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Currency Crises: Is Asia Different?

by Markus Diehl and Rainer Schweickert

CONTENTS

- International investors' enthusiasm with respect to growth prospects in Southeast Asia has been followed by panic. Both the outstanding economic performance of Southeast Asian economies and their ability to master adjustment challenges had led most observers of these economies to the conclusion that "Asia is different". In comparison with previous currency crises, the macroeconomic fundamentals (GDP growth, inflation, fiscal deficit, external indebtedness, domestic savings, export performance) in the Southeast Asian economies seemed to be consistent with the fixed or quasi-fixed exchange rate regimes. Even large current account deficits were not classified as "high risk" although the vulnerability of Southeast Asian countries had increased during the last decade due to a surge in capital inflows, a construction boom, the appreciation of the US dollar, and the liberalization of domestic financial markets without strict enforcement of prudential standards.
- Early signals of vulnerability should have warned domestic policymakers to take precautionary measures such as more exchange rate flexibility to end sterilization policies, higher marginal reserve requirements, and prudential standards for bank lending to reduce the risk exposure of banks. Some of these measures were taken in 1996, but apparently it was too little or too late. In the aftermath of the crisis, the enforcement of prudential rules in the financial sector and the clearing of bad debt figure high on the policy agenda. In order to help financial restructuring, fiscal and monetary policies should not be overly restrictive.
- The role of external assistance is ambiguous because of negative incentive effects. The currency crises in Asia boosted the amounts of emergency lending by the IMF and other countries, which may raise expectations that defaults will become cheaper in the future. Moreover, officially implemented early warning systems may easily produce the bad news which triggers exchange rate crises.
- All in all, Asia is not different from other regions. High current account deficits and real appreciation expose countries with fixed or quasi-fixed exchange rates and fragile domestic financial markets to the risk of a reversal of capital inflows. This mounting risk position can lead to a crisis when bad news arrives and domestic measures are delayed.
- Therefore, Asia could have learned from previous currency crises in Latin America and Europe: first, extreme solutions for the exchange rate regime (currency boards or a passive crawling peg with wide intervention bands) work best; second, deregulated goods and factor markets with strict prudential supervision (especially in the phase of financial liberalization) are necessary preconditions for a stable fixed exchange rate regime; third, development models with discretionary government interventions face difficult times since the globalization of goods and factor markets renders economic plans of today obsolete tomorrow.

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This report has been completed in mid-December 1997; only the figures have been updated as of end-December 1997. The recent developments, especially in Indonesia, have not been taken into consideration. However, this has not changed our main conclusions.

I. Introduction

Currency crises are a phenomenon which, from time to time, reheat the debate about the appropriate exchange rate system. Above all, failed attempts to fix exchange rates — the Gold Standard, Bretton Woods, the European Monetary System (EMS), US dollar pegs in Latin America (see, e.g., Bordo and Schwartz 1996) — have influenced the theoretical debate and changed policy preferences towards more flexibility of exchange rates.

Until 1997, Asian countries have been missing on the list of countries which have suffered major currency crises. This is not to say that the ups and downs in the debate fixed vs. flexible exchange rates have not influenced exchange rate policies in the fast-growing Asian countries. However, a kind of pragmatic orthodoxy with respect to macroeconomic policy has always guided the way towards more flexibility when it was deemed necessary (Corden 1996). The result was a policy of managed floating which implied de facto stable exchange rates without formal commitments.

This is a kind of abnormality when compared with the situation in other emerging market economies. Both Latin American and European countries seem to need firm rules in order to establish the credibility of macroeconomic policies. Moreover, neither the Latin American debt crisis of the 1980s nor the Mexican tequila and the European EMS crises of the 1990s had a lasting impact on Asian economies. Table 1 shows the excellent performance of Asian middle-income countries over the past decade: high growth rates, low to moderate inflation rates, double-digit export growth, and investment rates between 35 and 39 percent of GDP in Indonesia, Malaysia, and Thailand. Most countries in the world outside Asia would have lived comfortably even with the below-average economic performance of the Philippines.¹

Table 1 – Selected Economic Indicators^a for the ASEAN-4, 1987–1996

	Real GDP growth	CPI inflation	Export growth ^b	Investment ratio ^c
Indonesia	6.4 (7.8)	8.4 (8.0)	11.3 (10.3)	34.6 (33.5)
Malaysia	7.9 (8.2)	3.3 (3.5)	15.6 (6.2)	35.5 (43.3)
Philippines	3.2 (5.5)	9.9 (8.4)	13.6 (17.7)	21.7 (23.9)
Thailand	8.7 (8.4)	4.7 (5.8)	16.7 (–1.9)	39.3 (43.1)

^aAverage annual rate for 1987–1996 in percent; 1996 data in parentheses. — ^bChange in US dollar values of merchandise exports. — ^cGross domestic investment as share of GNP, current prices.

Source: IMF (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

Both the previous resistance to spillover effects and the outstanding economic performance led most observers of Asian economies to the conclusion that “Asia is different.” With respect to monetary policy, some even claimed that Asian countries could master the impossible trinity: open financial markets, fixed exchange rates, and monetary independence (B. Fischer and Reisen 1993). This rose-colored view of Asia may be responsible for the fact that the outbreak of the crisis in Thailand came as quite a surprise although speculation against the Thai baht had occurred several times already during 1996 (*Far Eastern Economic Review* 1997a). In line with growing exchange rate pressures, some countries experienced a slowdown of export growth before 1997, even compared with the long-run average.² Newspaper reports speculated whether “an era of mega growth has come to an end” (*Far Eastern Economic Review*, 31 October 1996), pointing to declining real estate prices and slowing investment growth, especially in Malaysia and Thailand. Moreover, the sustainability of the large current account deficits that have emerged since 1988 was questioned repeatedly. The stickiness of ex-

pectations may also have inspired the search for new explanations of the crisis because such findings would support the myth that Asia actually is different.

As a first stylized fact, the extent of the crisis signals that the ASEAN-4 economies analyzed in this study are not different with respect to the development of the crisis. Box 1 shows that initial devaluations have been insufficient to stop the attacks. The result has been quite dramatic devaluations against the US dollar during 1997 (price notation as of 30 December 1997): 45 percent (Thailand), 58 percent (Indonesia), 35 percent (Malaysia), and 35 percent (Philippines) (*The Economist*, 3 January 1998). These rates are similar to the 33 percent devaluation of the Chilean peso during 1982 and the 32 percent devaluation of the Spanish peseta during 1992/93.

Box 1: Chronology of the Asian Currency Crises in 1997

May

- Speculative attacks in Thailand were stopped using temporary capital controls.

July

- On July 2, the Thai peg was abandoned and a “managed floating” system was introduced; the Thai baht lost about 15 percent of its external value within two weeks.
- On July 11, the Philippines announced that it “will allow greater flexibility of the peso exchange rate”; on July 12, the intervention band of the Indonesian rupiah was widened from +/-4 percent to +/-6 percent; on July 14, Malaysia gave way to market forces after holding the ringgit value firmly. The Philippine peso and the Indonesian rupiah (still within the band) both lost about 10 percent of their value in the second half of July. Subsequently, the baht declined further by about 10 percent, and the Malaysian ringgit declined gradually until mid-August by about 10 percent.

August

- In early August 1997, the exchange rates seemed to have bottomed out; the baht even gained a bit. On August 14, the intervention band of the rupiah was abandoned (after attempts to defend the exchange rate); there was a steep fall of the rupiah until end of August by about 15 percent, followed by other currencies which lost between 5 percent (baht and peso) and 10 percent (ringgit).

October

- In mid-October there was additional pressure after the decline of Hong Kong’s stock market index.
- As of end-October 1997, the four currencies lost between 25 percent (Malaysia, Philippines) and 35 percent (Indonesia, Thailand) of their external value compared with end-June; international emergency financing for Indonesia and Thailand under the governance of IMF may now signal an end of the currency crises.

November

- In mid-November, a currency crisis emerged in South Korea.

December

- The indecisive measures taken by the governments in Indonesia and Thailand triggered further devaluations of ASEAN currencies.

However, two general qualifications are in order. First, the collection of evidence on currency crises is often biased against fixed exchange rate systems. For instance, one definition says a currency crisis is a devaluation of at least 25 percent or an increase in the rate of devaluation of more than 10 percent (Frankel and Rose 1996: 252). Most large fluctuations of exchange rates in flexible systems

are not captured by this measure. During the period 1979–1984, the D-mark lost 45 percent of its value against the US dollar and the US dollar lost 53 percent of its value against the D-mark in the following years (1984–1990). This gives annual average changes in the US dollar/D-mark rate of about 13 percent over a whole decade. It is at least open to debate whether this imposes fewer adjustment costs on the economy than a 50 percent devaluation in one year.³ Second, history has demonstrated that Asian NICs of the first generation showed exorbitant trade surpluses for some years after being forced to devalue, provoking a debate about “undervaluation” on the part of the US in the first place.

With these qualifications in mind, the following analysis looks exclusively at examples of failed attempts to maintain exchange rate pegs of different types in Thailand, Indonesia, Malaysia, and the Philippines (ASEAN-4). Our aim is to answer the question whether Asian currency crises differ from others. Chapters II and III provide the framework for the analysis by discussing theoretical insights and country experiences with exchange rate crises in Latin America (Chile 1982 and Mexico 1994) and Europe (Spain 1992/93 and the Czech Republic 1997). Chapter IV then explains the Asian experiences in three steps: exchange rate regimes are identified, real exchange rate and current account developments are discussed, and, finally, the contribution of the financial sector to the crisis is reviewed. Chapter V contains policy conclusions.

II. The Economics of Stable Exchange Rates

Before discussing the pros and cons of alternative exchange rate policies, one has to be clear about the targets for macroeconomic management. During the last decade, price level stability has become a well-established target both in industrialized and developing countries. But there are good reasons to believe that the target of low inflation has been implicitly overemphasized, thus neglecting real exchange rate adjustment (Schweickert 1996a: 190–193; Dornbusch et al. 1995: 220–221). There are abundant arguments and much evidence that point out the negative effects of high and unstable inflation rates on economic growth: changes in relative prices become distorted, people prefer real to financial assets, and the intermediation costs of the financial system increase. However, there is little economic reasoning and little empirical evidence that demonstrate that moderate but stable inflation rates have a negative impact on economic growth.

Moreover, there is overwhelming evidence that a misaligned real exchange rate, i.e., the price of traded goods relative to the price of nontraded goods, has negative effects.⁴ Starting from equilibrium, where this relative price is such that supply meets demand for both goods, an increase in the relative price of traded goods, a real depreciation, implies that an excess supply of traded goods leads to a trade surplus and reserve inflows as well as an excess demand for nontraded goods. Hence, undervaluation increases inflationary pressures. On the other hand, an increase in the relative price of nontraded goods, a real appreciation, implies serious real adjustment problems. It is likely to impair external competitiveness because deflationary pressure is harder to meet than inflationary pressure. To sum up, the true challenges for macroeconomic management are to reduce and stabilize inflation and, at the same time, to avoid a permanently overvalued exchange rate.

A fixed exchange rate can serve both challenges, at least in theory. Using a fixed exchange rate as a nominal anchor can bring down inflation at home to the level of inflation in the anchor currency country by implicitly adopting the monetary policy of the foreign central bank. Using a fixed exchange rate as a nominal anchor can also stabilize the real exchange rate because it prevents large fluctuations of nominal exchange rates. Hence, a fixed exchange rate regime can help countries seeking to catch up by helping them to integrate into the world economy (S. Fischer 1997). However, these potential benefits may be offset by fairly high costs.

Macroeconomic Imbalances

To see how a fixed exchange rate can stabilize the price level, assume that the economy is in macroeconomic equilibrium and net capital flows are zero.⁵ Assume also that the differences between domestic and foreign inflation are compensated for by nominal devaluation, so that the real exchange rate is constant, i.e., the real exchange rate is in equilibrium but inflation is significantly higher than abroad. If the exchange rate is fixed against a stable anchor currency, inflation decreases immediately because the price increases for traded goods are curbed by world market conditions. But ongoing inflation for nontraded goods will lead to an immediate real appreciation.

The real appreciation creates an excess demand for traded goods and an excess supply of nontraded goods. This is because the traded goods become relatively cheaper and demand shifts from nontraded goods to traded goods. Excess demand for traded goods implies a trade deficit, an outflow of reserves, and — with a passive monetary policy — a monetary contraction. As a consequence, absorption decreases, the demand for traded goods declines, and trade becomes balanced. But the decrease in absorption further increases the excess supply of nontraded goods. This exerts pressure to reduce the prices of nontraded goods. Domestic inflation must be even lower than abroad in order to eliminate the real overvaluation and the excess supply of nontraded goods caused by the initial real appreciation.

So far, fixing the exchange rate causes a temporary overvaluation, i.e., a real appreciation which demands a real depreciation via monetary contraction and deflation later. This contractionary phase of exchange-rate-based stabilization (the so-called “stabilization blues”) can be avoided if the country experiences capital inflows sufficient to cover emerging trade deficits. Three reasons for such a typical scenario are: (1) commercial banks and official lenders honoring the macroeconomic reform efforts may grant access to new credit lines and increase foreign direct investment, (2) private agents may shift their portfolio towards domestic assets if they expect an undistorted macroeconomic environment and a higher profitability of investment, and (3) windfall gains can be earned in the short run because domestic interest rates are higher than abroad while the exchange rate is guaranteed. Only the first type of inflows, however, leads to stable net inflows, at least in the medium run, whereas stock adjustment causes temporary inflows and speculation provokes a consequent outflow. Hence, only part of the inflows can be expected to be sustainable and the contractionary phase is merely shifted into the future rather than being avoided.

Qualitatively, the same macroeconomic scenario is applicable to countries without stabilization problems and fixed exchange rates experiencing exogenous capital inflows. In this case, capital inflows are not the consequence of real appreciation but rather imply a real appreciation. This is because the inflow of liquidity increases absorption, which, at given relative prices, leads to an excess demand for nontradables. The nontraded goods sector expands relative to the traded goods sector. This effect is well known from the Dutch disease literature, which maintains that the inflow of liquidity is caused by an export boom. Increasing prices for nontraded goods will then shift demand from nontraded to traded goods via a real appreciation of the domestic currency (Corbo and Hernández 1996). In all cases (export boom, exogenous capital inflows, exchange-rate-based stabilization with capital inflows), a temporary equilibrium with trade deficits caused by a real appreciation and financed by external capital emerges. This is an equilibrium, as the real appreciation does not lead to an overvaluation because of the inflow of liquidity. This is a temporary equilibrium because it depends highly on the stability of capital inflows and, consequently, on foreign investors’ perception of the domestic economic situation.

This implies that Latin American and Asian countries with fixed or quasi-fixed exchange rates, for example, have faced a similar macroeconomic challenge in the 1990s, although they started out with different macroeconomic settings with respect to initial inflation and growth in the second half of the 1980s, when capital returned to emerging market economies: the shortfall of capital inflows below

what current account deficits require. Here is a quick list of events which may initiate such a development: a decline of capital inflows because stock adjustment has been completed and/or the interest rate spread has vanished; an increase in OECD interest rates which makes domestic investment less attractive; a decline in export demand or a deterioration in the terms of trade increasing the trade deficit; an appreciation of the anchor currency or a depreciation of the currencies of other trading partners, which distorts domestic competitiveness and, finally, domestic policy failures, which change foreign and domestic investors' sentiments.

Problems of Real Adjustment

Independent of the cause of the destabilization of the temporary capital inflow equilibrium, a country that fixes the exchange rate has two alternatives when this situation actually emerges: to manage a real devaluation, i.e., monetary contraction and deflation, while sticking to the fixed exchange rate or to loosen the anchor and to either devalue or float. The credibility of *ex ante* commitments will depend critically on the expected behavior in exactly this situation. A necessary precondition for private agents to adjust prices downwards is that they expect the monetary contraction to occur. If this is not the case, increasing internal and external imbalances will render the fixed exchange rate unsustainable. Therefore, the credibility of the monetary contraction becomes a basic precondition for the flexibility of prices.

Credibility problems can result from three macroeconomic constraints: the government budget, employment, and foreign exchange reserves. The need to finance the government budget can constrain the feasibility of a monetary contraction if the government depends on credits from the central bank or if the contraction is expected to drive up interest rates and the public debt service to unsustainable levels. The fall in demand caused by monetary contraction also provides strong incentives for the authorities to change their policy and to avoid temporary unemployment by pursuing a monetary expansion. Finally, the outflow of foreign exchange reserves could run down the stock of reserves before trade is balanced. This issue has been hotly debated in the recent literature on currency crises. One strand of this literature, based on the model by Krugman (1979), emphasizes the importance of fundamentals. The message of these models is that in the case of declining reserves, the attack on the currency peg will happen before reserves are depleted because rational agents expect the exchange rate to jump when reserves are depleted and try to avoid the loss related to the jump. The other strand of this literature, based on the model by Obstfeld (1986), shows that the attack could be self-fulfilling and independent of underlying fundamentals.

In both theories, the likelihood of an attack still depends on the level of reserves (Kenen 1996: 39–46). In a high reserve case, the central bank holds reserves larger than total money balances, e.g., in the case of currency boards. In this case, an attack will fail if the central bank is willing to stick to the fixed exchange rate. In an intermediate reserve case, the central bank holds reserves higher than money balances held by single holders. In this case, an attack will only be successful if a critical mass of holders jointly attack the currency peg. Hence, an attack is possible but not inevitable. In a low reserve case, the central bank holds reserves lower than money balances held by single holders. In this case, an attack will always be successful. This argumentation implies that an attack still depends on fundamentals, but the timing depends on the single holders' assessment of money balances.

