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Modeling ASEAN Global Linkages

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Modeling ASEAN Global Linkages

Prepared for
Asian Development Bank

Submitted by
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Acronyms

| | |
|-------|---|
| ADF | Augmented Dickey-Fuller (test) |
| ASEAN | Association of Southeast Asian countries |
| DF | Dickey-Fuller (test) |
| ECM | Equilibrium correction mechanism |
| EU | European Union |
| FDI | Foreign direct investment |
| GDP | Gross domestic product |
| GNP | Gross national product |
| MUV | Manufactured unit value (index) |
| PRC | Peoples Republic of China |
| QR | Quantitative restriction |
| REER | Real effective exchange rate |
| SITC | Standard International Trade Classification |

Executive Summary

This study examines the global linkages of selected ASEAN countries composed of Indonesia, Malaysia, Philippines, Singapore and Thailand (hereafter ASEAN-5). While economic growth of each country undoubtedly hinges on domestic developments, it also depends on foreign trade and capital movements in the form of direct and portfolio investments. These external influences are largely driven by global developments, particularly in Japan, other Northeast Asian countries, the United States, the European Union, and within the ASEAN region. While the systematic determinants of the ASEAN-5 countries' linkages to these regions are relatively stable and robust, our focus is on the short-term dynamics underlying the transmission of income, price and other changes from the global economy.

ASEAN-5 Growth and the Global Context

For purposes of framing the analysis, we examine three widely recognized explanations of economic growth in Southeast Asia. The first focuses on supply growth in the region to explain the 'Asian Miracle' associated with capital accumulation, the absorption or assimilation of increasingly modern technology and the change in industrial structures. A closely related but more recent explanation is the fundamentalist view that structural factors have explained, first, the long-term growth of the Southeast Asian economies until mid-1997 and, second, the crisis in late 1997 and 1998. During the stellar years of the 'miracle' economies the dominant factors producing an outward-oriented, export-led growth were high domestic savings, human capital development, sound macro management and limited price distortions combined with careful policy interventions. During the 1997-98 crisis structural factors also dominated events, but this time in the form of weak financial systems that were undermined by large capital flows and exchange rate misalignments associated with the widespread use of relatively fixed exchange rate regimes. An alternative interpretation is that cyclical variations in the real dollar-yen rate created the misalignment and effected large changes in the pattern of trade and direct and portfolio investments throughout the Southeast Asian countries.

The third explanation of economic growth in Southeast Asia focuses on the rapid assimilation of the region in the global economy. While recognizing that industrial growth and transformation have been the driving force behind the economic growth of Southeast Asia, the handmaiden of that expansion has been the large growth of international trade and direct and portfolio investments generated by the rapid expansion of global production and markets. For the ASEAN-5 countries these systemic changes in the world economy have generated large volumes of international capital flows and transactions in goods and services, and brought about a widespread diffusion of production, transportation, and communication technologies from corporate contracting arrangements. This new globalization process emphasizes demand-led growth and the policy environment as a critical determinant of that growth. Over the long run, the

growing openness of the Southeast Asian economies until 1996 deepened the close link between economic growth and the rapidly changing global economy, but more recently they have made the ASEAN-5 economies susceptible to especially large changes in the trade and cross-border production activities.

The focus of this study is on demand-led growth in the ASEAN-5 economies in the context of the global economy. In examining linkages between the ASEAN-5 and the global economy, our focus is on the short-term or year-to-year impact of the global economy through real effective exchange rates, trade balances, international capital flows and changes in the structure of production, trade and investment in the ASEAN-5 economies. Notwithstanding the pervasive influence of the 1997-98 crisis on short-term movements in the near term, today's global linkages are rooted in behavioral relationships that have developed since the 1970s and 1980s. Our interest is therefore to identify and quantitatively represent the essential features that underlie the international transmission of income, prices and other factors, as distinct from an attempt to describe the complete ASEAN system of economic growth. As such, the set of causal relationships is parsimonious and does not explicitly consider the determinants of either supply growth or structural factors.

Modeling International Income Transmissions

Our estimates of the international transmission of income and other changes on the ASEAN-5 countries separate the long-run or equilibrium relationships between domestic income and foreign income, prices and other variables from the short-run or dynamic disequilibrium components of those relationships. We examine global linkages of the ASEAN-5 using an Equilibrium Correction Mechanism (ECM) specification that provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. The ECM adjusts for any disequilibrium between variables that are cointegrated. As a result, it provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. A closely related specification known as the "error-correcting mechanism" (also having the acronym ECM) models both the short and long-run relationships between variables.

Using the ECM we initially derive estimates of the international transmission of income changes on the ASEAN-5 economies and then extend that relationship to include exchange rates, international prices, interest rates, investment risks and other international influences on these countries. Our estimates of the foreign income elasticities of the ASEAN-5 countries are consistent with expectations. The short-term foreign income elasticities have a mean average of 0.4, and they range from near 0 for the relationship between Singapore and the United States to 0.9 for that between Thailand and Japan. The long-term foreign income elasticities have a mean average of 2, and they range from 0.6 for the relationship between the Philippines and Japan to over 3 for Singapore with that of the European Union. Estimates of the international transmission of income changes based on aggregate data from all the regions show a similar pattern as

those for individual regional estimates. These aggregated relationships are therefore used to estimate the international transmission of exchange rates and other influences on the ASEAN-5 countries.

Exchange Rates and Other International Transmissions

In addition to foreign income effects, we examine the effects of the following variables on ASEAN-5 economic activity: (a) *exchange rates* in the form of either the overall real effective exchange rate of the ASEAN-5 countries, bilateral real effective exchange rates with the major global regions, or the real yen/dollar exchange rate; (b) *international prices* in the form of either the terms of trade of the ASEAN-5 or world market prices for primary commodities relative to those of manufactures; (c) *interest rates* in the form of interest rate differentials either between those in Japan and those in the United States, those for ASEAN-5 lending and those for Japanese borrowing, or those for ASEAN-5 lending and those for borrowing in the Eurodollar market; (d) *investment risks* on portfolio and direct investments in the form of either real exchange rate fluctuations or more generally imbalances in the balance of payments that reflect the risk of real exchange rate changes and/or capital controls; (e) *world trade and capital inflows* in the form of world trade volumes, current account balances, the ratio of exports to GDP, and the importance of portfolio and direct investments to the economy; and (f) *intra-ASEAN linkages* in the form of the bilateral real effective exchange rate (REER) with other ASEAN-5 countries, the aggregate current account deficit of the ASEAN-5, and the region's reserve losses. In all cases, empirical measurement has been based on individual ASEAN-5 country estimates.

Exchange Rate Effects - The motivation for including real effective exchange rates in the relationship for the global linkages of the ASEAN-5 countries is well developed. During the period of rapid economic expansion in the 1980 and until 1996 a high premium was placed on keeping stable exchange rates and moderate to low inflation. In the subsequent crisis years, the exchange rate misalignments that emerged in the mid-1980s are believed to have created the framework for the worsening of domestic economic fundamentals a decade later. In analyzing these effects, past research has usually relied on measures of REER changes of the Southeast Asian economies with all their partner countries. In addition to this measure, we also test the bilateral real effective exchange rates of each ASEAN-5 country with the major global region of Japan, other Northeast Asian countries, the United States, the European Union and other ASEAN-5 countries.

We also examine the alternative hypothesis that the dollar-pegged Southeast Asian economies have been mainly influenced by yen-dollar exchange rate movements. Earlier works have shown that aggregate output of these countries has been closely linked to movements in the yen/dollar exchange rate. Those results have shown output in the Asian economies to be positively related to the yen/dollar exchange rate: when the yen weakened, output growth in the dollar-pegged Asian economies slows; when the yen strengthened, output growth accelerates.

We find real yen/dollar exchange rate movements to be significant in explaining real GDP changes in the ASEAN-5 countries. On average, the short-term elasticity of income with respect to the real yen/dollar exchange rate is equal to 0.05, while the average long-term elasticity is 0.8. All the coefficients had the expected positive sign suggesting that output in the ASEAN-5 economies is positively related to the yen/dollar exchange rate. The explanation for these findings is that when the yen has risen against the dollar, the export competitiveness of the dollar-pegged Asian economies has improved in the Japanese market and production costs have become more attractive to Japanese investors. Alternatively, when the yen has weakened (for example, as it did between mid-1995 and mid-1997) Japanese export demand and FDI outflows have contracted and economic growth in the Southeast Asian economies has fallen.

The REERs of the ASEAN-5 countries are statistically significant in explaining income changes of Indonesia, Malaysia and the Philippines. However, only in the case of Malaysia is the REER significant in the long run. These findings are not surprising since reduced form estimates that relate real GDP of countries to their REER are often unable to capture the transmission effects of this variable through the demand for exports and imports and direct and portfolio investments. Instead it is usually necessary to estimate structural equations relating each of the national income components (for example, export demand) to the REER and then estimating the individual effects on aggregate income.

International Price and Trade Volume Effects - In addition to real exchange rate changes, movements in world market prices for traded commodities and manufactures have impacted on the foreign demand for ASEAN-5 exports and domestic demand for imports. Moreover, international prices have had an indirect effect on ASEAN-5 growth through their impact on export-oriented FDI activities. We initially attempt to use two alternative measures of relative prices: the terms of trade of each economy, and world market prices for primary commodities relative to those of manufactures. Data for the terms of trade of most ASEAN-5 countries, however, are not available for the more recent years and these series were therefore not included in the final estimates. The alternative series on world commodity prices is more readily available. To approximate a terms of trade measure for individual countries, we derive a global terms of trade estimate based on the ratio of the index of commodity prices to that of prices for manufactures.

As expected, world trade volumes and world commodity market prices relative to those of manufactures are found to be significant in explaining changes in the ASEAN-5 countries' real GDP. The average of the estimated world trade volume elasticities equals only 0.02 in the short run but increases to 1.2 in the long run. This pattern is consistent among the ASEAN-5 countries: the short-term elasticity is low for all countries but the magnitude of all elasticities increases significantly in the long run, which suggests that adjustments take time but have an important influence on GDP. In the case of the global terms of trade, the average elasticity is generally higher in the short-run than that of world trade. These findings indicate that price transmissions occur more quickly than trade

volume effects, but that movements in trade volumes tend to have a relatively larger impact on ASEAN-5 GDP than do price variations.

Differential Interest Rate Effects - Interest rate differentials tend to affect movements in equity and debt securities on capital markets more than they do FDI movements, and therefore are likely to have a large influence on portfolio investments in the ASEAN-5. In addition, it is generally acknowledged that interest rate differentials resulting from the long-term upward movement in the nominal dollar value of the yen drove nominal interest rates on yen-denominated assets below those prevailing on dollar-denominated assets. That change led banks in East Asia to undertake foreign currency indebtedness by accepting cheap yen deposits without covering their foreign exchange risk.

To measure the effect that these interest rate disparities have had on the ASEAN-5 economies, we use the ratio of the nominal lending rates in each ASEAN-5 country to both the Japanese yen LIBOR three-month rate and US dollar LIBOR rate. However, the results do not support the use of this variable in explaining economic activity, except in the case of the Philippines, where the ratio of the Japanese yen LIBOR three-month rate to the US dollar LIBOR rate is statistically significant in explaining changes in real GDP. The reason for the general lack of significance of this variable in other countries may be the relatively short time period over which it influenced the Southeast Asian economies, compared with the fairly long time series (beginning in 1970) used for the equation estimates.

