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# Experiences with current account deficits in Southeast Asia

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## Introduction and stylised facts

This paper discusses experiences with current account deficits in Southeast Asia[2] from 1990 to around 1996, ending with the breakout of the Asian crisis in 1997–1998. Current account deficits peaked at around 10% of GDP in Malaysia in 1995, and at 8% of GDP in Thailand in 1996 (compared to 7% in Mexico around the time of the peso crisis in 1994), and at around 4% of GDP were also large in the Philippines and Indonesia (see Graph 1 left column). During the crisis years of 1997-1998, deficits turned into surpluses which persisted for years (in the Philippines this occurred much later). Surpluses have risen in Malaysia since its crisis (to around 15% of GDP), but have broadly declined in Thailand (turning to a small deficit) and Indonesia. The reversals in current accounts to surpluses were associated with a sudden "stop" in capital inflows, which in the first half of the 1990s had significantly exceeded current account deficits, but which have never recovered to their previous levels (Table 1). The reversal was largest in Thailand, where net capital flows switched from an annual average inflow of $21 billion in 1995–1996 to an outflow of $13 billion in 1997-1998 (a reversal of $34 billion). The corresponding swing from inflow to outflow in Indonesia was $11 billion to $5 billion. The reversals were less severe in Malaysia and the Philippines ($9 billion to 0 and $8 billion to $3 billion respectively). By way of comparison, although it had a current account surplus of around 15% of GDP, there was also an increase in the capital outflows in Singapore over this period of $11 billion.

As is by now well known, while the period of current account deficits was associated with very rapid rates of economic growth, the sudden stop episode was associated with sharp contractions in output in a number of countries that are unprecedented in Asia over the sample period. The 1998 drop in output was largest in Indonesia and Thailand, although the swing in output in Malaysia was second only to Indonesia. In the Philippines the drop in output was comparatively modest. As a reference, the drop in output was more severe in Singapore, in part reflecting its economic links to its neighbours with sharply declining outputs, such as Indonesia. (Appendix Table A1). The declines in output were followed by relatively quick recoveries but permanently lower growth. Partly for this reason, understanding the factors that influenced current account behaviour and may have had a bearing on its sharp reversal is of considerable interest.

This paper will argue that the drive for economic growth contributed to current account deficits and influenced policy responses. It is organised as follows. First, we describe current account developments in Southeast Asian economies from the saving-investment and the trade perspectives. Second, we focus on the experience with current account deficits in the period leading up to the sudden current account reversals in 1997–1998. We ask what can be learned about arguments made at the time (and that are occasionally still made today) that suggested that current account deficits were sustainable. We also discuss fiscal and monetary policy responses with open capital accounts. Third we discuss the use of capital controls prior to the crisis and the impact they may have had on current account balances or sustainability. The final section offers some concluding observations on current account experiences in Southeast Asia.

## Current accounts in Southeast Asia: stylised facts

To gain some perspective on current accounts in Southeast Asia Graph 1 (left column) illustrates the evolution of national saving and investment and the current account in Southeast Asian economies. The following points may be highlighted.

First, until the Asian crisis saving ratios were high in Malaysia (rising from 30% in 1990 to nearly 40% in 1998) and Thailand (averaging around 35% of GDP in 1991–1994) and for a time in Indonesia (as high as 30% in the early 1990s), but less so in the Philippines (around 20% in the mid-1990s). Saving rates have fallen significantly in all regions since the late 1990s. Thus the period of current account deficits was associated with higher saving rates than the more recent period in which current accounts have been in surplus.

Second, fluctuations in the current account tend to reflect movements in investment rather than saving. Thus, the switch in current accounts from large deficits to large surpluses around 1998 largely reflects first surging investment and then its collapse below national saving in most countries in our sample. In particular, the emergence of current account surpluses in 1998 was associated with relatively stable or falling saving ratios in Southeast Asia. On an annual basis, deviations in investment from trend are also more closely correlated with fluctuations in the current account than are deviations in saving (Table 2). The drivers of investment spending in Southeast Asia, and its perceived sustainability and efficiency, are thus of particular interest in attempting to understand fluctuations in the

[2] We draw on the experiences of the four countries in Southeast Asia where current account sustainability was an issue in the first half of the 1990s, ie Indonesia, Malaysia, Philippines and Thailand. Data for Singapore, which has consistently maintained large surpluses during this period, are shown as a reference.

current account. Some views on this are discussed below. To provide perspective, a comparison of these stylised facts with Singapore's reveals striking contrasts. Singapore maintained large and growing current account surpluses in this period, and it is saving rather than investment that is more closely correlated with the current account. Indeed, although output growth reached double digits in the first half of the 1990s (Appendix Table A1), investment spending was stable and national saving increased.

Graph 1 (right column) illustrates trends from the perspective of merchandise imports and exports in US dollars. In Indonesia and Malaysia, merchandise trade was in surplus or nearly balanced; deficits were on other components of the current account. As can be seen, both merchandise export and import revenues grew rapidly during the period of current account deficits in the first half of the 1990s, with import growth outpacing export growth over certain periods in the first half of the 1990s in most countries[3]. The large increase in trade surpluses after 1997 has in a number of cases reflected a sharp drop in imports and then failing to keep pace with export growth afterwards. This is broadly in line with the view that imports were closely related to investment spending which have also declined sharply (see below).

The conventional wisdom is that Asian current account surpluses observed in recent years reflect rapid growth in exports; what might be described as Bretton Woods II[4]. However, while export growth has remained a key driver of growth in Southeast Asia, and contributed to recovery from the 1997-1998 crisis, export revenues grew more rapidly on a sustained basis during the period of current account deficits (and more stable exchange rates) until about 1996 than they did later. The reversals of current account deficits to large surpluses around 1998 did not reflect strong or booming exports. On the contrary, in spite of steep currency depreciations, export revenues in US dollars contracted in 1998 in all countries in our sample but the Philippines but imports fell by more. Outside the crisis period, between 1990-1995 and 1999-2005 average annual merchandise export revenue growth in US dollars fell in Indonesia (from nearly 13% to 9%), Malaysia (20% to 10%) the Philippines (15% to 5%) and Thailand (19% to 11%).

Apart from merchandise exports and imports, other components of the current account have been relevant. For example, in Thailand, the service account is a large contributor to current account surpluses (accounting for about 1/3 of dollar inflows on exports, services income and transfers in the 1990s, and somewhat less than ¼ in the 2000s), due to the significance of

[3] By way of comparison, the trend in Singapore is not all that different except that exports begin to visibly exceed imports starting in 1995.

[4] See Dooley, Folkerts-Landau, and Garber (2004).

tourism. In the Philippines overseas workers remittances have been particularly large and play a major role in turning the current account consistently to surplus. In 2005 remittances totalled $10.7 billion, corresponding to about half the sum of services income and transfers in the current account (by way of comparison merchandise exports totalled $40 billion). Services income and transfers are the reason why the Philippines current account has turned into surplus in recent years (Graph 1, right column). In contrast, in Malaysia trade surpluses have been offset by significant deficits on the non merchandise trade components of the current account.

**The importance the exchange rate in the current account**

One question of interest is the importance of the exchange rate in influencing the behaviour of the current account in Southeast Asia. A study of determinants of the current account by Calderon, Chong and Loayza, 2002 covering a panel data set of developing countries (44 developing countries with annual data for 1966–1994) provides some perspective. They find that current account deficits are modestly persistent and rise with a real exchange rate appreciation. They also rise with a rise in domestic output growth and an increase in the terms of trade, but fall with faster growth in industrialized economies or higher interest rates.

Some further insights can be gained from a study on the current account of Thailand by economists at the Bank of Thailand (Chai-anant and Jantarangs, 2004). They first estimate a single equation model of Thailand's current account with the lagged current account, the real effective exchange rate, trading partner output, domestic output, the terms of trade and a crisis dummy. They find that the impact of the real effective exchange rate is small; a 1% increase in the real exchange rate lowers their current account proxy (the export to import ratio) by a quarter of a percent. The impact of a 1% change in trading partner output on the current account is much larger at nearly 2/3 of a percent. The impact of own output is smaller than foreign output, but still significant and higher than the effect of the real exchange rate.

A vector autoregression (VAR) model (comprising the current account, the real exchange rate, the repurchase rate and the production index) reinforces the impression of a weak impact of the exchange rate on the current account in Thailand. Impulse responses indicate that an unexpected (one standard deviation) depreciation in the baht has a large impact effect on the current account of (0.2 percent of GDP)[5]; however, the impact subsides

[5] Using the Bank of Thailand's larger macroeconomic model, Chai-anant and Jantarangs (2004) find a much larger response of the current account to a real exchange rate depreciation than they do in their own model. However the effect also dissipates over time.

thereafter. Introducing exports and imports separately in the model reveals that the real exchange rate has a weak effect on these two variables. In line with this, much of the variance of the forecast error of the current account is due to its own innovations, particularly in the first year. After 20 quarters own innovations still account for about half of the variance of the forecast error. (In their single equation model, the coefficient on the lagged current account is about 0.6.)

The conclusion that exchange rate effects on the current account are weak can be generalised to the rest of Southeast Asia if it is assumed that trade structures are similar, which in the case of trade in manufactures is plausible. More direct evidence on the strength of exchange rate effects in Southeast Asia is provided by estimates of long-run trade elasticities from a study by Bayoumi (1996), which are summarised in Table 3. These suggest that changes in growth (particularly foreign) have a substantial impact on trade balances. Long-run income elasticities in the 5 Southeast Asian countries (including Singapore) average 1.8 for exports and nearly 1.4 for imports, with the income elasticities in Thailand being higher than among its neighbours. Bayoumi also directly measures the effect of changes in the real exchange rate on exports and imports, and finds that most of the coefficients are small and statistically insignificant; the exception is Indonesian imports[6]. The perception that price effects are low and income effects are high in Southeast Asia was not limited to Bayoumi, estimates by Goldman Sachs' (1997) Economic Research Group reached the same conclusion.

The finding that price effects are weak in Southeast Asian trade is contradicted by Marquez (2002). Marquez's income elasticity estimates for exports are similar to Bayoumi's for Indonesia and Malaysia, are lower for the Philippines, and insignificant for Thailand. The latter result is surprising as one of Thailand's traditional export destinations has been the United States, where income elasticities of imports are estimated to be quite high [the US accounted for nearly 18% of Thailand's exports in 1995, and 22% in 1999[7]. As for imports in Southeast Asia, Marquez's estimates, with the exception of Indonesia, are larger than Bayoumi's. In contrast, price elasticities are generally significant in Marquez's estimates, and he uses trade prices rather than the real exchange rate to compute these elasticities.

