans and had to withdraw from the mechanism, leading to further restructuring that took almost two years and yielded more generous terms than they had originally obtained.

An Indonesian version won't necessarily run a profit, and the government subsidy reduces the costs that the private sector has to incur

However, FICORCA not only eliminated exchange rate uncertainty, it did so at a much more appreciated exchange rate level than currently prevailed, and at a cost to firms that was below what would likely have been available from banks. Providing a more appreciated exchange rate at which debt service payments will be made is a substitute for reducing the principal due by a larger amount. Payments on USD 100 of foreign debt at an exchange rate of 5,000 IDR/USD are the same as those on USD 50 of debt at a rate of 10,000 IDR/USD. By taking over the exchange rate risk, the government subsidized the debt restructuring process, providing easier terms for borrowers. Whether an Indonesian trust would be self-financing as FICORCA apparently was depends upon the future evolution of interest rates and exchange rates and on the level at which the exchange rate is set under such a program.

External debt rescheduling won't prevent the recession from worsening

Successfully rescheduling external debt will not prevent the Indonesian economy from the signficant real contraction that is forecast. A key difference between Mexico in 1982 and Indonesia today is that the stock of domestic credit in Indonesia is much higher - about 73% of GDP at end-1997 compared to about 28% in Mexico in 1982. Easing that debt burden, either by reducing interest rates or by rescheduling domestic debt, is an urgent necessity.

Speculative Currency Attacks - A Historical Perspective

By Peter Garber, London

Most of the more notable currency crises in history were not forecast ex-ante

In this decade, we have now had three major currency crises - the ERM crisis, the Mexico/Tequila crisis, and most recently the Asia crisis. Prior to this we had the debt crisis in 1982, the collapse of the Bretton Woods system from 1971-1973 along with the "gold standard" phase of the system in 1968. If these experiences were not enough, we can add the collapse of the inter-war gold exchange standard from 1931-1933 and the speculative attacks on the U.S. gold dollar in 1893-96 as some of the more notable currency upheavals in history.

Yet each new recent episode of currency crisis seems to have required for its explanation a new genre of theory of speculative attack. In part, of course, this reflects the unfortunate fact (for economists in particular) that most if not all of the larger currency crises in history have not been predicted ex-ante. In this article we document the rise and fall of the speculative attack model in the past twenty years, and we ask whether the current Asian crisis will ultimately result in the birth of a new breed of speculative attack models. We cannot say that it will not, but we do believe it does not need to.

I. The First Generation

While received theory prior to the late 1970s provided a set of reasons for speculative currency attacks, some based on economic fundamentals and some based on speculative excesses, it failed to provide an explanation for the timing, suddenness and magnitude of such attacks. The economic environment surrounding the exchange markets would seem quite calm, but there would suddenly be an attack.

The Theory of Salant and Henderson and Krugman

Salant and Henderson (1978) and Krugman (1979) were the first to put currency attacks

Into what was until then a theoretical void, the two basic papers for what has since become the textbook speculative attack model were written in the late 1970s. These were Salant and Henderson's (1978) study of attacks on buffer stocks held to peg the real price of gold and its sequel, Krugman's (1979) study of attacks on fixed exchange rate regimes.

Salant and Henderson postulated a model of a fixed world supply of bullion, a growing demand for gold for industrial and consumption purposes, and a buffer stock that would be sold steadily at a fixed real price to meet the demand. Eventually, rising industrial demand would have to exhaust the stock of gold, so there would be a switch in regime from a fixed real price to a rising price. The key departure in Salant and Henderson was the realization that the timing of the regime switch was endogenous - determined within the model by the actions of speculators - and that the buffer stock would not drop continuously to zero at the time of the switch but would be attacked and forced discontinuously to zero.

Salant and Henderson provided an explanation of why speculators would, without warning, suddenly appear and strip the government of its remaining reserves.

The timing of the attack occurred exactly at the right moment to prevent speculative profits. The principles they established - no perfectly anticipated asset price discontinuities, endogenous timing of attack on a buffer stock, a discontinuity between pre-attack and post-attack rates of capital gain, and the attack's occurring when a finite buffer stock was still in the hands of the authorities - were the concepts that Krugman (1979) applied to attacks on fixed exchange rate regimes.

