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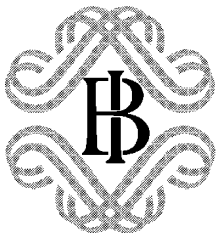

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What Caused the Asian Currency and Financial Crisis? °

by Giancarlo Corsetti*, Paolo Pesenti** and Nouriel Roubini***

Abstract

The paper explores the view that the Asian currency and financial crises in 1997 and 1998 reflected structural and policy distortions in the countries of the region, even though market overreaction and herding caused the plunge of exchange rates, asset prices and economic activity to be more severe than was warranted by the initial weak economic conditions. The first part of the paper provides an overview of economic fundamentals in Asia on the eve of the crisis, with emphasis on current account imbalances, quantity and quality of financial 'overlending', banking problems, and the composition, maturity and size of capital inflows. The second part of the paper presents a reconstruction of the Asian meltdown — from the antecedents in 1995-96 to the recent developments in the summer of 1998 — in parallel with a survey of the debate on the strategies to recover from the crisis, the role of international intervention, and the costs and benefits of capital controls.

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* Yale University and University of Rome III.

** Federal Reserve Bank of New York and NBER.

*** New York University, CEPR and NBER.

Contents

1. Introduction[0]

What were the causes of the Asian economic, currency and financial crises of 1997-98? Two main hypotheses and interpretations have emerged in the aftermath of the crisis. According to one view, sudden shifts in market expectations and confidence were the key sources of the initial financial turmoil, its propagation over time and regional contagion. While the macroeconomic performance of some countries had worsened in the mid 1990s, the extent and depth of the 1997-98 crisis should not be attributed to a deterioration in fundamentals, but rather to panic on the part of domestic and international investors, somewhat reinforced by the faulty policy response of the International Monetary Fund (IMF) and the international financial community.[1]

According to the other view — advanced in this paper — the crisis reflected structural and policy distortions in the countries of the region. Fundamental imbalances triggered the currency and financial crisis in 1997, even if, once the crisis started, market overreaction and herding caused the plunge of exchange rates, asset prices and economic activity to be more severe than warranted by the initial weak economic conditions. A synthetic overview of our interpretation is provided in section 2, while sections 3-5 present a systematic assessment of the sources of economic tension at the root of the Asian crisis. This is based on the analysis of the available empirical evidence for the following countries: South Korea, Indonesia, Malaysia, Philippines, Thailand, Singapore, Hong Kong, China and Taiwan. Macroeconomic imbalances in these countries are assessed within a broad overview of structural factors: current account deficits and foreign indebtedness, growth and inflation rates, savings and investment ratios, budget deficits, real exchange rates, foreign reserves, corporate sector investment, measures of debt and profitability, indexes of excessive bank lending, indicators of credit growth and financial fragility, monetary stances, debt-service ratios, dynamics and composition of capital inflows and outflows, and political instability.

The rest of the paper is structured as follows. Section 6 presents a reconstruction of the Asian meltdown, from the period leading to the crisis to its eruption in 1997, and discusses policy responses, contagion effects, and the role of Japan. In section 7 we provide an overview of the debate on policy strategies to recover from the crisis, with particular emphasis on the role played by the IMF. Section 8 singles out the key points in the current debate about the reform of the international financial system and the desirability of free capital mobility. Section 9 focuses on the most recent evolution of the Asian meltdown into a global turmoil in the summer of 1998. The final section outlines a few open issues in assessing the implications of the crises.

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Correspondence: corsetti@econ.yale.edu, paolo.pesenti@ny.frb.org, and nroubini@stern.nyu.edu.

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[1] See Radelet and Sachs (1998) for the most comprehensive exposition of this view.

2. At the root of the Asian crisis

Central to a full understanding of the roots of the Asian crisis is the multifaceted evidence on the structure of incentives under which the corporate and financial sectors operated in the region, in the context of regulatory inadequacies and close links between public and private institutions.[2] The *moral hazard problem* in Asia magnified the financial vulnerability of the region during the process of financial markets liberalization in the 1990s, exposing its fragility *vis-à-vis* the macroeconomic and financial shocks that occurred in the period 1995-1997. The problem exhibited three different, yet strictly interrelated dimensions at the corporate, financial, and international level.[3]

At the *corporate* level, political pressures to maintain high rates of economic growth had led to a long tradition of public guarantees to private projects, some of which were effectively undertaken under government control, directly subsidized, or supported by policies of directed credit to favored firms and/or industries.[4] Even in the absence of explicit promises of 'bail-out', the production plans and strategies of the corporate sector largely overlooked costs and riskiness of the underlying investment projects.[5] With financial and industrial policy enmeshed within a widespread business sector network of personal and political favoritism, and with governments that appeared willing to intervene in favor of troubled firms, markets operated under the impression that the return on investment was somewhat 'insured' against adverse shocks.

Such pressures and beliefs represented the underpinnings of a sustained process of capital accumulation,[6] resulting into persistent and sizable current account deficits.[7] While common wisdom holds that borrowing from abroad to finance domestic investment should not raise concerns about external solvency — it could actually be the optimal course of action for undercapitalized economies with good investment opportunities — the evidence for the Asian countries in the mid-1990s highlights that the profitability of new investment projects was low. For instance, in Korea, 20 of the largest 30 conglomerates displayed in 1996 a rate of return on invested capital below the cost of capital. In 1997, before the crisis, as many as 7 of the 30 largest conglomerates could be considered effectively bankrupt.[8]

Investment rates and capital inflows in Asia remained high even after the negative signals sent by the indicators of profitability. In part, this occurred because the interest rate fall in

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[2] This section is based on Corsetti, Pesenti and Roubini (1998). A partial list of recent studies providing empirical evidence on the Asian crisis includes Alba *et al.* (1998), Dornbusch (1998 a), Feldstein (1998), Goldstein (1998), IMF (1998), and Radelet and Sachs (1998). A large number of contributions on the crisis are available online on Nouriel Roubini's Asian Crisis Homepage at www.stern.nyu.edu/~nroubini/asia/AsiaHomepage.html.

[3] The role of moral hazard in the onset of the Asian crisis has been stressed by a number of authors. See *e.g.* Krugman (1998 a), Greenspan (1998), Fischer (1998 b).

[4] IMF (1997).

[5] See Pomerleano (1998) for a thorough assessment of the corporate roots of the financial crisis in Asia.

[6] See section 3.4.

[7] See section 3.1.

[8] See *e.g.* OECD (1988) for the analysis of the Korean case.

industrial countries (especially in Japan) lowered the cost of capital for firms and motivated large financial flows into the Asian countries. However, the crucial factor underlying the sustained investment rates was the *financial* side of the moral hazard problem in Asia, leading national banks to borrow excessively from abroad and lend excessively at home.[9] Financial intermediation played a key role in channelling funds toward projects that were marginal if not outright unprofitable from a social point of view.

The literature has focused on a long list of structural distortions in the pre-crisis Asian financial and banking sectors: lax supervision and weak regulation; low capital adequacy ratios; lack of incentive-compatible deposit insurance schemes; insufficient expertise in the regulatory institutions; distorted incentives for project selection and monitoring; outright corrupt lending practices; non-market criteria of credit allocation, according to a model of *relationship banking* that emphasizes semi-monopolistic relations between banks and firms, somehow downplaying price signals. All these factors contributed to the build-up of severe weaknesses in the undercapitalized financial system, whose most visible manifestation was eventually a growing share of non-performing loans.

The adverse consequences of these distortions were crucially magnified by the rapid process of capital account liberalization and financial market deregulation in the region during the 1990s, which increased the supply-elasticity of funds from abroad.[10] The extensive liberalization of capital markets was consistent with the policy goal of providing a large supply of low-cost funds to national financial institutions and the domestic corporate sector. The same goal motivated exchange rate policies aimed at reducing the volatility of the domestic currency in terms of the US dollar, thus lowering the risk premium on dollar-denominated debt.

The *international* dimension of the moral hazard problem hinged upon the behavior of international banks, which over the period leading to the crisis had lent large amounts of funds to the region's domestic intermediaries, with apparent neglect of the standards for sound risk assessment.[11] Underlying such overlending syndrome may have been the presumption that short-term interbank cross-border liabilities would be effectively guaranteed by either a direct government intervention in favor of the financial debtors, or by an indirect bail-out through IMF support programs. A very large fraction of foreign debt accumulation was in the form of bank-related short-term, unhedged, foreign-currency denominated liabilities: by the end of 1996, a share of short-term liabilities in total liabilities above 50% was the norm in the region. Moreover, the ratio of short-term external liabilities to foreign reserves — a widely used indicator of financial fragility — was above 100% in Korea, Indonesia and Thailand.[12]

The core implication of moral hazard is that an adverse shock to profitability does not induce financial intermediaries to be more cautious in lending, and to follow financial strategies reducing the overall riskiness of their portfolios. Quite the opposite, in the face of negative circumstances the anticipation of a future bail-out provides a strong incentive to take on even more risk — that is, as Krugman (1998 a) writes, "to play a game of heads I win, tails

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[9] See section 4.

[10] See *e.g.* McKinnon and Pill (1996).

[11] See *e.g.* Stiglitz (1998).

[12] See section 5.

the taxpayer loses." In this respect, a number of country-specific and global shocks contributed to severely deteriorate the overall economic outlook in the Asian region, exacerbating the distortions already in place.

In particular, the long period of stagnation of the Japanese economy in the 1990s led to a significant export slowdown from the Asian countries; in the months preceding the eruption of the crisis, the hopes for a Japanese recovery were shattered by a sudden decline in economic activity in this country. Sector-specific shocks such as the fall in the demand for semi-conductors in 1996, and adverse terms of trade fluctuations also contributed to the worsening of the trade balances in the region between 1996 and 1997.

The sharp appreciation of the US dollar relative to the Japanese yen and the European currencies since the second half of 1995 led to deteriorating cost-competitiveness in most Asian countries whose currencies were effectively pegged to the dollar.[13] Based on standard real exchange rate measures, many Asian currencies appreciated in the 1990s, although the degree of real appreciation was not as large as in previous episodes of currency collapses (such as Mexico in 1994) and the dynamics of the real exchange rate was asymmetric across countries: by 1997 the extent of real appreciation was evident in Malaysia and the Philippines, while in South Korea, Thailand and Indonesia, real exchange rate indicators had not moved significantly relatively to 1990. In general, competitive pressures were enhanced by the increasing weight of China in total export from the region.[14]

As a result of the cumulative effects of the financial and real imbalances considered above, by 1997 the Asian countries appeared quite vulnerable to financial crises, either related to sudden switches in market confidence and sentiment, or driven by deteriorating expectations about the poor state of fundamentals. In 1997, the drop of the real estate and stock markets — where sustained speculative trends were in part fueled by foreign capital inflows — led to the emergence of wide losses and outright defaults in the corporate and financial sectors. Policy uncertainty stemming from the lack of commitment to structural reforms by the domestic authorities worsened the overall climate. From the summer of 1997 onward, rapid reversals of financial capital inflows led to the collapse of regional currencies amidst domestic and international investors panic.[15]

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[13] Expectations of a monetary contraction in the US in the summer of 1997 may have also played a role in precipitating the crisis.

[14] Whether cost-competitiveness deteriorated in the rest of the region after the 50% devaluation of the Chinese currency in 1994 is still a matter of debate. The thesis that "a large part of China's recent export success reflects the devaluation that occurred in January 1994" and that this "cheap-currency policy" was "one of the factors provoking the crisis in Southeast Asia" has been espoused in a *Financial Times* editorial (September 17, 1997) and echoed in the popular press (see for instance *The Economist*, November 22, 1997, or *Business Times*, March 17, 1998). Recent studies (IMF (1997), Liu, Noland, Robinson and Wang (1998) and Fernald, Edison and Loungani (1998)) dismiss the thesis on the basis of several factors, most notably the fact that by 1993 about 80% of Chinese transactions were already settled at the swap market rate, not the official rate, so that the official exchange rate devaluation influenced only about 20% of the foreign exchange transactions.

[15] For a reconstruction of the crisis, see section 6 and IMF (1997) and (1998).

3. Current account imbalances and macroeconomic fundamentals

3.1 *The evidence*

We start our study of the Asian crisis by assessing the evidence on current account imbalances in the region over the 1990s. The potential role of current account deficits as a source of disruptive tensions in the financial markets has been repeatedly emphasized in the literature.[16] On the anniversary of the Mexican financial crisis, Lawrence Summers, the US Deputy Treasury Secretary, wrote in *The Economist* that "close attention should be paid to any current account deficit in excess of 5% of GDP, particularly if it is financed in a way that could lead to rapid reversals."[17] By this standard, a number of countries in our sample provided reasons for concern.

As shown in Tables 1 and 2, several Asian countries whose currencies collapsed in 1997 had experienced somewhat sizable current account deficits in the 1990s. In the two Tables we show two measures of the current account (as a share of GDP), one based on national income account (NIA) and the other based on balance of payments data; in the discussion we will mostly rely on the NIA data.[18]

The two countries with the largest and most persistent current account imbalances in our sample were **Thailand** and **Malaysia**, both of which experienced deficits for over a decade. Based on NIA data, the current account in Thailand was over 6% of GDP virtually in each year in the 1990s, and approached 9% of GDP in 1995 and 1996. Similarly large numbers were observed in Malaysia, where the deficit was above 10% of GDP in 1993, while slowly falling to 3.7% of GDP in 1996. The **Philippines** also experienced long-term imbalances in having a deficit around or above 5% of GDP for four years and lastingly high in the remaining years.

Indonesia started the decade with a large imbalance (over 4% of GDP in 1990-91) but the deficit shrank in 1992 and 1993. Later, the current account imbalance widened again, reaching 3-4% of GDP in 1995-1996. In **Korea**, the current account deficit was low in the early 1990s (1-3% of GDP) and virtually negligible in 1993. However, since 1993 the imbalance grew very fast, approaching 5% of GDP in 1996. As can be seen from Table 3, these current account imbalances stemmed primarily from large trade deficits, with a relatively small role played by net factor payments to the rest of the world.

Of the remaining countries, **Hong Kong** started the decade with large current account *surpluses*, averaging over 7% of GDP between 1990 and 1993. Things significantly worsened after 1993. In 1994 the surplus shrank to 2% of GDP, and went into a deficit of more than 2% of GDP in 1995 and 1996. In **Singapore**, very large current account surpluses were observed throughout the 1990s, averaging about 10% of GDP in 1990-1993 and increasing to about 16%

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[16] A number of recent contributions on financial and balance of payments crises provide a discussion of the issues introduced in this section — among others see Dornbusch, Goldfajn and Valdes (1995), Milesi-Ferretti and Razin (1996a, b, c), Mishkin (1996), Kaminsky, Lizondo and Reinhart (1998) and Roubini and Wachtel (1998). Among recent studies focusing on the large-scale speculative episodes in the 1990s before the Asian crisis, see Eichengreen and Wyplosz (1993) and Buiter, Corsetti and Pesenti (1998a, b) on the European Monetary Systyem crisis of 1992-93, and Sachs, Tornell and Velasco (1996) on the Mexican peso crisis of 1994.

[17] *The Economist*, Dec.23 1995-Jan.5 1996, pp. 46-48.

[18] While the two series should in principle be equivalent, quantitative differences can arise because of inconsistencies in the data collection processes.

of GDP in 1994-96. In **China**, the current account was in surplus (1.5% of GDP) in 1990-92, but turned into a 2% deficit in 1993. After 1993, the current account experienced a modest surplus averaging 1% of GDP. Finally, **Taiwan**'s current account was consistently in surplus in the 1990s, with the 1996 figure showing a large surplus of over 4.5% of GDP.

Data on the current account positions provide some preliminary evidence that the currency crises may have been associated with an external competitiveness problem. In fact, *as a group, the countries that came under attack in 1997 appear to have been those with large current account deficits throughout the 1990s*; in 1997 the appreciation of the US dollar relative to the currencies of the high-deficit countries Thailand, Malaysia, Philippines, Korea and Indonesia reached 78%, 52%, 52%, 107% and 151% respectively.

Instead, *countries with smaller deficits or actual surpluses did not suffer comparable depreciations*. **China** had stable currency values in 1997 (a depreciation of 2%). The **Hong Kong** parity against the US dollar was aggressively and successfully defended against heavy attacks during the year. While the exchange rates of **Singapore** and **Taiwan** were affected by the regional crisis, the rate of depreciation in these two countries — about 18% over the year — was well below that of the crisis countries. Moreover, the depreciations in Singapore and Taiwan were orderly, and were not characterized by episodes of speculative frenzy and financial panic such as the ones associated with the currency crises in the rest of the region.

In sum, while the correlation between currency depreciation and external imbalances by group of countries in the 1990s need not imply causation, *prima facie* evidence suggests that current account problems may have played a role in the dynamics of the Asian meltdown.

3.2 *Solvency, resource balance gaps, and sustainability*

Assessing the sustainability of current account imbalances is not an easy task. In fact, no compelling criterion exists to determine when current account deficits — and the resulting accumulation of net foreign labilities — reach 'excessive' proportions, thus triggering devaluation expectations, speculative outflows, and financial crises.

The standard theoretical criterion for assessing current account imbalances is the notion of *solvency*: a country is solvent to the extent that the discounted value of the expected stock of its foreign debt in the infinitely distant future is non-positive. In other words, a country that is accumulating foreign debt at a rate that is faster than the real cost of borrowing, cannot expect to be able to do so forever.

In practice, the solvency criterion is not particularly stringent, because the intertemporal budget constraint of a country imposes only very mild restrictions on the evolution of a country's current account and foreign debt. Any path of the current account such that the present discounted value of the current and future trade surpluses is equal to the current external debt position is consistent with solvency. A country could run very large and persistent current account deficits and remain solvent, as long as it can generate trade surpluses (of the appropriate size) at some time in the future.[19]

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[19] For an updated textbook treatment of solvency see chapter 2 of Obstfeld and Rogoff (1996).

Since the theoretical notion of solvency is rather loose, policy analysts tend to resort to more practical criteria. A popular 'test' of solvency in practical terms is a non-increasing foreign debt to GDP ratio. It can be easily shown that, under the realistic assumption that in the long run the interest rate exceeds the growth rate of output, a stable debt to GDP ratio is a sufficient condition for solvency. Based on this condition, then, the criterion of solvency can be made operational by calculating the so-called 'resource balance gap' — in a country where the debt to GDP ratio is growing, this gap is the difference between the current trade balance and the trade surplus required to stabilize the debt to GDP ratio in the long run.[20] The gap will be larger for countries with a large trade deficit to GDP ratio, a large debt to GDP ratio, or a large differential between the real interest rate and the growth rate of the economy.[21]

To calculate the 'resource balance gap', one needs to make assumptions about the long-run differential between the real interest rate and the growth rate of the economy. There exists compelling reasons — both at the theoretical and empirical level — to argue that such a differential is positive in a steady state, regardless of whether negative values are observed in the short run. A 1% differential between the real interest rate and output growth is a conservative but realistic assumption.

On the basis of the above assumptions, the trade balance adjustment required to stabilize the foreign debt to GDP ratio at the 1996 value are shown below. All figures are in percentage of GDP.

Korea	4.4%
Thailand	6.9%
Indonesia	3.3%
Philippines	6.5%
Malaysia	2.3%

The table shows that *resource gaps were quite large already in 1996.* It is worth emphasizing that we would obtain even *larger* figures by increasing the permanent interest rate-growth differential above 1%, or by using the 1997 figures for foreign debt to GDP. Our calculation is in fact carried out relative to the 1996 (end of the year) stock of foreign debt, rather than the larger 1997 figure — making our estimates of the resource balance gap appropriate to assess the pre-crisis imbalances, but very conservative when applied to the

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[20] To obtain unbiased estimates, the resource balance gap should be computed by considering only the structural component of the current trade deficit. However, in the case of high-growth countries, it is reasonable not to assign a large weight to cyclical factors. In our estimates below, we take the 1996 trade deficit as being entirely structural.

[21] Formally, start from the current account identity $B_{t+1} = (1 + r) B_t - T_t$ (where B is the net debt position of the country and T is the trade balance) and divide both sides by current GDP, denoted Y_t. Assuming that GDP grows at the constant rate g, so that $Y_{t+1}/Y_t = 1 + g$, the previous expression can be rewritten as $(1 + g)\, b_{t+1} = (1 + r)\, b_t - \tau_t$, where $b = B/Y$ and $\tau = T/Y$. For the debt to GDP ratio to be constant in the long run at some level b, the trade balance surplus (as a fraction of GDP) must be equal to $(r - g)\, b$. The resource balance gap is the difference between the above trade surplus and the currently observed trade balance (both as percentages of GDP).

post-crisis scenario, since the 1996 figures do not reflect the significant devaluation-induced increase in the external burden of the countries.

A more thorough assessment of the evidence on current account deficits focuses on the notion of *sustainability* of the external imbalances. To specify the meaning of 'sustainability' in the context of our analysis, consider a country running a current account deficit and accumulating foreign debt relative to its GDP, so that solvency requires the country to run trade surpluses at some point in the future. We consider a path of current account deficits and foreign debt accumulation sustainable when the reversal in the trade balance consistent with solvency can be expected to materialize without a sharp change in current policies and/or an external crisis.[22]

The notion of sustainability raises complex macroeconomic and political-economy issues in the analysis of external imbalances. For instance, sustainability can be related to both the country's 'willingness to pay', and the creditors 'willingness to lend'. Willingness to pay can become an issue when a country is potentially solvent but, as Milesi-Ferretti and Razin write, "it is not politically feasible to divert output from domestic to external use to service the debt".[23] Creditors' willingness to lend on current terms is a maintained assumption in the theoretical solvency criterion, but such presumption may not be realistic if, for any reason, foreign creditors come to believe that the country will renege on its liabilities; acting under this presumption, they will require a higher default premium, or stop lending altogether.[24]

However, rather than providing a unifying theoretical framework for the study of external imbalances, the approach based on the notion of sustainability is primarily focused on the empirical analysis of macroeconomic performances during crisis episodes, in order to determine under which conditions sharp trade balance reversals are more likely to occur. In this light, we now turn to the assessment of current account imbalances in the context of an overview of macroeconomic fundamentals in the Asian region: GDP growth, private and public savings rate, inflation, and the degree of openness.

3.3 *Output growth*

The historical experience of the 1980 debt crisis suggests that there are several practical reasons why large current account deficits may be perceived as sustainable when current and expected economic growth is high. For a given current account deficit to GDP ratio, higher growth rates imply a slower dynamics of the foreign debt to GDP ratio, and enhance the country's ability to service its external debt. In addition, high (actual and expected) GDP growth may reflect sustained capital accumulation rates driven by expectations of high

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[22] An external crisis could come in the form of a currency crisis — a run on the central bank's foreign exchange reserves and/or a rapid depreciation of the exchange rate — or a foreign debt crisis — the inability to obtain further international financing, or to meet repayments, or an actual default on debt obligations.

[23] Milesi-Ferretti and Razin (1996a, p. 1).