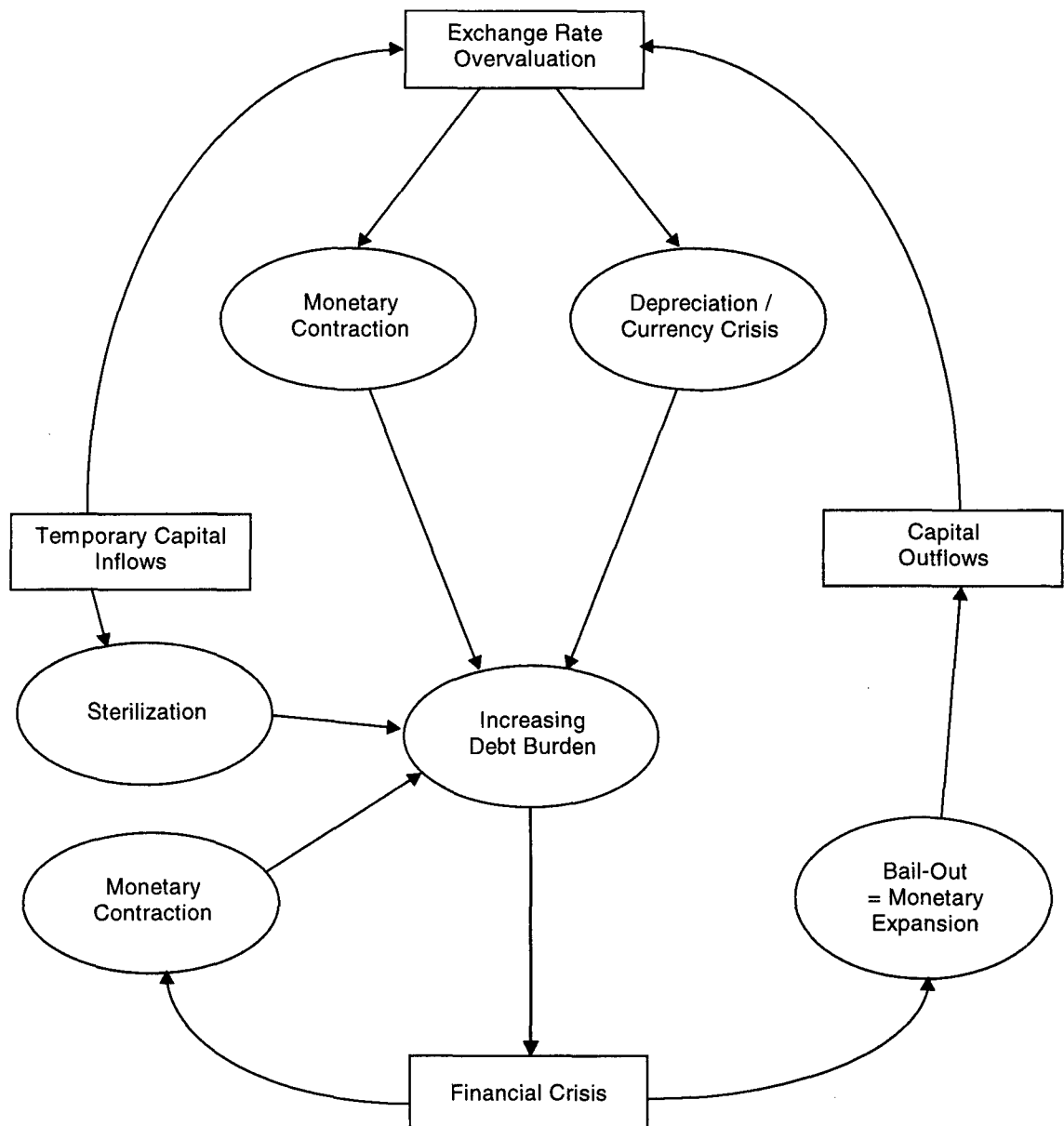
If these constraints are not binding, real devaluation depends on the price-setting behavior in the real sphere of the economy. A fall in nontraded goods prices will not occur in the presence of indexation schemes, inflationary inertia, and a low level of competition. Hence, real devaluation with a fixed exchange rate is likely to fail in the case of a large state-owned sector, a high degree of regulation and monopolization of the production structure, and a closed economy. This implies that the credibility of sticking to a fixed exchange rate system increases with privatization, deregulation, and trade liberalization. While the importance of such a policy package is hardly debated anymore, poli-

cies with respect to financial markets are as hotly debated as the role of fundamentals versus self-fulfilling expectations triggering an attack on the currency.

Special Role of Financial Markets

Figure 1, which shows a worst-case scenario, illuminates the special role of financial markets in determining the sustainability and credibility of an exchange rate peg. Starting at the left-hand side, capital inflows are assumed to be temporary and to lead to an overvaluation. However, this need not necessarily be the case. Even if capital inflows are temporary, an efficient banking system may have been successful in allocating the increase in loanable funds to efficiency-enhancing investments in the

Figure 1 – Real Exchange Rate, Capital Flows, and Financial Crisis: A Worst-Case Scenario



production of nontraded goods — making prices more flexible downward — and in the production of traded goods — restoring the competitiveness of these goods. Figure 1 assumes that this is not the case but that the decline of capital inflows will leave the domestic economy with an overvalued exchange rate. In this case, the policy options are monetary contraction (sustaining the fixed exchange rate) and devaluation. Both policy options tend to increase the debt burden of private agents and the government. In the case of a monetary contraction, a hike in interest rates increases the debt service denominated in domestic currency. In the case of a devaluation, debt service denominated in foreign currency rises. Such a development will lead to a slowdown in domestic activity and — depending on the banks' balance sheets — to a banking crisis because commercial banks already burdened by bad loans may go bankrupt.⁶ Again, there are two policy options. The authorities may allow banks to go bankrupt and, as a consequence, the money supply to contract. This will raise interest rates, increase debt burdens, and imply additional difficulties for the banking sector. The alternative would be to bail out the banks in trouble, which would imply a monetary expansion. Such an expansion would run counter to the monetary contraction implied by a decreasing demand for domestic currency. Hence, the excess supply of domestic currency would further increase, leading to renewed capital outflows, losses of reserves, increased overvaluation, and pressure to devalue the currency. Again, the trouble for the banking sector would increase in line with increasing debt burdens of private agents and the government.

Lines of Defense

This worst-case scenario exhibits the potentially destabilizing properties of the financial system. This is not to deny the potential benefits of capital inflows, i.e., supplementing domestic savings and increasing investment as well as increasing the productivity of the financial sector. But it shows that a full-scale liberalization of the capital account and the banking system would be naive without some second thoughts. The relevant question is whether there are policies available which could prevent a worst-case scenario. Starting again from the left-hand side of the figure, *a first line of defense would be to limit capital inflows* in order to prevent a real appreciation in the first place. However, the emerging market economies can look back at a long history of failed attempts to control capital flows. Some general lessons can be extracted from this history (Kenen 1996: 49–50). First, it is hardly possible to avoid outflows because investors seeking to leave the country will find ways to circumvent controls: at the least, trade transactions will be distorted. On the contrary, capital inflows are easier to discourage because foreign investors have the alternative of investing in other countries. Second, a general limit on capital inflows would be very costly because stable capital flows would be discouraged. Hence, the structure of inflows matters and countries might consider discouraging short-term inflows by explicitly or implicitly taxing transactions and encouraging inflows of foreign direct investment. Third, the mechanism described in Figure 1 implies that the sectoral composition of inflows also matters. Foreign currency borrowing by commercial banks and the government will undermine monetary policy management and increase the likelihood of a full-blown currency crisis if the exchange rate has actually to be devalued. Fortunately, capital flows into the banking sector and to the government are the ones that can be controlled most easily.

A second line of defense against the destabilizing effects of capital inflows is to *sterilize their impact* on domestic money supply. Given a fixed and market-determined exchange rate, the monetary authorities cannot simply set the exchange rate, but have to defend it by absorbing any excess demand or supply of foreign exchange. If capital inflows exceed the current account deficit, the authorities have to buy foreign exchange against domestic money. This boosts the domestic money supply and drives up the prices of nontraded goods. The consequent real appreciation implies a rise in trade and, hence, in the current account deficit, which accommodates the capital inflow. Sterilization is supposed to delink capital inflows from real appreciation by selling domestic assets against domestic

money. In this way, the money supply could remain constant, since the coverage of the monetary base by foreign exchange increases and the coverage by domestic assets decreases to the same extent. There are, however, two important flaws to this concept. First, the restrictive monetary policy drives up domestic interest rates and increases the interest rate differential between the domestic and the anchor currency. This provokes renewed capital inflows, especially of short-term speculative capital, and increases the debt burden of domestic enterprises and the government (Calvo et al. 1993). Second, as indicated in Figure 1, it is even possible that sterilization triggers the financial crisis which it tried to prevent. At the least, two preconditions need to be fulfilled for sterilization to be successful (Frankel 1994): Financial capital has to be less than perfectly mobile if sterilization is to have an effect on the money supply, and an increasing supply of domestic assets has to meet the demand if a hike in domestic interest rates is to be avoided. Selective capital controls and fiscal restraint could help a lot if these preconditions are not fulfilled (Corbo and Hernández 1996: 73–77). Capital controls reduce the mobility of financial capital, while fiscal restraint reduces the supply of domestic assets, which, given demand, lowers interest rates and also reduces demand for nontraded goods, which diminishes inflationary pressure and real appreciation. As a consequence, overall monetary policy has to be less restrictive.

A third and last line of defense is to strengthen the domestic banking system. As argued above, the banking system is at the center of the reallocation process needed to bring about smooth lending after a boom phase that has been driven by large inflows of liquidity. The possibility as well as the temporary nature of external shocks and domestic policy failures render this reallocation process a rather demanding task because the time available for transforming liquidity into productive investments rather than consumption or unproductive “bubble” investments can be very short. As shown in Figure 1, it is also necessary to delink the financial sector from increasing debt burdens following from adjustment measures. It is fairly well established in the literature on financial markets in emerging market economies that these markets have to be regulated, especially if just freed from explicit government intervention and subject to a potentially unstable macroeconomic situation (Villanueva and Mirakhor 1990; Fry 1988). Fischer provides a list of recommendations: “improving supervision and prudential standards, by ensuring that banks meet capital requirements, provision for bad loans, limit connected lending, publish informative financial information, and by ensuring that insolvent institutions are dealt with rapidly” (S. Fischer 1997: 5). Typically, however, banking reforms have not figured high on the reform agenda of most emerging market economies. In the 1980s, Latin American countries had to learn a hard lesson that this might be a decisive policy mistake. It is even plausible that the crisis of the financial sector makes up the full-fledged currency crisis (Dornbusch et al. 1995).

III. Currency Crises Latin American and European Style: A Retrospect

1. Latin America: Chile 1982 and Mexico 1994

Chile and Mexico are two cases of the failure of a fixed or quasi-fixed exchange rate which had been quite promising at the beginning.⁷ The fact that they failed in the end was closely related to developments in the financial sector.

Chile

In the case of Chile, the exchange rate against the US dollar was fixed in July 1979. This fixing of the exchange rate was preceded by a range of market-oriented reforms including opening up inter-

national trade and balancing the fiscal budget. Complete privatization improved the preconditions for sustaining a fixed exchange rate by relaxing macroeconomic constraints and improving the flexibility of the economy (Schweickert 1994a). Nevertheless, Chile exhibited the pattern of the boom phase of an exchange-rate-based stabilization program described above. Driven by capital inflows from the highly liquid international capital market, the real exchange rate appreciated and the trade and current account balances worsened dramatically. While this was to be expected theoretically, the extent of imbalances was remarkable: the current account deficit was 14.5 percent of GDP and the real interest rate was 59.2 percent in 1981 (Dornbusch et al. 1995).

Three policy mistakes can be identified which were responsible for this development (Edwards and Cox-Edwards 1987; Edwards 1985). The first mistake was to implement a backward indexation for wages. Because consumer price inflation was still above 30 percent before the exchange rate became fixed, wage increases were constantly above the implicit target set by the fixed exchange rate and wage increases in the US. Hence, inflation inertia was officially implemented. The second mistake was to leave the privatized financial sector more or less unregulated. Privatization has led to a high concentration in the banking sector, implying that large conglomerates owned their own bank. Within this unregulated system it was easy to constantly roll over debt — increasingly bad debt — given ever-increasing capital inflows. As a consequence, capital inflows attracted by Chilean banks through high interest rates pushed up external debt to unsustainable levels, while domestic savings declined to 8.2 percent of GDP. Even before the outbreak of the debt crisis after the default of the Mexican government to service its external debt, the first Chilean banks were about to go bankrupt in 1981.⁸

The third policy mistake was a consequence of the others. The central bank had to bail out the banks, which meant that the sterilization policy had to be relaxed (Velasco 1987). At the same time, capital inflows dried up as a consequence of the debt crisis, and the fixed exchange rate was abandoned in June 1982. The extent of the economic decline which followed from the real devaluation process can be compared with a transformation crisis. Real growth rates dwindled to -14 percent for GDP in 1982 and an average rate of -42 percent for investment in the years 1982/83, and all banks were socialized again (Schweickert 1992). All in all, the Chilean experiences reveal the stylized facts described in Figure 1: the temporary nature of unrestricted capital inflows plus a crisis in the financial sector with a bailout of banks leading to an overkill, i.e., to an exchange rate crisis, rather than to a devaluation of the exchange rate. Given the size of the crisis in Chile, it would have surprised everyone to see other countries repeat this scenario. With hindsight we know better.

Mexico

The Mexican experiences are indeed not identical, but do show strong similarities (Schweickert 1998a; Dornbusch et al. 1995; Langhammer and Schweickert 1995). They are different to the extent that the Mexican authorities allowed for more exchange rate flexibility. Parity to the US dollar was fixed only from December 1987 to January 1989, after an initial devaluation of about 40 percent. Afterwards, the authorities shifted towards increased flexibility by adopting a preannounced crawling peg: the parity was allowed to depreciate by 1 peso per day in 1989, 80 centavos per day in 1990, 40 centavos per day in 1991, and 20 centavos per day in 1992 until October, when the speed of the crawl was increased again to 40 centavos per day.⁹ In 1991, a band was introduced where the ceiling was subject to the daily pre-announced rate and the floor remained fixed.

All in all, the system can be labeled an active crawling peg because the rate of devaluation was chosen to be lower than the difference in consumer price inflation between Mexico and the US. As in the case of Chile a decade before, the nominal anchor led to a real appreciation of the domestic currency and a deterioration of the current account, driven by an increasing trade deficit and financed by large capital inflows. Also as in Chile and as predicted by the model, initial reserve inflows dried up as the capital inflows matched financing needs due to the current account deficit. In 1994, the current

account deficit was at 7.8 percent of GDP and the real interest rate was raised to 23 percent in order to generate capital inflows. This risk position prevailed until some bad news arrived in the form of rising US short-term interest rates (increasing from a historical low of 3 percent to 4.75 percent), regional upheavals, and upcoming elections with uncertain outcomes. With capital flows turning around in December 1994, the exchange rate had to be floated after an attempt to maintain the system by implementing a discretionary devaluation.

However, the currency crisis leading to a decline of real GDP by 6.9 percent in 1995 was not triggered by exogenous events only. As was the case in Chile, the *authorities helped the crisis to develop*. First, real appreciation had been enforced by wage indexation. Unlike Chile, the government did not directly implement an indexation scheme, but allowed employers and labor unions to join forces and to negotiate prices and wages — the result of which were the Pacto agreements. Though it was called income policy instead of indexation, the outcome was similar. The exchange rate anchor set by an active crawling peg, i.e., a devaluation smaller than the inflation differential, was ineffective, and consumer price inflation, driven mainly by wages, increased. Second, the financial sector was highly fragile due to the relaxation of regulations. In 1988–1989, tight credit controls and reserve requirements had been eliminated (Calvo and Mendoza 1996; Sachs et al. 1995). This induced a destabilization of the money multiplier and a credit boom, while domestic savings decreased to even 13.7 percent in 1994. Additionally, in 1993–1994 peso-denominated government debt could not be rolled over and was substituted by short-term dollar-denominated debt (Tesobonos), most of which became due in the first quarter of 1995.

Third, monetary policy became expansionary in the last year of the peg, when macroeconomic constraint became binding. The decline of foreign exchange reserves signaled the end of increasing demand for domestic money, while the economy stagnated in spite of large capital inflows, and the financial position of both the government and the banks weakened due to the management of the public debt and deregulation without adequate supervision. In this situation, the central bank decided to follow a bailout strategy, which further increased the imbalance between the demand for and the supply of domestic money. With money demand decreasing while the domestic component of the monetary base expanded, the foreign exchange reserves had to decline at an even higher speed. As a consequence, the stock of dollar-denominated public debt far exceeded the stock of foreign exchange available to cover this debt. While reserves were ten times as high as dollar-denominated debt at the end of 1993, the coverage at the end of 1994 was only about 28 percent (Cole and Kehoe 1996: 323–327). The final blow to the exchange rate peg was the attempt to rescue the system using discretionary devaluation. This devaluation worsened the debt burdens of the government and the banks, finally triggering the run on foreign reserves (Calvo and Mendoza 1996: 248). In the end, the Mexican situation matched the worst-case scenario outlined in Figure 1.