Investment Risk Effects - The main sources of risk for investors are interest rates, stock market returns, and contagion effects. Changes in interest rates can have large consequences on the macroeconomic performance and creditworthiness of developing countries, and more so through changes in portfolio investments than FDI. If investments in emerging markets are used only to increase portfolio returns when investments in industrial countries are under-performing, then the investments will be very sensitive to changes in industrial countries' interest rates. In the case of the Asian financial crisis, however, it was the lack of confidence in the asset market that led to panic liquidation in all the Southeast Asian stock markets. The liquidation, in turn, instigated large movements of funds offshore that reversed capital flows and drained official reserves. The resulting downward pressure on exchange rates was essentially domestically induced, although there were spillovers that gave rise to contagion and the pervasiveness of the Asian financial crisis. To test the effect of investment risk, we measure the risk premium on foreign loans made by financial intermediaries in the ASEAN-5 countries using the uncovered interest parity relationship. Using this measure we find the effect of risk premium on economic growth of the ASEAN-5 countries to generally be statistically significant. The average risk premium elasticity is -0.04 in the short run and it rises to -0.23 in the long run.

Balance of Payments Effects - A widely-used approach to identifying external sector effects on economies is the use of balance of payments and other indicators in place of price-related variables in the form of exchange rates, international prices and interest rates. To test the usefulness of this approach we adopt the indicators used by Little,

Cooper, Corden and Rajapatirana (1993) to the ASEAN-5 economies with some minor adaptations to ensure readily available time-series data. These indicators consist of the following variables: (a) foreign market GDP; (b) exports of goods and services as a percent of domestic GDP; (c) global terms of trade; (d) volume of world trade; and (e) FDI inflows as a percentage of domestic GDP.

The results generally support the use of these indicators in explaining income changes in the ASEAN-5 countries. The limitation of this approach, however, is the relatively long delay in the publication of information for the selected indicators compared with the more up-to-date information available for exchange rates, international prices and interest rates. These delays are important when data are used either to explain recent developments or to generate short-term forecasts. Nevertheless, the robustness of the estimates makes the approach useful in explaining movements in ASEAN-5 economic activity. Both exports and FDI changes are found to be significant in explaining real GDP changes. The export/GDP elasticities of the ASEAN-5 countries average 0.04 in the short run and then increase to 0.6 in the long run. Similarly, the short-term FDI/GDP elasticities average 0.03 in the short run and then increase to 0.2 in the long run. Only in the case of the Philippines are these variables not statistically significant. Instead movements in the global terms of trade and world trade volumes are found to be important in explaining GDP changes of that country.

We recommend extending the analysis of ASEAN global linkages in two areas. The first is the measurement of economic policy effects on growth. Balance of payments policies using trade policy instruments and capital controls have been found to play an important role in the macroeconomic histories of Southeast Asia and other developing regions. Financial policies are also likely to influence capital movements during tightening or liberalization episodes. Quantification of these policy effects would help to identify their impact on ASEAN economic activity. Similar econometric techniques could also be used to examine whether exchange rate policy differences among ASEAN countries explain divergent economic growth rates among these countries despite other similarities.

Another useful area of research would consider ASEAN global linkages based on estimates of the structural relationships in the economies of the member countries. It is likely that such an approach would yield more robust estimates of the international transmission mechanisms impacting on these countries than those based on reduced form equations.

I. ASEAN Global Economic Linkages

The link between the performance of the Association of Southeast Asian Countries (ASEAN) countries and global economic activity is central to the recovery of these countries. While the growth prospects of each country will undoubtedly build on expansionary domestic policies, they will also hinge on the recovery of exports and the return of foreign capital in the form of portfolio investment and foreign direct investment. These external conditions will be largely driven by global development, particularly in Japan, other Northeast Asian countries, the United States, the European Union, and within ASEAN. While the magnitude of these effects on the ASEAN countries can be broadly measured by the transmission of foreign income changes on domestic economic activity of those countries, there is no presumption about the direction and causality of those changes. Though the financial crisis in the Asian economies did not become a global crisis, it did slow the growth of the global economy by one-half of that it would otherwise have achieved.

The study is composed of the following parts: this section provides an introduction by examining the trend growth rates and year-to-year changes in the economic activity of the ASEAN-5 countries and the global regions. Section II reviews the literature on factors affecting the past performance of the ASEAN-5, particularly as they relate to the global economy, and it sets forth the main framework for analyzing the global determinants of economic growth in the ASEAN-5 (comprised of Indonesia, Malaysia, Philippines, Singapore and Thailand). Sections III and IV examine the international transmission of changes in income, exchange rates and other important determinants of ASEAN-5 economic growth, and present the empirical findings on the international transmission of income changes. Section V describes the other variables used in modeling the linkages and sets forth the empirical results. Section VI presents the conclusions. Details of the modeling methodology are laid out in the Technical Appendix.

The recent volatility of economic activity in the ASEAN countries makes the prediction of short-term activity a challenging one. While the systematic determinants of global linkages are relatively stable and robust, we are also interested in capturing the dynamics underlying rapidly changing variables to provide a relatively good explanation of recent developments and future short-term changes likely to affect these economies. To begin with, it is useful to see what phenomena have occurred in the ASEAN economies and what merits explanation from

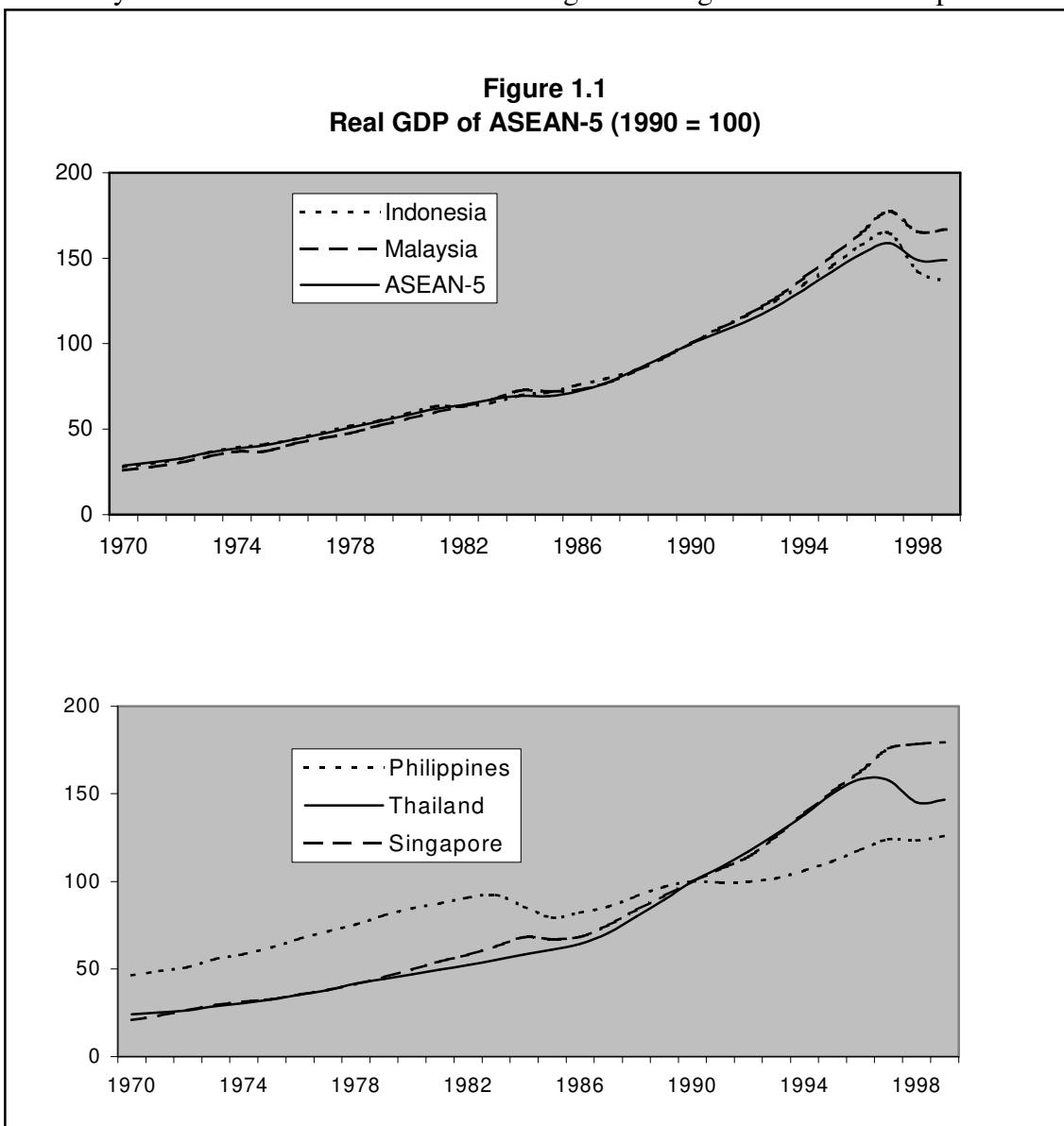
a global perspective. Table 1.1 and Figure 1.1 show the dramatic long-term expansion of the ASEAN-5 in the last quarter century. Average annual growth during this period averaged nearly 6 percent for the combined real gross domestic product (GDP) of these

| | Trend Growth | Average Deviation ^{1/} | |
|----------------|-----------------|---------------------------------|------------|
| | | 1970-97 | 1970-98 |
| Singapore | 7.5 | 3.3 | 3.3 |
| Indonesia | 6.1 | 4.0 | 4.4 |
| Malaysia | 6.5 | 4.4 | 4.4 |
| Thailand | 7.2 | 4.0 | 4.4 |
| Philippines | 3.0 | 7.0 | 6.9 |
| <i>Asean-5</i> | <i>6.0</i> | <i>3.5</i> | <i>3.7</i> |