[6] However, Marquez's estimates of the price elasticity of Thailand's exports, at 6.9 appears to be high. They are much higher than Bank of Thailand's own estimates reported in the annex to its inflation reports.

[7] Marquez argues that income elasticities of imports in the US are implausibly high as they imply that imports will eventually exceed GDP in the US. He searches for omitted variables (such as immigration) to produce plausible estimates but finds no "silver bullet" to address this issue.

Some features of trade in Southeast Asia suggest why exchange rate effects on the current account might indeed be weak.

*First*, *the high import content of exports*. High import content is generally associated with manufactured exports in Southeast Asia. For example, in 1995, according to input-output tables, the import content of exports in Thailand ranged from 44% for computer and parts to 65% for electrical appliances and integrated circuits. In this setting, a depreciation of the currency that boosts exports could simultaneously be associated with an increase in imported inputs. This is also related to the high share of machinery or production inputs in imports and the presence of regional production networks cited next. Indeed, while further research is needed to assess the robustness of this result and its applicability to other countries, Chai-anant and Jantarangs (2004, pp 30-31) note that in one version of their VAR model separating Thai exports and imports, both increase in response to a depreciation of the baht. A high correlation between merchandise exports and imports, particularly in the first half of the 1990s, is apparent in Graph 1 (column 2) in Indonesia, Malaysia and Thailand (and also in Singapore).

*Second, global or regional production networks*: East Asian economies have been linked by production networks (eg see Ando and Kimura, 2003). Imports and exports in a specific location are determined by these networks, dampening the impact of exchange rate fluctuations. In line with this, a sectoral analysis by Chai-anant and Jantarangs indicates that real exchange rate changes have a relatively small effect on trade in manufacturing in Thailand, while they have a significant effect on trade in agricultural products. They argue that in the case of Thailand's integrated circuit industry, the volume of imports is primarily determined by parent company headquarters, rather than changes in the exchange rate.

*Third, price insensitive non-merchandise trade* components: The impact of the real exchange rate on the current account may be weakened further because of small effects on the non-merchandise trade components of the current account, which as noted above, can be significant. For example, Chai-anant and Jantarangs report that real exchange rate fluctuations have little effect on the services account in Thailand. For another example, overseas worker remittances in the Philippines may also be insensitive to exchange rate fluctuations. Vargas-Silva and Huang (2006) find that remittances are more influenced by host rather than home country conditions; in particular exchange rates against the dollar in a set of emerging market recipients do not help explain remittances.

One relevant aspect of the relationship between the exchange rate and the current account in Southeast Asia is that apart from having price effects, the exchange rate had offsetting income effects on the current account through its impact on capital flows. In particular, an

exchange rate depreciation (or efforts to stem appreciation) could worsen the current account balance by increasing capital inflows and consequently domestic investment spending. Greene (2002) finds that inflows prior to the crisis supported domestic investment spending. A specific way in which pegging influenced capital flows in Southeast Asia is by exposing these countries to fluctuations in the yen against the US dollar. Research suggests that during periods of yen appreciation Southeast Asian economies became more attractive destinations for Japanese FDI inflows; at the same time imports in these economies increased (Goldberg and Klein, 1998).

**Why were pre-crisis current account deficits not sustainable?**

We turn now to the period up to the Asian crisis of 1997-1998, when large current account deficits were observed up to about 1997 and then reversed sharply. The cycle in current accounts appears to reflect abrupt changes in the availability of capital flows. On the external side, starting in the late 1980s, falling US interest rates and recessions in industrial countries stimulated capital flows to Southeast Asia and other emerging market regions by investors seeking higher returns. As discussed below, exchange rate policies also helped attract capital. On the domestic side, capital flows were also supported by favourable domestic macroeconomic conditions, such as sound fiscal policies (see below), rapid growth in output and exports, and relatively stable inflation that was not excessive by the standards of emerging markets. (Appendix Table A1). All these factors had a positive influence on market sentiment and capital flows[8].

Large current account deficits did raise concerns, but a number of arguments were presented to dispel them. Some of these are of interest because they are still brought up today:

*First*, current account deficits reflected an excess of investment over (high) saving rates, as opposed to high consumption (Graph 1). This was in contrast to Mexico, where external deficits were associated with high rates of consumption prior to the 1994 peso crisis and other cases where current account deficits reflected public deficits. It was widely believed at the time that the association with high investment rates implied the current account deficits were sustainable. An analysis by Ostry (1997), using an intertemporal approach, found no evidence of excessive private consumption in current account deficits, except to a small

[8] A retrospective study of crises in the 1990s and the IMF's role, Ghosh et al (2002) emphasise the importance of shifts in market sentiment in influencing external balance, in contrast to traditional IMF programs in which macroeconomic imbalances resulted in a gradual deterioration on the external side.

degree in Indonesia and Malaysia. An absence of excess consumption would suggest that fast-growing Asian economies were not necessarily experiencing the temporary and unsustainable spending booms that had been observed in Latin American stabilisation programmes that lacked policy credibility. (See Calvo and Vegh, 1999.)

In line with this, a private sector report at the time refers to the "value-adding" nature of Thailand's current account deficit as supportive of the external valuation of the baht (Union Bank of Switzerland, 1995a). Drawing on Singapore's own experience, a pre-Asian crisis study by the Monetary Authority of Singapore (1997) of current account deficits in Southeast Asia noted that the high investment rates in Southeast Asia were largely attributable to the private sector, with the shares of the private sector in investment at 76% in Indonesia, 66% in Malaysia and 81% in Thailand. Such investments had high import content (resulting in higher import to GDP ratios and current account deficits), and estimates indicated they were highly productive[9]. One indicator that imports were used for investment is the high share of machinery in imports. Ando and Kimura (2003, Table 1) estimate that in 1996 the shares of machinery imports were 42% in Indonesia, 63% in Malaysia, 54% in the Philippines and 50% in Thailand[10]. By way of comparison, the share was 63% in Singapore.

*Second*, in some cases, current account deficits were financed by foreign direct investment or longer-term borrowing[11]. A study by Sachs, Tornell and Velasco (1996) on the lessons from Mexico suggests that this type of financing reduced vulnerability to crises, a result broadly in line with Frankel and Rose (1996). More recently, Levchenko and Mauro (2006) conclude that FDI helps protect countries from sudden stops in capital flows.

This argument was also used to highlight differences between Southeast Asia and Mexico in the aftermath of the 1994 collapse of the Mexican peso[12]. In 1991-1997, FDI inflows averaged about 120% of current account deficits in Malaysia, 70% in Indonesia, 50% in the Philippines and 30% in Thailand. Monetary Authority of Singapore (1997) noted that a high

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[9] For example, US multinational investments in 3 Southeast Asian economies were estimated to have yielded higher rates of return (in US$) than they did in the European Community, Japan or the newly-industrialised economies (Korea, Hong Kong, Singapore and Taiwan). Monetary Authority of Singapore (1997) also argued that such imports would eventually increase exports. The perspective of the Monetary Authority of Singapore (1997) is of interest because it highlights some of the rationale for policies followed by Southeast Asian economies. A fuller exposition (and defense) of the Asian approach to development is provided by Stiglitz, 1997. Corsetti, Pesenti and Roubini (1999) offer a more critical view.

[10] The shares have since fallen in Indonesia and Thailand, remained stable in the Philippines, and risen in Malaysia. Monetary Authority of Singapore (1997, Table 4) confirms the high share of imports used in production. Between 1975-1977 and 1990-94 the shares of intermediate and capital goods in total imports were estimated to have risen sharply in Malaysia, Thailand, and in Indonesia.

[11] Banque Paribas (1995).

[12] For example, see Sopiee (1995).

share of FDI financing was one factor that helped make sustainable Singapore's own large current account deficits, which persisted from 1972 to 1984. FDI accounted for 83% of Singapore's current account deficits in that period. It was argued that such financing suggested that these current account deficits were efficient market outcomes, reflecting the flow of international capital to countries with the highest returns.

*Third*, *indicators of external debt sustainability appeared to be favourable*. The ratios to exports of external debt and debt service payments were generally low or appeared to be manageable. Until 1995, export growth in a number of countries appeared to be more than adequate to cover existing current account deficits so that the debt to export ratios would converge to a level that could be serviced (not exceeding two).[13] Ratings upgrades in 1995 typically cited rapid growth, as well as growth-boosting structural reforms (eg the Moody's upgrades for Malaysia or the Philippines). The perception that Asian economies would service their debts in spite of large current account deficits was reinforced by a demonstrated willingness to pay, a factor cited by Standard and Poor's when upgrading Philippine debt in 1995[14].

**Shocks and vulnerabilities**

In this setting, a number of shocks starting in 1995 led to a progressive deterioration in market sentiment and uncovered vulnerabilities that led to currency collapse and massive capital flow reversal in the region. Three shocks were prominent in press or analyst commentary:

*The Mexican peso crisis*: The collapse of the Mexican peso in December 1994 led to market volatility and a debate on the extent to which Southeast Asian economies might (or might not) be as vulnerable as Mexico, which also had large current account deficits prior to the collapse of its currency. For example, an analysis by a US investment advisor[15] suggested that four out of seven countries whose currencies were most vulnerable to devaluation after the Mexican peso collapse were in Southeast Asia (Indonesia, Philippines, Malaysia and

[13] Dadush and Brahmbhatt (1995).

[14] For a discussion of how the Philippines was perceived, see Shale, 1995.

[15] A *Fortune* article by Smith (1995) triggered rebuttals from Malaysian commentators. The three other countries listed as vulnerable were in Latin America (Brazil, Argentina and Chile)

Thailand). While sentiment stabilized after a period of market volatility[16], in some cases there were lasting effects on interest rates, discussed further below.

