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THE CURRENCY AND FINANCIAL CRISIS IN SOUTHEAST ASIA: A CASE OF `SUDDEN DEATH' OR `DEATH FORETOLD'

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CONTENTS

Glossary

ADB	-	Asian Development Bank
ANIEs	-	Asian newly industrialised economies (Hong Kong, Korea, Singapore, Taiwan)
APEC	-	Asia Pacific Economic Cooperation
ASEAN	-	Association of Southeast Asian Nations
ALER	-	Asymptotic Liability-Export Ratio
BIS	-	Bank of International Settlements
bn	-	billion (defined as 1000 million)
BOT	-	Bank of Thailand
DGDP	-	external debt-to-GDP ratio
DX	-	external debt-to-export ratio
ENPV	-	expected net present value
ERM	-	(European) Exchange Rate Mechanism
FDI	-	foreign direct investment
Forex	-	foreign exchange
IMF	-	International Monetary Fund
LAEs	-	Latin American economies (Argentina, Brazil, Mexico)
MIT economies	-	Malaysia, Indonesia, Thailand
mn	-	million
OECD	-	Organisation of Economic Cooperation and Development
REER	-	real effective exchange rates
SEAEs	-	Southeast Asian economies

		(Malaysia, Indonesia, Philippines, Thailand)
TFP	-	total factor productivity
WFO	-	World Financial Organisation
WTO	-	World Trade Organisation

Unless otherwise stated, all dollar currency denominations refer to US dollars.

THE CURRENCY AND FINANCIAL CRISIS IN SOUTHEAST ASIA: A CASE OF 'SUDDEN DEATH' OR 'DEATH FORETOLD'?

ABSTRACT

Almost all existing studies on the causes, consequences and policy implications of the economic and financial crisis faced by East Asia have provided only a cursory discussion of broad data at best, or have fallen into the trap of merely stating the weaknesses in the economies as a 'matter of fact' at worst. Ex-post facto analysis is of little value. In this paper, limiting our focus to the Southeast Asian economies (viz. Indonesia, Malaysia, Thailand and the Philippines), we carefully scrutinise the available economic data in a systematic manner, with a view to determining whether there were possible indications of discernible deterioration in economic 'fundamentals' that might have been indicative of an impending crisis. In other words, we aim to determine whether the crisis was a 'death foretold' (i.e. 'an accident waiting to happen') as most observers seem to assume, or a quick and 'sudden death' as Sachs et al. (1996b) have suggested of the Mexican crisis of 1994-95. We take pains to focus solely on the policies/factors that seemed to have a direct impact on the crisis. To get a sense of proper prospective, we consider both trends in the various indicators of the Southeast Asian economies from 1990 to 1996 (just prior to the onset of the crisis in mid-1997), as well as compare their performance to the Latin American economies of Argentina, Brazil and Mexico. While such inter-regional comparisons and generalisations are conceptually useful, intra-regional differences are highlighted where deemed necessary. After the determination and clarification of the analytical issues, we move on to discuss important lessons for economic policy. Focus is both on policy lessons (at national, regional and international levels) for recovery as well as for reform, so as to reduce the possibility of such a crisis surfacing in the future (or at least to mitigate the adverse fallout if or when it does occur).

What are the prospects for this region?..The growth process is not about to collapse: this notion that, because this is an extensive growth process, it has to end abruptly is just wrong...Countries have to be vigilant to ensure that they do not destroy the process by allowing overheating or otherwise the macroeconomy to get out of hand. But none of the East Asian countries has pursued an excessively easy macroeconomic policy, none has tolerated even double-digit inflation, and most have small government and small budget deficits. So the risk of prolonged slowdown caused by a need for major macroeconomic adjustment is small.

Stanley Fischer (1996), First Deputy Managing Director, IMF

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1. Introduction and Motivation

There has been an impressive growth in the literature on the causes, consequences and policy implications of the economic and financial crisis faced by East Asia. However almost all studies thus far have provided only a cursory discussion of broad data at best, or they fall into the trap of merely stating the weaknesses in the economies as a 'matter of fact' at worst[1]. Largely missing from this ex-post facto analysis so far has been any careful scrutiny of the available economic data in a systematic manner, with a view to determining whether there were possible indications of discernible deterioration in economic 'fundamentals' that might, in turn, have been indicative of an impending crisis.

This is a point of critical importance for two reasons. On the one hand, if available data did provide substantive evidence of a deterioration in fundamentals, then clearly, policy-makers, international and regional economic agencies and informed observers are guilty of having 'fallen asleep at the wheel'. The implications for surveillance are then obvious, with the focus needing to be on effective implementation and co-ordination to prevent a repeat of the oversight.

On the other hand, if the available data fails to reveal any significant deterioration in economic fundamentals, then the problem becomes more complex. In

[1] The recent study by Corsetti, et al. (1998) is a very admirable exception. In an otherwise excellent paper, unfortunately, they too seem at times to succumb to the temptation of drawing conclusions (or using only empirical studies) that are supportive of seemingly preconceived (popular) notions of the problems, rather than an objective examination of the data and all pertinent empirical studies.

particular, there are two possibilities (that are by no means mutually exclusive) which need to be considered.

One, the available data (which are largely macro) may be hopelessly inadequate for purposes of analysing the economic health of a country. If so, there has to be urgent focus on ensuring the availability of and access to more detailed, transparent and timely data (such as, for instance, pre-tax rate of return on physical investment, manner in which savings are channelled, etc.).

Two, following the collapse of the European Exchange Rate Mechanism (ERM) in 1992-93 and the Mexican crisis (and accompanying Tequila effect) in 1994-95, there has been much discussion in the international finance and development literature about so-called 'multiple equilibra' which show how currency runs may be 'self-fulfilling'. While implications of these are taken up later in the paper (section 5.1), it suffices to note here that insofar as these models are applicable to the regional crisis in East Asia, those who argue that the problems in the region were 'obvious' and a 'death foretold' (i.e. 'an accident waiting to happen'), are way off the mark. Rather, the regional economic collapse may be characterised more appropriately as being one of a quick and 'sudden death', as has been argued by Sachs et al. (1996b) to have been the case of the Mexican crisis. Insofar as this is true, the policy implications become far more complex and must be of some concern.

Once these analytical issues have been determined and clarified, one can go on to discuss other important lessons for economic policies, which we do in some detail in this paper. Focus is both on policy lessons for recovery as well as on reform, so as to reduce the possibility of such a crisis surfacing in the future (or at least to mitigate the adverse fallout if/when it does occur).

Before proceeding, it must be emphasised that the popularly termed 'East Asian meltdown' should appropriately be seen as two related but distinct crises. On the one hand, there are the currency instabilities and financial market fragilities plaguing the Southeast Asian economies (henceforth referred to as the SEAEs) of Malaysia, Indonesia and Thailand (so-termed 'MIT' economies) and less so, the

Philippines. On the other are the acute structural problems faced by Korea, the only other Asian OECD member apart from Japan. The Korean economy's difficulties were caused primarily by industrial policies based on highly diversified conglomerates (or chaebols) (see appendix 1 for an elaboration of the distinction between Korea and the SEAEs).

Admittedly, the SEAEs also confronted some similar concerns in terms of weak banking systems with substandard disclosure procedures, structure of external indebtedness (loaded at the short end) and weak conglomerates (primarily in Indonesia). In turn, the problems in Korea were magnified and brought forward by initial speculative attacks on some of the currencies of the SEAEs (mainly due to the 'contagion effect' elaborated upon in section 5.2, as well as exposures as consequent losses incurred by the Korean banks which had lent to firms in the SEAEs). The focus of this paper is principally on the currency and financial crises faced by the SEAEs, though, where relevant, reference has been made to the impact of the crisis on Korea in particular, but also to the other East Asian newly industrialising economies (ANIEs) of Singapore, Taiwan and Hong Kong.

The remainder of the paper is organised as follows. Section 2 discusses the background to the crisis, paying attention to weaknesses that may or may not be evident in the broad macro data. It is important to emphasise that, contrary to popular discussion, the SEAEs, while sharing some broadly similar characteristics, are by no means a homogenous group. We highlight some important country-specific issues in this section. Section 3 provides an overview of the crisis. A preliminary post-mortem of the crisis, as it currently stands, is the focus of section 4. The penultimate section provides a detailed discussion of a number of important lessons for economic policy that may be derived from the crisis. The final section concludes. Three appendices follow. The first of these provides an elaboration of the differences in the problems experienced by the Korean economy and those faced by the SEAEs. The second discusses a possible measure of external creditworthiness. The third provides an illustration of the micro-mechanics of a currency attack.

2. Background to the Crisis

This section provides a background to the Southeast Asia crisis, Undoubtedly, there have been a whole host of policies/factors in place in the SEAEs that are non-conducive to growth, and have been brought to the fore following the crisis. However a number of them (such as trade restrictions, income inequality and type of political regime) have little to do with the crisis per se. We take pains to focus solely on the policies/factors that seemed to have a direct impact on the crisis. To get a sense of proper prospective, we consider both trends in the various indicators of the SEAEs from 1990 to 1996 (just prior to the onset of the crisis in mid-1997) , as well as compare their performance to the Latin American Economies (LAEs) of Argentina, Brazil and Mexico[2]. While such inter-regional comparisons and generalisations are conceptually useful, intra-regional differences are highlighted where deemed necessary.

2.1 Current Account Deficits

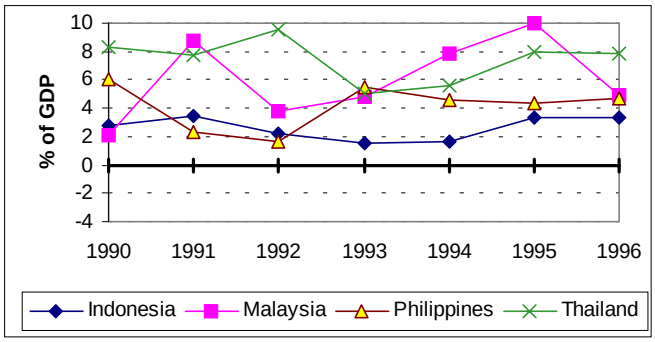
Referring to chart 1, between 1990 and 1996, the immediate problem that seemed to stand out for Malaysia, the Philippines and Thailand, was the fairly large current account deficits that they each ran. The US deputy Treasury Secretary, Lawrence Summers, has reportedly suggested that 'close attention' needs to be paid to current account deficits over 5 percent of GDP (The Economist, December 23, 1995-January, 5, 1996, pp.46-8). The Philippines' current account deficit was the lowest among the three SEAEs, averaging 4.2 percent of GDP. The other two SEAEs were relatively higher, averaging 6.0 percent in Malaysia and 7.5 percent in Thailand, both above the crude 5 percent rule of thumb. Indonesia's current account deficit was 2.6 percent of GDP, comparable to Mexico (2.4 percent) Argentina, while Brazil's was almost half that. More revealing are probably the trends in the current account deficits.

[2] We excluded Chile which by and large was an outlier among the LAEs, being the most economically stable. In some way, this is analogous to Singapore being the most fundamentally sound economy in the Southeast Asian region, and is generally not considered here.

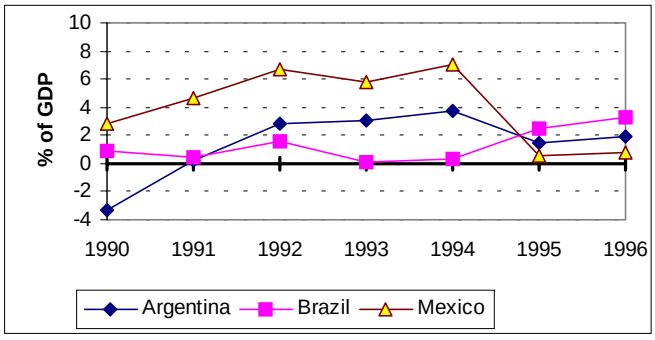
Among the LAEs, Mexico's and to a lesser extent, Argentina's current account deficits have both fallen significantly since peaking in 1994 (this corresponding to the onset of the Mexican financial crisis, with Argentina the most adversely impacted by the Tequila effect). Brazil's current account deficit has however been moving upward since 1993 (and has therefore been of some concern to observers). Among the SEAEs, the Philippines' current account deficit has remained stable at about 4.5 percent of GDP since 1994. Four years of consecutive increases culminated with Malaysia's current account deficit reaching a high of 10 percent in 1995 (beating the previous peak of 8.8 percent in 1992). However, it dropped dramatically by more than half by 1996. On the other hand, in the case of Thailand and Indonesia, their respective current account deficits rose significantly since 1993, jumping up between 1994 and 1995 and staying stable at that higher level in 1996.

Chart 1
Current Account Deficit (% of GDP), 1990-96

A: Southeast Asian Economies



B: Latin American Economies

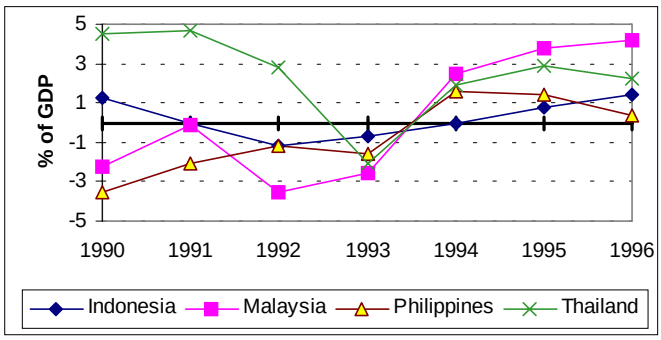


Note: Positive value implies deficit, negative value implies surplus

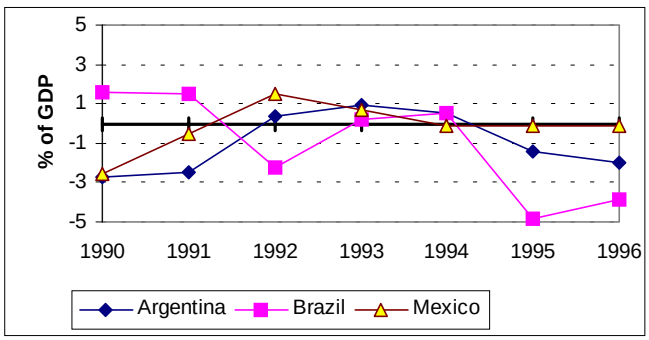
Source: See Table A1

On closer scrutiny though, the current account deficits in Malaysia and Thailand in particular did not seem all that worrisome. This is so, as unlike most developing economies, they were clearly not caused by either fiscal profligacy or low private savings. Both economies had positive fiscal balances (chart 2) and aggregate private savings rates of over 30 percent (chart 3). Indonesia's savings rate too was almost 30 percent. In comparison, the savings rates in the three LAEs as well as the Philippines were each less than 20 percent, and all ran small fiscal deficits. Indeed, in the run-up to the Mexican crisis in 1994, there is evidence that the high current account deficit (over 7 percent in 1994) was primarily due to a fall in savings rates, particularly public savings, as the fiscal stance was relaxed somewhat (chart 2, Burki and Edwards, 1995 and Edwards, 1998).

Chart 2
Fiscal Balance (% of GDP), 1990-96
A: Southeast Asian Economies

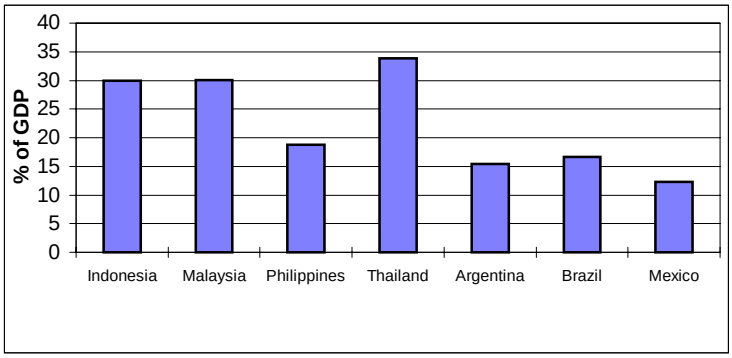


B: Latin American Economies



Source: See Table A1

Chart 3
Saving (% of GDP), Average 1990-96



Source: See Table A1

Given the national income accounting identity (which requires that, by definition, domestic investment equals the excess of the trade balance over national savings), the current account deficits in the Malaysia, Indonesia, Thailand (henceforth referred to as the 'MIT' economies) had to be due to very high rates of domestic investment. This is especially so when one considers the fact that there was a sharp rise in the current account deficits in Malaysia and Thailand in 1995 (and Indonesia also to a lesser extent), this corresponding to a spike in their respective investment-to-GDP ratios (chart 4).

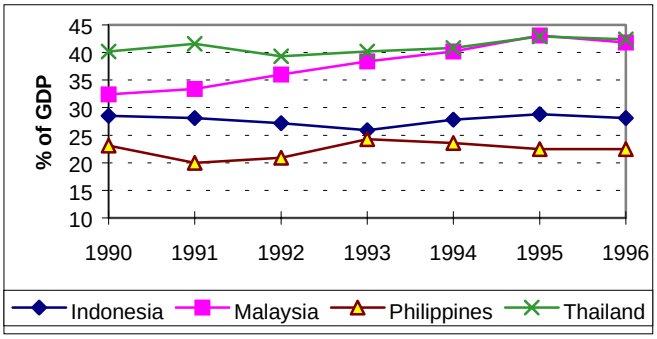
2.2 Investment-to-GDP Ratios

Between 1990 and 1996, the investment-to-GDP ratios in the Thailand, Malaysia and Indonesia on average were 41, 38 and 28 percent respectively. While the Philippines was a laggard with a ratio of 22 percent, this was still slightly higher than the 19 percent average of the LAEs. Officials in Thailand and Malaysia as well as most observers of the region viewed the external deficits as 'benign' or 'solvent', in the sense of being able to generate sufficient external surpluses in the future to payoff existing liabilities. In other words, according to received wisdom, a high investment ratio acts as a signal/commitment towards higher future economic growth, and

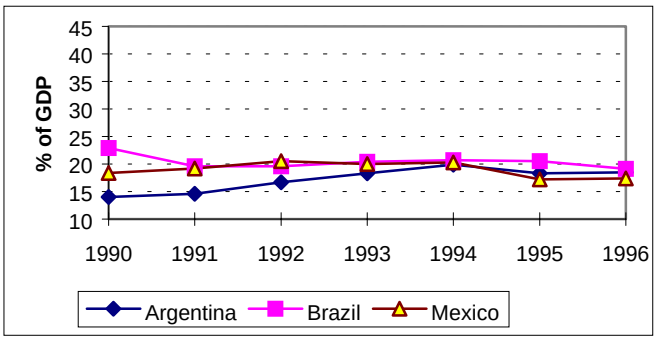
therefore the perceived ability of the debtor nation to service the external debt in the future (i.e. intertemporal solvency was secure)[3].

Chart 4
Investment (% of GDP), 1990-96

A: Southeast Asian Economies



B: Latin American Economies



Source: See Table A1

The Singapore experience was held up as a case in point. Specifically, Singapore had a sustained current account deficit between 1965 and 1985, but as the returns on its high investments started paying off, the virtuous cycle of growth and private savings, accompanied by a large fiscal balance, exceeded the investment share (which remained high but flattened out). This ensured a sustained and rising

[3] Intertemporal solvency requires that the current stock of net foreign liabilities be fully covered by the expected stream of future external surpluses net of interest obligations on accumulated debt. This condition is so weak that it is almost never violated (and therefore of little practical use). More 'structure' may be imposed by requiring satisfaction of the transversality condition. This condition requires that in the steady state, the private plus fiscal primary deficit (i.e. excluding interest payment) – which is approximately the trade deficit - may be run indefinitely as long as the growth rate in real GDP is greater than the real interest rate (see appendix 2).

current account surplus of about 20 percent in recent years[4] (see footnote 10). Empirical validation of the above thesis was provided by Ostry (1997), who concluded that the current account deficit was generally not a manifestation of over-borrowing for consumption, at least not in Thailand[5]. In contrast, when Atish and Ostry (1995) used a similar methodology for the LAEs, it was found that the bulk of domestic absorption of foreign funds prior to the Mexican crisis was tilted towards 'over-consumption' (also see Corbo and Hernandez, 1994 and Milesi-Feretti and Razin, 1996).

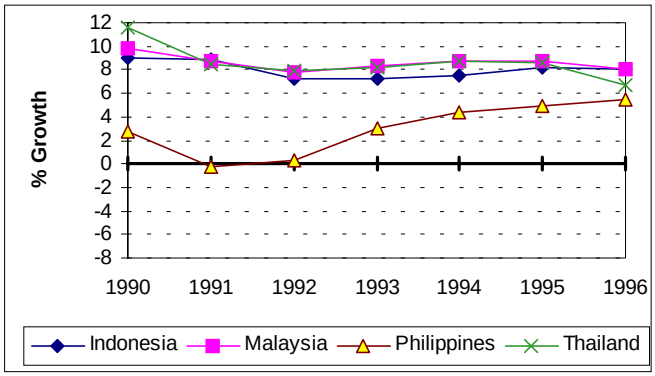
High investment growth contributed to a sustained real GDP growth in the MIT economies between 1990 and 1996 of over 8 percent each (chart 5). Growth in the Philippines averaged 3.0 percent, comparable to those of the LAEs. The supply-side growth of Thailand and Malaysia ensured that inflation was kept in check, averaging 3.9 and 5.2 percent respectively, while the relatively higher consumption-orientation of funds consequently led to relatively higher rates of inflation in Indonesia and the Philippines, but far lower than those of the inflation-prone LAEs (table A1).

[4] More specifically, Singapore's trade account is still in deficit, but this is more than offset by a huge surplus in trade in services, reflecting the economy's comparative advantage in that area.

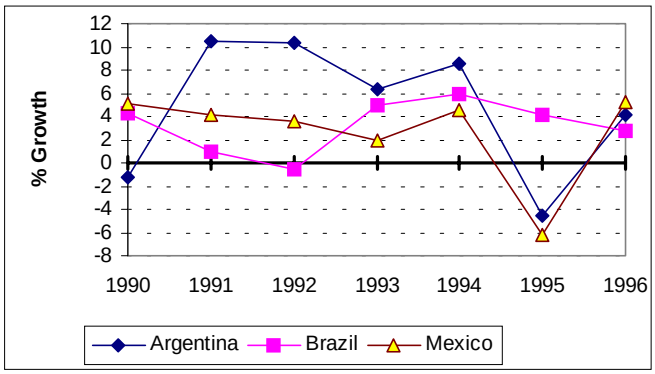
[5] The methodology utilised by Ostry (1997) is the concept of optimal consumption-smoothing current account, i.e. current account imbalances in an intertemporally solvent economy reflect divergences of national output and its components from their 'permanent' levels. It is based on the assumption of utility maximisation subject to a lifetime resource constraint with open capital markets (i.e. the Fisher separation theorem between investment and savings holds) (see Milesi-Feretti and Razin, 1996 for a lucid discussion). Under these and other simplifications, the important result derived is that current account deficits reflect expected output growth in the future.

Chart 5
GDP Growth Rates (%),1990-96

A: Southeast Asian Economies



B: Latin American Economies



Source: See Table A1

2.3 Investment Allocations

Concern had been voiced that the deployment of capital recently by the four SEAEs were in unproductive government-led or government-approved projects with low potential for output and particularly *export* growth. Given the dependence on external financing of investments, the specific focus on export growth is important in order to generate sufficient foreign exchange (forex) revenues to be able to service external debt with minimal disruption to economic activity in case of an unanticipated cessation of capital inflows - due to, for instance, an expectations-driven liquidity crisis. (see appendix 2). - The expected rates of return from these investments were said to be considerably less than the actual (or at least the opportunity) costs incurred, i.e. negative (or at most abnormally low) expected net present values. Impressionistic evidence cited included:

a) Indonesia's forays into the high-tech and capital intensive areas, such as the national car ('Timor'), and general funding of other projects that lacked economic viability, but were pet projects of 'well-placed' individuals;

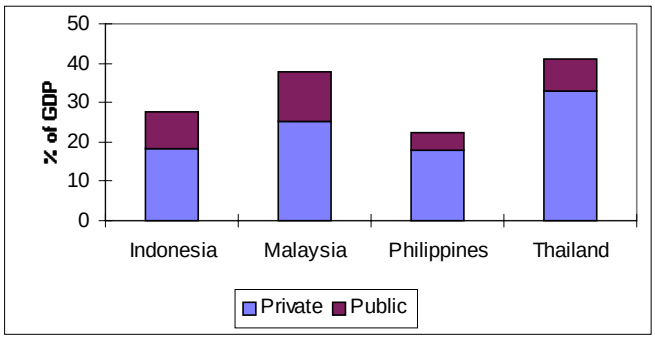
b) a number of grandiose infrastructural projects in Malaysia, including a major (Bakun) dam, and the tallest buildings in the world in the eighty eight floor twin Petronas Towers ; and

c) Thailand, with it's half-completed major highways and other major urban development activities documented in Rimmer (1995).

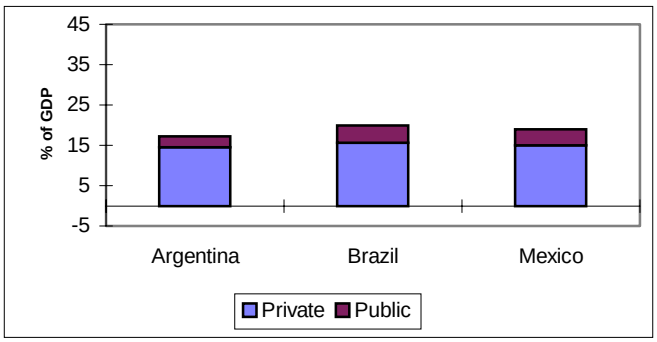
Over the period 1990-96, the public-private investment mix in Indonesia and Malaysia were each about 1 to 2 (chart 6). In Indonesia, the private investment-to-GDP ratio between 1990 and 1996 averaged 18.2 percent and the public investment-to-GDP ratio was 9.6 percent. The corresponding figures were 25.1 and 12.8 percent in Malaysia. While private investment as a share of GDP in Thailand averaged 33.1 percent, public investment-to-GDP ratio averaged only 8.0 percent.