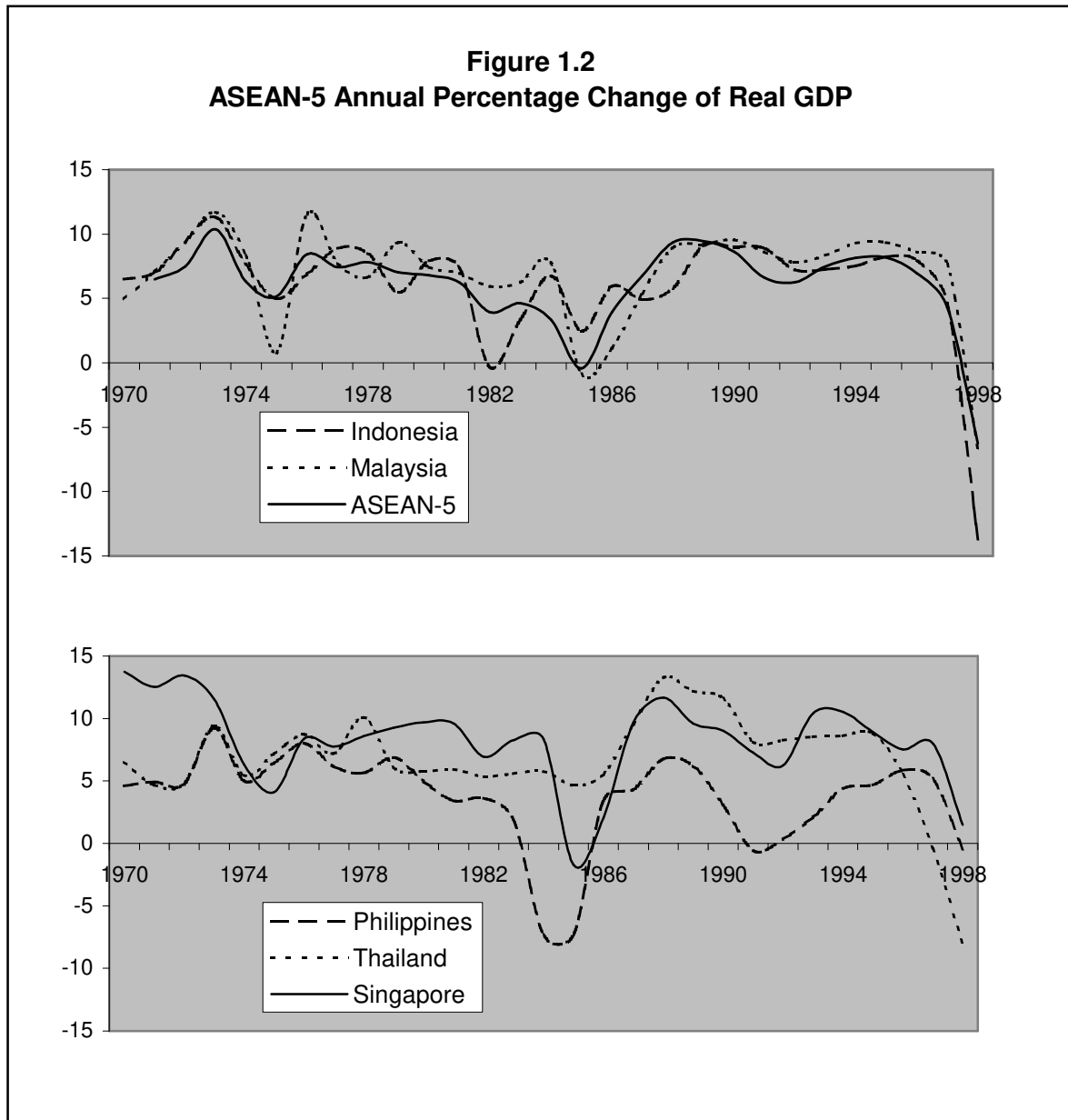
^{1/} Calculated from fitted trend.

countries, and ranged from 3.6 percent a year for the Philippines to 8 percent a year for Singapore.

The long-term positive trends make it difficult to distinguish short-term variations, so the year-to-year percentage changes in real GDP are shown in Figure 1.2. Despite the sharp movements in the series of Thailand, Singapore and Malaysia during the mid-1980s, and again in those of Indonesia and Thailand in 1998, year-to-year deviations over the entire period reveal a substantially different pattern from those limited to the mid-1980s. Singapore, which has experienced the highest growth rate, had the lowest deviation from that trend; in contrast, the Philippines, with the lowest growth rate, had the highest deviation from its trend. Indonesia and Thailand had similar short-term variations from their growth trend, although those of Thailand have occurred around a higher trend growth rate. In fact, Indonesia's short-term variations are similar to those of Malaysia after adjustment have been made for the trend growth rates, while Thailand has had relatively smaller deviations relative to its higher trend growth rate. These patterns hold,

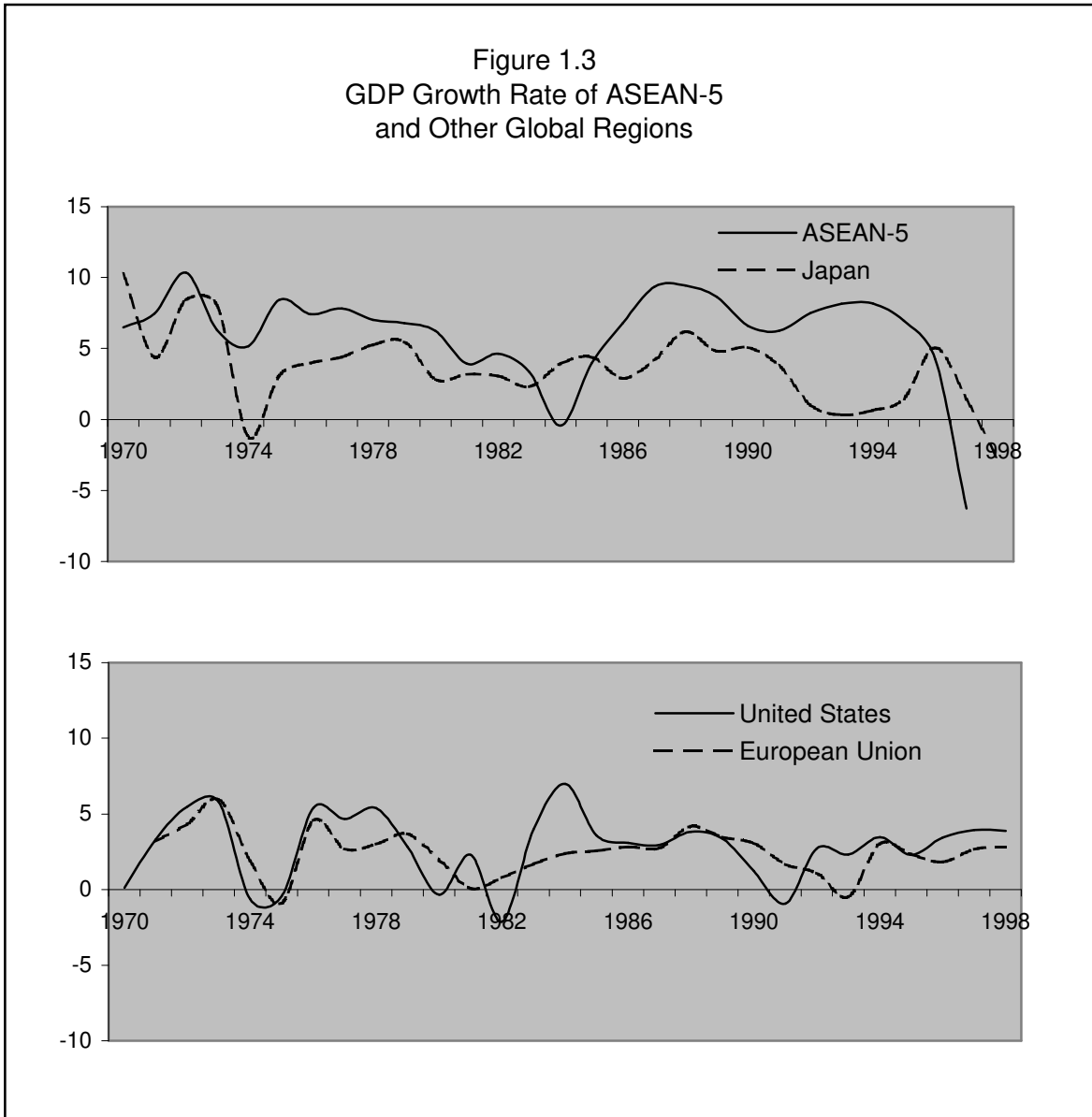


whether or not observations for 1998 are included in the calculations.



By way of comparison, annual percentage changes in the combined real GDP of the ASEAN-5 are plotted against those of the major global regions of Japan, the United States, and the European Union. Figure 1.3 shows that the series tend to be synchronous, although the rates of change of GDP in the ASEAN-5 tend to be more volatile than those of the major global regions. In general, changes in real GDP of the global regions tend to lead economic growth in the ASEAN-5, but generally grow at a slower rate. Thus, the data suggest a convergence of economic activity at the aggregate level between the ASEAN-5 and those global regions. These patterns require the careful interpretation of the various linkages between the ASEAN-5 and the major global regions in both their

long-term trends and short-term movements. The next section discusses the conceptual framework for modeling those linkages.



II. The Global Framework of ASEAN

For purposes of framing the present analysis, we can distinguish three widely recognized explanations of economic growth in Southeast Asia. The first focuses on supply growth in the region to explain the ‘Asian Miracle’ associated with capital accumulation, the absorption or assimilation of increasingly modern technology and the change in industrial structures (Kim and Lau, 1994; Stiglitz, 1996; World Bank, 1993; Young, 1995). Whether driven by capital accumulation or by its productive assimilation, the growth process was accompanied by major changes in the structure of the Southeast Asian economies (Nelson and Pack, 1999). Notwithstanding the severe economic and financial crisis that hit all the countries in late 1997 and 1998, the view holds that the factors determining supply growth are largely in tact and will undoubtedly continue to influence the region under a favorable policy environment.

A closely related but more recent explanation is the fundamentalist view that structural factors have explained, first, the long-term growth of the Southeast Asian economies until mid-1997 and, second, the crisis in late 1997 and 1998. During the stellar years of the ‘miracle’ economies the dominant factors producing an outward-oriented, export-led growth were high domestic savings, human capital development, sound macro management and limited price distortions combined with careful policy interventions. During the 1997-98 crisis, structural factors also dominated events, but this time in the form of weak financial systems that were undermined by large capital flows and exchange rate misalignments. One explanation of these misalignments is the widespread use of relatively fixed exchange rate regimes. These regimes eventually needed to be reversed through the process of nominal and real depreciations of currencies that took place beginning in the latter part of 1997 (Krugman, 1998), Goldstein (1998), and Corsetti, Pesenti, and Roubini (1998).¹ An alternative explanation is that the cyclical variations in the real dollar-yen rate created the misalignment and impacted on trade, investment and capital flows of the Southeast Asian countries, rather than exchange rate mismanagement on the part of these countries (McKinnon, 1999, and Ohno, 1999). Dollar-yen rate variations are believed to have affected the region’s international competitiveness, FDI flows, and short-term foreign currency indebtedness well before the crisis, and to have had a pervasive influence on the pattern of trade and investment in throughout the region.

¹ The other major explanation of the 1997-98 crisis focuses on the possible impact of expectations in the asset market as they affected the recent financial crisis in Asia (Sachs, 1997, and Stiglitz, 1997). These negative expectations reflected a lack of confidence in the asset market that led to panic liquidation in all the Southeast Asian stock markets. The liquidation, in turn, instigated large movements of funds offshore that reversed capital flows and drained official reserves. The resulting downward pressure on exchange rates was essentially domestically induced, although there were spillovers that gave rise to contagion and the pervasiveness of the Asian financial crisis. Since in this study we are concerned with real international product and financial linkages of the ASEAN-5, this interpretation of events during 1997-98 will not be examined here.

The third explanation of economic growth in Southeast Asia focuses on the rapid assimilation of the region in the global economy. While recognizing that industrial growth and transformation have been the driving force behind the economic growth of Southeast Asia, the handmaiden of that expansion has been the large growth of international trade and direct and portfolio investment generated by the rapid expansion of global production and markets. For the ASEAN-5 countries the systemic changes in the world economy have generated large volumes of international capital flows and transactions in goods and services, as well as generating a widespread diffusion of production, transportation, and communication technologies from corporate contracting arrangements. The introduction of new technologies through cross-border production networks and the dissemination of new skills in the workforce have now become as important to the specialization of production activities in the Asian economies as their capital, labor and natural resource endowments.