After the run on reserves had occurred and the Mexican economy was in a deep recession, foreign investors were blamed for both. It is true that the evaluation of the Mexican economy by foreign investors traditionally changes from boom to bust. This was already the case when the debt crisis broke out in 1982 and it was also the case during the recent crisis. It is also true that foreign investors at the end of 1994 caused the crisis to break out by refusing to provide fresh capital. However, it is also true that real appreciation and the corresponding current account deficit implied a high risk. The real appreciation was due to inconsistent policies for which the Mexican government was responsible. Additionally, the case of Mexico, as well as the case of Chile discussed before, demonstrates that fiscal consolidation and real sector reforms may establish the initial credibility of a fixed exchange rate system but that even considerable efforts in this direction are insufficient to guarantee the sustainability of the system in a real devaluation process. Even small loopholes, especially in the financial sector, may be sufficient to build up a risk position and to trigger a crisis.

2. Europe: Spain 1992/93 and the Czech Republic 1997

The role of foreign investors was also heavily debated about two years before the Mexican crisis, when the European Monetary System (EMS) started to erode in 1992/93. Some economists argued that the attacks on the system were self-fulfilling due to speculators driving up interest rates until debt burdens became unsustainable (e.g., Obstfeld 1994). Others claimed that there is no doubt that fundamentals, including the rise in unemployment and the deterioration of competitiveness, are to be blamed for the EMS crisis (e.g., Dornbusch 1993). It is reasonable to assume that both groups of economists have a point, i.e., currency crises occur because of the inconsistency between domestic policy objectives and a pegged exchange rate, but the timing of the attack is determined by market sentiments about this inconsistency (Bordo and Schwartz 1996).

Spain

Spain provides a case in point (Diehl and Schweickert 1997: 52–60; Schweickert 1996c). In the process of integration into the European Union (EU), three phases of macroeconomic policies can be distinguished. The first phase from 1980 to 1986 can be labeled voluntary money-based stabilization: the real interest rate was increased in order to fight inflation, while the real exchange rate depreciated, indicating that the nominal rate was not actively used to reduce inflation. In the second phase, from 1987 to 1992, i.e., even before Spain's participation in the EMS, Spanish authorities switched to exchange-rate-based stabilization, i.e., a policy of a stable exchange rate as a nominal anchor. The EMS crisis forced the authorities to switch back to money-based stabilization in 1993 because nominal exchange rate flexibility is de facto unrestricted in the "soft" EMS with its bandwidth of 30 percent.

An evaluation of macroeconomic performance shows a relative success. During the voluntary money-based stabilization, the inflation rate was nearly halved to about 8 percent, the current account improved from a deficit of 2.6 percent of GDP in 1980 to a surplus of 1.7 percent of GDP in 1986, and real growth rates increased to 3.2 percent. At the same time, however, fiscal deficits remained high, averaging about 6 percent of GDP, and unemployment rates nearly doubled to 21 percent. Hence, monetary policy showed a close correlation to fiscal balance and unemployment. The switch to exchange-rate-based stabilization in 1987 brought an improvement in most performance indicators: inflation declined to below 5 percent, real growth climbed to above 5 percent, fiscal balance improved, and unemployment declined. But this boom was financed by massive capital inflows in the first place. Capital inflows more than covered the current account deficit which emerged due to real appreciation and, hence, allowed an accumulation of foreign exchange reserves engendered by balance of payments surpluses. However, after two years the boom cooled down considerably, although capital inflows even increased: inflation rose and growth performance deteriorated, fiscal consolidation stopped, and unemployment increased again. Obviously, capital inflows pushed inflation rather than triggering a supply response. Consequently, Spain built up a risk position by increasing external and internal imbalances. This assessment is supported by the development of the real interest rate, which was even higher during exchange-rate-based stabilization than during money-based stabilization in order to defend reserves.

The risk materialized in 1992/93. The enforced switch to involuntary money stabilization reduced inflation but deteriorated growth, fiscal balance, and unemployment. Hence, Spain's macroeconomic indicators developed exactly as was predicted by the model for a small open economy with temporary capital inflows: if the boom phase is not used to improve supply response and price flexibility, the consequent contraction will be even more severe than without the foregoing boom. Indeed, a comparison of macroeconomic performance of 1986, the last year before the policy of a stable exchange rate was implemented, and 1994, the year after the crisis, shows that Spain has bought a lower in-

flation rate, which at the time was still too high to meet the Maastricht criteria, at the cost of lower growth, higher fiscal deficits, and higher unemployment.

Three policy areas can be identified where *shortcomings in the Spanish reform process* helped macroeconomic imbalances to develop: fiscal policy, labor market policy, and domestic capital market policy (European Commission 1994; OECD 1994).¹⁰ The common denominator of the problems with fiscal and labor market policies is the fact that the democratic government inherited a system of social protection based on strict labor market regulations intended to provide job and wage security. This system had been propped up by democratic governments with a social security system based on transfer payments which rapidly grew to European standards. This created both high fiscal imbalances sensitive to the stance of monetary policy and one of the highest levels of regulation in the labor markets in OECD countries. The Spanish capital market has also suffered from severe government interventions. In the first half of the 1980s, the banking system had to give a fixed share of credits to the government.¹¹ Accordingly, the central bank had to sterilize the effects of public lending by pushing up interest rates. After the mid-1980s, the government directly resorted to the financial markets. In a context where the autonomy to set short-term interest rates was restricted by the participation in the EMS, government intervention now switched to setting quantitative limits to the expansion of domestic credit to the private sector in 1989 and 1990. This entailed a new privileged situation for the public sector, which, though temporarily, further aggravated the crowding-out of households and firms from the financial markets. In such a scenario, structural deficiencies were easily conserved. At the same time, credit constraints dampened credit expansion and contributed to the fact that the need for devaluation did not trigger a full-blown financial crisis. As a consequence, the actual devaluation was limited to about 20 percent in 1992/93.

A different question is what determined the timing of devaluation. Before the crisis there was uncertainty about the interpretation of economic developments. "In the case of Spain, real exchange rates,....., depict a massive real appreciation from the 1987 trough. One would expect a trend in this direction because of the Balassa-Samuelson effect, however. Because Spain was growing rapidly during the period, this qualification renders the evidence for that country difficult to interpret" (Eichengreen and Wyplosz 1993: 65). However, there is only weak evidence for the Balassa-Samuelson effect, which predicts that growing economies will appreciate because of higher productivity increases in the tradables sector (Rogoff 1996). Additionally, the assessment of market participants that real appreciation approaches overvaluation is conditional on the occurrence of exogenous shocks (Dornbusch 1993).

Spain has been hit by a number of such unfavorable shocks. The first shock was the consequence of German reunification, which led to a mix of expansionary fiscal and restrictive monetary policy which produced the equilibrium real appreciation of the D-mark in exactly the same way as in the case of the US dollar in the 1980s. The shock was asymmetric, so that EMS partners had to devalue in real terms. The second shock was that the EMS mechanism failed to yield a smooth transition by allowing for a nominal appreciation of the D-mark (Buiter et al. 1996). As a consequence, other countries devalued (Italy, the UK, Finland, and Sweden), undermining the competitiveness of the Spanish economy. The third shock was the outcome of the Danish and French referenda which created uncertainty about the process of monetary unification and changed market perceptions concerning the Spanish economy (Eichengreen and Wyplosz 1993: 94). Finally, the Maastricht criteria for entry into the European Monetary Union (EMU) manifested their destabilizing properties: they enforce unification as long as the market believes in it but make unification costly when the market does not believe in it (Schweickert 1996b; 1997). All in all, external events helped to form a uniform opinion in capital markets that was necessary to trigger an attack on the currency. As was the case in Latin American countries, a real appreciation did not directly imply overvaluation, but rather a risk which exposes countries to speculative attacks on fixed or quasi-fixed exchange rates.

Czech Republic

This conclusion also holds for the Czech currency crisis in May 1997, which was more or less avoided by a maxi devaluation. After allowing the currency to float, it lost 10 percent of its value against the US dollar. Additionally, this floating can be seen as the last consequence of an increasing flexibility of the Czech currency (Diehl and Schweickert 1997: 60–72). At the beginning of the transformation process, the koruna was fixed against a basket of currencies after being devalued by 50 percent in discretionary devaluations. The currency basket was reduced to the D-mark (65 percent) and the US dollar (35 percent) in 1993. Because inflation of consumer prices was initially above 10 percent, the macroeconomic indicators reveal the development which has already been discussed intensively in the three cases above: real appreciation and an increasing current account deficit. The current account deficit amounted to 9.2 percent of GDP in 1996, i.e., to about the Mexican level. Until 1996, the Czech monetary authorities had no difficulties in defending the fixed exchange rate because inflation had come down to one-digit levels and strong capital inflows financed external deficits. This was the case because the central bank sterilized inflows to a considerable extent, although exchange rate flexibility was increased in 1996 by allowing fluctuations of the exchange rate of ± 7.5 instead of ± 0.5 percent.

Privatization and capital market policies explain why trade and especially export performance have deteriorated sharply since 1994 (Buch and Heinrich 1997). While reform efforts in these policy areas have still been ahead of those in other Visegrad countries, the pace of reforms has slowed down considerably. Moreover, the Czech mass privatization via the voucher system has produced some unwarranted results in the financial sector. Because the shares were initially highly dispersed, investment funds have been set up to collect the funds. Since these funds are mostly bank-owned and bank privatization remained incomplete, formerly state-owned enterprises are still related to the government in an indirect way. As a matter of fact, the share of classified loans, i.e., bad debt, became stubbornly high. It started from far below 10 percent of total loans in 1991 and ended at above 30 percent already in 1994, even outpacing the share of classified loans in Poland and Hungary, which started from higher levels. Both the accumulation of bad debt and sterilization policy on the part of the central bank, which drove up interest rates, increased the intermediation costs of the banking sector. As a consequence, a banking crisis began in 1995 and continued through 1996. The fact that this implied liquidity assistance for especially the larger successor banks of the monobank made monetary policy more expansionary than it could otherwise have been.

Compared with the other cases discussed above, there are some similarities between the Czech case and the Chilean case. Although the size of imbalances in these cases are not comparable, a banking crisis added to each country's risk position, finally leading to capital outflows and losses of foreign exchange reserves. In the case of the Czech Republic, this development could be contained because the authorities did not allow large losses in reserves and large hikes in interest rates until the exchange rate peg was abandoned. Additionally, macroeconomic constraints were not binding basically because of fiscal consolidation and flexible labor market adjustment (Diehl and Schweickert 1997). Hence, restrictive fiscal and monetary policies announced to complement the nominal devaluation were credible and have not triggered a breakdown of the financial system. Unlike in Spain, this has provided the Czech Republic with an opportunity to achieve external balance without risking internal balance, i.e., without increasing unemployment.

IV. Currency Crises Asian Style

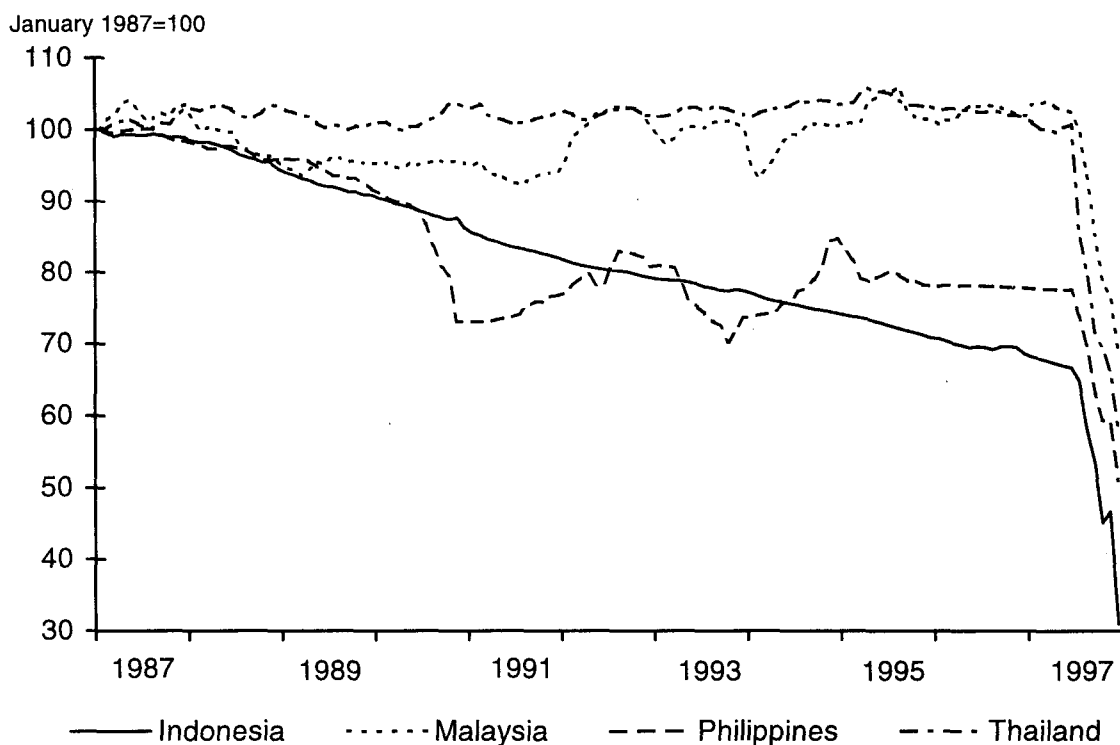
1. The Setting: Nominal Exchange Rate Regimes in the ASEAN-4

Nominal exchange rates in the ASEAN-4 countries were relatively stable from 1987 to June 1997 (Figure 2). This was achieved by these countries' orientation toward the US dollar. Restrictions on current transactions have been absent since the late 1980s, except in the Philippines, where all foreign exchange payments are subject to indicative limits.¹² However, all countries have made use of various restrictions on capital transactions (IMF 1997b).

The Thai baht was de facto pegged to the US dollar from late 1981 to late 1984, when it was devalued by about 15 percent. Since 1985, the central bank (Bank of Thailand) has announced daily minimum buying and maximum selling rates that must be observed by commercial banks. Officially, the external value of the baht has been determined on the basis of an undisclosed basket of currencies, but the nominal exchange rate of the baht against the US dollar has been virtually constant in the last ten years.

In Indonesia, the central bank announced daily exchange rates for the rupiah against the US dollar (managed floating). After engaging in a series of maxi-devaluations, each amounting to about 30 percent (in 1978, 1983, and 1986), the exchange rate system was revised in 1989. Since then, the announced exchange rate has applied only to certain transactions; for all other transactions banks have

Figure 2 – Nominal Exchange Rate Indices,^a 1987–1997



^aMonthly averages of US dollar per unit of national currency.

Source: IMF (1997a); own calculations.

been free to set their own rates within a daily announced trading band. From 1993 to 1996, the intervention band was widened gradually from ± 0.5 percent to ± 4 percent, signaling plans to make the rupiah more flexible. In the 1990s, the rupiah depreciated gradually by an almost constant rate of about 4 percent per year. Apparently, the central bank had a nominal exchange rate target with a crawling peg to the US dollar. With the exception of a few short episodes (e.g., in early 1992), black market exchange rates as reported in the World Currency Yearbook (Cowitt 1996) closely followed the official exchange rate.

In Malaysia, the exchange rates have been determined mainly by the market, while the central bank has intervened to prevent excessive fluctuations in the value of the ringgit. The central bank has monitored exchange rate fluctuations against an unrevealed basket of currencies, but without a strict nominal exchange rate target. However, after the dissolution of the de facto peg to the Singapore dollar in 1984, the fluctuations of the nominal exchange rate against the US dollar were relatively small (± 5 percent around the average). A notable exception was early 1994, when the ringgit-US dollar rate fell sharply by about 8 percent after the sudden reversal of short-term capital inflows. However, the exchange rate soon stabilized at the previous level.

Officially, the value of the *Philippine peso* has been determined by the foreign exchange market since 1984, but the central bank has usually intervened whenever the exchange rate moved outside a band of 1.5 percent from the previous day closing rate.¹³ The Philippine peso has been devalued twice (in 1983 and 1984) by about 20 percent against the US dollar. From mid-1990 to early 1997, the nominal exchange rate of the peso to the US dollar moved within a narrow band of about ± 5 percent, and has been virtually constant since early 1995.

Econometric studies (e.g., Bénassy-Quéré 1996; Frankel and Wei 1994) have revealed that the weight of the US dollar in the external value of the four East Asian currencies was very high during the 1980s, although the results of these studies vary with respect to the applied method.¹⁴ This is confirmed for the period 1987–1996 by own estimations with yen, D-mark, and pound sterling as potential candidates for a currency basket; the weight of the US dollar is the residual, i.e., 100 percent minus the sum of the estimated coefficients (Table 2). Moreover, the tightness of the respective nominal exchange rate target can be identified using the share of exchange rate fluctuations that is explained by the movement of the hypothetical currency basket, given by the estimated weights (column R^2 in Table 2). We did not estimate the weight of the Singapore dollar, although it may have played a large role in the determination of exchange rates in ASEAN-4 currencies. This is justified by the separate estimation result that the exchange rate of the Singapore dollar can be explained almost exactly by a basket with US dollar (65 percent), yen (6 percent), D-mark (18 percent), and pound sterling (11 percent) plus an appreciation trend of about 4 percent.