[24] Since the current account is the sum of the trade balance and net factor incomes and transfers from abroad, sustainability is also affected by the relative weight of these components. For a given level of current account deficit, sustainability may be more problematic if the trade deficit is large, as opposed to large negative flow of net factor payments from abroad. A trade deficit may indicate structural competitiveness problems, while a large and negative flow of net foreign income represents the historical remnant of past foreign indebtedness.

profitability, and high growth might also explain a transitory decline in the saving rate, in anticipation of higher future income. If this is the case, current account imbalances driven by a transitory fall in private savings should not be a concern, since future income growth will lead to increased future savings.

Table 4 presents the growth data in our sample of Asian countries in the 1990s. The overall picture is quite clear: *in all countries, GDP growth rates were remarkably high in the 1990s*. Growth rates averaging more than 7% of GDP (sometimes closer to 10%) were the norm. The exception is the **Philippines**, where growth rates were low in the early 1990s, but still averaged 5% after 1994. Only in 1996 did most countries in the region experience a marginal slowdown in growth; for example, the growth rate in **Korea** fell from 8.9% of GDP in 1995 to 7.1% in 1996. Accepting the traditional view that a large current account deficit is likely to be sustainable when growth is high, the Asian countries did not appear to have a sustainability problem. The key question, however, is whether or not the traditional view provides reliable indications for the diagnosis of the Asian crisis.

Historical experience suggests in fact a more complex picture in which, paradoxically, high economic growth may make an economy more vulnerable to a crisis.[25] For instance, high growth rates may induce overly-optimistic beliefs that the economic expansion will persist unabated in the future. Such expectations can then drive both a consumption and investment boom, as well as large capital inflows that make it easy to finance the increasing demand. In such circumstances, an external shock that leads to a sudden change in expectations can cause a rapid reversal of capital flows and trigger a currency crash.[26]

In the specific case of the 1997-98 crisis, this argument is strictly related to the debate on the causes of the Asian 'economic miracle'. The issue in that debate is the extent to which output growth in Asia was due to total factor productivity (TFP) growth, as opposed to growth in the availability of inputs, reflecting increasing rates of investment and labor participation in the region. Krugman (1994) popularized the controversial view — originally advanced by Young (1992) — that the contribution of TFP to output growth in Asia was less sizable than commonly believed, suggesting that the very rapid growth that Asia experienced in the past decades could not be sustainable in the long run, as employment growth and investment were eventually bound to decline.

Such an interpretive scheme cannot explain the sudden crash of the Asian economies in 1997, since it only predicts a slowdown of growth. Yet, it does point out that, *in the period leading up to the crisis, extrapolating the high rates of growth of the 1990s into the future was not necessarily warranted by fundamentals.* To the extent that savings and investment decisions were based on unrealistic expectations about long-run output perspectives, the observed high rates of growth may have contributed to downplaying the riskiness and costs of a strategy of excessive reliance on foreign capital and current account imbalances.

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[25] The traditional view does not fit, for instance, the cases of Chile in 1979-81 and Mexico in 1977-81, whereas average real GDP growth rates in the years preceding the crisis were above 7%.

[26] Rigobon (1998) develops a model where excessive optimism leads to excessive capital inflows in 'good' times and rapid reversals and market overreaction in 'bad' times.

3.4 *Investment rates, efficiency and profitability*

Other criteria of current account sustainability focus on the intertemporal decisions underlying a current account deficit. Since the current account is equal to the difference between national saving and investment, a deficit can emerge from either a fall in saving or an increase in investment. Conventional wisdom holds that borrowing from abroad is less 'dangerous' for sustainability if it finances new investment (leading to increased productive capacity and to higher future export receipts) rather than consumption (which implies lower saving). For these reasons, a current account deficit that is accompanied by a fall in saving rates is regarded as more problematic than a deficit accompanied by rising investment rates.

Underlying such 'conventional' conclusions, however, is the implicit assumption that the return on investment is at least as high as the cost of the borrowed funds. Also implicit is the assumption that high investment rates contribute to the enhancement of productive capacity in the traded sector. If the investment boom is confined to the non-traded sector (commercial and residential construction, as well as inward-oriented services), in terms of sustainability analysis the contribution of such investment projects to future trade surpluses — thus to the ability of the country to repay its external debt obligations — is limited to their indirect impact on the productivity of the traded sector. The two 'implicit' assumptions above need not hold in the Asian case.

Evidence on investment rates in Asian countries is shown in Table 5 (corresponding data on saving ratios are presented below). Unlike the Latin American countries that experienced currency and financial crises in the recent past, *the Asian countries were characterized by very high rates of investment throughout the 1990s.* In most countries these rates were well above 30% of GDP (and in some cases above 40% of GDP), with the exceptions of the **Philippines** and **Taiwan**, that show rates in the 20-25% range.

One may of course wonder whether aggregate measures of investment above 40% of GDP truly represented the real magnitude of productive capital accumulation in these economies. On the basis of anecdotal evidence, it has been argued in fact that the official investment rate measures were likely to be upward biased, as several forms of 'investment' in the Asian economies may have simply been a disguised form of consumption.[27]

More generally, there are several reasons why such high investment rates should have been regarded with concern in regards to current account sustainability. Evidence on the profitability of the investment projects is provided by a standard measure of investment efficiency, the ICOR or 'incremental capital output ratio' defined as the ratio between the investment rate and the rate of output growth. As bad investments might have been concentrated in some sectors of the economy (such as real estate and some manufacturing sectors), an aggregate measure such as the ICOR does not provide information about the variability of rates of return across sectors. But as a measure of overall investment efficiency, its level and changes over time provide a broad estimate of the productivity of capital.

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[27] As suggested by the head of research in a Thai brokerage house: "there is in practice no clear divide between investment and consumption in Thailand... For example, one very clear example of overinvestment has been in five-star or equivalent hotels. Every family business empire feels it has to have one, and to out-do its friends or enemies in outfitting it luxuriously. This is just an aspect of that I call 'conspicuous investment'."

Table 6 presents two sets of data, one for the 1987-1992 period and the other for the 1993-1996 period. The data for both periods suggest that investment efficiency is generally high in the Asian region. However, *with the exception of **Indonesia** and the **Philippines**, the ICOR had increased sharply in the 1993-96 period relative to the 1987-1992, suggesting that the efficiency of investments was already falling in the four years prior to the 1997 crisis.*

In the case of **Korea**, evidence of low profitability is also available at the firm level. In this country, the 1997 crisis was primarily triggered by a series of bankruptcies of large conglomerates (chaebols) who had borrowed heavily to finance their investment projects. *In 1997, and before the currency crisis hit Korea, as many as seven of the top 30 conglomerates could be considered effectively bankrupt*.[28] The extent of the financial problems of the chaebols is presented in Table 7 — outlining the assets, liabilities, sales, net profits and debt-equity ratios for the top 30 chaebols at the end of 1996. The table shows that the average debt-equity ratio for the 30 chaebols was 333% (the comparable figure for the US is close to 100%). Those chaebols that went bankrupt or had severe financial problems in 1997, tended to have even larger debt-equity ratios. In the case of Sammi (bankrupt in January), the ratio was a staggering 3,245%, while in the case of the Jinro group the ratio was 8,598%. The table also shows that profitability, as measured by net profits, was very low (or outright negative in the case of 13 out of 30 companies).

Table 8 shows the return on invested capital (ROIC) in the 1992-96 period for five of the bankrupt firms.[29] With a prime rate in local currency that before the crisis was as high as 12%, the ROIC for these firms was well below the cost of capital in the 1992-96 period (with the exception of Kia) as well as in 1996 (without exceptions). In the cases of Hanbo, Sammi and Jinro, the first chaebols to collapse in 1997, the ROIC at the end of 1996 was as low as 1.7%, 3.2% and 1.9% respectively.[30] *Figures on profitability — over the 1990s — were particularly low for the conglomerates that went bankrupt in 1997,* and according to evidence available during the first half of 1997, *the ROIC was below the cost of capital for 20 out of the top 30 chaebols*. Evidence on the low profitability of investment was also provided by the Interest Coverage Rate (ICR) — which compares cash flow earned with interest payments due over a particular period: 11 out of the 30 top chaebols had an ICR below 1, meaning that earnings were below interest payments.[31]

In Korea, most investment projects by the chaebols were concentrated in the manufacturing sector. However, in other countries overinvestment and overcapacity problems were concentrated instead in the non-traded sector. The low profitability of these investment

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[28] See OECD (1998). The shaky conditions of Korean groups had been exhaustively analyzed by the specialized press before the eruption of the crisis: as an example, see "20 of top 30 groups show poor management performance," *The Korea Herald*, October 7, 1997. We thank Seung Jung Lee for surveying the available information.

[29] Of the chaebols included in Table 8, only Hanbo and Dainong were not among the top 30 considered in Table 7.

[30] OECD (1998) points out that the return on capital of industrial companies in Korea were below the pretax cost of debt between 1987 and 1995. Data disaggregated by sector show that only the steel industry realized profits in excess of debt charges in the 1993-1995 period.

[31] See "Essence of Korean corporate crisis", *Korean Economic Briefing*, October 23 1997. For a recent analysis of poor corporate performances in the pre-crisis Asian region see Pomerleano (1998).

projects can be assessed by looking at the data on Central Business District vacancy rates and rental yields presented in Table 9. As the table shows, before the onset of the crisis, rental yields on office buildings were already quite low, reflecting the very high prices of real estate. In mid 1997, they were as low as 3.5% in **Hong Kong** and 3.9% in **Singapore**. The rental yields for other countries were higher but the figures for June 1997 are partly artificial, because they are based on pre-downturn expected vacancy rates.[32]

From a different viewpoint, *evidence consistent with speculative overinvestment in land and real estate is provided by data on stock market prices, which in many countries rose more rapidly in the property sector than in the other sectors over the 1990-96 period*. Similarly, when national stock markets collapsed in 1997,[33] the percentage drop was much sharper in the property sector than for the overall market.

Data on overall stock market indices in local currency are presented in Table 10, while Table 11 presents similar data for stock price indices for the property/real estate sector — all data are end-of-year figures. Between 1990 and 1993, the **Thai** stock market rose by 175% (395% for the property sector) but then lost 51% (73% for the property sector) of its value between 1993 and the end of 1996. In **Malaysia**, stock prices rose by 145% (160% for the property sector) between 1990 and the end of 1996. In the **Philippines**, the stock market rose by 386% (271% for the property sector) between 1990 and 1996. In **Hong Kong**, stock prices increased by 344% (423% for the property sector), while in **Singapore** they rose by 92% (181% for the property sector), and in **Taiwan** they rose by 53% (-9,8% for the hotel sector). In **Indonesia**, the market rose by 53% between 1990 and 1996, a period characterized by large volatility in stock prices. Finally, in **Korea**, stock prices rose by 47% between 1990 and 1994 but then dropped sharply, falling 36% by the end of 1996 as the 1995/96 economic slowdown hit corporate profitability.

3.5 *Private and public savings*

In parallel with the assessment of investment rates, the analysis of the dynamics of private and public savings can shed light on the sustainability of the underlying current account imbalances. A fall in national savings caused by lower public savings (a higher budget deficit) is typically seen as more disruptive than a fall in private savings.[34] The conventional underpinning of this view is that a fall in private savings is more likely to be a transitory

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[32] In 1997 the highest vacancy rates were in Bangkok (15%), Jakarta (10%) and Shanghai (30%).

[33] Note that in several countries stock prices had already peaked before 1996 and stock markets were falling even before the 1997 crash.

[34] It is worth recalling that, at a theoretical level, budget deficits can cause current account deficits even in economies in which Ricadian equivalence holds. For instance, it is well known that, in a Ricardian world, a transitory increase in government spending leads to both a budget deficit and a current account deficit. When taxes are distortionary and the government follows a tax-smoothing rule, transitory negative output shocks will also cause both a budget deficit and a current account deficit.

phenomenon,[35] while an increase in public sector deficits often represents a persistent change which results in an irreversible build-up of foreign debt.

The issue of understanding the role of public *vs.* private saving in a current account crisis is however far from settled, as there are historical examples that are clearly at odds with the interpretive pattern just described. For example, in the Chilean 1977-81 case, a crisis occurred in spite of the fact that the fiscal balance was in surplus. In the more recent Mexican episode, the deterioration of the current account in the years preceding the 1994 crisis was largely due to a fall in private savings and a boom in private consumption. Such behavior was fueled by overly-optimistic expectations about future growth, in an environment in which the liberalization of domestic capital markets loosened liquidity constraints — suggesting that current account deficits driven by a fall in private saving rates may be a matter of concern even if such a fall can be interpreted as the result of rational consumption/saving decisions.

Data on saving rates in Asia are reported in Table 12, and somewhat represent the mirror of the investment rates in Table 5. *Asian countries were characterized by very high savings rates throughout the 1990s* — in many cases above 30% of GDP and in some cases above 40%. The lowest rates are recorded for the **Philippines**, where the saving rate fluctuated between 17% and 20%, **Indonesia**, where the saving rate fell below 30% (to a 28% average) after 1992, and **Malaysia**, where the saving rate was below 30% until 1993. Looking at the data before the crisis, there is little evidence of public dissaving — so that *the current account imbalances do not appear to be the result of increased public sector deficits*. Table 13 shows that in most countries the fiscal balance of the central government was either in surplus or a small deficit. In 1996, only **China** and **Taiwan** displayed a central government deficit (about 1% of GDP).

The absence of fiscal imbalances in the years preceding the crisis, however, should not be interpreted as pervasive evidence against the fiscal roots of the Asian crisis. As we document below, and we model formally in Corsetti, Pesenti and Roubini (1998), the pre-crisis years were a period of excessive credit growth in the banking system, leading to a large stock of non-performing loans and the eventual collapse of several financial institutions. By early 1998, the overall cost of 'cleaning up the financial sector' — as put by the First Deputy Managing Director of the IMF Stanley Fischer — was realistically expected to amount to 15 percent of GDP for several Asian economies.[36] Ultimately, *the restructuring of the financial sector poses a severe burden on the fiscal balances of the affected countries.* In terms of our analysis of current account sustainability, such costs represented an implicit fiscal liability for the Asian countries. Such a liability was not reflected by data on public deficits until the eruption of the crisis, but affected the sustainability of the pre-crisis current account imbalances since it contributed to generate expectations of drastic policy changes (a fiscal reform required to finance the costs of financial bail-outs) or currency devaluations (as a result of higher recourse to seigniorage revenues).

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[35] A transitory fall in private savings (corresponding to a transitory increase in consumption) is determined by expectations of higher future GDP growth raising permanent income. The transitory fall in savings today will be offset by higher savings in the future, when the anticipated increase in income actually materializes.

[36] Fischer (1998 b). By September 1998, the most recent unofficial estimates of the financial restructuring costs have increased to the 20-30% range.

3.6 *Inflation*

Inflation is also important in the analysis of current account and external debt sustainability. When currency values are fixed or semi-fixed, and domestic inflation is above foreign inflation, a real currency appreciation leads to decreasing cost-competitiveness, eventually undermining the credibility of the peg. In particular, high inflation rates may signal poor macroeconomic policy and/or sizable fiscal imbalances, generating the need for seigniorage revenue. In either case, high inflation signals that the fixed or semi-fixed exchange rate regime is potentially exposed to speculative attacks.

Table 14 presents the data on inflation in our sample of Asian countries in the 1990s. The overall picture is quite clear: *in all countries, inflation rates were relatively low in the 1990s*. The only exceptions were the **Philippines** where inflation was close to 20% in 1990-1991(but falling to 8% by 1996), **Hong Kong** with an inflation rate of 11% in 1991 but falling to 6% by 1996 and **China** where the inflation rate was above 10% in the 1993-95 period (averaging 18% per year) but falling to 8% in 1996 and to 3% in 1997.

However, in terms of our sustainability analysis the picture is considerably more complex. The banking and financial sector problems experienced by several Asian countries over the 1990s raised considerable doubts about their ability to keep inflation low in the near future. Specifically, these doubts were related to the possibility that the consequences of the banking sector bail-outs might prompt an increasing use of seigniorage, and would require infusions of liquidity to prevent systemic runs. For these reasons, *the nominal depreciations of Asian currencies in 1997 were consistent with the expected inflationary consequences of banking and financial bail-outs. Ex-post* data seem to confirm this view: injections of liquidity into the banking system have occurred in several countries, such as **Indonesia** and **Malaysia**, and inflationary pressures have emerged in Asia, either explicitly (Indonesia) or masked by tight price controls (Malaysia).

3.7 *Openness*

Economies that are relatively open are considered less likely to face sustainability problems, for two reasons. First, a large export sector (generating foreign currency receipts) strengthens the country's ability to service its debt obligation. Second, the economic and political costs of a crisis are relatively large, as the interdependence of the economy with the rest of the world is high. Since the costs of a cut-off from international capital markets and disrupted trade credit may be quite severe, the country is more likely to be willing to honor its liabilities. Yet, greater openness also makes the country more vulnerable to terms of trade shocks and to restrictive trade policies in other countries.

Table 15 reports the ratio of the average of exports and imports to GDP, as measures of the degree of openness of the countries under study. As the table shows, *most Asian countries were considerably open.* The degree of openness is the lowest in **Indonesia** (around 26-27%). The measures are in the 30-40% range in **Korea**, the **Philippines** and **Thailand**, close to 50% in **Taiwan**, above 80% in **Malaysia**, and above 100% in the city-states of **Hong Kong** and **Singapore**. It is worth recalling here that *significant negative terms of trade shocks were experienced by several East Asian countries in 1996 with the fall in price of some of their main exports* (semi-conductors and other manufactured goods).

3.8 *Real exchange rate appreciation*

Virtually all analyses of crisis episodes emphasize that a significant real exchange rate appreciation may be associated with a loss of competitiveness and a structural worsening of the trade balance, thus jeopardizing the sustainability of the current account. What was the role of real exchange rate fluctuations in the aggregate demand boom and external balance deterioration observed in the Asian countries prior to the crisis? To what extent were the current imbalances caused by a misalignment in exchange rates? The evidence is somewhat mixed, as *the degree of real appreciation over the 1990s differed widely across Asian countries.*

Data on *nominal* exchange rates in the 1990s are presented in Table 16. In **Malaysia**, the currency moved in a 10% range of 2.7 to 2.5 ringgit to the US dollar for most of the period spanned by 1990 and the beginning of 1997. In **Thailand** the baht was effectively fixed between 25.2 to 25.6 to the dollar from 1990 until 1997. And in the **Philippines** during 1990-95, the peso/dollar rate fluctuated between 24 and 28, but was effectively fixed at 26.2 from the spring of 1995 until the beginning of 1997.

Other countries followed a somewhat more flexible exchange rate policy. In **Korea**, the won depreciated in nominal terms between 1990 and the beginning of 1993 (from 700 to almost 800 won per dollar). Between 1993 and mid 1996, it was quoted within a very narrow range of 800 to 770, and then it depreciated again, reaching 884 won per US dollar by the end of 1996. The **Indonesian** policy can be described as real exchange rate targeting, with the nominal rupiah/dollar rate falling from 1900 in 1990 to 2400 by the beginning of 1997.

Taiwan also followed a policy of real exchange rate targeting, allowing its currency to fall from a rate of 24 New Taiwan dollars per US dollar in 1990 to a rate of 27.8 by the end of 1996. And in **Singapore**, the currency actually appreciated in nominal terms, from a 1990 rate of 1.7 to a rate of 1.4 by the end of 1996. Finally, in **China** where inflation was in double figures in the early 1990s, the currency was allowed to depreciate modestly between 1990 and 1993 but was drastically devalued by around 50% in 1994 (substantially bridging the gap between the official rate and the swap market rate, at which about 80% of Chinese transactions were settled). Since then, the currency has remained stable with a slight drift towards nominal appreciation.

Table 17 presents the data on the *real* exchange rate of the Asian countries in our sample.[37] Taking 1990 as the base year, we observe that by the spring of 1997 the real exchange rate had appreciated by 19% in **Malaysia**, 23% in the **Philippines**, 12% in **Thailand**, 8% in **Indonesia**, 18% in **Singapore**, and 30% in **Hong Kong**. In **Korea** and **Taiwan**, the currency *depreciated* in real terms (respectively by 14% and 10%). This suggests that *with the important exception of Korea, all the currencies that crashed in 1997 had experienced a real appreciation.*[38]

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[37] The source of these data is the JP Morgan RER series, that goes back to 1970; the base year for the trade weights is 1990.

[38] The magnitude of the real appreciation differs across indicators and sources. The data computed by Radelet and Sachs (1998) suggest a real appreciation larger than the one presented in this paper. Similarly, the data computed by Merril Lynch show a larger degree of real appreciation, especially after 1995. Conversely Chinn (1998) estimates a structural model of real exchange rate determination and finds a lower degree of real appreciation.

It should be stressed that in several countries, a large part of the real appreciation occurred after 1995, in parallel with the strengthening of the US dollar.[39] In fact, *the choice of the exchange rate regime against the US dollar was a key factor in the observed real exchange rate appreciation*.[40] Countries with more rigid policy rules experienced a much larger real appreciation. Conversely, countries such as **Korea** and **Taiwan** that followed a more flexible exchange rate regime experienced a real depreciation. Note that **Indonesia**, which followed a regime closer to real exchange rate targeting, faced a smaller real appreciation than **Thailand**, **Malaysia**, **Hong Kong** and the **Philippines** — countries that focused more closely on exchange rate stability.

The data also suggest that, *in general, an exchange rate appreciation was correlated with a worsening of the current account* — countries with appreciating currencies generally experienced a larger deterioration of the current account, while countries such as **China** and **Taiwan** that had experienced a real depreciation exhibited current account surpluses. The decision to maintain a stable currency led to large capital inflows, attracted by favorable interest rate differentials and expectations of low exchange rate risk. The resulting strong real appreciation helped build the region's large and growing current account imbalances. *The exception was, once again, **Korea**,* which displayed current account deficits together with a currency that depreciated in real terms over the 1990s.

Is it possible that the observed movements in relative prices reflected a change in the equilibrium real exchange rate, rather than a misalignment? First, high rates of productivity in the tradables sector relative to the non-traded sectors may lead to real appreciation, along the lines of the Balassa-Samuelson model. Second, even when the Balassa-Samuelson argument does not apply, models of exchange rate-based stabilization programs suggest that the typical investment and consumption booms that follow a successful inflation stabilization program may lead to both an increase in the relative price of non-traded to traded goods (a real appreciation), and a worsening of the current account — see Rebelo and Vegh (1995) and Calvo and Vegh (1998).[41]

The question of whether the real appreciation observed in Asia was the result of a misaligned exchange rate or an equilibrium real appreciation is open, but there are reasons to be skeptical of explanations that rely too much on a change in the equilibrium exchange rate. First, evidence for a Balassa-Samuelson effect in Asia is slim. Second, the Asian countries do not fit the story of an exchange rate-based stabilization starting from high inflation. One of the key reasons why many Asian countries pursued a policy of an effective peg against

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[39] The US dollar appreciated sharply in the months leading to the crisis. Between 1991 and 1995, the US dollar had followed a downward nominal trend relative to the yen and the mark, reaching a low of 80 yen per dollar in the spring of 1995. After the spring of 1995, the dollar started to appreciate very rapidly: the yen/dollar rate appreciated 56% between the spring of 1995 and the summer of 1997.