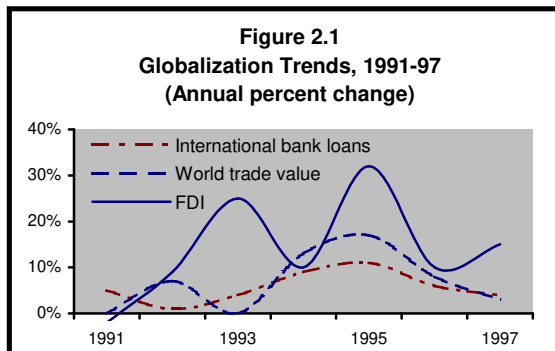
This new globalization process emphasizes demand-led growth and the policy environment as a critical determinant of that growth. Until roughly the mid-1980s many of the region's countries relied on exports as the main engine for economic growth, which implied a liberalization of trade and an emphasis on the facilitating role of the government. The shift from an export-driven growth strategy by many Asian countries to a growth strategy targeting global production and market networks was largely driven by efforts to exploit the worldwide growth of cross-border production and international capital movements. While the earlier outward-oriented strategy promoted economic growth in a number of Asian economies through the introduction of high value-added products into their economies, the new strategy has targeted the broad-based transmission of domestic learning and knowledge accumulation as a means of sustaining high economic growth rates.

Although all of the Southeast Asian economies initially embarked on import-substituting industrialization, over time they shifted to export-oriented industrialization policies, starting with Singapore in the late 1960s, followed by Malaysia, the Philippines, and

| | Indonesia | Malaysia | Philippines | Singapore | Thailand |
|----------------------------|------------------|-----------------|--------------------|------------------|-----------------|
| Trade Exposure <i>a/</i> | | | | | |
| 1970-74 | 32.6 | 77.5 | 39.0 | 43.1 | 42.1 |
| 1975-79 | 37.8 | 90.3 | 45.6 | 61.3 | 47.8 |
| 1980-84 | 46.6 | 109.8 | 49.6 | 83.5 | 50.3 |
| 1985-89 | 44.4 | 117.7 | 52.2 | 78.1 | 59.1 |
| 1990-94 | 53.1 | 162.7 | 66.3 | 120.9 | 78.6 |
| 1995-97 | 53.0 | 183.0 | 84.8 | 148.0 | 85.8 |
| Capital Exposure <i>b/</i> | | | | | |
| 1970-74 | n.a. | 5.7 | n.a. | 8.8 | n.a. |
| 1975-79 | n.a. | 4.0 | 0.6 | 6.1 | 0.6 |
| 1980-84 | n.a. | 6.6 | 0.6 | 10.0 | 1.0 |
| 1985-89 | n.a. | 3.4 | 1.2 | 11.5 | 2.4 |
| 1990-94 | 1.8 | 6.2 | 2.2 | 11.8 | 3.2 |
| 1995-97 | 3.2 | 4.9 | 4.7 | 10.9 | 4.2 |

a/ Trade exposure is measured as the sum of exports and imports relative to total GDP.
b/ Capital exposure is measured as the sum of FDI and portfolio capital relative to total GDP.
 Sources: International Monetary Fund (IMF), *International Financial Statistics* (various issues).

Thailand in the 1970s, and finally Indonesia in the mid-1980s. Export-oriented industrialization led to an opening of the economies to more markets, and the promotion of foreign direct investment (FDI) as a means of upgrading the industrial structures through the transfer and diffusion of advanced industrial technologies. As a result, the exposure of the economies to foreign trade and capital has grown dramatically in the last quarter century, although it has been most pronounced in Malaysia and Singapore (Table 2.1).



Over the long run, the growing openness of the Southeast Asian economies until 1996 deepened the close link of economic growth to the rapidly changing global economy, and produced rapid advances in all areas of globalization covering trade, cross-border investments and international financial activities. But more recently they have made the ASEAN-5 economies susceptible to the especially

large changes in the trade and cross-border production activities (Figure 2.1). Year-to-year variations around the 15 percent annual growth rate of international production equaled ± 9 percent, while those around the 6 to 7 percent trend growth rates of net international bank lending and world trade equaled ± 3 and ± 5 percent respectively.

The focus of this study is on demand-led growth in the ASEAN-5 economies in the context of the global economy. In examining linkages between the ASEAN-5 and the global economy, our focus is on the short-term or year-to-year impact of the global economy on real effective exchange rates, trade balances, international capital flows and changes in the structure of production, trade and investment in the ASEAN-5 economies. Notwithstanding the pervasive influence of the 1997-98 crisis on short-term movements in the near term, today's global linkages are rooted in behavioral relationships that have developed since the 1970s and 1980s. Our interest is therefore to identify and quantitatively represent the essential features that underlie the international transmission of economic activity, as distinct from an attempt to describe the complete ASEAN system of economic growth. As such, the set of causal relationships is parsimonious and does not explicitly consider the determinants of either supply growth or structural factors.

In the next section we quantify the impact of the international transmission of income changes on the economic growth of the ASEAN-5 countries and examine the major determinants of the international transmission process. The empirical investigation economic follows the conventional approach to modeling the transmission of changes in economic activity between countries. The magnitude of these transmissions to the ASEAN-5 can be broadly measured by the impact that foreign income changes have on the domestic economic activity of those countries. The transmission of foreign income changes is complex and when those changes are sufficiently widespread they can also affect market prices of traded products by the ASEAN-5, as well as FDI inflows that are either directed toward international markets or rely on foreign inputs.

In addition to the transmission of income changes, we include in the model other determinants of trade and capital flows impacting on the economic growth of the ASEAN-5. For trade, the two other major determinants of demand considered are relative prices of traded products, or the terms of trade, and the real effective exchange rate of each ASEAN-5 country. For capital flows, including portfolio investment and direct investment, the other determinants considered are real interest rate differentials, the real exchange rate, and the risks associated with portfolio and direct investment. That risk is measured by real exchange rate fluctuations, or more generally, imbalances in the balance of payments that reflect the risk of real exchange rate changes and/or capital controls.

III. International Transmission of Income Changes

The major regional global linkages of the ASEAN-5 countries are fairly evenly distributed among Japan, the United States, the European Union, other Northeast Asia, other ASEAN-5, and the rest-of-the-world. These linkages reflect trade, as shown in Table 3.1. Capital flows are more concentrated in the industrialized countries, especially Japan. For example, according to IMF (1998) data, Thailand's FDI inflows in 1997 were mainly from Japan (36 percent of the total), the United States (18 percent) and the European Union (11 percent). The composition of these linkages, however, has changed considerably in the last two decades. In trade Japan accounted for nearly one-fourth of ASEAN-5 combined exports and imports in 1980, compared with 17 percent in 1997 and 14 percent in 1998. The declining importance of Japan has been reflected in trade of all countries, other than Singapore, but none more than Indonesia, which lowered its share from 48 to 17 percent between 1980 and 1998. In contrast, all countries in the region have increased their trade shares with other Northeast Asian countries and other ASEAN-

| Table 3.1 ASEAN-5 Distribution of Trade, 1998 (Percentages) | | | | | | | |
|--|--------------------------|--------------|--|--------------------------|---------------------------|--------------|--------------|
| Exports+Imports to: by: | Intra- ASEAN5 | Japan | Other NE Asia ^{a/} | United States | European Union | Other | Total |
| Indonesia | 18% | 17% | 14% | 13% | 16% | 22% | 100% |
| Malaysia | 28% | 13% | 11% | 18% | 13% | 18% | 100% |
| Philippines | 13% | 16% | 12% | 25% | 12% | 22% | 100% |
| Singapore | 23% | 11% | 13% | 18% | 14% | 21% | 100% |
| Thailand | 16% | 17% | 10% | 17% | 16% | 24% | 100% |
| ASEAN-5 | 21% | 14% | 12% | 18% | 14% | 21% | 100% |

^{a/} Comprises Hong Kong SAR, Korea, the Peoples Republic of China (PRC), and Taipei, China.
Source: International Monetary Fund (IMF), *Direction of Trade Statistics* (June 1999).

5 countries. Overall trade shares with the United States and the European Union have remained nearly unchanged. Since estimates of global regional linkages require fairly long time series, calculations will more closely reflect the weights of the regions at the mid-point of the time series than the current ones.

Our estimates of the international transmission of income and other changes on the ASEAN-5 countries separate the long-run or equilibrium relationships between domestic income and foreign income, prices and other variables from the short-run or dynamic disequilibrium components of those relationships. We examine global linkages of the ASEAN-5 using an Equilibrium Correction Mechanism (ECM) specification that provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. The ECM adjusts for any disequilibrium between variables that are cointegrated. As a result, it provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. A closely related specification known as the "error-correcting mechanism"

(also having the acronym ECM) models both the short and long-run relationships between variables.

To illustrate the adjustment process of these transmissions, we can estimate the simple relationship of real GDP growth of all ASEAN-5 countries to changes in real GDP growth in all the global regional economies (Japan plus US plus EU). Let the variable Y represent the real GDP growth of the ASEAN-5 and Z represent the real GDP growth of the global regional economies. The resulting estimate of the ECM relationship between these two variables for 1971-98 is as follows (see the Technical Appendix for a description of the ECM):

$$\Delta y_t = -1.77 - 0.11(y - z)_{t-1} + 0.51\Delta z_t + 0.14z_{t-1} \quad (3.1)$$

(2.4) (2.7) (2.4)

$$R^2 = 0.83 \quad dw = 1.3 \quad SE = 0.014$$

where lower-case letters denote the logarithms of the corresponding capitals, the t -statistics are shown in parentheses, R^2 is the corrected squared multiple correlation coefficient, dw is the Durbin-Watson statistic, and SE is the standard deviation of the residuals. Despite the statistical significance of the Δz variable, the equation failed to predict the changes in income in 1985 and 1998. It seriously overestimated real GDP of the ASEAN-5 in 1985 and 1998, and hence binary variables were used to account for the effects of other variables in those two years. Notwithstanding these limitations, the short and long-run dynamic properties of the estimated relationship in the ECM can be examined.

The estimated equation yields a short-term elasticity of 0.51 long-run elasticity of 2.27 (= $1 + 0.14/0.11$) with respect to real GDP of the global regional economies. The growth rate of the selected global regional economies is given by Δz , whose steady-state path can be denoted g . A constant growth rate of $g = \Delta z$, yields the long-run dynamic relationship:

$$Y = kZ^{2.27} \quad (3.2)$$

where $k = \exp\{[-1.77/-0.11] + [-0.11-.51x(-0.11)-0.14]/-0.11^2\}g = \exp(16.09 - 16.02)g$. Since $g = 2.8$ percent was the average growth rate of real GDP in the global regional economies during the period 1971-98, then $k = 0.03$ and the ratio of real GDP of the ASEAN-5 to that of the selected global regional economies equals 1.68 percent, which approximates the average ratio in 1971-98. The ASEAN-5's real GDP growth is therefore shown to be influenced by changes in both the level and rate of growth of real GDP in the global regional economies.

Table 3.2 shows the regression estimates for the ECM representation of the relationship between changes in real GDP in each ASEAN-5 country and changes in real GDP of the three global regions. In general, the low power of the R^2 and dw statistics suggest left-out variables.