The very high explained variance of the baht exchange rate shows that Thailand pegged its currency closely to a basket which comprised the US dollar (84 percent), the yen (8 percent), and the D-mark (8 percent). Similarly the very high explained variance of the rupiah exchange rate, together with the low weights for the currencies other than the US dollar, supports our hypothesis that Indonesia had a tight crawling peg to the US dollar. By contrast, the explained variance is relatively low in the case of the ringgit and the peso. Although the actual changes in the ringgit exchange rate were often in the same direction as those of the hypothetical basket, the US dollar value of the basket left about two-thirds of the variance unexplained. Hence, either other currencies had a high weight in the basket or the central bank had an interest rate target rather than a nominal exchange rate target. At first glance, the highly significant depreciation trend for the peso exchange rate seems to imply a crawling peg to the US dollar. However, this result is misleading, since the R^2 is not very high, and the peso exchange rate has fluctuated around a constant trend since 1990.

Table 2 – Implicit Weights^a of the Yen, the D-Mark and the Pound Sterling in ASEAN Currencies, 1987–1996

	Yen	D-mark	Pound sterling	Time trend ^b	R ²
Thai baht	8.5 (0.4)	7.7 (0.5)		- 0.3 (0.02)	92.5
Indonesian rupiah	4.8 (0.8)			- 4.2 (0.1)	99.5
Malaysian ringgit	13.0 (3.1)	16.7 (4.7)		- 0.5 (0.2)	33.1
Philippine peso	20.0 (6.9)			- 1.4 (0.4)	63.0
<i>Memo:</i>					
Singapore dollar	6.2 (1.3)	18.2 (2.5)	11.0 (2.1)	+ 4.1 (0.1)	99.3

^aPercentage weights in the implicit basket, estimated by regressing US dollars per national currency unit on US dollars per yen, per D-mark and per pound sterling (logarithm of monthly average exchange rates), and a time trend. Only coefficients significantly different from zero at the 1 percent level are shown. Standard deviations are shown in parentheses. —
^bAnnual average change of the exchange rate against the value of the hypothetical basket (+: appreciation).

Source: IMF (1997a); own calculations.

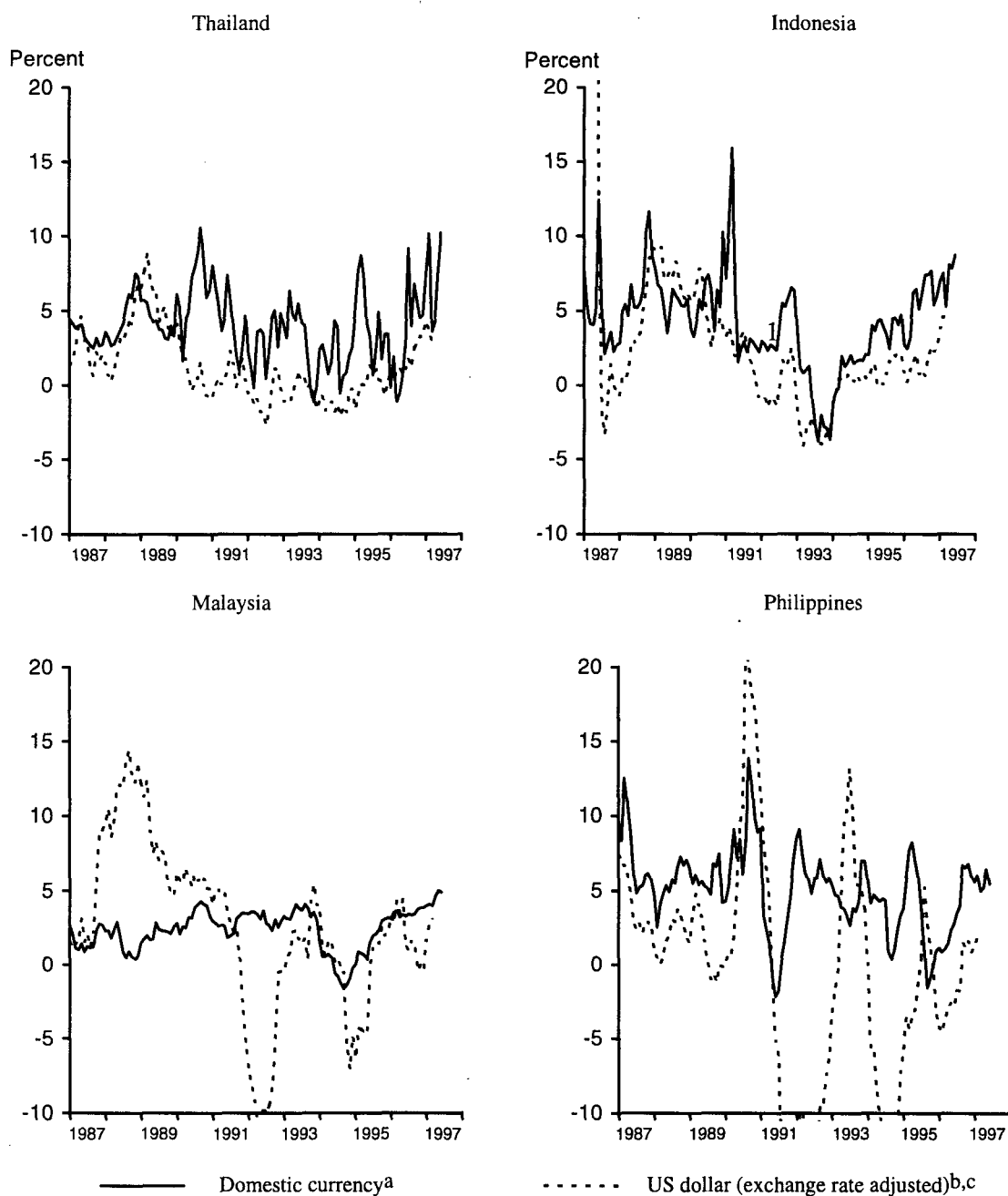
This characterization of exchange rate systems in Southeast Asia is confirmed by looking at the *uncovered interest rate differentials*. Interest rates for loans in foreign currency, adjusted for expected exchange rate changes, and for loans in domestic currency tend to be equal in open economies. Ideally, interest rate differentials in open economies with a credibly fixed exchange rate are zero if foreign and domestic assets are perfect substitutes. Otherwise, i.e., if borrowing in international markets is restricted or if country risk is not negligible, the arbitrage process cannot drive the interest rate differential to zero. Hence, targeting of domestic interest rates is only possible if the arbitrage process does not work, or if the central bank allows the exchange rate to fluctuate whenever foreign interest rates change rather than sticking to a nominal exchange rate target.

Both in Thailand and in Indonesia, the exchange-rate-adjusted short-term interest rate differential between their currencies and the US dollar was below 5 percent, with few exceptions, especially from mid-1990 to mid-1991 and in mid-1996 (Figure 3). In contrast to Indonesia, however, the interest rate differential was highly volatile in Thailand, which indicates that Thai authorities sought to restrict credit growth by keeping interest rates above international levels. Moreover, interest rate differentials widened in periods in which the yen–US dollar exchange rate fluctuated. Since the Japanese banking sector is a large creditor, short-term interest rates are influenced by exchange-rate-adjusted yen interest rates. For example, the appreciation of the yen against the US dollar in 1990/1991 and in 1995 made the rollover of credits denominated in yen much more costly in the short run. Finally, high interest rate differentials may have been caused by attempts of the monetary authorities to sterilize the expansionary effect of capital inflows, e.g., in 1996, when there were positive interest rate differentials between all currencies and both the US dollar and the yen (see below).

In Malaysia, the interest rate differential was close to zero in many subperiods, but apparently the monetary authority preferred stable domestic real interest rates to stable nominal exchange rates. The domestic real interest rate has been very stable over the last ten years, and whenever foreign interest rates have changed, the nominal exchange rate was left to float (e.g., 1990/1991). A notable exception was 1994, when real interest rates decreased significantly, together with the temporary depreciation of the nominal ringgit exchange rate.

The Philippines is a mixed case: the interest rate differential stayed at about 5 percent until early 1990 and has done so again since late 1995; these were the subperiods in which the nominal exchange rate development was relatively stable. By contrast, in the years 1990 to 1995, both the interest rate differential and the domestic real interest rate were highly volatile; this was the subperiod with fluctuating exchange rates and volatile capital inflows.

Figure 3 – Short-Term Real Interest Rates, 1987–1997



^aShort-term interbank lending rates (IFS line 60b) minus domestic CPI inflation rate. — ^bSingapore interbank offered rate on US dollar deposits (SIBOR) minus domestic CPI inflation rate. — ^cAdjusted for expected nominal exchange rate changes, proxied by the actual change over the previous 12 months.

Source: IMF (1997a); own calculations.

All in all, the ASEAN-4 countries have shown a record of relatively modest exchange rate movements over the last decade, relative to Latin American currencies. However, Thailand and Indonesia are different from Malaysia and the Philippines. The currency peg to the US dollar was tight in Thailand and in Indonesia, and the uncovered interest rate differential was relatively small. This was an invitation for speculative attacks against the baht, and — in spite of the gradually widened intervention

band for the rupiah — also against the rupiah. By contrast, Malaysia and the Philippines had a preference for smooth domestic interest rates rather than stable nominal exchange rates, which made their currencies less vulnerable to speculative attacks. Moreover, the nominal exchange rate of the US dollar was relatively stable in all four countries although the US dollar strengthened significantly against the yen and the D-mark during 1996 and early 1997. Since the implicit weight of the US dollar was much higher in this period than the share of the US dollar in external trade and in external borrowing, the effective nominal exchange rates appreciated, making the currencies more vulnerable.

2. Cocking the Gun: Real Exchange Rate Appreciation and Current Account Deficits

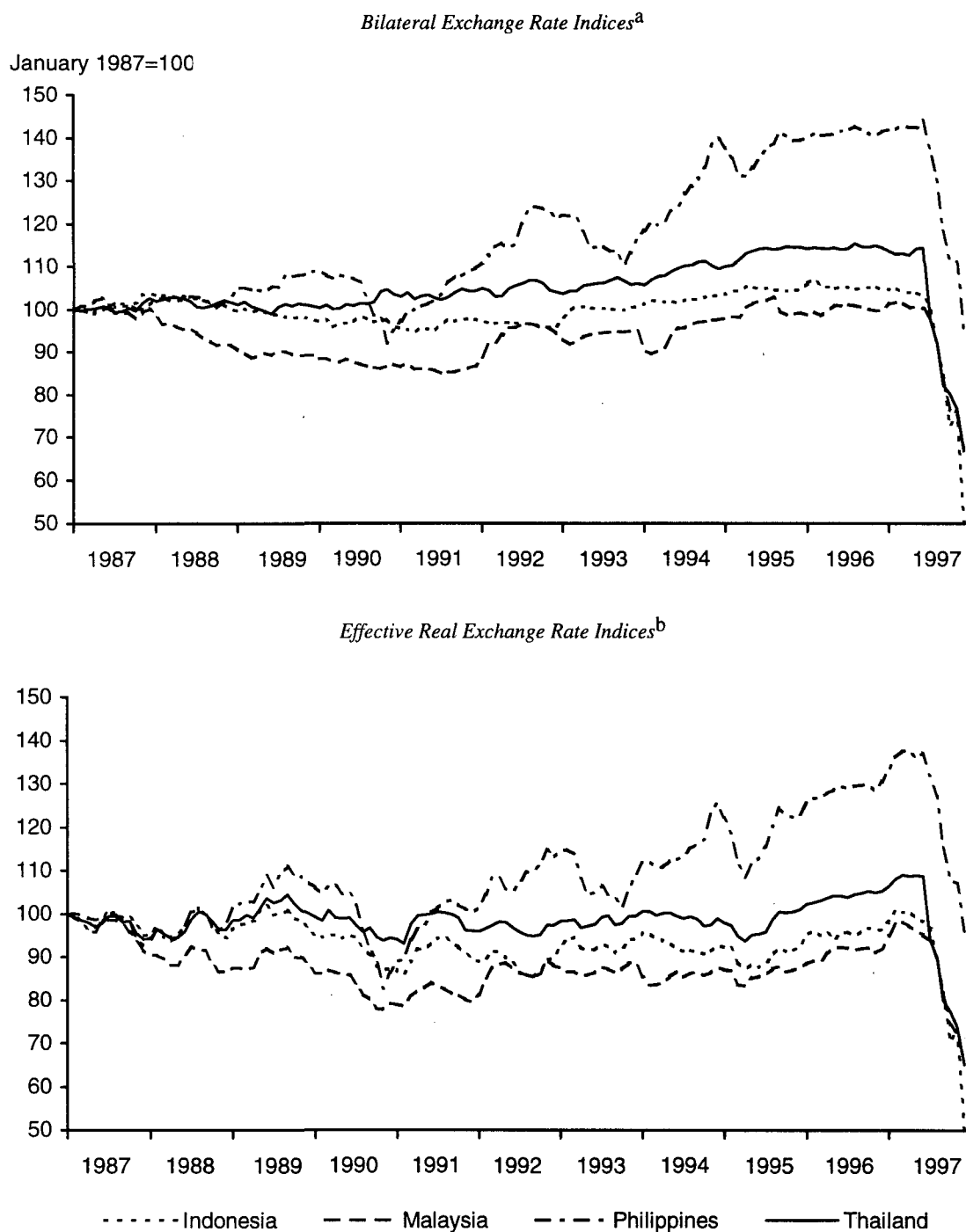
Based on the stylized facts and country experiences presented in Chapters II and III, stable exchange rates are likely to lead to an overvalued exchange rate. However, the Asian countries (with the exception of the Philippines) are different in that real exchange rates have not been driven by capital inflows or inflation inertia.

In Malaysia and Thailand, inflation rates have been low (on average, 4–5 percent p.a.) since the late 1980s, which is consistent with the fact that their nominal exchange rates have been relatively stable. The high inflation rates of about 9 percent in Indonesia are consistent with the gradual depreciation against the US dollar, which has been about 4 percent per year. Hence, the real exchange rate against the US dollar — based on differentials in consumer price indices (CPI) — has shown only mild fluctuations in all three countries since the late 1980s, and only for Thailand a smooth real appreciation, which has spread over the last decade.¹⁵ The trade-weighted effective real exchange rates indicate a sudden real appreciation of about 10 percent for all countries between early 1995 and mid-1997 (Figure 4). The main reason for this was an exogenous event: the strengthening of the US dollar against the yen and the D-mark.¹⁶ Given the high weight of the US dollar in the external value of the Southeast Asian currencies, the dollar appreciation should have induced some policy changes. Thailand adjusted its nominal exchange rate in 1996, but only according to the weights of the D-mark and the yen in its currency basket. The Malaysian ringgit has even appreciated slightly against the US dollar since late 1995, in contrast to the estimated implicit currency basket, which lost about 5 percent of its value during 1996. Hence, real exchange rates are affected by external shocks like, above all, the change in the value of the anchor currency. Moreover, even large capital inflows in the 1990s have left inflation rates more or less unaffected (Figure 5).

As already mentioned, the Philippines provide the exception to the rule. Inflation rates there were volatile and relatively high (on average, more than 10 percent during the 1980s), which is in line with the repeated devaluations; even in the 1990s, when the nominal exchange rate was virtually constant, inflation stood at 8 percent, on average, which is clearly inconsistent. As was the case in Latin America and Europe, capital inflows pushed up inflation rates. As a consequence, the Philippine peso appreciated by about 40 percent in real terms against the US dollar. This real appreciation is of the same order of magnitude as in the case of the Mexican “tequila crisis” in late 1994, which emerged after the Mexican peso appreciated by about 30 percent in the six years before.

The different patterns for the development of the real exchange rates can be explained by monetary and fiscal policies. Figure 5 clearly shows that all countries in our sample have tried to sterilize monetary expansion. The degree of sterilization varied with the flexibility of the exchange rate systems. Monetary expansion was clearly below the change in the reserve position in Thailand throughout the last decade. This indicates the need for sterilization given the exchange rate peg. As argued above, exchange rates were more flexible in Indonesia, Malaysia, and the Philippines, which allowed the countries to smooth the effects of changes in reserves on the money supply, i.e., monetary policy became restrictive in the case of strong reserve inflows and expansionary in the case of stagnating or declining reserve inflows.