[40] Only Hong Kong had actually a currency board with the parity tied to that of the US dollar. Other countries were formally pegging their exchange rate to a basket of currencies; however, the effective weight of the US dollar in the basket was so high that their policies could be characterized as an implicit peg to the US currency.

[41] Strictly speaking, the exchange rate stabilization models presented in the literature do not provide an equilibrium explanation of the stylized facts on real appreciation and current account deficits after a stabilization. Their numerical simulations show that a good fit of the data requires the introduction of some form of price/wage inertia (see Rebelo and Vegh (1995)). But this inertia is consistent with the view that a real appreciation represents a misalignment relative to fundamental values.

the dollar was to facilitate external financing of domestic projects. The cost of borrowing fell because a credible peg led to a reduction of the currency risk premium charged by international investors. This policy was consistent with a strategy of sustaining high investment rates, which were supposed to translate into high rates of productivity and output growth. Most crucially, the loss in competitiveness (*i.e.* the increase in the relative price of exports) experienced by the Asian countries that pegged their currencies to the US dollar was particularly relevant when the value of the dollar soared after mid-1995.

It is worth emphasizing that movements in the real exchange rates are not necessarily dependable measures of changes in external competitiveness, since this can also suffer from shocks that do not translate in a relative price increase. The misalignment of Asian currencies was exacerbated by a number of these shocks. First, *the long period of stagnation within the Japanese economy led to a significant slowdown of export growth for its Asian trading partners*. Close to the onset of the crisis, the abortive Japanese recovery of 1996 was overshadowed by a decline in activity in 1997, triggered by the introduction of a consumption tax in April 1997. Second, *the increasing weight of **China** in total exports from the region enhanced competitive pressures in many Asian countries* — an argument that holds regardless of whether such pressures were magnified or not by the devaluation of the Chinese currency in 1994. Third, as mentioned above, sector-specific shocks such as the fall in the demand for semi-conductors in 1996, together with deteriorating terms of trade for several countries in the region, caused a further significant slowdown in export growth in 1996-97. And finally, expectations of a US monetary tightening in the summer of 1997 may have also played a role in precipitating the crisis.

3.9 *Political instability and policy uncertainty*

The threat of a change in regime or a regime that is not committed to sound macroeconomic policies can reduce the willingness of the international financial community to provide current account financing. So a deterioration in expectations about the political and financial environment can contribute to a balance of payments and exchange rate crisis, especially when economic fundamentals are not very comforting. Such shifts in expectations can occur quickly and without warning. Moreover, political instability may lead to larger budget deficits that, in an open economy, may lead to larger current account deficits.[42]

In this regard, there was plenty of political instability in Asia. Focusing on 1997 alone: the cabinet reshuffles, and eventual government collapse in **Thailand**; the ranting by **Malaysian** Prime Minister Mahathir against "rogue speculators" and international "morons"; the elections in **Indonesia**, the tensions, the reiterated bad news about the health of the Indonesian president Suharto, and his policy reversals; the presidential campaign in **Korea** and the contradictory signals sent by then candidate (and eventually President elect) Kim Dae Jung; the threat of labor unrest in the region; these were all factors that added to the seriousness of the crisis and triggered the domestic and foreign investors' flight.

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[42] For a formal model of how political instability may exacerbate a fiscal and current account deficit, see Corsetti and Roubini (1997). For a systematic study of political influences on macroeconomic policy, see Alesina, Roubini and Cohen (1997).

Throughout the crisis, market expectations reflected and reacted to political and policy uncertainty in the region. The first round of the IMF plans were signed but not seriously implemented by governments. Regardless of whether the initial IMF plans were appropriate,[43] it is clear that governments failed to enforce even the most sensible components of such plans. In **Indonesia**, a corrupt and authoritarian regime effectively ignored most of its agreed-upon commitments until the severe deterioration of macro conditions led to a fully fledged collapse and the free fall of the rupiah. The currency board 'saga' following the second IMF plan and the continued resistance of the Indonesian governments to macro and structural reforms were important elements of the financial demise experienced by Indonesia. For the case of **Korea**, there were serious doubts about the implementation of the first IMF plan, given the coming elections in December and the broad policy uncertainty associated with that event. In **Thailand**, it was only with a new government truly committed to economic reforms that the value of the baht stabilized, and even appreciated relative to the lows reached in December.

4. The role of the financial system

The previous section has highlighted a number of country-specific and global factors that determined the current account imbalances observed in Asia on the eve of the crisis, and undermined their sustainability. In this section, we argue that the key to a comprehensive interpretation of the events leading to the Asian meltdown of 1997 is the analysis of the structure of incentives under which not only the corporate but also the banking and financial sectors operated in the region.

The links between balance of payments crises and banking crises in emerging economies represent a recurrent theme in the policy literature, and they have been (re)emphasized in a number of recent studies.[44] For instance, the origins of the 1994 Mexican crisis and its impact on other countries in the region have been traced to, *inter alia*, an excessive build-up of bank credit and a lending 'boom' that represented the outcome of financial market liberalization.[45] Jeffrey Sachs has presented an early analysis of the role of excessive lending driven by 'moral hazard' incentives:

> *"Throughout Latin America, Central Europe and South-East Asia, banks have been deregulated and privatized in recent years, allowing them much greater latitude to borrow from abroad. Banks and near-banks — such as Thailand's now notorious financial trusts — become intermediaries for channeling foreign capital into the domestic economy. The trouble is that the newly liberalized banks and near-banks often operate under highly distorted incentives. Under-capitalized banks have incentives to borrow abroad and invest domestically with reckless abandon. If the lending works out, the bankers make money. If the lending fails, the depositors and creditors stand to lose money, but the bank's owners bear little risk themselves because they have little capital tied up in the bank. Even the depositors*

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[43] See the discussion in section 7.

[44] See *e.g.* Kaminsky and Reinhart (1997), Goldfajn and Valdes (1997).

[45] See in particular Sachs, Tornell and Velasco (1996).

and the foreign creditors may be secure from risk, if the government bails them out in the case of bank failure."[46]

In the overview that follows, we provide evidence on the degree and extent of 'overlending' in Asia, and comment upon its consequences and implications for the unraveling of the 1997-98 crises.

4.1 *The evidence on financial 'overlending': quantity...*

Evidence on the lending boom in the 1990s is provided by the data on the growth of bank credit to the private sector (Table 18) and the ratio of private sector lending to GDP (Table 19). Also, as in Sachs, Tornell and Velasco (1996), in Table 20 we provide a synthetic measure of the lending boom by calculating the rate of growth of bank lending as a percentage of GDP ratio in the 1990s. The IMF distinguishes between 'deposit money banks', 'other banking institutions' and 'other financial intermediaries', but information about the latter two categories is missing for many countries. We therefore focus our analysis on 'deposit money banks' and refer to other intermediaries when data are available.[47]

The ratio of private sector lending to GDP shows an upward trend in all the countries in our sample. Between 1990 and 1996, the magnitude of the lending boom was largest in the **Philippines** (151%), **Thailand** (58%) and **Malaysia** (31%). It is also large but more modest in Korea, Singapore, Hong Kong and Indonesia. And the measure was the smallest in **China** (7%). For a comparison with Mexico and the 'Tequila effect' countries, between 1990 and 1994 the lending boom in Mexico, Argentina and Brazil was 116%, 57% and 68% respectively.[48]

How do our results on the lending boom change when we consider available data on lending by 'other banking institutions' and 'non-bank financial institutions'? In the case of **Korea**, the measure of lending growth is not altered significantly. For **Malaysia**, data on 'other banking institutions' are available only for the 1992-95 period, while data on 'non-bank financial institutions' are available only for the 1990-94 period. The growth rate of credit from such institutions appears to be similar to that of commercial banks. In the **Philippines** lending by 'other banking institutions' was more modest than lending by commercial banks, but overall lending by such institutions was a small fraction (about 10%) of bank lending.

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[46] *Financial Times*, July 30 1997. Along the same lines, a celebrated early analysis of the emergence of a financial crisis in an emerging economy is provided by Diaz-Alejandro (1985). Corsetti, Pesenti and Roubini (1998) formalize these insights in the context of the analysis of the Asian collapse.

[47] For a general assessment of the moral hazard argument in Asia, one should consider that financial deregulation led to the emergence of new non-bank financial intermediaries (such as the finance companies in Thailand), and that these companies often played a key part in the lending boom. Unfortunately, detailed data on lending by all financial intermediaries are not available.

[48] These figures on Latin America are from Sachs, Tornell and Velasco (1996). Note that they use a slightly different definition of lending boom, as they consider total lending to the private sector by both banks and the central bank. The difference between the two definition is is not significant, as in most countries central bank credit to the private sector is very modest.

In **Singapore**, the credit growth of 'other banking institutions' and non-banks was very close to that of commercial banks, so that the overall lending boom pattern is confirmed by this extension of the analysis. In **Thailand**, the lending boom was significantly larger for finance and securities companies than for banks (133% as opposed to 51%); moreover, the non-bank share of lending to the private sector was quite significant (about 33% of bank lending). So, Thailand is the only country in the sample where lending to the private sector is very different if we add the 'other banking' and 'non-bank financial institutions' figures. Data for 'other banking' and 'non-bank financial institutions' are not available for **Hong Kong**, **China** and **Taiwan**.

In summary, *the evidence suggests a sustained lending boom in the **Philippines**, **Thailand** and **Malaysia**. Note that these were also the first countries to be hit by currency speculation in 1997*.

4.2 *...and quality*

The growth rate of the lending to GDP ratio gives an indication of the *quantity* of loans. But one of the main problems faced by the countries in our sample is that many loans made by banks and non-banks were of low *quality*, financing investment of dubious profitability or speculative purchases of existing financial assets. In the investment section above, we have already shown evidence suggesting overinvestment in risky and poorly performing projects. We can now add to the picture evidence on the quality of pre-crisis lending, by looking at the proportion of non-performing loans to total loans. Since the 1997 crisis may have crippled otherwise healthy loans, it is appropriate to refer exclusively to data on non-performing loans at the onset of the crisis.

As reported in Table 21, the *pre-crisis* share of non-performing loans as a proportion of total lending can be estimated at 13% for **Thailand**, 13% for **Indonesia**, 8% for **Korea**, 10% for **Malaysia**, 14% for the **Philippines** and 4% for **Singapore**. The estimated share is 3-4% for **Hong Kong** and **Taiwan**, and 14% for **China**.[49] Although the reliability of these estimates varies across countries, *the figures show a strong correlation between the amount of bad loans and the extent of the currency crises*.

We stress the impact of the real estate sector crisis on the financial position of the banking sector. Table 22 presents end-1997 estimates of property exposure, collateral valuation, non-performing loans and capital of local banks, all as a share of total assets. Property exposure is estimated to be very high in **Hong Kong**, **Malaysia**, **Singapore** and **Thailand**, while it is relatively low in the **Philippines** and **Korea** (where the bad loans were concentrated in manufacturing firms). By the end of 1997, non performing loans of local banks were the highest in **Indonesia** (11%), **South Korea** (16%) and **Thailand** (15%). As the table shows, they are expected to increase sharply in 1998 in all Asian countries, and become especially problematic in Indonesia, South Korea, Thailand and Malaysia. In these four countries, banks were also severely under-capitalized, with capital to asset ratios as low as 6-8%. Note that, at the end of 1997, this ratio was already below the share of non-performing loans, a share that is expected to worsen in the current year.

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[49] See Corsetti, Pesenti and Roubini (1998) for details.

The table clarifies the links between high shares of bad loans, an excessive exposure to the property sector, and overly-optimistic estimates of the loans' collateral. In the four countries with the most severe problems, the official collateral valuations were in the range of 80 to 100% of assets.[50] Asset deflation and the sharp drop in the value of the collateral, especially real estate, triggered the irreversible surge in the shares of non-performing loans.

4.3 *Banking problems, financial deregulation, and institutional deficiencies*

In the Asian region, with bond and equity markets relatively underdeveloped, most financial intermediation occurred through the banking system. This meant that the capital inflows financing the region's large current account deficits were largely intermediated by local banks. Specifically, domestic banks borrowed from foreign banks and then, in turn, lent on to domestic firms, so that when domestic firms experienced financial difficulties, domestic banks were faced with non-performing domestic assets and short-term foreign-currency liabilities.

Such 'overborrowing' and 'overlending' syndromes within the undercapitalized banking systems were the outcome of severe institutional and policy deficiencies. *There is indeed overwhelming evidence that the Asian banking and financial systems were very fragile — poorly supervised, poorly regulated, and in a shaky condition even before the onset of the crisis*. In **Thailand**, regulation of commercial banks limited their credit expansion, but financial liberalization in the 1990s led to the emergence of other largely unregulated non-bank intermediaries that could circumvent credit limits. Moreover, Thai policies provided strong tax-incentives to offshore borrowing. In the 1990s, Thai finance companies sharply accelerated their lending to the real estate and property sector, mainly financed with borrowing from foreign financial institutions.

In **Korea** the financial system was in a severe crisis because of excessive lending to large traded-sector conglomerates, a number of which went bankrupt before the currency crisis hit in late 1997. It should be noted that, in several cases, private banks in Korea were effectively controlled by chaebols, giving those conglomerates privileged access to credit and exacerbating the moral hazard problem.

In **Indonesia**, although official prudential requirements for domestic banks were in line with Basle Committee recommendations, compliance and enforcement were low. According to central bank statistics, from a total of 240 banks in April 1996, 15 did not meet the required 8% capital adequacy ratio, 41 did not comply with the legal spending limit, and 12 out of 77 licensed foreign exchange banks did not meet the rules on net overnight positions.

While in the 1980s the banking system had been dominated by five large state-owned banks, accounting for 80-90% of all bank credit, in the 1990s — following a wide-ranging series of reforms in 1988/89 — the private banking sector grew rapidly, surpassing the state sector by 1994. Overall, banks accounted for almost two-thirds of total corporate finance, while stock markets provided one third. Rapid growth within this deregulated system, along with the struggle for market shares, resulted in a system containing an excessive number of small undercapitalized banks (a problem pointed out by IMF economists in November 1996,

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[50] The source is JP Morgan.

and also highlighted by Standard & Poors in January 1996), which was vulnerable to poorly chosen or fraudulent lending.[51]

Rather than shutting down ailing banks — only one, Bank Summa in 1992, had ever been liquidated — the Indonesian government's preferred course of action was to encourage mergers, or other forms of support.[52] With such government support in prospect, the incentives of small undercapitalized banks were clearly biased toward riskier projects. The asset quality of state banks was even worse than that of private banks, due to their even greater confidence in government support (the Finance Ministry announced in 1994 that it would not permit a state bank to default on its obligations), or to their greater susceptibility to government direction in their lending patterns. As of end-1995, state banks had an average non-performing debt level of 17%, compared to 5% for the private sector as a whole.

Until 1995, **Malaysia**'s banking problems were not as serious as Indonesia's, but there is evidence of excessive lending in highly risky projects, which escalated in 1996 and early 1997. Recognizing that Malaysia had too many small banks to be internationally competitive, Bank Negara had been steadily urging consolidation of the banking sector. In 1996 the proportion of non-performing loans to total credits dropped to 3.9% from 5.5% in 1995, due to recoveries associated both with economic growth and write-offs. But 1996 witnessed an overall increase in bank lending by 27.6%, with a sharp switch from lending to the manufacturing sector to lending for equity purchases: growth in lending to the manufacturing sector fell to 14% in 1996 (from 30.7% in 1995), while growth in lending for share purchases accelerated to 20.1% (from 4% in 1995).

By the end of 1996, the banking system's exposure to the property sector and equities stood at 42.6% of total credits, compared to 21% for manufacturing finance. Over the year, the increased availability of loans drove up asset prices, with the price of up-market properties in major Malaysian cities growing by 25% in 1996. Property and equity financing continued to rise rapidly in early 1997. The Malaysian central bank eventually intervened to slow the growth of lending for real estate speculation and equity purchases, but these actions were too little, too late. Only on March 1997 did Bank Negara announce ceilings on lending to the property sector and for purchases of stocks and shares.

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[51] The most spectacular case of poor lending emerged with the rescue of Bank Bapindo, a government development bank, which had built up a overwhelming portfolio of non-performing loans, and had lent USD 420 million to an obscure businessman who absconded after being jailed with other Bapindo officials for corruption. Similarly, Lippo Bank faced a bank run in November 1995, following reports that it had not disclosed its exposure to sister companies in the Lippo group — companies that had been involved in highly speculative real estate ventures. The bank was rescued by a group of private banks which agreed to provide short-term liquidity.

[52] In April 1996, Bank Negara Indonesia was told to 'nurse' two ailing banks closely affiliated with Suharto's family — Bank Yama, owned by President Suharto's eldest daughter, and Bank Pacific, run by the daughter of the founder of the state-run oil monopoly Pertamina.

5. Imbalances in foreign debt accumulation and management

5.1 *The foreign debt burden and the role of short-term external debt*

An otherwise solvent country may suffer a short-run liquidity problem when the available stock of reserves is low relative to the overall burden of external debt service (interest payments plus the renewal of loans coming to maturity). Liquidity problems emerge when panicking external creditors — perhaps in response to rapid devaluation — become unwilling to roll over existing short-term credits. So, if a large fraction of a country's external liabilities are short-term, a crisis may take the form of a pure liquidity shortfall — the inability by a country to roll-over its short-term liabilities. The experience of Mexico with its short-term public debt (Tesobonos) in 1994-95, and of several Asian countries with private external liabilities in 1997 provides striking examples of liquidity problems.[53]

Comparable estimates of the debt-service burden and the external liabilities of the Asian countries are available from three sources. The first is the World Bank, which provides annual estimates of the external debt of developing countries.[54] The second source consists of two series of data published by the BIS. One BIS series[55] is published quarterly and presents data on the liabilities and assets of domestic agents (both domestic banks and non-banking institutions, i.e. private firms and other large public sector agents) towards the BIS reporting banks. The other BIS series[56] is published every six months and contains consolidated data on liabilities toward BIS banks, including their maturity — allowing for a precise measure of short-term lending from BIS reporting banks to a particular developing country. Finally, the OECD also collects yearly data on the external liabilities of developing countries.[57]

If we use the estimates developed by the World Bank, it is hard to notice any serious problems for the countries hit by the crisis. As can be seen from Table 23, the debt-to-GDP ratio for many of these countries was relatively low and growing only modestly, or else high but actually falling during the 1990s. In **Korea**, the ratio was around 14% between 1990 and 1995. It was relatively high in **Indonesia** in 1991 (68%), falling to 57% by 1996; in **Malaysia**, it gravitated around 40% since 1993. In the **Philippines**, the ratio fell from a high 69% of GDP in 1991 to 53% in 1995. In **Thailand**, it barely moved from 33% of GDP in 1990 until

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[53] At a theoretical level, a number of recent analyses emphasize that a relatively large share of short-term debt makes the occurrence of self-fulfilling debt crises more likely (see Cole and Kehoe (1996) and Sachs, Tornell and Velasco (1996)).

[54] The World Bank data on long-term debt are quite precise but its estimates of short-term debt, especially the external liabilities of the banking system, are less reliable. Moreover, the World Bank measure of the debt-servicing ratio has serious shortcomings as it includes interest payments on all foreign debt but principal payments only for long-term debt — so the roll-over of short term liabilities that was an essential issue in the 1997 Asian crisis is not considered. Also, the annual World Bank data are published with considerable delay (usually one year and often two years).

[55] These are the data in the BIS publication *International banking and financial market developments.*

[56] This is the BIS publication *The maturity, sectoral and nationality distribution of international bank lending.*

[57] The OECD estimates of long-term debt are comparable to those of the World Bank; however, the OECD estimates of short-term liabilities are closer to those provided by the BIS.

1996, while in **Singapore** and **Taiwan** external debt was practically non-existent.[58] The ratio for **China** grew from 14% in 1990 to 18% in 1994 but still remained relatively low.

World Bank figures also suggest that the share of short-term debt was relatively modest, albeit growing (see Table 24): about 25% in **Korea** in 1994; 25% in **Indonesia** in 1996, up from 16% in 1990; 28% in **Malaysia** in 1996, up from 12% in1990; 19% in the **Philippines** in 1996; 41% in **Thailand** in 1996 (although it was over 70% in 1995) and 20% in **China** in 1996. As for the debt service ratio, the World Bank estimates for the Asian countries in our sample are also quite low, as they do not include the roll-over of short-term liabilities. The debt service ratio is defined as the interest on all debt plus the principal to be repaid on long-term debt as a share of total exports. During the 1990s, this debt-service ratio was well below 10% in many countries of the region (see Table 25). Exceptions were **Indonesia**, with a ratio above 30%; the **Philippines**, with a ratio which started above 20% but fell to 16% by 1995; and **Thailand**, with a ratio as high as 13% until 1994, but down to 11.6% by 1995.

The picture looks somewhat more troubling if we consider the ratio of short-term debt to foreign reserves, and the ratio of debt-service plus short-term debt to foreign reserves. If a liquidity crisis occurs, foreign reserves must be large enough to cover a country's debt service obligations (including the roll-over of short-term debt). The figures corresponding to the two ratios described above are presented in Tables 26 and 27. By the latest available data (1996 for all countries except Korea, for which data refer to 1994), these ratios were: 54% and 85% for **Korea**; 177% and 294% in **Indonesia**; 41% and 69% in **Malaysia**; 79% and 137% in the **Philippines**; 100% and 123% in **Thailand**; 24% and 38% in **China**.

We look next at quarterly BIS data on the external assets and liabilities of domestic banks and non-banks towards BIS reporting banks. Table 28 presents the data on a country-by-country basis, while Table 29 reports the ratio of total liabilities to GDP for all countries in the sample. First, by comparing Tables 23 and 29, we note that for **Korea** and **Thailand** foreign liabilities of domestic agents towards BIS banks are larger than the World Bank estimates of total foreign debt. This observation suggests that the World Bank estimates, especially those of domestic agents' liabilities towards foreign banks, may be seriously biased downward.

The second point to note is that, in most countries, foreign liabilities towards BIS reporting banks are liabilities of domestic banks, as opposed to liabilities of the corporate or public non-bank sector. For example, by the second quarter of 1997, about 77% of all **Korean** liabilities towards BIS banks concerned domestic banks. This confirms our previous observation that a large fraction of Asian borrowing from foreign banks was intermediated by the domestic banking system. In mid-1997 the ratio of intermediation handled by domestic banks was 77% for **Malaysia**, 69% for the **Philippines**, 86% for **Thailand**, and 78% for **China**. The only country with significant external borrowing by non-banks was **Indonesia**, where the ratio for banks was 39%.