Chart 6
Private and Public Investment Breakdown (% of GDP), Average 1990-96

A: Southeast Asian Economies



B: Latin American Economies

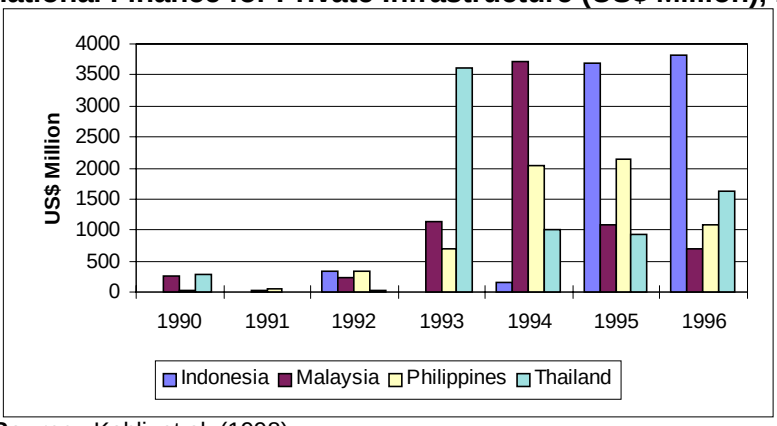


Source: See Table A1

Chart 7 shows the annual international finance for private infrastructure projects in the SEAEs, most of the expenditure being on telecommunications and power generation (Kohli, et al., 1998).

Chart 7

International Finance for Private Infrastructure (US$ Million), 1990-96



Source: Kohli, et al. (1998)

International claims to the public sector were negligible compared to those at the bank and non-bank private sectors in 1995 and 1996 (table 1). As such, insofar as the data can be taken at face value, the suggestion that *public sector* 'white elephants' were the primary cause of the current account deficit, seems inconsistent with available macro data for at least Thailand in particular, but also Malaysia and Indonesia. The Philippines' aggregate investment and public-private mix was broadly similar to the LAEs' (with the private sector being about four times as large as the public sector).

Table 1

International Claims Held by Foreign Banks, End 1995-End 1997
($ billion)

Country	Total Outstanding[a]	Obligations by Sector			Short-term Debt (ST)
		Banks	Public Sector	Nonbank Private	
End 1995					
Indonesia	44.5	8.9	6.7	28.8	27.6
Malaysia	16.8	4.4	2.1	10.1	7.9
Philippines	8.3	2.2	2.7	3.4	4.1
Thailand	62.8	25.8	2.3	34.7	43.6
Korea	77.5	50.0	6.2	21.4	54.3
Total	**209.9**	**90.3**	**20.0**	**98.4**	**137.5**
End 1996					
Indonesia	55.5	11.7	6.9	36.8	34.2
Malaysia	22.2	6.5	2.0	13.7	11.2
Philippines	13.3	5.2	2.7	5.3	7.7
Thailand	70.2	25.9	2.3	41.9	45.7
Korea	100.0	65.9	5.7	28.3	67.5
Total	**261.2**	**115.2**	**19.6**	**126.0**	**166.3**
End 1997					
Indonesia	58.7	12.4	6.5	39.7	34.7
Malaysia	28.8	10.5	1.9	16.5	16.3
Philippines	14.1	5.5	1.9	6.8	8.3
Thailand	69.4	26.1	2.0	41.3	45.6
Korea	103.4	67.3	4.4	31.7	70.2
Total	**274.4**	**121.8**	**16.7**	**136.0**	**175.1**

Note: a) Rounding-off error
Source: Radelet and Sachs (1998b)

Given that the bulk of the investments in the countries have been undertaken by the private sector, in the absence of gross domestic price or other microeconomic distortions, one would expect that the investments were, for the most part, optimally channelled (i.e. potentially growth enhancing) (see however discussion in section 2.3.1). This is in fact the motivation behind the 'Lawson doctrine' (named after then UK Chancellor of the Exchequer, Nigel Lawson). According to this notion, a current account deficit is not viewed as precarious so long as it is primarily due to the private sector (or, in other words, as long as fiscal profligacy is not the reason for the current

account deficit) (Corden, 1994, chapter 6)[6]. Insofar as the Lawson doctrine is accepted, the current account deficits run by the LAEs (Thailand particularly) ought not to have been any cause for concern. Indeed, the high export and moderate total factor productivity (TFP) growth enjoyed by some of these economies (chart 8) seems to attest to this point (Ostry, 1997 and Sarel, 1995, 1997)[7,8].

[6] By making a clear distinction between public and private spending, the Lawson doctrine assumes that Ricardian Equivalence does not hold (Reisen, 1998).

[7] This may be an appropriate point to note that, prior to the crisis, Young (1994, 1995), utilising conventional empirical growth accounting studies, found the fast-growing East Asian economies to have experienced low-to-nil total TFP growth over the last two to three decades. Drawing primarily on this study, Paul Krugman (1994), in a very publicised and somewhat controversial paper, suggested that their growth was bound to taper down in the not-too-distant future. Four points are of significance. First, the sources of growth in East Asia - Singapore in particular - remain open to debate, with Hsieh (1997), Sarel (1995, 1997) and Nelson and Pack (1996), Felipe (1988), Felipe and Comb (1998), suggesting that the Young studies are respectively empirically and conceptually flawed for various reasons. Second, by his own admission, Krugman's critique pertains to growth performance in the medium and longer-terms, not an abrupt halt. Third, no mention was made by Krugman-Young of potential weaknesses in the banking and financial sector, their focus being on the `real side' (though there are obviously some interconnections between the real and financial sectors). Fourth, according to Krugman's critique, Singapore's economy was potentially most at risk of a growth slow-down (complete halt?), he comparing it to the Stalinist-led growth in the former Soviet Union (i.e. growth-without-efficiency). In fact, the Singapore economy has been the least affected in Southeast Asia (both in terms of currency devaluation and projected short-term projected growth). This notwithstanding, as noted, to the extent that Krugman's view was well-publicised in the popular media, it may plausibly have added to the perception that the (cyclical) slow-down in regional export growth in 1996-97 was structural in nature. This may have in turn contributed to the re-evaluation of the sustainability of current account imbalances in the Thailand and other regional economies (see appendix 2 for an elaboration of the importance of creditor-perception to the willingness to continue to lend/rollover existing debts).

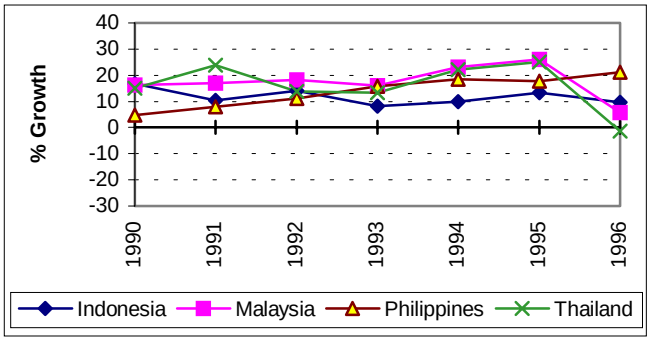
[8] As is the case more often than not, broad generalisations of the SEAEs gloss over some important country differences. In this light, the survey of some of the TFP literature on East Asian economies since 1960 by Quek and Lee (1997) is useful. Broadly, their reading of the various empirical studies suggest:

a) the Philippines has seen a declining trend in TFP growth performance (starting at an initially high base);
b) Singapore's TFP growth has enjoyed a spurt since the mid 1980s (after its last recession in 1985-86);
c) no definite conclusion can be drawn with regard to the MIT economies, some studies suggesting an improvement in TFP growth over time, others suggesting otherwise. The important point here is that the growth literature per se would ex-ante (i.e. prior to he crisis) not have provided sufficient (if any) evidence about gross resource mis-allocation. This is particularly so, given the recent scathing criticisms of growth accounting studies as a useful measure of aggregate technological relationships between output and inputs by Felipe (1998) and Felipe and McCombie (1998) (though nothing should be taken away from the contributions by Young and other careful empirical growth accounting studies).

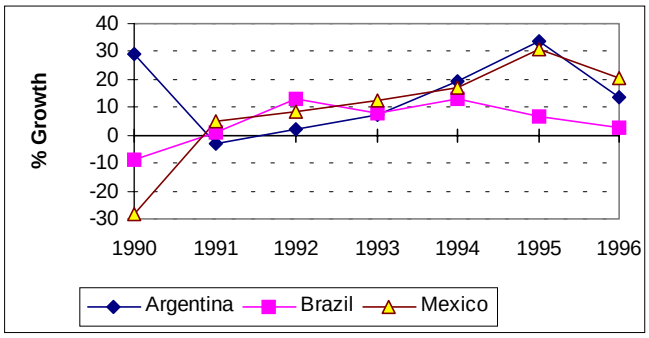
This apart, changes in incremental capital-output ratios (ICORs) are also of limited use in drawing conclusions about resource allocations, as they could merely reflect changing comparative advantages of countries, rather than technological progressions/regression.

Chart 8
Export Growth Rates (%) 1990-96

A: Southeast Asian Economies



B: Latin American Economies



Source: See Table A1

2.3.1 Sources of Microeconomic Distortions and Other Weaknesses

While the macroeconomic data seems 'benign', three critical caveats however bear keeping in mind. First, as noted by Kohli, et al. (1998), major infrastructural projects in SEAEs were not based on competitive bidding. In fact many projects were "procured through direct solicitation or in response to private sector proposals." Thus private monopolies were encouraged and operations lacked transparency. While this preference for non-competitive bidding was justified in the terms of 'saving time' and 'minimising transactions costs', they also left open the possibility of - what has been popularly termed - 'crony capitalism'[9].

Second, despite being private sector projects, most major ones were given implicit (and sometimes explicit) guarantees of all kinds, including exchange rate stability, market share, rate of return, and the like. To the extent that this acted as an

[9] This problem had become particularly pervasive in Indonesia, where former president Suharto's family invariably had a stake in almost every major project being undertaken in the country (Komatsu, 1998).

'insurance' to the investors, there was probably the typical moral hazard problem in operation. Specifically, economic decision-making was in all likelihood distorted in the direction of 'over-investment', with scant attention being paid to potential project riskiness (and therefore risk management strategies).

Third, given these contingent liabilities of the governments, their fiscal positions were not nearly as sound as the data would explicitly suggest. This is particularly so once other off-budget items and contingent liabilities are included (see Asher and Heij, 1998 in general and Komatsu, 1998 in the case of Indonesia).

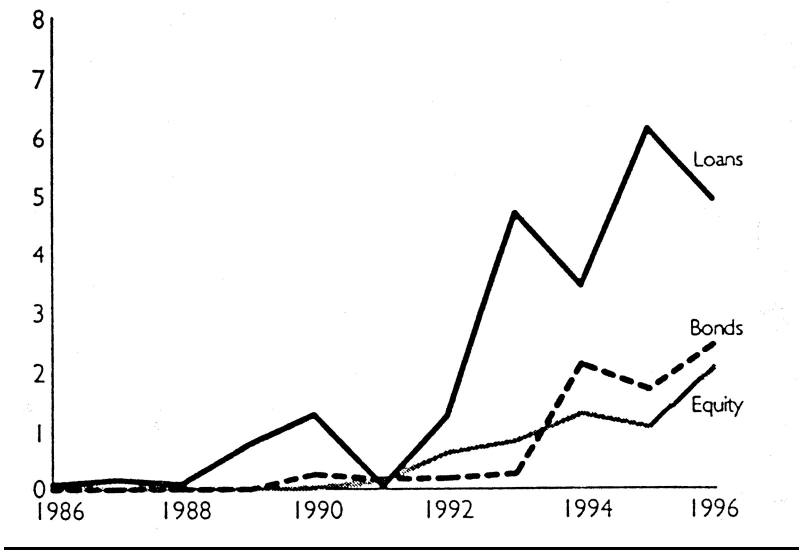
Fourth, no matter how *potentially* productive the investments might be, insofar as the benefits are accrued way in the future (given the time lags involved in major infrastructural projects), dependence on external financing, particularly that which is short-term in nature, could pose significant potential risks. This is so, as the countries could find the external source of financing to be abruptly cut-off, with projects left uncompleted and firms/governments indebted, unable to generate revenue streams to pay off the liabilities incurred[10].

2.4 External Indebtedness

Kohli, et al. (1998) have documented how the bulk of financing of private infrastructural projects has been through foreign rather than domestic sources, and from syndicated loans, rather then through bond or equity financing (chart 9). This is in sharp contrast to the LAEs, where a substantial share of the flows has come through privatisation of state-owned assets. The dependence on external financing by the SEAEs is especially peculiar, given the high private savings rates in these economies (though Malaysia was moving towards greater domestic project financing). Immature capital markets and risk aversion of domestic savers have been offered as rationale.

[10] This was the big difference between Singapore's consistent current account deficit in the 1970s and early 1980s, i.e. global capital mobility during that period was much more limited and financing largely took the form of longer-term flows, foreign direct investment (FDI) in particular.

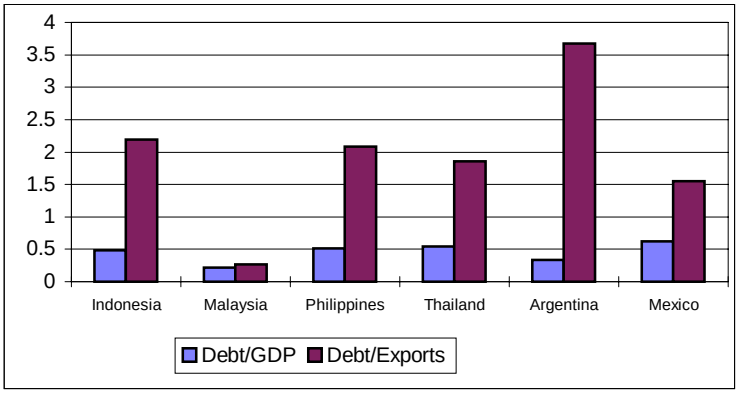
Chart 9
Sources of Financing of Private Infrastructure Projects in East Asia (US$ Million), 1986-96



Source: Kohli, et al. (1988)

The oft-cited World Bank bench-mark external debt-to-GDP (DGDP) and debt-to-exports (DX) ratios are 0.8 and 2.2 respectively. More conservative/demanding 'rules of thumb' are 0.5 and 2.0 respectively (Cohen, 1997). As of 1996, the DGDP ratio in Indonesia, the Philippines and Thailand stood at about 0.5. The figures for Malaysia, Argentina and Brazil were relatively lower at 0.2-0.3, while Mexico's ratio saw a sharp increase in 1995 (to 0.7) and remained high at about 0.6 in 1996. Malaysia's DX ratio as at end 1996 was slightly less than 0.3 (chart 10). While Thailand's was relatively higher at about 1.9, it was still lower than even the more conservative rule of thumb. and comparable to the Mexican ratio of 1.6. The ratios for Indonesia and the Philippines were 2.2 and 2.1 respectively, acceptable based on the World Bank bench-marks, and far lower than that of Argentina, which was 3.7.

Chart 10
External Debt-to-GDP and External Debt-to-Export Ratios, 1996

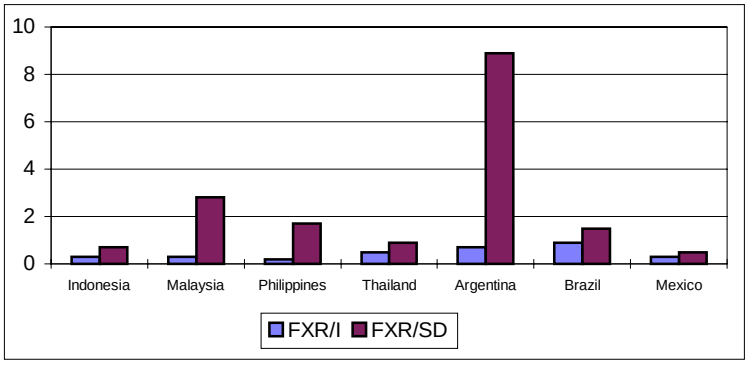


Note: Data unavailable for Brazil.

Source: See Table A1

Another potentially useful indicator is the forex reserves-to-short term debt ratio (chart 11). Argentina and Malaysia have maintained relatively high ratios, and those of the Philippines and Brazil were moderate in terms of being above 1 (1.7 and 1.5 respectively) as of 1996. Of concern might have been Indonesia, with a ratio of 0.7 and Thailand with a ratio of 0.9. However both these nations did not look as unfavourable when compared to Mexico (0.5).

Chart 11
Forex Reserves-to-Import and Forex Reserves-to-Short Term Debt Ratios, 1996



Source: See Table A1

2.5 Exchange Rate Policies

All the SEAEs pegged their exchange rates to particular trade-weighted basket of currencies. While the weights are undisclosed, it is generally acknowledged that the US$ had the highest weight. The significant appreciation of the Japanese yen vis-à-vis the $ following the Plaza Accord in 1985, meant that all the SEAEs weakened relative to the yen. Both the exchange rate level as well as its stability (table 2) acted as catalysts for a wave of Japanese FDI to relocate operations to the region. This export-oriented FDI in turn was the reason behind the surge in exports enjoyed by the SEAEs, with the US being the major export market (Goldberg and Klein, 1997 and Kawai, 1997). The high import content of most FDI from Japan and intermediate capital imports needed for the infrastructural projects kept import growth volumes high, and consequently the trade deficit in imbalance. The high import content ensured that the real exchange rates (REERs) of the SEAEs maintained a slightly downward trends between 1993 to 1995, despite robust regional economic growth (chart 12)[11].

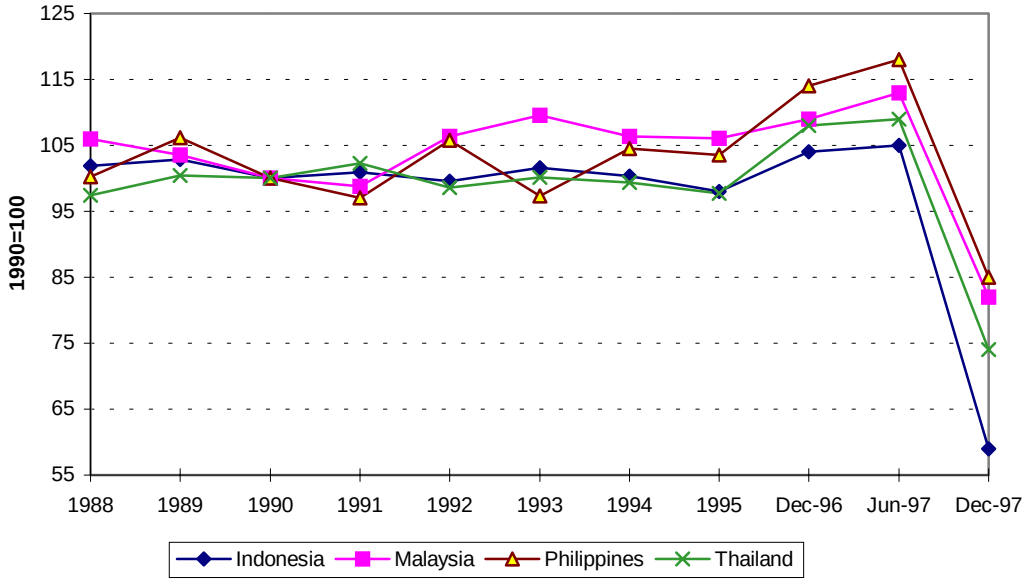
[11] To be sure, the REER is an index of the ratio of the price of nontradables and the domestic price of tradables in the country. Assume the focus country is Thailand. Then Thailand's REER is usually proxied by [Thailand's price index] divided by [nominal effective exchange rate (e.g. Thai baht per trade weighted basket of foreign currencies) multiplied by the ratio of a trade weighted basket of foreign price indices]. This is so, as the domestic price index coincides with the domestic price of nontradables, while the weighted average of foreign price indices multiplied by the nominal effective exchange rate corresponds to the price of tradables. Note that a REER appreciation per se is not undesirable if it is a reflection of a secular trend in the 'equilibrium' level. This may be due to, for instance, differing rates of technological change between the tradables and nontradables sector (the so-called 'Balassa-Samuleson' theorem) or differing growth rates and income elasticities of exports and imports (Neuhas, et al., 1998 and Krugman, 1990). The problem occurs when the cause of the appreciation is only transitory and sudden, and will reverse itself in the future.

Table 2
Annual (%) Changes in Bilateral Nominal Exchange Rates (Relative to US$), 1990-1996[a]

Country	1989	1990	1991	1992	1993	1994	1995	1996	Simple Ave.	Std. dev.[b]	1988 Value
Indonesia	5.0	4.1	5.8	4.1	2.8	3.5	4.1	4.4	4.4	0.9	
Malaysia	3.4	-0.1	1.7	-7.4	1.0	2.0	-4.6	0.5	-0.4	3.7	685.7
Philippines	3.0	11.8	13.0	-7.2	6.3	-2.6	-2.7	2.0	3.0	7.7	2.6
Thailand	1.6	-0.5	-0.3	-0.5	-0.3	-0.7	-0.9	1.6	0.0	1.0	21.1
Korea	-8.2	5.4	3.6	6.4	2.8	0.1	-4.0	4.3	1.4	5.1	25.3
											707.8

Notes: a) Local currency per $ (period average). Positive sign implies depreciation of local currency and vice versa
b) standard deviation
Sources: Computed by author from IMF, International Financial Statistics, various years

Chart 12
Real Effective Exchange Rates, 1988-December 1997[a]



Notes: a)Measured against a broad currency basket of 22 OECD currencies and 23 developing economy currencies. Weights are derived from 1990 bilateral trade patterns of the corresponding countries. A rise implies a fall in competitiveness (appreciation) and vice versa
b) Approximations
Sources: Compiled by author from World Bank, Global Development Finance 1998 and World Debt Tables (various years)

2.6 Foreign Capital Flows and Intermediation

Between 1989 and 1995, net capital inflows in Thailand and Malaysia were 10.2 and 8.8 percent of their respective GDPs (table 3 and chart 22). The figures for Indonesia and the Philippines were more modest at 4.2 and 2.7. According to World

Bank (1996) data, between 1990 and 1995, on a cumulative basis, the MIT economies and Mexico were among the top twelve countries in terms of net private capital inflows. The three SEAEs, together with China and Korea accounted for about half of the nearly $4.9bn loan syndications by commercial banks in 1994-95. Consequently, there was a rapid rise in credit to the private sector in all the SEAEs during that period (table 4).