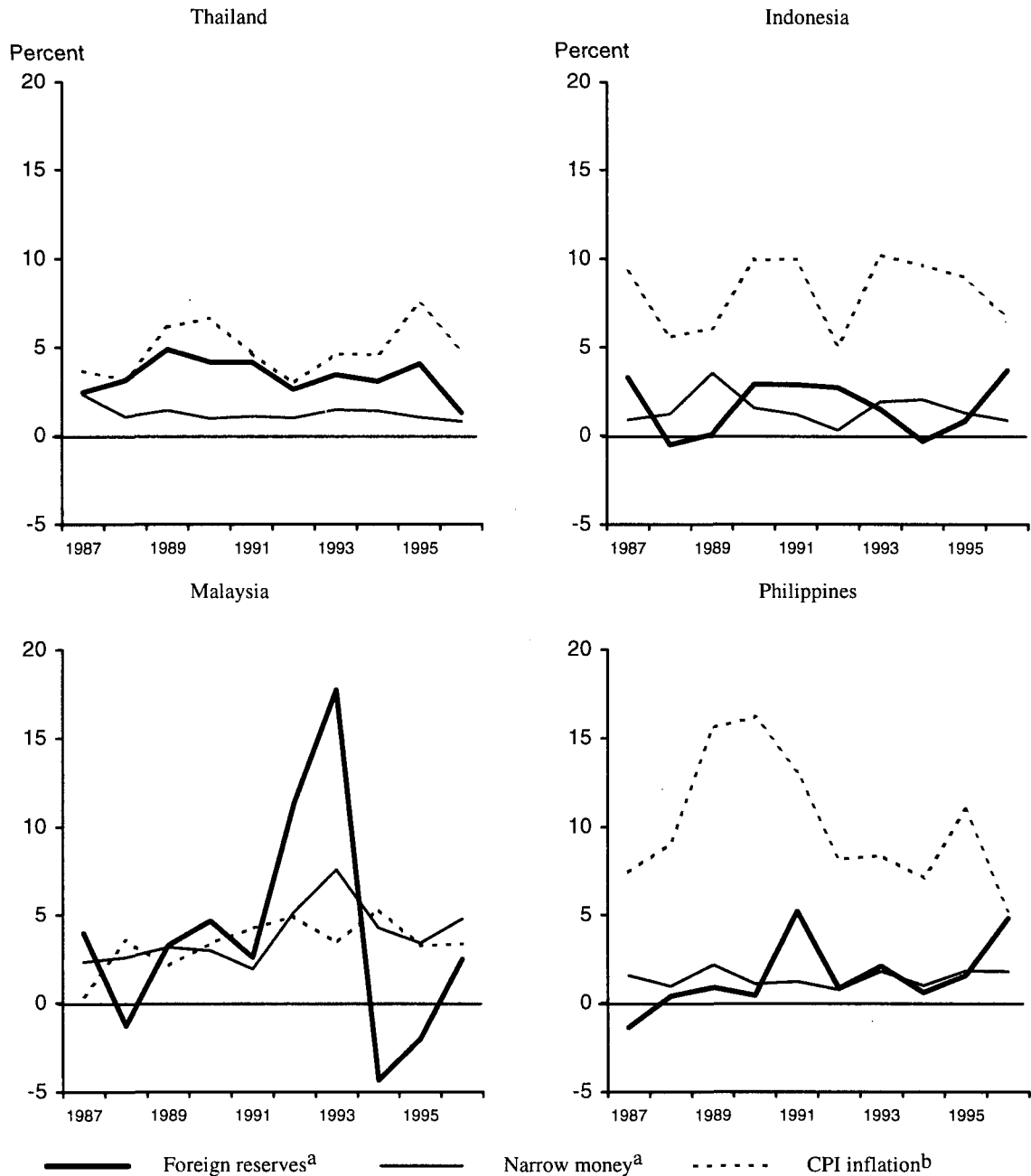
Figure 4 – Bilateral and Effective Real Exchange Rate Indices, 1987–1997



^aMonthly averages of US dollar per unit of national currency plus CPI inflation differential to the US. — ^bMonthly averages of SDR per unit of national currency plus SDR weighted inflation differential.

Source: IMF (1997a); own calculations.

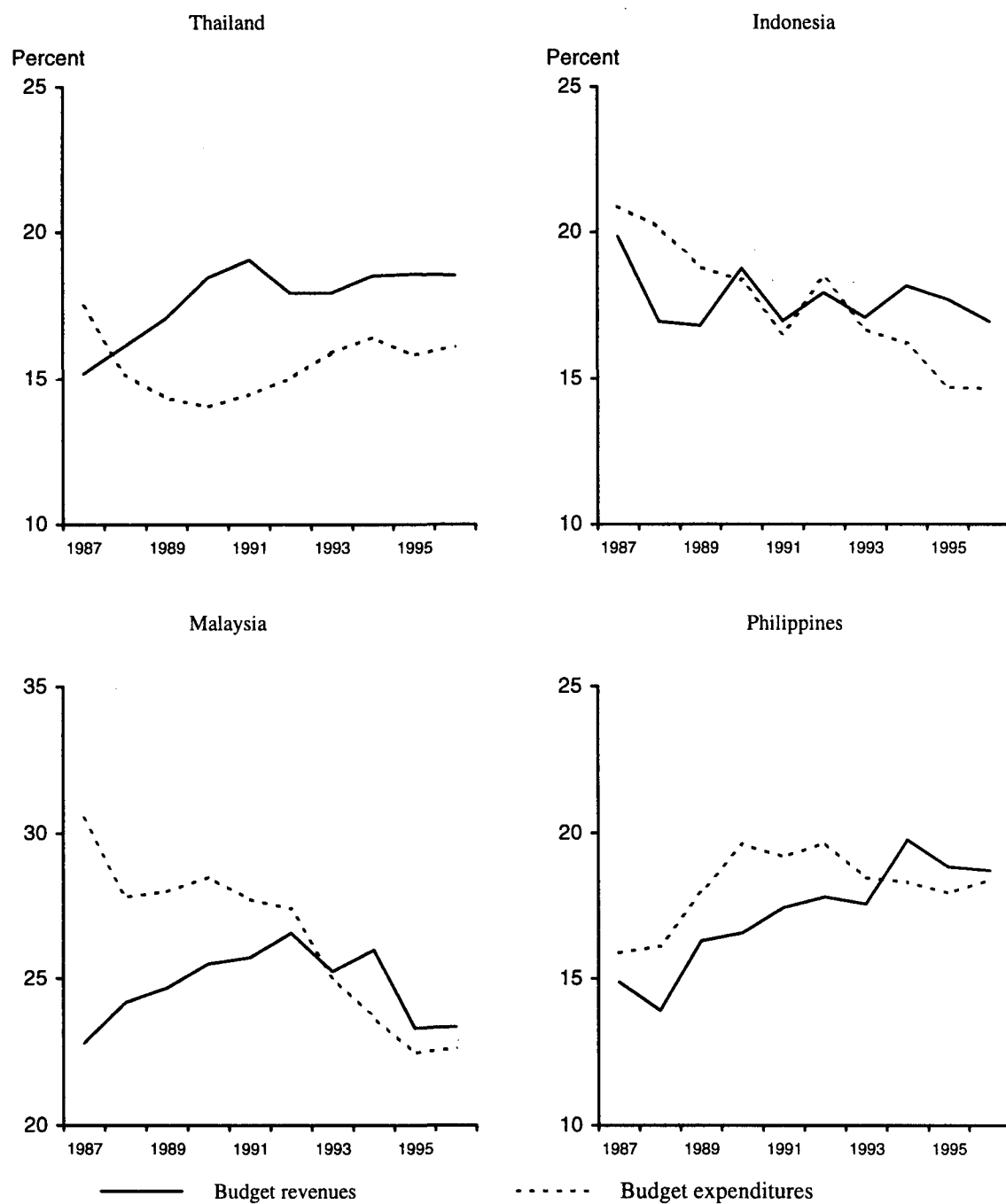
Figure 5 – Foreign Reserves Inflow, Money Growth, and Inflation, 1987–1996



^aNet change in percent of GDP. — ^bDecember–December (percent).

Source: IMF (1997a); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

Apart from sterilization policies, a restrictive fiscal policy may reduce the pressure on the real exchange rate by lowering aggregate domestic demand, especially when public expenditure for non-tradables is decreased, and may curb the inflationary impact of capital inflows. Figure 6 shows that fiscal policies in the sample countries actually helped to maintain macroeconomic balance in most cases.¹⁷ Public deficits and public expenditures have been gradually reduced since the early 1980s and the overall balances have been converted into surpluses. The exception is the Philippines, where

Figure 6 – Fiscal Budgets,^a 1987–1996

^aIn percent of GDP.

Source: IMF (1997a); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

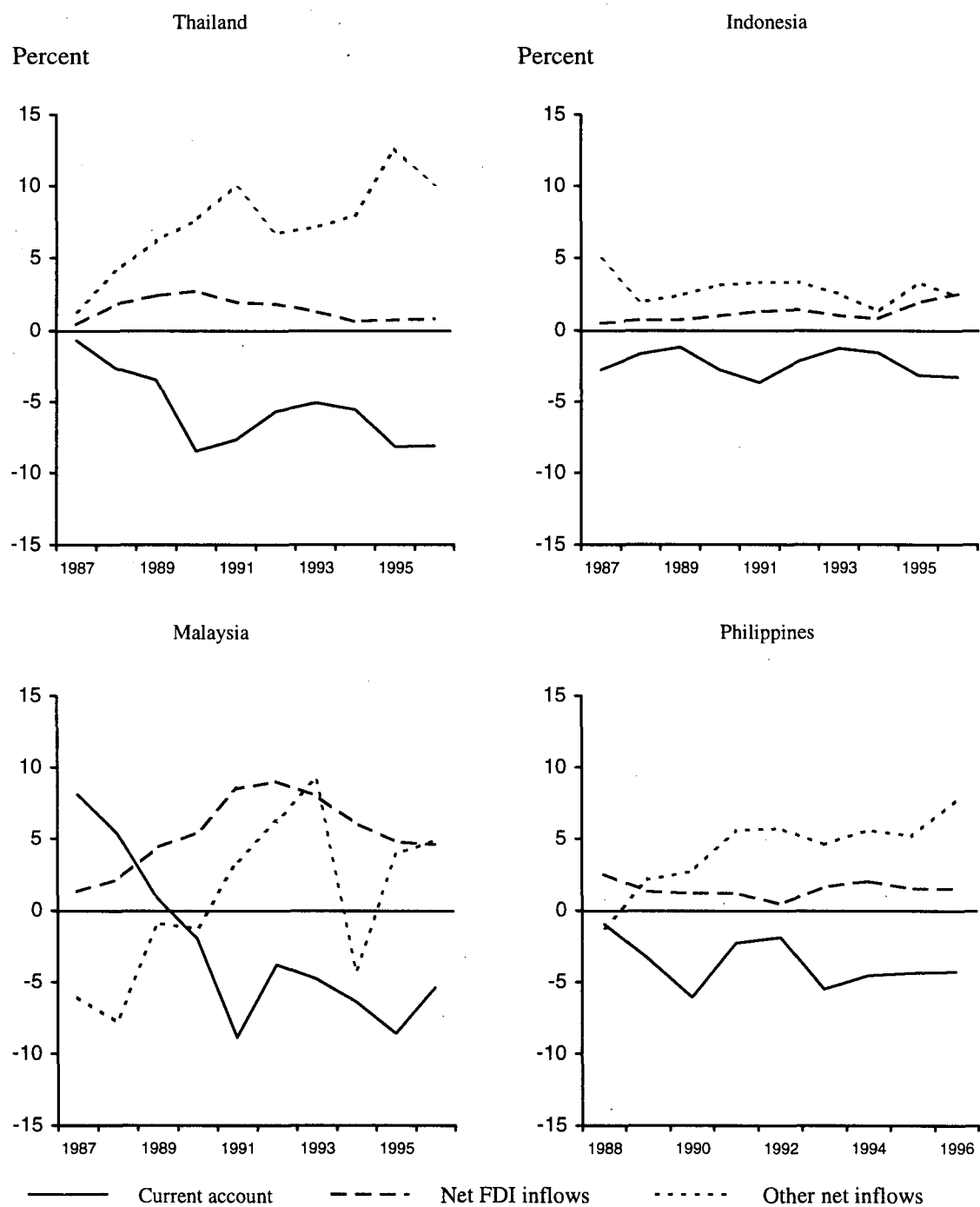
fiscal policy became restrictive only after 1992 following a period of significant expansion in public budgets and of increasing deficits since the mid-1980s. Unlike in the Philippines, increasing fiscal revenues in Thailand helped to maintain a budget surplus. This was probably due to the high weight of progressive income taxes, but the tax system was also streamlined in Thailand and a value added tax was introduced in 1992. Moreover, public investment in all countries has increased relative to GDP since the late 1980s, reflecting a rise in public infrastructure programs. This may have accelerated overheating in the domestic construction industry (see below).

Thailand's tight fiscal stance enabled its central bank to sterilize part of the capital inflows by shifting government deposits, thus easing its burden. This is argued by Reisen (1993) to be the most important factor in explaining the success of sterilization policies in Asia. But in the case of a strong peg, as was the case with Thailand, its central bank still had to use instruments which generated interest rate differentials between the baht and the US dollar and provoked interest-rate-driven capital inflows (Folkerts-Landau and Ito 1995).

While sterilization and restrictive fiscal policies have helped to reduce demand pressures on domestic markets, capital inflows have led to widening current account deficits in all four countries since the late 1980s. This has been most pronounced in Malaysia¹⁸ and Thailand, where the deficit reached about 8 percent of GDP in 1995, and less significant in Indonesia and Philippines¹⁹ where it reached only about 4 percent of GDP (Figure 7). However, size alone is not a sufficient indicator for sustainability. Instead, what matters for an assessment of the sustainability of current account deficits is (1) whether the deficits are caused by *declining saving rates or rising investment rates*, (2) whether the *growth of exports* is strong enough for the future repayment of external debt, and (3) whether *deficits are financed* by short-term or long-term capital inflows (Milesi-Ferretti and Razin 1996).

(1) *Rapid growth in investment* (now among the highest of the world), which *has exceeded increases in savings rates*, has caused the widening of current account deficits in ASEAN economies. This has been especially true in Thailand and Malaysia, whereas in Indonesia the current account even improved in the 1990s, compared with the average of the 1980s (Table 3). Public investment is a sizable part of total domestic investment only in Malaysia, but even there the increase has mainly been due to the private sector. Public budget deficits have diminished over time or turned into surplus, so that crowding-out of private investment has not been an issue. Similarly, higher imports have been driven by capital needs, since the share of consumer goods in total imports has declined (MAS 1997). Hence, it can be assumed that productive capacities and thus the export earning potential have increased. A notable exception to this trend is the Philippines, where investment rates only recovered to pre-debt-crisis levels and savings rates declined, which corresponds to the expansionary stance of monetary and fiscal policies.

(2) The *growth of exports* has depended on changes in the composition of exports: manufactures accounted for one-third of total export revenues or less in 1980, but for about two-thirds in the 1990s. This has made the level of export revenues in these countries more stable, compared with the years when raw materials and food products constituted the greater part of exports, especially in Malaysia and Indonesia. However, whereas Asian export growth was not affected by the economic downturn in the major industrial countries in 1990–1993, the slowdown of world trade in 1996 hit Asian exports

Figure 7 – Balance of Payments Summary,^a 1987–1996

^aIn percent of GDP.

Source: IMF (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

Table 3 – Changes in Investment, Savings, and Current Account Balance^a of the ASEAN-4 from the 1980s to the 1990s

	Domestic investment	National savings ^b	Current account ^c
Thailand	+ 12.1 (–0.3)	+ 7.7 (–0.4)	–4.4 (–0.1)
Malaysia	+ 8.5 (+ 2.3)	+ 3.3 (+ 5.2)	–5.2 (+2.9)
Indonesia	+ 3.6 (–0.7)	+ 4.3 (+/–0)	+0.7 (+ 0.7)
Philippines	+ 2.0 (+ 2.1)	– 0.2 (+ 0.1)	–2.2 (–2.0)

^aIn percent of gross national product; changes of annual averages from 1983–1989 to 1990–1996 (changes from 1995 to 1996 in parentheses). — ^bCalculated as residual (i.e., investment plus current account). — ^cResource balance plus net factor income from abroad (based on national accounts data).

Source: World Bank (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

particularly hard, especially Malaysia and Thailand (Figure 8). It was overoptimistic to expect that the extraordinary export growth of 1994 and 1995 could have been sustained indefinitely. These two years were influenced by the appreciation of the yen against the US dollar, which led to increasing Japanese imports from countries which pegged their currency to the US dollar and thus pushed Japan to move production overseas. However, export performance in 1996 was weak even in comparison with the average of the previous ten years. This leads to the question whether the export slowdown in 1996 was only due to cyclical effects or whether it foreshadowed a difficult future.

Three different causes have been suggested for the *drop of export growth rates* in Asia (see ADB 1997): *First*, the slowdown was primarily due to the performance of a single industry. The market for electronic products, especially semiconductors, experienced a severe slump in 1996 as strong supply increases met sluggish world demand. US dollar prices of semiconductors are estimated to have fallen by about 80 percent (BIS 1997), which put pressure also on the price of other electronic products, but to a different extent. While office machines and telecommunications equipment accounted for 44 percent of total exports in Malaysia in 1995, their share of total exports was lower in Thailand (22 percent) and in the Philippines (16 percent) (WTO 1996). Furthermore, the production of semiconductors is significant only in Malaysia. These structural differences explain why Thailand's electronic exports, which used semiconductors as inputs the price of which declined, could still grow at double-digit rates.

Second, currency movements were highly volatile in the mid-1990s. After a period in which the yen gradually strengthened against the US dollar, which reached an all-time high in early 1995, the yen has depreciated rapidly since mid-1995. This made several products from Asian countries (at least from those countries that pegged their currency to the US dollar) uncompetitive vis-à-vis Japanese products, both in Japan and in third markets. Given large differences in resource endowments, it may be argued that the bulk of ASEAN-4 exports is actually not competing with Japanese products in third markets, whereas this argument is obviously relevant for more advanced countries such as South Korea. However, import demand in Japan, which is the largest market for ASEAN countries, has decreased. This is not a temporary effect, since nobody expected the yen to return to its previous level.