It is worth pointing out that the banking share of total liabilities is quite different if we use the second set of data published by the BIS, as presented in Table 30. According to the

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[58] Data on Singapore, Hong Kong and Taiwan are from the Asian Development Bank, since these countries are not considered as developing by the World Bank, and therefore are not included in the debt tables provided by this institution. Since 1996, the World Bank also stopped reporting data on Korea, after this country was promoted to the status of developed OECD country. In tables 23-27, the source for Korean data in 1995 and 1996 (in italics) is the OECD; the lack of homogeneity between the World Bank and the OECD estimates is transparent.

latter figures, in mid-1997 the banks' liabilities represented 44% of the total in **Korea**, 38% in **Thailand**, 21% in **Indonesia**, 36% in **Malaysia**, 62% in **Taiwan** and 43% in **China**.[59] **Hong Kong** and **Singapore** exhibit a very large ratio of foreign liabilities to GDP as well as a large ratio of foreign assets to GDP; their net external liabilities towards BIS banks appear to be quite large but these two countries are very important international financial centers, so external liabilities toward BIS banks need not be representative of their overall liabilities.

For the other countries in the sample, foreign liabilities tend to be very large, even after netting out foreign assets. For example, in the case of **Korea** external liabilities increased from USD 45 billion in 1993 to USD 116 billion in 1997: after subtracting foreign assets, we still observe a net debt as high as USD 30 billion in 1993, reaching USD 80 billion in 1997. As discussed above, most of these net liabilities are by Korean banks (about USD 57 billion by mid-1997), but the liabilities of non-banks are sizeable as well (about USD 23 billion). For other Asian countries, both gross and net liabilities are large and growing rapidly in the 1990s. In **Indonesia**, gross liabilities grow from USD 37 billion in 1993 to USD 60 billion in 1997, while net liabilities are as high as USD 49 billion in 1997. Similar trends are observed in **Malaysia**, the **Philippines** and **Thailand**. In the latter country gross (net) liabilities grow from USD 34 billion (29 billion) in 1993 to 98 billion (90 billion) in 1997.

Table 31 reports the ratio of foreign liabilities to assets relative to BIS reporting banks. This ratio is above unity for all crisis countries, and deteriorates severely in the 1990s. In an extreme case, **Thailand**, it reaches 1,103% in 1996. In **Korea**, it is 297% in 1993, and reaches 375% in 1996 — the same patterns emerge if we focus on foreign liabilities and assets of domestic banks only. In 1996, equally worrisome ratios are observed in **Indonesia** (424%), the **Philippines** (172%), **Hong Kong (**165%**), Singapore** (162%) and **Malaysia** (148%). Conversely, the ratio is lower in **China** (120%). The case of **Taiwan** is interesting as it is the only country in our sample that has a net positive assets position (the ratio is lower than unity). Net assets are equal to USD 12.2 billion in 1997, 7.5 billion for the Taiwan banking system alone.

The above figures suggest a serious mismatch between foreign liabilities and foreign assets of Asian banks and non-bank firms. Domestic banks borrowed heavily from foreign banks but lent mostly to domestic investors. In normal times a high ratio of foreign liabilities to foreign assets may not cause concern, as short-term foreign debts are easily rolled-ever. In the presence of a rapid currency depreciation, however, this imbalance may cause serious financial problems (especially if the foreign borrowing is in foreign currency while the domestic lending is in domestic currency). Foreign lenders may suddenly refuse to roll over short-term lines of credit to domestic banks, precipitating a credit crisis. To a large extent, this is what happened in 1997.

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[59] The two series differ in a number of aspects: the quarterly series include liabilities towards BIS banks in Singapore, Hong Kong and other offshore centers, something missing in the other series. The quarterly series distinguishes only between non banks and, residually, bank liabilities towards BIS banks; while the other presents data for non-bank private sector, public sector and bank liabilities. The quarterly data present data both on assets and liabilities towards BIS banks. The other series has the benefit of presenting consolidated cross-border claims in all currencies and local claims in non-local currencies. These differences lead to quite different figures for total liabilities and very different data for the banking and private sector share of such liabilities. For the sake of completeness we present both series even if we focus on the quarterly data.

The BIS figures on foreign liabilities appear particularly problematic when we consider their maturity structure. This piece of information is presented in Table 32. *By the end of 1996, a share of short-term foreign liabilities above 50% was the norm in the region.* The percentage of loans with a maturity of up to one year was 67% in **Korea**, 65% in **Thailand**, 61% in **Indonesia**, 50% in **Malaysia**, 58% in the **Philippines**, 49% in **China**, 84% in **Taiwan**, 82% in **Hong Kong** and 92% in **Singapore**. Of the latter three countries, however, Taiwan was a net creditor, while the data for **Hong Kong** and **Singapore** reflect the role of these countries as large financial and intermediation centers.

5.2 *Foreign exchange reserves*

The existence of large foreign exchange reserves facilitates the financing of a current account deficit, and enhances the credibility of a fixed exchange rate policy. Foreign exchange reserves and a small external debt burden reduce the risk of external crises, and enable a country to finance a current account deficit at lower costs. The real rate paid (in hard currency terms) on the country's debt is an indication of the market's evaluation of the country's ability to sustain a current account deficit.

A traditional measure of the adequacy of foreign exchange reserves is the stock of reserves in months of imports (of goods and services) — this measure is reported in Table 33. As rapid outflows of speculative money have become a more important source of foreign exchange pressure than trade imbalances, the above indicator is no longer regarded as a good measure of reserve adequacy. A better indicator of adequacy is the ratio of money assets to foreign reserves, since in the event of an exchange rate crisis or panic, all liquid money assets can potentially be converted into foreign exchange. Calvo (1998) suggests the ratio of a broad measure of liquid monetary assets to foreign reserves, for instance — as in Sachs, Tornell and Velasco (1996) — the ratio of M2 to foreign reserves.[60]

Tables 34 and 35 report both the ratio of M1 to foreign reserves (M1/FX) and the ratio of M2 to foreign reserves (M2/FX). For the purpose of comparison, it is worth recalling that, just before the Mexican peso crisis (November 1994), M2/FX was equal to 9.1 in Mexico, and equal to 3.6 in both Brazil and Argentina — the two countries that were most affected by the 'tequila effect'.

In most Asian countries the ratio between M2 and foreign reserves was dangerously high in 1996-97. In **Korea**, this ratio was equal to 6.5 by the end of 1996, and rose to almost 7 in the first quarter of 1997. In **Indonesia** M2/FX constantly rose throughout the 1990s and reached a peak as high as 7.09 in 1995. In **Malaysia**, the ratio was a bit lower, but increasing from 2.9 in 1990 to 3.7 at the end of 1996. In the **Philippines** the ratio declined marginally from 4.8 in 1991 to 4.5 in 1996. In **Thailand** the ratio went from 4.5 in 1990 to 3.9 in 1996. In **Singapore**, the ratio was as low as 1.2 in 1990, and fell further to 1.03 in 1996. And finally, in 1996, the ratio was at 4.2 in Hong Kong, and at 8.5 in **China**.

The figure for the M1 to reserves ratio are smaller, reflecting the importance of 'Quasi Money', included in M2 but not in M1. At the end of 1996, the M1 to reserve ratio was above

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[60] A problem in interpreting the evidence is that the ratio of M2 to GDP varies a great deal across countries, depending on the development of the banking system and the level of financial intermediation. The M2 to reserves ratio may be high because banking intermediaries are relatively more developed.

unity in **China** (3.45), **Korea** (1.44), **Indonesia** (1.21), and **Malaysia** (1.16) It was below unity in **Singapore** (0.25), **Hong Kong** (0.35), **Thailand** (0.44), and the **Philippines** (0.89). Note that while **China** had the highest ratios, the ability of Chinese residents to convert domestic liquid assets into foreign currency is severely limited by widespread capital controls that are absent in most of the other countries in the region.

To provide another indicator of financial fragility, Table 36 reports the ratio of total short-term external liabilities (towards BIS banks) to foreign reserves at the end of 1996. This ratio was 213% in **Korea**, 181% in **Indonesia**, 169% in **Thailand**, 77% in the **Philippines**, 47% in **Malaysia** and 36% in **China**. These figures mean that, *by the end of 1996, in the event of a liquidity crisis with BIS banks no longer willing to roll-over short-term loans, foreign reserves in Korea, Indonesia and Thailand were insufficient to cover short term liabilities, let alone to service interest payments and to repay the principal on long-term debt coming to maturity in the period*. When we add interest and long-term principal repayment, the **Philippines** and **Malaysia** would have also found it impossible to meet their external obligations.[61]

5.3 *Composition and size of the capital inflows*

As noted above, current account sustainability is enhanced when the deficit is largely financed by foreign direct investment (FDI), relative to a deficit mainly financed by short-term flows that may be reversed if market conditions and sentiments change. Inflows from official creditors are more stable and less subject to sharp reversals in the short-run than those from private creditors; loans from foreign banks are less volatile than portfolio inflows (bonds and non-FDI equity investments). External sustainability also depends on the currency composition of a country's foreign liabilities. Borrowing in foreign currency is generally associated with greater capital inflows at a lower interest rate than issuing debt denominated in domestic currency (since risk averse investors concerned about inflation and exchange rate risk prefer foreign-currency denominated assets). However debt denominated in foreign currency may end up exacerbating an exchange rate crisis, as the depreciation of the local currency increases the real burden of foreign debt.[62]

Table 37 shows the extent to which Asia's current account imbalances were financed with non-debt creating long-term FDI flows. There is a wide range of experiences. *Some countries such as **Korea** and **Thailand** financed only a small and falling fraction of their current account deficits with long-term FDI*. By 1996, this fraction was 10% for Korea and 16% for Thailand. *Other countries relied much more on FDI* — in **Indonesia**, FDI inflows were 60-90% of the current account deficit between 1992 and 1995, whereas in **Malaysia** the ratio was well above 100% in 1992-1993, but then fell to about 90% in 1994-1995. In the **Philippines**, the ratio was quite volatile in the 1990s, but on average FDI covered 45% of the current account deficit.[63]

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[61] The OECD data confirm the above analysis of the growth of short-term debt.

[62] In the experience of Mexico in 1995, the depreciation of the peso in the presence of a large amount of short-term dollar denominated Tesobonos generated a liquidity crisis that almost turn into a default crisis.

[63] In countries such as Korea and Thailand, there were also considerable FDI outflows, so that the net contribution of FDI to the financing of the current account was smaller than suggested by the gross figures. Specifically, Korean FDI outflows were greater than inward FDI in each year of the 1990s. By 1996 FDI outflows were USD 4.4 billion, while FDI inflows were only USD 2.3 billion. In Thailand, net FDI flows were positive but by 1996

Another important point to consider is that net capital inflows different from FDI (portfolio assets, bonds, portfolio equity, bank borrowings) were often large enough, relative to the current account deficit and net FDI flows, so that the overall balance of payments was in surplus — producing a net accumulation of foreign exchange reserves.[64] The evidence on international reserves is shown in Table 38. For all countries in the region, the growth of foreign reserves between 1990 and 1996 was quite remarkable — 127% in **Korea**, 144% in **Indonesia**, 176% in **Malaysia**, 985% in the **Philippines**, 176% in **Singapore**, 183% in **Thailand**, 159% in **Hong Kong**, and 261% in **China**. To the extent that these interventions were sterilized, domestic interest rates remained high and capital inflows did not fall, maintaining the upward pressure on the exchange rate.

6. A reconstruction of the Asian crisis

In the first sections of the paper we have carried out a detailed analysis of macroeconomic indicators at the onset of the Asian collapse in 1997. In this section we present a reconstruction of the unfolding of the crisis, in the context of our assessment of the evidence on structural distortions in the Asian region.

The discussion of how the crisis erupted in 1997 is preceded by a country-by-country overview of the build-up of macroeconomic pressures in the region. This overview is focused on the years 1995 and 1996, the period in which the macroeconomic outlook of Southeast Asia was subject to rapid deterioration.

6.1 *The period leading to the crisis: 1995-96*

In **Thailand**, the year 1995 witnessed a further increase of the current account deficit, that had risen from 5.7% in 1993 to 6.4% in 1994 and 8.4% in 1995. When GDP growth slowed down in 1996, the current account fell even further, up to 8.5% of GDP. By the end of 1996, the macroeconomic conditions of **Thailand** appeared to be very shaky: large external deficits, increasing short-term foreign indebtedness, fragile financial conditions of corporate firms and finance companies that had heavily borrowed abroad to finance the speculative boom in real estate and equity investments. It is worth stressing that the Thai baht came under attack already in November and December 1996.

In **Indonesia**, an acceleration of growth in 1995 brought along worrisome signs of overheating: the inflation rate remained high, while the country's trade surplus suffered a sharp drop. The government response was initially very timid: a mildly deflationary budget and a modest tightening of monetary policy. The Bank of Indonesia (BI) raised interest rates throughout 1995, and increased reserve requirements for commercial banks from 2% to 3% in January 1996. In September 1996, the BI announced that the reserve requirements would

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FDI outflows were as high as USD 1 billion, against inflows for USD 2.3 billion. So, in 1996, the net contribution of FDI to the financing of Thailand's current account was 9%, much smaller than the gross contribution of 16% as reported above.

[64] As a reminder, Current Account + Net FDI + Other Net Capital Inflows = Change in Foreign Reserves.

further increase to 5% in April 1997. The bank also intensified its efforts to moderate the expansion of bank credit by resorting to moral suasion.

Like many other Asian countries in a similar situation, the BI faced an awkward balancing act: it was aiming at dampening domestic demand, but was reluctant to increase domestic interest rates significantly, in the fear that higher rates would fuel further capital inflows and appreciate the currency. In an effort to reduce the effects of a monetary contraction on capital inflows, the BI widened the rupiah's trading band from 2% to 3% around the daily mid-rate, hoping that the additional trading risk of holding the rupiah would offset the incentive to invest in domestic assets provided by the higher interest rates. The band was further widened from 3% to 5% in June 1996, and again from 5% to 8% in September 1996. But the broader bands did little to discourage capital inflows, as expectations of higher interest rates pushed the rupiah upward on each of these occasions.

Apart from these moves, the government's only other response was a *promise* to increase its efforts to improve the efficiency and competitiveness of the export sector. This promise was met with widespread skepticism, especially when assessed in the light of a number of actual high-profile initiatives that the government undertook in the period.[65] These initiatives raised serious doubts on the government's willingness to address the country's pressing economic problems, and, according to a private Hong Kong survey of expatriate businessmen in March 1997, earned Indonesia the dubious honor of the "most corrupt country in Asia".

The current account deficit had widened between 1993 and 1995 also in **Malaysia**, reaching 8.8% GDP in 1995. Notably, in 1994 and 1995 foreign direct investment failed to cover the full amount of the deficit. In 1995 there was a surge in public investment, which grew by 25% because of a series of large infrastructure projects designed to facilitate Prime Minister Mahathir's goal of earning Malaysia the status of industrialized country by 2020 ("Vision 2020"). The government dismissed concerns that such a goal was placing too great a burden on the country's resources and skills, pointing at the low CPI growth rates as evidence that the economy was not overheated. In contrast with this official view, a number of commentators stressed that Malaysia was an open economy with effective price controls on items that were heavily weighted in the CPI basket. In this case, overheating would be more likely to translate into a deterioration of the trade balance, rather than an increase of the price level. And the trade balance was indeed deteriorating, moving from a virtual balance in 1993 to a deficit as high as 3.75% of GDP in 1995.

Efforts by members of the government to slow expenditure on these projects were actively blocked by the Prime Minister, who appeared to view the projects as symbolic of

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[65] In February 1996, for instance, the heavily indebted Asri Petroleum group — established under controversial circumstances by a group of prominent local businessmen including Suharto's son, Bambang Trihatmodjo — was given significant tariff support, fueling worries of increased costs for downstream producers. In the same month, Suharto inaugurated a National Automobile Program, in which qualified 'pioneer' firms would be exempt from sales tax and tariffs on imported components. The only firm to qualify was an obscure company owned by Suharto's youngest son Hutomo (Tommy) Mandala Putra, which had entered into an agreement with the Korean firm Kia, but had yet to produce a single car. To make the true intention of the government even clearer, it was announced that the exemptions would not be extended to any other car manufacturer for a period of three years, even if these met the qualification criteria. By the same token, when in December 1995 the ASEAN Free Trade Area deadline for trade liberalization was brought forward to 2003, Suharto insisted on a list of exemptions for goods such as cloves, rice, wheat flour, and sugar, most of which were supplied by lucrative monopolies owned by Suharto's family or their close associates.

the government's resolve. With little help on the fiscal side, the Malaysian central bank, Bank Negara (BN), implemented a number of restrictive measures. It placed administrative controls on consumer lending for cars and houses in October 1995, and tightened reserve requirements on Malaysian banks. Furthermore, BN cautiously took advantage of any weakening in the ringgit to raise interest rates. Like Indonesia, the bank tried to walk a fine line, hoping to restrain domestic demand without repeating the experience of 1992/93, in which BN halted a rush of speculative inflows by introducing restrictions and penalties on domestic ringgit accounts and short-term debt instruments held by non-residents. Most of these measures had been dismantled by 1995.

By the end of 1996, concern about overheating had eased. Despite the high rate of public investment, growth had marginally slowed down from 8.2% to 8%. To a large extent, this slowdown reflected a marked drop in the rate of export growth, which fell from 20.9% in 1995 to 7.3% in 1996. But the most important change that materialized toward the end of 1996 was in the market sentiment towards Malaysia as an investment opportunity — foreign fund managers had come to the conclusion that Malaysian interest rates were too attractive to be ignored. In 1996, short-term capital inflows surged to M$11.3 billion, compared to an inflow of M$2.4 billion in 1995 and an outflow of M$8.4 billion in 1994. Malaysia also experienced an overall increase in bank lending as high as 27.6%, with a sharp switch from lending to the manufacturing sector to lending for equity purchases. The availability of property loans drove up asset prices: over the year, the price of up-market properties in major Malaysian cities grew by 25%.

Korea experienced a serious deterioration of the macroeconomic conditions already in 1995-96. The current account deficit dramatically widened from 1.5% of GDP in 1994 to 4.8% in 1996, leading to an unprecedented accumulation of short-term foreign debt. Export growth fell sharply, especially after negative terms of trade shocks hit the economy in 1996. The 1996 growth rate of industrial production halved relative to the previous year. On average, the profitability of the large Korean chaebols, characterized by very high debt/equity ratios, was low and falling. The financial conditions of the conglomerates and their creditor banks were shaky, raising the possibility of widespread bankruptcies; reflecting such weaknesses, the stock market fell sharply in the two-year period 1995-96, down by 36% relative to the 1994 peak. The won also weakened during 1996.

Relative to the other countries in the region, macroeconomic conditions were more solid in the **Philippines**. Years of structural and macro reforms under IMF supervision had put this economy on a sustainable growth path, albeit lower than some of the neighbors. The government had privatized or was in the process of privatizing the national airline company, the electric power systems, and banks and water supplies. The government's budget was in surplus. Bad bank loans were at a rate of only 3.4 percent by the end of 1996. Nevertheless, the current account deficit was large, and the currency had significantly appreciated in real terms. A very rapid lending boom to the private sector had fueled investment in risky projects, as well as a speculative boom in the property sector.

6.2 *Financial distress in the first half of 1997*

By early 1997, macroeconomic conditions had seriously deteriorated in most of the region. We have already mentioned that, in the 1990s, finance companies in **Thailand**

experienced an explosive growth of lending to the real estate and property sector, mostly financed by borrowing from foreign financial institutions. Troubled financial institutions were receiving official backing. For instance, in the first quarter of 1997 the central bank's Financial Institutions Development Fund (FIDF) had lent over USD 8bn, 17.5% of which to Finance One — at the time, the largest finance company in the country — alone.

It should be noted here that this public intervention implied a very large injection of liquidity in the economic system. After a Thai company (Somprasong) missed payments on foreign debt in February 1997, the Thai government on March 10 officially stated its intention to buy USD 3.9bn in bad property debt from financial institutions (a promise that, as discussed below, was then to be reneged upon in June).

A closer look at the government management of the bankruptcy crisis allows us to assess the role of moral hazard and government bail-out guarantees in facilitating the accumulation of foreign loans by domestic financial institutions. Although most of the evidence is anecdotal, the analysis of a few cases can shed light on more general behavioral patterns. The best known is the case of Finance One. Few months before its collapse, ING Bank in Thailand had approved a loan to the company as part of a USD 160m syndication led by the World Bank's International Finance Corporation. According to ING sources, concerns about the viability of Finance One were simply dismissed by the Bank of Thailand, which made explicit reference to a promise of bail-out in case the company had financial problems.[66]

Despite the government-declared intentions to intervene in defense of Finance One, the task of saving this company was particularly difficult and demanding. As reported by the Financial Times, "nearly two-thirds of the company's loans were in three problem areas — property, hire purchase and stock margin lending. As interest rates rose and the economy slowed, Finance One's non-performing loans doubled in 1996, then doubled again in the first quarter of 1997. Meanwhile, the terms of Finance One's assets and liabilities were the most mismatched of any of the top 10 finance companies. It held substantial stakes in several smaller finance and securities companies which themselves were even more vulnerable to the dual pressures of high interest rates and a falling stock market."

On May 23 the government made an attempt to save Finance One via a merger with another financial institution. As this attempt failed and the company became effectively bankrupt, the FIDF stepped in and officially promised to buy new shares in Finance One. It was only one month later, in June, that the public commitment to support Finance One, or any troubled company, was officially abandoned. What happened in June?

Reportedly, on June 25 (the same day when information was leaked that the government would stop supporting Finance One) the new finance minister 'discovered' that the stock of international reserves effectively available was a tiny fraction of that officially stated. During the spring, USD 28bn out of USD 30bn in international reserves had been committed in the course of forward market interventions to defend the value of the baht. The government suddenly realized that the overall costs of defending both the domestic value of the financial

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[66] As quoted in the *Financial Times*, 1/12/98, Jan Cherim, Country Manager for ING Bank in Thailand, said: "Every time we saw the Bank of Thailand they would tell us 'Finance One is OK, we're backing it all the way'. When they didn't you had to question just about everything they had ever told you".

firms and the external value of the currency were overwhelming and unsustainable, given the available fiscal and quasi-fiscal resources.[67]

The strong speculative attack on the baht that followed forced Thailand to let the currency float on July 2, a key date in the chronology of the Asian crisis. However, the domestic financial turmoil was just at its beginning. On August 5, when the Thai baht had already depreciated by 20%, Thailand unveiled a plan to revamp the finance sector as part of a more general plan agreed upon with the IMF. At that time, the central bank suspended 48 finance firms that were already effectively bankrupt. Eventually, 56 finance companies went bankrupt and were forced to close. Despite the timing of the bankruptcy, it should be stressed that *a large number of these Thai financial institutions were bankrupt well before the currency crisis*, when the sharp depreciation driven by 'investors' panic' increased the burden of their foreign liabilities.

By the same token, the beginning of the Korean crisis took place well before the speculative attack on the won in late October and the 'financial panic' that developed in November and December. In early 1997, **Korea** was shaken by a series of bankruptcies of its large conglomerates, the aforementioned chaebols, which had heavily borrowed in previous years to finance their grand investment projects. The macroeconomic indicators in early 1997 fully reflected the extent of this crisis: the current account deficit was increasing, export growth was falling, and industrial production growth rates were way below previous levels.[68]

During 1997, Korea suffered a bankruptcy crisis shaking the large domestic conglomerate sector.[69] As a general pattern, the chaebols that went bankrupt or had severe financial problems in 1997 had above average debt-equity ratios.[70] The string of bankruptcies and financial distress that affected the Korean corporate sector in 1997 translated into serious financial difficulties for the banking system, hitting especially the merchant banks. These

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[67] Although the press already reported the intention to suspend operation in support of Finance One on June 25, it was only two days later that this intention translated into an official position of the central bank. On June 27, Finance One and other 15 cash-strapped finance companies were ordered to submit merger or consolidation plans.