Krugman's model emphasised the role of on-going credit creation in the eventual un-doing of a fixed exchange rate peg

In the context of Krugman's model, the motivation for the attack was ongoing domestic credit creation. The fixed exchange rate regime was not the primary policy of the government. More important was the government's insatiable need to finance itself in part through some domestic credit creation from the central bank. The reasons for this domestic credit creation were in the background. It might be a Keynesian motivation to keep unemployment low. It might be a simple inflation tax revenue requirement in which the government has exhausted other sources for financing its expenditure. It might be an emergency need to get cash because of a sudden bail out of a banking system. The rising domestic credit creates an underlying inflationary pressure that is contained at first because of the fixed exchange rate regime; the government finances itself at first through foreign exchange sales; but it will eventually have to let go of the fixed rate and finance itself explicitly through money printing.

The Textbook Linear Model

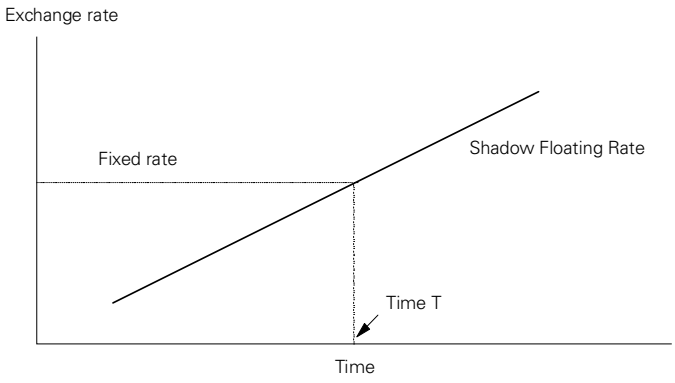
Flood and Garber explicitly solved for the timing of the attack

Flood and Garber (1984a) simplified Krugman's model, allowing them to solve explicitly for the timing of the attack. Starting with a given amount of foreign exchange reserves, a fixed exchange rate system must eventually run out of reserves as domestic credit replaces reserves in the assets of the central bank. When this will happen depends on the behavior of speculators, which in turn depends on the rate of domestic credit creation and the exchange regime that will follow the termination of the fixed exchange rate.

The determination of the time that the fixed exchange rate terminates proceeds in two steps. The first step determines the floating exchange rate given the current level of domestic credit and contingent on net reserves being at the minimum level of zero. This contingent exchange rate is known as the shadow floating exchange rate - it will not be the exchange rate in effect prior to the collapse of the fixed exchange rate, but afterwards it will be identical to the value of the floating exchange rate. The second step is to find the time T that the shadow floating exchange rate equals the fixed exchange rate.

In Figure 1, the time of collapse is T, which depends on the position and slope of the shadow floating exchange rate. The shadow floating rate increases with time; the steadily rising domestic credit implies that a floating rate regime will begin with an ever more depreciated exchange rate the longer it is delayed. If an actual attack occurs before T, the floating regime will begin with a relatively low amount of domestic credit and the exchange rate will actually appreciate. Thus, no one would attack the fixed exchange rate before T. If it is attacked after T, there will be a discontinuous upward jump in the exchange rate, a profit opportunity that will cause speculators to appear earlier. The scramble for speculative profit will thus push the attack time back to T.

Figure 1: Speculative Attack against a Fixed Exchange Rate



The stock of reserves and the rate of credit growth determine the timing of the attack

The height of the shadow floating rate line depends negatively on the amount of initial reserves. The greater the amount of initial reserves, the more central bank money will be destroyed in an attack at any given moment and the lower will be the initial post-attack floating exchange rate. The slope of the shadow floating rate line depends positively on the rate of growth of domestic credit. The time of the collapse can be then delayed by increasing the initial level of net reserves relative to domestic credit and advanced if the rate of change of domestic credit increases. Even a large current fractional foreign reserve backing of the domestic money stock will not preclude an immediate collapse if the rate of change of domestic credit is large enough.