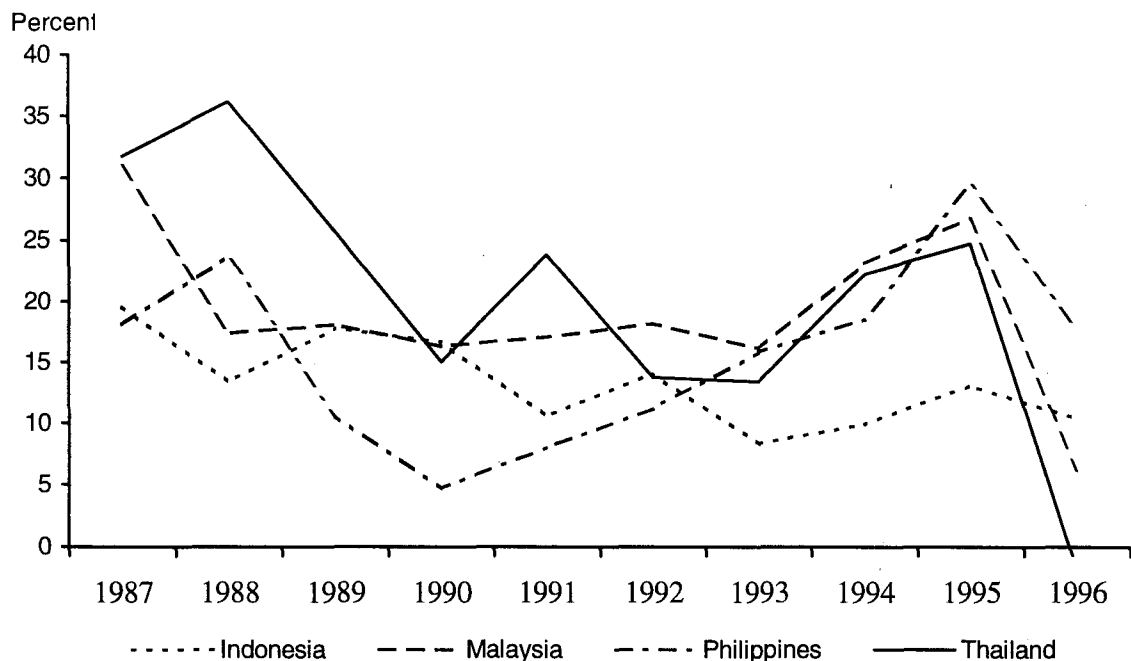
Third, a loss of competitiveness due to structural problems has been put forward as another reason for the drop of export growth rates. Persistent appreciation of the real exchange rate and upward movements of wages are potential factors that could have threatened export performance. Although the composition of Asian exports has been adapting rapidly to shifts in comparative advantage in the past, there are markets in which competitive pressure from lower-cost producers have become bigger in the recent past. The PR China and Vietnam have rapidly gained market shares in labor-intensive products (e.g., garments, footwear, and processed foods), which has probably affected Thailand and Indonesia the most within ASEAN. However, the real appreciation of ASEAN currencies during 1996 cannot be made responsible for this shift since both Vietnam and China also kept their nominal

exchange rates stable against the US dollar, and China's gain from the devaluation in early 1994 has already been eaten up by high inflation.

All in all, the reason for the export slump in 1996 is most likely a combination of cyclical effects in the electronics market (Malaysia) and structural effects due to rising wages and new competitors in the markets for labor-intensive products (Thailand).

(3) *The financing of current account deficits* raises also doubt on the sustainability of the current account deficits, though there are differences between the countries. Financing has shifted from debt to equity in Malaysia and Indonesia. FDI alone could have financed the current account deficits in Malaysia and more than half of the deficits in Indonesia (Figure 7). By contrast, there has been a sharp increase in short-term capital inflows in Thailand and the Philippines, accounting for more than half of the net capital inflows in the 1990s. Debt indicators have improved since the late 1980s, even in the Philippines (Figure 9): the debt-to-GDP ratio stood at about 50 percent (rising only in Thailand!), and the debt-service-to-exports ratio at about 30 percent in Indonesia or less than 20 percent in other countries. However, the ratio of short-term debt to foreign reserves has increased markedly in Thailand (approaching 100 percent) and Indonesia (approaching 150 percent), signaling a high vulnerability to sudden changes in short-term capital flows in these countries. As a consequence, Thailand's short-term sovereign debt was downgraded by Moody's Investors Services in September 1996 (MAS 1997). By contrast, the ratings of the other countries have been upgraded in the 1990s (World Bank 1997b).

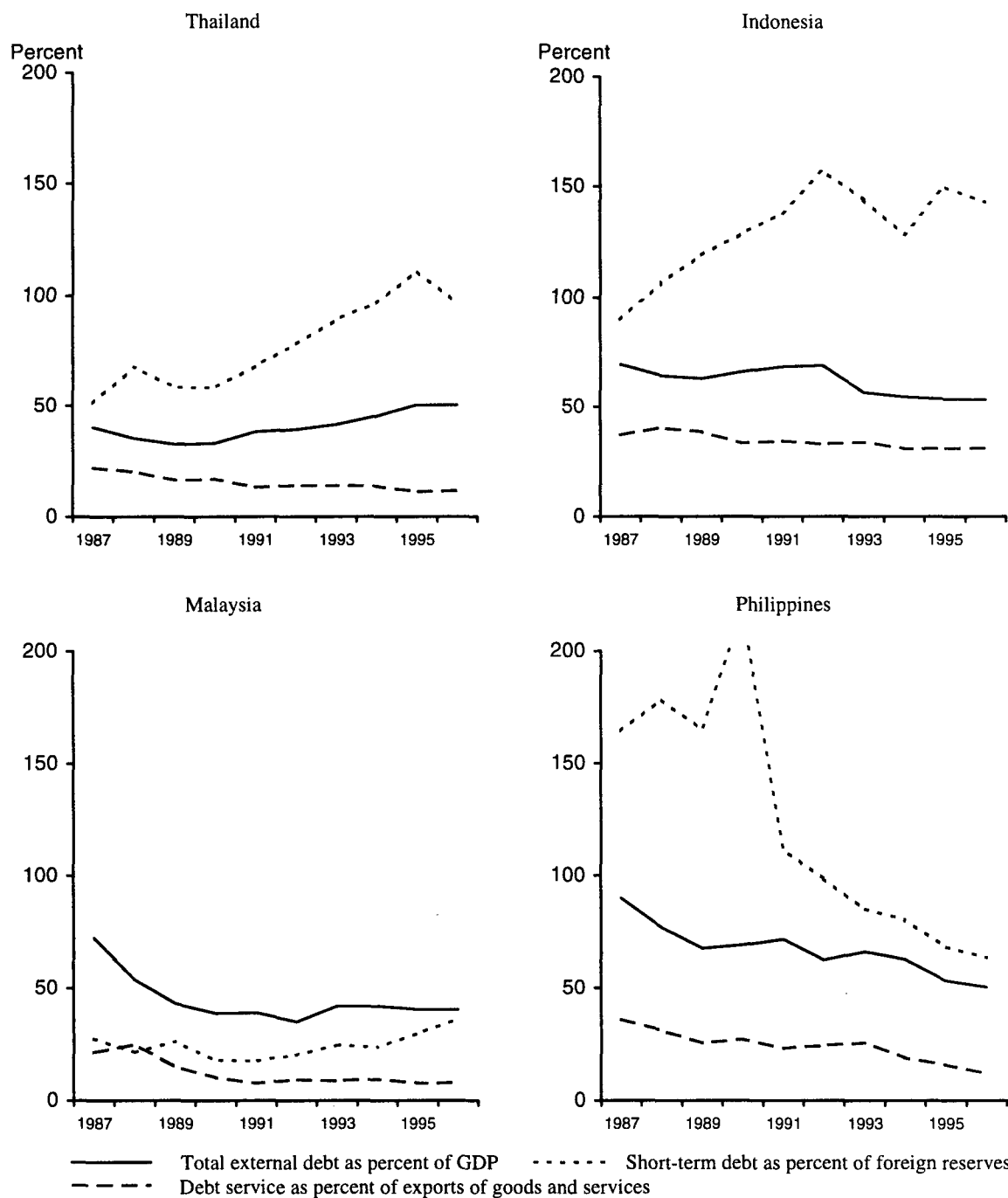
Figure 8 – Goods Exports,^a 1987–1996



^aAnnual revenues in US dollars (balance of payments data), change against previous year.

Source: IMF (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

Figure 9 – Indicators of External Indebtedness, 1987–1996



Source: World Bank (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

Summing up, by the end of 1996 the current account deficits seemed to be sustainable in the ASEAN economies, in contrast both to earlier episodes in these countries in the early 1980s (deterioration of the terms of trade, high public sector deficits, world recession) and to the development in Latin America in the 1990s (consumption boom, higher indebtedness, less FDI). However, the size of short-term indebtedness made Indonesia and Thailand vulnerable to a reversal of capital flows.

Our analysis of real exchange rate movements and current account deficits reveals that the countries are vulnerable to different degrees in the case of a reversal of capital flows. Thailand and Malaysia show current account deficits of about 8 percent, comparable to those of Mexico in 1994 and the Czech Republic in 1996. These deficits were produced by a tight peg (Thailand) and deteriorating terms of trade and declining export demand (mainly in Malaysia, but also in Thailand). Additionally, the basis for defending the peg was rather weak because of the high ratio of short-term debt to GDP in the case of Thailand.

The current account deficits were smaller for Indonesia and the Philippines but still in the range of the Spanish deficit in 1992, i.e., about 4 percent. Like Spain, both countries suffered from an appreciation of the anchor currency and from an exchange rate crisis in neighboring countries, thus further reducing their competitiveness. Additionally, difficulties in coping with the need for a strong real devaluation could be expected for both countries, although for different reasons. Except for the debt situation, Indonesia had the best basis for avoiding a crisis engendered by its crawling peg policy, increases in both investment and savings, and the modest impact of structural changes. However, the extremely high short-term debt ratio exposed the country to the risk of a reversal of capital flows. The Philippines constantly reduced debt ratios over the last decade but suffered from a low credibility of fiscal and monetary authorities. With a history of repeated maxi-devaluations, rather expansionary macroeconomic policies, and increases in investment financed exclusively by external capital, it would have been difficult to convince foreign investors that restrictive fiscal and monetary policies would actually be implemented in the case of a currency crisis.

Some important results, based on the analysis presented so far, are worthy of being noted here, before the contribution of developments in financial markets are discussed next:

- Of the ASEAN-4, only the Philippines exhibits the Latin American syndrome, i.e., macroeconomic imbalances due to a weak fiscal stance and stagnating savings rates.
- Thailand, Malaysia, and Indonesia have been different in both respects but have been far from immune against the potential impact of external shocks like an appreciation of the anchor currency or a worsening of the terms of trade.
- Independent of the source (domestic policy or external shocks), Asian countries have revealed the same pattern as other countries that have stabilized their exchange rates: real appreciation and current account deficits.
- The riskiness of these developments depended on the possibility of stabilizing capital inflows and avoiding a currency crisis in the case of decreasing capital inflows.
- Given sound fiscal and monetary policies in Thailand, Malaysia, and Indonesia over the last decade, the prospects to perform at least an orderly devaluation should have been quite promising.
- However, the large deficits in the cases of Thailand and Malaysia and the high ratio of short-term foreign debt to reserves in the cases of Thailand and Indonesia would have required a quick and radical policy response to prevent reserve losses.

3. The Trigger: Fragility of Financial Sectors

In times of rapidly changing economic landscapes and liberalized financial markets, the banking system has to bear the burden of high credit risks. This is especially the case in countries involved in a fast catching-up process (high growth, structural change), countries which at the same time often lack experience in efficiently supervising financial markets. In addition, the banking system is often exposed to foreign currency risk if investments are financed to a large extent with short-term foreign credits. And a weak banking system constrains policy flexibility: that is, monetary restriction is often not imposed in time because of concerns about the negative impact of higher interest rates and re-

duced liquidity on banks, which increases the risk of sudden reversals of capital flows and thereby the risk of a more serious banking crisis (Ostry 1997; Figure 1).

The standard argument in the literature on the sequencing of economic reforms is: first, better prudential supervision and clearing of bad debts from the past, then deregulation of banking (at least as concerns interest rate margins), and thereafter “financial opening up” (B. Fischer 1993). Financial liberalization has taken place in some Asian countries only recently, e.g., in Thailand and Indonesia. Hence, the central questions are whether financial liberalization came too fast and whether the currency crisis could have been stopped if these reforms had been postponed.

In the 1990s, domestic bank credit has grown at high rates in all ASEAN countries. On average, the annual change in domestic bank credit has accounted for roughly 10 percent of current GDP in the last ten years, with the exception of the Philippines, where the lending boom did not start until 1993. The picture changes if the stock of domestic bank credit is related to GDP (Figure 10): whereas this ratio has increased sharply in Thailand (1993–1995), Malaysia (since 1994), and the Philippines (since 1995), domestic bank credit in Indonesia surged already in 1989/1990 but since then has remained virtually constant if compared with GDP. Moreover, the ratio to GDP reveals that bank credit started from a relatively low level in Indonesia and the Philippines, and has approached the respective ratio of industrial countries only in Malaysia and in Thailand.²⁰ Hence, credit growth has to a large extent been caused by the process of increasing credit relationships (“financial deepening”), which is desirable in general. However, when this process is as rapid as it has been in Asian countries it brings with it the risk of unsound banking practices, which, in turn, increases the risk of widespread banking failures.

In general, high credit demand can be accommodated in three different ways: expansionary refinancing of the central bank, external borrowing by commercial banks, or an increase of the credit multiplier (ratio of credit to reserve money), reflecting a process of financial development in which fewer reserves are deemed necessary to back up credits. The credit multiplier is influenced by reserve requirements imposed by the central bank but also by modernization of the payments system and the domestic interest rate structure. It is typical of developing countries for their liberalization of the financial sector to spur modernization and to eliminate financial repression marked by negative real interest rates on deposits. As a consequence, loanable funds become available and credit supply expands (Corsepius 1989; Fry 1988).

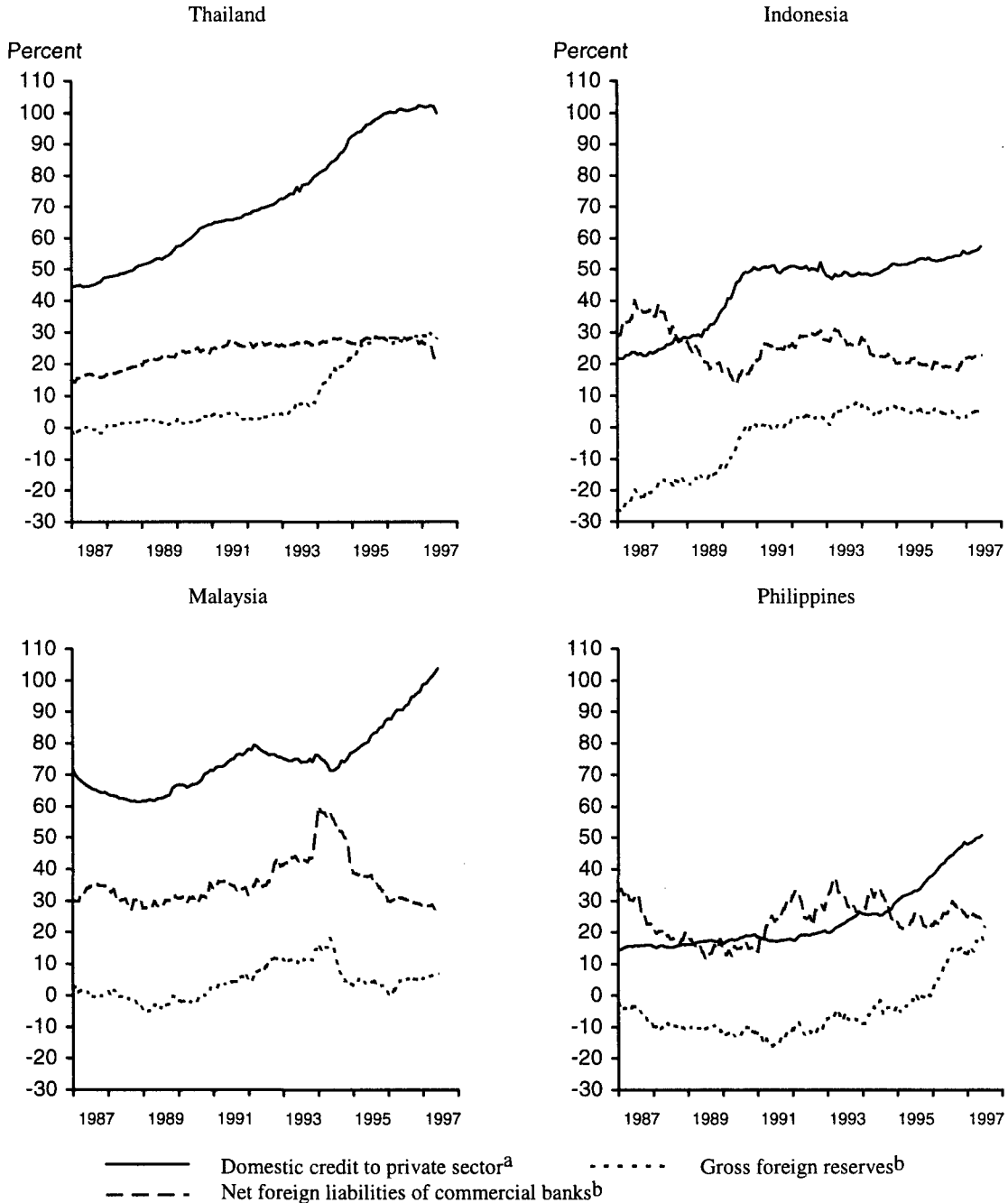
In the ASEAN countries analyzed, actual credit demand has been accommodated in the following ways:

- Expansionary refinancing has lagged behind the credit boom in Malaysia and the Philippines, especially in the last two years. By contrast, Thailand has tried to limit credit growth by reducing the amount of refinancing from 100 percent to 50 percent of the face value of qualifying assets and by raising the discount rate (Lee 1996).
- External borrowing has been the main cause of the recent credit boom in Thailand and to some extent in the Philippines, but not in the other two countries. This borrowing has been most pronounced in Thailand, as can be seen from the development of net foreign liabilities of domestic banks, which climbed rapidly to 25 percent of broad money, i.e., the same level as total foreign reserves of the central bank (Figure 10).
- An increase in the credit multiplier has occurred only in Indonesia in the late 1980s; this period was put to an end by the implementation of a restrictive monetary policy in 1991.