[68] The severity of the crisis in early 1997 was already apparent in press accounts of Korea's economic outlook. For example, as early as February 1997, the *New York Times* reported: "South Korea is now gripped by a deep unease about its future. Economic growth is slowing, the stock market is near a four-year low, the Korean won has sunk to its lowest exchange rate against the dollar in a decade, and the trade deficit has more than doubled in the last year. Banks are hobbled by bad debt, businesses strangled in red tape, and wages are soaring, weakening industrial competitiveness. Suddenly, it seems to Koreans, the era of fast growth is ending, endangering hopes that their country will make the leap from industrialization to a high-technology economy on a par with the United States and Japan. The sense of crisis has been punctuated by two events in the last month — the nationwide strike in reaction to a new labor law that threatens job security, and the stunning collapse of Hanbo Steel, flagship of the nation's 14th largest conglomerate, under nearly $6 billion in debt and a cloud of corruption. 'Most people don't think it's a cycle but that structurally something is wrong,' said Kim Pyung Koo, a professor of economics at Sogang University in Seoul."

[69] The string of bankruptcies started in January 1997 when Hanbo Steel, the 14th largest chaebol, sought court receivership. Hanbo steel was soon followed by Sammi Steel, the main firm of Korea's 26th largest conglomerate, that also sought court receivership in March. In April, the Jinro Group, the 19th largest conglomerate, defaulted on some liabilities to financial institutions. In July, it was the turn of the Kia group, the 8th largest chaebol, that failed to pay USD 370m worth of liabilities and was put under protection.

[70] See section 3.4.

banks had heavily intermediated external funds, borrowing in foreign currency and lending to domestic chaebols in domestic currency.

*As opposed to Korea, the heart of financial difficulties in **Malaysia** was the real estate sector.* Facing a booming speculative bubble in real estate and equity lending, Bank Negara waited very long — perhaps too long — before intervening. It was only on March 1997, that BN announced ceilings on lending to the property sector and for purchases of stocks and shares.[71] Yet the Bank added that it would be amenable to delays in the submission of these plans and stressed that it was not asking banks to call in credits. The impact of these measures on the KLCI stock exchange index (which is heavily weighted toward property and financial shares) was immediate, and caused foreign investors, led by US fund managers, to start selling their stocks. Within a week of the announcement, the index had dropped 6.6%, and was 17.2% lower than the peak of February 25. By May 15, as the assault on the Thai baht took hold, the KLCI had fallen to a 16-month low.

In **Indonesia**, despite the structural problems outlined above, signs of overheating did abate in 1996 leading the BI to cut rates by 0.5% in December 1996, and again by 0.5% in March 1997, in the hope to moderate the inflow of capital, to ease the debt burden on struggling Indonesian firms, and to foster exports. In the meantime, however, Indonesian companies kept borrowing very heavily in international capital markets. As late as December 24 a report indicated that total Indonesian debt was likely to be closer to USD 200 billion, almost twice as much as the government's official figure, USD 117 billion. This report estimated that the government data ignored the bulk of short-term off-shore borrowings. International financial markets and institutions suddenly learned that the full extent of total foreign borrowing by the Indonesian corporate sector was underestimated by USD 67billion.

6.3 *The policy response to the 1997 currency crises*

Reflecting the macroeconomic conditions in the region, national stock markets started to drop and currencies came under speculative pressures in the first months of 1997. *The first currency to come under attack in the spring was the **Thai** baht, the currency of the country with the shakiest economic fundamentals. Once the baht started to depreciate in July 1997, the currencies that came under speculative pressure were those of countries with economic fundamentals and export structure similar to the ones of Thailand.* These countries were **Malaysia**, **Indonesia** and the **Philippines**. By the end of July, the baht had fallen by 25% relative to the beginning of the year, the rupiah by 9%, the ringgit by 4%, and the peso by 10%. In August, the baht fell further, depreciating by 34% relative to its January value; by the end of August, relative to the beginning of 1997 the rupiah had fallen by 27% , the ringgit by 17% and the peso by 14%. The scenario of contagious devaluations, with a fall of one currency inducing further plunges of other ones, continued in September. After another round of currency adjustment in this month, the baht was 42% below its January level, the rupiah 37% below, the ringgit 26% below and the peso 29% below.

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[71] Effective April 1, new lending to these sectors was not to exceed 15% of total lending for commercial banks, and 30% from merchant banks. Also, all banks were required to limit the proportion of their outstanding loans to the property sector to 20% (not including low-cost housing, infrastructure, and industrial buildings and factories). They were given until April 15 to submit detailed plans as to how this would be achieved.

The key to understand the sharp devaluations of these currencies during the summer is the conduct of monetary policies before the crisis and after the first round of depreciations. The first reaction by monetary authorities to speculative pressures in the foreign exchange market was to avoid a significant monetary contraction and a significant increase in domestic interest rates. So, in response to speculative pressures in the spring, **Thailand** and the other countries in the region at first sterilized their intervention in the spot and forward markets. Once such a strategy turned out to be ineffective, Thailand tried to discourage capital outflows with the introduction of limited capital controls aimed at segmenting the onshore and offshore markets,[72] while leaving the domestic monetary stance untouched. Needless to say, under such circumstances, controls could do very little to stop the speculative flows.

The stance of monetary policy in the region remained quite loose well into the crisis. Despite the initial round of sharp depreciations, for many weeks national monetary authorities were determined not to let domestic interest rates increase. It is only when the fall of the currencies accelerated after the end of the summer that a serious monetary tightening started to be implemented. Notably, **Malaysia** waited until early December, when the ringgit had already fallen by over 40%, to change its official monetary stance and renounce its policy of low interest rates.

*A policy of low rates in the presence of strong speculative attacks on the currency in **Thailand, Malaysia, Indonesia** and the **Philippines**, can only be understood in the light of the fragile financial conditions that we discussed in the previous sections.* Central banks were held back by the concern that high interest rates would worsen and compromise the financial conditions of highly indebted banks, financial institutions and corporations. An interest rate increase would have led to a further slowdown in output growth. Given the fragility of both the banking system and the corporate sector, a monetary tightening would have led to a credit squeeze, corporate and banking bankruptcies, and further negative effects on the level of economic activity. Well before the onset of the crisis, several governments were engaged in an extensive policy of bailing out financial institutions. Such a policy was by itself a source of monetary creation,[73] and in any case a bail-out strategy was hardly consistent with a contractionary monetary stance that would have only pushed more firms into financial difficulties, and increased the fiscal bill of the government.

A relatively loose monetary policy with the goal of preventing further financial problems for firms and banks was of course a very risky strategy. As it turned out, it eventually induced a continuous spiral of currency depreciations that dramatically increased the real burden of the foreign-currency liabilities. *The depreciation jeopardized the very financial viability of financial and non-financial firms which a loose monetary policy was meant to preserve, while increasing the cost of bail-out well beyond the fiscal means of these countries.*

Only after the currencies had fallen considerably — and after the increase in real external liabilities had pushed a significant fraction of firms into financial difficulties — did monetary authorities switch to tight monetary and credit conditions. However, the impact of such a late tightening turned out to be negative. Instead of restoring market confidence, the monetary contraction induced a credit squeeze that increased the amount of bad loans, exacerbated the

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[72] Later in the spring, Malaysia introduced limits on swaps by nonresidents not related to commercial transactions. see IMF (1997).

[73] For instance, in Thailand, liquidity injections surpassed USD 8bn in the first quarter of 1997.

financial problems of banks and firms, and had a sharp deflationary effect on the level of real economic activity.

6.4 *Policy spillovers and contagion effects*

By the end of the summer, the combined effective devaluation of about 30% in three months for the currencies of **Thailand**, **Indonesia**, the **Philippines** and **Malaysia** had a strong negative impact on the other currencies in the region. For instance, the **Singaporean** currency that was formally on a float started to depreciate on the wheel of the sharp deterioration of the ringgit — the currency of its close neighbor and trading partner Malaysia. By the end of September, the Singaporean currency had lost 8% of its value relative to the beginning of 1997.

The speculative pressure in October first affected **Taiwan**, then **Hong Kong**, but not the **Korean** won. Since during the 1990s the won had depreciated by about 15% in real terms (relative to its 1990 level), Korea had suffered less from the devaluations in the region, in comparison to Singapore and Taiwan. Most importantly, the won had been on a gently declining path in 1996 and had lost another 8% of its value between the beginning of 1997 and the end of September.

Things were different for **Taiwan**. Initially, the Taiwanese currency seemed to be unaffected by the crisis for three reasons: first, relative to the Asean-4 countries, the composition of its exports was more oriented towards high value-added high-tech goods; second, the country was running a current account surplus and had large foreign exchange reserves; third, the Taiwanese dollar had been allowed to depreciate in real terms during the 1990s. However, the markets mood changed in October. Concerns about the loss of competitiveness in Taiwan had already grown stronger as the magnitude of the depreciation of the other currencies in the region kept increasing through September. The key factor was however the decision by **Singapore** to allow a depreciation of its currency. Since the composition of Singaporean exports is very close to that of Taiwan — the two countries producing similar high-tech commodities[74] — the Singaporean move was perceived as an important threat to the competitive position of Taiwan. By early October, the Taiwanese currency was subject to severe speculative pressures.

In principle, Taiwan had enough reserves to engage in an extensive defense of its exchange rate parity — its stock of foreign reserves was over USD 100bn. Nonetheless, in mid-October, the Taiwanese authorities preferred to let the currency float, as they saw no point in defending a parity that in the previous months had significantly appreciated in real terms relative to the currencies of five regional competitors. After the switch to a float, the Taiwanese currency lost 5% of its value (by October 20).

The devaluation of the Taiwanese dollar generated expectations that **Hong Kong** would follow the example of Taiwan, changing its fixed peg to the US dollar. Several considerations

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[74] In 1997, the percentage shares of semiconductors and some related capital goods (industries 200 to 216) in total exports of Asian countries to the US were: 19 (Greater China), 54 (Korea), 83 (Singapore), 57 (Taiwan), 10 (Indonesia), 61 (Malaysia), 54 (Philippines), 37 (Thailand). During the same year, the percentage shares of apparel, footwear and household goods (industries 400 to 420) were: 69 (Greater China), 19 (Korea), 5 (Singapore), 27 (Taiwan), 53 (Indonesia), 28 (Malaysia), 32 (Philippines), 39 (Thailand). See Fernald, Edison and Loungani (1998) for an analysis of these data.

could justify a depreciation of the Hong Kong dollar. First, during the 1990s the Hong Kong dollar had appreciated by over 30% in real terms, and the trade balance had exhibited a large structural deficit since 1995. Second, by late October the average depreciation of Thailand, Malaysia, Indonesia and Philippines had approached 40%. Despite the differences in the export mix of these countries relative to Hong Kong, such a large change in relative prices was indeed applying further competitive pressures on Hong Kong. Third, both Singapore and Taiwan had depreciated their currencies, and the export mix of these countries *was* very close to that of Hong Kong.[75] Finally, the reunification with **China** over the summer had introduced an element of political risk. On the basis of the above considerations, *the contagious speculative attack against the Hong Kong dollar in late October should not be interpreted as a form of irrational speculation. The currency of Hong Kong was overvalued, and there were several fundamental reasons to expect a correction.*

Another serious misperception of the Hong Kong experience is the idea that the successful defense of the parity was due to the presence of a currency board. *The Hong Kong success in avoiding a collapse of its currency under the strong speculative attack of October had less to do with the fact that the country had a currency board, and more to do with the fact that the monetary authorities were willing to drastically increase short-term interest rates.* Because of a very severe monetary tightening, these rates reached extremely high peaks in both nominal and real terms, preventing an escalation of the capital outflow, and eventually convincing international markets about the credibility of the Hong Kong commitment to keep its exchange rate parity fixed.

We observed above that while the currency crisis was spreading throughout the region,[76] the **Korean** won had been spared from speculative pressures. By the end of October, a policy of gradual adjustment in the parity had led the won to a very contained depreciation of 14% relative to December 1996 (only 8.4% since July). This implied that, relative to the currencies of Thailand, Indonesia, Malaysia and the Philippines, the won had appreciated by 37%, 36%, 20% and 15%, respectively. Moreover, Singapore and Taiwan (which competed directly with Korea in a wide range of export products) had allowed their currencies to depreciate more substantially than the won; this had put Korea — a country in a serious economic crisis since the middle of 1996, as discussed in the previous sections — at a rather severe competitive loss.

In November the won plunged, depreciating by 25% during the month (corresponding to a 39% depreciation over the year). This rapid fall did not only worsen the domestic financial crisis, but eventually led to the arrangement of a USD 60b IMF-led rescue package in early December. As Korea was the largest economy in the region, it negatively affected the external position of all the other countries in the region. Another round of depreciations followed: the collapse of the Korean currency in November and December was matched by a continuous decline of the Taiwanese and Singaporean dollar, and a further drop in the value of the currencies of Thailand, Malaysia, Indonesia and the Philippines.

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[75] Market comments at the time expressed clearly how the fall of the Taiwan dollar would have had contagious repercussions. As put by John Bender, vice president at HSBC James Capel, “the biggest thing to scare Hong Kong was the devaluation in Taiwan.”

[76] By the end of October 1997, the Thai baht had depreciated relative to the US dollar by 55%, the Indonesian rupiah by 54%, the Malaysian ringgit by 34%, the Philippines peso by 33%. Relative to the beginning of the year, also, the Taiwan dollar had depreciated by 11.8% (10.4% since July) and the Singapore dollar by 12.5% (10% since July).

Once the real burden of the gross borrowing by banks and non-banks was worsened by the depreciation of the currency, and some financial institutions went bankrupt, foreign banks that had heavily lent to Korean banks started to refuse to roll-over their loans, loans that would have been automatically renewed in normal times. The unwillingness of foreign banks to roll-over normal lines of credit in the face of a high perceived risk of bankruptcy made the prospect of loan default more likely, according to a well-known pattern of self-fulfilling expectations.[77] The financial panic that ensued in December led to a 40% currency collapse in just a week. The situation calmed down only at the end of December 1997 when the American, European and Japanese banks jointly agreed to negotiate an orderly renewal of short-term loans and the major creditor countries decided to anticipate the disbursement of a fraction of the bail-out package approved by the IMF in early December.

A case in part similar to the Korean one was that of **Indonesia** in January 1998. In this month, the continued plunge of the Indonesian currency together with the refusal by foreign lenders to roll over short-term debts rendered domestic borrowers unable to service their foreign debt. Indonesia then imposed an effective *moratorium* on the service of the liabilities of its corporate sector. The problem of arranging an orderly roll-over of liabilities was much more complicated in Indonesia than in South Korea. In Korea, most of the short-term BIS loans were concentrated to a limited number of domestic financial institutions. Thus, the small number of concerned parties made the difficult problem of negotiating the roll-over of loans (and/or their transformation into medium term loans) relatively manageable. In Indonesia, instead, the negotiation represented a much more daunting task, as it involved a very large number of domestic firms that had borrowed directly from BIS banks and/or in international debt markets.

6.5 *The role of Japan*

What was the role of Japan, the leading regional economy, in the crisis? At the beginning of 1996 it appeared that the economy was recovering after five years of near zero growth, but with the increase in the consumption tax in April 1997 Japan fell into another economic recession: the level of activity actually declined in the second and third quarters. Clearly, the economic weakness in Japan contributed to the crisis in terms of a reduced demand for imports from the region. As Japanese authorities kept monetary policy loose and interest rates extremely low, the continued depreciation of the yen relative to the US dollar since the middle of 1995 exacerbated the exchange rate tensions in the region, and in 1997 caused a steep real appreciation of the Asian currencies that were pegged to the dollar. The crisis finally exploded in the summer, when the dollar went through what seemed an unstoppable rise and the yen continued its decline.

It is important to stress that Japanese banks, already in fragile conditions after the burst of the 1980s asset bubble and weakened by a stagnant economy in the 1990s, had heavily lent to other Asian economies; given the very low interest rates in Japan, large scale lending to the fast-growing East Asian countries was stimulated by the higher returns available outside Japan. As the Japanese crisis deepened in 1997, many of these banks suffered capital losses and were required to re-balance their loan portfolio in adherence to capital adequacy standards. Since the

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[77] See *e.g.* Chang and Velasco (1998 a, b), in which the classic Diamond and Dybvig (1983) framework is applied to the study of financial crises in emerging economies.

capital adequacy requirement is higher for international than for national lending, many banks chose to recall foreign loans and contain the magnitude of the domestic lending squeeze. At the same time, however, banks and firms in South East Asia that had borrowed from Japan were hit by the currency shocks: the financial outlook of Japanese banks and securities firms correspondingly deteriorated.

Compared to the role of the US in Mexican crisis of 1994-95 (when the US, the major regional economic power, was in a strong cyclical upswing), *undoubtedly the weakness of Japan in 1997 exacerbated poor economic fundamentals in Asia and worsened the unfolding of the currency crises. At the same time, the Asian crisis hit the vulnerable economy of Japan hard, imposing the conditions for a scenario of systemic deterioration of the macroeconomic conditions in the region that, by September 1998, has not yet shown signs of recomposing.*

7. Strategies to recover from the crisis: an overview of the recent debate

Before delving into the analysis of the most recent developments in the region, we devote two sections of our study to a brief assessment of the current debate on the policy strategies to recover from the crisis.[78] This section focuses on the divergent views of the role played by the IMF in dampening — or exacerbating — the impact of the crisis. The following section discusses the case for limiting international capital mobility as a crisis management strategy.

The philosophy of IMF involvement in Asia has been synthesized as follows by the Managing Director of the IMF, Michel Camdessus:

> *"As soon as it was called upon, the IMF moved quickly to help Thailand, then Indonesia, and then Korea formulate reform programs aimed at tackling the roots of their problems and restoring investor confidence. In view of the nature of the crisis, these programs had to go far beyond addressing the major fiscal, monetary, or external balances. Their aim is to strengthen financial systems, improve governance and transparency, restore economic competitiveness, and modernize the legal and regulatory environment."*[79]

As a condition for the loans, the recipes of the IMF hinged substantially upon two key postulates: the need to reform the economies, with particular emphasis on fiscal discipline and banking sector restructuring, and the requirement to maintain high interest rates to avoid capital outflows and currency attacks. Table 39 reports the chronology of the agreements between the IMF and the Asian countries between July 1997 and August 1998. The chronology makes it clear that the targets and the tactics of the Fund did not remain unchanged over time: as the situation in Asia progressively deteriorated, the requests of the IMF became less and less restrictive over time. The Indonesian case provides a striking example of such modifications. The first aid package of October 1997 encompassed strict fiscal discipline, while the agreement of June 1998 allowed the country to limit the budget *deficit* — as opposed to target a budgetary

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[78] Needless to say, our survey is only meant to provide a synthetic introduction to the multifaceted issues under discussion since the summer of 1997. For a wider window on the debate, the reader is referred to the aforementioned Asian Crisis Homepage.

[79] Camdessus (1998).

surplus — below 8.5% of GDP.[80] To some observers, such evolution represents an unequivocal sign of flexibility and open-mindedness. To other observers, these changes occurred too late.

7.1 *Did tight monetary policies and high interest rates worsen the crisis?*

Several analysts have argued that the high interest rates prescribed by the IMF to limit currency depreciation had severe repercussions on the economies of the Asian countries. According to the critics of the IMF recipes, interest rates hikes were not effective in slowing down currency depreciation, but rather worsened the extent of the crisis by leading to widespread banking and corporate bankruptcies. The effects of these policies have been described in terms of a vicious circle: the credit crunch imparted severe financial losses to otherwise solvent companies; the widespread fall in profitability translated into higher levels of non-performing loans and credit risk, exacerbating the crisis-induced recessions and, in turn, causing a further contraction in the supply of credit.

In the light of these considerations, the appropriate policy response to the crisis should have been one of loose money and low interest rates — the same strategy adopted by Japan to deal with its internal crisis. According to an extreme version of this argument, during the crisis there were conditions for a currency/interest rate 'Laffer curve': a *fall* — not a rise — of the interest rates would have strengthened the economy and restored confidence, causing the Asian currencies to appreciate.

The above criticisms, however, have been challenged on a key issue. Loose monetary policies in the early stages of a currency crisis contribute to exacerbate the extent of the depreciation, increasing the burden of foreign currency-denominated liabilities issued by banks and firms. In the presence of large external net liabilities, a monetary expansion could actually produce financial distress and bankruptcies, setting in motion the same vicious circle described above.[81] Consistent with this argument is the view that the severity of the Asian crisis could in part be attributed to the unwillingness of the governments to undertake the appropriate restrictive measures at the right time: the aforementioned case of low interest rate policies in Malaysia after the runs on the Thai baht is a fitting example. By the same token, Japan's policy response to its internal crisis could not be considered suitable for other Asian countries. As Japan is a large net foreign creditor with sizable current account surpluses, the effects of a weaker yen on the Japanese economy are qualitatively and quantitatively different from the effects of low interest rates and exchange rate depreciation in countries with a large external debt denominated in foreign currency. As regards the 'Laffer curve' argument, it is — in the words of Paul Krugman — "as silly as it sounds".[82]

While the appropriate interest rate policy at the onset of the crisis is still subject to a widespread debate, at the time of this writing — and in the light of the large recessions experienced by the Asian economies in 1998 — most observers seem to agree that high interest rates maintained beyond an 'emergency scenario' can have destabilizing consequences. Indeed, by the summer of 1998 interest rates in the East Asian region have significantly fallen

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[80] The latest IMF plans also allow for a fiscal deficit of 4% in Korea, and 2% in Thailand.

[81] A loose monetary policy could of course also ignite inflationary expectations.

[82] Krugman (1998 b).

and, in Korea and Thailand, they are now back to pre-crisis levels. Yet, these countries are currently exhibiting a credit crunch which does not appear to be related to the level of interest rates; rather, it has more to do with the inability of financially distressed banks to lend to a corporate sector laboring under the weight of a severe debt overhang.

7.2 *Did the IMF plans require unnecessary fiscal adjustments?*

Several commentators have argued that the fiscal policy requirements included in the IMF plans were unnecessarily — and harmfully — strict. At the onset of the crisis, the Asian countries under attack were running low budget deficits or fiscal surpluses, and were characterized by relatively low ratios of public debt to GDP, unlike the typical interlocutors of the IMF in past crisis episodes. Excessively tight fiscal discipline made the crisis-induced recession worse.