Table 3
Private Capital Flows, 1989-95[a]
(% of GDP)

Country	1989-95[c]	1991	1992	1993	1994	1995
Indonesia:						
Net private capital flows	4.2	4.6	2.5	3.1	3.9	6.2
Net direct investment	1.3	1.2	1.2	1.2	1.4	2.3
Net portfolio investment	0.4	0.0	0.0	1.1	0.6	0.7
Other net investment	2.6	3.5	1.4	0.7	1.9	3.1
Net official flows	0.8	1.1	1.1	0.9	0.1	-0.2
Change in reserves[b]	-1.4	-2.4	-3.0	-1.3	0.4	-0.7
Malaysia:						
Net private capital flows	8.8	11.2	15.1	17.4	1.5	8.8
Net direct investment	6.5	8.3	8.9	7.8	5.7	4.8
Net portfolio investment	0.0	0.0	0.0	0.0	0.0	0.0
Other net investment	2.3	2.9	6.2	9.7	-4.2	4.1
Net official flows	0.0	0.4	-0.1	-0.6	0.2	-0.1
Change in reserves[b]	-4.7	-2.6	-11.3	-17.7	4.3	2.0
Philippines:						
Net private capital flows	2.7	1.6	2.0	2.6	5.0	4.6
Net direct investment	1.6	2.0	1.3	1.6	2.0	1.8
Net portfolio investment	0.2	0.3	0.1	-0.1	0.4	0.3
Other net investment	0.9	0.2	0.6	1.1	2.5	2.4
Net official flows	2.0	3.3	1.9	2.3	0.8	1.4
Change in reserves[b]	-1.1	-2.3	-1.5	-1.1	-1.9	-0.9
Thailand:						
Net private capital flows	10.2	10.7	8.7	8.4	8.6	12.7
Net direct investment	1.5	1.5	1.4	1.1	0.7	0.7
Net portfolio investment	1.3	0.0	0.5	3.2	0.9	1.9
Other net investment	7.4	9.2	6.8	4.1	7.0	10.0
Net official flows	0.0	1.1	0.1	0.2	0.1	0.7
Change in reserves[b]	-4.1	-4.3	-2.8	-3.2	-3.0	-4.4

Notes: a) Data for 1996-97 in table 7
b) - denotes a rise and vice versa
c) Annual average
Source: IMF (1997b)

Table 4
Money and Credit, 1992-96
(%)

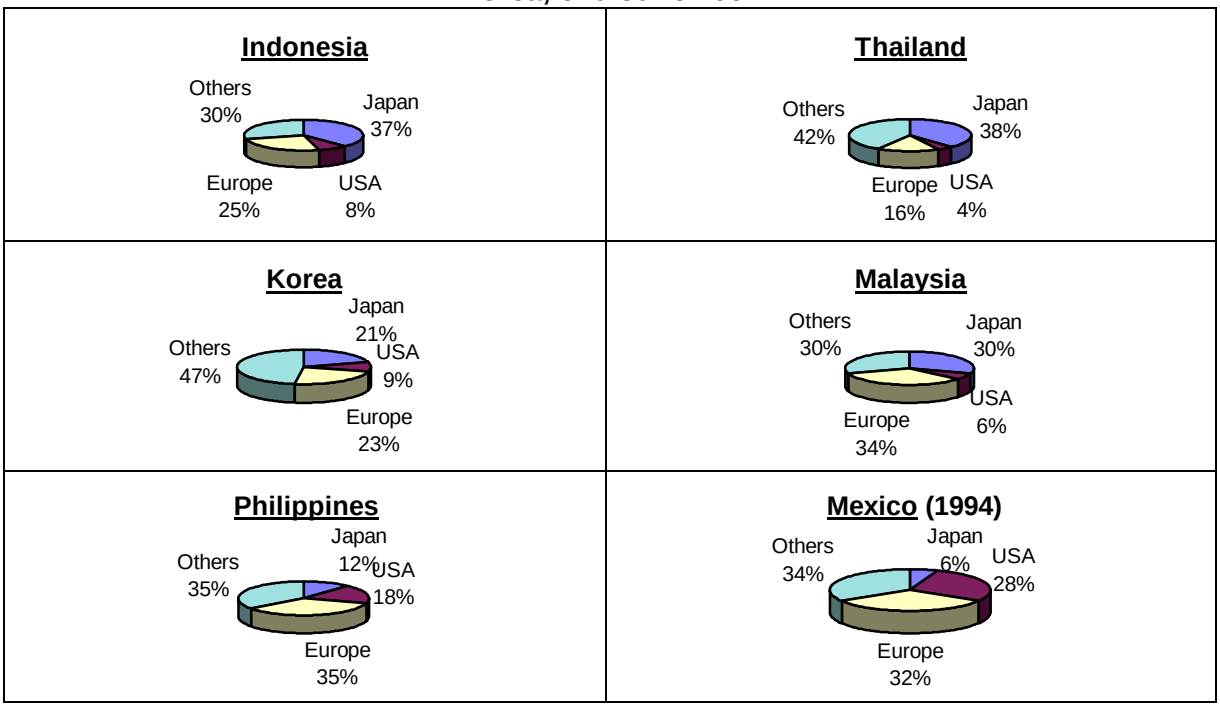
Country	*1992*	*1993*	*1994*	*1995*	*1996*
Indonesia					
PSC/GDP[a]	*49.5*	*48.9*	*51.9*	*53.7*	*55.8*
PSC growth[a,b]	*11.4*	*25.5*	*23.0*	*22.6*	*21.4*
M2/GDP	*45.8*	*43.4*	*44.9*	*48.3*	*52.5*
M2 growth[b]	*19.8*	*20.2*	*20.0*	*27.2*	*27.2*
M2/Reserves	*5.6*	*6.1*	*6.6*	*7.1*	*6.5*
Malaysia					
PSC/GDP[a]	*111.4*	*113.3*	*15.0*	*129.6*	*144.6*
PSC growth[a,b]	*n.a.*	*12.1*	*16.5*	*29.7*	*28.9*
M2/GDP	*78.9*	*90.6*	*88.9*	*92.7*	*97.8*
M2 growth[b]	*29.2*	*26.6*	*12.7*	*20.0*	*21.8*
M2/Reserves	*2.6*	*2.1*	*2.5*	*3.3*	*3.3*
Philippines					
PSC/GDP[a]	*20.6*	*26.4*	*29.1*	*37.5*	*48.6*
PSC growth[a,b]	*25.4*	*39.6*	*26.5*	*45.2*	*48.7*
M2/GDP	*36.2*	*42.1*	*45.7*	*50.4*	*54.0*
M2 growth[b]	*13.6*	*27.1*	*24.4*	*24.2*	*23.2*
M2/Reserves	*4.4*	*4.9*	*4.9*	*5.9*	*4.5*
Thailand					
PSC/GDP[a]	*98.4*	*10.8*	*28.1*	*142.0*	*141.9*
PSC growth[a,b]	*24.8*	*26.3*	*31.2*	*26.0*	*13.7*
M2/GDP	*74.8*	*78.9*	*78.5*	*80.8*	*79.9*
M2 growth[b]	*15.6*	*18.4*	*12.9*	*17.0*	*12.6*
M2/Reserves	*4.1*	*4.1*	*3.8*	*3.7*	*3.9*

Notes: *a) PSC - private sector claims*
b) Growth refers to annual average
Sources: Compiled by author from Corsetti, et al. (1998) and Radelet and Sachs (1998a)

Low interest rates in Japan in the past few years (given the sluggish domestic economy), encouraged what has been referred to as ‘carry trade’, i.e. borrowing in Japan at low interest rates and lending to the SEAEs, which offered higher rates (see footnotes 13 and 14). Chart 14 reveals that Japanese banks have been involved in the majority of lending to the region, accounting for over 30 percent of external lending to the MIT economies. Consistently robust growth over the two decades, relative invulnerability to the Tequila crisis, and a general sense of self-congratulation and triumphalism in the region (both by the policy-makers and a spate of books

extolling the coming 'East Asian/Asia Pacific Century') - by raising the expected ex-ante returns - were further causes for the boom of capital inflows.

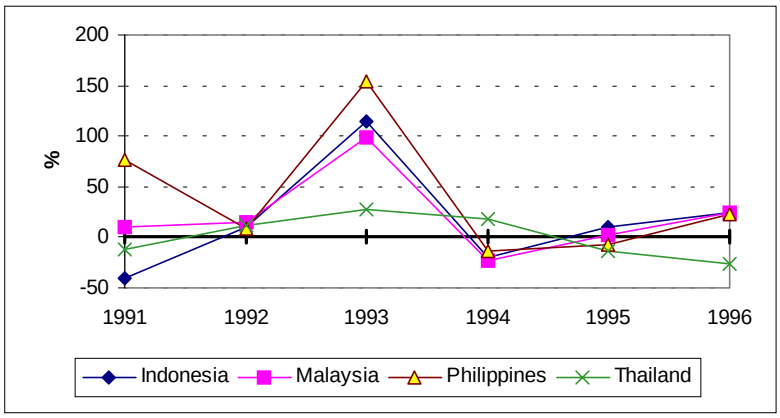
Chart 13
Nationality of Banks Providing Loans to the Southeast Asian Economies and Korea, end June 1997



Note: Europe refers to France, Germany and United Kingdom
Source: Calculated by author from Goldstein and Hawkins (1998a)

The appreciation of the $ relative to the Japanese yen and with it, the regional currencies as well, further galvanised this inflow. Of the credit intermediated through the banking system, it is reported that about 30 percent of outstanding bank loans in the Indonesia, Malaysia and Thailand were channelled into the property market (JP Morgan, 1998, p.5). This in turn led to asset price inflation in 1992 and 1993 and again in 1996, for all economies save Thailand (chart 14).

Chart 14
Annual Change in Stock Market Price Indices (%)

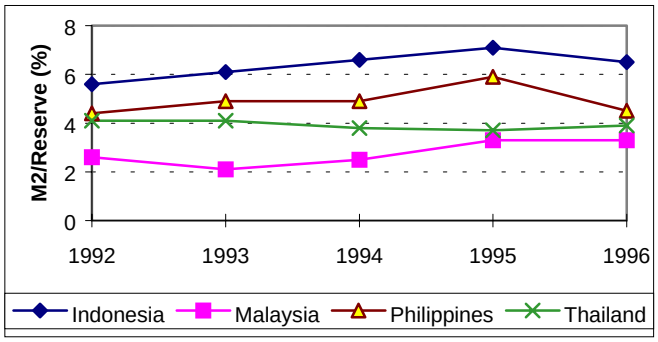


Source: Corsetti, et al. (1998)

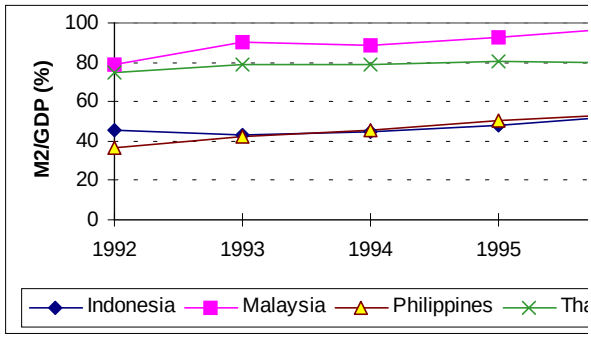
A high and growing M2-to-foreign reserves ratio - which captures the extent to which liabilities of the banking system are backed by international reserves - is among the leading indicators of a currency crisis (Kaminsky and Reinhart, 1996). This ratio increased sharply in the case of all the SEAEs except Thailand (chart 15).

Chart 15
Money and Credit (%), 1992-96

A: M2-to-Reserve Ratio



B: M2-to-GDP Ratio



Source: See Table 4

A closer examination of the breakdown of capital flows to the individual SEAEs would have revealed some potential sources of concern for Thailand in particular.

2.7 Thailand

Portfolio investment (as a share of GDP) was negligible in all the SEAEs, except Thailand, in which the ratio was 1.3 percent between 1989 and 1995. Thailand's net direct investment flow-to-GDP ratio was also a paltry 1.5 percent. This had to mean that the much of the investments were financed through borrowing (7.4 percent of GDP) (table 3). Of even greater concern was the fact that short-term borrowing predominated (tables 1 and A1). This reliance on short-term debt to finance investments, and the resultant maturity mismatch with longer-term investment projects, has been a major issue of concern in Thailand, and was due to a variety of factors[12].

The $ was said to have constituted 80 to 90 percent of the currency basket system used in determining the level of the baht (IMF, 1997a and Yanagihara and Sambommatsu, 1996, pp.25). Hence the bilateral baht/$ nominal exchange rate had been extremely stable since 1989 (table 2). The stability of this bilateral exchange rate as well as the interest rate premium offered by Thailand - 400 basis points above comparable US rates - provided the impetus for Thai firms to borrow overseas without much concern for corporate risk management issues. In particular, most of the external borrowing was left fully exposed to forex fluctuations (i.e. unhedged), given the expectation of the maintenance of the peg of the baht to the $.

Unlike the other SEAEs (and like Korea), a large portion of the debt obligations was incurred by the banking sector (table 1). This borrowing in turn was fuelled by a rather hasty attempt by the Thai authorities at liberalising the financial sector and

[12] A part of the short-term borrowing in the Thai data was actually FDI and intra-banking transfers (Ostry, 1997, p.19). This is also readily apparent from source country data reports of FDI undertaken in Thailand. Further, Thailand's robust export growth was undoubtedly due in large part to these export-oriented FDI. The issue of lack of transparency of data in the SEAEs is critically important and discussed further in section 5.11.

relaxation of capital controls without corresponding improvements in supervisory arrangements. The preceding was epitomised by the establishment of the Bangkok International Banking Facility (BIBF) in early 1993. Banks under the BIBF were authorised to accept deposits and loans from abroad in foreign currency and extend loans to both overseas and local markets, as well as engage in cross-currency forex change trading and loan syndication (Asian Monetary Monitor, July-August, 1994, pp.24-6 and Chaiyasoot, 1995, p.172). On their part, Japanese financial institutions in particular were obviously keen on lending at the higher interest rates offered in Thailand[13].

The observed interest rate spread in Thailand in particular (as well as the other SEAEs generally) were sustained due to sterilisation of capital inflows[14]. This led to a doubling of forex reserves between early 1992 to early 1996, while keeping broad money growth (M2) relatively moderate in comparison to the other SEAEs. This explains the relatively low M2-to-international reserves ratio in Thailand despite higher capital inflows (chart 15) as well as the moderate forex reserves-to-short term debt ratio (chart 11), despite the higher short-term external debt liabilities. Unlike the other SEAEs, Thailand's external debt-to-export ratio in particular, but also the external debt-to-GDP ratio were not on declining trends (table A1 and chart 10). External debt

[13] The reasons for the relatively high (and sustained) interest rate premium offered in an economy that has undertaken financial deregulation (even after accounting for potential default and devaluation risk premia), remains a relatively under-researched area. Fischer (1993) suggests a number of microeconomic imperfections, such as oligopolistic structures of the finance industries and excessive interlocking ownership between finance, industrial and commercial firms as rationale. The premium is sustained due to sterilisation of capital inflows undertaken by the monetary authorities (see next footnote).

[14] Sterilisation of inflows of funds is aimed at precluding nominal appreciation by keeping the domestic money supply in check. However, even abstracting from the fact that the effectiveness of sterilisation per se is based on the assumptions of imperfect substitutability between domestic and foreign bonds (so-called 'portfolio balance channel') and Ricardian Equivalence not holding - these assumptions largely being valid in the case of developing countries - it is still only a short-term/temporary option. This is so for two main reasons. First, sterilisation leads to a hike in domestic interest rates, which in turn perpetuates portfolio capital inflows into the country. Second, the monetary authority will be faced with mounting losses (quasi fiscal costs), as it is in essence accumulating forex reserves which provide a lower return than that on the domestic debt issued. Conversely, allowing for a nominal exchange rate appreciation helps to control inflationary pressures. See Calvo, et al. (1995) and Schadler, et al. (1993) for general issues and Glick and Moreno (1994) for a discussion on capital flows and monetary policy in the specific context of East Asia.

repayments due in 1997 were 90 percent of 1996 exports (Goldstein and Hawkins, 1998, p.24). Financial sector weaknesses came to fore with the spectacular collapse of the Bangkok Bank of Commerce in May 1996 under the weight of 160bn baht in outstanding loans.

All in all, the data does seem to have been suggestive of some 'warning signals' for the Thai economy in terms of:

a) high dependence on short-term external borrowing;

b) the current account deficit, which had grown sharply to 8.1 percent of GDP in 1995 remained high at 8.0 percent in 1996 due to negative export growth in that year (to be discussed in section 3);

c) rapid credit growth;

d) third consecutive year of outright decline in the overall stock market and property price indices; and

e) rigid nominal exchange rates.

However some seeming important differences with the Mexican situation of 1994 also existed in terms of the fiscal position not having been loosened, and the aggregate savings rate remaining high. This contrasts with the consumption boom in Mexico prior to its crisis[15]*. While down from the annual average of 8.9 percent between 1990 and 1995, Thailand's GDP growth in 1996 remained at a fairly robust 6.9 percent. In contrast, Mexico saw fairly sluggish growth of 3.4 percent between 1992 and 1994* (chart 5).

[15] However a closer examination of Thailand's savings rate since 1989, has led Asher and Rao (1998, p.3) to the following conclusion, "(t)he saving behaviour in Thailand during this period is characterised by virtual collapse of household saving, counter balanced by increases in the importance of the other components, particularly depreciation and public saving." Similarly, Sirivedhin (1998, p.210) has argued that the average propensity to save by households has been declining, counterbalanced by rising corporate savings, which has kept up private and national savings. Conversely, in what seems to be a minority view, Sachs, et al. (1996a) have suggested that the current account deficit in Mexico was due to high private investment, rather than 'over consumption' or irresponsible fiscal behaviour. The issue of savings and use of foreign funds is a key issue and requires much greater analysis (though data limitations severely preclude as through an analysis as one would like).

2.8 Malaysia

Malaysia's macroeconomic picture differed somewhat from Thailand. Direct investment-to-GDP ratio averaged 6.5 percent, while short and long-term debt were almost equally divided (tables 1 and A1). This was in line with the Malaysian central bank's policy of using moral suasion to discourage companies from borrowing offshore funds for domestic purposes. Malaysia also introduced a two-tier regulatory system in 1994 to keep weak or undercapitalised banks under tabs, while allowing the stronger ones to intermediate the credit inflows. Malaysia's current account deficit fell to 4.9 percent of GDP in 1996, after peaking at 10.0 percent in 1995 (chart 1)[16]. And, while Malaysia's internal indebtedness was comparable to those of Thailand and Indonesia, its external indebtedness was low (Leung, 1998)[17]. In fact, indicators of aggregate external indebtedness showed a steady declining trend (table A1). Of major concern must have been the forex reserves-to-short term debt ratio. This ratio, while remaining relatively high in 1996, did show a rather drastic downward trend since 1990 (table A1). To put this in perspective though, the ratio remained the highest among all the SEAEs, as well as in comparison to Brazil and Mexico.

While inflation rose slightly in 1995, it fell back to less than 4 percent in 1996 (tables A1 and A2) following the tightening of monetary growth (Reynolds, et al., 1998, pp.13-5). The general consensus (based on analysts' reports and comments) was that the country seemed well-poised for continued robust growth, having taken necessary and firm steps to counter possible macroeconomic weaknesses (overheating) experienced in 1995. *In other words, an objective reading of the data suggests that if at all the Malaysian ringgit was to be attacked, solely on the basis of*

[16] The increase was mainly due to a sharp (30 percent) rise in intermediate imports by the national airlines and shipping corporations as part of major expansion plans (Reynolds, et al., 1998, p.19).

[17] This is not unlike the cases of Brazil and Mexico in 1994-95, with the former depending largely on domestic debt, in contrast to the heavy dependence on short-term external debt by the latter (Calvo and Goldstein, 1996).

fundamentals, 1995 would be the time when it was most vulnerable[18]*. The overall macroeconomic picture improved significantly in 1996. Some 'market validation' of the confidence in the Malaysian economy is provided by the overall and property stock market price indices, which rebounded sharply in 1996, after averaging double-digit negative growth the previous two years* (chart 14)[19].

2.9 Indonesia

Indonesia's external debt volume, as well as the manner in which the funds were used - in terms of state directed lending and some amount of 'over-consumption' (Ostry, 1997) - provided some cause for concern. While the aggregate external debt volume has been creeping upwards the last decade, of particular concern was the growth in private sector debt liabilities. While public sector external debt liabilities actually fell by slightly less than $10bn in 1997 compared to 1996, those of the private sector doubled to reach about $40bn in 1997 (Nomura, 1998a, p.32). Of particular concern was the sharp rise in its current account deficit, which almost doubled from 1.7 percent of GDP in 1994 to 3.3 percent in 1995-96 (chart 1). Its forex exchange reserves-to-short term debt ratio remained low, but stable at 0.6-0.7 since 1990, and the lowest among the SEAEs (chart 12). Also, Indonesia's M2-to-foreign reserves was the highest of the SEAEs (chart 15). As documented by Montgomery (1996), *Indonesia's financial system seemed to suffer many of the excesses and problems present in Thailand, but this did not always show up in the macro data* (also

[18] As will be discussed in the next section, like Thailand, Malaysia experienced a sharp slowdown in export growth. However, unlike Thailand, its external balance improved significantly, while growth remained robust - i.e. there was no 'crash landing' of the economy, as is typical of many countries that often characterise sharp reductions in external imbalances.

[19] Note that this was unlike Thailand, in which the declines in 1994 continued and in fact worsened in 1996 (chart 14).

see Corsetti, et al., 1998, Ostry, 1997 and The Economist, July 26, 1997, pp.14-16)[20]. *However a notable difference with Thailand was the rebound in equity prices in 1996* (chart 14).

2.10 The Philippines

It suffices to note that the Philippines was little different from the LAEs - Argentina and Brazil in particular, and was a relative laggard among the SEAEs in terms of macroeconomic performance. In fact, the Philippines was the only one of the ASEAN countries to be adversely impacted in a significant way by the Tequila crisis (Calvo and Reinhart, 1996 and Kharas, 1997). *The Philippines was therefore as much or as little vulnerable to a currency run as were the LAEs* (abstracting from the possibility of regional contagian effects to be discussed in section 5.2).

2.11 Summary of Fundamentals

Table 5 provides a succinct summary of the various indicators of some important 'economic fundamentals' of the SEAEs along with Korea, Hong Kong and Singapore compiled by Goldstein and Hawkins (1998b). Certain patterns seem to be readily apparent. As noted, Thailand is the weakest when measures of external imbalances and financial sector vulnerabilities are used. Korea, Indonesia and Thailand had the highest short-term external debt-to-reserves. (As noted, Thailand had particularly high reserves due to capital inflows, which kept the ratio relatively lower). - Indonesia had the most vulnerable financial sector. A simple average of all the indicators shows Thailand and Indonesia to have been the two weakest economies in the region, with Singapore and Hong Kong being the strongest and

[20] A number of stories abound about the gross mis-use of foreign funds in Indonesia. For instance, the bankrupt Hong Kong-based Peregrine Investment Holdings had reportedly lent $350mn to an Indonesian taxi company (named 'Steady Safe'!) to finance the expansion the taxi fleet. Reportedly, about $145mn of the funds was siphoned off by Indonesia's ex-president Suharto's eldest daughter for the purchase of a toll road business. As the International Currency Review (April 1998, p.5) noted, "(i)n other words, $145 million of the funds lent by Peregrine ostensibly on behalf of its investor has vanished into the Suharto family's voluminous bank account."

Malaysia somewhere 'in between'. (Taiwan was not included, but it would probably have been the strongest of all).

Table 5
Summary of Economic Fundamentals of Selected East Asian Economies

Fundamentals	Country Rankings[a]						
	1	2	3	4	5	6	7
External							
International Reserves[b]	P	I	M	T	K	H	S
Current Account/GDP[c]	T	K	M	P	I	H	S
Debt/GDP[d]	T	P	I	M	S	H	S
Export Slowdown[e]	T	S	M	K	H	P	I
Real Exchange Rate: deviation from PPP[f]	S	K	H	M	T	I	P
Banking Strength							
Capital Adequacy[g]	K	T	I	M	P	H	S
Nonperforming Loans[h]	M	T	K	I	P	S	H
Bank Ratings[i]	I	K	T	P	H	M	S
Liquidity Mismatches							
Excess Credit growth[j]	P	M	T	I	S	K	H
Short-term external debt/Reserves[k]	K	I	T	P	M	H	S
Broad Money/Reserves[l]	T	I	P	K	M	S	H
Overall Average[m]	T	I	K	P	M	S	H
Overall based on Thailand Weights[n]	T	I	K	P	M	S	H

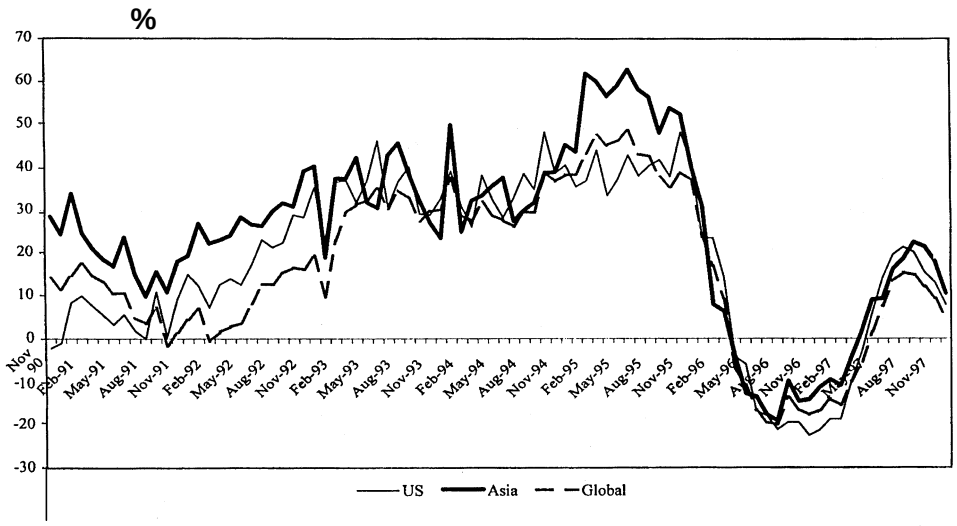
Notes: a) I - Indonesia, H - Hong Kong, K - Korea, M - Malaysia, P - Philippines, S - Singapore, T - Thailand.
Ordinal ranking in descending order of 'bad' fundamentals
b) In SDRs, June 1997
c) 1996
d) 1997
e) change (%) in 1996 less the average change (%) previous three years
f) June 1997
g) unclear from source, but probably average of 1996 and 1997
h) 1997 estimates
i) May 1996
j) growth of credit to private sector relative to nominal GDP, 1996
k) June 1997
l) June 1997
m) equal weights to all fundamentals (including two others included in original sources)
n) greater weights given to fundamentals in which Thailand is weakest

Source: Goldstein and Hawkins (1998b)

3. Overview of the Crisis[21]

Cyclical slow-down in regional export growth due largely to a shrinking in global demand for semiconductors in 1996 (chart 16 and the Asian Monetary Monitor, September-October, 1996) and a sharp deterioration in the terms of trade (mainly due to falling prices of computer chips and electronic components), adversely affected the ANIEs such as Korea, Singapore and Taiwan, along with the next-tier ANIEs of Thailand and Malaysia. Thailand was particularly affected, with exports actually declining by 1.3 percent in 1996 (chart 8 and tables A1 and A2).

Chart 16
Global Semiconductor Billings (Annual % Change), 1991-1997



Source: Bhaskaran (1998)

The nearly 50 percent nominal appreciation of the $ relative to the yen between June 1995 to April 1997 (from 85 yen per $ to 125 yen per $), led to a rise in

[21] The *descriptive aspects* of this section draws from ADB (1997, 1998), Corsetti, et al. (1998), IMF (1997a,b,c), World Bank (1998), speeches and press-briefings of top-ranking IMF officials and other materials posted on the IMF Internet homepage (www.imf.org). Articles from Asia Week (particularly the July 17, 1998 issue), Business Times (Singapore), The Economist, The Economist Intelligence Unit's (EIU) various Country Reports, Euromoney (December 1997 issue), Far Eastern Economic Review, Financial Times, International Currency Review (September, 1997 issue), New York Times and other periodicals as well as informal discussions with market observers in the region were also highly beneficial. The listing of materials on the crisis by Nouriel Roubini on his home page (www.stern.nyu.edu/~nroubini/asia/AsiaHomepage.html) was invaluable in reducing search costs.

the value of the regional currencies relative to the yen and a concomitant loss in competitiveness. This is indicated by the marked appreciations in the REER by end December 1996, through into mid 1997 over 1995 (chart 12)[22]. As previously noted, while a REER appreciation does not necessarily denote a misalignment (overvaluation), the sudden rise in the last two years (which was a complete reversal of the downward trend the years before), rather than a gradual longer-term upward trend, is indicative of a bona fide overvaluation and loss of competitiveness, as opposed to due to productivity differentials, demand shifts and the like.