*Slowdown in exports and terms of trade drop*: In 1996, export growth in Southeast Asian economies declined sharply. Thailand was most severely affected; after growing nearly 25% in 1995 export revenues in dollars fell 1.3% in 1996. This in part reflected a significant terms of trade drop (Appendix Table A1). Export growth also fell sharply in Malaysia (26% to 5.8%) and the Philippines (32% to 17%) and more moderately in Indonesia (13.4% to 9.7%). Among the reasons cited for this slowdown are (1) a significant decline in manufacturing export prices, notably semiconductors and other electronics products; (2) an appreciation of the dollar against the yen, which caused Southeast Asian effective exchange rates to appreciate (see below). In Thailand, the slowdown in economic activity was associated with a significant shift in market sentiment starting in early 1996, as reflected in declines in stock prices that were not observed in other countries until later. Property markets were also adversely affected, severely impairing the financial position of certain financial institutions. Press reports suggest that news of the drop in export growth in 1996 raised significant concerns about the sustainability of exchange rates and current account deficits[17].

*Speculative pressures and the collapse of the baht*: The shocks cited above triggered sporadic episodes of speculative pressure, particularly against the Thai baht from 1995 onward. The eventual collapse of the baht in July 1997 triggered depreciations in the exchange rates of Indonesia, the Philippines and Malaysia. Current account deficits switched sharply into surplus at around this time, reflecting the sudden withdrawal of external financing.

In retrospect, the fact that current account deficits reflected high investment rather than consumption, and the large share of FDI in financing did not prevent a sudden stop and costly current account reversal. This suggests that either the underlying strengths of Southeast Asian economies were overstated, or other factors outweighed them. Both elements appear to have played a role.

*First*, notwithstanding the positive factors identified clearly in Monetary Authority Of Singapore (1997), or by Stiglitz (1995) rapid capital accumulation still resulted in *overinvestment and less efficient use of resources* in Southeast Asia up to about 1997. While acknowledging the high marginal efficiency of investment in East Asia, Corsetti, Pesenti and

[16] For alternative views on who was vulnerable and who was not see Union Bank of Switzerland, 1995a. Sachs, Tornell and Velasco (1996) and The Economist (1995).

[17] See Baker (1996).

Roubini (1999) find that incremental capital output ratios rose in Asian economies prior to the crisis, suggesting a deterioration in efficiency. Indeed, even before the crisis, then Bank Indonesia Governor Soedradjad expressed concern about economic inefficiency, as reflected in high incremental capital output ratios (*Jakarta Post*, 1996.) In the case of Thailand, Bank of Thailand economists estimate that there were declines in the first half of the 1990s in marginal productivity of capital and in total factor productivity growth, low returns on assets, and falling capacity utilisation. (Roong et al, 2003, pp. 17-19 and 23-24)[18].

*Second*, and partly related to the above there were *signs of rapid growth in risky lending*.[19] Domestic credit to the private sector picked up sharply in the first half of the 1990s, triggering booms in equity and property markets. As can be seen in Graph 2 the ratio of credit to GDP rose from around 70% in 1990 to over 150% in both Malaysia and Thailand. Over the same period it also rose to 50% in both Indonesia and the Philippines, although more sharply in the latter. Such increases were partly the result of desirable financial deepening. However, looking more closely at the asset quality of banks suggested that a significant proportion of the lending posed significant risks. For example, in the case of Thailand, in early 1995, Moody's expressed concern that credit continued to grow rapidly in spite of signs of overdevelopment, including the existence of more than 350 golf courses, and high vacancy rates in properties (nearly 20%)[20]. Nevertheless, Moody's said it was not considering downgrading credit ratings of Thai banks, because most of the large ones met Basel I capital adequacy requirements and had created reserves equal to the size of their doubtful loans. Financial sector weaknesses were also recognized in other countries in the region. For example, at a press conference in November 1996, then Bank Indonesia Governor Soedradjad Dijwandono expressed concern at the growing concentration of bank credit to the property sector (over 18% of total credit), which had increased 26% from January to September 1996. In 1996, a study by the Bangko Sentral ng Pilipinas found that property prices in three business districts in Manila had risen between 150 and 230 percent since 1994; the central bank Governor indicated that limits on credit to the property sector were being considered as a result (see Asia Pulse 1996b and Marozzi, 1996). In the case of Malaysia, the central bank set a maximum loan-to-value ratio of 60% on loans to the real estate sector. It also sought to limit (by raising reserve requirements) rapid credit growth for

[18] See Sarel, 1997 for graphs illustrating declines in marginal product of capital in Southeast Asian countries between 1990 and 1996.

[19] For a discussion of varying sets of macroeconomic and financial indicators and what they implied for Asian economies see Milesi Ferretti and Razin (1996) and Glick (1999)

[20] See Montagnon (1995). A rapid increase in commercial bank lending to the private sector in the years before the 1994 peso crisis is one of the key vulnerabilities highlighted by Sachs, Tornell and Velasco (1995).

consumption, which was seen as unproductive. There also was awareness that capital flows were directly associated with domestic liquidity creation leading to efforts to cut the link (see discussion below).

Financial fragility appears to have directly contributed to speculative pressures. For example, early in 1997 an investment bank raised its assessment of the probability of a baht devaluation[21] partly because financial sector problems associated with a sharp downturn in property markets would make it very costly for the Bank of Thailand to raise interest rates to defend the currency. Press reports suggest that the analysis triggered a bout of speculation against the baht shortly after it was published. As is well known, speculation recurred until the collapse of the currency in July 1997. While interest rates in Thailand did rise over the period as liquidity vanished from financial markets, the desire to dampen any increases may explain why the Bank of Thailand depleted its foreign reserves significantly during this period to defend the peg[22].

*Third*, although FDI was indeed important in financing current account deficits, *debt exposures were apparently understated.* For example, Union Bank of Switzerland (1995b) expressed concerns about the implications of rising debt burdens in Thailand and Indonesia, and indicated that while the exposure of Indonesian firms to foreign currency debt (which eventually led to widespread defaults when the rupiah collapsed) was known to be significant, the precise amount of exposure was not known. Independent Evaluation Office (2003) states that the IMF significantly underestimated Indonesia's debt exposure, particularly short-term[23]. Apart from the debt burden being higher than was thought at the time, the share of short-term debt was sufficiently high to pose risks of illiquidity. The foreign reserve cover of short-term debt (Table 4) in 1996 was below the (now) conventional thresholds of 1 in Indonesia and Thailand. If the need to also cover current account deficits (measured ex post) in the following year is taken into account, then the foreign reserve cover exceeds one only in Malaysia (1.4 in 1996). As is well known, the short-term debt position relative to reserves is closely tracked by ratings agencies. Moody's widely publicized downgrading of Thailand's sovereign debt in September 1996 was motivated by "the very

[21] See Kim (1997). The analysis was partly inspired by Kaminsky and Reinhart's (1996) research linking banking crises and currency crises.

[22] For a general discussion of this episode, see Moreno, 1997

[23] In line with the statements in the text, debt to export ratio estimates for 1995 in Table 1 based on revised data (that reflect, among others the use of BIS creditor statistics to supplement reports by the debtor countries) are much higher than some estimates provided by one investment bank at the time. While debt ratios for Malaysia were comparable (46% in Table 1 versus 43% for the investment bank), debt ratio estimates in Table 1 were much higher in Thailand (177% versus 103%), the Philippines (225% versus 135%) and Indonesia (274% versus 184%).

rapid and recent accumulation of short-term external debt," (see Baker, 1996) which by some estimates at the time slightly exceeded foreign reserves. In contrast, Malaysia's rating remained high for an extended period partly because of its high foreign reserve cover of short-term debt. In 1998, Standard & Poors downgraded Malaysia to A from A+ but the rating remained high because liquid international reserves were estimated at three-times the short-term external debt outstanding[24].

*Fourth*, *currency mismatches*. A significant amount of foreign currency borrowing in Southeast Asia was unhedged. Such mismatches partly explain why the Asian currency crises of 1997-1998 were associated with sudden stops in capital flows and sharp contractions in output while other currency crises have not. As a currency comes under depreciation pressure, the balance sheets of borrowers who have not hedged their foreign currency positions and that of their domestic bank lenders deteriorate sharply. This can lead to sharp reductions in expected returns and output, and consequently trigger sharp withdrawals in external financing of the kind observed in Asia in 1997-1998. There was awareness that this could adversely affect the financial position of borrowers but the precise dimensions of the problem were apparently not well understood at the time. For example, an Independent Evaluation Office (2003, page 26) report indicates that the IMF did not identify vulnerabilities associated with currency (or maturity) mismatches in Indonesia. To provide some perspective, Graph 3 illustrates two indicators of mismatches based on work by Goldstein and Turner (2004). One is the foreign currency share of total debt divided by the ratio of exports to GDP, an indicator of the extent to which the mismatch is "naturally hedged" by exports. As can be seen, in 1997 this ratio was highest in Indonesia and then Thailand, and was rising in the Philippines. In contrast it was remarkably low in Malaysia. Another indicator of currency mismatches is an estimate of the net foreign currency asset position of the country. Estimates of these positions were negative around the time of the Asian crisis but have since generally turned positive.

## Policy responses[25]

Current account deficits in Southeast Asia were an ongoing concern for policymakers throughout the first half of the 1990s. However, an examination of policy responses suggests

[24] Malaysia's high foreign reserve cover was deliberate. Cheong (2002) points out that maintaining a foreign reserve cover of at least one was a policy of Malaysia well before it was suggested by Greenspan.

[25] The discussion in this section refers to policy responses that have a bearing on the current account. For more details on responses from about 1995, see Corsetti, Pesenti and Roubini (1999). Our discussion goes back earlier in the 1990s.

that this concern may have been outweighed by the goal of maintaining rapid rates of growth to achieve developed country status. Early in the 1990s, when growth in major developed economies was sluggish, the Bank of Thailand (Annual Economic Report 1992) said that the current account deficit reflected a shortfall in national saving that constrained long-run growth opportunities. Starting around 1994, when growth had picked up, current account deficits began to be seen by commentators as a sign of overheating and an apparent proxy for the output gap[26]. In the aftermath of the December 1994 collapse of the Mexican peso awareness grew that such deficits could pose risks to economic stability. Commentary would at times highlight the need to tighten policy (fiscal or monetary) not only to curb inflation but also to reduce high current account deficits. For example, in statements cited by Riyadi (1996) on the effects of monetary policy tightening, Bank Indonesia Governor Soedradjad highlighted the impact on imports and sought to alleviate concerns about large current account deficits. Bank of Thailand Governor Rerngchai was quoted as saying that monetary policy would proceed in "a cautious mode with the aim of reducing the current account deficit" and cited the intention of the central bank to keep inflation below five percent and the current account deficit below eight percent of GDP. See Associated Press (1996).