In support of the 'discipline' view, it has been contended that loose fiscal policies at the onset of the crisis would have raised doubts about the policy-makers' commitment to reduce the outstanding current account imbalances, jeopardizing the credibility of their plans. Also, as pointed out in section 3 above, while fiscal deficits and debt were typically low before the crisis, in several Asian countries the projected fiscal costs of post-crisis financial bail-outs are estimated to be in the range of 20 to 30% of GDP. As these extra public liabilities translate into a permanent increase in the interest bill paid by Asian governments of 2-4% of GDP per year, fiscal balances must be appropriately adjusted. In this respect, the IMF has reiterated that, on a country-by-country basis, fiscal plans were targeted to raise the necessary revenues to meet these extra interest costs. Quoting a speech by Stanley Fischer in January 1998,

> *"the fiscal programs vary from country to country. In each case, the IMF asked for a fiscal adjustment that would cover the carrying costs of financial sector restructuring — the full cost of which is being spread over many years — and to help restore a sustainable balance of payments. In Thailand, this translated into an initial fiscal adjustment of 3 percent of GDP; in Korea, 1 1/2 percent of GDP; and in Indonesia, 1 percent of GDP, much of which will be achieved by reducing public investment in projects with low economic returns."*[83]

One year after the eruption of the Thai crisis, some observers shared the view that the IMF may have been too slow in revising its approach to fiscal policy in the crisis countries. It was only when the recessions rapidly materialized in the course of 1998 that the IMF progressively loosened its fiscal conditions to allow for cyclically-adjusted fiscal deficits. However, it should be acknowledged that over the entire year of 1998, news about the size and depth of the recessionary effects of the crisis came as a shocking surprise not only to the Asian governments and the IMF, but also to a vast majority of country analysts.

7.3 *Did the IMF 'stick to its knitting'?*

The breadth of the restructuring efforts required by the IMF have raised a concern that the Fund has been playing an excessively intrusive role in domestic affairs. The criticism that,

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[83] Fischer (1998 a).

by including in the programs a number of structural elements, the IMF was moving beyond its traditional macro-adjustment related areas of competence (monetary and fiscal tasks) was first made by Martin Feldstein.[84] Similar arguments were echoed by regional commentators, resentful of what they perceived as an imposition of major structural reforms (in areas as heterogeneous as financial and labor markets, competition policy, trade relations) and an interference with the jurisdiction of a sovereign government.

The main counter-arguments were spelled out by Stanley Fischer in his reply to Feldstein.[85] To the extent that the Asian meltdown was attributable to structural problems rather than the traditional macroeconomic imbalances, an effective rescue strategy was bound to address the issues at the very core of the crisis. IMF lending to the Asian region would serve no purpose if the weaknesses of the financial sector (ranging from poor bank supervision and regulation to murky relations among governments, banks and corporations) were not removed by the appropriate structural reforms. Similarly, the insistence on good governance and the avoidance of 'crony capitalism' represented a precondition to avoid future crises, as halfhearted reform efforts would not help to re-establish market confidence. Fischer concluded that

> *"the basic approach of the IMF to these crises has been appropriate — not perfect, to be sure, but far better than if the structural elements had been ignored or the fund had not been involved."*[86]

7.4 *Did plans to close insolvent banks lead to runs on solvent banks?*

The possibility that IMF plans to close insolvent banks led to runs on financially healthy banks has been pointed out, among others, by Jeffrey Sachs. In his comments on the first IMF plan for Indonesia, which called for the closing of sixteen banks, Sachs stated:

> *"In my view, although it's a minority opinion, the IMF did a lot of confidence-reducing measures. In particular, I blame the IMF for abruptly closing financial institutions throughout Asia, sending a remarkably abrupt, unprepared and dangerous signal [...] that you had better take your money out or you might lose it. "*[87]

The advocates of the opposite view point out that the IMF was not at fault if measures of prevention of bank runs — such as incentive-compatible deposit insurance schemes — were not in place in Indonesia. Moreover, when the IMF requirement partly backfired and an unexpected run occurred, President Suharto's government bore responsibility for failing to enact promised reforms in exchange for the $40 billion international rescue effort. In support of this view is the fact that the requirements imposed on Indonesia by the IMF, including the closing of insolvent banks, were similar to those demanded of Thailand and Korea; yet, neither

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84 Feldstein (1998).

85 Fischer (1998 c).

86 Ib., p.106.

87 "To stop the money panic," interview with Jeffrey Sachs, *Asiaweek*, February 13 1998.

country experienced bank runs of the same magnitude as those hitting Indonesia. It has also been argued that, in the Indonesian case, more rather than less should have been done: as early as September 1997, widely circulated documents listed more than 16 Indonesian banks experiencing financial difficulties. Instead, the prompt reopening of a closed bank owned by one of President Suharto's sons contributed to reducing the confidence of the public on the overall rescue plan.

7.5 *Did IMF intervention enhance world-wide moral hazard?*

Many authors have expressed concern with the possibility that IMF-led rescue packages may risk a moral hazard. This is because expectations of a bail-out can lead investors and creditors to refrain from effectively monitoring their investment and lending strategies. Also, officials in debtor countries may pursue excessively risky courses of action, leaving a country more vulnerable to sudden shocks to fundamentals and shifts in market sentiment. While the residents of the country hit by a crisis suffer because of the crisis-induced recession, to the extent that the creditors are bailed-out they do not bear a fair share of the burden of the crisis.

Unquestionably, the risks of creating moral hazard will be thoroughly assessed within the future debate on international policy design and crisis prevention in emerging markets. Yet, several objections have been voiced against a simplistic reading of the problem. First, there is no direct evidence that the surge in capital flows to Asia after 1995 were related to expectations of international bail-outs in the aftermath of the Mexican rescue package. The second objection regards the issue of who bears the costs of the crisis. The IMF has repeatedly pointed out that a majority of private creditors, especially bond-holders and equity investors, took a huge hit during the crisis. By the end of 1997, foreign equity investors had nearly lost three quarters of their equity holdings in some Asian markets. Nonetheless, commercial banks were to some extent spared; for instance, foreign banks operating in Korea demanded public guarantees on bank loans as a precondition for rolling over the existing loans, without forgiving any amounts due,[88] a point highlighted by Litan (1998).

The third objection goes against the argument that countries which rely on international support when things go out of control will follow unsound policies. As put by Fischer, "countries try to avoid going to the fund; policy makers whose countries end up in trouble generally do not survive politically. In this regard, attaching conditions to assistance gives policy makers incentives to do the right thing."[89]

A fourth, and more substantial point, is that moral hazard may be the lesser evil, as the alternative response to a crisis — to leave countries and creditors to sort out their debts — may have much more dramatic and distortionary consequences. The lessons from the interwar period and the 1980s point out that such a strategy requires complex negotiations over a long period of time, during which access to international markets is curtailed and long-term growth drastically lowered. Also, the experience of the 1990s suggests that highly interdependent economies can be subject to the rapid transmission and the 'contagious' spread of speculative

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[88] To be sure, some of the banks have added modestly to their loan reserves to account for possible future write-offs, while claiming to be charging interest rates that do not fully reflect the risk of the loans rolled over.

[89] Fischer (1998 c), p.106.

waves and financial panic across regions. In this scenario, a delay in taming a local crisis through the appropriate program of international assistance — and the failure to promptly restore market confidence — would greatly increase the chances of a systemic chain reaction across countries.

8. The Asian crisis and the debate on capital controls

Vis-à-vis the persistent and pervasive nature of the current crisis, the terms of the current debate have progressively encompassed such items as the reform of multilateral institutions, the future of economic and financial cooperation and, most importantly, the desirability of deregulation and liberalization of international capital markets. The crucial question in this debate is whether exchange controls and limited capital mobility should become elements of an overall strategy of international crisis management and global restructuring.[90]

In order to discuss this topic, one needs to distinguish among three related issues: a) the case for controls on short-term capital inflows; b) the case for controls on capital outflows in the event of a crisis; and c) the optimal speed and sequencing of capital account liberalization.

Regarding the first issue, it has been argued that *restrictions on short-term inflows* may be part of an appropriate policy strategy to prevent a crisis, as they discourage volatile short-term portfolio investment and therefore insulate the country from the disruptive effects of sudden reversals in market sentiment. The experiences with capital controls on short-term inflows of Chile,[91] Colombia and Slovenia are often mentioned in support of this view.

Restrictions on short-term capital inflows may take the form of cross-border controls on bank lending and borrowing only, or be extended to all short-term flows. The case for *controls on short-term cross-border interbank flows* is less controversial than the alternative. It is usually couched in terms of prudential banking standards, rather than in terms of restrictions on capital flows. The case for regulating interbank lending and borrowing hinges upon the evidence on the disruptive effects of highly volatile flows, such as the case when creditor banks suddenly refused to renew their loans to firms and banks in Korea, Thailand and Indonesia.

In principle, restrictions and controls on interbank flows could be *imposed on either lending banks or borrowing banks*. Regarding the former possibility, it should be stressed that, under the current Basle capital adequacy standards, lending banks have a clear incentive to supply short-term, rather than long-term loans to banks in emerging markets. This is because risk weights are lower on short-term than long term bank loans. After the Asian crisis, there is a growing consensus in favor of changing these standards, so as to penalize short-term bank lending to emerging markets through a revision of risk weights (this is currently undergoing as part of the BIS review of the capital adequacy standards).

As regards restrictions on the borrower side, the consensus view is that effective prudential regulation of banks in emerging economies requires higher reserve requirement ratios on liabilities representing cross-border interbank loans and deposits. Note that, as

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[90] For an overview of the debate since the Halifax Summit of 1995 see Kenen (1996).

[91] For an assessment of the Chilean experience, see Massad (1998).

highlighted from our discussion, possible restrictions on short-term cross border banks flows are debated within the context of prudential regulation and supervision of financial institutions.

The case for *broader controls on all short-term capital inflows* (including also portfolio investments and equities) is more controversial. The main argument in its favor is that controls on interbank flows may not be sufficient to shield a country from the high volatility of 'hot money' flows. To the extent that also corporate firms respond to distorted incentives leading them to excessive borrowing, controls on corporate foreign liabilities, especially short-term, may be warranted. In the recent experience of Asia, for example, during the 1990s corporate firms directly undertook risky cross-border borrowing on a large scale. In Indonesia corporate borrowing was massive, over $70 billion, and much larger than foreign borrowing by banks. The scale of corporate borrowing was very large also in the other crisis countries.

The available empirical evidence from Chile and other countries that have imposed controls on a broad range of short-term capital inflows is mixed. Controls do appear to affect the composition of inflows (in favor of long-term loans and FDI) but do not appear to affect the overall volume of inflows. Moreover, controls become less effective over time, because of evasion and leakages (especially via trade credits). Finally, there is some evidence that the Chilean controls have favored large corporations over small and medium ones. It has been argued that the apparent success of Chile in avoiding major currency crises should be attributed to an effective prudential regulation and supervision of the financial system, more than to the presence of controls on short-term inflows. In this respect, it is worth emphasizing that, during the recent financial turmoil, Chile — along with Colombia and Brazil — did actually phase-out controls, with the goal of stimulating much needed capital inflows, and reduce the pressure on the currency.

The case for *controls on capital outflows*, especially in the aftermath of a currency crisis, appears much more controversial in the ongoing academic and policy debate.[92] The logic of the argument in favor of outflow controls is laid out by Krugman (1998 c). The economic recovery in Asia is hampered by high interest rates, but, under perfect capital mobility, a reduction in these rates would further depreciate the exchange rate. For countries with a high stock of liabilities denominated in foreign currency, a depreciation would then be recessionary, via the increasing burden of foreign debt. Controls on capital flows allow domestic policy makers to break the links between interest rates and exchange rates, so that interest rates can be lowered without incurring the cost of a currency devaluation. Krugman stresses the effectiveness of capital controls with the following provocative characterization of the successful performance of the Chinese economy in 1997-98:

> *"think about China right now: a country whose crony capitalism makes Thailand look like Switzerland and whose bankers make Suharto's son look like J.P. Morgan. Why hasn't China been nearly as badly hit as its neighbors? Because it has been able to cut, not raise, interest rates in this crisis, despite maintaining a fixed*

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[92] By the fall of 1998, a number of countries are assessing costs and benefits of the recourse to capital controls as a strategy to mitigate the extent of a crisis. At the beginning of September 1998, the Malaysian central bank announced the introduction of capital controls, requiring official approval for repatriation and withdrawal of ringgits from external accounts, imposing that all settlements of exports and imports be made in foreign currency, limiting the sale and purchase of ringgit-denominated financial assets to transactions through authorized depository institutions, and restricting the export of foreign currency by resident travellers. More drastic controls were introduced in Russia following the August 17 decision to devalue the ruble.

exchange rate; and the reason it is able to do that is that it has an inconvertible currency, a.k.a. exchange controls. Those controls are often evaded, and they are the source of lots of corruption, but they still give China a degree of policy leeway that the rest of Asia desperately wishes it had."[93]

Is the short-run relief that capital controls give to policy makers offset by their long-run costs (higher inflation, higher risk-premium, efficiency costs due to a distorted allocation etc.)? Some authors argue that there is no compelling empirical evidence that countries which implement capital account convertibility are systematically associated with better macroeconomic performances in the long run. For instance, Rodrik (1998) has recently shown that, in a large sample of countries, "the data provide no evidence that countries without capital controls have grown faster, invested more, or experienced lower inflation. Capital controls are essentially uncorrelated with long-term performance once we control for other determinants".[94]

Advocates of the opposite view highlight several arguments against such controls on capital outflows. First, imposing capital controls and limiting capital mobility — they argue — is no 'solution' to the structural problems underlying the Asian crisis. Rather, policy interventions should aim at making the financial system sound, well regulated and effectively supervised.[95] The second argument is based on the experience with capital controls in Latin America in the aftermath of the 1980s debt crisis, which was quite dismal. Controls tended to be ineffective, a tool of financial repression associated with negative real interest rates. For these reasons, they eventually led to more, rather than less, capital flight.

The third argument stresses the role of 'political risk' in international financial instability. While the implementation of capital controls may help fighting a crisis and buy time to organize a policy response to speculative flows, the anticipation (or the possibility) of controls may actually accelerate the crisis. In this respect, the fact that some countries impose controls may lead to a perverse international contagion on other countries. The news of capital controls imposed by Russia and Malaysia in August 1998 was arguably an important factor in the contagious spread of financial panic to Latin America and other emerging markets.

Finally, capital controls are not implemented and managed by the ideally 'benevolent' policy makers of the economic theory, but by governments that are potential sources of distortions and moral hazard. This implies the possibility of a political use (or misuse) of such controls, the risk of creating incentives to rent-seeking, and the temptation to use controls to avoid and or delay necessary reforms.

While the arguments in favor of capital controls, especially during a crisis, are controversial, the views on the third issue presented above, *the optimal speed and sequencing of capital account liberalization*, reflect a widespread and explicit consensus. This consensus

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[93] In a subsequent 'open letter to Prime Minister Mahathir', Krugman suggests four 'guiding principles' for an exchange controls policy to succeed: first, the actual implementation of controls should aim to disrupt ordinary business as little as possible; second, the distortions they impose on the economy should not be overlooked; third, currency controls should not be used to defend an over-valued currency; fourth, controls must serve as an aid to reform, not an alternative.

[94] Rodrik (1998), p.61.

[95] See *e.g.* Dornbusch (1998 b).

view (even expressed formally within the G-7 group and the IMF[96]) stresses that, while a progressive liberalization of the capital account may be warranted over time, policy makers should be very careful about doing it in a gradual and orderly way. As long as financial systems are weak, poorly regulated and subject to political distortions, a hasty rush to capital account liberalization may be unwise and produce destabilizing effects. The benefits of free capital flows are numerous and, provided that financial systems are strong, the arguments in favor of free capital mobility are compelling. In the transition to a system with desirable characteristics, however, capital account liberalization will have to be cautious, gradual and carefully managed. The transition process will have to prevent large foreign debt accumulation, excessive borrowing and lending, and a mismatch in the maturities and currency denomination of assets and liabilities of financial institutions and corporate firms, which have proven to be so destabilizing in many recent and less recent episodes of financial and currency crises.

9. East Asia in 1998

9.1 *Is East Asia following Mexico's footsteps?*

The currency and financial crisis has caused a sharp and severe recession in the East Asian region in 1998. According to the IMF forecasts included in the World Economic Outlook of October 1998, the newly industrialized Asian economies (Hong Kong, Taiwan, Singapore, and Korea) are predicted to contract by 2.9%; the economies of the ASEAN-4 nations (Indonesia, Malaysia, Philippines, and Thailand) are expected to shrink by a staggering 10.4%.

The key question is how long and deep the recession in East Asia will be. In this respect, it has been observed that a contraction in economic activity was also experienced by Mexico after the collapse on the peso in 1994; however, in this country the crisis-induced recession was *V-shaped*: output fell sharply for about 9 months, but the contraction was followed by a rapid recovery in the fall of 1995 and a return to high growth in 1996. There are many reasons to believe that the East Asian cycle will not take the V-shaped form of Mexico, and that the contraction in economic activity in the region will last for much longer.

First, in the eve of the Mexican crisis, the US was in a sharp cyclical upswing, an upswing that has continued uninterrupted until the present; high growth rates in the US. has provided a large demand basin for Mexican goods. On the contrary, the main economy in the Asian region has been experiencing a severe and continued recession, that aggravated in the summer of 1997. As Japan is a significant market for the crisis countries, the severe economic slump in Japan has exacerbated the economic conditions throughout the Asian region.

Second, in 1994 the contagion or 'Tequila effect' from the depreciation of the peso was, to a large extent, contained. While the Mexican peso collapsed, the other currencies in Latin America were able to sustain their pegs. Conversely, the Thai devaluation led to subsequent waves of 'contagious' and 'competitive' devaluations throughout the region. These devaluations limited the ability of the region's economies to support their reciprocal exports;

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[96] See *e.g.* Camdessus (1998).

indeed, trade within the region has sharply contracted, as almost all currencies were devalued while all economies started to contract.

Third, the financial crisis triggered by the Mexican devaluation in 1994 was mainly felt in Latin America. Conversely, over time, the Asian crisis has directly and/or indirectly grown into global financial turmoil and contagion. In the course of 1998, commodities prices have been falling sharply and expectations of worldwide output growth have been revised downward (see next section).

For these reasons, the economic contraction in East Asia has been more severe than the recession in Mexico in 1995 and it is likely to last longer. Several indicators tend to confirm this prediction. For instance, industrial production started to recover in Mexico about 9 months after the crisis. In comparison to Mexico, in the four crisis countries (Korea, Indonesia, Thailand and Malaysia) industrial production has fallen more sharply, and by the end of the summer of 1998 there has been no sign of a turnaround. By the same token, the Mexican unemployment rate peaked 12 months after the crisis, and then fell sharply; in the Asian countries, instead, unemployment rates are still growing 14 months after the eruption of the crisis.

Relative to Mexico, the devaluation of nominal exchange rates has been larger in Indonesia but more modest in Korea, Thailand and Malaysia (where currencies recovered in the first months of 1998 after falling sharply until December 1997). Partially matching the different magnitude of nominal exchange rate deprecation, Korea, Malaysia and Thailand experienced a sharper increase in inflation rates and nominal interest rates than Mexico. Inflation peaked above 50% in Mexico about a year after the crisis, while it has remained below 10% in the three Asian countries; however, inflation has been out of control in Indonesia. Real interest rates have remained high in all the crisis countries, but with a modest reduction in the summer of 1998.

As for the post-crisis Mexico, the trade balances of the crisis countries have sharply improved after the crisis. Yet, the dollar value of Mexican exports rose sharply right after the collapse of the peso, and after year it exceeded the pre-crisis level by 20%. Conversely, in East Asia the dollar value of exports in the crisis countries has *fallen* between 5% and 15% relative to the pre-crisis level. Thus, the improvement in the trade balance is mainly due to a fall in imports.

While the volume of Asian exports has increased (as the deterioration of their value is in large part due to the sharp fall in prices), it has grown at a strikingly low rate relative to the Mexican case. Demand considerations are certainly an important factor in explaining these differences: the recession in Japan and the entire East Asian region has led to a fall in the demand for exports from the crisis countries. However, supply side effects are also playing a role. In particular, a severe credit crunch has limited the ability of firms to produce and export.

9.2 *World financial turmoil and global slowdown*

During 1998, forecasts of the economic slowdown in the crisis countries have been steadily revised downward. The economic recession in East Asia is spreading from the crisis countries (Korea, Indonesia, Thailand and Malaysia) to Hong Kong, Singapore, the Philippines and Taiwan. The Indian subcontinent is fragile, Pakistan is having serious external balance

and debt problems, and India is facing economic difficulties. More crucially, the economic conditions in Japan, the prominent economy in the region, have deteriorated, and this country is in need of difficult banking and structural reforms, let alone an effective macroeconomic policy to recover from the long period of stagnation.[97] Policy failures leading to a further weakening of the yen could undermine the stability of the currencies of China and Hong Kong, triggering a further round of stagflationary competitive devaluations in the entire Asian region.

Economic fundamentals are still strong in the US but the global turmoil may lead to a growth slowdown; the stock market is already reflecting such a possibility. There is clear evidence of a worldwide growth slowdown. The IMF's latest growth forecast for world output, 2.0% (in the October 1998 World Economic Outlook), represents a precipitous drop from the 4.3% growth anticipated one year before in October 1997. Expected growth in the Western Hemisphere is now 2.3%, down from 5.1%. More severely, the estimated 2.0% world growth is comparable to that observed during previous world recessions, such as 1974-75, 1980-83, and 1990-91. Apart from the South-East Asia countries — whose growth forecasts were documented in the previous section — Japan's economy is expected to decline by 2.5%, while Russia is expected to contract by 6% in 1998.

Moreover, commodities prices, which were rising in 1995, have fallen sharply in 1997-1998 per effect of the global economic slowdown. This fall is hurting all commodity exporters. In Latin America, falling oil prices have hit Mexico and Venezuela, falling copper prices are hurting Chile and Peru, while falling agricultural prices are affecting Argentina. Advanced industrial countries have not been spared either. Commodity prices played a crucial role in the depreciations of the currencies of Canada, Australia and New Zealand; given their tight trade links with East Asia, the latter two are already headed towards a recession.

In the summer of 1998, what started as a regional economic and financial crisis in East Asia developed into a global financial turmoil with severe real consequences. The serious economic and political crisis in Russia, along with the fall of the ruble, generated speculative pressures in the region, affecting the currency and financial markets of Eastern and Central European countries. A spread of the crisis to the transition economies in Europe would affect Western Europe, where the current economic recovery is solid but not very rapid. Currency speculation has already hit the Northern European countries which are not members of the EMU.

The crisis in Russia has affected the currencies and stock markets of Latin America, increasing the risk of a continental crisis. The currencies in Colombia, Venezuela and Brazil have been under pressure, while stock markets throughout the region are significantly down. While Latin American economies are structurally stronger than Russia, investors are increasingly averse to risk. In August 1998, emerging market spreads over Treasuries (about 1500 basis points) were close to the peaks reached during the 1995 Mexican peso crisis.

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[97] In this respect, James Tobin writes: "Considering the damage Japan's disastrous macroeconomic performance has done to the Asian and world economies along with the apparent inability of the Japanese to enjoy spending money on themselves, perhaps the Japanese government should unilaterally transfer bundles of yen to other Asian countries and poor countries everywhere for development projects and relief of poverty, requiring that these yen be spent in Japan" (*The Straits Times*, July 18, 1998).