The perception of a structural – as opposed to pure cyclical - nature of this regional export growth slow-down was fuelled by:

a) the popular assumption that there was a shift in regional comparative advantage in labour-intensive goods to China (this was of particular concern to Indonesia and the Philippines);
b) realisation of growing shortage of adequate skilled labour in Malaysia and Thailand, both of which aimed at moving into the higher value-added end of the production chain;
c) the threat of overproduction in certain major industries like autos and semiconductors (ADB, 1997, pp.15-8)[23].

As appendix 2 outlines, given the dependence on short-term external debt, even the *perception* of a slow-down in export growth could make the current account deficits suddenly seem *unsustainable* and the economies no longer creditworthy. As

[22] According to Wade and Veneroso (1998), the appreciation of the $ in 1995 was the result of an agreement between the US Treasury and the Japanese Finance Ministry aimed at boosting Japan's export growth. By using the resulting trade surpluses to purchase US Treasury bills, this was assumed to keep US interest rates low, thus contributing to growth in both Japan and the US (the latter about to go through an election at that period).

[23] It has become legion to argue that the initial sharp devaluation of the Chinese yuan against the $ in 1994 and the granting of a tax rebate for exports significantly enhanced the cost competitiveness of the country's exports, and consequently contributed to a slow-down in export and output growth in the most East Asian economies. This conclusion is however far from certain, as until then, two exchange rates were in operation in China and the bulk (almost 80 percent) of the transactions were already being conducted at the unofficial lower rate. The devaluation's main aim was to bring the official rate in line with the unofficial one (IMF, 1997b, Fernald, et al., 1998 and Liu, et al., 1998 and Zhang, et al., 1998).

such, the shift in lender's expectations could be self-confirming, resulting in a liquidity crisis with potentially large costs to the economy. To be precise, a policy stance is said to be sustainable if the 'turning point' from a trade deficit to trade surplus occurs 'smoothly', i.e. without extreme and sudden declines in consumption and economic activity (Milesi-Feretti and Razin, 1996, p.8).

The IMF did reportedly caution in 1995 and 1996 Thailand about its high current account deficit, shorter-term external debt build-up and the over-exposure of finance companies in the property market (as indicated by statements by IMF officials in various speeches and statements that may be found on the IMF homepage on the web). However, given that even the IMF's initial (i.e. pre-crisis) growth and other macroeconomic projections suggested relative buoyancy in the Thai and other SEAEs (IMF, 1997a), little heed was taken of the warnings, either by government officials or the private sector. Thus, initial private sector and official forecasts for 1997 and beyond were largely extrapolations from past trends. Indeed, Asian mutual funds were said to have remained overweighted in Thailand until May-June, 1997 (Institutional Investor, December 1997, pp.54-5). Private credit agencies too maintained constant credit ratings for the countries (with the Philippines actually upgraded) (table 6 and The Economist, December 13, 1997, pp.68-71). Risk premia on the syndicated loan and bank spreads (over the Treasury securities) in all emerging markets including the SEAEs had fallen (Cline and Barnes, 1997).

Table 6

Credit Ratings of the Southeast Asian Economies and Korea, 1996-97

Country	Standard & Poor's			Moody's		
	June 1996	June 1997	Dec. 1997	June 1996	June 1997	Dec.1997
Indonesia	BBB	BBB	BBB-	Baa3	Baa3	B2
Malaysia	A+	A+	A+	A1	A1	A2
Philippines	BB	BB+	BB+	Ba2	Ba1	Ba1
Thailand	A	A	BBB	A2	A2	Ba1
Korea	AA-	AA-	B+	A1	A1	Ba1

Notes: Rating System ranked from highest to lowest as follows:
Standard & Poor's: Investment grade - AAA, AA+, AA, AA-, A+ A,, BBB+, BBB, BBB-
Noninvestment grade - BB+, BB, BB-, B+, B, B-

Moody's: Investment grade - Aaa, Aa1, Aa2, Aa3, A1, A2, A3, Baa1, Baa2, Baa3;
Noninvestment grade - Ba1, Ba2, Ba3, B

Source: World Bank (1998)

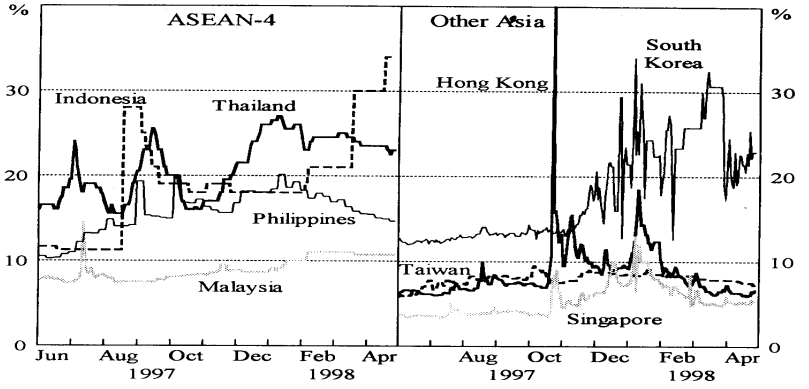
Political uncertainties in Thailand following the general elections in 1996; a third consecutive year of asset price deflation in the country; REER appreciation of the baht (which was the most dramatic among the SEAEs); and Thailand's general inaction with regard to the IMF's warnings about the size and maturity structure of its external debt and deteriorating current account deficit positions in the face of diminished short-term export growth projections in 1997 (against the decline in 1996), were all causes for concern by foreign investors and lenders. In addition, financial scandals and reported bankruptcies of financial institutions - which were almost always bailed out by the authorities - became an ever more frequent affair (Corsetti, et al., 1998).

The extreme rigidity with which the baht was pegged to the US$, against the backdrop of increasingly apparent financial sector weaknesses and macroeconomic imbalances, made it a tempting target for speculators. This led to a series of attacks on the currency in late 1996 and early 1997. The BOT was able to fend-off these attacks mainly through the first-line of defence noted in appendix 3, i.e. entering into a forward contract to act as the counterparty to the short-sellers of the baht. Interest

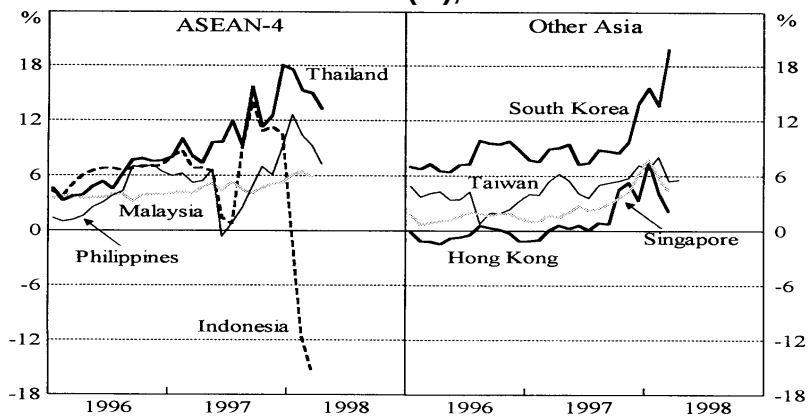
rates were also raised slightly to drain liquidity (chart 17). These in turn led to even sharper slides in equity prices (chart 18), which consequently exposed gross malaises in the financial sector, as many finance companies had undertaken aggressive property-based lending. In fact, by 1997, almost one-fifth of all lending by Thai finance companies was reportedly classified as nonperforming by the Central Bank (chart 19), with about half of the finance and securities companies suspected to be facing serious financial difficulties (Souza, 1998).

Chart 17
Short-term Interest Rates (%)

A: 90-day Nominal Interest Rates (%), June1997-April 1998



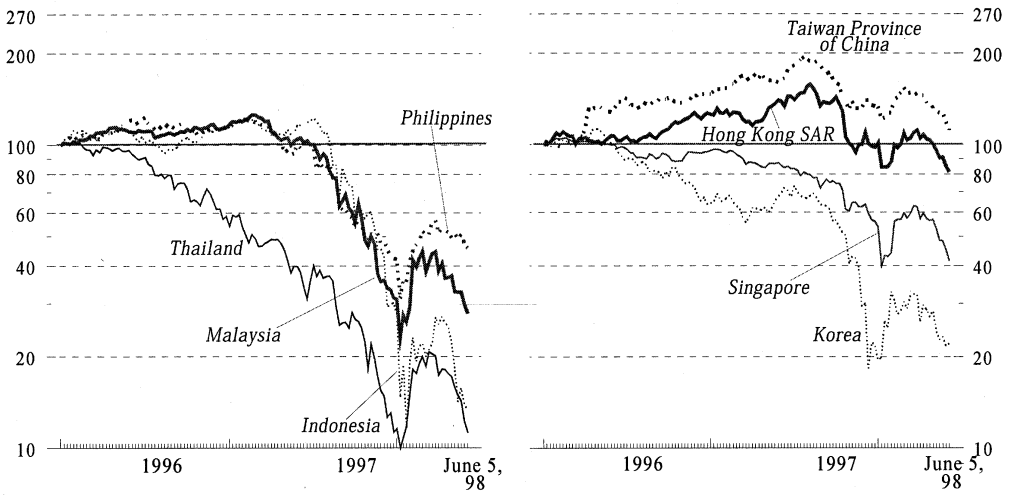
B: Real Interest Rates (%), 1996-1998



Source: Goldstein and Hawkins (1998)

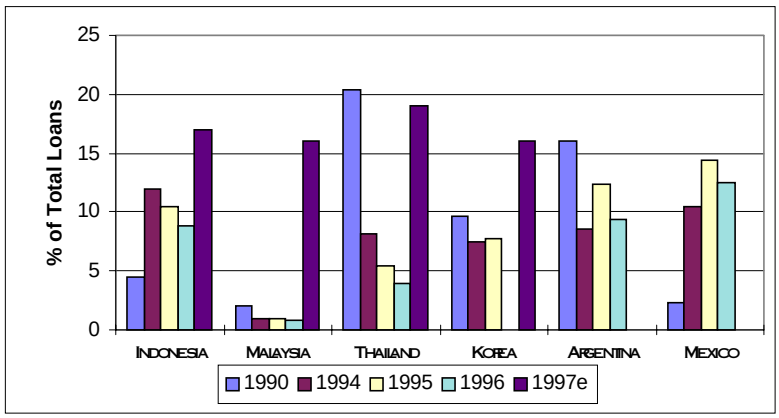
Chart 18

Equity Prices, June 1996-June 1998



Source: IMF (1998c)

Chart 19
Non-Performing Loans (as % of Total Loans), 1990, 1994-97



Note: 1997 figures are estimates.
Sources: Compiled by author from Radelet and Sachs (1998b) and The Economist November 13, 1997, p.19)

The problems in Thailand initially seemed largely contained, though equity prices in the region (including Korea) had started to take a dive. A fresh round of attacks on the baht was triggered on May 7, 1997. While the rationale for this is unclear, the popular argument is that the anticipated rise in Japanese interest rates triggered fears that the capital inflow due to carry trade would be diminished. A co-ordinated intervention by Asian central banks in the forex markets, as well as a general rise in interest rates (chart 17) in a number of the regional economies were

undertaken to thwart the attack on the baht and, more importantly, to minimise the possibility of contagion in the rest of the region. Selective capital controls and a steep hike in the off-shore short-term interest rate to an annualised rate of 1300 percent (0.7 percent daily) were employed by the BOT. However, as the open position of the BOT in the forward forex market in November-December 1996 came due in July 1997, pressures on the baht continued unabated. As the magnitude of this open position (estimated at $23.4 mn) became clear, it caught most people unawares, possibly intensifying the speculative attacks. Finally, the Thai authorities acquiesced to the pressure in July 2, allowing the currency to float. This led to an immediate almost 20 percent depreciation against the $[24].

The successful assault of the baht motivated attacks on other currencies in the region which – *at least according to the perceptions/outlook of market participants* - had similar macroeconomic problems. Thus, the Philippine peso, the Malaysian ringgit and the Indonesian rupiah all came under pressure simultaneously. Despite attempts at defending the currency, the peso was allowed to float on July 11, with the same happening to the rupiah on August 14. The latter was after the Indonesian authorities had reportedly spent $1.5bn in supporting the rupiah and jacked up interest rates three-fold. The Malaysian ringgit also depreciated sharply by about 20 percent between July to August, as Malaysia's prime minister, Mahathir Mohamed publicly chastised `rogue speculators' (George Soros in particular) for the region's currency problems (chart 20). On August 3rd, the Bank of Malaysia imposed a $2mn limit on outstanding non-commercial-related ringgit transactions and the prime minister threatened imposition of other controls on international currency transactions for all purposes save international trade.

Sustained bearishness of the regional currencies was due to a number of factors working in unison. These included:

[24] The Thai finance minister announced publicly a couple of days prior to the devaluation that such a move was "out of the question". (International Currency Review, April, 1988, p.4). Such statements are more often than not a prelude to future devaluations!

a) the high interest rates in the region (see appendix 3 for an exploration of the various channels through which this could negatively impact the real economy);
b) weaknesses in the equity markets, which led to a withdrawal of foreign funds;
c) the rush by domestic firms to cover their open forex positions;
d) political uncertainty in Thailand (regarding the timing of the next general elections), Malaysia (with the prime minister's continued vociferous attacks on Soros and other 'greedy speculators', and on-going rumours about a possible rift between him and his deputy, Anwar Ibrahim), Indonesia (with a presidential election looming in 1998 and uncertainty at that time about whether president Suharto would retire and who his successor/running-mate would be), and the Philippines (also with upcoming national elections);
e) general doubt about whether appropriate financial and other structural reforms would be undertaken by the countries involved (Indonesia in particular); and
f) grossly insufficient information made available to private agents to make decisions, with the result that rumours - some unfounded or exaggerated - led to continued uncertainties.

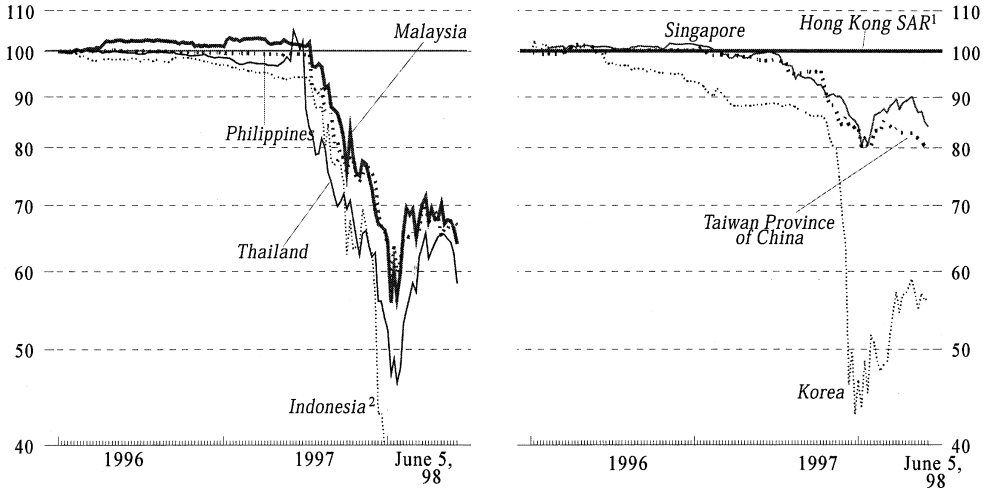
Even the strongest economies in the region were not spared. In August 1997, both the Singapore and Taiwanese dollars came under duress, despite the fact that both these economies had healthy current account surpluses. (Singapore, with aggregate reserves of about $75bn and a population of only 3mn, has the world's highest *per capita* reserve holdings to back its currency; and Taiwan, which is similarly capital-rich, is backed by one of the world's largest *aggregate* reserve holdings of about $85bn). The Korean won too came under extensive pressure in late October, as the magnitude of the industrial insolvency problems and fragilities of the closely tied financial sector became apparent. On October 20, the Hong Kong equity market plunged and a few days later, the Hong Kong dollar too came under attack. This was despite:

a) the Hong Kong's authority's seeming unwavering commitment to the currency board system - it was reported that the speculators were 'testing' the authority's actual commitment to maintaining the peg;

b) its high-level of forex reserves of about $90bn; and

c) the P.R.C. authorities' public declaration that they stood ready to use China's huge aggregate reserves to defend the Hong Kong $ (The Economist, October, 25, 1997, pp.79-80).

Table 20
Bilateral Exchange Rates



Note: 1) Pegged to U.S. dollar.
2) In January 1998, the Indonesian currency reached a low of Rupiah 14,750 per U.S. dollar (a value of 15.5 in the index terms used above); its value was Rupiah 11,600 (19.7 in index terms) on June 5, 1998.

Source: IMF (1998c).

4. Preliminary Post-Mortem

Between July and December 1997, the median depreciation in the four SEAEs and Korea was 80 percent. These declines occurred despite a *decrease* in aggregate reserve holdings of $22.7bn in 1997 in defending the currencies (compared to a total increase of $32 bn in the previous two years) (table 7).

Table 7

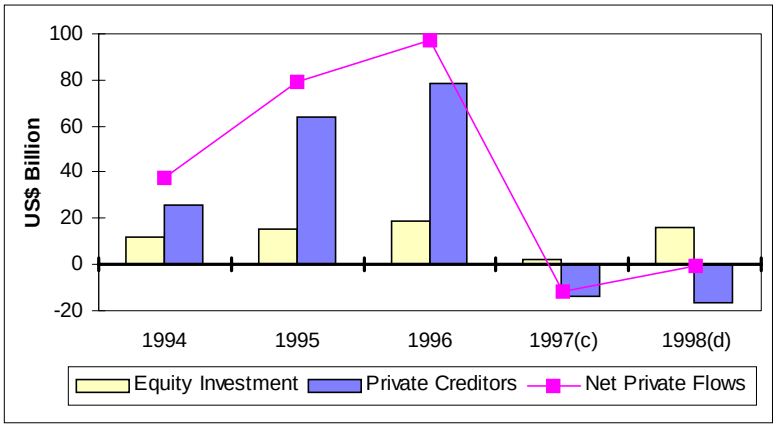
Private Capital Flows to the Southeast Asian Economies, Korea and all Developing Countries, 1995-97
(% of GDP)

Country	1995	1996	1997
Indonesia:			
Net private capital flows	6.2	6.3	1.6
Net direct investment	2.3	2.8	2.0
Net portfolio investment	0.7	0.8	-0.4
Other net investment	3.1	2.7	0.1
Net official flows	-0.2	-0.7	1.0
Change in reserves[a]	-0.7	-2.3	1.8
Malaysia:			
Net private capital flows	8.8	9.6	4.7
Net direct investment	4.8	5.1	5.3
Net portfolio investment	0.0	0.0	0.0
Other net investment	4.1	4.5	-0.6
Net official flows	-0.1	-0.1	-0.1
Change in reserves[a]	2.0	-2.5	3.6
Philippines:			
Net private capital flows	4.6	9.8	0.5
Net direct investment	1.8	1.6	1.4
Net portfolio investment	0.3	-0.2	-5.3
Other net investment	2.4	8.5	4.5
Net official flows	1.4	0.2	0.8
Change in reserves[a]	-0.9	-4.8	2.1
Thailand:			
Net private capital flows	12.7	9.3	-10.9
Net direct investment	0.7	0.9	1.3
Net portfolio investment	1.9	0.6	0.4
Other net investment	10.0	7.7	-12.6
Net official flows	0.7	0.7	4.9
Change in reserves[a]	-4.4	-1.2	9.7
Korea:			
Net private capital flows	3.9	4.9	2.8
Net direct Investment	-0.4	-0.4	-0.2
Net portfolio investment	1.9	2.3	-0.3
Other net investment	2.5	3.0	3.4
Net official flows	-0.1	-0.1	-0.1
Change in reserves[a]	-1.5	0.3	-1.1
Developing Countries:			
Net private capital flows	156.1	207.9	154.7
Net direct investment	84.3	105.0	119.4
Net portfolio investment	20.6	42.9	40.6
Other net investment	51.2	60.0	-5.3
Net official flows	27.4	-3.4	17.5
Change in reserves[a]	-65.6	103.4	-55.2

Notes: a) - denotes a rise and vice versa
Sources: Compiled by author from IMF (1997a,b and 1998b)

The SEAEs along with Korea suffered an aggregate net private capital outflow of $11.9bn in 1997, compared to an *inflow* of $93bn in the previous year (table 8 and chart 20). This worked out to a net outflow of about $105bn in just one year. The decline was mainly due to commercial banks and other private nonbank financial institutions refusing to fully renew maturing short-term debt. Altogether, there was a net *outflow* of $26.9bn in 1997, compared to an *inflow* of $55.7bn in 1996 from commercial banks. The rest of the decline was largely due to portfolio equity investment (from a net *inflow* of $12.4bn in 1996 to a net *outflow* of $4.3bn in 1997); while direct equity investment remained stable. Total net external financing remained positive at $18.1bn (down from $95.2bn in 1996) only because of a massive $30bn inflow in the form of official assistance under various international and bilateral support packages. While all SEAEs and Korea were adversely affected, Thailand was particularly hard-hit, with a net private capital outflow of 10.9 percent of GDP in 1997, in comparison to a capital inflow of 12.7 percent in 1995 and 9.3 percent in 1996 (table 7 and chart 22).

Chart 21
Capital Flows in the Southeast Asian Economies and Korea in Aggregate, 1994-97



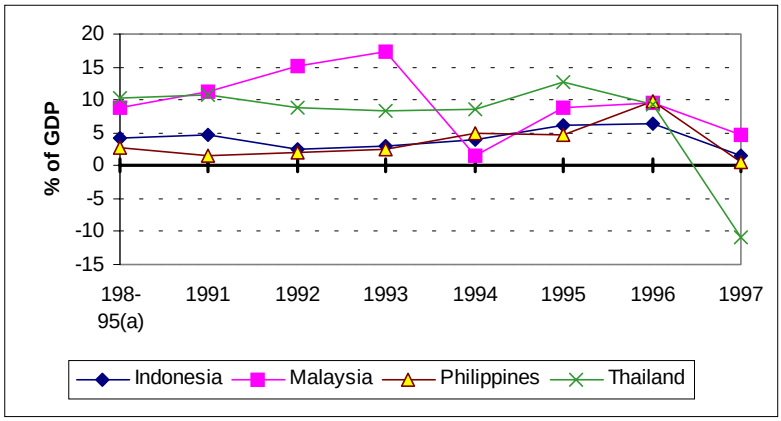
Notes: (c) Estimate; (d) Forecast.
Source: See Table 8

Table 8
Capital Flows to the Southeast Asian Economies and Korea in Aggregate, 1994-97 ($ billion)

	1994	1995	1996	1997[c]	1998[d]
Total Net External Financing	**45.2**	**84.6**	**95.2**	**18.1**	**25.9**
		79.2	97.1	-11.9	-0.3
Net Private Flows	37.9	15.4	18.7	2.1	16.4
Equity Investment		4.9	6.3	6.4	6.9
Direct	12.1	10.5	12.4	-4.3	9.5
Portfolio		63.8	78.4	-14.0	-16.8
Private Creditors	4.7	49.9	55.7	-26.9	-19.8
Commercial Banks		13.8	22.7	12.9	3.0
Nonbank Private	7.4				
Creditors		5.4	-1.9	30.0	26.2
	25.8	-0.3	-2.0	22.5	23.2
Net Official Flows		5.8	0.1	7.5	3.0
Financial Institutions	23.4				
Bilateral Creditors		-29.2	-21.6	-30.5	-
	2.4				4.6
Resident Lending[a]		-14.0	-18.4	39.5	
	7.3				-
Reserves (exc. gold)[b]	-0.4				51.9
	7.7				
	15.2				
	-5.4				

Notes: a) Includes other minor components
b) - denotes a rise and vice versa
c) Estimate
d) Forecast
Source: Institute of International Finance (1998)

Chart 22
Net Private Capital Flow to Southeast Asian Economies (% of GDP), 1985-97



Note: (a) Period average
Sources: See Tables 4 and 7

The IMF, through the accelerated procedures under the auspices of the Emergency Financing Mechanism (EFM), approved stand-by credits totalling about $35bn for Thailand (August 20, 1997), Indonesia (November 5, 1997) and Korea (December 4, 1997). Regional and extra-regional parties such as the World Bank and the Asian Development Bank (ADB) pledged additional aid to the countries, with capital-exporting countries such as Japan, USA, Australia, Hong Kong and Singapore also contributing. The aggregate IMF-orchestrated bail out packages turned out to be much larger - in fact the largest in history - estimated at $58bn for Korea, $37bn for Indonesia and $17bn for Thailand. These compare to about $51bn for Mexico in 1995 (table 9).