The IMF advice to all countries in this period has not been fully disclosed but the IMF's traditional model and publicly available information indicate that reducing current account deficits was a priority. For example, apart from boosting growth, the IMF's 1994 program for the Philippines sought to lower inflation, thus enhancing competitiveness with a stable exchange rate, and to reduce the current account deficit to a sustainable level of about 2.5% of GNP by 1997, from about 6% in 1993.[27] In 1995, the IMF Representative to the Philippines cited a smaller and falling current account deficit as one reason why the Philippines was less vulnerable than Mexico (the others were a lower debt service ratio, a lower share of short-term debt and more flexible exchange rates)[28]. The Independent Evaluation Office (2003, page 62) commentary on the Article IV consultation missions to Indonesia notes that the 1996 mission advice was "that the authorities should follow tight fiscal and monetary policies." In 1997 it also called for "greater exchange rate flexibility, and accelerated structural and banking reforms to maintain progress in reducing inflation, contain current account deficits and minimize external risks." The viewpoint that current accounts should be reduced extended to IMF research; for example, notwithstanding his conclusion that current

[26] For example, see various issues of (then) Morgan Guaranty's *World Financial Markets* of the period.

[27] For a discussion see *The Banker* (1994).

[28] *The Economist* (1995).

account deficits in Southeast Asia by and large did not reflect excess consumption, Ostry (1997) argued that risks from other factors (level and composition of external liabilities, flexibility of macro policies, and the health of banking systems) would justify reducing current account deficits.

In attempting to reduce current account deficits, policymakers could seek to increase private or public saving or instead lower investment spending. Although investment spending was a major driver of the current account cycle (see above), there was a reluctance to curb it because it was a centrepiece of these countries' development strategies. It was argued that investment could increase production capacity, lower cost pressures and future current account deficits[29]. For example, in Thailand, reducing investment spending would have affected infrastructure projects needed to ease severe bottlenecks impeding growth. Investment was a key element of Malaysia's efforts to achieve developed country status by 2020. The dilemma posed by the goals of macroeconomic stability against the benefits sought from high investment is apparent in the discussion in Bank Indonesia's annual report (1993, p. 3). It cites efforts to dampen domestic demand since 1990, but expresses concern about the slowdown in investment activity in 1992/93 which "could adversely impact on economic growth and exports in coming years."

Policymakers instead sought to encourage private saving, seeing the development of saving vehicles for households as a major way to achieve this (eg see discussions in Bank of Thailand and Bank Negara Malaysia's annual reports). For example, Bank of Thailand would consistently highlight the need to develop provident funds for employees. However, efforts to raise household saving in Thailand were apparently not very successful; although national saving was very high, information in a recent paper by Bank of Thailand economists indicates that between 1989 and 1996 the household saving rate fell by over half to around 7% (Pootrakul, et al, 2005, Chart 2.6, page 9). An important medium-term factor accounting for this decline appears to have been a consumption boom. At the same time, it is not clear that efforts to increase private saving would have reduced current account deficits. In their study of a larger set of developing countries, Calderon, Chong and Loayza (2002) find that private saving and investment are tightly linked, it is public saving and investment that are not. The empirical evidence we have available today thus suggests that increases in private

[29] For an example of reasoning along these lines, see Bank of Thailand *Annual Economic Report, 1995* and also Monetary Authority of Singapore, 1997. The focus on the supply effects of investment, as opposed to its impact on the external balance via aggregate demand is still apparent in discussions of China today where there is concern that investment in some sectors might lead to excess capacity.

savings would not necessarily have helped reduce current account deficits, but increases in public savings might have[30].

Increasing public saving was in fact another option considered. However, it could be argued that this had already occurred; budgets in many cases were in surplus, or were seen as sound or improving. Public debt to GDP ratios were generally low; in 1996 they were estimated at 3.8% in Thailand, 15% in Indonesia and 35% in Malaysia. In the case of the Philippines, the ratio of public debt to GDP was considerably higher than its neighbors at 53%. However, the Philippine budget recorded surpluses in 1994-1996 after recording persistent deficits prior to that. (see Appendix Table A1). Measurement issues arose here too; fiscal positions were arguably not as sound as they appeared to be because they did not reflect possible contingent liabilities arising from fragile financial sectors (macroeconomic stress testing would seek to asses the impact of such liabilities today).

Calls for fiscal policy to support current account deficit reduction became more apparent as market sentiment changed around the mid-1990s, and also with a deterioration in budget surpluses partly associated with slower growth in 1996. For example in 1996, Indonesian Finance Minister Mar'ie promised to maintain fiscal surpluses in an effort to cool down the economy (Riyadi, 1996). In its *Annual Economic Report 1996*, the Bank of Thailand called on the government to reduce expenditures, in contrast to earlier reports which would cite expenditure shortfalls. (It also called on the government to expand the tax base, particularly through consumption taxes, so as to increase public and private saving.)

In this setting, much of the burden of adjustment to deal with "overheating" and current account deficits arguably fell on monetary policy. However, the scope for an independent monetary policy in the first half of the 1990s was limited by efforts to stabilize exchange rates against the US dollar[31]. As illustrated by Graph 5 the baht was very stable against the US dollar, as was the Philippine peso from late 1995. The Malaysian ringgit was more volatile, but until the collapse of the Thai baht in July 1997 was also largely trendless against the US dollar. Indonesia maintained a crawling depreciating band against the US dollar of around 4-5% a year.

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[30] Further research is needed to determine the applicability of these results to Southeast Asian economies.

[31] Frankel and Wei, 1994 show that East Asian currencies behaved like basket pegs with a hight weight assigned to the US dollar; Monetary Authority of Singapore, 2000 updates this and shows that the role of the yen had increased after the Asian crisis. Hernandez and Montiel, 2003 show that exchange rate volatilities in Asian currencies were low prior to the crises and rose significantly afterwards, but less than "pure floaters". Stabilising the exchange rate was arguably also part of a high-growth strategy, see Dooley, Folkerts-Landau and Garber (2004).

In the first half of the 1990s, central bank intervention to prevent the exchange rate from appreciating was reflected in significant reserve accumulation (Table 1). This increased liquidity and contributed to the boom in credit and investment and growing financial fragility cited earlier. Monetary authorities responded by applying a variety of tools to drain liquidity including (1) increased reserve requirements. Malaysia increased its reserve requirements eight times between 1990 and 1997, while Indonesia did so twice for rupiah deposits (see Van 't Dack, 1999); (2) increased government or provident fund deposits with the central bank (Malaysia); (3) standard sterilisation operations involving short-term borrowing from the money market, which in some cases (eg Indonesia, Malaysia, Thailand) required the issuance of central bank instruments due to the lack of government paper. Given efforts to stabilize the exchange rate, these attempts to mop up liquidity attracted more capital inflows, complicating monetary control[32].

The outcomes for interest rates and exchange rates are illustrated in Graphs 4 and 5. It is apparent that domestic monetary policies were significantly influenced by external conditions. Although occasionally disguised by high volatility, movements in short term interest rates in Southeast Asia appeared to mirror swings in the Fed funds rate; sometimes with a lag (an exception is the Philippines). Thus, interest rates tended to fall between 1990 and 1993 when the Fed funds rate was falling, and then rise subsequently, when the Fed funds rate began to rise. In some cases (eg Thailand) rates would rise significantly more than the Fed funds rate, at least temporarily, reflecting adverse shifts in market sentiment following the Mexican peso collapse. Movements in the nominal effective exchange rate also reflected external influences, in particular fluctuations in the dollar against the yen. Thus, nominal effective rates tended to depreciate until about 1995, reflecting the weakness of the dollar against the yen, then appreciated after that as the dollar rebounded sharply.

Significant tightening in monetary conditions only becomes apparent after 1995. Real short-term rates rose between 1995 and 1997 in all four Southeast Asian countries, albeit with more volatility (ie a significant dip around the second half of 1995) in Thailand. Real effective exchange rates also appreciated after 1995. Prior to that nominal effective exchange rates had been on a depreciating trend and real exchange rates were generally flat, after a period of depreciation in the 1980s. As a reference, the graph shows that the real exchange rate of Singapore appreciated steadily from 1985; throughout the period it maintained large surpluses. The extended period of stability of real exchange rates in the other Southeast

[32] This is an implication of the Mundell-Fleming model and a feature of discussions of the "impossible trinity". For a discussion of the problems of dealing with surging capital inflows, see Bank Negara Malaysia Annual Report 1993, Cheong (2002) and Glick and Moreno, 1994 and 1995.

Asian countries is remarkable because the very rapid growth of these economies, and the importance of the tradable goods sector in this process would suggest exchange rates should appreciate due to Balassa-Samuelson effects. Empirical research reveals that Balassa Samuelson effects are not present in the countries in our sample[33].

The preceding discussion thus suggests that exchange rate appreciation did not play a direct role in explaining large trade or current account deficits in the first half of the 1990s (a similar point was made in BIS, 1996). Effective exchange rate appreciation may have played a role in declining exports in 1996, contributing to market uncertainty and pressures on currencies, particularly in Thailand, on the eve of its crisis. Empirical evidence of overvaluation prior to the Asian crisis is mixed (eg Chinn (1998)).

Would allowing the exchange rate to adjust more freely have helped reduce current account deficits prior to the crisis in Southeast Asia? It is worth noting that more flexible exchange rates would probably have had different effects during different periods. Before the Mexican peso collapse in December 1994, allowing the exchange rate to float freely would most likely have resulted in currency appreciation. Paradoxically, while freeing the exchange rate might have lowered export growth and increased imports through price effects, it could have reduced imports through income effects, specifically by dampening capital inflows and investment demand, and by giving monetary authorities more scope to tighten.

In any case, policymakers acted as if exchange rate stability mattered a great deal. Cheong[34] (2002) indicates that freeing the exchange rate was not considered an option by Malaysia prior to the imposition of capital controls in 1994 (see below) in part because financial markets tend to overshoot, and excessive volatility could threaten macroeconomic stability. There was also concern in the region that appreciation would have hurt exporters, accentuated by growing competition with China in low cost manufactures. These concerns might have been heightened if the impact of exchange rate adjustment on the current account or trade flows was small. This would imply a need for large exchange rate adjustment to reduce the current account deficit, which could be highly contractionary, in part due to currency mismatches noted earlier.