Table 3.2**Regression Results of ASEAN-5 GDP Relationships to Foreign Income**

$$\Delta y_t = \alpha_0 + \alpha_1(y - z)_{t-1} + \alpha_2\Delta z_t + \alpha_3z_{t-1} + v_t$$

| | | | | | | Summary Statistics | | | |
|-------------|-------------------------|------------------|-------------------|----------------|--------|--------------------|------|------|-----|
| ASEAN-5 | Global Region | $\ln(Y/Z)_{t-1}$ | $\Delta \ln(Z)_t$ | $\ln Z_{t-1}$ | Const | R ² | dw | SE | dof |
| Indonesia | Japan | -0.21 (2.1) | 0.84 (2.4) | 0.14 (1.9) | -1.95 | 0.41 | 1.22 | 0.04 | 24 |
| | United States <u>a/</u> | -0.05 (0.8) | 0.29 (1.3) | 0.05 (0.6) | -1.03) | 0.80 | 1.14 | 0.02 | 23 |
| | European Union | -0.34 (2.3) | 0.32 (0.6) | 0.49 (2.0) | -5.91 | 0.26 | 1.21 | 0.04 | 24 |
| | World <u>a/,b/</u> | -0.08 (1.4) | 0.28 (1.1) | 0.10 (1.3) | -1.42 | 0.84 | 1.26 | 0.02 | 23 |
| Malaysia | Japan | -0.14 (1.8) | 0.60 (1.9) | 0.12 (1.8) | 1.58 | 0.30 | 1.42 | 0.03 | 24 |
| | United States | -0.05 (0.5) | 0.32 (0.8) | 0.03 (0.2) | -0.47 | 0.10 | 1.34 | 0.04 | 24 |
| | European Union | -0.21 (2.1) | 0.77 (1.6) | 0.37 (2.0) | -4.27 | 0.24 | 1.26 | 0.04 | 24 |
| | World <u>a/,c/,d/</u> | -0.05 (1.0) | 0.79 (3.7) | 0.09 (1.4) | -1.13 | 0.82 | 2.3 | 0.02 | 22 |
| Philippines | Japan | -0.14 (1.7) | 0.17 (0.5) | -0.05 (1.8) | -0.13 | 0.21 | 0.87 | 0.04 | 24 |
| | United States | -0.17 (2.2) | 0.14 (0.5) | -0.03 (0.9) | -0.53 | 0.24 | 0.98 | 0.04 | 24 |
| | European Union | -0.18 (2.0) | 0.37 (0.7) | 0.01 (0.2) | -0.92 | 0.26 | 0.90 | 0.04 | 24 |
| | World <u>e/,f/,g/</u> | -0.14 (1.3) | 0.25 (0.4) | -0.04 (1.1) | -0.35 | 0.51 | 1.58 | 0.03 | 18 |
| Thailand | Japan | -0.18 (2.8) | 0.89 (3.2) | 0.20 (3.0) | -2.27 | 0.46 | 0.68 | 0.03 | 24 |
| | United States | -0.07 (0.8) | 0.24 (0.6) | 0.09 (0.6) | -1.09 | 0.09 | 1.60 | 0.04 | 24 |
| | European Union | -0.19 (1.9) | 0.51 (1.0) | 0.39 (1.8) | -4.27 | 0.16 | 0.63 | 0.04 | 24 |
| | World <u>h/</u> | -0.15 (1.6) | 0.58 (1.2) | 0.25 (1.6) | -3.23 | 0.10 | 0.88 | 0.04 | 24 |
| Singapore | Japan | -0.08 (1.1) | 0.46 (1.7) | 0.08 (0.9) | -0.92 | 0.22 | 1.16 | 0.03 | 24 |
| | United States | -0.06 (0.7) | 0.01 (0.1) | 0.08 (0.5) | -0.90 | 0.09 | 1.19 | 0.03 | 24 |
| | European Union | -0.15 (1.7) | 0.68 (1.6) | 0.30 (1.5) | -3.31 | 0.21 | 1.15 | 0.03 | 24 |
| | World <u>a/,c/,i/</u> | -0.03 (0.5) | 0.43 (0.9) | 0.05 (0.4) | -0.66 | 0.55 | 1.88 | 0.02 | 13 |

Notations (lower-case letters denote logarithms of upper-case letters):

Y = Domestic GDP

Z = Foreign GDP

a/ Includes a binary variable for 1998 (1 in 1998; 0 otherwise).

b/ Includes a binary variable for 1982 (1 in 1982; 0 otherwise).

c/ Includes a binary variable for 1985 (1 in 1985; 0 otherwise).

d/ Includes a binary variable for 1986 (1 in 1986; 0 otherwise).

e/ Includes a binary variable for 1984 (1 in 1984; 0 otherwise).

f/ Includes a binary variable for 1991 (1 in 1991; 0 otherwise).

g/ Includes a binary variable for 1992 (1 in 1992; 0 otherwise).

h/ Includes a binary variable for 1997 (1 in 1987; 0 otherwise).

i/ Includes a binary variable for 1993 (1 in 1983; 0 otherwise).

Notes: R² is the adjusted R²; figures in parentheses below the coefficients are t-statistics.

| Table 3.3 | | | |
|------------------------------------|----------------------|------------------------------|-----------------------------|
| Foreign Income Elasticities | | | |
| ASEAN-5 | Global Region | Short-Term Elasticity | Long-Term Elasticity |
| Indonesia | Japan | 0.84 | 1.66 |
| | United States | 0.29 | 2.06 |
| | European Union | 0.32 | 2.47 |
| | World | 0.28 | 2.22 |
| Malaysia | Japan | 0.60 | 1.86 |
| | United States | 0.32 | 1.69 |
| | European Union | 0.77 | 2.77 |
| | World | 0.79 | 2.99 |
| Philippines | Japan | 0.17 | 0.62 |
| | United States | 0.14 | 0.83 |
| | European Union | 0.37 | 1.04 |
| | World | 0.25 | 0.69 |
| Thailand | Japan | 0.89 | 2.11 |
| | United States | 0.24 | 2.27 |
| | European Union | 0.51 | 3.01 |
| | World | 0.58 | 2.67 |
| Singapore | Japan | 0.46 | 1.98 |
| | United States | 0.00 | 2.19 |
| | European Union | 0.51 | 3.01 |
| | World | 0.43 | 2.62 |

Note: The elasticity measures the percentage change in real GDP of each ASEAN-5 country brought about by a 1 percent change in the real GDP growth of each global region, namely, Japan, the United States, the European Union and the World.

As expected, the relationships between each of the ASEAN-5 and Japan are more robust than those between the region and the United States and the European Union. Since the growth rates of all the ASEAN-5 countries are of integrated order $I(2)$ and that of Japan is also $I(2)$, the individual coefficient estimates are robust. In contrast, the coefficient estimates for the relationship between economic growth of the ASEAN-5 countries and those of the United States and the European Union are much less robust and the individual coefficient estimates are often not significantly different from zero.

Despite the lack of consistently robust estimates, the results point to a number of conclusions about the relationship between ASEAN-5 economic growth and foreign income growth in the United States, Japan, and the European Union. As Table 3.3 shows, the foreign income elasticities for the ASEAN-5 countries are consistent with expectations. The short-term foreign income elasticities have a mean average of 0.43, and they range from near 0 for the relationship between Singapore and the United States to 0.89 for that between Thailand and Japan. The long-term foreign income elasticities have a mean average of 1.97, and they range from 0.62 for the relationship between the Philippines and Japan to over 3.0 for Singapore with that of the European Union.

Among the individual ASEAN-5 countries, the Philippines has the lowest average foreign income elasticity in both the short run (0.23) and long run (0.83). In the short run, Thailand and Malaysia have the largest short-term average foreign income elasticities

(0.55 and 0.56 respectively), while Thailand has the largest average long-term elasticity (2.46), followed by Singapore (2.39). Among the global regions, the United States has the smallest foreign income elasticity in the short run (1.98) while Japan has the largest short-term elasticity (0.59). That of the European Union is 5.0 in the short run. In the long-run, Japan has the smallest income elasticity (1.65), while the European Union has the largest elasticity (2.46). That of the United States is equal to 1.81. Estimates of the international transmission of income changes based on aggregate data from all the regions show a similar pattern as those for individual regional estimates.

IV. Transmission Effects of Bilateral Exchange Rate Differentials

Real effective exchange rate movements favored economic growth in the ASEAN-5 countries in the 1980s and until 1996, despite the loss of competitiveness in some regional markets. Up to the mid-1990s, export growth was favorably affected by improvements in the ASEAN-5's international competitiveness, and foreign investment grew from the relative strength of foreign currencies and favorable export prospects. However, the situation reversed itself in the mid-1990s when a gradually widening differential between the inflation rates of the ASEAN countries and major trade and investment partners caused the real effective exchange rates of the ASEAN-5 countries to appreciate. The resulting deterioration in export competitiveness led to large increases in the current account deficit of the region as a whole, and Malaysia and Thailand in particular.

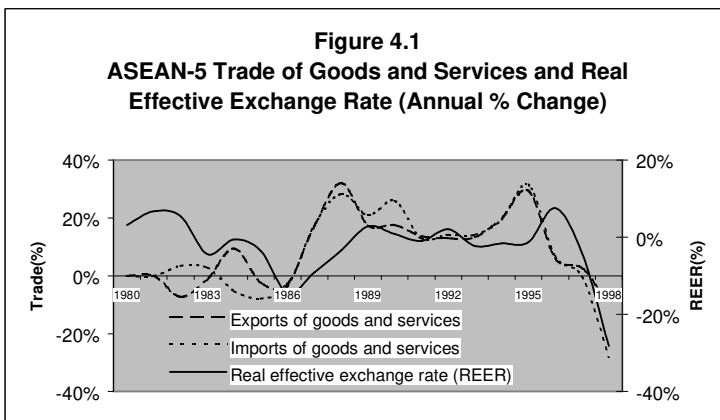


Figure 4.1 plots the trade-weighted average real effective exchange rate (REER) of the ASEAN-5 countries against their imports and exports. The REER is the nominal effective exchange rate adjusted for relative movements in the national prices of home and partner countries.¹ An increase in the index reflects an

appreciation or revaluation and a decline denotes a devaluation or depreciation. For the ASEAN-5 countries as a whole the devaluation of their REER in the 1980s was followed by large increases in exports of goods and services. In the first half of the 1990s, however, the ASEAN-5's REER remained almost unchanged as devaluations of the currencies of Indonesia, Malaysia and Thailand were offset by appreciations in those of the Philippines and Singapore. Exports of all countries nevertheless surged during this period, particularly in Malaysia, Thailand and Singapore. In 1996 all ASEAN-5 currencies appreciated in real terms and, with the exception of Singapore, they all devalued sharply in 1997-98. Exports since 1996 have stagnated and have yet to respond

¹ The real exchange rate is defined as $e^r_t = P_t / (e^r_t P^f_t)$, where e^r is the nominal exchange rate, P^f is the foreign currency price of goods purchased abroad, and P is the domestic price level. A rise in e^r represents a real *revaluation* under a fixed exchange rate system, and an *appreciation* under a flexible exchange rate system. The rise is associated with either a rise in the nominal exchange rate e^r or a rise in relative prices of domestic goods (equivalent to a fall in relative prices of foreign goods). Conversely, a fall in e^r represents a real *devaluation* in a fixed exchange rate system, and a *depreciation* in a flexible exchange rate system, which can be brought about by either a fall in the nominal exchange rate e^r , or a rise in the relative price of foreign goods (equivalent to a relative fall in the price of domestic goods).