Table 9
IMF-led International Financial Assistance *Committed* to Korea, Thailand and Indonesia[a], June-July 1998 ($ billions)

Country and Source of Assistance	Amount ($ billions)
Korea:	
IMF	20.9
World Bank	10.0
ADB	4.0
Countries	23.3
USA	5.0
Japan	10.0
Europe	6.3
Australia	1.0
Canada	1.0
Total	**58.2**
IMF *disbursements* as of 10 June 1998	17.0
Indonesia:	
IMF	9.9
World Bank	4.5
ADB	3.5
Countries	18.7
USA	3.0
Japan	5.0
Australia	1.0
China, P.R..C.	1.0
Hong Kong	1.0
Malaysia	1.0
Singapore	5.0
Total	**36.6**
IMF *disbursements* as of 15 July 1998	4.9
Thailand:	
IMF	3.9
World Bank	1.5
ADB	1.2
Countries	10.5
Japan	4.0
Australia	1.0
Brunei	0.5
China, P.R..C.	1.0
Hong Kong	1.0
Indonesia	0.5
Korea	0.5
Malaysia	1.0
Singapore	1.0
Total	**17.1**
IMF *disbursements* as of 15 July 1998	2.8
Mexico:	
IMF	17.8
World Bank and Inter-American Bank	2.8
BIS/G10	10.0
USA	20.0
Total	**50.6**

Sources: Compiled by author from IMF (1998a), IMF News Briefs, various issues and Goldstein and Hawkins (1998a)

As part of the IMF conditionalities, 58 financial companies (specialist lenders) in Thailand were suspended, with an announcement by the government that a number of them would be shut-down and their assets sold. 14 of 30 merchant banks were closed in Korea and the National Assembly passed 18 financial reform bills. Major IMF-type austerity plans were also announced. Indonesia declared the closure of 16 of its 240 banks. Malaysia, while not having to depend on IMF assistance, did defer a number of major projects and the government announced plans to consolidate the operations of and merge 39 finance companies into just 6. In contrast to other programs, the IMF stipulations in Asia also focused on issues relating to corporate governance, bankruptcy laws and other detailed microeconomic reforms. - Indeed, one of the criticisms of the IMF approach is that it attempted to change too much too soon, while paying scant attention to individual country circumstances (i.e. a 'one-size-fits-all approach').

After a short respite, in late December 1997 and early January 1998, the region's currencies and stock markets came under renewed selling pressure (Business Times, Singapore, January 14, 1998), with the rupiah most affected, falling from about 5500 Rupiah per $ in end December 1997 to over 12000 by end January 1998 (chart 20). While the weaknesses in the Thai economy was the reason for the initial speculative attacks on the region's currencies, the trigger for this (second) round was reportedly the announcement of Indonesia's budget, which was based on overly optimistic assumptions regarding growth, exchange rate and inflation forecasts. More generally, there were doubts about the commitment of the Indonesian authorities to see through the IMF program, presumably because of the extent to which 'well-placed' individuals would be adversely impacted if the IMF-mandated steps such as financial restructuring, revoking of subsidies to de facto bankrupt banks and other firms, were undertaken (McLeod, 1997).

The consequent decline in regional currencies led to a vicious cycle, as the $ indebtedness of the companies in the region (with unhedged loans) had also risen, resulting in the original bail-out package being insufficient. And, on January 14 1998, Indonesia renegotiated the terms of agreement with the IMF. In the face of continued currency weakness of the rupiah and internal socio-political dynamics, Indonesia's vacillation with regard to the second deal, along with the recent acute socio-political turmoil, (which saw Asia' longest serving leader, Suharto replaced as president by his vice-president, B.J. Habibie) led to a third, then a fourth - much 'softer' (in terms of the conditionalities) - deal being struck with the IMF in early April and late May respectively. Given the socio-political tensions that persist in the country, at the time of writing, many doubts remain as to whether the Indonesian government will follow through with the necessary structural reforms (Baker, 1998).

Between July 1997 and June 1998, data reveals that the Indonesian rupiah was hardest hit, plunging about 480 percent from 2600 Rupiah per $ to 15100 per $. The Thai baht, Malaysia ringgit and Korean won each depreciated by over 55 percent vis-à-vis the $, while the Philippine peso fell by 45 percent. The Taiwanese and Singapore dollars each dropped by about 25 percent (chart 20). Frankel and Rose (1996) have defined a 'currency crash' as a nominal bilateral exchange rate depreciation of at least 25 percent with respect to the $ and at least a 10 percent increase in the rate of depreciation (the latter condition included to account for possible trends in nominal depreciation by high inflation countries). On this basis, save Taiwan, Singapore and Hong Kong (which maintained the currency board-based peg), all the above countries qualify as having experienced a bona fide currency crisis. The extent of the REER depreciation of the currencies of the MIT and Korean economies is clear from table 10. Over a six month period since 1970, Indonesia's depreciation as of March 1998 has been the third largest ever, with Korea's, the Philippines' and Thailand's respectively being the ninth, tenth and thirteenth largest.

Table 10
Real Effective Exchange Rates: 20 Largest Depreciations since 1970

Country	*Year*	*% Change over 6 months*
Kuwait	*1990*	*-74*
Nigeria	*1986*	*-74*
Indonesia	*1998*	*-68*
Pakistan	*1972*	*-55*
Venezuela	*1986*	*-45*
Turkey	*1970*	*-42*
Venezuela	*1984*	*-41*
Mexico	*1995*	*-40*
Korea	*1998*	*-36*
Malaysia	*1998*	*-35*
Nigeria	*1992*	*-34*
Indonesia	*1978*	*-33*
Thailand	*1998*	*-33*
Mexico	*1976*	*-32*
Ecuador	*1984*	*-31*
Ecuador	*1986*	*-30*
Philippines	*1970*	*-39*
Indonesia	*1986*	*-39*
South Africa	*1985*	*-26*
Chile	*1982*	*-25*

***Notes**: a) Data up to March, 1998*
b) - denotes a depreciation
Source: Goldstein and Hawkins (1998a)

Recent estimates of the depth and costs of financial restructuring are in table 11. Forecasts of regional (GDP) growth in 1998 and 1999 as of July 1997 are provided in table 12. As can be seen, highly tentative projections for 1998 suggest that among the countries most afflicted, Indonesia is worst-hit, expected to decline by 15-18 percent with inflation (consumer prices) expected at over 60 percent. Thailand is projected to see a decline of 7-8 percent with 10 percent projected inflation rate. Korea's decline is anticipated at 5-6 percent, also with 10 percent inflation. The average recovery period for crisis-hit economies in the past has been about 2 to 3 years (World Bank, 1998, pp.119-20). This assumes that countries have steadfastly seen through the necessary reforms and there are no other adverse shocks, i.e. a so-called 'V-shaped' (as in Mexico and Argentina after the Tequila crisis (see chart 5)). However, even assuming that the countries follow through with the necessary structural reforms, there are a number of region-specific factors that give cause for

particular concern about the Southeast Asian crisis, i.e. a prolonged or 'U-shaped' recovery or worse still, an `L-shaped' one as is being experienced by Japan (chart 23).

Table 11
Recapitalization Needs of Asia's Banking Sectors, 1998 Estimates (%)

	Indonesia	*Malaysia*	*Philippines*	*Korea*	*Thailand*
NPLs[a]/Total Loans	*30 - 40*	*15 - 25*	*8 - 10*	*25 - 35*	*20 - 30*
CAR[b]	*8 - 10*	*8 - 14*	*15 - 18*	*6 - 10*	*6 - 10*
CAR after NPL Write-Off	*-17*	*-4*	*10*	*-10*	*-11*
Recapitalization Needs (% of GDP)	*19*	*20*	*none*	*30*	*30*

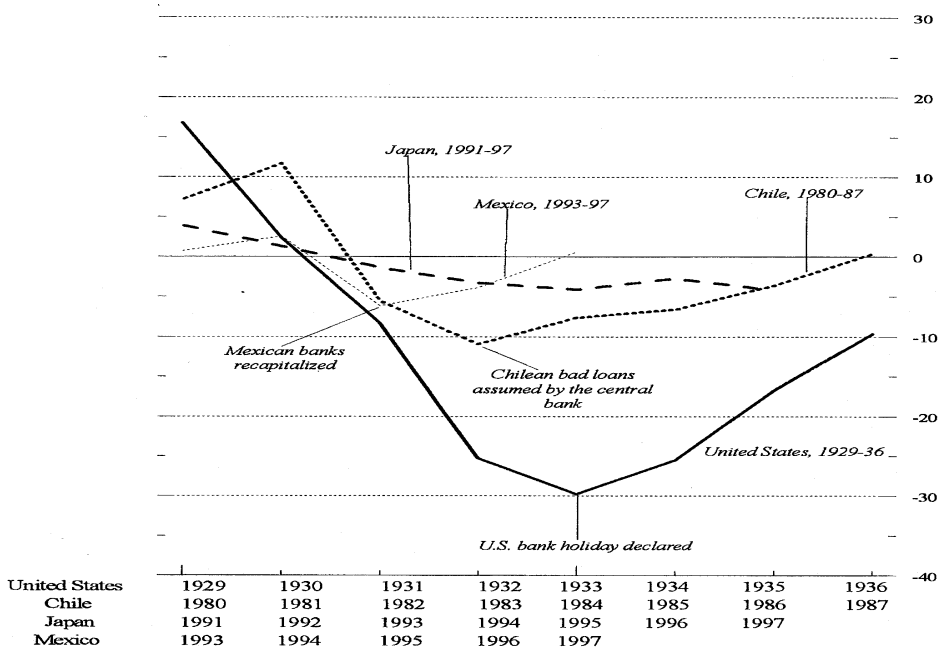
Notes: *a) Nonperforming loans*
b) Capital-asset ratio;
Source: *Compiled by author from JP Morgan (1998) and Nomura (1998b)*

Table 12
Real GDP Growth Forecasts for Selected East Asian Economies, 1998-99 (% change)[a]

Country	1998	1999
China	6.7	7.2
Hong Kong	-0.9	1.7
Indonesia	-15.5	-0.6
Korea	-4.9	2.1
Malaysia	-2.7	0.6
Philippines	1.6	3.2
Singapore	0.9	2.9
Taiwan	4.9	5.1
Thailand	-7.3	1.1

Notes: a) As at July, 1998
Source: The Economist (July, 11, 1998)

Chart 23
Recovery Period From Financial Crisis (% of Trend Output)



Source: IMF (1998b).

First, as noted, the SEAEs had maintained fairly stable nominal exchange rates for protracted periods, as a means towards robust export and output growth. Much faith seemed to have been placed by private sector agents, academics and policy-makers in the sustainability of this sound economic performance, with the result that scant attention was paid to some of the warning signs, in Thailand in particular. The ensuing regional instability consequently came as a major shock, and in turn probably led to an over-exaggerated response, i.e. a sort of 'disaster myopia' took hold (in jargon, a movement of expectations from a high to low equilibrium) (see section 5.1).

Second, some concern remains about the possible effects of the weak regional currencies on the Chinese yuan. In particular, while the initial sharp devaluation of the yuan in 1994 did not necessarily give the country a major cost advantage over the SEAE (see footnote 23), it is feared that the continued weaknesses of these currencies may necessitate a devaluation of the yuan. Indeed, between December 1996 and December 1997, the yuan has been the only East

Asian currency to appreciate slightly (0.2 percent) against the $. Given the relatively higher inflation rate experienced by China (compared to the East Asian economies) during this period, has meant much higher appreciation of the yuan in real terms (Liu, et al., 1998). China faces a number of analogous banking and financial sector problems. How it deals with the issue of currency valuation, possible slow-down in growth of exports and of foreign investment from the other East Asian economies, have remained a source of market uncertainty (see for instance, International Currency Review, April, 1998, pp.3-8). While some confidence may be derived from recent statements by top ranking Chinese officials of their commitment not to devalue the yuan (at least this year), continued weakness of the Japanese yen and worsening growth prospects of the Japanese and regional economies, may force a reconsideration (we explore this issue below).

Third, as the recent turmoil in Indonesia has made dramatically apparent, the possibility of socio-political instability is a very real issue. In particular, the legitimacy and support for most of the political regimes in the region (except the Philippines), have been based overwhelmingly on robust economic performance. It is as yet unclear how the people in the region (Indonesia and Korea in particular) will react if the stagflationary situation continues (escalates?) and workers continue to be dislocated en masse and remain so indefinitely. The problem could be especially severe, given the absence of social insurance programs for the unemployed (see for instance the discussion in The Economist, February 21, 1998, pp.37-8 and the more detailed investigation by the ILO, 1998). Given two decades of robust growth in the region on the one hand, and the ‘suddenness’ and ferocity of the crisis on the other, the potential for further large-scale socio-political cannot and ought not to be easily discounted.

Fourth, while the general focus (of observers and the IMF) has predominantly been on the four countries that have received IMF assistance, the aftermath of the crisis elsewhere in the region seems to have been grossly underestimated. Indications are that other regional economies like Malaysia and Hong Kong, which

have enjoyed sustained growth for over a decade, have also entered recessionary conditions (defined as two quarters of successive negative growth). This is due to the extremely tight monetary stances maintained in these economies to preclude further currency runs (particularly in Hong Kong, given the currency board mechanism in operation), as well as sluggish export growth owing to a lack of regional demand (for instance, see Goad, 1998).

Fifth, sluggish regional demand due domestic credit crunches has been exacerbated by the weak yen, a reflection of the outright recessionary condition in Japan, the first in almost a quarter of a decade. To be specific, as detailed by Rajan (1998a), the weak yen and sluggish domestic demand in Japan has precluded economic recovery in East Asia through a number of channels:

a) the weak yen has partly offset the depreciation of the Korean won and the Taiwanese $ and therefore their economies' cost competitiveness (given their broadly similar comparative advantage).
b) the weak yen has reduced the relative attractiveness of assets in East Asia, thereby diminishing the incentive for Japan to undertake FDI in the region (so-termed 'wealth effect'). This problem is particularly true of China, which, as noted, is the only country in the region whose currency has not depreciated in nominal terms since the official devaluation in 1994.
c) the weak yen and sluggish demand growth in Japan have so far precluded any sort of economic recovery in the crisis-hit East Asian economies through exporting to Japan, as part of a broader strategy of "exporting themselves out of trouble". To the contrary, the fear is that a weak yen, by making Japanese goods relatively more competitive, could allow it to expand exports to extra-regional economies at the expense of the other East Asian economies.

5. What Lessons Are There to Learn?

As discussed, while the final outcome of the crisis remains hazy, the post-mortem of the SEA crisis seems to point to a number of important lessons for

economic policy. We note these below in no particular order of importance. A couple of caveats are warranted before proceeding.

First, there is some overlap in the main conclusions of this section with the independent studies by Calvo and Goldstein (1996) and Goldstein (1995). Given that the lessons derived here are largely based on the crisis in Southeast Asia, while those by Calvo and Goldstein were derived from the Tequila crisis in particular and other crises prior to that (such as those in the Southern Cone economies), it is surprising just as to how little learning seems actually to have taken place by all agents concerned[25]. On a more positive note, the robustness of the conclusions and prescriptions should be encouraging to policy-makers in developing countries in the sense of being very indicative of potentialities for a crisis and pointing to concrete steps that might be taken to avoid one from taking place in the future, or reduce its severity if one does occur.

Second, we highlight what, in our view, are the primary lessons from the crisis. We do not attempt or claim to be exhaustive, either in terms of the points highlighted, or in terms of the degree of elaboration of points discussed. The focus is both on domestic and regional economic policies as well as steps to bolster the international financial architecture.

5.1 Insights from Multiple Equilibra Models

With the benefit of hind-sight, it has become legion for observers to point to 'acute' structural macroeconomic imbalances (such as Thailand's high current account deficit) and other economic malaises - mainly in the financial sector - as 'obvious' rationale for the 'inevitability' of the crisis. Consider the following conclusion by an IMF study on the financial sector in developing countries which are members of

[25] This conclusion may admittedly be too harsh. For instance, the Philippines, which as noted, has hitherto been considered 'geographically misplaced' in the sense of being more akin to the LAEs (in terms of economic performance), has been less impacted by the regional crisis than the 'MIT' economies. Arguably, this may have been due to their experience with previous crises in Latin America (both the Tequila and the debt crisis of the 1980s). The financial and banking supervision in particular have been of higher quality than those in the MIT economies.

the Asia Pacific Economic Cooperation (APEC) (which include the SEAEs as well as some East Asian economies like China and Korea):

> The recent history of many of the APEC developing countries, as well as other evidence, suggests that many of these countries are not well equipped to manage the increased risks inherent in intermediating volatile capital flows and to absorb high asset price volatility. Many financial institutions remain subject to moral hazard...The supervisory and regulatory infrastructures in APEC developing countries are often ill-equipped to assess and manage the systematic risks inherent in immature financial systems, especially in the presence of large and volatile capital flows.

In the aftermath of the currency and financial turmoil in East Asia, the above conclusion would seem uncontroversial as a rationalisation of the region's weaknesses. There is a slight problem though. The report was published in 1995, based on data up until 1993 (see Folkerts-Landau and associates, 1995). Recall that during this period, following the Tequila crisis, East Asia was being glorified by all quarters (the private sector, World Bank and others), with trend analysis being the basis of bold projections regarding the region's economic clout into the next century[26].

In addition, as the analysis in section 2 suggests (and discussed further in section 7), the weaknesses in the Southeast Asian economies (save possibly for Thailand) were not of macroeconomic management in ways that caused them to be unsustainable under *normal* conditions. Rather, the problems were predominantly two-fold.

First was the structure of external indebtedness. This was loaded at the short-end in the case of Thailand and Indonesia in particular, consequently leading to grave revenue-liability maturity mismatches. This was at least partly due to the combination of rapid financial deregulation without accompanying strengthening of regulatory and

[26] Undoubtedly much of this praise was deserved, given the countries' successes in sustaining rapid economic growth and alleviating poverty over the last two decades.

supervisory policies (see section 5.3). The high dependence on short term debt financing made the countries highly susceptible to a sudden liquidity crisis, as foreign lenders became unwilling to roll over loans in the face of unfavourable shocks.

Second, was the absence of appropriate forex risk management (i.e. currency hedging) strategies, given the general expectation of the maintenance/sustenance of the rather rigid pegs of the regional currencies against the $. This meant that the balance sheets of the indebted firms (as well as financial intermediaries) were highly vulnerable to sharp exchange rate variations. Thus, with unforeseen and significant depreciations of regional currencies, a number of firms suddenly found themselves to be in a state of insolvency[27].

While there was no discernible adverse shift in the regional economies' macroeconomic data to warrant the extent of capital reversal that took place, and the magnitude of the socio-economic disturbances that resulted, one key difference between the earlier years and the last few, was the sharp deceleration in exports beginning in 1996 (notably in Thailand and less so in Malaysia and some of the other regional economies). Though this may have been a cyclical phenomenon, insofar as it occurred during a period of general ‘negative news’, it may have been interpreted as a personification of deeper structural problems in the region, and made the external deficits of Thailand in particular seem unsustainable[28]. The shock of the devaluation of the Thai baht validated the negative expectations, leading to a vicious self-fulfilling spiral.

[27] A similar conclusion is drawn independently by Goldstein and Hawkins (1998).

[28] This 'negative news' included political uncertainties, the 'China factor', IMF's warnings regarding Thailand's relatively high current account deficit, sluggishness in the Japanese economy, and problems surfacing about the depth of the industrial problems in Korea (in terms of over-capacity and unprofitability of the major chaebols).

Against this factual background, is the class of models which allow for multiple equilibra and show how currency runs may be 'self-fulfilling'[29]. These 'multiple equilibra' models were pioneered by Flood and Garber (1984b) and Obstfeld (1986) in particular and further stimulated by the European Monetary System (EMS) and the Mexican Peso collapses in 1992-93 and 1994-95 respectively. While Calvo (1995, 1996) and Krugman (1998) provide succinct summaries of the main elements, three major insights from the models are particularly relevant for policy.

First, the models are not purely 'self-fulfilling' in the sense of being completely arbitrary. There must exist some weakness in the economic fundamentals of the country for an attack to occur[30]. If the economy is either very 'good' or very 'bad', it will respectively never or always be attacked. Thus in the case of East Asia, despite the regional contagion effects (see section 5.2), it is revealing that the regional economies with the strongest fundamentals, viz. Hong Kong, Singapore and Taiwan were least impacted by the turmoil *directly*[31].

Second, within those two extremes - which imply unique equilibrium (i.e. an attack with close to 0 or 1 probabilities) - there is a large intermediate range (gray area). In this range, there may exist some weaknesses in the economy that are

[29] In contrast to these multiple equilibra or sunspot models, there is an older class of models which posit that currency crises are largely a reflection of inconsistent and unsustainable macroeconomic policy stances - characterised by burgeoning fiscal deficits which are monetised, and worsening current account imbalances, overvaluation of the real exchange rate and eventual loss of international reserves. Seminal work on these models are by Krugman (1979) and Flood and Garber (1984a).

[30] This is not to say that purely self-fulfilling attacks can never occur, though there is not much evidence of this once one abstracts from the regional contagian effect. The point is that the multiple equilibra models do not provide any theoretical/academic justification for drawing such a conclusion.

[31] At the time of writing, there are real doubts about the durability of the Hong Kong board and the exchange rate peg, given the recessionary effects of interest rate hikes that were effected in late 1997 to counter speculative attacks on the currencies in East Asia (for instance, see Saludo and Shameen, 1998). The Singapore economy is projected to grow much more slowly (if at all) in 1998, while even the Taiwanese economy has seen a reduction - albeit slight - in projected growth for 1998. However these are indirect fall-outs from (i.e. second-round effects of) the crisis, rather than the direct (first-round) impact of the speculative currency attacks, experienced by the SEAEs and Korea.

neither strong enough to completely preclude a speculative attack on the currency, nor sufficiently weak to make an attack unavoidable. Rather, there are a multiplicity of equilibra, such that an economy remains on what seems to be a sustainable path ('superior' equilibrium), until some 'trigger' or evidently minor event coalesces market expectations to an inferior one, that is realised. This 'bad' equilibrium then becomes the absorbing state. The trigger in the case of Thailand seems to have been the sharp curtailment in export growth (after an average 19 percent growth between 1990 and 1995), along with the spate of financial bankruptcies.

Third, to repeat, the multiple equilibra models suggest that a country with certain weak fundamentals ('unwise policies') may not necessarily be attacked. As noted nicely by Obstfeld (1998, p.22), "crises may contain a self-fulfilling element...which can generate multiple equilibra in international asset markets, and render the timing of crises somewhat indeterminate." In the case of the SEAEs, insofar as the 'fundamentals' in 1997 were not very different (and in some cases were better) than in 1995-96 when there was no speculative attack, regional policy-makers and private sector agents may (understandably) had been lulled into a sense of complacency (i.e. East Asia was somehow `different' - superior?).

While the benefits of financial globalisation may potentially be significant (Obstfeld, 1998 and Rajan, 1998b), given the herd mentality on the part of investors, any (endogenous) policy slippages or exogenous shocks (even minor ones that are transitory) could have potentially grave and uncertain consequences for the economy. In other words, the 'punishment' meted out by the financial markets may be far too severe in comparison to the 'crime'. This is so, as such flows are based on arbitrage conditions, viz. ex-ante interest rate differentials. They are therefore affected by both absolute differentials as well as risk-reward perceptions in the host economy[32] As such, they could (and do) flow out just as quickly as they flowed in, as investor

[32] In contrast, medium and longer-term capital flows ought to be based on structural factors like relative marginal products of capital, tax structure, and the like (Larrain, et al., 1997). Frankel and Rose (1996) find a low ratio of FDI to debt is consistently associated with a high probability of a currency crash; while Chuhan, et al. (1996) also find FDI to be a more reliable source of financing.

perceptions of country prospects change, or there is a rise in yields in the industrialised economies[33].

Calvo (1995, 1996) and Calvo and Mendoza (1996) have formalised how the presence of large-scale investment alternatives provides investors fewer incentives to expend resources to learn about individual countries, and conversely makes it rational for investors to become highly sensitive to even 'small' uncertainties in any one country. Along with the 'herd mentality' of investors, these factors make dependence on shorter-term foreign capital flows hazardous, with countries becoming acutely susceptible to 'boom-bust' cycles[34].

5.2 Regional Contagion: From Tequila to Tom-Yam

The financial crisis in Southeast Asia in particular, and also the Mexican crisis, emphasise the relevance and pervasiveness of contagion or negative spill-over effects that are largely regional in scope (Calvo and Reinhart, 1996, Drazen, 1998, Frankel and Schlumker, 1996 and Masson, 1998)[35]. - Thus the terms Tom-Yam and Tequila respectively. - Following Masson (1998), we may describe contagion as a

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[33] In hindsight, it is ironic that Carrasco and Thomas (1996) held up Thailand in particular as a role model (along with Chile) for other developing economies in handling foreign capital flows, as it was relatively unaffected by the Tequila crisis. The same is true of Malaysia, which introduced a two-tier regulatory system in the face of large-scale capital inflows in 1994.

[34] This herd mentality or bandwagon expectations may be rationalised by considering the incentive structure of fund managers, who are 'agents' or 'trustees' of the funds under their control. If a fund manager makes a loss/wrong decision when most other competitors do likewise, it is unlikely that she will be punished by her institution. On the other hand, if the fund manager underperforms relative to the competitors, punishment is very likely. Given this, it is not surprising that the decisions of most fund managers are highly correlated, and thus have magnified effects on the particular country. These bandwagon effects may also be rationalised by appealing to the international political economy literature, which would argue that the existence of foreign investors may act as a signal to other potential investors about the extent of investment-conduciveness of the country's overall policy regime. This reduces uncertainty and therefore increases ex-ante expected returns (see Rajan, 1997 for a model involving FDI).

[35] For instance, during the Tequila crisis (mid December, 1994 - April, 1995), Calvo and Reinhart (1996) reveal the sharp rise in correlation among markets in both the LAEs as well as those in Southeast Asia. As an aside, the extent of correlation of the SEAEs with Korea was zero or negative.

situation where a crisis in one country leads to a jump to a 'bad' equilibrium in a 'neighbouring' country. What is less clear is the rationale for this. Four possible reasons are often suggested. The first two have to do with the 'real' side of the economy, while the latter two have to do largely with the 'financial' side of the economy and require some elaboration.