After December 1994, the effects of allowing more exchange rate adjustment are uncertain, as there were occasional periods of depreciation pressure. Press reports suggest that the

[33] Imed and Rault, 2004 find that the Balassa Samuelson approach implies that the productivity differential between traded and non-traded goods sectors should be cointegrated with the corresponding relative prices; this is rejected by the data. One explanation is that there are other factors that determine the real exchange rate that are not being taken into account).

[34] Latifah Merican Cheong, then a senior official at Bank Negara Malaysia.

debates on the appropriateness of allowing currencies to depreciate to reduce current account deficits may have become more pointed in 1996, when export revenue growth declined sharply[35]. However, efforts to stabilize the exchange rate nevertheless continued in the region until the Thai baht collapsed, and are partly reflected in high interest rates in 1997. As is well known, efforts to defend pegs by raising interest rates were criticized due to their contractionary effects but they may have been motivated by the high costs of devaluation resulting from currency mismatches.

**Prudential measures and capital controls**

Apart from macroeconomic policies, and in spite of generally open capital accounts, Asian policymakers would occasionally adopt measures that could influence the size of the current account or its perceived sustainability. *First, a set of measures whose motivation was "prudential", designed to limit vulnerabilities*. Several countries maintained restrictions on foreign borrowing or sought to influence it through regulation. For example, in 1991, Indonesia imposed limits on foreign borrowing by the public sector (including private contracts with the public sector) and by banks, but not on the private non-bank sector. Malaysia largely liberalised its capital account in 1973. However it maintained a set of foreign exchange controls that required approval of external borrowing exceeding certain thresholds. Most (mainly long-term) external loans were approved only for firms that earned foreign exchange. Cheong (2002) indicates that the goal of this restriction was largely prudential, ie to ensure that entities incurring debt were able to service it and not to limit borrowing per se. In the Philippines public and private sector borrowing from abroad in the mid-1990s was subject to Central Bank approval. Apart from requiring approval of public sector foreign borrowing by a Foreign Debt Committee, Thailand's controls were minimal. The Bank of Thailand tried a somewhat different approach, implementing bank regulations to reduce the incentives for financing from abroad. For example, in 1995, it sought to increase banks' reliance on domestic deposits (as opposed to external borrowing) by requiring banks with high loan to deposit ratios to lower them towards the industry average. It also modified the net forex position limit imposed on commercial banks by counting at less than 100% (in some cases zero percent) foreign assets that certain types of commercial bank credits in foreign

[35] For example in August 1996, Philipine Socioeconomic Planning Secretary Cielito Habito was quoted as saying that the peso was overvalued and that foreign exchange policy was inadequate to control the country's trade gap. (UPI, 1996a). That same month, Bank Indonesia Governor Soedradjad defended Indonesia's exchange rate policy by saying it should not be designed merely to boost exports. This was partly in response to questions about a statement by Indonesia's Finance Minister that the rupiah was slightly overvalued (Asia Pulse, 1996a).

currencies the Bank of Thailand deemed risky (eg those for purchasing vacant lands and for personal consumption).

The effectiveness of these measures varied. For example, as noted earlier, foreign borrowing by Indonesian firms contributed significantly to currency mismatches and the severity of its crisis. There are some indications of success of Malaysian capital controls or prudential regulations in reducing vulnerability (see below).

*Second controls designed to stop destabilising speculation in currency or asset markets, and to increase monetary policy independence*[36]. An example is the set of (temporary) controls directed at capital inflows in Malaysia in early 1994[37]. The controls Malaysia imposed were motivated by three considerations[38]. First, capital inflows were large; rising from 3 percent of GDP in 1988 to 20 percent in 1993. Foreign capital was attracted by higher rates of return in Malaysia, buoyant equity markets and expectations of ringgit appreciation. Indeed, a sharp appreciation of the ringgit against the dollar of around 9% between December 1993 and January 1994 may have played a role in the decision to impose controls. Second, while a large part of net capital inflows were initially direct investment, as time passed other capital inflows (including foreign borrowing through the banking sector) became increasingly important. Third, the capital inflows circumvented existing controls and significantly eroded central bank measures to tighten liquidity. In an effort to discourage speculative flows, Malaysia had imposed ceilings on non-trade related swap transactions between commercial banks and their foreign customers (on the offer side on 14 March 1989 and on the bid side on 1 June 1992). It was found however, that bank liquidity continued to increase due to unrestricted trade and investment inflows. In January and February 1994, Bank Negara Malaysia imposed restrictions that limited foreign access to Malaysia's banking sector and short-term financial instruments[39]. Most of the restrictions were lifted within a year from the time they were imposed.

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[36] One well known example is Thailand's attempt to curb speculation against the baht in May 1997 by limiting the ability of foreign residents to borrow baht and restricting links between the offshore and onshore markets. We will not focus on this here these measures had no direct connection with efforts to influence current account balances and do not appear to have been effective (Edison and Reinhart, 2002).

[37] For discussions of this episode see Bank Negara Malaysia Annual Report 1993, Glick and Moreno (1995).

[38] On some of these points, see Cheong (2002).

[39] The central bank (1) Imposed a ceiling on the net external liability position of domestic banks (trade-related and direct investment inflows were excluded). (2) Prohibited sales by residents to nonresidents of short-term securities (eg banker's acceptances, negotiable certificates of deposit, Bank Negara or treasury bills and government securities maturing in one year or less and any private security with remaining maturity of one year or less), (3) Prohibited bid-side commercial banks forward transactions with foreigners and non-trade related swaps.

These controls could have affected Malaysia's current account in two ways. First, they could have given more monetary policy independence, and in particular facilitated monetary policy tightening to reduce current account deficits if policymakers so desired by allowing interest rate increases without bringing about capital inflows or appreciation pressures. As illustrated in Graphs 4 and 5, controls were associated with a ringgit depreciation against the US dollar which by August 1994 had offset the sharp appreciation cited earlier. The imposition of controls was also initially associated with a visible drop in Malaysian interest rates, followed by a rise that broadly tracked the increase in the Fed funds rate until the beginning of 1996. The gap between the Malaysian overnight rate and the US Fed Funds rate fell from nearly 4 percentage points in November 1993 to around 41 basis points in January 1994 and later turned negative until about the fourth quarter of 1995.

The controls thus appear to have stemmed appreciation pressures. Malaysian authorities also appear to have been able to raise interest rates by somewhat less during the period of Fed tightening. While growth slowed in 1994 in Malaysia, it still ranged from around 9-10% in 1994-1996. The controls were apparently not intended to reduce the current account deficit, which grew from 4.6% of GDP in 1993 to a peak of 9.73% in 1995.

Second, controls could have limited Malaysia's external debt and financial vulnerability, reducing the likelihood or costs of current account reversal at least for a time. It appears that vulnerability was in fact reduced; a test was that Malaysia's overnight rate remained somewhat below the Fed funds rate (and was also much less volatile than the Thai short-term rate) after controls were lifted and in spite of the turbulence that followed the collapse of the Mexican peso. Indicators that suggest that controls may have helped reduce vulnerability include:

– Capital controls were followed by a levelling off in portfolio inflows.

– Malaysia's external vulnerability indicators were better than its neighbours along several dimensions around 1995:

  - Debt to exports ratio, already lower than its neighbours (due to the policy of regulating external debt noted above) fell by around 9 percentage points to 46.4% between 1993 and 1995. As noted earlier, debt to exports ratios were much higher in other Southeast Asian countries.
  - Foreign reserve cover was higher than its neighbors.
  - Currency mismatch indicators were much better in Malaysia than in some of its neighbours in 1996, on the eve of the Asian crisis.

Against this the ratio of bank domestic credit to the private sector to GDP fell in 1993 (from 108 the year before to 106), but then increased again after capital controls were imposed in early 1994 (Graph 2). Malaysia's approach around this time appears to be broadly consistent with a strategy of seeking to reduce external vulnerability while maintaining rapid rates of growth.

***Conclusions***

Our description of Southeast Asia's experience with current account deficits illustrates how rapid rates of growth can be associated with significant external and domestic vulnerabilities. Rapid growth was linked to high rates of investment spending which drove the current account cycle. It was also associated with increasing financial fragility, as suggested by rising credit to GDP ratios, high external debt exposure, particularly short-term, and currency mismatches.

There was awareness of these vulnerabilities, but in some cases understanding of the cumulated effects (eg the extent of short-term debt exposure or currency mismatches) was incomplete. Also, the push for growth apparently restricted the range of policy responses. Policymakers sought to reduce current account deficits by encouraging more saving, but this was difficult to achieve as saving rates were in some cases already high. Until the eve of the crisis, there appeared to be little desire to curb investment spending or to tighten fiscal policies which were generally considered sound or improving. The scope for monetary tightening was limited by efforts to stabilise currencies against the US dollar, which it could be argued was also broadly consistent with a rapid-growth strategy. Monetary conditions did not tighten significantly until starting about 1995. Until the mid-1990s, real effective exchange rates did not appreciate and do not appear to have played a significant role in explaining large current account deficits prior up to that time. This conclusion is reinforced by some research that suggests that the impact of the exchange rate on current accounts or trade is weak in Southeast Asia. However, sharp exchange rate appreciation after the mid-1990s appears to have contributed to weaker exports and adverse shifts in market sentiment.