| | Japan | Other NE Asia | European Union | ASEAN-5 |
|------|-------|---------------|----------------|---------|
| 1980 | 157 | 60 | 93 | 93 |
| 1981 | 152 | 69 | 114 | 94 |
| 1982 | 172 | 75 | 129 | 98 |
| 1983 | 164 | 86 | 142 | 99 |
| 1984 | 164 | 89 | 159 | 99 |
| 1985 | 165 | 92 | 165 | 104 |
| 1986 | 116 | 98 | 129 | 105 |
| 1987 | 100 | 98 | 110 | 103 |
| 1988 | 89 | 102 | 107 | 102 |
| 1989 | 95 | 99 | 114 | 102 |
| 1990 | 100 | 100 | 100 | 100 |
| 1991 | 93 | 104 | 103 | 99 |
| 1992 | 87 | 107 | 99 | 94 |
| 1993 | 77 | 110 | 111 | 95 |
| 1994 | 71 | 124 | 110 | 94 |
| 1995 | 65 | 122 | 101 | 90 |
| 1996 | 75 | 124 | 103 | 91 |
| 1997 | 84 | 132 | 113 | 102 |
| 1998 | 90 | 156 | 115 | 145 |

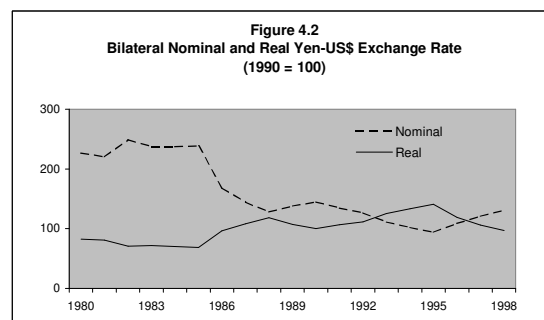
Note: Regional averages are trade-weighted by total trade (imports plus exports) of ASEAN-5 countries.
Source: Derived from IMF, *International Financial Statistics* data.

to the sharp devaluations during 1997-98. Imports, however, did fall sharply in 1998. In Indonesia, for example, the cutbacks in imported inputs following the 80 percent devaluation of the rupiah against the US dollar in early 1998 caused many manufacturing industries engaged in assembly production to reduce production or cease production altogether. These industries included both export-oriented industries engaged in textile, garment, footwear, and consumer electronics production, and domestic market-oriented industries such as the steel, automotive and pharmaceutical industries (Thee, 1999).

Because most of the ASEAN-5 countries indirectly pegged their exchange rates to the US dollar, their currencies followed the US dollar down against the Japanese yen in the first half of the 1990s and then reversed that trend in the second half of the decade (Table 4.1).^{2 3} After adjusting for inflation differences in Japan and the United States, the real cross-rate of the

yen against the dollar appreciated by over 40 percent in 1990-95 and then depreciated by over 30 percent in 1995-98 (see Figure 4.2). In the EU market the average nominal exchange rate experienced relatively large year-to-year fluctuations against the dollar and showed no clear trend between 1987 and 1996. Only in the important markets of Mainland China and Korea did countries with dollar-pegged currencies improve their export competitiveness.

At the same time, the ASEAN-5 countries' higher rates of inflation than in the industrialized countries caused their REER in the US market to appreciate in the latter part of the 1980s and early 1990s (Table 4.2). For the ASEAN-5 region as a whole the REER fell by over 30 percent in the US market between 1980 and 1989,



² Note that Table 4.1 contains information on nominal exchange rates. As such, a rise in the exchange rate represents a nominal *devaluation* in a fixed exchange rate system, and a nominal *depreciation* in a flexible exchange rate system. Alternatively, a fall in the exchange rate represents a nominal *revaluation* under a fixed exchange rate system, and a nominal *appreciation* under a flexible exchange rate system.

³ For a review of the exchange rate regimes in Southeast Asia through the mid-1990s, see Bénassy-Quéré (1996).

but then appreciated by 22 percent between 1989 and 1996. In the EU market the dollar appreciation combined with relative price movements of the ASEAN-5 to produce major swings in the region's bilateral REER with that market. In the first half of the 1980s the bilateral REER appreciated by 65 percent, it then plummeted by nearly 50 percent in the second half of the 1980s, and in the first half of the 1990s it appreciated by 20 percent. Bilateral REER movements in the Northeast Asian market as a whole appeared to be more modest, but only because the large REER appreciation in the Mainland China market during 1980-94 was offset by a large REER devaluations in the Korean market. The largest changes in ASEAN-5's bilateral REERs occurred in the Japanese market, where the bilateral REER experience an almost uninterrupted fall between the early 1980s and the mid-1990s. Overall the bilateral REER of the ASEAN-5 with the Japanese yen fell by 70 percent between 1982 and 1995.

Apart from strengthening the demand exports, the ASEAN-5 countries benefited from large-scale capital inflows as a result of exchange rate realignments with the Japanese yen in the early 1990s, as Japanese investors took advantage of relatively low dollar-

Table 4.2
ASEAN-5 Real Effective Exchange Rates (REER) by Region, 1970-98 (1990=100)

| | Indonesia | | | | | Malaysia | | | | | Philippines | | | | |
|------|-----------|-------|---------------|-----|-----|----------|-------|---------------|-----|-----|-------------|-------|---------------|-----|-----|
| | World | Japan | Other NE Asia | US | EU | World | Japan | Other NE Asia | US | EU | World | Japan | Other NE Asia | US | EU |
| 1970 | 191 | 316 | 116 | 148 | 213 | 61 | 483 | 116 | 78 | 65 | 114 | 204 | 68 | 95 | 138 |
| 1971 | 173 | 280 | 109 | 137 | 190 | 65 | 461 | 109 | 79 | 62 | 121 | 208 | 74 | 102 | 141 |
| 1972 | 156 | 232 | 104 | 133 | 166 | 75 | 403 | 104 | 92 | 67 | 116 | 179 | 72 | 103 | 128 |
| 1973 | 171 | 244 | 121 | 165 | 179 | 93 | 432 | 121 | 123 | 82 | 115 | 166 | 72 | 112 | 122 |
| 1974 | 206 | 299 | 150 | 208 | 228 | 97 | 514 | 150 | 126 | 89 | 134 | 193 | 86 | 134 | 147 |
| 1975 | 227 | 324 | 171 | 227 | 234 | 100 | 536 | 171 | 128 | 92 | 122 | 175 | 82 | 123 | 126 |
| 1976 | 261 | 355 | 194 | 258 | 280 | 97 | 475 | 194 | 113 | 110 | 123 | 171 | 85 | 124 | 134 |
| 1977 | 259 | 330 | 197 | 269 | 279 | 101 | 415 | 197 | 121 | 121 | 122 | 158 | 86 | 128 | 132 |
| 1978 | 220 | 252 | 182 | 254 | 240 | 103 | 288 | 182 | 136 | 118 | 114 | 128 | 85 | 129 | 120 |
| 1979 | 178 | 219 | 141 | 197 | 179 | 115 | 350 | 141 | 153 | 116 | 125 | 151 | 90 | 136 | 122 |
| 1980 | 192 | 247 | 152 | 205 | 190 | 116 | 379 | 152 | 154 | 112 | 132 | 168 | 95 | 139 | 127 |
| 1981 | 175 | 255 | 167 | 206 | 233 | 124 | 320 | 167 | 138 | 148 | 134 | 167 | 102 | 135 | 154 |
| 1982 | 199 | 294 | 182 | 208 | 259 | 140 | 397 | 182 | 134 | 190 | 140 | 188 | 103 | 133 | 164 |
| 1983 | 186 | 223 | 149 | 160 | 222 | 159 | 365 | 149 | 136 | 256 | 118 | 148 | 111 | 107 | 145 |
| 1984 | 182 | 214 | 157 | 150 | 232 | 175 | 358 | 157 | 133 | 319 | 111 | 145 | 98 | 102 | 156 |
| 1985 | 176 | 204 | 158 | 141 | 223 | 174 | 322 | 158 | 119 | 310 | 120 | 158 | 111 | 109 | 171 |
| 1986 | 134 | 131 | 139 | 126 | 155 | 134 | 149 | 139 | 110 | 179 | 103 | 102 | 114 | 98 | 120 |
| 1987 | 103 | 96 | 114 | 104 | 111 | 124 | 115 | 114 | 115 | 140 | 98 | 90 | 110 | 98 | 104 |
| 1988 | 100 | 89 | 115 | 105 | 111 | 105 | 84 | 115 | 107 | 120 | 97 | 84 | 109 | 99 | 104 |
| 1989 | 101 | 95 | 103 | 102 | 116 | 104 | 91 | 103 | 100 | 129 | 104 | 96 | 103 | 103 | 117 |
| 1990 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1991 | 97 | 93 | 100 | 99 | 102 | 93 | 84 | 100 | 97 | 101 | 100 | 95 | 101 | 101 | 103 |
| 1992 | 94 | 89 | 100 | 99 | 97 | 101 | 86 | 100 | 113 | 110 | 110 | 103 | 114 | 115 | 111 |
| 1993 | 96 | 82 | 103 | 103 | 112 | 94 | 65 | 103 | 110 | 133 | 106 | 90 | 106 | 113 | 121 |
| 1994 | 94 | 79 | 106 | 105 | 112 | 85 | 53 | 106 | 106 | 124 | 111 | 92 | 107 | 123 | 130 |
| 1995 | 91 | 76 | 101 | 108 | 104 | 82 | 49 | 101 | 117 | 113 | 114 | 94 | 107 | 133 | 129 |
| 1996 | 99 | 91 | 102 | 108 | 110 | 91 | 65 | 102 | 116 | 118 | 124 | 116 | 109 | 137 | 137 |
| 1997 | 90 | 86 | 90 | 91 | 103 | 85 | 65 | 90 | 92 | 114 | 121 | 118 | 105 | 125 | 140 |
| 1998 | 45 | 43 | 47 | 42 | 48 | 52 | 39 | 47 | 48 | 60 | 101 | 100 | 95 | 97 | 109 |

Note: The real effective exchange rate (REER) indices are calculated from real cross-rates for individual trading partners of each ASEAN-5 country, weighted by the relative importance of each export market in the corresponding year.