In any case, it falls into the responsibility of the central bank to keep credit growth within limits, even if external factors induce a credit boom. However, the enforcement of monetary control may have been affected by the liberalization of domestic financial markets. For example, controls on lending rates were removed in Indonesia (1983) and in Thailand (1992) (Dekle and Pradhan 1997). This has contributed to rapid financial deepening, but, given quasi-fixed exchange rates, has made it almost

impossible for their central banks to keep domestic interest rates high in order to restrain credit growth. When foreign interest rates began to decline in 1990, the Bank of Thailand attempted to limit capital inflows by various other measures. In particular, in 1990 it eliminated the implicit subsidization of foreign borrowing that resulted from the exemption from the withholding tax on interest rate payments, which was introduced only in 1988 to attract foreign capital (Lee 1996).

Figure 10 – Indicators of Assets and Liabilities of the Domestic Banking System, 1987–1997



^aIn percent of GDP. — ^bIn percent of M2.

Source: IMF (1997a); Bangko Sentral ng Pilipinas (1997); Bank Indonesia (1997); Bank Negara Malaysia (1997); Bank of Thailand (1997a); own calculations.

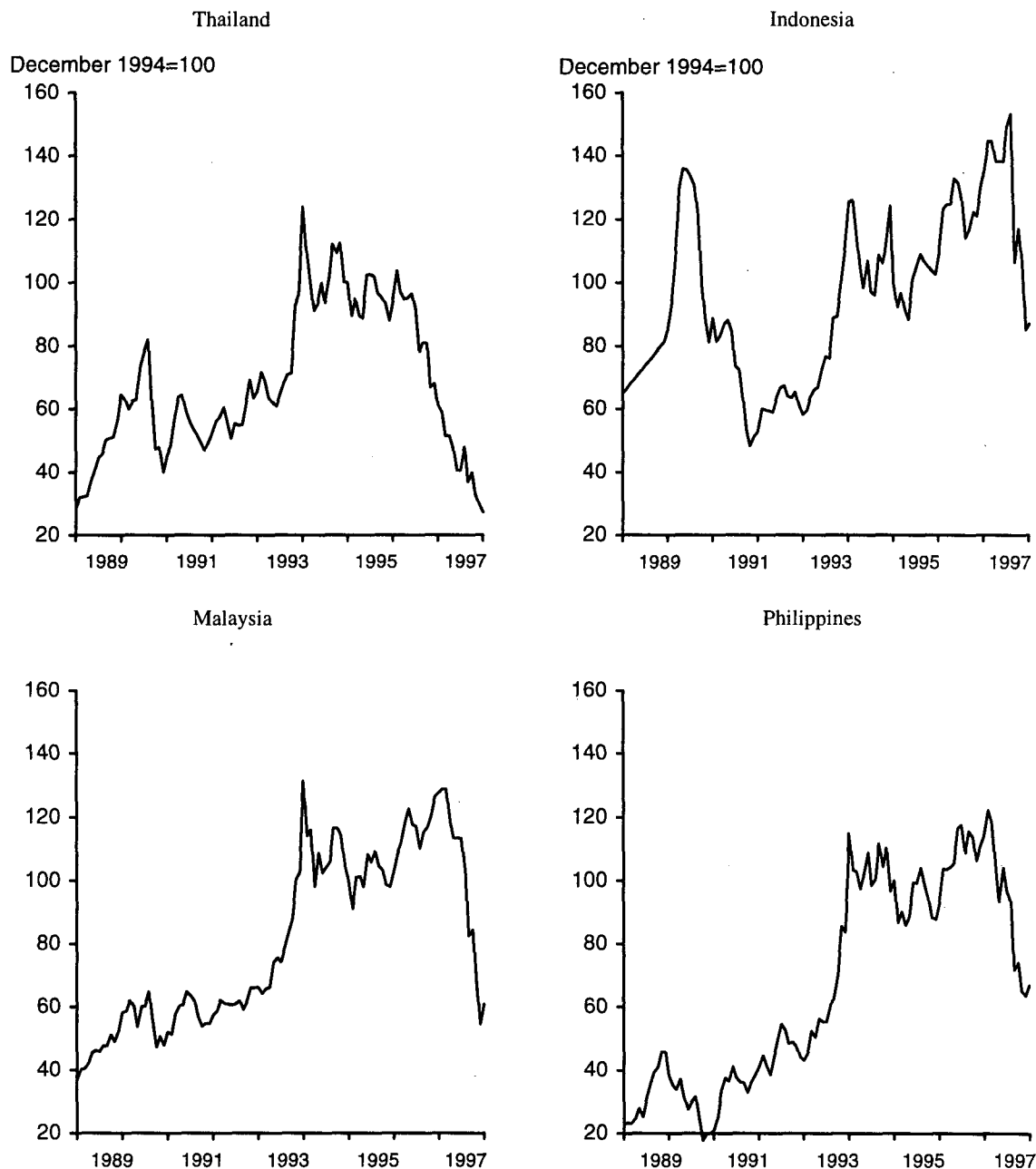
As revealed by Figure 10, the Thai authorities succeeded in cooling down the credit boom. But consolidation took place at a high level of outstanding credit and net foreign liabilities of banks. As a consequence, foreign reserves fell below net foreign liabilities of commercial banks during 1996. The picture is similar for the Philippines, where net liabilities came close to the level of reserves during 1997. In the cases of Malaysia and Indonesia, the ratio of excess reserves has been relatively stable over the last decade.

It is a widely held belief that banking crises are caused by excessive credit creation and unsound financing during the expansionary phase. This belief rests on the argument that discriminating between good and bad credit risks is harder when the economy is expanding rapidly, because many borrowers are at least temporarily very liquid. However, the underlying *causes of bank fragility in Asia are more complex* (BIS 1997): (1), asset price cycles driven by excessive expansion of bank credit have been a central cause of instability, since Asian banks have often lacked the experience to evaluate credit risks properly in a new liberalized environment; (2), earlier policies, especially government-directed lending, have left a legacy of bad debts; (3), the intensification of competition between financial institutions has revealed the need for the rationalization of Asian banking systems.

(1) There is empirical evidence that sharp *declines in asset prices* are a good leading indicator of banking crises, better than lending booms (Kaminsky et al. 1997). For emerging market economies in Asia, the volatility of asset prices has been relatively high in the past decade. One indicator for this is the stock market boom in the early 1990s (Figure 11). The underlying causes were the low interest rates in the US, which pushed capital overseas, and the liberalization of domestic financial markets in Asia. However, as a result of the increase of US interest rates in 1994, stock markets in Asia stagnated. In the following years, renewed interest in the emerging market economies in Asia could be observed, with the notable exception of Thailand. Thailand was the worst-performing market among all emerging markets in 1996; in early 1997, the SET index was about one-half of its previous high at the end of 1993 (IFC 1997). Another indicator for the volatility of asset prices is the business cycle in the domestic construction industry. Construction activity has been booming in the ASEAN economies since the late 1980s. Property lending has accounted for a large part of total bank lending, e.g., 25 percent in Malaysia. However, real estate prices in Indonesia, Malaysia, and Thailand started to decline already in 1991, responding to excess supply conditions (BIS 1997). As a result, vacancy rates for office space of 10 percent or even more have prevailed in Indonesia and Thailand (*Far Eastern Economic Review* 1997b).

However, both the slowing down of the stock market boom and the real estate boom, which led to an increase in the share of nonperforming loans in banks' portfolios, are general problems related to asset price cycles. The boom in equity and real estate prices appeared to offer banks good collateral, and borrowers continued to borrow even at high interest rates to buy assets that were rapidly appreciating in value. In turn, bank lendings to purchase equity and real estate led to renewed rises in prices. When a stock market bubble bursts, banks and their customers face major difficulties, since credits were backed by real estate as collateral the value of which is shrinking. Highly leveraged investors having financed their assets with short-term loans denominated in foreign currency may be forced to sell, pushing prices down. Hence, self-enforcing mechanisms are working in all parts of the cycle. This is, of course, not to say that economic policy failures do not matter. Each bubble needs liquidity to survive for some time.

This liquidity may be provided by an expansionary credit policy (see Malaysia and the Philippines) or by the combination of capital inflows and quasi-fixed exchange rates (see Thailand and Indonesia), which allocates excess liquidity to the nontradable sector and, possibly, to investments which turn out to be nonperforming when boom phases end. In order to avoid serious consequences within the banking sector, the book value of assets which are used to back up credits should be based on historical rather than actual market prices in order to allow for some deterioration of the stock market.

Figure 11 — Stock Market Indices,^a 1989–1997

^aEnd of month index values in national currency.

Source: IFC (various issues); own calculations.

(2) More serious are the problems resulting from the *policy of directed lending*, which has not yet been ended fully. Most governments in Asia have directed bank credits to particular sectors, either directly via state-owned banks or indirectly by using rules or “moral suasion” to influence the credit allocation of private banks. Similarly, lending to enterprises which are directly related to the banks is a common practice (“family banking”). Although most countries do not allow lending to related enter-

prises, the monitoring of limits has been undermined by using fictitious names for borrowers, and the like.

In the early 1990s, bank supervision and prudential regulations with high standards (BIS standards) were introduced in the Southeast Asian countries, at least on paper. One of these regulations is the minimum capital requirement, which is intended to be an overall provision against credit defaults, to protect bank deposits. Since 1993, this rate has stood at 7 percent of total assets in Thailand. By contrast, formal deposit insurance does not exist in most Asian countries. Thailand has chosen an intermediate solution: the Financial Institutions Development Fund, managed by its central bank, collects yearly contributions of 0.1 percent of all deposits. This fund may bail out troubled institutions under certain circumstances. Other regulations stipulate the composition of assets and liabilities with respect to liquidity, maturity, and currency denomination; this is intended to reduce the solvency risk. For example, the net open position (net liabilities in foreign currencies) of Thai banks is limited to 20 percent of their own capital. Banks in Indonesia and Malaysia are subject to similar ratios. This is not to say, however, that commercial banks engaged in foreign currency borrowing and relending do not bear any risk beyond the foreign exchange rate risk, since the bank bears the risk that a domestic debtor may default after an unexpected depreciation. This is of importance in the case of Thailand, since foreign currency loans have played a very large role since 1993. Finally, the classification of bad loans and the level of provision to be kept for bad loans are subject to prudential standards. In Thailand, the standard is 100 percent of the face value of loans classified as doubtful since 1995, but was only 50 percent before. Nonperforming loans in 1995 stood as high as 8 percent of total loans in Thailand and Malaysia, and as high as 11 percent in Indonesia; only in Malaysia were provisions sufficient (Goldstein and Turner 1996).

The actual efficacy of all these standards is unknown, but it may have been weakened by political influence. For example, Bangkok Bank of Commerce collapsed in 1996, due to criminal practices of the managers. Finally, it was taken over by Industrial Finance Corp., a state-backed finance company (*FEER*, 5 June 1997). The major problem in Thailand, however, was the deregulation of nonbank financial institutions, the so-called finance companies. The largest Thai finance company, Finance One Corp., collapsed in June 1997 after plans to merge with another bank were canceled earlier this year. Fourteen finance companies were suspended (announced: for 30 days), followed by another 42 in August. In December 1997, all 56 finance companies but two were closed permanently.²¹

(3) *Competition between financial institutions* increases as a consequence of financial liberalization, the long-term benefits of which are not to be questioned. Thus, the fragility of the financial sector could increase in the short run due to several factors. The deregulation of interest rates puts pressure on the interest rate margin between lending and deposit rates, depressing profitability in the short run. At the same time, the entry of new foreign or domestic competitors may well increase pressure on banks to engage in riskier activities. Easier access to offshore markets may also allow banks to evade domestic restrictions, e.g., if offshore borrowings are not added to the net open position. As a consequence, banks recently freed from government intervention may adopt high risks which make them vulnerable to macroeconomic instability (see Chapter II).

Interest margins in Thailand and Indonesia have indeed decreased in the 1990s. This has been mainly due to the entry of foreign banks, which were liberalized in Indonesia (1988) and in Thailand (1993). Most prominently, Thailand established an offshore banking center in 1993 (Bangkok International Banking Facility (BIBF)). Banks in the BIBF were granted tax concessions and were exempted from reserve requirements and withholding tax on interest rate payments to foreign lenders. The intention was to establish a regional financial center, and to enhance the capacity of the domestic banking sector (Duriyaprapan and Supapongse 1996). When the rapidly increasing short-term indebtedness raised serious concerns about the stability of the total domestic banking sector, the Bank of Thailand reintroduced a reserve requirement on short-term foreign borrowing of BIBF banks in 1995. In consequence, credit expansion slowed down in 1996, but private nonbank borrowing in-

creased instead. The impact on the banking sector as a whole is nevertheless likely to be small, because of the highly concentrated banking system. For example, the share of the five largest banks in Thailand in total domestic bank assets is still about 60 percent (Goldstein and Turner 1996).

To sum up, the financial sectors in the ASEAN-4 countries have exhibited considerable fragility, fragility which has not been too different from the fragility exhibited by the Latin American and European cases discussed in Chapter III. Indicators of fragility are: strong external borrowing (Thailand and Chile), expansionary credit policies (Malaysia and Mexico), lending to related enterprises (all ASEAN-4 as well as Chile and the Czech Republic), and directed lending (all ASEAN-4 and Spain). The impact of liberalization on financial fragility is difficult to assess. On the one hand, the crisis started in less regulated markets (Thailand) and during the early phase of credit expansion (Malaysia and the Philippines). On the other hand, the typical problem of asset cycles could arise in any period even if high standards for the supervision of banks have been imposed. As argued above, stock market cycles as well as construction cycles are related to macroeconomic imbalances²² produced by liquidity inflows driving up prices — in the case of inflexible nominal exchange rates mainly the prices of nontradables.

To understand the recent crisis originating in Thailand it is important to know that the fragile financial system added to the vulnerability of the economy when there was a reduction of capital inflows (Dornbusch 1997). As argued in Chapter II, in the case of a high exposure to risk engendered by large external imbalances and short-term, dollar-denominated public and private debt, the actual currency crisis emerges if additional bad news leads domestic and foreign investors to form a uniform opinion about the credibility of the exchange rate system. After the crisis of the financial sector started, the central bank had two options (Figure 1): the option of increasing interest rates and allowing institutions to default or the option of devaluing the currency, which provides scope for an expansionary monetary policy, thus allowing financial institutions in trouble to be backed up.

Both options are unpleasant and could have triggered a crisis. Moreover, the Thai authorities even added to the risk, like the predecessors in Chile and Mexico. The central bank of Thailand, by organizing bailouts for financial institutions in trouble, raised expectations about a less restrictive monetary policy, while maintaining the fixed exchange rate policy. In a situation in which reserve inflows are already drying up — foreign reserves of Thailand have decreased since mid-1996 — and demand for domestic money is decreasing, such a policy raises expectations about excess liquidity. This not only invites speculation — it makes speculation rather cheap. It also increases the future need for devaluation and contraction if speculation actually occurs. Given the debt structure of the Thai economy, devaluation was likely to destroy the financial system. Hence, the worst-case scenario is exactly what happened in Thailand as well as in Chile and Mexico: a first discretionary devaluation increases debt burdens and thus feeds further devaluation. i.e., involuntary floating.

The Thai devaluation also changed the investors' risk perception of the other ASEAN-4 countries. As was also the case in Spain, this eroded the credibility of the currency pegs in neighboring countries since their competitiveness was reduced by the implicit appreciation of the domestic currency when the currencies of major competitors devalue. A different aspect are contagion effects due to similar risk positions. It implies that investors became more aware of specific risks which are responsible for the first failure of a peg. In the case of Thailand and the other ASEAN-4, the fragility of financial sectors, current account deficits, and unfavorable debt structures have been the obvious variables to be reviewed by investors.

V. Policy Conclusions

Four questions arise from our analysis of recent currency crises in Asia and our comparison of these crises with previous currency crises in other regions: first, how did the crises evolve and which leading indicators pointed to the crises; second, what could the countries have done to prevent the outbreak of these crises; third, what should be done now; and fourth, is Asia really different?

1. Crises Foretold?

The underlying causes for the rapid change in investors' sentiments about Southeast Asia in 1997 are obvious but the timing of the crisis seems to be arbitrary. True, in comparison to most other currency crises the macroeconomic fundamentals (inflation, fiscal deficit, domestic savings, GDP growth, level of foreign reserves) were consistent with the fixed or quasi-fixed exchange rate regimes, and the current account deficit seemed sustainable due to high domestic investment rates. However, the vulnerability of Thailand and other Asian countries has increased during the last decade, for several reasons:

First, the surge of capital inflows, which were mainly short-term credits, went along with a maturity mismatch. This made the banking sector vulnerable to external shocks, since credits were channeled through domestic banks.

Second, domestic credit grew at high rates, fueling a construction boom rather than investment in the traded goods sector. Monetary policy was not able to dampen the credit boom, largely because of fears that capital inflows would even increase as long as exchange rates were still fixed.

Third, the relatively fast liberalization of financial markets in the recent past has not been accompanied by the strict enforcement of prudential standards so that the share of doubtful loans in the portfolio of domestic banks has increased without adequate provisions.

Fourth, nominal exchange rates remained fixed or quasi-fixed to the US dollar even when the US currency strengthened in the recent past, thereby causing a real appreciation.