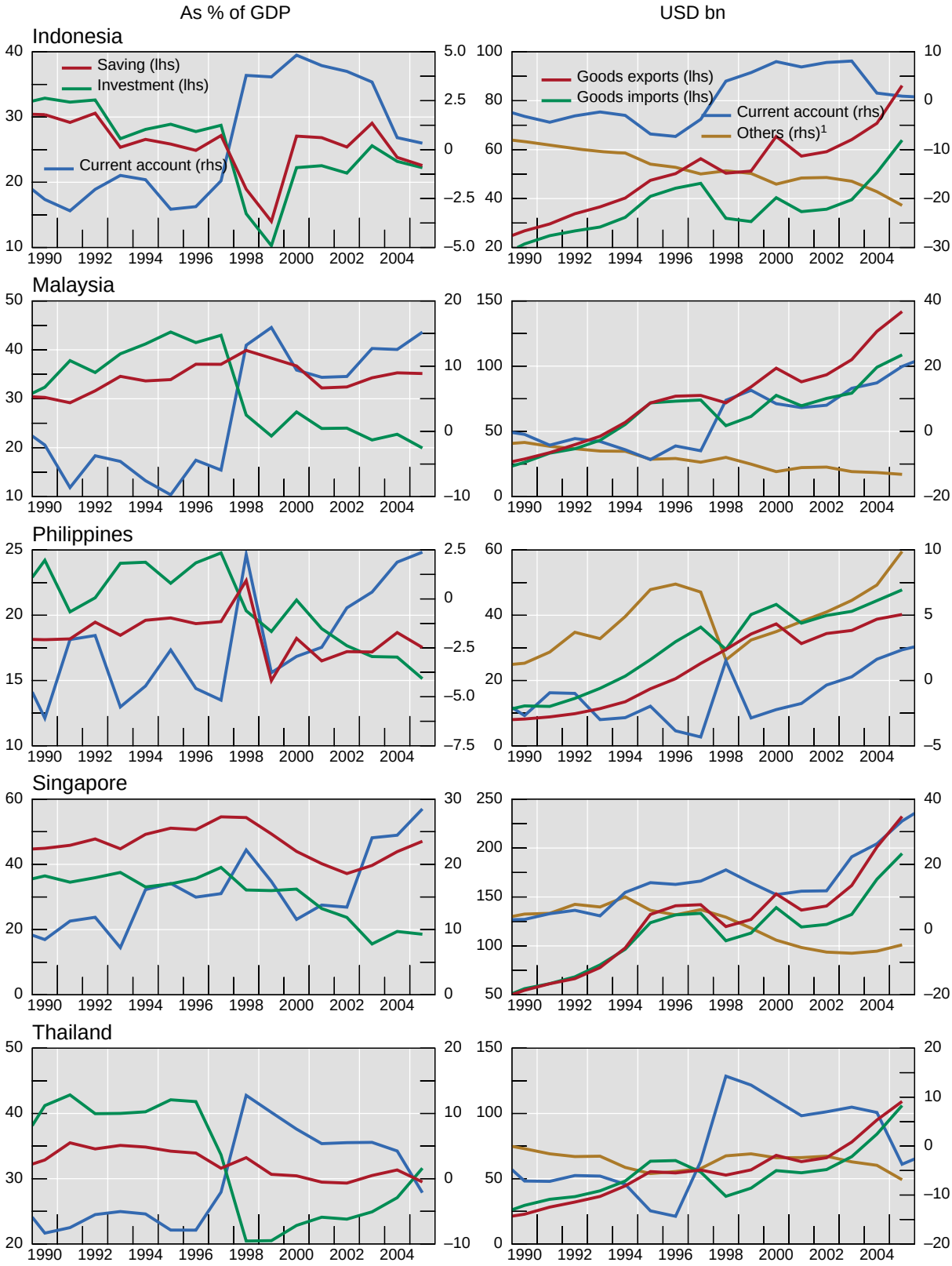
Policymakers occasionally used controls as a prudential device to reduce vulnerabilities and as a way of insulating themselves from market volatility and gain monetary independence. In Malaysia prior to the crisis, these measures appear to have reduced external vulnerability, although the imposition of capital controls in 1994 was not subsequently associated with significant reduction in growth or lower current account deficits.

The behaviour of macroeconomic indicators since 1997-1998 suggest that one of the primary lessons Southeast Asian economies took from the crisis is a strong desire to reduce vulnerabilities. Growth rates are much lower on average in 2000s than they were in the first

half of the 1990s. Current accounts have been in surplus for most of the period since the Asian crisis. In the case of Malaysia they have increased sharply, beginning to resemble the rising current account pattern observed in Singapore. Investment spending has only gradually recovered in the region. Ratios of credit to GDP remain well below peaks observed in 1997-1998. Foreign reserves have accumulated to exceed thresholds suggested by some conventional rules of thumb, and contributed to observed improvements in aggregate currency mismatches.

Graph 1

**Current account balances, two perspectives**



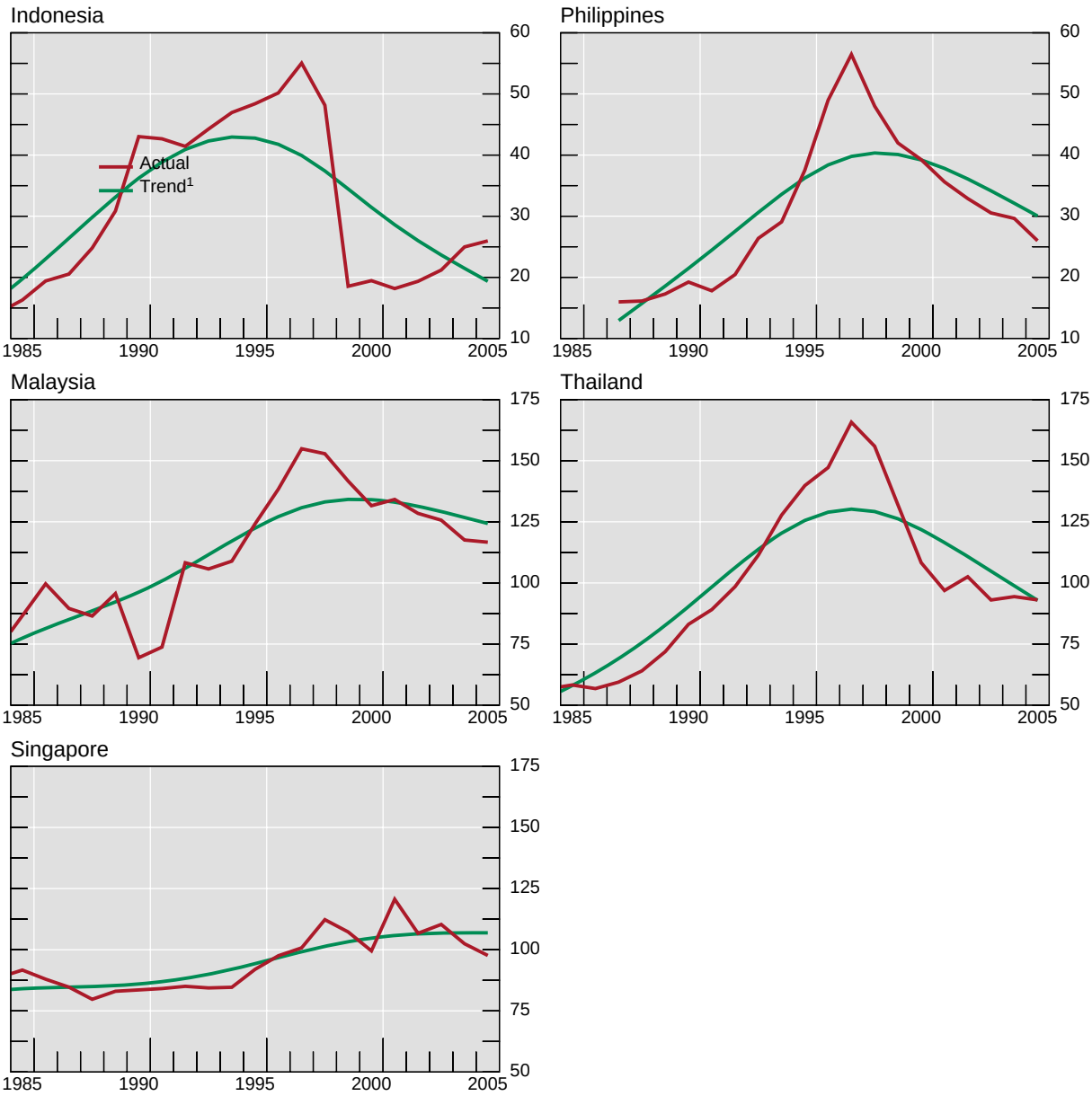

[1] Services, income and transfers balance.

Source: IMF.

Graph 2

**Bank domestic credit to the private sector**

As a percentage of GDP

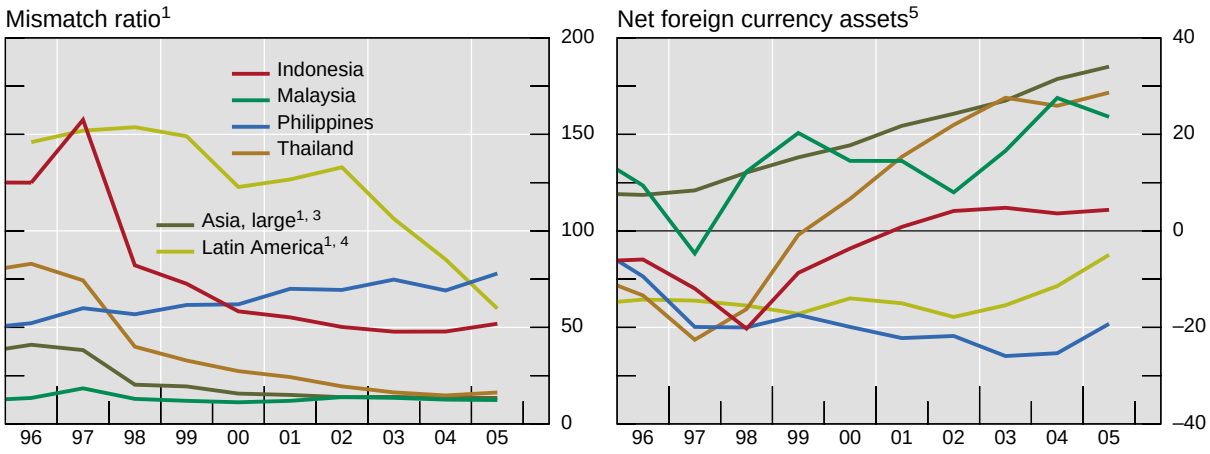



[1] Estimated using a Hodrick-Prescott filter applied to annual data.

Sources: IMF; BIS calculations.