(Continued)

Table 4.2 (continued)
ASEAN-5 Real Effective Exchange Rates (REER) by Region, 1970-98 (1990=100)

| | Singapore | | | | | Thailand | | | | | ASEAN-5 ^{a/} | | | | |
|------|-----------|-------|---------------|-----|-----|----------|-------|---------------|-----|-----|-----------------------|-------|---------------|-----|-----|
| | World | Japan | Other NE Asia | US | EU | World | Japan | Other NE Asia | US | EU | World | Japan | Other NE Asia | US | EU |
| 1970 | 89 | 182 | 54 | 85 | 115 | 128 | 227 | 74 | 106 | 154 | 103 | 270 | 48 | 99 | 111 |
| 1971 | 87 | 170 | 54 | 83 | 109 | 122 | 209 | 72 | 102 | 142 | 103 | 250 | 50 | 98 | 105 |
| 1972 | 87 | 156 | 55 | 90 | 106 | 115 | 180 | 69 | 104 | 129 | 105 | 216 | 53 | 103 | 104 |
| 1973 | 101 | 171 | 65 | 115 | 123 | 111 | 169 | 67 | 114 | 124 | 117 | 223 | 59 | 126 | 116 |
| 1974 | 109 | 184 | 74 | 128 | 137 | 122 | 185 | 76 | 129 | 140 | 130 | 259 | 66 | 144 | 131 |
| 1975 | 106 | 177 | 74 | 124 | 125 | 116 | 177 | 75 | 124 | 127 | 130 | 259 | 67 | 142 | 125 |
| 1976 | 99 | 152 | 69 | 110 | 118 | 117 | 169 | 77 | 122 | 130 | 128 | 251 | 64 | 136 | 133 |
| 1977 | 94 | 133 | 66 | 108 | 111 | 113 | 152 | 76 | 124 | 124 | 125 | 226 | 63 | 139 | 132 |
| 1978 | 93 | 112 | 70 | 113 | 107 | 106 | 124 | 74 | 124 | 114 | 121 | 180 | 63 | 143 | 124 |
| 1979 | 93 | 123 | 71 | 111 | 100 | 107 | 136 | 72 | 122 | 109 | 121 | 185 | 64 | 140 | 117 |
| 1980 | 93 | 130 | 71 | 108 | 98 | 116 | 156 | 76 | 129 | 117 | 125 | 204 | 65 | 141 | 117 |
| 1981 | 100 | 132 | 82 | 107 | 120 | 123 | 153 | 83 | 123 | 141 | 133 | 200 | 79 | 137 | 148 |
| 1982 | 102 | 149 | 85 | 105 | 130 | 121 | 166 | 82 | 118 | 145 | 140 | 230 | 85 | 135 | 165 |
| 1983 | 102 | 143 | 92 | 103 | 141 | 129 | 163 | 96 | 117 | 160 | 134 | 198 | 90 | 121 | 177 |
| 1984 | 102 | 142 | 90 | 100 | 154 | 125 | 156 | 95 | 110 | 168 | 133 | 196 | 95 | 116 | 194 |
| 1985 | 100 | 136 | 88 | 94 | 148 | 112 | 137 | 93 | 94 | 150 | 129 | 185 | 100 | 108 | 186 |
| 1986 | 93 | 95 | 98 | 92 | 114 | 104 | 101 | 106 | 97 | 120 | 110 | 116 | 106 | 102 | 133 |
| 1987 | 90 | 85 | 100 | 92 | 99 | 98 | 91 | 104 | 98 | 105 | 100 | 94 | 106 | 99 | 109 |
| 1988 | 91 | 79 | 103 | 94 | 99 | 97 | 84 | 110 | 100 | 105 | 97 | 84 | 108 | 99 | 106 |
| 1989 | 95 | 88 | 95 | 95 | 108 | 100 | 92 | 100 | 99 | 113 | 99 | 92 | 98 | 98 | 115 |
| 1990 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 1991 | 104 | 98 | 105 | 104 | 106 | 100 | 95 | 102 | 102 | 104 | 99 | 93 | 103 | 101 | 104 |
| 1992 | 105 | 98 | 109 | 110 | 107 | 98 | 92 | 103 | 103 | 100 | 101 | 92 | 109 | 108 | 104 |
| 1993 | 104 | 88 | 103 | 110 | 119 | 96 | 83 | 99 | 104 | 112 | 99 | 80 | 107 | 108 | 119 |
| 1994 | 107 | 87 | 102 | 117 | 124 | 95 | 80 | 100 | 107 | 114 | 97 | 74 | 110 | 112 | 120 |
| 1995 | 108 | 88 | 100 | 124 | 121 | 94 | 79 | 98 | 111 | 108 | 96 | 71 | 107 | 119 | 114 |
| 1996 | 111 | 104 | 98 | 123 | 125 | 101 | 95 | 95 | 113 | 114 | 103 | 88 | 107 | 119 | 119 |
| 1997 | 113 | 110 | 94 | 117 | 130 | 91 | 88 | 81 | 94 | 105 | 99 | 88 | 99 | 104 | 118 |
| 1998 | 109 | 104 | 90 | 102 | 115 | 80 | 78 | 70 | 76 | 86 | 71 | 62 | 77 | 69 | 77 |

^{a/} Trade-weighted average of individual country real effective exchange rates, where trade measured by the sum of exports and imports of goods and services.

Note: The real effective exchange rate (REER) indices are calculated from real cross-rates for individual trading partners of each ASEAN-5 country, weighted by the relative importance of each export market in the corresponding year.

related production costs in the region. The investment boom that followed was facilitated by the liberalization of internal and external financial controls in most of ASEAN-5 countries. Asset prices rose with the surge in the markets for stocks and real estate. As bank lending escalated to finance stock and real estate purchases, local financial institutions borrowed short from foreign capital sources and lent long for domestic asset purchases, therefore spreading the term structure of borrowing and lending (Corsetti, Pesenti and Roubini, 1998). As a result, the share of portfolio investment in the capital inflows of the ASEAN-5 increased relative to FDI and other capital flows (Table 4.3). For the ASEAN-5 countries as a whole, the share of portfolio investment in the capital account rose from near zero in 1990-91 to 20 percent in 1996. In Indonesia and the Philippines the share of portfolio investment surged to around 40 percent in 1996.

Table 4.3
Capital Inflows by Type, 1985 - 1997
(Millions of US dollars)

| | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|------------------------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|
| VALUE OF INFLOWS: | | | | | | | | | | | | | |
| Indonesia | 1,782 | 4,177 | 3,481 | 2,217 | 2,918 | 4,495 | 5,697 | 6,129 | 5,988 | 4,448 | 10,862 | 11,447 | -429 |
| Foreign direct investment | 310 | 258 | 385 | 576 | 682 | 1,093 | 1,482 | 1,777 | 2,004 | 2,109 | 4,346 | 6,194 | 4,673 |
| Portfolio investment | -35 | 268 | -88 | -98 | -173 | -93 | -12 | -88 | 1,805 | 3,877 | 4,100 | 5,005 | -2,632 |
| Other investment liabilities | 1,507 | 3,651 | 3,184 | 1,739 | 2,409 | 3,495 | 4,227 | 4,440 | 2,179 | -1,538 | 2,416 | 248 | -2,470 |
| Malaysia | 1,774 | 1,050 | -989 | -918 | 1,303 | 1,989 | 4,664 | 7,244 | 11,738 | 784 | 8,422 | 9,418 | 3,732 |
| Foreign direct investment | 695 | 489 | 423 | 719 | 1,668 | 2,332 | 3,998 | 5,183 | 5,006 | 4,342 | 4,178 | 5,078 | 5,106 |
| Portfolio investment | 1,942 | 30 | 140 | -448 | -107 | -255 | 170 | -1,122 | -709 | -1,649 | -436 | -268 | -248 |
| Other investment liabilities | -862 | 531 | -1,551 | -1,189 | -258 | -89 | 496 | 3,183 | 7,441 | -1,909 | 4,679 | 4,607 | -1,126 |
| Philippines | 340 | 146 | 320 | 572 | 1,368 | 2,057 | 2,942 | 3,323 | 4,590 | 6,054 | 7,137 | 13,013 | 6,218 |
| Foreign direct investment | 12 | 127 | 307 | 936 | 563 | 530 | 544 | 228 | 1,238 | 1,591 | 1,478 | 1,517 | 1,222 |
| Portfolio investment | 17 | 13 | 21 | 51 | 294 | -50 | 125 | 155 | 897 | 901 | 2,619 | 5,126 | 600 |
| Other investment liabilities | 311 | 6 | -8 | -415 | 511 | 1,577 | 2,273 | 2,940 | 2,455 | 3,562 | 3,040 | 6,370 | 4,396 |
| Singapore | 3,532 | 3,221 | 3,015 | 4,022 | 10,675 | 7,812 | 1,706 | 8,703 | 15,877 | 14,392 | 20,280 | 23,232 | 46,062 |
| Foreign direct investment | 1,047 | 1,710 | 2,836 | 3,655 | 2,887 | 5,575 | 4,887 | 2,204 | 4,686 | 8,368 | 7,386 | 7,444 | 8,631 |
| Portfolio investment | 521 | -261 | 320 | 36 | 375 | 573 | -242 | 1,398 | 2,867 | 114 | 410 | 1,672 | 938 |
| Other investment liabilities | 1,964 | 1,772 | -141 | 332 | 7,413 | 1,664 | -2,940 | 5,101 | 8,324 | 5,911 | 12,484 | 14,116 | 36,492 |
| Thailand | 1,781 | 20 | 1,091 | 3,595 | 6,962 | 9,402 | 11,575 | 9,517 | 13,998 | 13,691 | 25,534 | 17,797 | -13,637 |
| Foreign direct investment | 163 | 263 | 352 | 1,105 | 1,775 | 2,444 | 2,014 | 2,113 | 1,804 | 1,366 | 2,068 | 2,336 | 3,746 |
| Portfolio investment | 895 | -29 | 346 | 530 | 1,486 | -38 | -81 | 924 | 5,455 | 2,486 | 4,083 | 3,585 | 4,798 |
| Other investment liabilities | 722 | -213 | 393 | 1,960 | 3,700 | 6,996 | 9,642 | 6,479 | 6,739 | 9,839 | 19,383 | 11,876 | -22,181 |
| ASEAN-5 | 9,210 | 8,614 | 6,918 | 9,488 | 23,226 | 25,754 | 26,583 | 34,917 | 52,192 | 39,370 | 72,234 | 74,907 | 41,945 |
| Foreign direct investment | 2,227 | 2,847 | 4,303 | 6,992 | 7,575 | 11,974 | 12,926 | 11,506 | 14,738 | 17,776 | 19,456 | 22,569 | 23,378 |
| Portfolio investment | 3,340 | 20 | 738 | 71 | 1,875 | 137 | -40 | 1,267 | 10,316 | 5,729 | 10,776 | 15,120 | 3,456 |
| Other investment liabilities | 3,643 | 5,747 | 1,877 | 2,426 | 13,776 | 13,644 | 13,698 | 22,144 | 27,138 | 15,865 | 42,002 | 37,217 | 15,111 |

Source: IMF, *International Financial Statistics* (June 1999).

When interest rates in the United States rose in early 1997 portfolio adjustments in the United States led to large fund withdrawals from the Southeast Asian region (McKibbin, 1998). Prior to this event, conditions in the external sectors of the ASEAN-5 had already begun to deteriorate. Export growth was slowing down because of real appreciations of the ASEAN-5 currencies during 1996, the deceleration in the growth rate of Japan's domestic absorption, and large world market price declines in key primary commodity exports of the ASEAN-5 (Marcus *et al.*, 1998). In Japan the real depreciation of the yen against the dollar beginning in 1996 affected the East Asian economies in three ways. First, it reduced the competitive position of the dollar-pegged East Asian economies in the Japanese market, thereby worsening their trade balance with that important trading partner. Second, Japanese companies reduced their investments in East Asia as the dollar strengthened against the yen and escalated the cost of Japanese outsourcing in these

dollar-pegged economies. Third, the long-term upward movement in the nominal dollar value of the yen drove nominal interest rates on yen-denominated assets below those prevailing on dollar-denominated assets (McKinnon and Ohno, 1997, 1998). The resulting interest rate differential induced banks in East Asia to undertake additional foreign currency indebtedness by accepting cheap yen deposits without covering their foreign exchange risk.