II. Extensions of the Basic Model

Many extensions toward realism of the model were added during the 1980s.

1. Random Disturbances to the Model

Introducing uncertaintity allowed the models to explain "jumps" in the exchange rate when the devaluation occured

Salant and Henderson's and Krugman's models were perfect foresight models - one could predict exactly the time of the collapse. That was a beautiful result - a speculator can perfectly predict the time of a major exchange rate collapse and yet be unable to profit from it because of speculative competition. It turns out that this was a difficult point to sell intellectually because the mind wants to associate a big behavioral discontinuity with a big surprise. Thus, in later developments of the basic model, the perfect foresight assumption has usually been dropped by making the domestic credit process random or by making the minimum reserve level of the central bank uncertain.

2. Attacks on Crawling Pegs

First generation models deal easily with crawling pegs as well as fixed pegs

The basic model was built in the context of a fixed exchange rate regime, but it can be extended into other regimes of exchange market intevention. For example Connolly and Taylor (1984), Connolly (1986), and Cumby and van Wijnbergen (1989) extended the model to study speculative attacks on crawling peg regimes.

3. Multiple Equilibria

In a further extension, Flood and Garber (1984a) added the possibility of bubbles to the exchange market. If the shadow floating rate is itself infected with a bubble, it may exceed the fixed exchange rate and trigger a self-justifying collapse of the fixed rate system. The lesson is that the lack of excessive volatility of the

The initial models did allow for multiple equilibria, though the power of this was somewhat overlooked at the time

fixed rate system may only be transient; if it exists in the floating regime, it may reach into the fixed rate system and also collapse it.

In addition, in Flood and Garber (1984b), the model was extended into an attack on a gold standard in which there could be multiple equilibria. Flood and Garber postulated a gold standard regime in which there is no domestic credit creation, so a fixed exchange rate would last forever. But if a speculative attack collapsed the gold standard regime, the central bank would launch a policy of steady domestic credit creation, an inflationist policy that would justify an attack. There are then two possible equilibria, and which of these emerges depends on the behavior and beliefs of speculators. If speculators think that the fixed exchange rate will last, they will not attack; there will be zero domestic credit creation and the fixed rate regime is viable. If they think that there will be domestic credit creation, they will attack and force a termination of the fixed exchange rate regime. This will be a justified attack because the subsequent domestic credit creation makes non-viable the maintenance of the fixed rate.

III. The Emergence of the Second Generation

The 1992-93 ERM crisis put First Generation crisis models under the spotlight ...

The 1980s were the heyday of this type of model. However, the models that emerged from the insights of Salant and Henderson and Krugman are not based on the optimizing behavior of governments. They are based on assuming that there is a set of arbitrary decision rules that drives government policy. Government action does not seem to come from an optimizing government.

The models are also based on the key role of market equilibrium in the money market. From the money market equilibrium comes the exchange rate dynamics. The theory itself is based on explicit, market-driven exchange rate dynamics. Its central timing mechanism depends on the behavior of speculators: they determine the exact timing of the attack through explicit profit maximizing behavior and intensive competition.

... why did some countries with strong fundamentals devalue (the FRF for example)?

The ERM crisis, however, generated dissatisfaction with the now-textbook speculative attack model. First, none of the major countries involved in the crisis was creating domestic credit for finance reasons - they were not seeking inflation tax revenues. Also, these were rich countries, and it was thought that the motivating factor in their abandoning the bilateral exchange rate bands was not a lack of reserves - they did not run out. They had a large borrowing capacity remaining when they devalued. Indeed, in keeping with its obligations, the Bundesbank never explicitly cut them off from credit. The notion that the limit on the maintenance of a fixed exchange rate regime comes when a country reaches the limits on its capacity to acquire and expend reserves did not hold for the countries in the ERM.

Second, there were attacks on countries, notably France, that seemed not to have an excessively inflationary policy relative to Germany. French officials expressed a sense of insult that the franc was attacked in the same wave as the lira and the pound. Countries were seen to depart the ERM regime for reasons other than running out of reserves; and some countries seemed to be attacked for no good macroeconomic reason.