10. Open issues

In the light of the most recent developments in the region, we find it appropriate to conclude our study by briefly highlighting some open issues regarding the implications of the crisis.

Some of the crisis countries, notably Indonesia, Korea and Thailand, are currently experiencing a harsh economic contraction. Many corporations have little access to working capital and are burdened by a massive stock of liabilities. Corporate debt-to-equity ratios that were already high before the crisis have grown higher, up to levels that can hardly be deemed sustainable (400% in Thailand, over 500% in Korea, an even higher ratio for Indonesia).

Banks are under extreme stress. Partly as the result of high interest rates (which increase the rate of non-performing loans), and partly due to the attempt to recapitalize financial intermediaries at a rapid pace, the net worth of the banking system of Korea, Thailand and Indonesia has drastically deteriorated. It should be emphasized that, in terms of actual disbursement, official financial assistance has been significantly lower than announced and reported by newspaper headlines. Financial means from official sources have not alleviated the liquidity squeeze in capital markets.

In such context of financial distress and debt overhang, banks have been severely cutting credit to firms. In some cases, this has been a decisive factor in inducing bankruptcy of corporations that in all likelihood would have been solvent in normal conditions. Contractions in trade credit are particularly painful, as such cuts undermine the firms' ability to import intermediate inputs, and to produce and export domestic goods. An important indicator supporting this statement is the fact that, in spite of massive real depreciations, the exports from the crisis countries have not significantly increased in volume.

Over the summer of 1998, interest rates in Asia have significantly fallen relative to the peaks of the crisis, and in Korea they are back to pre-crisis levels. In spite of this, the credit crunch is still severe in most countries: while the price of credit has been falling, banks that are effectively bankrupt or experience financial distress are unwilling to lend to corporate firms suffering from debt overhang, so that loans are still drastically rationed. In such a situation, capital controls leading to lower interest rates would do little to ease the credit crunch, and it is far from clear whether they would help to remove structural impediments to recovery.

While the need for a more decisive expansionary policy has been widely recognized, several observers have emphasized that an effective way to help the Asian countries to start producing and exporting again may consist of an accelerated debt restructuring process that will recapitalize banks, reduce corporate debt overhang, and provide firms with debt moratoria and new priority financing of working capital and trade. In this regard, it can be argued that a gradual, voluntary and market-based work-out of foreign and domestic debts is not the most effective strategy to address this issue, since a market-based process of debt restructuring may be too slow. The longer the process takes, the larger the number of otherwise solvent firms that become insolvent, and the worse the collapse of economic activity. Suggestions for a comprehensive approach to bank and corporate restructuring with a more active role of governments may have to be considered.

Tables [§]

Table 1. Current Account, NIA Definition (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	-1.24	-3.16	-1.70	-0.16	-1.45	-1.91	-4.82	-1.90
Indonesia	-4.40	-4.40	-2.46	-0.82	-1.54	-4.27	-3.30	-3.62
Malaysia	-2.27	-14.01	-3.39	-10.11	-6.60	-8.85	-3.73	-3.50
Philippines	-6.30	-2.46	-3.17	-6.69	-3.74	-5.06	-4.67	-6.07
Singapore	9.45	12.36	12.38	8.48	18.12	17.93	16.26	13.90
Thailand	-8.74	-8.01	-6.23	-5.68	-6.38	-8.35	-8.51	-2.35
Hong Kong	8.40	6.58	5.26	8.14	1.98	-2.97	-2.43	-3.75
China	3.02	3.07	1.09	-2.19	1.16	0.03	0.52	3.61
Taiwan	7.42	6.97	4.03	3.52	3.12	3.05	4.67	3.23

Table 2. Current Account, BOP Definition (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	-0.69	-2.83	-1.28	0.30	-1.02	-1.86	-4.75	-1.85
Indonesia	-2.82	-3.65	-2.17	-1.33	-1.58	-3.18	-3.37	-2.24
Malaysia	-2.03	-8.69	-3.74	-4.66	-6.24	-8.43	-4.89	-4.85
Philippines	-6.08	-2.28	-1.89	-5.55	-4.60	-2.67	-4.77	-5.23
Singapore	8.33	11.29	11.38	7.57	16.12	16.81	15.65	15.37
Thailand	-8.50	-7.71	-5.66	-5.08	-5.60	-8.06	-8.10	-1.90
China	3.09	3.27	1.33	-1.94	1.26	0.23	0.87	3.24
Taiwan	6.82	6.94	4.03	3.16	2.70	2.10	4.05	2.72

Table 3: Trade Balance, BOP Definition (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	-0.81	-3.04	-1.42	0.06	-1.22	-1.63	-4.36	-1.44
Indonesia	1.68	0.91	1.81	1.48	0.72	-0.76	-1.14	0.22
Malaysia	2.10	-3.74	1.39	-0.11	-1.59	-3.75	0.58	
Philippines	-5.73	-3.00	-4.27	-8.53	-8.95	-8.80	-9.44	-12.30
Singapore	6.76	10.62	9.29	8.12	14.87	15.38	13.62	12.55
Thailand	-7.75	-6.88	-4.70	-4.56	-5.18	-7.09	-6.65	0.14
China	2.75	2.86	1.03	-1.92	1.39	1.68	2.10	4.41
Taiwan	4.74	4.39	1.69	1.60	1.66	1.61	3.45	2.35

Table 4. GDP Growth

	1991	1992	1993	1994	1995	1996	1997
Korea	9.13	5.06	5.75	8.58	8.94	7.10	5.47
Indonesia	6.95	6.46	6.50	15.93	8.22	7.98	4.65
Malaysia	8.48	7.80	8.35	9.24	9.46	8.58	7.81
Philippines	-0.58	0.34	2.12	4.38	4.77	5.76	9.66
Singapore	7.27	6.29	10.44	10.05	8.75	7.32	7.55
Thailand	8.18	8.08	8.38	8.94	8.84	5.52	-0.43
Hong Kong	4.97	6.21	6.15	5.51	3.85	5.03	5.29
China	9.19	14.24	12.09	12.66	10.55	9.54	8.80
Taiwan	7.55	6.76	6.32	6.54	6.03	5.67	6.81

[§] The source of all data in these Tables is the *International Financial Statistics* of the International Monetary Fund (unless otherwise noted). The data for Taiwan are from various sources (Economist Intelligence Unit Reports, IMF's December 1997 World Economic Outlook and Asian Development Bank). The data for Singapore for 1997 are from the Economist Intelligence Unit Country Report, 2nd quarter 1998.

Table 5. Investment Rates (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	36.93	38.90	36.58	35.08	36.05	37.05	38.42	34.97
Indonesia	36.15	35.50	35.87	29.48	31.06	31.93	30.80	31.60
Malaysia	31.34	37.25	33.45	37.81	40.42	43.50	41.54	42.84
Philippines	24.16	20.22	21.34	23.98	24.06	22.22	24.02	24.84
Singapore	35.87	34.21	35.97	37.69	32.69	33.12	35.07	37.40
Thailand	41.08	42.84	39.97	39.94	40.27	41.61	41.73	34.99
Hong Kong	27.44	27.20	28.50	27.54	31.85	34.91	32.38	35.08
China	34.74	34.77	36.17	43.47	40.88	40.20	38.73	37.55
Taiwan	23.08	23.29	24.90	25.16	23.87	23.65	21.24	22.20

Table 6. Incremental Capital Output Ratio (ICOR)

	1987-92	1993-96		1987-92	1993-96
Korea	3.8	4.9	**Thailand**	3.4	5.1
Indonesia	4.0	3.8	**Hong Kong**	3.7	6.1
Malaysia	3.7	4.8	**China**	3.1	2.9
Philippines	6.0	5.5	**Taiwan**	2.4	3.9
Singapore	3.6	4.0			

Source: JP Morgan and authors calculations.

Table 7. Financial Conditions of Top 30 Korean Chaebol at the end of 1996 (in hundred million won and %).

Chaebol	Total Assets	Debt	Sales	Net Profit	Debt/Equity Ratio
Samsung	508.6	370.4	601.1	1.8	268.2
Hyundai	531.8	433.2	680.1	1.8	439.1
Daewoo	342.1	263.8	382.5	3.6	337.3
LG	370.7	287.7	466.7	3.6	346.5
Hanjin	139.0	117.9	87.0	-1.9	556.9
Kia	141.6	118.9	121.0	-1.3	523.6
Ssangyong	158.1	127.0	194.5	-1.0	409.0
Sunkyong	227.3	180.4	266.1	2.9	385.0
Hanhwa	109.7	97.2	96.9	-1.8	778.2
Daelim	57.9	45.9	48.3	0.1	380.1
Kumho	74.0	61.2	44.4	-0.2	477.9
Doosan	64.0	55.9	40.5	-1.1	692.3
Halla	66.3	63.2	52.9	0.2	2067.6
Sammi	25.2	25.9	14.9	-2.5	3245.0
Hyosung	41.2	32.5	54.8	0.4	373.2
Hanil	26.3	22.3	13.0	-1.2	563.2
Donga Construction	62.9	49.1	38.9	0.4	355.0
Kohap	36.5	31.2	25.2	0.3	589.5
Jinro	39.4	39.0	14.8	-1.6	8598.7
Dongguk Jaekank	37.0	25.4	30.7	0.9	210.4
Lotte	77.5	51.0	71.9	0.5	191.2
Kolon	38.0	28.9	41.3	0.2	316.5
Haitai	34.0	29.5	27.2	0.4	658.3
Sinho Jaeji	21.3	17.7	12.2	-0.1	489.5
Anam Industrial	26.4	21.8	19.8	0.1	478.1
Dongguk Muyok	16.2	13.6	10.7	-0.2	587.9
New Core	28.0	25.9	18.3	0.2	1224.0
Bongil	20.3	18.3	8.7	-0.9	920.5
Hansol	47.9	37.1	25.5	-0.1	343.2
Hansin Kongyong	13.3	11.5	10.6	0.0	648.8

Source: Chosun Ilbo, November 29, 1997.

Table 8. Profitability of Korean Chaebols. ROIC in 1992-1996.

Chaebol	1992-96	1996
Hanbo	3.0%	1.7%
Sammi	2.9%	3.2%
Jinro	2.7%	1.9%
Kia	18.9%	8.7%
Dainong	6.8%	5.5%

Source: LG Economic Research Institute

Table 9. Central Business District office vacancy rates and rental yields.

	Vacancy Rates		Rental yield
	1997	1998-99	Jun-97
Seoul			9.50%
Jakarta	10.0%	20.0%	7.20%
Kuala Lumpur	3.0%	20.0%	5.80%
Manila	1.0%	3.0%	9.30%
Singapore	8.0%	12.0%	3.90%
Bangkok	15.0%	20.0%	6.80%
Hong Kong	6.0%	10.0%	3.50%
Shanghai	30.0%	40.0%	8.00%
Taipei			4.80%

Source: JP Morgan "Asian Financial Markets", January 1998. 1997 figures for vacancy rates are estimates; 1998-99 figures are forecasts.

Table 10. Stock market prices indexes

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	696.00	610.00	678.00	866.00	1027.00	882.00	651.00	376.00
Indonesia	417.00	247.00	274.00	588.00	469.00	513.00	637.00	401.00
Malaysia	505.00	556.00	643.00	1275.00	971.00	995.00	1237.00	594.00
Philippines	651.00	1151.00	1256.00	3196.00	2785.00	2594.00	3170.00	1869.00
Singapore	1154.00	1490.00	1524.00	2425.00	2239.00	2266.00	2216.00	1529.00
Thailand	612.00	711.00	893.00	1682.00	1360.00	1280.00	831.00	372.00
Hong Kong	3024.00	4297.00	5512.00	11888.00	8191.00	10073.00	13451.00	10722.00
Taiwan	4350.00	4600.00	3377.00	6070.00	7111.00	5158.00	6933.00	8187.00

Table 11. Stock market prices indexes (property sector)

	1990	1991	1992	1993	1994	1995	1996	1997
Indonesia		119.00	66.00	214.00	140.00	112.00	143.00	40.00
Malaysia	113.00	113.00	126.00	369.00	240.00	199.00	294.00	64.00
Philippines	32.00	34.00	39.00	81.00	80.00	87.00	119.00	59.00
Singapore	230.00	280.00	250.00	541.00	548.00	614.00	648.00	357.00
Thailand	74.00	82.00	168.00	367.00	232.00	192.00	99.00	7.00
Hong Kong	312.00	453.00	554.00	1392.00	862.00	1070.00	1682.00	941.00
Taiwan	61.00	71.00	57.00	137.00	109.00	59.00	55.00	55.00

Table 12. Saving Rates (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	35.69	35.74	34.88	34.91	34.60	35.14	33.60	33.06
Indonesia	31.75	31.10	33.41	28.66	29.52	27.65	27.50	27.98
Malaysia	29.07	23.24	30.06	27.70	33.81	34.65	37.81	39.34
Philippines	17.85	17.76	18.16	17.29	20.32	17.16	19.35	18.77
Singapore	45.32	46.56	48.35	46.17	50.82	51.05	51.33	51.30
Thailand	32.33	34.83	33.73	34.26	33.89	33.25	33.22	32.64
Hong Kong	35.85	33.78	33.76	35.67	33.83	31.94	29.95	31.33
China	37.77	37.84	37.26	41.29	42.04	40.22	39.25	41.15
Taiwan	30.50	30.26	28.93	28.68	26.99	26.70	25.92	25.43

Table 13. Government Fiscal Balances (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	-0.68	-1.63	-0.50	0.64	0.32	0.30	0.46	0.25
Indonesia	0.43	0.45	-0.44	0.64	1.03	2.44	1.26	0.00
Malaysia	-3.10	-2.10	-0.89	0.23	2.44	0.89	0.76	2.52
Philippines	-3.47	-2.10	-1.16	-1.46	1.04	0.57	0.28	0.06
Singapore	10.53	8.58	12.35	15.67	11.93	13.07	14.10	9.52
Thailand	4.59	4.79	2.90	2.13	1.89	2.94	0.97	-0.32
China	-0.79	-1.09	-0.97	-0.85	-1.22	-1.00	-0.82	-0.75
Taiwan	1.85	-2.18	-5.34	-3.88	-1.73	-1.09	-1.34	-1.68

Table 14. Inflation Rate

	1991	1992	1993	1994	1995	1996	1997
Korea	9.30	6.22	4.82	6.24	4.41	4.96	4.45
Indonesia	9.40	7.59	9.60	12.56	8.95	6.64	11.62
Malaysia	4.40	4.69	3.57	3.71	5.28	3.56	2.66
Philippines	18.70	8.93	7.58	9.06	8.11	8.41	5.01
Singapore	3.40	2.32	2.27	3.05	1.79	1.32	2.00
Thailand	5.70	4.07	3.36	5.19	5.69	5.85	5.61
Hong Kong	11.60	9.32	8.52	8.16	8.59	6.30	5.83
China	3.50	6.30	14.60	24.20	16.90	8.30	2.80
Taiwan	3.63	4.50	2.87	4.09	3.75	3.01	0.90

Table 15. Openness ((Exports+Imports)/2 as a % of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	30.04	29.38	29.38	29.04	30.47	33.59	34.36	38.48
Indonesia	26.30	27.18	28.23	25.26	25.94	26.98	26.13	28.22
Malaysia	75.23	86.52	76.64	87.72	92.15	97.42	91.50	93.55
Philippines	30.40	31.09	31.58	35.58	36.98	40.26	44.90	54.20
Thailand	37.76	39.24	38.98	39.69	40.99	44.88	42.19	46.69
Hong Kong	129.93	135.28	140.37	137.18	138.92	151.67	142.28	132.68
Taiwan	44.27	45.14	42.34	43.29	43.16	47.80	46.63	48.07

Table 16. Nominal Exchange Rate (to the US Dollar). Period average.

	1990	1991	1992	1993	1994	1995	1996	1997	1997f
Korea	707.76	733.35	780.65	802.67	803.45	771.27	804.45	951.29	1695.00
Indonesia	1842.80	1950.30	2029.90	2087.10	2160.80	2248.60	2342.30	2909.40	4650.00
Malaysia	2.70	2.75	2.55	2.57	2.62	2.50	2.52	2.81	3.89
Philippines	24.31	27.48	25.51	27.12	26.42	25.71	26.22	29.47	39.98
Singapore	1.81	1.73	1.63	1.62	1.53	1.42	1.41	1.48	1.68
Thailand	25.59	25.52	25.40	25.32	25.15	24.91	25.34	31.36	47.25
Hong Kong	7.79	7.77	7.74	7.74	7.73	7.74	7.73	7.74	7.75
China	4.78	5.32	5.51	5.76	8.62	8.35	8.31	8.29	8.28
Taiwan	26.89	26.82	25.16	26.39	26.46	26.49	27.46	28.70	32.64

Table 17. Real Exchange Rate. End of year data.

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	96.00	91.50	87.70	85.20	84.70	87.70	87.20	58.60
Indonesia	97.40	99.60	100.80	103.80	101.00	100.50	105.40	62.40
Malaysia	97.00	96.90	109.70	111.00	107.10	106.90	112.10	84.90
Philippines	92.40	103.10	107.10	97.40	111.70	109.60	116.40	90.90
Singapore	101.20	105.70	106.00	108.60	111.90	112.70	118.20	114.40
Thailand	102.20	99.00	99.70	101.90	98.30	101.70	107.60	72.40
Hong Kong	99.70	103.90	108.50	116.00	114.50	116.00	125.80	138.40
Taiwan	96.50	95.70	95.70	91.40	92.60	90.40	89.60	89.20

Data Source: J.P. Morgan. The base figure (100) is the average for the year 1990.

Table 18. Bank Lending to Private Sector (% growth)

	1991	1992	1993	1994	1995	1996	1997
Korea	20.78	12.55	12.94	20.08	15.45	20.01	21.95
Indonesia	17.82	12.29	25.48	22.97	22.57	21.45	46.42
Malaysia	20.58	10.79	10.80	16.04	30.65	25.77	26.96
Philippines	7.33	24.66	40.74	26.52	45.39	48.72	28.79
Singapore	12.41	9.77	15.15	15.25	20.26	15.82	12.68
Thailand	20.45	20.52	24.03	30.26	23.76	14.63	19.80
Hong Kong		10.17	20.15	19.94	10.99	15.75	20.10
China	19.76	20.84	43.52	24.58	24.23	24.68	20.96
Taiwan	21.25	28.70	19.46	16.18	10.00	6.00	8.92

Table 19. Bank Lending to Private Sector (% of GDP)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	52.54	52.81	53.34	54.21	56.84	57.04	61.81	69.79
Indonesia	49.67	50.32	49.45	48.90	51.88	53.48	55.42	69.23
Malaysia	71.36	75.29	74.72	74.06	74.61	84.80	93.39	106.91
Philippines	19.17	17.76	20.44	26.37	29.06	37.52	48.98	56.53
Singapore	82.20	83.34	85.06	84.14	84.21	90.75	95.96	100.29
Thailand	64.30	67.70	72.24	80.01	91.00	97.62	101.94	116.33
Hong Kong		141.84	134.20	140.02	149.00	155.24	162.36	174.24
China	85.51	87.87	86.17	95.49	87.12	85.83	91.65	101.07
Taiwan	100.41	108.99	126.43	137.23	146.89	149.49	146.05	146.23

Table 20. Lending Boom Measure (rate of growth between 1990 and 1996 of the ratio between the claims on the private sector of the deposit money banks and nominal GDP).

Korea	11%	**Singapore**	17%
Indonesia	10%	**Thailand**	58%
Malaysia	31%	**Hong Kong**	26%
Philippines	151%	**China**	7%

Table 21. Non-Performing Loans (as proportion of otal lending in 1996)

Korea	8%	**Thailand**	13%
Indonesia	13%	**Hong Kong**	3%
Malaysia	10%	**China**	14%
Philippines	14%	**Taiwan**	4%
Singapore	4%		

Source: 1997 BIS Annual Report; Jardine Fleming.

Table 22. Banking System Exposure to Risk. (% of assets at the end of 1997)

	Property Exposure	Collateral Valuation	Non-Performing Loans 1997	Non-Performing Loans 1998f	Capital Ratio
Korea	15-25%	80-100%	16%	22.50%	6-10%
Indonesia	25-30%	80-100%	11%	20.00%	8-10%
Malaysia	30-40%	80-100%	7.50%	15.00%	8-14%
Philippines	15-20%	70 - 80%	5.50%	7.00%	15-18%
Singapore	30-40%	70 - 80%	2.00%	3.50%	18-22%
Thailand	30-40%	80-100%	15%	25%	6-10%
Hong Kong	40-55%	50 - 70%	1.50%	3%	15-20%

Source: JP Morgan "Asian Financial Markets", January 1998.

Table 23. Foreign Debt, World Bank Data (as a % of GDP**)**

	1990	1991	1992	1993	1994	1995	1996
Korea	13.79	13.51	14.34	14.18	14.32	*23.80*	*28.40*
Indonesia	65.89	68.21	68.74	56.44	60.96	61.54	56.74
Malaysia	35.80	35.48	34.51	40.74	40.40	39.31	40.06
Philippines	69.02	71.45	62.29	66.09	62.42	53.21	49.75
Singapore	11.23	11.07	9.47	9.45	10.79	9.84	10.74
Thailand	32.80	38.38	37.51	34.10	33.31	33.78	50.05
Hong Kong	16.80	14.84	14.99	14.35	18.38	16.60	15.44
China	14.26	14.84	14.99	14.35	18.38	16.60	15.44
Taiwan	11.04	10.73	9.37	10.44	10.87	10.40	10.07

Note: The source for Tables 23-27 is the Global Development Finance (GDF) report of the World Bank and IMF-IFS. The data for Hong Kong, Singapore, Taiwan in tables 23-24 and 26-27 are from the Asian Development Bank. The data for Korea in 1995 and 1996 (in italics) are from OECD, External Debt Statistics.

Table 24. Short-Term Debt, World Bank Data (% of Total).