First, and most direct, is the need to remain competitive relative to other economies with similar areas of comparative advantage (i.e. attack-induced competitive devaluation)[36].

Second, there may be extensive and growing trade, investment and other intra-regional interdependence[37].

Third, most extra-regional institutional investors, such as mutual funds, tend to lump-up sub-regions in the non-industrialised world, rather than make country-specific evaluations and investments - i.e. region-specific or dedicated funds such as the Asia Pacific Fund, the Asian Tigers Fund and the like (see Frankel and Schlumker, 1996 for a list of such Asia-based funds). - Insofar as the region is looked upon as an investment class rather than individual/country-specific emerging markets (i.e. 'risk clusters'), a weakness or attack of one country/currency automatically leads to a revision of assessments and the probability of a similar fate inflicting the regional countries with broadly similar - *actual* or *perceived* - macroeconomic stances. This is popularly called the 'wake-up call' argument. Alternately, this 'wake-up call' behaviour may also refer to the sudden awareness about how little the market participants truly knew/understood the regional economies, thus indiscriminately downgrading overall estimations of the risk-return trade-offs.

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[36] The broad similarity of comparative advantages of the SEAEs - Thailand and Malaysia particularly - has been shown to hold, at least ex-post, as measured by revealed comparative advantage indices (see Kellman and Chow, 1993). Huh and Kasa (1997) and Corsetti, et al. (1998) formalise the logic of competitive devaluations in East Asia.

[37] For instance, it is commonly noted that Japanese FDI in the region has developed an intricate division of labour based on both horizontal and vertical differentiation in the Southeast Asian region (see for instance, Aaoki, 1995). This apart, in 1995, about 18 percent of Thailand's trade (average of imports and exports) was with the larger ASEAN region (Aoki, 1998).

Fourth, losses in one market may lead an open-end mutual fund to liquidate positions in other regional markets. This so-called termed 'portfolio adjustment' behaviour may occur for a number of reasons. These include an anticipation of increased redemptions; the need to cover losses in other crisis-hit market ('cash-in' effects); and in order to reduce portfolio risks and increase their liquidity position ('flight to safety' effects).

Masson (1998) defines only the third as pure contagion, with the first two and fourth referred to as 'spillovers'. Based on this definition, he has shown how it is conceptually possible for contagion to increase the 'grey area' noted in section 5.1, thus making countries even more vulnerable to a currency crisis. Significantly, the argues that it is possible that "(e)ven if each country separately is not subject to multiple equilibra, together they may be, since the fear of crisis in one will increase the devaluation probability in the other, making a crisis more likely in both."

Whatever the exact transmission mechanisms, given the regional dimension of crises (i.e. a macroeconomic policy slippage in any one country reverberates rapidly to other countries in region), it is particularly important to ensure that there is some sort of 'peer pressure' or 'club spirit' that promotes the pursuit of sustainable and prudent macroeconomic policies in each country in the region. At a systematic level, mechanisms that promote regional cooperation and surveillance (i.e. 'peer pressure') to enhance the quality of national macroeconomic management need to be developed[38].

5.3 The Importance Financial Sector Reforms and Prudential Regulations

While most of the SEAEs have maintained relatively sound macroeconomic policies, the financial sectors (especially banks) have been grossly underdeveloped. As noted simply but effectively by the World Bank's chief economist, Joseph Stiglitz (1998b, p.66), "(t)he financial system is the 'brain' of the economy, mobilising savings

[38] In this light, the expected initiation of a regional monitoring mechanism for ASEAN, initially by the ADB, but eventually to be transferred to the ASEAN Secretariat in Singapore, is a welcome initiative.

and allocating it to investment. When this brain malfunctions, the consequences can be enormous."

A general lack of competition (i.e. oligopolistic market structure), directed lending, ghastly accounting standards, generally weak corporate governance structures, extremely close connections between bankers and politicians and consequent inadequate supervision and prudential regulations, have all worked in tandem to conceal a number of acute vulnerabilities. In this light, the Core Principles for Effective Banking Agreement released by the Basle Committee in April 1997 relating to capital requirements, limiting politically-motivated/influenced bank lending, provision for bad loans, rapid and systematic arrangements to deal with insolvent institutions and so forth, ought to be used as a standard towards which all countries should aim[39] (see section 5.9).

One of the key messages emanating from the Southeast Asian crisis is that rapid financial deregulation without an accompanying strengthening of regulatory and supervisory policies, greatly increases the vulnerability of the domestic economy to external shocks[40]. Given the benefits of an open capital account and a vibrant financial sector, ensuring the existence of a sound supervisory system is a critical

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[39] It is revealing to note that the costs of past banking crises in developed countries ranged from a high of 17 percent of GDP in the case of Spain (1977-85) to about 3 percent in the case of the US Savings and Loan (S&L) debacle (1984-91). Those in developing countries were relatively higher, averaging 25 percent or more in Argentina, Chile and Cote d'Ivoire and between 10-15 percent in Mexico since 1994 (Goldstein and Turner, 1996, pp.5-6). Also see World Bank (1998, table 14). Table 11 provides the most recent estimates of the corresponding costs for Korea, Indonesia, Malaysia and Indonesia.

[40] The importance of sound supervisory arrangements as a *sine qua non* of financial sector deregulation is underscored by the fact that Singapore, which is the smallest and most open economy in the region (in terms of trade and capital flows), and also has the most sophisticated and effective financial sector prudential requirements (relatively speaking), was among the least affected by the crisis. At the other extreme, economies like China and India (as well as the rest of South Asia) were not impacted directly by the crisis, due to their heavily regulated and autarkic regimes. More revealing is the study by Kaminsky and Reinhart (1996), which found that of the 25 banking crises under investigation, 18 had undertaken financial liberalisation some time during the previous five years. Significantly, while there was no apparent link between balance of payments crises and banking crises in the 1970s when financial markets were highly regulated, they did become very closely connected in the 1980s, a period which involved large-scale financial deregulation. See Garcia and Lindgren (1998) for a highly readable summary and Goldstein and Turner (1996) for a detailed discussion.

point for other developing economies as they contemplate such deregulation. Failing this, the domestic financial sector will be highly susceptible to a financial and currency collapse (with consequent damaging effects on the real economy). Part of the blame for the Asian crises must be borne by international institutions like the World Trade Organisation (WTO) and the IMF and US international economic policy. All have repeatedly urged rapid financial sector deregulation and capital account liberalisation of the developing Asian economies (as well as the world in general), without providing adequate (if any) warnings about the need for accompanying prudential reforms (Claessens and Glaessner, 1997, Rodrik, 1998 and Wade and Veneroso, 1998)[41].

5.4 Role of IMF Revisited

The quick approval and disbursement of financial assistance by the IMF suggests that it has developed a fairly good 'rapid crisis-management' system to respond to an impending crisis. It must also be acknowledged that the IMF's 'early warning' surveillance procedures seem to have generally performed well, because as noted, they had cautioned Thailand early on of the dangers of running a large current account deficit which was financed by short-term external debt. The issue then is one of how to ensure that countries are made to take heed of the IMF's warnings. In the case of Thailand, insofar as the potential economic vulnerabilities were not reflected in IMF's original country growth forecasts, its warnings about the Thai economy probably lacked credibility (especially against the background of large current account deficits historically and fast and sustained export and GDP growth)[42]. Accordingly,

[41] Conversely, Goldstein and Turner (1996, p.44) have rightly noted that if financial sector liberalisation is undertaken prior to upgrading of the supervisory and regulatory framework, there may be a second best argument for maintaining restraints on the capital account.

[42] This is more than can be said of the World Bank, which in 1993 came out with a much-publicised study entitled the East Asian Growth Miracle or the ADB. The latter, while mentioning the Thailand's current account deficit in the annual issue of the Asian Development Outlook 1996 and 1997, took pains to suggest why it was not necessarily problematic, concluding of the current account deficit that "the present strength of the Thai economy indicates that the country should have no major difficult in financing it" (ADB, 1996, pp.107). Similarly, in Asian Development Outlook 1997 and 1998 was the following conclusion of Thailand - "The economy is widely perceived to be sound, and action by the authorities has

consideration may be given to developing scenario-based forecasts for the government officials of countries that are perceived as potentially vulnerable.

Another problem that needs to be resolved is the criticism made of the IMF that by entering the picture fairly swiftly and very publicly (over-aggressively?), it may have negatively impacted general private sector perceptions of the depth and breadth of the crisis, thus causing the markets to sharply overreact[43]. To the extent that this is true, it may discourage countries from approaching the IMF until the situation has deteriorated to such as extent that there is no alternative[44]. - As noted by Radelet and Sachs (1998b, p.33), "(t)he arrival of the IMF gives all the confidence of seeing an ambulance outside one's door." - A judicious balance needs to be struck between the need for rapid crisis management on the one hand and the dangers of fuelling bearish expectations (self-fulfilling prophecies) or exaggerating the magnitude of the problems on the other[45].

5.5 Moral Hazard Problems

There is the classic moral hazard problem involved, in the sense that the relative rapidity with which the IMF, other regional/multilateral agencies and capital-exporting countries have lent to the indebted country may lead potential *creditors* in the future to pay scant attention to the possible risks of default on foreign lending. In other words, such 'bail out' packages may engender a 'heads I win - tails you lose'

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probably avoided a broader monetary crisis such as that experienced by Mexico in 1994." (ADB, 1997, p.104).

[43] An argument may be made that this publicity by the IMF was aimed at justifying its relevance at a time when many doubts have been expressed ever more frequently, both by policy-makers (especially in the US) as well as some academics, about the need for such an institution in the contemporary world economy.

[44] There were also some clear policy mistakes, such as the demand for immediate bank closures in Indonesia, which probably precipitated an acute investor panic, with two thirds of all banks reportedly experiencing bank-runs on their deposits. (Sanger, 1998).

[45] Goldstein and Calvo (1996) go into greater detail about IMF surveillance, early warning system and their role as crisis 'manager' and 'preventor'.

attitude in anticipation of another IMF-orchestrated bail out[46]. The issue is especially important in the current context, as the indebtedness in the SEAEs has been largely due to the private sector, as opposed to the sovereign debt problems in Latin America in the early 1980s[47]. The moral hazard problem on the part of the (potential) *debtor* countries seems to be over-rated. This is so, as all severely indebted crisis-hit countries have gone through deep recessionary period on the one hand, and the governments in-charge during the crisis have faced a battery of criticisms for the policies that led to such a situation. One would assume that these would be sufficient disincentives from undertaking policies that consciously court severe indebtedness and a consequent bail out.

5.6 Stability versus Growth: Solving the External Private Sector Debt Overhang

The IMF has come under severe criticism for its blanket imposition of the usual conditionalities on the Asian countries in the form of tight demand management policies. Critics have argued that such orthodox conditionalities are not meaningful in the case of Southeast Asian crisis, where the Thailand and Indonesia in particular have run fiscal surpluses (though there is the issue of contingent liabilities and off-budget measures). - Malaysia also ran fiscal surpluses, but it did not go to the IMF for assistance. - Insofar as there has been some softening of the fiscal balance targets set by the IMF (especially in the case of Indonesia), probably more contentious at present, is the role of monetary policy.

On the one hand, the IMF-Treasury complex has steadfastly emphasised the need for the economies to maintain tight monetary policy stances to stave off the

[46] Indeed, it has been suggested that the Mexican bailout in 1995 was a precursor to the current regional crisis in East Asia, as foreign creditors/investors anticipated further international assistance in case of a crisis. Accordingly, little regard may have been paid to the risks involved in their investments (Calomoris, 1998).

[47] For instance, about 50 percent of Indonesia's external debt is private corporate debt, the figures being slightly over 70 percent for Thailand and about 90 percent for Korea respectively (Nomura, 1998b).

possibility of capital flight and concomitant currency depreciations and greater inflation (see the IMF's Stanley Fischer, 1998 and US Treasury Secretary's Robert Rubin, 1998). On the other, a number of critics - among them, the World Bank's Joseph Stiglitz (1998b) and Sachs and Radelet (1998a,b) - have argued for the need to relax this policy in order to prevent an output and employment collapse, as has been happening in the region (Handley and Koo, 1998 and Wade and Veneroso, 1998). According to research by Hong Kong and Shanghai Bank, over one quarter of all corporate borrowers in Indonesia, Thailand and Korea do not have enough cash flow to cover their interest liabilities (Lo, 1998). As companies get pushed from illiquidity to insolvency, this has raised the nonperforming loans and contributed to a deepening of the financial sector fragilities. These, along with accompanying recessionary conditions, may themselves act as a negative signal to investors, hence actually encouraging further capital flight. In other words, an 'overly' tight monetary policy is as or more dangerous than one that is very loose[48].

The liquidity squeezes have stymied the goal of generating export revenues as part of a strategy to export the countries/firms out of the debt burdens (by bankrupting a number of firms which have not been able to raise the required working capital). To make matters worse, no clear solution has been offered (by the IMF-Treasury) about way of dealing with the mountainous foreign debt obligations of the companies[49]. This has only added to market uncertainty, while reducing incentives to undertake necessary reforms that promote growth[50]. There is a need to establish systematic and

[48] As of August 1998, short-term interest rates stood at over 50 percent in Indonesia, 16 percent in Thailand, and an average of about 12 percent in Korea, Malaysia and the Philippines (Nomura, 1998a).

[49] Recent initiatives have been taken to restructure the external debts of Korea, Indonesia and Thailand. For instance, Indonesia's private external debt is to be restructured to an eight years maturity, along the lines of Mexico's Ficorca Plan (Nomura, 1998b).

[50] If there is one, it has not been adequately revealed to the public. Such secrecy only serves to exacerbate uncertainties, and is inconsistent with the IMF's push for greater transparency of data and other pertinent information about developing countries. In fact, in response to some of these criticisms, the IMF's External Relations Department put out a communiqué entitled "IMF Bail Outs: Truth and Fiction" to 'clarify' the terms of the IMF's bail out package (put out on their homepage on the world-wide web). The

formal guidelines to work-out viable private sector debt restructuring arrangements (including debt forgiveness). The governments must attempt to encourage mergers and acquisitions (M&As) of the indebted firms (domestic or international). The economic attractiveness and viability of some firms may be enhanced by removing price controls or other tariffs if they exist. Remaining firms must be divided into those that are solvent but *illiquid* and those that are *insolvent*[51].

5.6.1 Insolvent versus Illiquid Firms

Insolvent firms must be allowed to go bankrupt, with a 'fire-sale' of productive assets to pay back the international lenders (there is also a need for putting in place effective bankruptcy laws)[52]. All creditors may however not be paid in full. Given that these are private sector transactions, such risks are inevitable and ought not to be the concern of the governments or international agencies. Admittedly, any private sector debt default could lead to a larger country risk premium in the future (see section 5.7), which makes the financing costs of external funding of all firms in the countries much higher. Importantly though, this ought to reduce the moral hazard problem on the side of the lenders. In the medium and longer-terms, systematic bankruptcy mechanisms to ensure greater 'flexibility' in the economic structures must be designed (see general discussion in Daniels, 1997).

Illiquid firms that are not part of a M&A or some sort of privately-initiated venture, could be provided credit at commercial rates for its working capital needs by the government (which could as a conduit for channelling funds from international

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IMF has grandly referred to the focus on the financial sector and corporate governance issues as the 'second generation' reforms, a contrast to predominant focus on fiscal complicity as typified their ('first generation') programs.

[51] At a time of rapidly depreciating currencies and firms with foreign denominated liabilities, it is admittedly very difficult to make this distinction. It becomes necessary to make a judgement about the long-run equilibrium nominal exchange rate at which to value the net worth of the firms in local currency terms. The problem is particularly true of Indonesia, given the virtual collapse of the currency.

[52] Krugman (1998c) discusses the welfare implications of the fire-sale of assets by crisis-hit countries to foreigners.

agencies such as the ADB and the World Bank). More systematic and transparent agreements of the terms under which short-term debts are to be converted to longer-term ones (such as the Brady Plan under which banks negotiate debt and debt service reduction agreements that involve a market-based menu of options are needed). The ad-hoc manner in which such rolling-over seems to be the current vogue, is obviously not conducive to market stability. Much can be learnt from the huge literature that developed in the 1980s, motivated by the Mexican debt crisis. Issues that have been discussed relate to debt forgiveness versus financing and types of financing (government-led versus private sector initiative), and balancing the goals of reducing debt overhang and ensuring economic growth (see the succinct summary by Carmichael, 1989).

5.6.2 A Note on Problem-Banks

In most of these countries, bank liabilities are perceived as being contingent liabilities of the government. While there is an obvious moral hazard problem involved in the case of the bank authorities, arguably such implicit or explicit government protection may have encouraged household savings, hence partly contributing to the oft-noted high private (non-mandatory) savings in the region. Given the presumption (or actuality) of such guarantees, the bank liabilities ought - at least partially - to be 'socialised' (i.e. taken over by the government as part of the fiscal balance), and banks recapitalised. Such a commitment must also be publicly announced to prevent bank runs or other social instabilities (as happened in Indonesia), as well as to ensure the maintenance of high private rates of savings (internal finance taking on especially portentous dimensions during crisis periods)[53]. The losses associated with such insolvencies must be shared by a combination of tax-payers (government) and agents

[53] Mody and Patro (1996) discuss methods of valuing such government loan guarantees, methods of accounting which are designed to anticipate losses, risk valuation and ensuring maximum transparency. Krugman (1998a,b) provides a theoretical framework to discuss the economic effects of such government guarantees in terms of fuelling asset inflation because of moral hazard problems.

linked to the banks (Daniels, 1997). Since such a move will increase the respective government's indebtedness, the IMF's prescription of fiscal stringency in this case becomes necessary. However such a lender-of-last-resort role must be publicly and clearly eschewed in the future, as it distorts incentives of the commercial banking agents to monitor the quality of loans (including maturity and currency mismatches).

If the above concrete steps towards restructuring are undertaken, and are seen as being credible/durable, there ought to be far greater scope for a relaxation of the tight macroeconomic stance (credit policies in particular) early on, without jeopardising the goals of exchange rate and price stability. The improvement in domestic absorption (and thus market confidence) in the short-term should in turn make restructuring less painful, possibly enhancing its pace.

5.6.3 Time for an Asian Bond Market

Another important step may involve the development of a regional bond market Such a market could play two important roles. First, it would assist in the goal of immediate liquidity-provision for some of the solvent, but cash-strapped firms. Second, it would enhance the transparency of the companies' balance sheet activities, as well as act as a broader indicator of the health of the macroeconomy (particularly credit risks and inflationary pressures). Third, risk aversion by banks, as well as the dangers of short-term lending on the one hand, and the continued infrastructural needs of some of the countries in the region on the other, necessitate the creation of a bond market for long-term funding.

The development of bond markets has hitherto been precluded due to the lack of need by regional governments to borrow (given the fiscal surpluses they ran) on the one hand, and the prevailing corporate governance structures (i.e. close-knit family-linked or government-based), along with easy accessibility to sources of finance (during the boom period until mid 1997) on the other. Given that both of the above have become far less of a 'constraint' in the aftermath of the regional crisis, as well as the existence of high private savings rates on the other (thus providing a potential

demand for such financial products), this would seem to be an opportune time to seriously consider its establishment. Indeed, government bonds could create a yield curve from which private sector/corporate bonds could be priced.

5.7 Negative Externality of Foreign Borrowing

As alluded to above, external borrowing entails a negative externality or 'contamination effect', which arises due to the existence of a country risk premium that is an increasing function of aggregate external indebtedness. This drives a wedge between the marginal private and social (or aggregate) external borrowing costs (Harberger, 1980), and points to the need for some sort of tax on external borrowings[54]. The contamination effect also suggests that it is not merely the sizes of the fiscal deficit or public debt that ought to be considered, but rather, those of the current account deficit per se and aggregate external debt (see section 5.9 and appendix 2). Accordingly, the so-called Lawson doctrine on the current account deficit (noted in section 2.1) is clearly fallacious and even perilous, as investors seem to be concerned with aggregate country risk, as opposed to just the sources of potential risk (as crudely measured by the extent of the fiscal deficit or public debt that is externally financed).

There has been an increasing dependence by firms and governments on global capital markets for financing needs. Added to this is the 'overborrowing syndrome' highlighted and formalised by McKinnon and Pill (1996), whereby overoptimistic beliefs in future growth prospects ('mania') of an 'emerging market', along with implicit or explicit deposit insurance, may lead to an excessive external debt accumulation by economic agents. However, unforeseen shocks which change market sentiments (due to adverse terms of trade shocks, export growth slowdown, and the like) may quickly lead to previous investment commitments being perceived

[54] Apart from raising the costs of short-term borrowing through the mandatory one year depositing of the funds interest-free as previously noted, Chilean firms and financial institutions are only allowed to avail themselves of the global capital markets if they are rated at levels at least as high as Chilean government bonds (also see footnote 55).

as unprofitable, and the current account deficit seen as 'unsustainably large'. In such a case, potentially solvent projects may face acute liquidity constraints, as lenders curtail financing. Indeed, either due to currency devaluations which are unhedged or deep recessionary conditions with concomitant markets share losses, these liquidity problems could eventually escalate into solvency ones (as in Southeast Asia). This problem is particularly acute when the external deficits are financed by short-term borrowing. It is therefore not surprising to note that both Thailand and Mexico had in common heavy concentrations of short-term, foreign currency denominated debt.

As such, developing countries must develop a judicious external debt management policy. In addition to the actual *level* of aggregate external debt, particular attention must be paid to the *composition* of external liabilities in terms of maturity as well as currency denominations (to the extent that forex exposures cannot to perfectly hedged, especially in developing countries with rudimentary capital markets). Prudence suggests the imposition of ceilings, tariffs, marginal reserve requirements of foreign loans that vary inversely with the length of maturity of the external debt (as done by Colombia[55]), or other provisions that somehow manipulate corporate tax deductions on the basis of short-term debt holdings. While more conservative policies that promote longer-term, domestic debt in preference to short-term, foreign currency denominated liabilities are a relatively costlier source of financing, they should be seen against the mounting evidence of a bunching of the latter as being a necessary (if not sufficient) condition for a currency crisis[56] (see

[55] Specifically, the reserve requirements on loans in Colombia apply to all loans with maturities of five years or less, and are maintained for the entire duration of the loan. The percentage requirement is inversely related to the maturity of the loan. A rate of 140 percent is applied to loans that are thirty days or less (i.e. virtually restrictive) in maturity, falling to a low of 42.8 percent for loans with maturity of five-years (Edwards, 1998 and Reinhart and Smith, 1997). In contrast, Chile imposes an across-the-board 30 percent non-remunerated reserve requirement on all inflows, which have to be deposited at the central bank. Reinhart and Smith (1997) find that the controls are effective in terms of altering the composition of flows (to longer maturities), though not necessarily in terms of curtailing capital inflows per se.

[56] See Kiguel (1998) for a discussion of some of these issues in the context of Argentina's recent experience with debt management.

section 5.9). As best said by Goldstein and Calvo (1996, p.77), “host countries should avoid being penny wise and pound foolish in their debt management practices.”

5.8 Sand in the Wheels of International Finance

Apart from short-term external debt, both the Thai and Mexican cases reveal the dangers of allowing unfettered capital flows of a short-term nature in general (i.e. equity along with debt). Accordingly, proposals for some sort of ‘prudential’ intervention to slow the speed and magnitude of cross-border short-term capital flows seem to have merit. We are in favour of at least re-examining the possibility – mooted originally in 1972 by Nobel Laureate James Tobin - of a levy on the purchase and sale of forex internationally (Tobin, 1978, 1996 and Kaul, et al., 1996). A Tobin tax is essentially a permanent, uniform, ad-valorem transaction tax on international forex flows. While this issue is the particular focus of Rajan (1998b), some important points may be noted here.

First, the theoretical rationale (outlined in sections 5.1 and 5.2), and lessons drawn from the Thai crisis and accompanying Tom-Yam effect, as well as the ERM and Mexican-Tequila crises that preceded it, seem to provide justification for at least considering the possible imposition of some form of restraints on international capital flows. To summarise, the rationale for such levies are based on the existence of capital market distortions. These include existence of multiple equilibra in forex markets (particularly given contagion effects), herd behaviour and the possible ‘over borrowing’ syndrome due to incomplete domestic financial reform, including inadequate prudential regulations (also see Eichengreen, 1996 and Stiglitz, 1998a).

Second, such policies will probably be far more successful in (and ought to be aimed at) moderating (short-term) surges in capital *inflows* (especially debt financing), rather than *outflows*[57]. In other words, the aim should be to prevent excessive ‘booms’

[57] Malaysia is a good case in point. In 1993-94, faced with massive capital inflows, the Malaysian authorities implemented policies to dampen these inflows with a fair amount of success. However the curbs set in place in late 1997 to moderate these outflows were largely

from occurring in the first instance, rather than attempting to eliminate the 'busts' that invariably follow.

Third, such policies should not to be considered (at least publicly) at a time of a crisis. This will only exacerbate an already bearish and uncertain situation (see footnote 57).

Fourth, by no stretch are such curbs offered as panacea for international financial crises. The primary focus must be on getting the 'fundamentals' right. However, the point is worth repeating that both theory and real world experiences suggest that 'fairly' sound economic fundamentals are *necessary*, but not a *sufficient* condition for invulnerability from a currency and financial crisis.