This led to the modeling approach that is now known as the Second Generation of currency crisis models, a name selected a couple of years ago by its

Second generation models were designed explicitly to produce multiple equilibria

proponents that incidentally had the neat marketing effect of relegating what was until then the "canonical attack model" to a somewhat deflated categorization as a "first generation" model. The second generation models emanated from an array of models published in Obstfeld (1994, 1995). These models had two features. First, they were designed to produce multiple equilibria - it was possible to have two or more outcomes for the survival of the fixed exchange rate system, depending entirely on how speculators acted. Second, this modelling strategy explicitly showed what the government's choice parameters were, and they put the government in the role of an optimizing agent. The government controlled its environment, and it selected exactly whether and when it wanted to devalue based on balancing the various costs that it faced.

For example, the business cycle and growth fallout from a high interest rate are concerns of a central bank along with the exchange rate. A lowering of the interest rate can have a beneficial effect on the unemployment rate, for example. If unemployment is a problem, it may be desirable to give up the fixed exchange rate to allow a reduction in the interest rate. There is then a trade-off - keeping the fixed exchange rate will cost a reduction in economic activity or undermine the domestic financial system. Also, the government may face large fiscal costs if the financial system is harmed. A government that has an eye on financial market stability or economic activity will be less strong-willed in maintaining a fixed exchange rate.

We have seen that the multiple equilbria results also exist for the first generation models. All that is necessary is to endogenize the basic government domestic credit creation policy. However, it turned out that the existence of multiple equilibria was a terrific intellectual marketing device in 1994 while it had been almost ignored when first published in 1984 and 1986. European officials had emerged from the ERM crisis suggesting that it was a speculative excess. It was an attack by a mob of 25-year old green screen traders, where "mindless" was frequently used as a lead adjective to the concept. Also, perhaps some kind of controls might be imposed to deter such behavior, because the mob of speculators was itself forcing changes in policies that led to bad equilibria.

The speculative attack itself changes the fundamentals, and it becomes optimal (and less costly) to devalue

In these models the government is assumed to have total power over the exchange rate, and there is no explicit money market. Expectations are not formed on the basis of some structural model of exchange rate dynamics as in the canonical models. The only factor in determining the survival of the fixed exchange rate is how painful it is to maintain it. In this context, speculators are king. If they wake up one morning feeling bad about the exchange rate regime, their position taking will force up interest rates and increase the burden of unemployment or losses in the financial sector. This may push the central bank beyond its tolerance level and force a decision to devalue. If speculators wake up feeling good about the regime, interests rates will be low, thereby lowering the costs of unemployment - the regime will survive.

Second generation currency attacks do not depend on the level of reserves ...

Though a simplified version, this is the gist of a second generation model. Policy choices are based explicitly on optimizing behavior, and they are endogenous to expectations. The models can be made much more sophisticated and built in a dynamic context. The exchange rate entries in the cost function can be reinterpreted as unemployment or interest rate costs. Basically, however, a second generation model will be based on a set of policy levers that the government is trying to balance to affect certain macroeconomic variables such as unemployment.

... and optimising governments replace rational speculators

In these models, we do not see an appearance by the level of reserves. Nor do we see the motivation of speculators - they appear with opinions on the survival of the exchange rate, but they do not weigh the profitability of raiding the central bank's foreign exchange reserves. The profit maximization motivation of speculators is not explicit - speculators are a group of ganglia that may fire off or not to affect the outcome. The vision is that speculators are random noise that moves the system from what may be regarded as a good to a bad equilibrium or back. In short, we have dropped the profit maximizing speculators and the mechanical government of the first generation model for the cost minimizing government and arbitrary speculator of the second generation.

IV. Is There a Need for a Third Generation of Currency Crisis Models?

In the wake of the Asian crisis, do we now need a Third Generation of currency attacks?