Fifth, the effects of all of the above phenomena were exacerbated by the fact that investors did not believe that Asian governments would impose painful measures (e.g., import liberalization or devaluation) on influential groups often closely related to the ministers in power. This belief proved to be correct: governments initially shied away from bitter precautionary measures.

Enthusiasm by international investors was followed by panic. The actual outbreak of the currency crisis in Thailand was triggered by economic and political news: the decline of the stock market index since early 1996; reports about insolvent banks; reports about overcapacities in the real estate sector; the slowdown of export growth in 1996, indicating a decline of competitiveness; and the first speculative attack against the baht in May 1997, accompanied by official denials that the peg would be abandoned. Both internal problems and negative news were less severe in the case of the neighboring countries, so that contagion must have played a large role. On the one hand, investors probably did not discriminate too much between the ASEAN countries (herding behavior). On the other hand, no single country could risk a loss in competitiveness by not devaluating. By contrast, a contagion channel via intraregional trade relations (Eichengreen et al. 1996) can be ruled out in the case of Southeast Asia. While intra-Asian trade, including Northeast Asian countries, has been rising (Langhammer 1997), intra-ASEAN trade flows (net of reexports) are still relatively small. Only Singapore registered a large share of intra-regional trade but this is still very much entrepôt trade and transshipment. However, the virus may have been carried to Japan, which is the major supplier of capital goods and an important creditor country.

2. What Could Have Been Done Before?

In the past, the economic fundamentals described above were among the indicators that proved to be quite successful in forecasting currency crises (for a survey, see Kaminsky et al. 1997). This is not to say, however, that a signal from these indicators inevitably leads to a currency crisis, but rather should have warned domestic policymakers to look for some way to prevent the actual outbreak of the crisis. Moreover, foreign governments or international agencies could have warned the countries before the actual crisis occurred.

One aspect of domestic reforms is the choice of an adequate exchange rate regime. Fixed exchange rates are not a problem per se if the economic policy is consistent with the exchange rate target. However, pegging to a basket of currencies rather than to a single currency could have prevented the real appreciation which was caused by the strengthening of the US dollar. Moreover, capital inflows could have been discouraged if the exchange rate target had been less tight.

A second aspect is the maturity structure of external bank borrowing. In view of the previous capital account liberalization, quantitative capital controls could not have been imposed without risking the credibility of economic policy in general. However, marginal reserve requirements on short-term deposits of foreigners could have been used even if doing so could have resulted in some disintermediation of capital flows (i.e., higher direct external borrowing by nonbanks).

A third aspect is the soundness of the whole financial sector. Prudential standards should have been enforced strictly, especially with respect to the exposure of banks to the volatility in equity and real estate markets. In view of the solid fiscal budgets, this could have been combined with some early bailouts of illiquid banks without risking follow-up cases resulting from moral hazard. Given foreign investors' confidence at the time, such a policy package could have been understood as a clear signal that reforms were in the offing.

A fourth aspect is the stop of sterilizing capital inflows, at least if instruments are used that directly affect the interest rate (i.e., open market policy) thereby attracting even more capital.

Thailand took some of these measures in mid-1996, with the notable exception of making the exchange rate more flexible, but apparently it was too little or too late. Maybe the main handicap was only the lack of credibility of the policymakers rather than the actual policy. If that were the case, the only way out would have been a new government and the implementation of anti-corruption procedures.

3. What Could Be Done After?

In the short run, the Southeast Asian countries will experience overall income losses although the export sector will surely gain from the real currency depreciation. Both internal measures and external assistance may now help these countries to overcome the immediate consequences of a currency crisis and make foreign investors feel confident that these countries will be able to return to their previous growth paths in the long run.

Internal Measures

Internal measures should comprise the enforcement of prudential supervision in the financial sector and the clearing of bad debt. In addition, measures to enhance the productivity of the domestic economy, e.g., the modernization of the education system and the import liberalization needed to accelerate structural change in the tradables sector, should be introduced immediately even if they are effective only in the long run. In contrast to these measures, the design of macroeconomic policies is open to debate. The stability record gained in the last decade is still valuable in keeping the region attractive for foreign capital and it should thus be preserved. However, the negative consequences of

the *baisse* in equity and real estate markets could be cushioned by injecting liquidity into the banking system. The incentives for moral hazard behavior of banks should be minimized by establishing privately financed deposit insurance schemes. Also, there should be transparency and credibility in the political sphere. The low reputation of policymakers may have led to a low credibility of the policy change after the currency crisis.

For example, the finance minister in Thailand was replaced several times; at end-October the then acting minister resigned after four months in office, because he “lacked the power to implement the tough reforms needed to solve Thailand’s economic and financial crisis” (*Financial Times*, 20 October). Before, he had launched a “rescue package” for financial institutions which lifted the limit for foreign shares in commercial banks in order to give the finance companies still in operation a much stronger basis (Bank of Thailand 1997b). In addition, a newly founded public “asset management corporation” is empowered to buy bad assets of closed finance companies, whereas good assets are auctioned off. Before the IMF put a halt to this practice, the government had lent about 430 billion baht (about 10 billion US dollars or close to 10 percent of GDP) as long-term credits to the debt-ridden finance companies through its Financial Institutions Development Fund (*Financial Times*, 13 October). This measure works perhaps too expansionary, but in any case it should have been launched much earlier, i.e., before exchange rate pressures increased.

External Assistance

The justification for external assistance is less clear, but the currency crises in External Assistance may lead to a new discussion about international *ex ante safeguards*. Basically, one can think of three measures to prevent crises: first, prudential standards could be negotiated and supervised by international institutions to support developing countries in their efforts to build up a sound financial sector; second, the liberalization of trade in financial services and international capital transactions could be negotiated and supervised by international institutions to stabilize investors’ sentiments; third, public early warning systems could be established internationally to mitigate boom-bust cycles of overborrowing. The first measure has recently made progress thanks to the report of a joint working party on financial stability in emerging markets (Group of Ten 1997). The second measure is part of the ongoing negotiations within the WTO.

The third measure, early warning systems, is hotly debated. Both the IMF and private rating agencies publish reports about their judgment of the overall investment risk or creditor risk of most countries in the world.

- The IMF has a surveillance system, based on periodic country missions and permanent data dissemination. This has been criticized, since public statements have been too optimistic in many cases, but the IMF claims that the warnings given to officials were always timely (Dornbusch 1997). If this is the case, the IMF is well aware of the general problem with early warnings. By making risk perceptions more homogenous, they can easily trigger a self-fulfilling attack which could have been avoided. This may sound like a dilemma of the IMF, but this is a game that benefits both the IMF and investors: Because the IMF cannot publish confidential information, investors can blame the IMF for misguiding markets and ask for a bailout; and the IMF is ready to grant a bailout by asking the members for more funds. Hence, the dilemma is on the part of taxpayers. As long as a lender of last resort exists — like central banks in national economies — bailouts will be expected and granted: witness the debt crisis in the 1980s and the currency crises in the 1990s. The consequence is that default becomes cheaper.
- Unlike the IMF, private rating agencies do not claim to have superior knowledge, and empirical studies show that their rating depends more or less on the same risk indicators as discussed above. They have been criticized, since the ratings seem to lag behind the market because they are adjusted downward only when the market has already reacted to obvious changes (see Larrain et al.

1997 for a discussion). Both for Latin America and for most of the Asian economies, the country rating has been adjusted downward only after the outbreak of an exchange rate crisis; the exception is Thailand where rates were lowered already in early 1996, when first signs of problems showed up.

Ex post, the only question is whether *public funds* should be used to cover the short-run liquidity gap (and thereby bail out foreign creditors) or whether private creditors should also bear part of the burden, as was the case in the debt crisis of the early 1980s. Three arguments are brought forward in favor of IMF assistance (Boughton 1997): *first*, currency crises result from a market failure, i.e., the overshooting of private investment; *second*, credibility can only be restored by quick policy adjustment, and this is to be achieved via conditionality imposed by an institution with a high standing and transparency in negotiations; *third*, the IMF knows better than banks or governments what to do. The third point is debatable, and the second point does not call for financial assistance from multilateral institutions, but only for their expertise and authority in negotiations. But of course, conditionality may be justified if the position of the IMF as an emergency financing agency is already accepted (Vaubel 1991). Hence, it is only the first point that remains as a basic argument for IMF lending.

The IMF was called in by Thailand shortly after the exchange rate system had been given up, and by Indonesia rather late in mid-October. In both cases, the IMF made use of the accelerated procedure established under the Emergency Financing Mechanism which was adopted in 1995 in response to the "tequila crises" (IMF 1997c; 1997d). A final agreement providing for sizable standby credits to be granted by the IMF (4 billion US dollars for Thailand, 10 billion US dollars for Indonesia; both 500 percent of the respective IMF quota) was reached within 4 weeks. This was accompanied by the establishment of bilateral loan facilities from other multilateral banks and single countries (especially Japan, but also Singapore and other Asian countries, in the case of Indonesia even the United States with its exchange stabilization fund). In the case of the Philippines, the IMF augmented the EFF credit, which was to expire at the end of July 1997, to a total of 1.1 billion US dollars (IMF 1997e), whereas Malaysia has not called for IMF assistance yet. However, the volume of the total financing arrangements (17 billion US dollars for Thailand versus 23 billion US dollars for Indonesia) must be put into relation to the short-run financing needs of the respective countries: the current account deficit in Thailand is about double that of Indonesia, and Thailand's short-term debt is a bit higher than that of Indonesia, whereas Malaysia and the Philippines are better off in both respects. Probably, the reason for the greater international aid to Indonesia was the fear that otherwise the currency crisis would last too long, since it already had lasted four months at that time, and could even spread to other countries.

With respect to conditionality, the focus of the IMF in Thailand and Indonesia was on financial sector reform. In addition, structural policies to enhance competitiveness, e.g., privatization and reduction of trade barriers, were part of the negotiations. It was also agreed upon that fiscal policies should remain tight, mainly by increasing indirect taxes, and that monetary policies should aim at keeping the inflation rate at the old level. It is the latter part of the IMF package which may easily cause high adjustment costs. Tight fiscal and monetary policies could lead to an overkill in countries which could easily afford some real appreciation after a massive depreciation (see Sachs in *Financial Times*, 11 December 1997).

External assistance may also come from the Asian region. Recently, Asian governments have discussed the establishment of a regional emergency financing arrangement (*Singapore Business Times*, 9 December 1997). The motives behind this arrangement are probably twofold: first, the resources actually disbursed by the IMF were not regarded as large enough to bail out the Asian countries that were suffering from a currency crisis; second, sentiments against the influence of non-Asian industrial countries have been fueled by some Asian leaders, especially with respect to capital markets. However, the present state of this discussion is unclear: some Asian politicians seem to favor a new institution ("Asian fund"), but this met the resistance of the United States and Japan to any formal institution to which they are expected to contribute sizable amounts of money. By contrast, the so-called

Manila framework, which was endorsed by APEC leaders at their 1997 summit in Vancouver, favors a regional surveillance forum and a mere financing facility supplementary to the IMF. The recent meeting in Kuala Lumpur of finance ministers from ASEAN countries, Hong Kong, China, and Australia failed to resolve this conflict.

4. Is Asia Different?

The main implication of the Asian currency crises is that Asia is not very different from other regions when it comes to macroeconomic stability. To the relief of professional economists, each country has its own story but the principles of macroeconomics still apply — even in Asia. With a good deal of simplification, one could conclude that Asia could have learned from Latin America and Europe: real appreciation and current account deficits expose countries with fixed or quasi-fixed exchange rates and with fragile capital markets to the risk of a reversal of capital inflows; vulnerability leads to a crisis if bad news arrives, helping investors to form a uniform opinion; bailouts exacerbate the crisis if the exchange rate is already under pressure.

Similarly, the lessons from Latin America and Europe seem to be relevant for Asia as well: extreme solutions for the exchange rate regime like currency boards (Argentina since 1991) and a passive crawling peg with wide bands (Chile in the 1990s) work best, and the sustainability of fixed exchange rates depends on deregulated and prudently monitored goods and factor markets (Schweickert 1988b; Diehl and Schweickert 1997). These lessons point to more general problems of the Asian development model. Built on discretionary government interventions throughout the early stages of development (Rodrik 1995), the coordination of plans faces tighter limits as complex economic structures develop in the countries. Globalization of goods and factor markets can make economic plans obsolete within a short time. The fact that the currency crisis spread to the Korean economy (see Box 2) and the problems in reforming Japanese capital market system (Pascha 1997) provide cases in point.

Box 2: A Postscript on South Korea

In mid-November, South Korea decided to give up its previous managed floating exchange rate regime. At first glance, the economic problems are not as severe as in Thailand: the real exchange rate has not appreciated in the recent past, since the nominal exchange rate has been allowed to depreciate gradually against the US dollar since early 1996; credit expansion was only moderate throughout the 1990s; external indebtedness seemed to be moderate, and the exposure of the domestic banking sector to foreign debt was small. However, the current account worsened significantly in 1996; the deficit increased to about 5 percent of GDP because of a surge of imports after the liberalization of current and capital account transactions in advance of South Korea's accession to the OECD. Moreover, the stock market index declined through 1996 and stabilized only temporarily in 1997. This has put domestic banks under pressure and revealed their structural weaknesses, caused by directed lending policies of the past. Finally, reports about several large conglomerates facing insolvency triggered the crisis. The announcement of a "financial market stabilization package" (News Brief of the new finance minister, Chang Juel Lim, dated 19 November 1997) could not restore investors' confidence.

The IMF approved a standby credit of about 21 billion US dollars (or almost 2,000 percent of its IMF quota) in December 1997. Together with loan facilities from multilateral banks and countries, this amounted to a total emergency financing package of about 57 billion US dollars, more than in the 1994 crisis in Mexico. However, this is only about half of South Korea's short-term external debt, which previously had been estimated to be much lower than the official figures published in late 1997. Conditionality focused on structural reforms of the financial sector and further capital account liberalization, together with tight fiscal and monetary policies.

Endnotes

- 1 This analysis focuses exclusively on these four countries because the Korean crisis has developed only recently and Korea does not belong to the group of emerging market economies any longer. See Box 2 for a short postscript.
- 2 In 1995, export growth was extraordinary high, mainly due to a weak US dollar.
- 3 For a review of empirical evidence on the impact of exchange rate systems on economic performance, see Frenkel (1998).
- 4 For a discussion of alternative definitions and concepts for measuring the real exchange rate, see Edwards (1988).
- 5 For the underlying model, see Schweickert (1993a; 1993b)
- 6 As pointed out in recent theoretical contributions, e.g., by Goldfajn and Valdés (1997), the crisis may also start in the banking sector.
- 7 Less promising cases which failed as expected are not discussed here. For a discussion of such cases see, e.g., Schweickert (1994a) and Schweickert et al. (1992). For a discussion of the successful Argentine attempt to hold the exchange rate fixed implementing a Currency Board, see Schweickert (1994b; 1996c)
- 8 External shocks, e.g., increases of US interest rates and deteriorating terms-of-trade, were insignificant during 1979–81 when imbalance built up (Corbo and de Melo 1987: 134).
- 9 The devaluation rates are given in old pesos. As of January 1993, the peso was trimmed by three zeroes, one peso being worth 1.000 of the old pesos.
- 10 Interestingly, these are the policy areas not constrained by EU agreements. For the role of the EU as credibility enhancing institutional reform, see Piazzolo (1997).
- 11 These shares have been abandoned only in 1992.
- 12 The obligations of Article VIII of the IMF's Articles of Agreement were accepted by Malaysia in 1968, by Indonesia (1988) and Thailand (1990) in the late 1980s and only recently by the Philippines (1995). In general, black market exchange rates as reported by the World Currency Yearbook followed closely the official exchange rates (Cowitt 1996).
- 13 According to BSP governor Singson, cited in *Singapore Business Times*, 6 October 1997.
- 14 Bénassy-Quéré estimated in differences with three lags, and used monthly average exchange rates in four subperiods of 1974-1995. Frankel and Wei estimated in differences without lags, and used weekly exchange rates in two-year subperiods of 1979-1992; moreover, they used the Swiss franc as numeraire.
- 15 It should be noted that the degree of real appreciation (prices for nontradables increasing relative to prices for tradables) could be understated by the conventional real exchange rate index, based on aggregate consumer prices. This is due to nontradables prices not fully represented in the CPI or due to potentially different developments of domestic and world market indices for tradables (e.g. terms-of-trade effects). However, the real exchange rate as measured by relative value added deflators of services versus other sectors (reflecting the ratio of nontradables prices to tradables prices) also indicated only a mild real appreciation.
- 16 In the second quarter of 1997, the exchange rate of the yen against the US dollar stood about 15 percent below its value at end-1995.
- 17 See also Corbo and Hernández (1996) for evidence on the influence of restrictive fiscal policy in curbing the real exchange rate effect of capital inflows.
- 18 In 1996, the current account deficit of Malaysia decreased significantly to about 5 percent of GDP.
- 19 However, the high deficit in the balance of trade in goods and services of the Philippines is financed to a large extent by the inflow of workers' remittances, accounting for about 5 percent of GDP.
- 20 The ratio of domestic credit to GDP in industrialized countries differs between banking-based and capital-market-based systems. E.g., the 1996 ratios for Germany and the US were at 137 percent and 79 percent, respectively (IMF 1997a).
- 21 In other countries, the failures of financial institutions were located in the traditional banking sector (Indonesia: Bank Duta, Bank Summa in the early 1990s; The Philippines: Monte de Piedad in 1996, recovered in 1997).

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