	1990	1991	1992	1993	1994	1995	1996
Korea	30.87	28.19	26.99	25.85	25.47	*51.60*	*50.20*
Indonesia	15.92	18.00	20.52	20.17	18.05	20.87	24.98
Malaysia	12.43	12.14	18.18	26.58	21.13	21.19	27.83
Philippines	14.48	15.24	15.93	14.01	14.29	13.38	19.34
Singapore	17.51	18.92	19.91	17.87	13.28	14.56	19.81
Thailand	29.63	33.13	35.22	53.01	60.67	72.36	41.41
Hong Kong	45.97	46.63	45.89	41.19	30.04	28.36	43.57
China	16.85	17.89	19.01	17.80	17.40	18.91	19.72
	88.31	86.49	86.93	84.99	76.75	72.18	68.44

Table 25. Debt Service as a Ratio of Exports. World Bank Data

	1990	1991	1992	1993	1994	1995	1996
Korea	10.80	7.20	7.80	9.40	6.90	*7.30*	*8.80*
Indonesia	33.40	34.30	32.60	33.60	30.70	30.90	36.80
Malaysia	12.60	7.40	9.10	8.40	9.00	7.00	8.20
Philippines	27.00	23.00	24.40	25.60	18.90	16.40	13.70
Thailand	16.90	13.00	13.80	13.70	13.50	11.60	11.50
Hong Kong	1.71	1.23	1.08	0.93	1.49	0.71	
China	11.70	11.90	10.20	11.10	8.90	9.90	8.70
Taiwan	2.29	2.01	1.86	1.33	1.68	1.82	

Table 26. Short-Term Debt, World Bank Data (% of foreign reserves)

	1990	1991	1992	1993	1994	1995	1996
Korea	72.13	81.75	69.62	60.31	54.06	*171.45*	*203.23*
Indonesia	149.28	154.62	172.81	159.70	160.36	189.42	176.59
Malaysia	19.54	19.05	21.12	25.51	24.34	30.60	40.98
Philippines	479.11	152.31	119.37	107.68	95.00	82.85	79.45
Singapore	2.65	2.67	2.35	2.04	1.75	1.78	2.60
Thailand	62.55	71.31	72.34	92.49	99.48	114.21	99.69
Hong Kong	23.52	21.78	18.38	17.09	16.49	14.16	22.35
China	31.49	24.68	66.76	68.33	33.04	29.62	23.74
Taiwan	21.56	20.21	21.00	23.64	21.76	21.64	21.31

Table 27. Debt Service plus Short-Term Debt, World Bank Data (% of foreign reserves).

	1990	1991	1992	1993	1994	1995	1996
Korea	127.43	125.90	110.35	105.66	84.90	*204.93*	*243.31*
Indonesia	282.92	278.75	292.03	284.79	277.95	309.18	294.17
Malaysia	63.96	45.87	45.55	42.37	48.73	55.92	69.33
Philippines	867.64	256.99	217.08	212.60	171.98	166.60	137.06
Thailand	102.35	99.34	101.34	120.28	126.54	138.13	122.62
Hong Kong	30.51	26.87	22.82	20.64	22.02	16.82	
China	55.34	43.70	108.55	113.74	54.08	49.61	38.46
Taiwan	23.92	22.29	23.08	25.21	23.69	24.20	

Table 28. Foreign Liabilities and Assets (toward BIS Reporting Banks) (US $ billion)

Korea	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	45.22	60.97	83.26	109.15	103.78	113.42	118.25	104.71
Foreign Assets	15.20	20.54	25.10	29.07	41.28	33.04	35.87	41.79
Net Liabilities	30.02	40.43	58.16	80.08	62.50	80.39	82.38	62.92
Foreign Liabilities (non-banks)	10.59	13.49	17.91	24.07	25.18	25.98	26.53	25.40
Foreign Assets (non-banks)	1.45	2.29	3.58	3.47	2.24	3.42	3.06	2.28
Net Liabilities	9.14	11.20	14.33	20.61	22.94	22.57	23.46	23.13
Foreign Liabilities (banks)	34.63	47.49	65.35	85.08	78.60	87.44	91.72	79.31
Foreign Assets (banks)	13.75	18.25	21.52	25.61	39.04	29.62	32.80	39.52
Net Liabilities	20.88	29.24	43.83	59.47	39.56	57.82	58.92	39.79

Indonesia	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	37.20	41.62	48.93	57.85	62.76	59.65	62.44	63.58
Foreign Assets	12.58	10.39	11.48	13.64	11.55	12.75	11.20	11.92
Net Liabilities	24.63	31.23	37.45	44.21	51.21	46.91	51.24	51.66
Foreign Liabilities (non-banks)	22.23	24.57	27.93	34.36	38.70	36.17	37.62	39.35
Foreign Assets (non-banks)	3.61	2.47	2.56	2.68	3.32	2.90	2.71	3.37
Net Liabilities	18.63	22.11	25.37	31.69	35.37	33.27	34.91	35.98
Foreign Liabilities (banks)	14.97	17.05	21.00	23.49	24.07	23.48	24.82	24.23
Foreign Assets (banks)	8.97	7.92	8.93	10.97	8.23	9.85	8.49	8.55
Net Liabilities	6.00	9.13	12.08	12.52	15.84	13.63	16.33	15.68

Malaysia	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	16.02	14.48	18.76	25.91	29.08	31.23	33.00	29.47
Foreign Assets	19.24	10.32	13.03	17.49	13.07	18.88	17.47	13.93
Net Liabilities	-3.21	4.15	5.72	8.41	16.01	12.35	15.53	15.54
Foreign Liabilities (non-banks)	4.26	3.91	5.54	6.92	6.46	7.06	7.50	6.70
Foreign Assets (non-banks)	1.94	2.12	2.58	2.75	3.46	3.49	3.03	3.51
Net Liabilities	2.31	1.79	2.96	4.17	3.00	3.57	4.47	3.20
Foreign Liabilities (banks)	11.77	10.57	13.22	18.99	22.62	24.17	25.50	22.76
Foreign Assets (banks)	17.29	8.21	10.46	14.74	9.61	15.39	14.44	10.42
Net Liabilities	-5.53	2.36	2.76	4.25	13.01	8.78	11.06	12.35

Philippines	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	6.61	6.54	8.07	13.51	16.61	15.11	17.02	16.79
Foreign Assets	5.81	6.75	7.34	7.84	9.70	8.59	7.68	9.84
Net Liabilities	0.80	-0.21	0.73	5.67	6.91	6.52	9.34	6.96
Foreign Liabilities (non-banks)	3.37	2.84	3.12	4.15	6.34	4.82	5.24	6.42
Foreign Assets (non-banks)	2.96	3.22	3.31	3.06	3.14	3.15	3.30	3.17
Net Liabilities	0.42	-0.37	-0.19	1.09	3.20	1.68	1.94	3.25
Foreign Liabilities (banks)	3.24	3.70	4.95	9.36	10.27	10.28	11.78	10.37
Foreign Assets (banks)	2.85	3.53	4.03	4.78	6.56	5.45	4.38	6.67
Net Liabilities	0.39	0.17	0.92	4.58	3.72	4.84	7.40	3.71

Singapore	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	233.39	248.00	282.03	287.24	295.83	293.41	306.89	310.24
Foreign Assets	155.02	153.43	170.26	177.83	214.65	193.06	202.33	219.64
Net Liabilities	78.37	94.57	111.77	109.42	81.18	100.35	104.56	90.59
Foreign Liabilities (non-banks)	3.73	4.05	5.65	6.71	8.01	8.22	8.41	8.13
Foreign Assets (non-banks)	9.56	10.88	12.07	13.62	14.16	13.72	13.77	14.38
Net Liabilities	-5.82	-6.83	-6.43	-6.91	-6.16	-5.50	-5.36	-6.26
Foreign Liabilities (banks)	229.66	243.95	276.38	280.53	287.82	285.18	298.49	302.11
Foreign Assets (banks)	145.47	142.55	158.19	164.21	200.49	179.34	188.56	205.26
Net Liabilities	84.19	101.40	118.19	116.32	87.33	105.85	109.92	96.85

Thailand	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	34.73	54.44	92.18	99.27	79.66	99.82	99.54	81.82
Foreign Assets	5.01	7.04	11.81	9.00	9.81	10.09	8.78	9.95
Net Liabilities	29.72	47.40	80.37	90.27	69.84	89.73	90.76	71.86
Foreign Liabilities (non-banks)	9.14	9.81	12.56	14.13	12.00	13.84	13.50	12.23
Foreign Assets (non-banks)	1.63	1.84	2.13	1.90	2.06	1.91	2.02	2.09
Net Liabilities	7.50	7.97	10.43	12.22	9.94	11.92	11.49	10.14
Foreign Liabilities (banks)	25.59	44.63	79.62	85.15	67.66	85.98	86.04	69.59
Foreign Assets (banks)	3.38	5.20	9.68	7.10	7.75	8.17	6.76	7.86
Net Liabilities	22.22	39.43	69.94	78.05	59.90	77.81	79.28	61.73

Hong Kong	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	412.99	493.96	513.04	469.96	469.58	480.55	502.90	499.74
Foreign Assets	290.01	345.19	329.74	284.37	294.76	302.24	296.81	302.72
Net Liabilities	122.98	148.77	183.31	185.60	174.83	178.31	206.09	197.02
Foreign Liabilities (non-banks)	19.61	17.90	22.58	26.73	20.69	25.48	26.10	21.44
Foreign Assets (non-banks)	49.41	53.08	54.28	60.47	64.34	63.02	63.53	65.04
Net Liabilities	-29.80	-35.18	-31.70	-33.74	-43.66	-37.54	-37.43	-43.60
Foreign Liabilities (banks)	393.38	476.06	490.46	443.24	448.90	455.08	476.79	478.31
Foreign Assets (banks)	240.60	292.11	275.46	223.90	230.42	239.22	233.27	237.68
Net Liabilities	152.78	183.95	215.00	219.34	218.48	215.86	243.52	240.63

China	**1993**	**1994**	**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities	48.59	56.46	67.06	79.75	90.08	82.18	86.33	91.20
Foreign Assets	49.16	59.95	57.43	66.54	66.40	64.58	64.99	67.04
Net Liabilities	-0.57	-3.49	9.63	13.21	23.68	17.60	21.34	24.15
Foreign Liabilities (non-banks)	13.30	15.18	16.10	17.88	18.12	17.95	18.90	18.36
Foreign Assets (non-banks)	2.50	2.73	2.92	3.00	3.79	3.70	3.98	3.86
Net Liabilities	10.81	12.46	13.17	14.88	14.33	14.26	14.93	14.51
Foreign Liabilities (banks)	35.29	41.28	50.96	61.87	71.96	64.22	67.43	72.83
Foreign Assets (banks)	46.67	57.23	54.51	63.54	62.60	60.88	61.01	63.19
Net Liabilities	-11.38	-15.94	-3.54	-1.67	9.36	3.34	6.42	9.65

Taiwan			**1995**	**1996**	**1997**	**1997-Q1**	**1997-Q2**	**1997-Q4**
Foreign Liabilities			22.13	22.79	22.43	24.69	25.23	22.66
Foreign Assets			36.03	37.48	36.46	37.37	36.23	37.27
Net Liabilities			-13.90	-14.69	-14.04	-12.68	-11.00	-14.61
Foreign Liabilities (non-banks)			2.51	2.97	3.13	3.53	3.19	3.19
Foreign Assets (non-banks)			7.28	8.22	9.03	8.30	8.34	9.10
Net Liabilities			-4.77	-5.25	-5.90	-4.77	-5.15	-5.92
Foreign Liabilities (banks)			19.63	19.82	19.29	21.16	22.04	19.47
Foreign Assets (banks)			28.76	29.27	27.44	29.07	27.89	28.16
Net Liabilities			-9.13	-9.44	-8.14	-7.91	-5.85	-8.69

Source: Bank of International Settlements (BIS): International Banking and Financial Market Developments

Table 29. Liabilities towards BIS Banks (% of GDP)

	1993	**1994**	**1995**	**1996**	**1997**
Korea	13.59	16.01	18.24	22.52	23.45
Indonesia	23.54	23.53	24.21	25.44	29.25
Malaysia	24.96	19.97	21.48	26.10	29.53
Philippines	12.16	10.21	10.88	16.31	20.20
Singapore	400.24	349.10	330.15	305.37	307.16
Thailand	27.73	37.71	54.82	54.71	51.75
Hong Kong	356.15	377.60	368.51	304.94	272.53
China	8.12	10.33	9.43	9.56	9.82
Taiwan	9.60	9.29	8.08	8.04	7.29

Table 30. Consolidated cross-border claims in all currencies and local claims in non-local currencies.
(Mid-1997 figures. Shares of various sectors and total stock)

	Banks	Public Sector	Non-Bank Private Sector	Total in billions of US dollars
Korea	44.0%	7.4%	48.5%	103.4
Indonesia	21.1%	11.1%	67.7%	58.7
Malaysia	36.4%	6.4%	57.1%	28.8
Thailand	37.6%	2.8%	59.5%	69.4
China	42.6%	13.2%	44.1%	57.9
Taiwan	61.6%	1.6%	36.8%	25.2

Note: Source for Tables 30-32 and 36 is the Bank of International Settlements.

Table 31. Ratio of Liabilities to Assets (towards BIS Banks)

	1993	1994	1995	1996	1997
Korea	2.97	2.97	3.32	3.75	2.51
Indonesia	2.96	4.01	4.26	4.24	5.43
Malaysia	0.83	1.40	1.44	1.48	2.23
Philippines	1.14	0.97	1.10	1.72	1.71
Singapore	1.51	1.62	1.66	1.62	1.38
Thailand	6.93	7.73	7.81	11.03	8.12
Hong Kong	1.42	1.43	1.56	1.65	1.59
China	0.99	0.94	1.17	1.20	1.36
Taiwan	0.64	0.59	0.61	0.61	0.62

Table 32. Short-Term Liabilities towards BIS Banks (% of total liabilities at the end of 1996)

Korea	67%	**Thailand**	65%
Indonesia	61%	**Hong Kong**	82%
Malaysia	50%	**China**	49%
Philippines	58%	**Taiwan**	84%
Singapore	92%		

Table 33: Foreign Reserves (in months of imports)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	2.34	1.83	2.23	2.53	2.63	2.52	2.32	1.42
Indonesia	3.24	3.53	3.62	3.60	3.24	2.94	3.64	3.26
Malaysia	3.68	2.98	4.71	5.64	4.53	3.29	3.59	2.73
Philippines	0.75	2.63	2.93	2.59	2.81	2.33	2.95	1.79
Thailand	4.49	5.03	5.35	5.64	5.65	5.35	5.53	4.40
Hong Kong	3.13	3.04	3.04	3.33	3.27	3.10	3.47	4.80
Taiwan	12.99	12.86	11.28	10.64	10.90	8.90	8.68	7.56

Table 34. M1 to Foreign Reserves Ratio

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	1.50	2.16	1.84	1.79	1.57	1.54	1.44	1.81
Indonesia	1.73	1.48	1.30	1.44	1.58	1.53	1.21	1.62
Malaysia	0.96	0.93	0.81	0.69	0.84	1.07	1.16	1.46
Philippines	4.14	1.21	1.05	1.13	1.01	1.19	0.89	1.24
Singapore	0.30	0.28	0.28	0.29	0.26	0.26	0.25	0.26
Thailand	0.57	0.50	0.48	0.48	0.47	0.43	0.44	0.52
Hong Kong		0.45	0.46	0.45	0.40	0.35	0.35	0.23
China	4.95	3.87	10.30	12.99	4.72	4.07	3.45	3.24
Taiwan	0.99	0.98	1.18	1.27	1.28	1.32	1.42	1.55

Table 35. M2 to Foreign Reserves Ratio

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	6.48	8.33	7.20	6.91	6.45	6.11	6.51	10.50
Indonesia	6.16	5.51	5.61	6.09	6.55	7.09	6.50	7.37
Malaysia	2.91	2.99	2.64	2.09	2.47	3.33	3.66	4.99
Philippines	16.33	4.82	4.35	4.90	4.86	5.86	4.50	6.97
Singapore	1.23	1.18	1.17	1.05	1.06	1.05	1.03	1.17
Thailand	4.49	4.10	4.10	4.05	3.84	3.69	3.90	5.29
Hong Kong		5.43	4.84	4.54	4.43	4.35	4.25	3.18
China	10.37	8.00	21.39	26.93	10.29	9.65	8.55	7.76
Taiwan	3.20	3.36	4.28	4.61	4.78	5.35	5.78	6.30

Table 36. Short-Term Liabilities towards BIS Banks (% of foreign reserves, end of 1996)

Korea	213%	**Philippines**	77%
Indonesia	181%	**Thailand**	169%
Malaysia	47%	**China**	36%

Table 37. Contribution of Inward FDI to Current Account Financing (% of current account deficit)

	1990	1991	1992	1993	1994	1995	1996	1997
Korea	45.16	14.19	18.43	-59.39	20.92	20.88	10.11	34.82
Indonesia	36.58	34.79	63.92	95.16	75.54	67.58	80.83	97.11
Malaysia	268.05	95.58	239.18	180.13	98.27	90.10	110.84	139.28
Philippines	19.67	52.61	22.80	41.05	53.93	74.65	38.38	29.12
Thailand	33.57	26.60	33.52	28.35	16.90	15.26	15.90	103.84

Table 38. Growth of Foreign Reserves in U.S. Dollars (% growth rate, 1990-1996)

Korea	127%	**Singapore**	176%
Indonesia	144%	**Thailand**	183%
Malaysia	176%	**Hong Kong**	159%
Philippines	985%	**China**	261%

Table 39. Chronology of IMF Intervention in Asia

7/2/97 — **Thailand** announces a managed float of the baht and IMF negotiations begin.

7/14/97 — The **Philippines** extends and augments its existing IMF-supported program of 1997, and arranges a stand-by facility in 1998. IMF offers Philippines USD 1.1b loan package.

8/20/97 — IMF approves a USD 3.9b credit for **Thailand**. The plan assumes a positive growth of 2.5 percent in 1997 and 3.5 percent in 1998; and calls for maintaining gross official reserves at the equivalent of 4.2 months of imports in 1997 and 4.4 months in 1998; limiting the end-period rate of inflation to 9.5 percent in 1997 and 5 percent in 1998; targeting a small overall fiscal surplus by 1998 through an increase in the rate of the value-added-tax (VAT), and selective expenditure cuts; initiating a credible and up-front restructuring of the financial sector, focused on the identification and closure of unviable financial institution (56 finance companies).

10/8/97 — **Indonesian** government agrees to request help from IMF.

10/31/98 — The International Monetary Fund announces a $23 billion multilateral financial package involving the World Bank and Asian Development Bank to help **Indonesia** stabilize its financial system.

11/5/97 — The IMF approves a USD 10b stand-by credit for **Indonesia** and releases a disbursement of USD 3b. Measures include financial sector restructuring, with the closure of 16 insolvent banks; structural reforms to enhance economic efficiency and transparency, with the liberalization of foreign trade and investment, the dismantling of monopolies, and privatization; stabilizing the rupiah through a tight monetary policy;

implementing fiscal measures equivalent to 1% of GDP in 1997/1998, and 2% in 1998/99, to yield a 1% of GDP surplus in both years.

11/21/97 — **Korea** requests IMF assistance.

11/25/97 — In light of a larger-than-expected depreciation of the baht, a second IMF package for **Thailand** is approved. The new plan includes additional measures to maintain the targeted fiscal surplus of 1% of GDP, the establishment of a timetable for financial sector restructuring, and plans to protect the weaker sectors of society.

12/4/97 — IMF approves a USD 21b stand-by credit for **Korea,** and releases a disbursement of USD 5.6b. The initial program assumes GDP growth in 1998 of 2.5% and features comprehensive financial sector restructuring, including central bank independence, strong market and supervisory discipline, and the suspension of 9 insolvent merchant banks. Fiscal measures equivalent to 2% of GDP make room for the cost of financial restructuring, consistently with a balanced budget target. The plan calls for efforts to dismantle the non-transparent and inefficient ties among government banks and business; for the implementation of trade and capital account liberalization measures, as well as of labor market reforms; for the publication and dissemination of key economic and financial data.

12/8/97 — Disbursement of USD 810m to **Thailand**.

12/16/97 — **Korean** government allows won to float.

12/18/97 — Disbursement of USD 3.5b to **Korea**.

12/24/97 — **Korea** issues a letter of intent pointing at the need for an acceleration of the program as the situation deteriorates. The plan includes further monetary tightening, the abolition of the daily exchange rate band, the lifting of all capital account restrictions. Financial sector reform and market liberalization, as well as trade liberalization, are expedited. The IMF also announces that a debt rescheduling by international commercial banks is critical to Korea's recovery.

12/30/97 — Disbursement of USD 2b to **Korea**.

1/15/98 — Disbursement of US 2b to **Korea**.

1/15/98 — A second package for **Indonesia** is agreed upon. The plan allows for a relaxation of the previous fiscal targets, that is now a budget deficit equal to 1% of GDP. Previous IMF conditions not fulfilled but reiterated in the second package include: dismantling of government monopolies, postponing infrastructure projects, and closing insolvent banks.

1/16/98 — International lenders agree on plan to officially roll over **Korea's** short-term debt.

2/7/98 — **Korea** agrees to third IMF program. GDP growth projections are lowered to 1%. The letter of intent includes additional measures to target fiscal deficit to 1% of GDP, increasing the amount of financial instruments available to foreign investors, and broadening the financial sector reform strategy to accommodate stabilization of short-term debt payments.

2/17/98 — Disbursement of US 2b to **Korea**.

2/24/98 — The **Thai** plan is further modified. The fiscal policy target is adjusted from a surplus of 1% of GDP to a deficit of 2% of GDP.

3/4/98 — Disbursement of US 270m to **Thailand.**

4/10/98 — **Indonesia** issues a Supplementary Memorandum of Economic and Financial Policies on additional measures. These include a strong monetary policies, accelerated bank restructuring, a comprehensive agenda of structural reforms. The IMF allows **Indonesia** to continue its fuel and power subsidies. In the light of the failure of the first two packages, the IMF will resort to a stricter enforcement of provisions.

5/2/98 — **Korean** authorities update the program of economic reforms. Growth forecasts for 1998 are further revised downward to –2%. The letter of intent includes the accommodation of a larger fiscal deficit of about 2% of GDP in 1998, measures to strengthen and expand the social safety net, the loosening of restrictions on foreign exchange transactions, and the formation of an appraisal committee to evaluate recapitalization plans by undercapitalized banks.

5/4/98 — Disbursement of USD 1b to **Indonesia**.

5/26/98 — Fourth IMF program agreed to by **Thailand**. The main priority is to prevent any further slow-down of the economy and foster an early recovery. The modified program calls for cautious and gradual reductions of interest rates, higher monetary growth rates, a looser fiscal deficit target at 3% of GDP, and accelerated corporate debt restructuring with financial sector reforms.

5/29/98 — Disbursement of USD 2b to **Korea**

6/10/98 — Disbursement of USD 135m to **Thailand**.

6/24/98 — Additional IMF reforms agreed to by **Indonesia** in light of changing political climate and worsening economic situation. Provisions include an increase in social expenditures (7.5% of GDP), a budget deficit target at 8.5% of GDP, the closure, merging or recapitalization of weak banks, and the establishment of a bankruptcy system.

7/15/98 — Disbursement of USD 1b to **Indonesia.** The IMF increases financing by USD 1.4b.

7/15/98 — A new letter of intent by **Korea** announces a further easing of macroeconomic policies. The letter includes the accommodation of a larger fiscal deficit for 1998 (5% of GDP), and measures to bolster the social expenditure program.

7/29/98 — The **Indonesian** government requests the cancellation of the existing arrangement with the IMF and its replacement with a new extended arrangement, including new measures on bank and corporate restructuring and improvements in the distribution system.

8/25/98 — Disbursement of USD 1b to **Indonesia.** The IMF approves an extended facility with a longer repayment period.

8/25/98 — The **Thai** program is modified to incorporate a more comprehensive approach to bank and corporate restructuring. The fiscal deficit target is still at 3% of GDP, for both 1998 and 1999, but this target excludes the costs of financial sector restructuring.

8/25/98 — IMF disburses USD 1b to **Korea**.

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