For a generation to receive a name - e.g. Generation X or the Boomers - it must at least have been born. This is not yet true of the Third Generation models of currency crisis. In his Internet paper, Krugman (1998) argues that the Asia crisis cannot be explained by either the First Generation models because fundamentals - monetary and fiscal policy, current accounts, and growth - were consistent with the fixed exchange rates prior to the crisis or with the Second Generation models because governments were not concerned about unemployment in managing their initial defenses. He argues plausibly and in common with others that the financial crisis was driven by excessive investment pulled in by a low-capital financial system encouraged by implicit government guarantees of deposits. The collapse of the currency is an inevitable product of a systemic financial collapse.

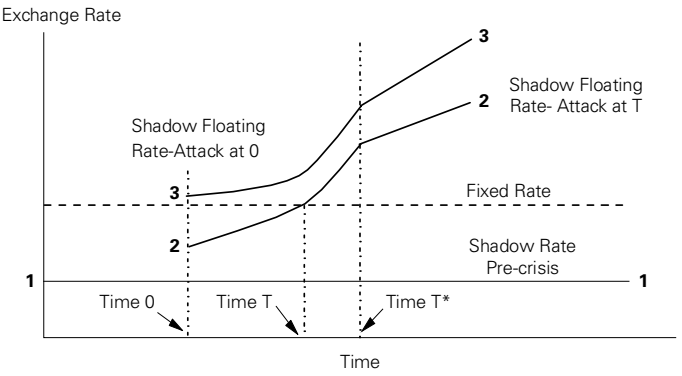
No - First and Second Generation models cope perfectly well

This textbook explanation of the overinvestment and ultimate systemic crisis that can be caused by large numbers of rogue bank players has been explored in many places, such as the 1994 Mexican crisis. With a financial crisis, however, it is easy to explain the currency crisis either in the First or Second Generation context. The government guarantee forces a sudden jump in the national debt from a few percent to perhaps thirty percent of national product. Indeed, the quasi-fiscal debt, hidden in the background of the decaying banks had been growing apace in Asia. If the fiscal capacity of the government cannot easily jump to cover the jump of up to five percent of national product in debt service costs, the resort to money printing can be easily inferred. Using the solution method for a First Generation model, it is easy to produce an immediate speculative attack and collapse of the currency.

The revelation of a major financial sector loss may precipitate an immediate speculative attack

Figure 2 once again depicts curves that indicate the shadow floating exchange under various conditions. Curve 1 represents the shadow floating rate when the financial system is sound and there is no potential for domestic credit creation - it remains permanently below the fixed exchange rate. Suppose now that it is suddenly revealed at time zero that the financial sector's balance sheets are below water to the extent of thirty percent of national product, the amount by which government debt will suddenly jump. To provide part of the servicing for this increased debt, the central bank will begin to increase domestic credit at a constant annual percentage rate starting at time T*, and this is well-known. Curve 2 represents this situation for a relatively low growth rate of domestic credit. The future shift in financing will be discounted to the present, and this is represented by the non-linear section of the curve. The linear section is the

Figure 2: Financial Crises and Speculative Currency Attacks



Source: DBR

The cost of an interest rate defence of a currency can be enormous if the domestic banks are weak ...

standard linear solution from Figure 1 associated with an ongoing domestic credit creation, and this kicks in at time T*. If Curve 2 is the shadow floating exchange rate, the revelation of the financial collapse will not cause an immediate currency crisis - the exchange rate will be attacked only when the prospect of money creation draws nearer at T.

... and a multiple equilibria may thus exist

If the future domestic credit creation requirements are very high, the revelation of the financial crisis will produce a shadow floating exchange rate as drawn in Curve 3. Even though the future financing requirements are discounted, they are large enough that the shadow floating exchange rate jumps immediately above the fixed rate, and the currency collapses simultaneously with the outbreak of the financial crisis.

Similarly, in a Second Generation model, a reluctance to impose costs on a weak banking system through a protracted interest rate defense, will also lead to an immediate devaluation.

We can rest content for now with a struggle between only two generations of currency crisis model. The third generation is as yet only a gleam in the frustrated researcher's eye.