## Graph 3

### Indicators of currency mismatch

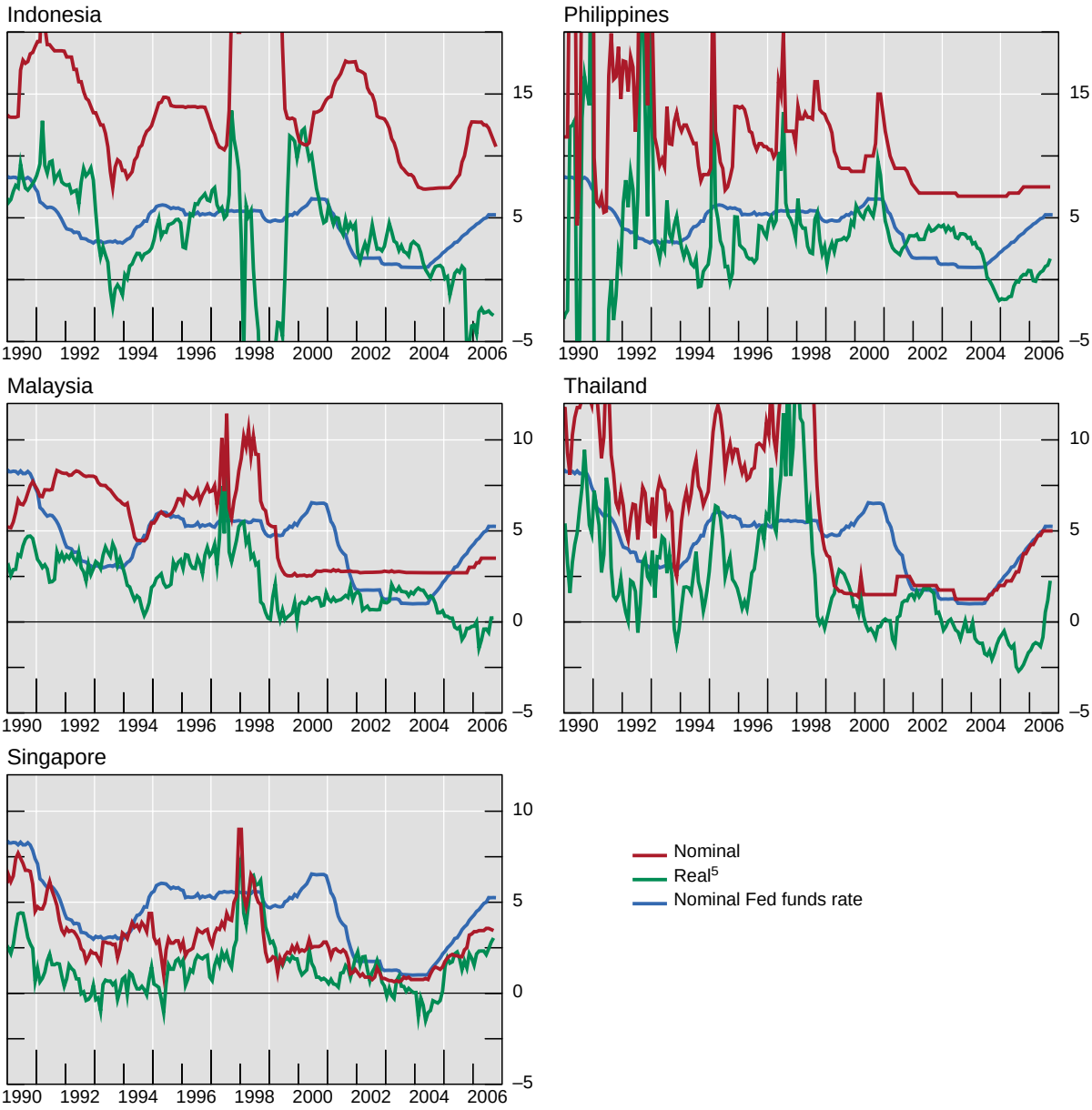



[1] Foreign currency share of total debt divided by the ratio of exports to GDP. [2] Weighted average of the economies listed. [3] China, India, Korea and Taiwan (China). [4] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [5] Estimate for banks and non-banks including foreign currency securities outstanding, as a percentage of GDP.

Sources: IMF; national data; BIS.

Graph 4

**Short-term rates[1]**

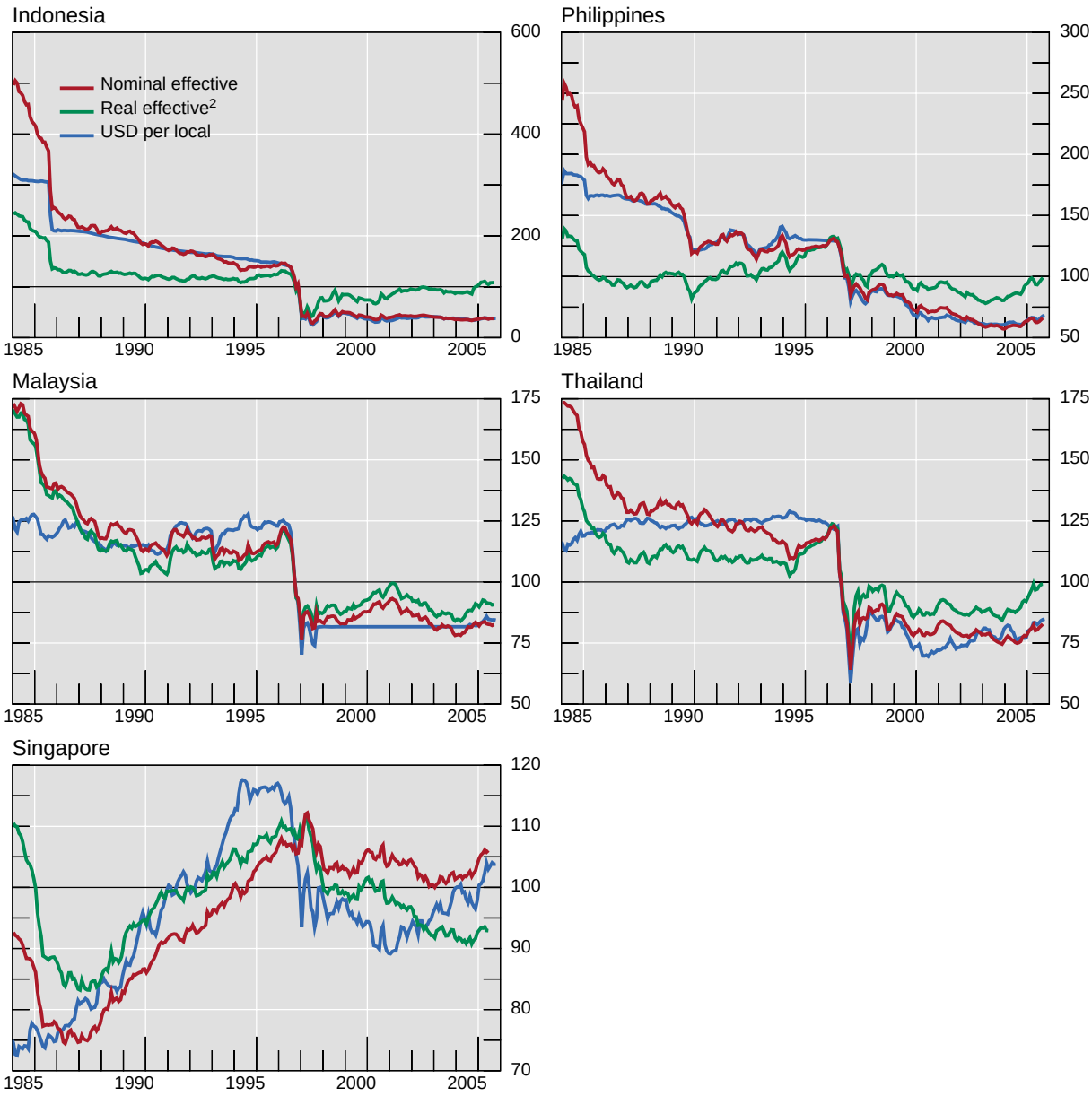



[1] Monthly averages. One-month SBI rate for Indonesia, overnight rate for Malaysia, overnight reverse repo for the Philippines, 3-month interbank for Singapore and 14-day repo for Thailand. [5] Deflated by annual changes in consumer prices.

Sources: Bloomberg; Datastream; IMF; national data.

Graph 5

**Exchange rates[1]**




[1] Monthly averages. 1990–2005 = 100; an increase indicates an appreciation. [2] In terms of relative consumer prices.

Sources: Bloomberg; Datastream; IMF; national data.

Table 1 **Balance of payments in Asia[1]**

| | Current account balance | | | | Net capital inflows[2] | | | | Reserves | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Increase | | | | Stock |
| | 1990 –94 | 1995 –96 | 1997 –98 | 2000 –05 | 1990 –94 | 1995 –96 | 1997 –98 | 2000 –05 | 1990 –94 | 1995 –96 | 1997 –98 | 2000 –05 | Sep 2006 |
| Indonesia | –3 | –7 | –0 | 6 | 5 | 11 | –5 | –3 | 1 | 3 | –1 | 2 | 40 |
| Malaysia | –3 | –7 | 2 | 12 | 6 | 9 | –0 | –4 | 4 | 0 | 3 | 7 | 75 |
| Philippines | –2 | –3 | –1 | 0 | 3 | 8 | 3 | 0 | 1 | 2 | –0 | –0 | 18 |
| Singapore | 6 | 14 | 17 | 22 | –0 | –4 | –15 | –14 | 6 | 8 | 6 | 6 | 129 |
| Thailand | –7 | –14 | 6 | 6 | 11 | 21 | –13 | –3 | 4 | 5 | –4 | 3 | 60 |

[1] Annual average for the period, in billions of US dollars. [2] Financial account balance.

Sources: IMF, Balance of Payments Statistics; IMF, *World Economic Outlook*.

Table 2 **Correlations of saving or investment with current account balance[1]**

| | Correlations with saving | | Correlations with investment | |
|---|---|---|---|---|
| | 1985–2005 | 1985–2005 (excl crisis[2]) | 1985–2005 | 1985–2005 (excl crisis[2]) |
| Indonesia | –0.08 | 0.10 | –0.50 | –0.36 |
| Malaysia | 0.48 | 0.48 | –0.93 | –0.93 |
| Philippines | 0.20 | –0.04 | –0.80 | –0.86 |
| Singapore | 0.69 | 0.72 | –0.34 | –0.47 |
| Thailand | –0.37 | –0.58 | –0.97 | –0.97 |

[1] As applied to detrended annual series as a percentage of GDP. Trend series is estimated using a Hodrick-Prescott filter. [2] More specifically, excluding values from 1997–98.

Sources: IMF; BIS calculations.