5.9 Creation of a World Financial Organisation (WFO)/Extension of Role and Mandate of the BIS

In light of the negative economic repercussions (including the high bail out costs) of financial crises, there seems to be a case for giving due consideration to the establishment of a World Financial Organisation (WFO), as recently proposed by a United Nation's-Economic and Social Commission for Asia and the Pacific (ESCAP) (Reuters, June 15, 1998). Preferably (given the need to minimise overlapping/duplication of activities, thus reducing resource wastage) and probably more feasible (given the political economy considerations in getting countries - the US in particular - to agree to creating an entirely new international institution), might be an appropriate extension of the mandate, resources and authority of the BIS (which currently has 'no teeth'). The WFO/BIS can be placed in charge of ensuring that member countries work towards the development of healthy banking and financial sectors. This would complement the surveillance and information dissemination roles of the IMF. The WFO/BIS may also to be placed in charge of determining appropriate external debt ceilings of various maturities of the countries (which could vary

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unsuccessful, and probably intensified the bearishness. This is consistent with cross-country experiences with capital restraints (Folkerts-Landau and Ito, 1995).

depending on economic circumstances)[58]. This role becomes particularly important, given that it is always possible for governments (with short time horizons) under political or other pressures or motives, to find ways to circumvent their own ceilings on external borrowings. The WFO/BIS could work with the WTO to ensure that agreements aimed at financial deregulation are accompanied by appropriate supervisory arrangements.

Apart from ex-ante monitoring regulating, in case of an actual financial crisis, the WFO/BIS may be placed in charge of developing and initiating effective and systematic debt workouts owed by the private sector (given that the IMF mandate pertains only to sovereign debt). At least a portion of the financing of the WFO/BIS could be from the revenues that may be generated from the Tobin tax noted above[59]. An additional source may be the 'insurance' premiums paid by international banks that would like to be part of the creditor consortium which may benefit from direct negotiations between the WFO and the indebted country (firms within the country) at a time of crisis[60]. There are admittedly a whole host of other modalities relating to funding, determining the appropriate division of labour between this and other international economic agencies, and the like, that need to be sorted out. While a discussion of these are clearly beyond the scope of this paper, suffice it to note here that the frequency and depth of banking and financial crises and the knock-on effect they have on the real economy, emphasises that serious consideration of these issues is long overdue.

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[58] Financial gurus, George Soros and Henry Kaufman have respectively also suggested an international credit insurance corporation and international supervisory structure (Grenville, 1998). As envisioned above, the WFO may fulfil both the insurance and supervisory roles.

[59] Based on 1995 figures, broad consensus estimates - given a tax rate of 10 to 25 basis points - are for anywhere between $140 to $300bn to be generated annually (Bird, 1998).

[60] There are obviously all sorts of adverse selection and moral hazard problems involved if banks are allowed to become 'members'. These and obviously many more issues will need to be scrutinised heavily in future work.

5.10 The Current Account Deficit and Indicators of Financial Crises

Large current account deficits are usually seen as among the leading indicators of an impending balance of payments or financial crises. However, as noted, the current account deficits in the SEAEs were present during the Mexican-crisis on the one hand, while countries like Brazil, which did experience much turbulence at that period, had fairly modest current account deficits. Similarly, Malaysia's deficits had fallen significantly in 1996 relative to the previous year, yet it was still negatively impacted[61,62]. A major difference between the two periods as far as the SEAEs were concerned, was the anticipated future export growth prospects. Specifically, while projections for export growth were fairly high during the 1994-95 period, recall that 1996 saw a sharp decline in export growth. As noted by Ostry (1997, p.20), the "(r)apid growth of exports - which continues, with investment, to be the main engine of growth in these countries, gives confidence to market participants that current account deficits will remain sustainable in the future."

Against this background, as detailed in appendix 2, a seemingly useful indicator of external creditworthiness or potential vulnerability is a so-termed 'asymptotic liabilities-export ratio' (ALER) a la Dadush, et al. (1994, pp.17-8), which relates the current account deficit to expected export growth. However, as with any other single indicator, the ALER is not fool-proof. Rather, it ought to be used as part of an 'early-warning system', consisting of composite leading indicators a la Kaminsky (1997) and Kaminsky and Reinhart (1996). The indicators may be useful in capturing/highlighting potential vulnerabilities that could forebode a crisis, so that policy-makers may adopt appropriate pre-emptive measures[63].

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[61] Admittedly, both the Brazilian and Malaysian cases may be partly rationalised by the contagion effects elaborated in section 5.2.

[62] Frankel and Rose (1996) are among many who have failed to discern any systematic relationship between the size of the external current account deficit and a currency crisis (also see World Bank, 1998, pp.31-3).

[63] According to the composite leading indicators developed by Kaminsky (1997), preliminary data suggests that the probabilities of crises in Indonesia and Malaysia were lower than they were in Thailand and the Philippines. While the conclusion regarding the Philippines'

5.11 Transparency and Quality of Economic Data and Analysis

There is an urgent need for a much greater degree of transparency in economic data and general public documentation of economic and financial activities in the region[64]. The authorities in the region have tended to be less than forthcoming about their economic and financial situations, and have used economic data as a strategic tool rather than a public good, while the corporate governance structures involving family-controlled or government-related corporate structures have lacked transparency, obfuscating gross malaises. Timely and accurate data are essential if foreign investors and lenders are to be able to make rational and economically-viable decisions, with reasonably accurate perceptions of risks and benefits. This may lessen the possibility of sharp and abrupt alterations in market perceptions and expectations. Against this background, the IMF's recent data dissemination standard aimed at encouraging timely, accurate and public availability of broad macroeconomic data by member countries, is an important step, as is the need to encourage its wide-spread/universal adoption by member countries[65].

Related to the above, the quality of economic and credit analyses and general research in the public, private and academic spheres needs to be substantially enhanced. In addition to the human capital requirements, arguably of equal importance is the willingness of the governments in the region to allow analysts to discuss possible problems in an open and candid manner. The perception by the

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vulnerability is dubious, the robustness regarding Thailand being the most susceptible is notable.

[64] For instance, as noted, one was not able to obtain a reliable breakdown of capital flows into Thailand between FDI and loans (see footnote 12).

[65] While more and better quality data is better than less, one wonders if, in the final analysis, this will necessarily be all that useful. This is so, given the incentive compatibility problems that seem to operate among private sector analysts and the environment in which they function. Consider the following quote by Henry Kaufman:

> Every firm wants to do deals in emerging markets when margins are high. Analysts become part of the deal-making and are reluctant to speak up about problems that might derail a deal. They are also under pressure from sales and corporate finance executives to come up with ideas that might lead to a sale, not ideas that might stop one (quoted in Calvo and Goldstein, 1996).

governments that non-commissioned *economic* reports that highlight potential weaknesses in the economy are politically motivated or generally ill-intentioned, is inconsistent with their ambitions of becoming/remaining global and vibrant economies.

5.12 Sterilisation and Choice of Exchange Rate Regime

The 'boom-bust' cycle faced by Thailand in particular, but also the other SEAEs, is by no means unique to them. This has been recognised as one of the main dangers and policy dilemmas of an open capital account (Rodrik, 1998). In addition to the need for sound financial prudential regulations to ensure that funds are 'appropriately' intermediated, the regional financial crisis has revealed the dangers of sustained sterilisation of capital inflows. Specifically, while useful at a time of transitory capital inflows, sterilisation, if done on a sustained basis, will lead to the rapid build-up of forex reserves and keep interest rates high (see footnote 14). This in turn encourages domestic firms to borrow from abroad and conversely encourages foreign lending. The only viable option for an economy faced with such incipient balance of payments surpluses is to allow for nominal exchange rate adjustments (appreciation) to act as a buffer against the ebb and flow of capital movements.

Given the virtual absence of worries about currency fluctuations relative to the $, a fixed rate system was also the reason for 'over-borrowing' by (or 'over-lending' to) the SEAEs, as well as rudimentary corporate risk management strategies by firms. If the macroeconomic policies are inconsistent with the prevailing peg, and to the extent that other domestic prices and costs are sticky in the short and medium terms, that would lead to exchange rate misalignments, which get magnified in open global capital markets and are difficult to undo (given that devaluation becomes a highly political issue)[66]. Consequently, maintaining a rigid peg is particularly inviting to

[66] Consider the following quote by James Tobin (1998, p.8) regarding a pegged exchange rate system:

> (A) discrete change in an official parity is...traumatic. It is a loss of face and a blow to pride. It is an administrative decision, that is to say a decision of policy and politics. It necessarily requires responsible officials - finance ministers, chancellors, central bank chairmen - to go back on their solemn word. Moreover, they or their successors have the unenviable task of choosing a

speculative attacks - which involve selling the currency short - as in the absence of any risk of currency appreciation, the only cost of short selling a currency is that incurred in initially borrowing the currency (i.e. a 'one way' or 'sure' bet) (see appendix 3)[67].

While the SEAEs have hitherto very successfully maintained pegged exchange rates, the current weakness in most of the currencies will preclude attempts to return to a fixed rate anytime in the near future. Any attempt to do so will lack credibility. At least for the medium-term, the regional economies - with the possible exceptions of those with 'adequate' reserves and equally importantly, monetary authorities with sufficient credibility to back their currency pegs - ought to maintain a flexible exchange rate regime[68,69]. Benassy-Quere (1997) has highlighted the important point that exchange rate pegs in Southeast Asia have been based almost solely on trade (exports) weights without any regard to currency denomination of debt

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> new rate in a climate poisoned by distrust, clouded by uncertainties about the fundamentals, and dominated by unpredictable psychology. It's easy to get the choice wrong, prolonging and aggravating the crisis. For all these reasons, there is great temptation to stick with an overvalued parity too long.

[67] Arguably, if Thailand had allowed for a sufficiently large nominal depreciation of the baht (which would have happened under a free float) in mid 1995 when the $ appreciated relative to the yen, it and regional economies may not have been faced with the current crisis (or at least the resulting severity). Sachs, et al. (1996a,b) and Calvo and Goldstein (1996), among many others, have arrived at a similar conclusion regarding Mexico and its 1994-95 crisis.

[68] See Asian Monetary Monitor (July-August, 1994, pp.1-10) and Reisen (1994) for broadly similar conclusions for the SEAEs. In fact, Glick, et al. (1995) argue that policies of pegging exchange rates in East Asia were of little benefit in terms of keeping inflation down (this goal being attained primarily due to other factors such as relative autonomy of monetary authorities). Rather, it may have acted as a liability, as it prevented the necessary adjustments in response to external shocks.

[69] Asian Monetary Monitor (July-August, 1994, pp.1-10) has suggested the other extreme of a currency board as a possible option for the Asian economies. Indeed, such a proposal was under serious consideration by Indonesia during the early part of 1998. However this option can only be considered in the much longer-term once a significant degree of stability has been reached in the region. This is so for a number of reasons. First, during a period of market uncertainty (especially when the market is thin), no one is certain as to the appropriate exchange rate at which the currency ought to be pegged. Second, a currency board requires the presence of adequate reserves. Third, a currency board automatically requires that interest rates be hiked to a level adequate to maintain the peg in case of a currency run. Insofar as the countries are currently in recessionary states, and the banking sectors are already terribly fragile, there is the very real question of whether the governments will be willing to allow for such a policy if required (i.e. the policy/permanence of the institutional structure lacking credibility).

obligations. This proved particularly problematic, given that while the US was a primary export market, a substantial portion of the debt was denominated in yen. In light of the relative difficulty in deciding the 'optimal' peg (given the trade-off between export competitiveness and external debt management), this provides further reason to allow for a freely floating exchange rate.

While a discussion and formalisation of issues relating to flexible exchange rates in the context of global capital markets may be found in Rajan (1998b), it is useful to add an important caveat here. The *flexible* versus *floating* dichotomy refers to the degree of exchange rate flexibility and central bank 'philosophy' rather than being an 'either-or' choice. Specifically, no country has a genuinely free floating currency, with exchange rate considerations almost always being taken into account when deciding on the appropriate monetary policy stance (Obstfeld, 1998).

6. Concluding Observations

Three broad factors in the global economy seem to account for the rapid pace of financial globalisation. First, are the major advances in information technologies, global communications and other new financial instruments and risk management techniques. Second, a number of developing and former socialist (i.e. 'emerging') economies have undertaken, at various paces and degrees, steps towards economic and financial liberalisation. Third, over the last decade, institutional investors (especially US mutual funds) have been consciously diversifying their portfolios internationally.

Thus, while the process of financial globalisation ought to continue with all the concomitant benefits, like anything else, it is not an unmixed blessing. As in the case of Sachs et al.'s (1996b) conclusion of the Mexican crisis and the accompanying Tequila effect, our analysis indicates that the collapse of the Thai baht and particularly the broader Tom-Yam effect, may be best characterised as being of 'sudden death', rather than 'death foretold'. This is broadly consistent with the multiple equilibra models which emphasise the possibility that some extraneous shock might co-

ordinate the expectations of weakness and consequent need for devaluation and thus trigger a crisis (i.e. the countries were pushed from a 'good' equilibrium to a 'bad' one).

As noted, the trigger in this case was the sudden decline in exports in Thailand in 1996 over the previous year, after growing at an annual average of about 19 percent between 1990 and 1995. This currency crisis interacted with the financial fragilities in the country, which in turn made apparent and exacerbated frailties in the real economy. While the contagion or negative spillover effects on the rest of the region was inevitable (for reasons highlighted in section 5.2), policy slippages in Indonesia (by the IMF regarding the decision on sudden bank closures and subsequent policy reversals by the Suharto regime) and Malaysia (with government statements in the midst of the crisis that only served to intensify market uncertainty), significantly worsened the situation. The largely unanticipated deterioration in economic conditions in the region following the devaluation of the Thai baht (at least in terms of suddenness and magnitude), along with the 'uncharacteristic' indecision by regional policy-makers, sharply undermined market confidence in the region. This led to a vicious downward spiral, with the 'overshooting' in the financial markets further worsening the panic[70]. Consequent appreciation of the local value of external liabilities, which were denominated in foreign currencies and largely unhedged, coupled with the sudden curtailment of external credit, led to large-scale insolvencies. This only added to the panic and accelerated capital outflows.

Admittedly, this conclusion is definitely bound to be much more controversial for Thailand, given the existence of various economic weaknesses noted. One may add though that the weaknesses in Thailand were largely similar to that of Mexico in 1994-95, and Sachs, et al.'s (1996b) conclusion of the Mexican case, was as noted,

[70] Analytically, overshooting of asset prices was formalised by Dornbusch (1976). In this classic paper, he showed how the monetary approach to exchange rates does allow for the possibility of short-term overshooting of the exchange rate if there exist different adjustment speeds between the assets and goods markets. The issue however is one of an overshooting of even this (Dornbusch) the overshooting equilibrium.

one of sudden death. Indeed, while Thailand's GDP growth in 1996 did slowdown, it remained at a healthy 6.7 percent (down from 8.9 percent annual average the previous five years). Further, as discussed in section 3, and as in the case of Mexico (see Sachs, et al., 1996a), there existed little 'evidence' of an impending crisis in terms of trends in Thailand's risk premium, credit ratings, private sector/IMF growth forecasts and the like. Rather, there seems to have been an abrupt reversal from extreme bullishness regarding the growth prospects of the Thai economy to one of excessive bearishness. What did exist however, were some anecdotal and 'bits and pieces' of microeconomic evidence which alluded to the existence of some weaknesses, particularly in relation to the financial sector (see footnote 71). Insofar as this is the case, as noted in the introduction, two broad sets of important policy implications warrant emphasising.

First, analytically, the multiple equilibra models emphasise the importance of sound economic fundamentals as a *necessary* condition in preventing a crisis from occurring. However these models - particularly once the contagion effects are incorporated - highlight that 'fairly good' fundamentals per se are in and by themselves insufficient to preclude a possible currency crises. Conversely, this makes their predictions so much more challenging (impossible?). As aptly noted by Dornbusch (1997, p.2), "(o)f six crises predicted by experts, five never happen."

What we can say with certainty though, is that certain steps such as a judicious debt management policy, which pays close attention to the level, maturity and currency composition of external debt obligations, ought to significantly reduce (though probably not eliminate) the chance of a crisis from occurring. Particular attention must be paid to strengthening the financial and banking systems (including prudential regulations). Indeed, Calvo and Mendoza (1996) have developed a model under which abrupt and exogenous shifts in foreign capital flows and anticipation of sovereign financial system bailouts, could generate a currency run, which gets exacerbated due to self-fulfilling or herd behaviour. Such a model seems to capture many of the stylised facts that have emerged from Thai crisis (and the Mexican crisis

too)[71]. According to Calvo and Mendoza (1996, pp.236-7), such crises are "a new kind of balance-of-payments (BOP) crises in the era of global capital markets." As such, close attention needs to be paid to indications of financial vulnerability.

It is revealing that the most fundamentally sound economies in the larger East Asian region, viz. Taiwan and Singapore, have been much less affected (relatively speaking). Nevertheless, just as regional interdependence was promoted as crucial during the boom periods in stimulating and sustaining growth in the region, no matter how fundamentally strong an economy, it is almost inevitable that there will be some fall-out from instability in neighbouring economies. Accordingly, the need for regional cooperation on matters involving mutual surveillance of economic policies and the development of early warnings system take on important dimensions, and have been highlighted in this paper. Other policy issues on a global level that involve reforming the international financial architecture, have also been discussed in some detail.

Second, and finally, with regard to economic data, there is a definite need for policy-makers to work towards the timely and regular availability of aggregate, macro data. Indeed, this has been high on the IMF's agenda since the Mexican crisis (as part of the so-called Special Data Dissemination Standard). More importantly though is the need to make available and transparent more comprehensive and detailed data, such as sectoral breakdown of aggregate savings, the manner in which public and private (mandated) savings are channelled, the degree of exposure of banks and other institutions to asset markets (mainly the property sector), the rate of return on physical and financial assets invested domestically and overseas and the extent of off-budget and contingent fiscal liabilities. The availability of such data, along with a more 'research-conducive' environment may hopefully enhance the quality of economic analysis and debate in the region. Such openness can only augur well for

[71] In the sense that the Thai crisis did have precedence, it was "death foretold'. This only emphasises the fact that the notion of 'sustainable' growth path in open global capital markets remains far from clear-cut. The significant point though is that the issue of Thailand's vulnerability is far less clear-cut or certain, as one may be led to believe ex-post by most other research and popular writings on the regional crisis.

the economic future of the region at a time when globalised capital markets demand the maintenance of constant vigilance on all economic parameters.

Table A1

Macroeconomic Indicators of Southeast Asian Economies (SEAEs) and Latin American Economies (LAEs)
(%)

Country	1990	1991	1992	1993	1994	1995	1996	Simple Average[o]
SEAEs								
Indonesia								
GDPg[a]	9.0	8.9	7.2	7.3	7.5	8.2	8.0	8.1
Inf Rate[b]	7.9	9.1	6.8	9.3	8.5	9.4	8.0	8.4
FB[c,p]	1.3	0.0	-1.2	-0.7	0.0	0.8	1.4	0.2
CAB[d]	-2.8	-3.4	-2.2	-1.5	-1.7	-3.3	-3.3	-2.6
I/GDP[e]	28.5	28.1	27.2	25.9	27.8	28.8	28.1	27.8
Pte[f]	19.2	18.5	17.7	16.1	18.1	19.3	n.a.	18.2
Pub[g]	9.3	9.6	9.5	9.8	9.7	9.5	n.a.	9.6
S/GDP[h]	27.7	28.5	30.0	31.3	32.0	n.a.	n.a.	29.9
Exportg[i]	16.7	10.5	14.0	8.3	9.9	13.4	9.7	13.8
Importg[j]	31.5	15.7	7.7	6.1	13.9	26.9	5.7	15.4
D/GDP[k]	64.0	64.9	66.2	58.7	57.2	56.9	48.4	59.5
D/X[l]	n.a.	n.a.	n.a.	242.3	240.7	237.5	219.6	235.0
FXR/I[m]	20	30	30	30	30	20	30	30
FXR/SD[n]	70	70	60	60	70	60	70	70
Malaysia								
GDPg[a]	9.8	8.7	7.8	8.3	8.7	8.8	8.0	8.7
Inf Rate[b]	3.0	3.7	4.1	3.7	3.5	6.0	3.6	3.9
FB[c,p]	-2.2	-0.1	-3.5	-2.6	2.5	3.8	4.2	0.3
CAB[d]	-2.1	-8.8	-3.8	-4.8	-7.8	-10.0	-4.9	-6.0
I/GDP[e]	32.4	33.4	36.0	38.4	40.2	43.1	41.8	37.9
Pte[f]	20.9	22.7	21.5	23.8	27.2	30.5	29.2	25.1
Pub[g]	11.5	10.7	14.5	14.6	13.0	12.6	12.6	12.8
S/GDP[h]	29.2	26.3	30.2	31.1	33.9	n.a.	n.a.	30.1
Exportg[i]	16.3	17.0	18.1	16.1	23.1	26.0	5.8	17.5
Importg[j]	28.2	26.8	10.1	17.8	28.1	30.5	0.7	21.8
D/GDP[k]	n.a.	n.a.	n.a.	37.2	32.8	25.8	21.7	29.4
D/X[l]	n.a.	n.a.	n.a.	50.4	40.6	32.4	26.2	37.4
FXR/I[m]	30	30	40	50	40	30	30	40
FXR/SD[n]	640	420	340	430	460	370	280	420
Philippines								
GDPg[a]	2.7	-0.2	0.3	3.0	4.4	4.9	5.5	3.0
Inf Rate[b]	12.8	17.6	8.4	7.8	9.4	8.1	8.4	10.3
FB[c,p]	-3.5	-2.1	-1.2	-1.6	1.6	1.4	0.4	-1.7
CAB[d]	-6.1	-2.3	-1.6	-5.5	-4.6	-4.4	-4.7	-4.2
I/GDP[e]	23.1	20.0	20.9	24.3	23.6	22.5	22.5	22.4
Pte[f]	18.9	15.9	16.0	19.3	18.7	17.9	17.9	17.8
Pub[g]	4.2	4.1	4.9	5.0	4.9	4.6	4.6	4.6
S/GDP[h]	18.7	17.8	18.9	18.5	20.0	n.a.	n.a.	18.8
Exportg[i]	4.7	8.0	11.1	15.8	18.5	17.7	21.2	13.9
Importg[j]	17.2	-1.3	20.5	21.2	21.2	25.7	20.4	17.8
D/GDP[k]	68.7	70.5	60.7	64.9	60.8	51.5	51.1	61.2
D/X[l]	n.a.	n.a.	n.a.	315.6	206.7	225.8	208.3	261.6
FXR/I[m]	10	20	30	20	20	20	20	20
FXR/SD[n]	20	70	90	100	120	120	170	100
Thailand								
GDPg[a]	11.6	8.4	7.9	8.2	8.7	8.6	6.7	8.6
Inf Rate[b]	5.8	5.8	4.1	3.6	5.3	5.7	5.9	5.2
FB[c,p]	4.5	4.7	2.8	-2.1	1.9	2.9	2.2	3.0
CAB[d]	-8.3	-7.7	-9.6	-5.0	-5.6	-8.0	-7.9	-7.5

I/GDP[e]	40.2	41.6	39.3	40.2	40.8	42.9	42.4	41.1
Pte[f]	34.1	34.4	31.2	32.3	32.6	34.1	32.9	33.1
Pub[g]	6.1	7.2	8.1	7.9	8.2	8.8	9.5	8.0
S/GDP[h]	32.6	33.9	34.0	34.3	34.2	n.a.	n.a.	33.8
Exportg[i]	15.1	23.8	13.7	13.4	22.2	25.1	-1.3	15.8
Importg[j]	29.9	15.8	6.0	12.2	18.5	30.8	3.8	16.4
DGDP[k]	n.a.	n.a.	n.a.	n.a.	52.8	59.1	54.6	55.5
DX[l]	n.a.	n.a.	n.a.	142.6	169. 9	178.7	185.8	169.2
FXR/I[m]	30	40	40	50	50	40	50	40
FXR/SD[n]	130	110	110	110	100	90	100	110
LAEs								
<u>Argentina</u>								
GDPg[a]	-1.3	10.5	10.3	6.3	8.5	-4.6	4.2	4.8
Inf Rate[b]	2314.7	171.7	24.9	10.6	4.2	3.4	0.2	361.4
FB[c,p]	-2.7	-2.5	0.4	0.9	0.5	-1.4	-2.0	-1.2
CAB[d]	3.3	- 0.2	-2.8	-3.1	-3.7	-1.5	-1.9	-1.4
I/GDP[e]	14.0	14.6	16.7	18.3	19.9	18.3	18.5	17.2
Pte[f]	9.4	12.4	14.8	16.0	17.5	15.5	15.9	14.5
Pub[g]	4.6	2.2	1.9	2.3	2.4	2.8	2.8	2.7
S/GDP[h]	15.2	13.1	13.0	14.7	n.a.	n.a.	n.a.	15.4
Exportg[i]	29.3	-3.0	2.1	7.2	19.4	33.9	13.6	14.6
Importg[j]	-3.6	102.0	81.0	7.9	33.8	-8.6	23.5	33.7
DGDP[k]	46.0	35.6	30.4	27.7	27.9	33.1	33.5	33.5
DX[l]	n.a.	n.a.	n.a.	434.6	420.7	375.3	367.9	401.9
FXR/I[m]	70	50	50	70	60	60	70	60
FXR/SD[n]	50	50	60	110	100	320	890	230
<u>Brazil</u>								
GDPg[a]	4.3	1.0	-0.5	4.9	5.9	4.2	2.8	3.2
Inf Rate[b]	2740.0	414.8	991.4	2111.4	2166.2	59.7	15.5	1241.1
FB[c,p]	1.6	1.5	-2.2	0.2	0.5	-4.8	-3.9	-1.0
CAB[d]	-0.9	-0.4	-1.6	-0.1	-0.3	-2.5	-3.3	-1.4
I/GDP[e]	22.9	19.6	19.6	20.4	20.7	20.5	19.1	20.0
Pte[f]	17.6	14.4	13.9	15.5	15.8	16.8	15.3	15.6
Pub[g]	5.3	2.2	5.7	4.9	4.9	3.7	3.9	4.4
S/GDP[h]	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	16.6
Exportg[i]	-8.7	0.7	13.1	7.8	12.9	6.8	2.7	5.0
Importg[j]	23.3	1.9	0.5	20.2	29.8	49.4	5.9	18.7
DGDP[k]	28.1	32.2	34.9	33.9	27.8	24.0	n.a.	30.2
DX[l]	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
FXR/I[m]	30	30	90	100	90	80	90	70
FXR/SD[n]	30	30	90	120	150	140	150	100
<u>Mexico</u>								
GDPg[a]	5.1	4.2	3.6	2.0	4.5	-6.2	5.2	2.6
Inf Rate[b]	26.7	22.7	15.5	9.8	7.0	35.0	34.4	21.6
FB[c,p]	-2.6	-0.5	1.5	0.7	-0.1	-0.1	-0.1	-0.2
CAB[d]	-2.8	-4.7	-6.7	-5.8	-7.0	-0.5	-0.8	-4.0
I/GDP[e]	18.4	19.2	20.5	20.0	20.3	17.2	17.4	19.0
Pte[f]	13.6	14.7	16.3	15.9	16.1	14.0	14.0	15.0
Pub[g]	4.8	4.5	4.1	4.1	4.2	3.2	3.4	4.0
S/GDP[h]	18.8	7.2	17.1	16.4	n.a.	n.a.	n.a.	12.3
Exportg[i]	-28.3	4.9	8.2	12.3	17.3	30.7	20.7	9.4
Importg[j]	-31.1	20.1	24.3	5.2	21.4	-8.7	23.5	7.8
D/GDP[k]	43.8	40.4	34.6	36.9	38.4	69.9	62.6	46.7
D/X[l]	n.a.	n.a.	n.a.	195.1	178.9	170.5	155.5	75.0
FXR/I[m]	20	40	30	40	10	30	30	30
FXR/SD[n]	60	80	80	70	20	50	50	60