Bibliography

Connolly, Michael B., The Speculative Attack on the Peso and the Real Exchange Rate: Argentina, 1979-81, Journal of International Money and Finance, Vol 5, pp.117-30, March 1986.

——— and Dean Taylor, The Exact Timing of the Collapse of an Exchange Rate Regime and its Impact on the Relative Price of Traded Goods, Journal of Money, Credit and Banking, Vol 16, pp.194-207, May 1984.

Cumby, Robert E. and Sweder van Wijnbergen, Financial Policy and Speculative Runs with A Crawling Peg: Argentina 1979-81, Journal of International Economics, Vol 27, pp.111-27, August 1989.

Flood, Robert and Peter Garber, Collapsing Exchange Rate Regimes: Some Linear Examples, Journal of International Economics, Vol 17, pp.1-13, August 1984a.

——— Gold Monetization and Gold Discipline, Journal of Political Economy 92 (1), pp.90-107, 1984b.

Krugman, Paul, A Model of Balance-of-Payments Crises, Journal of Money Credit and Banking, Vol 11, pp.311-25, August 1979.

——— What Happened to Asia?, Mimeo, January 1998. http://web.mit.edu/krugman/www/disinter.html

Obstfeld, Maurice, The Logic of Currency Crises, Cahiers Economiques et Monetaires, Bank of France, 43, pp.189-213, 1994.

——— International Currency Experience: New Lessons and Lessons Relearned, Brookings Papers on Economic Activity1, pp.119-220, 1995.

Salant, Stephen W and Dale W Henderson, Market Anticipation of Government Policy and the Price of Gold, Journal of Political Economy, Vol 86, pp.627-648, August 1978.

Notes

Main International Offices

London
23 Great Winchester Street
London EC2P 2AX
United Kingdom
Tel: +44 171 545 8000

Frankfurt
Taunusanlage 12
60325 Frankfurt
Germany
Tel: +49 69 9100-0

New York
31 West 52nd Street
New York, NY 10019
United States of America
Tel: + 212 469 7120

Hong Kong
41/F, New World Tower
16-18 Queen's Rd. Central
Hong Kong
Tel: +852 2810 7879

Singapore
6 Shenton Way #15-08
DBS Building Tower 2
Singapore 068809
Tel: +65 224 4677

Tokyo
12-1, Toranomon 3-chome
Minato-ku, Tokyo 105
Japan
Tel: +813 5401 1986

Emerging Markets Research

David Folkerts-Landau
Managing Director, Global Head
133 Houndsditch, London EC3A 7DX, UK
Tel: +44 171 545 9913 Fax: +44 171 545 1860

Peter Garber
Senior Strategist

Stuart Parkinson
Senior Economist

Asia
41/F, New World Tower, 16-18 Queen's Rd. Central, Hong Kong
Tel: +852 2843 0508 Fax: +852 2971 0952

Angus Armstrong
Chief Economist Asia

Michael Spencer
Senior Economist Asia

Lin Shou-Kang
Greater China Economist

Sanjeev Sanyal
South Asia Economist

Emerging Europe, Middle East & Africa
London
133 Houndsditch, London EC3A 7DX, UK
Tel: +44 171 545 9913 Fax: +44 171 545 1860

Marcel Cassard
Chief Economist
Emerging Europe

Laura Papi
Senior Economist

Bart Turtelboom
Senior Economist

Hannah Nixon
Economist

Frankfurt
Grobe Gallusstrabe 10-14, 60311 Frankfurt am Main, Germany
Tel: +49 69 910 31745 Fax: +49 69 910 31805

Jurgen Conrad
Senior Economist

Gerhard Krause
Economist

Hanno Sonntag
Economist

Latin America
31 West 52nd Street, New York, NY 10019, USA
Tel: +212 469 2629 Fax: +212 469 2628

Liliana Rojas-Suarez
Chief Economist
Latin America

Gustavo Canoñero
Economist

Publisher's address:
Deutsche Bank AG London
133 Houndsditch London EC3A 7DX

Internet:
web site: http://www.db-dmg.com
Ask your usual contact for a username and password.

Deutsche Bank Research