Table 3 **Southeast Asia: Long-run trade elasticities (Bayoumi)**

| | Income | | Price (Real exchange rate) | |
|---|---|---|---|---|
| | **Exports** | **Imports** | **Exports** | **Imports** |
| Indonesia | 1.27 | 1.66 | –0.32 | 0.68 |
| Malaysia | 1.86 | 1.47 | –0.53 | 0.01 |
| Philippines | 1.34 | 1.65 | 0.10 | –0.75 |
| Singapore | 1.77 | 1.05 | –0.21 | 0 |
| Thailand | 2.73 | 1.03 | –0.99 | 0.75 |
| Memo | | | | |
| Japan | 2.10 | 0.79 | –0.69 | 0.55 |
| US | 1.47 | 2.46 | –0.86 | 0.26 |
| Panel | 1.96 | 1.46 | –0.80 | 0.28 |

Note: Unless otherwise indicated the output coefficients are significant at 1%. The real exchange rate elasticities for exports are not significant except for Japan (1%), while for imports they are only significant in Indonesia (1%). Sample period 1974-1993. Source: Bayoumi (1996, Tables 3-3 and 3-4)

**Table 4** **Foreign exchange reserves/short-term external debt ratio** [1]

| | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Southeast Asia**[2] | **1.2** | **0.7** | **1.3** | **2.2** | **2.3** | **2.3** | **2.8** | **3.0** | **2.9** | **2.5** |
| Indonesia | 0.5 | 0.4 | 0.9 | 1.3 | 1.3 | 1.6 | 2.3 | 2.6 | 2.1 | 1.9 |
| Malaysia | 2.3 | 1.3 | 2.5 | 3.7 | 3.6 | 3.3 | 3.4 | 4.1 | 3.8 | 3.2 |
| Philippines | 1.2 | 0.6 | 0.8 | 1.5 | 1.6 | 1.4 | 1.8 | 1.2 | 1.3 | 1.3 |
| Thailand | 0.8 | 0.7 | 1.1 | 2.2 | 2.5 | 2.7 | 3.9 | 4.0 | 4.4 | 3.7 |

[1] Short-term external debt defined as short-term liabilities to BIS reporting banks: consolidated cross-border claims to all BIS reporting banks on countries outside the reporting area with a maturity up to and including one year plus international debt securities outstanding with a maturity up to one year; based on outstanding year-end positions. [2] Unweighted average of the countries shown.

Sources: IMF; national data; BIS.

Table A1

## Appendix: Macroeconomic indicators

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Real GDP**[1] | | | | | | | | | | | | | | | | |
| Indonesia | 7.2 | 7.0 | 6.5 | 6.8 | 7.5 | 8.2 | 7.8 | 4.7 | –13.1 | 0.8 | 5.4 | 3.6 | 4.5 | 4.8 | 5.1 | 5.6 |
| Malaysia | 9.0 | 9.5 | 8.9 | 9.9 | 9.2 | 9.8 | 10.0 | 7.3 | –7.4 | 6.1 | 8.9 | 0.3 | 4.4 | 5.5 | 7.2 | 5.2 |
| Philippines | 3.0 | –0.6 | 0.3 | 2.1 | 4.4 | 4.7 | 5.8 | 5.2 | –0.6 | 3.4 | 6.0 | 1.8 | 4.4 | 4.9 | 6.2 | 5.0 |
| Singapore | 9.2 | 6.6 | 6.3 | 11.7 | 11.6 | 8.1 | 7.8 | 8.3 | –1.4 | 7.2 | 10.0 | –2.3 | 4.0 | 2.9 | 8.7 | 6.4 |
| Thailand | 11.6 | 8.1 | 8.1 | 8.3 | 9.0 | 9.2 | 5.9 | –1.4 | –10.5 | 4.4 | 4.8 | 2.2 | 5.3 | 7.0 | 6.2 | 4.5 |
| **Consumer prices**[1] | | | | | | | | | | | | | | | | |
| Indonesia | 7.8 | 9.4 | 7.5 | 9.7 | 8.5 | 9.4 | 7.0 | 6.2 | 58.0 | 20.7 | 3.8 | 11.5 | 11.8 | 6.8 | 6.1 | 10.5 |
| Malaysia | 3.0 | 4.4 | 4.8 | 3.6 | 3.7 | 3.5 | 3.5 | 2.6 | 5.1 | 2.8 | 1.6 | 1.4 | 1.8 | 1.1 | 1.4 | 3.0 |
| Philippines | 13.2 | 18.4 | 8.9 | 7.6 | 9.0 | 8.5 | 9.1 | 5.9 | 9.7 | 6.4 | 4.0 | 6.8 | 2.9 | 3.5 | 6.0 | 7.6 |
| Singapore | 3.5 | 3.4 | 2.3 | 2.3 | 3.1 | 1.7 | 1.4 | 2.0 | –0.3 | 0.0 | 1.3 | 1.0 | –0.4 | 0.5 | 1.7 | 0.5 |
| Thailand | 5.9 | 5.7 | 4.2 | 3.3 | 5.1 | 5.8 | 5.9 | 5.6 | 8.1 | 0.3 | 1.6 | 1.7 | 0.6 | 1.8 | 2.8 | 4.5 |
| **Government financial balance**[2] | | | | | | | | | | | | | | | | |
| Indonesia | 1.1 | –0.6 | –0.8 | –0.5 | 0.3 | 0.8 | 0.8 | –0.4 | –1.9 | –2.1 | –1.5 | –2.4 | –0.9 | –1.8 | –1.3 | –0.5 |
| Malaysia | 3.8 | 4.3 | 4.8 | 5.5 | 7.4 | 6.5 | 5.7 | 7.5 | 4.3 | 4.0 | 1.5 | 4.7 | 4.1 | 4.4 | 1.8 | 1.7 |
| Philippines | –3.5 | –2.1 | –1.2 | –1.5 | 1.0 | 0.6 | 0.3 | 0.1 | –1.9 | –3.8 | –4.0 | –4.0 | –5.3 | –4.6 | –3.8 | –2.7 |
| Singapore | ... | 9.4 | 12.5 | 15.4 | 11.4 | 12.4 | 16.3 | 9.0 | 6.5 | 4.1 | 8.5 | 4.7 | 4.3 | 6.5 | 5.6 | 6.9 |
| Thailand | 4.9 | 4.3 | 2.6 | 1.9 | 2.7 | 3.0 | 0.9 | –1.5 | –2.8 | –3.3 | –2.2 | –2.4 | –1.4 | 0.4 | 0.1 | –0.6 |
| **Government debt**[2] | | | | | | | | | | | | | | | | |
| Indonesia | ... | ... | ... | ... | ... | ... | 15.2 | 24.7 | 44.6 | 75.8 | 91.8 | 78.2 | 69.4 | 60.3 | 55.4 | 46.3 |
| Malaysia | 79.5 | 73.3 | 64.4 | 55.7 | 47.6 | 41.1 | 35.3 | 31.9 | 36.4 | 37.3 | 36.6 | 43.6 | 45.6 | 47.8 | 48.1 | 46.2 |
| Philippines | 55.9 | 54.0 | 64.4 | 76.4 | 63.9 | 60.8 | 53.2 | 55.7 | 56.1 | 59.6 | 64.6 | 65.7 | 71.0 | 77.7 | 78.5 | 71.8 |
| Singapore | 77.0 | 79.2 | 83.0 | 74.3 | 69.8 | 72.4 | 72.7 | 71.9 | 83.5 | 89.8 | 84.1 | 97.1 | 99.0 | 104.8 | 102.7 | 102.9 |
| Thailand | 17.0 | 13.0 | 10.6 | 8.4 | 6.1 | 4.6 | 3.8 | 5.4 | 12.7 | 21.2 | 23.3 | 24.8 | 31.0 | 27.6 | 27.8 | 26.0 |

[1] Annual changes, in per cent. [2] As a percentage of GDP; refers to central government.

Sources: IMF; CEIC; national data.

Table A1 (continued)

## Appendix. Macroeconomic indicators

| | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **External debt/exports**[1] | | | | | | | | | | | | | | | | |
| Indonesia | 272.1 | 269.3 | 266.0 | 242.2 | 269.2 | 273.9 | 258.8 | 241.9 | 300.3 | 295.1 | 220.8 | 233.7 | 223.5 | 213.6 | 194.9 | ... |
| Malaysia | 52.1 | 49.7 | 49.2 | 55.5 | 51.6 | 46.4 | 50.7 | 60.0 | 57.9 | 49.5 | 42.6 | 51.2 | 51.7 | 48.2 | 41.4 | ... |
| Philippines | 379.0 | 370.6 | 340.7 | 325.9 | 302.6 | 225.0 | 215.5 | 202.1 | 182.2 | 160.5 | 156.5 | 181.3 | 170.5 | 173.4 | 152.9 | ... |
| Singapore | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Thailand | 121.8 | 132.6 | 128.7 | 143.1 | 144.8 | 177.2 | 202.5 | 190.7 | 192.7 | 165.7 | 115.4 | 103.4 | 87.2 | 64.5 | 52.7 | ... |
| **Terms of trade**[2] | | | | | | | | | | | | | | | | |
| Indonesia | 5.6 | –2.9 | –2.4 | 0.2 | –1.7 | –0.1 | 0.5 | 5.2 | –14.9 | 31.8 | –7.8 | 3.1 | –3.3 | –8.0 | –3.6 | –0.2 |
| Malaysia | 1.0 | 0.8 | –0.2 | 0.2 | –0.0 | 0.8 | 0.0 | 1.0 | –0.9 | –0.9 | 2.1 | –1.2 | –0.3 | 1.0 | 2.0 | 0.4 |
| Philippines | 0.5 | 2.9 | 2.1 | 1.2 | 3.1 | –0.9 | –1.2 | 0.3 | 1.3 | –2.6 | –3.2 | 0.9 | 1.1 | –3.5 | –5.0 | –5.0 |
| Singapore | ... | ... | –1.3 | 0.0 | –3.3 | –1.6 | –0.3 | –2.6 | –0.2 | –0.8 | –2.9 | –4.5 | –5.2 | –4.3 | –1.5 | –2.8 |
| Thailand | –2.7 | –1.2 | 0.9 | –0.3 | 2.3 | –0.9 | –2.3 | 1.4 | –3.8 | 0.8 | –8.1 | –7.1 | 2.0 | 4.3 | –1.0 | –5.1 |

[1] In per cent. [2] Annual changes, in per cent.

Sources: World Bank, *Global Development Finance*; Datastream; Institute for International Finance; national data.

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