Notes: a) Real GDP growth; b) Inflation rate; c) Fiscal balance-to-GDP ratio; d) Current account balance-to-GDP; e) Investment-to-GDP ratio; f) Private Investment-to-GDP ratio; g) Public Investment-to-GDP ratio; h) Savings-to-GDP ratio; i) Export growth; j) Import growth;

k) External Debt-to-GDP ratio; l) External Debt-to-Export ratio (approximations)
m) International Reserves-to-Import ratio (approximations); n) Forex Reserves-to-Short-term Debt ratio; o) averages based on available annual data; p) General government balance for SEAEs; overall public sector balance for Argentina and Mexico; public sector operational balance for Brazil

Sources: Compiled by author from Edwards, et al. (1996), EIU, Country Reports, various issues, Hwang (1997), IMF, International Financial Statistics, various years, Glen and Sumlinski (1997), IMF (1998b), Kiguel (1998), Neuhas, et al. (1998), Nomura Research Institute (1998), Radelet and Sachs (1998a), World Bank (1998)

Table A2

Growth Rate (%) of Key Economic Indicators of Selected East Asian Economies, 1995-97[a]

SEAEs	Real GDP	Inflation Rate	Exports	Imports
Indonesia:				
1995	8.2	9.4	13.4	26.9
1996	8.0	8.0	9.7	5.7
1997	6.6	6.6	6.2	-1.2
Malaysia:				
1995	8.8	4.4	26.0	30.5
1996	8.0	3.9	5.8	0.9
1997	7.9	4.0	19.5	3.6
Philippines:				
1995	4.9	8.1	17.7	25.7
1996	5.5	8.4	21.2	20.4
1997	4.9	5.1	18.0	12.5
Thailand:				
1995	8.6	5.7	25.1	30.8
1996	6.7	5.9	-1.3	3.8
1997	0.4	5.6	4.0	-8.1
ANIEs				
Korea:				
1995	8.9	4.5	30.3	32.0
1996	7.1	4.9	3.7	11.3
1997	5.5	4.5	8.5	2.4
Singapore:				
1995	8.8	3.3	20.2	21.3
1996	7.0	0.8	5.7	5.5
1997	7.6	2.1	9.6	10.3
Taiwan:				
1995	6.0	3.7	20.0	21.1
1996	5.7	3.0	3.9	-0.1
1997	6.4	6.9	8.7	13.5

Notes: a) Figures for 1997 are estimates

***Sources**: Complied by author from EIU , Country Reports, various issues, IMF, International Financial Statistics, various years, IMF (1998b), Radelet and Sachs (1998a) and World Bank (1998)*

Appendix 1: The Korean Economy versus the SEAEs

The Korean chaebols are characterised by complex and opaque intra-group cross-ownership and financing arrangements and practically dominate all aspects of the Korean economy[72]. In the absence of effective shareholder pressure to ensure market-consistent rates of return on assets, coupled with the seeming obsession of the chaebols with aggressively expanding to gain market share (The Economist, October 18, 1997, pp.81-2), some of the conglomerates have been experiencing mounting losses on sustained bases (table A3). The conglomerates have been kept afloat by large-scale and indiscriminate state-directed bank lending on a non-commercial bases (referred to as 'ever-greening'), as credit was used as a key instrument in industrial targeting policies. This led to gross over-investments in the petrochemicals, semi-conductor and auto sectors (Hong, 1998 and Vittas and Cho, 1995).

Admittedly, on the one hand, the SEAEs also confronted (and continue to do so) some similar concerns in terms of weak banking systems with substandard disclosure procedures, structure of external indebtedness (loaded at the short end) and weak conglomerates (primarily in Indonesia). On the other, the problems in Korea were magnified and brought forward by the initial speculative attacks on some of the currencies of the SEAEs. This was mainly due to the 'contagion effect' (elaborated upon in section 5.2), as well as losses experienced by the Korean banks which had lent to firms in the SEAEs.

However three important differences between Korea and the SEAEs bear highlighting. First, the major chaebols were faced with bankruptcy *prior* to the sharp nominal depreciation of the won. In contrast, the non-financial institutions in the SEAEs (primarily involving Indonesia) were forced into bankruptcy *because of* sharp currency depreciations and concomitant increases in unhedged foreign currency denominated liabilities.

[72] The top five chaebols were each reported to be in an average of 140 different businesses, while the top four accounted for about half of Korea's aggregate exports (The Economist, November 29, 1997, pp.21-3).

Second, the extent of exposure of Korean banks to the property sector was generally lower than those of the SEAEs (Hwang, 1997 and JP Morgan, 1998, p.5). Indeed, the initial weaknesses in the SEAEs only became clear as major financial institutions in the region were propped up by their governments following downturns in their respective real estate markets.

Third, while Korea, like the SEAEs faced sharp deceleration in export growth in 1996-97, the relatively acute structural problem in Korea is emphasised by the fact that its real effective exchange rate (REER) has actually declined since 1991, while those in the SEAEs appreciated suddenly between 1995 and 1997 (chart 12). In other words, Korea's international cost competitiveness ought to have risen, while those of the SEAEs declined (the caveat in footnote 11 notwithstanding).

By way of broad generalisations, *as a matter of degree*, the Korean debacle is largely one of *insolvency* of the industrial structure[73]. A *solvency crisis* is a problem of 'lack of net worth' and necessitates the wholesale restructuring of the manufacturing/industrial structure (including allowing for liquidation and the fire-sale of assets). It cannot be averted through the mere provision of credit at market terms, this possibly only prolonging the inevitable and making it that much more painful when finally undertaken.

To the extent that the 30 largest chaebols accounted for about one third of the financial sector's capital and about 35 percent of Korea's total manufacturing sector, the insolvent nature of the Korean economy is emphasised by the following couple of facts which were in existence *prior* to the financial crisis (the crisis *directly* impacted the Korean won only in late October and early November 1997). One, in 1996, the rate of return on invested capital (ROIC) in 20 of the largest 30 chaebols was below the cost of capital. Two, by mid 1997, 8 of the 30 major chaebols were placed under bankruptcy protection. These included the Jinro and Kia groups, the latter being

[73] As noted in footnote 3 and appendix 2, the condition for intertemporal solvency at an aggregate level is so weak that it is almost never violated.

Korea's third largest conglomerate (International Currency Review, April, 1988, pp.137-44 and Corsetti, et al., 1988)[74].

In contrast, as in the case of Mexico and Argentine during the Tequila crisis in 1994-95, the problems in SEAEs as group, at least began as a *currency and financial crisis,* leading to illiquidity due to curtailment of external sources of credit following the onset of the crisis. To be sure, a *liquidity crisis* is primarily one of loss of creditor confidence and may be averted by the provision of credit at market terms. In other words, it is a 'cash flow' or 'financing' problem.

The above *solvency* versus *liquidity* dichotomy, while conceptually useful - with obvious policy implications regarding the efficacy and structure of 'bail out' packages - is admittedly far from airtight. For instance, a number of firms in Southeast Asia presumably borrowed from abroad on the assumption that, if things continued as they were, they would obtain adequate revenues to honour the debt. What they ignored were potentially grave revenue-payment maturity mismatches, anticipating continued/automatic rollover of the debts. With unforeseen and significant depreciation of their currencies and consequent curtailment of credit, while a number of firms became illiquid, others were pushed into states of insolvency, as the expected net present values (ENPVs) of their projects turned negative. This occurred because, in the absence of appropriate foreign exchange (forex) risk management (i.e. currency hedging) strategies, the nominal exchange rate deprecations made the domestic currency value of foreign currency-denominated liabilities (predominantly $-based) much larger.

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[74] As concluded by one of the leading experts on Korea's industrial structure, Hong (1998, p.152):

> one has to be well aware of the legacy of the long repressed financial regime. Quite a few of Korea's big business groups have been kept alive by subsidised loans. Financial deregulation, even if it is followed by liberal access to the international capital market, will result in bankruptcy of a large number of uncompetitive firms including banks. Until now Korean Chaebols have been able to borrow without much difficulty at the international markets with the system of cross-guarantee as well as explicit or implicit government repayment guarantees.

The key point is that while sharing some similarities, the Korean debacle was largely due to government-directed credit policies as part of misguided *industrial targeting policies* towards supposed ‘strategic sectors’. The financial sector’s fragilities in Korea in turn were due to the fact that the financial institutions in Korea were effectively part of the conglomerate structure, and losses incurred by the industrial sectors depleted the commercial banking system’s asset base (Corsetti, et al., 1998). In other words, a financial cum currency crisis was probably not the *primary* cause of Korea’s problems, as it was in the case of the SEAEs.

Table A3

Financial Conditions of Top 30 Korean Chaebols as at end 1996

(hundred million won)

Company	Total Assets	Debt	Sales	Net Profit	Debt-Equity Ratio (%)
Samsung	508.56	370.44	601.14	1.78	268.2
Hynudai	531.84	433.19	680.09	1.76	439.1
Daewoo	342.06	263.83	382.47	3.56	337.3
LG	370.68	287.66	466.77	3.60	346.5
Hanjin	139.05	117.88	87.04	-1.91	556.9
Kia	141.62	118.91	120.98	-1.29	523.6
Ssangyong	158.07	127.01	194.47	-0.98	409.0
Sunkyong	227.27	180.40	266.11	2.92	385.0
Hanhwa	109.68	97.19	96.87	-1.85	778.2
Daelim	57.93	45.87	48.32	0.13	380.1
Kumho	73.98	61.18	44.44	-0.16	477.9
Doosan	64.02	55.94	40.46	-1.08	692.3
Halla	66.27	63.21	52.94	0.23	2067.6
Sammi	25.15	25.93	14.92	-2.52	3245.0
Hyosung	41.24	32.53	54.78	0.35	373.0
Hanil	26.28	22.32	13.01	-1.20	563.2
Donga	62.88	49.06	38.86	0.37	355.0
Cons.	36.54	31.24	25.32	0.30	589.5
Kohap	39.41	38.95	14.83	-1.57	8598.7
Jinro	36.98	25.36	30.47	0.92	210.4
Dongguk J.	77.51	50.99	71.93	0.53	191.2
Lotte	37.99	28.87	41.34	0.24	316.5
Kolon	33.97	29.49	27.16	0.36	658.3
Haitai	21.34	17.72	12.15	-0.07	489.5
Sinho Jaeji	26.38	21.82	19.85	0.11	478.1
Anam Indus.	16.15	13.58	10.65	-0.21	587.9
Dongguk M.	28.03	25.91	18.28	0.20	1224.0
New Core	20.31	18.32	8.72	-0.94	920.5
Bongil	47.92	37.11	25.46	-0.07	343.5
Hansol	13.26	11.49	10.58	-0.03	648.8
Hansin K.					

Source: Corsetti, et al. (1998)

Appendix 2: A Measure of External Creditworthiness[75]

For reasons discussed in the main text, the level of the current account deficit per se is of limited use (see section 5.2), not least because it is a measure of current levels of indebtedness, with no regard for expected future trends. At the other extreme, are the concepts of intertemporal *solvency*, previously noted. Though a useful theoretical construct, it is not very helpful as an indicator of external creditworthiness. The solvency notion is far too 'loose' to be of much practical/operational relevance, as all it requires is for existing debt stocks to be balanced by trade surpluses in present value terms in the future. This implies that a country could conceptually run protracted external deficits so long as it is matched by equivalent trade surpluses (in present value terms) sometime in the future. In other words, there needs to be a 'turning point' from persistent trade deficits to surpluses at some point in time. Indeed, if the interest rate on debt exceeds the GDP growth rate, solvency could be consistent with an ever-increasing debt-to-GDP ratio (i.e. a so-called 'Ponzi game' - which entails borrowing to repay interest on outstanding debt - could be played indefinitely).

In light of this, a stronger version of solvency requires that, in 'steady state', the debt-to-GDP ratio is constant (as are the other macro variables such as capital-output ratio). This transversality condition requires that, in the presence of a trade deficit, the interest rate cannot exceed GDP growth. However even this condition is of little operational value (steady state?) and provides little information on the 'sustainable' or 'optimal' level of the current account deficit (as perceived by creditors), this depending on the specific value of the debt-to GDP ratio (see footnote 75).

In addition, the solvency criterion assumes away the possibility of 'liquidity constraints'. Specifically, the notion relies on the assumption that creditors will be willing to roll over debts at current levels, without regard to possible adverse expectations-alterations which may lead to a liquidity crunch (also see Calvo, 1996,

[75] This section is highly tentative and subject to revision.

Milesi-Feretti and Razin, 1996 and Reisen, 1996, 1998). At a time when most external financing involves private capital flows at commercial rates with maturities that may be broadly termed short to medium-term, these assumptions are clearly untenable. Accordingly, as noted by Ostry (1997), it is the notion of sustainability - which takes into account shifts in private sector expectations - as opposed to weak solvency criteria that is of practical relevance. The question remains as to how to operationalise the concept of current account deficit sustainability.

Dadush, Dhareshwar and Johannes (1994) - DDJ henceforth - have proposed a measure of current account deficit sustainability, called the asymptotic liabilities-export ratio (ALER), that does account for such alterations in creditor-expectations. Below we derive and slightly generalise the result by DDJ. The ALER is defined as the rate at which foreign liabilities-to-exports ratio converges on the basis of expected trends in exports. Let D denote the foreign liabilities and X denote exports. As with DDJ, assume a target debt-to-export ratio of 2 (the more conservative rule of thumb noted in section 2.4, and close to the World Bank debt-to-export benchmark ratio of 2.2)[76]

$$D/X = 2$$

Assuming as a first approximation that the net accumulation of international reserves is zero, the current account deficit (CAD) is equal to the net change in foreign liabilities (i.e. ignoring changes in forex reserves), or in expectations:

$$\Delta D^{e}/\Delta X^{e} = 2$$

$$CAD^{e}/\Delta X^{e} = 2$$

$$\mathbf{CAD^{e}/Y = (M - X + rD)^{e}/Y = 2(\Delta X^{e}/X)/(X/Y) \text{ ----- } (1)}$$

[76] Choice of this number is not critical, as the aim is to determine deteriorating trends/outliers.

where, X - exports, M - imports; ΔX^{e} = expected change in exports; r = foreign real interest rates; Y = national output[77].

Equation (1) suggests that as far as creditworthiness is concerned, it is not the level of the current account deficit per se that is of significance. Rather, the greater the confidence in the borrowers' ability to repay the debt, the larger the 'permissible' current account deficit (as seen by creditors and other private agents). The ability to repay external debt is broadly proxied by current export-to-GDP ratio and expected future export growth. The latter is self-explanatory, measuring trends in exports. The former is important, as a country with a large export-to-GDP share can more easily service existing debts, as debt service obligations absorb a smaller proportion of total export revenues (Milesi-Feretti and Razin, 1996 and Ostry, 1997).

Thus, in the presence of large-scale dependence on external debt - especially that which is short-term in nature - the focus that countries place on stimulating exports is understandable and rational. Further, the shorter the debt maturity, the more important short-term expected export growth prospects become. Hence, even if an economy projects a robust growth in exports over the longer time horizon (i.e. sound fundamentals), any cyclical down-turn or shock which affects expected growth in exports in the short-term may make the current account deficit - even if it doesn't change by much, or actually decreases - seem unsustainable and concomitantly, the country perceived as being less creditworthy[78].

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[77] Formally, note that in steady state, $\Delta D = gD$ where g = GDP growth rate. Thus CAD/Y = (M - X + rD)/Y. We then obtain that: **$(M - X)/Y = (g - r)(D/Y)$**, which is the previously noted transversality condition, viz. a trade deficit may be financed as long as the real GDP growth rate exceeds the real interest rate. In the transition or non-steady state path, we obtain the solvency condition:

$$D_O = \sum_{t = 0 \text{ to } \infty} [(M - X)_t \, e^{(g - r)\, t}]$$ where D_O is the current debt stock.

[78] Empirical application is the focus of ongoing research.

Appendix 3: Mechanics of Attack on a Currency – A Simple Illustration

While the broad empirical regularities of a currency crisis at a macro-level have been discussed elsewhere (see Calvo, et al., 1996, Rajan, 1998b and Schadler, et al., 1994 for instance), it would be useful to consider the 'micro-mechanics' of the process.

Consider the case of an attack on the Thai baht. For simplicity, we assume there to be four players, a single (foreign) private agent (speculator/hedger), one foreign bank (FB) (or financial intermediary/market-maker), a domestic (Thai) bank (DB) and the Thai monetary authority, Bank of Thailand (BT). We assume two currencies, viz. the Thai baht (weak) and the $ (strong).

Stage 1: The attack on the currency occurs when the private agent acquires a contract to sell the baht forward in return for $ from the FB (i.e. sell it today for future delivery) in anticipation of future baht devaluation. Alternately, they could borrow the baht immediately and sell it on the spot market The former is what 'classic speculators' such as hedge funds usually do. Outright forwards are conceptually similar to spot transactions, except that they are actually undertaken sometime in the future (specifically, more than two business days after the conclusion of the deal). More risk-averse speculators, or those wanting to hedge operations - such as mutual/pension funds or multinationals - will usually buy a put option on the Thai baht, willing to pay a premium for the relative safety of these instruments (in terms of down-side risk)[79]. A purchaser of a put has the *right* but not *obligation* to sell the currency at a pre-determined strike price. The basic point is that if there is a belief of an impending devaluation, the agents will want to acquire a short position in the currency and cancel or unwind this position by purchasing the currency post-devaluation.

[79] The IMF (1997c, p.11) estimates the total asset holdings of hedge funds, propriety traders and speculative mutual funds to be at more than $100bn, with these funds having leveraged their position 5-10 times. Note that the term 'hedge fund' is a gross misnomer, as these funds invest portfolios of a small group of large investors with the primary aim of speculating (i.e. taking open positions) on weak currencies.

Stage 2: The primary business of commercial banks is to trade or act as middlemen (i.e. market-makers), and they will most often be averse to taking open positions in the forex market[80]. Accordingly, since the FB now has a liability of $ and an asset in the form of the Thai baht to be purchased forward, it needs to counter or close this position. Thus, it will sell the Thai baht spot for $ to the DB. At the same time, since there is a mismatch between assets and liabilities (the original transaction with the speculator/hedger being on a forward basis, while this one is done spot), it is covered through a currency *swap* with some other bank. The counter-party for both transactions in our stylised case is the DB. More generally though, the spot and swap transactions need not be (and usually are not), undertaken with the same party. The important point is that eventually the transaction must involve the DB.

Stage 3: The DB buys the Thai baht for $ spot and engages in a swap that is the mirror-image of the transaction by the FB. The DB, as in the case of the FB, will want to ensure no substantive open position (in terms of currency or maturity). Hence, to cover its position, the DB will sell the baht spot to the BT and will simultaneously borrow baht forward from the BT, which it has to deliver in the future. By providing liquidity to the market, *the central bank in essence finances the attack on it's own currency*. Of course, failure to supply this liquidity will lead to a de facto depreciation of the currency. This is the bare-bones version of a speculative attack.

Defence Mechanisms: If the BT was the counter-party in the initial forward transaction with the private agent shorting the baht (i.e. if it intervened directly to purchase the baht forward), it automatically supplies credit to the market If the forward long positions by the DB equals the short ones by the speculators, all positions cancel out each other with no impact on the spot rate. However, such forward intervention is

[80] However this fine distinction between market-makers, hedgers and speculators gets very fudgy during crisis periods. For instance, Krause (1991, pp.67 and 107) have noted that a number of banks frequently take very large speculative positions either on their own accounts or on behalf of their customers. Felix and Sau (1996, p.227) have noted that multinationals were heavily involved in taking open positions in the run-up to the ERM crisis.

limited by the available credit lines to the BT (i.e. its own reserve holdings as well as in cooperation with other central banks mainly in the region), especially so as it creates a net negative forex position (with the risk of large capital losses). While this is usually the first line of defence, if this intervention fails to thwart the run on the currency, the BT has a few things left that it could do. Recall that the counter-party to the forward transaction (i.e. the DB), needs to borrow baht to meet its forward contractual obligation, while selling baht spot to the BT. The BT could refuse to provide liquidity to the system, the ensuing credit crunch leading to a rise in interest rates. This is the classic interest rate defence. If the rate is kept high for a period of time, agents who have short sold the baht will now need to sell foreign currency ($) in order to meet their obligations, hence relieving some of the pressure on the baht. Conceptually, while a marked rise interest rates could stave of an attack, it may not always be successful or remain in place long enough to be so. This is so for a number of reasons.

First, as noted, a rise in interest rates will negatively impact the real economy (such as investment, growth, employment, and size of the public debt). Thus the BT will eventually have to abandon this policy, with foreign traders waiting to pounce.

Second, there will be sharp adverse repercussions on the domestic financial system, as banks had lent at fairly low interest rates when the system was flush with liquidity, but they now have to pay depositors this much higher interest rate[81]. They will thus apply intense pressure on the BT to provide the necessary credit to the banking system.

Third, high interest rates may have all sorts of internal income redistributional effects, for instance, by impacting mortgage rates.

[81] This is a particularly significant point, as weaknesses in the domestic banking system can seriously paralyse a government from taking appropriate stances to counter a currency run. Specifically, while a speculative attack requires a (sharp) hike in interest rates, if the banking system is plagued by bad debts, such a policy could, by contracting economic activity and deflating asset prices, substantially exacerbate the situation. Hence a currency crisis could be turned into a financial crisis, with far more adverse repercussions on the domestic real economy. This is especially problematic in developing economies, and was faced by Mexico during the Tequila crisis, as well as by the crisis in East Asia.

Fourth, the rise in interest rates may be seen as a signal by 'mechanistic' traders using dynamic option hedging techniques (who follow models such as the uncovered interest parity theorem) of an impending depreciation of the baht (Garber, 1995). Therefore, along with the initial speculators, these mechanistic traders also join the fray. If these selling volumes exceed the buying ones (of those caught short in the baht when rates were hiked), this would result in magnified pressure on the currency. Eventually, the BT may have to acquiesce to this pressure, leading to a nominal devaluation of the currency[82].

The BT may attempt to further defend the currency (if not it's level, at least the rate of depreciation) by buying it spot. However this will lead to a drain in reserves, and as noted in the previous section, the official reserves are in general grossly inadequate to counter a sustained currency run. Temporary restrictions on capital flows may also be implemented, though this could fuel expectations of the unsustainability of the country's policies, hence giving rise to even more pressure. Other temporary measures involve attempting to distinguish speculators from non-speculators (i.e. users of forex for 'real transactions') and impose restrictions/interest costs on the former (i.e. 'splitting the market').

In summary, following the immediate aftermath of a (successful) currency attack, the economy in question is almost always characterised by:

a) a drain on the government's official reserves;
b) an increase in short-term external indebtedness;
c) a sharp hike in interest rates;
d) an imposition of temporary restrictions on bank lending and capital outflows (on a general or discriminatory basis);
e) an eventual abandonment of the exchange rate peg and (series of) discrete nominal devaluation(s);

[82] The costs of hiking interest rates is an important point, because technically speaking, governments could defend a currency peg (by curtailing the monetary base sufficiently) if it were willing to subordinate all other goals (Obstfeld and Rogoff, 1995, pp.77-80).

f) a deteriorating trade balance due to the J-curve effect (unless this is offset by import restraints, which exacerbates and in turn is exacerbated by domestic recessionary conditions); and

g) stagflation due to a potent combination of the inflationary effects of the devaluation, as well as the recessionary conditions due to:

   i. a temporary hike in interest rates;

   ii. forex controls that inhibit imports of intermediate goods; and

   iii. deleterious effects of uncertainty on physical investment.

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