With expectations of growth revised downward in 1997, the stock markets in Thailand, Malaysia and the Philippines fell steadily throughout the year, and that of Indonesia followed the downward spiral during the second half of that year. Domestic and foreign investors moved their funds offshore and the resulting net capital outflow drained official reserves in these countries. Without the reserves needed to defend their currencies, Thailand, Malaysia, the Philippines and Indonesia abandoned the dollar peg and sharply devaluated their currencies. With the large spread in the term structure of foreign denominated debt and lending for domestic assets purchases, financial intermediaries in these countries found themselves confronting huge debt burdens. The financial panic of international investors that followed sharply reversed international capital flows and led to wide-ranging competitive devaluations (Goldstein, 1998).

Notwithstanding the contagion of 1997-98, the informal pegging of currencies to the US dollar within the ASEAN-5 region had kept bilateral real exchange rate movements fairly stable. For this reason, McKinnon (1999) has maintained that the pegging of the East Asian currencies to the dollar anchored domestic price levels in those countries and insulated them from beggar-thy-neighbor devaluations during the region's rapid growth in the 1980s through 1996. In a similar vein, Ohno (1999) has argued that the widespread use of dollar invoicing of foreign trade by East Asian countries protected them against competitive devaluations by neighboring countries until the abandonment of the dollar pegs during the 1997-98 crisis. This situation also led to the buildup of short-term foreign currency indebtedness because of the lack of capital controls in the balance of payments or bank regulations requiring banks and corporations to cover their foreign currency and term structure risks. According to McKinnon, the inadequate regulations and excessive interest rate disparities were the factors that led to over-borrowing and the accumulation of short-term debt.

In the next section we attempt to quantify the effects of these price variables on the ASEAN-5 economies as manifested from movements in world market prices for commodities and manufactures, interest rate differentials, and exchange rates. In estimating the significance of these variables, we examine some of the alternative hypotheses that have been advanced to explain the international transmission effects on the ASEAN-5 economies.

V. Modeling International Transmission Effects

In this section we extend the earlier estimates of the relationship between foreign and domestic income activity to include price-related effects and other influences on ASEAN-5 economic growth. The motivation for including these other effects is based on the previous section's review of the recent macroeconomic histories of these countries. Specifically, we examine the effects of the following variables:

- *Exchange rates* in the form of either the overall real effective exchange rate of the ASEAN-5 countries, bilateral real effective exchange rates with the major global regions, or the real yen/dollar exchange rate;
- *International prices* in the form of either the terms of trade of the ASEAN-5 countries or world market prices for primary commodities relative to those of manufactures;
- *Interest rates* in the form of interest rate differentials either between those in Japan and those in the United States, those for ASEAN-5 lending and those for Japanese borrowing, or those for ASEAN-5 lending and those for borrowing in the Eurodollar market;
- *Investment risks* on portfolio and direct investments in the form of either real exchange rate fluctuations or more generally imbalances in the balance of payments that reflect the risk of real exchange rate changes and/or capital controls.
- *World trade and capital inflows* in the form of world trade volumes, current account balances, the ratio of exports to GDP, and the importance of portfolio and direct investments to the economy.
- *Intra-ASEAN Linkages* in the form of the bilateral real effective exchange rate (REER) with other ASEAN-5 countries, the aggregate current account deficit of the ASEAN-5, and the region's reserve losses.

The empirical measurement of these effects is based on individual ASEAN-5 country estimates. In all cases, we maintain the earlier specification for the international transmission of incomes changes from the global, and extend that specification to include these other factors influencing economic growth.

5.1 Exchange Rate Effects

The motivation for including real effective exchange rates in the relationship for the global linkages of the ASEAN-5 countries is well developed. During the period of rapid economic expansion in the 1980s and until 1996 a high premium was placed on keeping stable exchange rates and moderate to low inflation (World Bank, 1993). In the subsequent crisis years, the exchange rate misalignments that emerged in the mid-1980s is believed to have created the

| Table 5.1 | | | | | | | | | | |
|---|------------------|-------------------|---------------|--------------------|---------------|-------|----------------|------|------|-----|
| Regression Results of Yen/US Dollar Exchange Rate Transmissions | | | | | | | | | | |
| $\Delta y_t = \alpha_0 + \alpha_1(y - z)_{t-1} + \alpha_2\Delta Z_t + \alpha_3Z_{t-1} + \alpha_4\Delta R_t + \alpha_5r_{t-1} + v_t$ | | | | | | | | | | |
| ASEAN-5 | $\ln(Y/Z)_{t-1}$ | $\Delta \ln(Z)_t$ | $\ln Z_{t-1}$ | Summary Statistics | | | | | | |
| | | | | $\Delta \ln(R)_t$ | $\ln R_{t-1}$ | Const | R ² | dw | SE | dof |
| Indonesia <u>a/</u> | -0.11 (1.5) | 0.48 (1.8) | 0.07 (0.7) | 0.06 (1.4) | 0.06 (1.8) | -1.50 | 0.81 | 1.26 | 0.02 | 22 |
| Malaysia | -0.11 (3.4) | 0.76 (1.8) | | 0.01 (0.1) | 0.13 (3.3) | -1.26 | 0.31 | 1.37 | 0.03 | 24 |
| Philippines | -0.22 (2.6) | 0.23 (0.5) | | | 0.03 (1.1) | -1.36 | 0.15 | 0.86 | 0.04 | 25 |
| Thailand <u>a/</u> , <u>b/</u> | -0.14 (3.0) | 0.49 (1.9) | 0.11 (1.2) | 0.08 (2.1) | 0.13 (3.9) | -2.43 | 0.77 | 1.31 | 0.02 | 21 |
| Singapore <u>c/</u> , <u>d/</u> | -0.05 (0.9) | 0.42 (1.5) | 0.03 (0.2) | 0.04 (1.0) | 0.07 (1.8) | -0.88 | 0.63 | 1.27 | 0.02 | 18 |

Notations (lower-case letters denote logarithms of upper-case letters):
Y = Domestic GDP
Z = Foreign GDP
R = Real effective exchange rate

a/ Includes a binary variable for 1998 (1 in 1998; 0 otherwise).
b/ Includes a binary variable for 1979 (1 in 1979; 0 otherwise).
c/ Includes a binary variable for 1985 (1 in 1985; 0 otherwise).
d/ Includes a binary variable for 1986 (1 in 1986; 0 otherwise).

Notes: R² is the adjusted square of the multiple correlation coefficient; figures in parentheses below the coefficients are t-statistics.

framework for the worsening of domestic economic fundamentals a decade later (Corsetti, Pesenti, and Roubini, 1998; Goldstein, 1998; Huh and Kasa, 1997; Makin, 1997; Noland *et al.*, 1998). In analyzing these effects, past research has usually relied on measures of REER changes in the Southeast Asian economies with all their partner countries. In addition to this measure, we have also tested the bilateral real effective exchange rates of each ASEAN-5 country with the major global regions of Japan, other Northeast Asian countries, the United States, the European Union and other ASEAN-5 countries.

The alternative hypothesis is that the dollar-pegged Southeast Asian economies have been mainly influenced by yen-dollar exchange rate movements. Kwan (1998) has shown that aggregate output of these countries has been closely linked to movements in the yen/dollar exchange rate. His results are based on estimates of the relationship between aggregate output growth of the Asian economies and the US gross national product (GNP) growth rate and percentage changes in the yen/dollar exchange rate. Output in the Asian economies was found to be positively related to the yen/dollar exchange rate: when the yen weakened, output growth in the dollar-pegged Asian economies slowed; when the yen strengthened, output growth accelerated.

We found the real yen/dollar exchange rate to be significant in explaining real GDP of the ASEAN-5 countries (Tables 5.1 and 5.2). On average, the short-term elasticity of income with respect to the real yen/dollar exchange rate is equal to 0.05, while the average long-term elasticity is 0.81. The short-term elasticities vary from 0.01 (Malaysia) to 0.08 (Thailand), while

the long-term elasticities vary from 0.13 (Philippines) to 1.33 (Singapore). All the coefficients have the expected positive sign suggesting that output in the ASEAN-5 economies is positively related to the yen/dollar exchange rate. The explanation for these findings is that when the yen has risen against the dollar, the export competitiveness of the dollar-pegged Asian economies has improved in the Japanese market and production costs have become more attractive to Japanese

| ASEAN-5 | | Foreign Income | Real Yen/Dollar Exchange Rate |
|----------------|------------|-----------------------|--------------------------------------|
| Indonesia | Short-term | 0.48 | 0.06 |
| | Long-term | 1.67 | 0.57 |
| Malaysia | Short-term | 0.76 | 0.01 |
| | Long-term | 1.00 | 1.15 |
| Philippines | Short-term | 0.23 | 0.03 (t-1) |
| | Long-term | 1.00 | 0.13 |
| Thailand | Short-term | 0.49 | 0.08 |
| | Long-term | 1.80 | 0.90 |
| Singapore | Short-term | 0.42 | 0.04 |
| | Long-term | 1.56 | 1.33 |

Note: The elasticity measures the percentage change in real GDP of each ASEAN-5 country brought about by a 1 percent change in either foreign income or real yen/dollar exchange rate.

investors. Alternatively, when the yen has weakened (for example, as it did between mid-1995 and mid-1997) Japanese export demand and FDI outflows have contracted and economic growth in the Southeast Asian economies has fallen.

The REER of the ASEAN-5 countries was statistically significant in explaining income changes of Indonesia, Malaysia and the Philippines. However, only in the case of Malaysia was the REER found to be significant in the long run. These findings are not surprising since reduced form estimates that relate real GDP of countries to their REER are often unable to capture the transmission effects of this variable through the demand for exports and imports and direct and portfolio investments. Instead it is usually necessary to estimate structural equations relating each of the national income components (for example, export demand) to the REER and then to estimate the individual effects on aggregate income.

5.2 International Price and Trade Volume Effects

In addition to real exchange rate changes, movements in world market prices for traded commodities and manufactures have impacted on the foreign demand for ASEAN-5 exports and the domestic demand for imports. Moreover, international prices have had an indirect effect on ASEAN-5 growth through their impact on export-oriented FDI activities. The importance of foreign firms in the export sector is well-documented (Chen, 1994; Dahman and Westphal, 1983). There is also ample evidence that export-orientation is one of the most important determinants of FDI flows (see, for example, Singh and Jun, 1995 and references therein). Moreover, the terms-of-trade shocks that hit Southeast Asia in 1997 had major repercussions on corporate earnings expectations. Stock markets in those countries contracted sharply, particularly in Thailand, Malaysia and the Philippines, and both foreign and domestic investors began to move funds offshore (Noland *et al.*, 1998).

Table 5.3**Regression Results of ASEAN-5 GDP Relationships to Foreign Income, International Financial Indicators and World Trade**

$$\Delta y_t = \alpha_0 + \alpha_1(y - Z)_{t-1} + \alpha_2\Delta Z_t + \alpha_3Z_{t-1} + \alpha_4\Delta R_t + \alpha_5r_{t-1} + \alpha_6\Delta W_t + \alpha_7W_{t-1} + \alpha_8\Delta Q_t + \alpha_9Q_{t-1} + \alpha_{10}\Delta d_t + \alpha_{11}d_{t-1} + \alpha_{12}\Delta k_t + \alpha_{13}k_{t-1} + v_t$$

| ASEAN-5 | $\ln(Y/Z)_{t-1}$ | $\Delta \ln(Z)_t$ | $\ln Z_{t-1}$ | $\Delta \ln(R)_t$ | $\ln R_{t-1}$ | $\Delta \ln(W)_t$ | $\ln W_{t-1}$ | $\Delta \ln(Q)_t$ | $\ln Q_{t-1}$ | $\Delta \ln(D)_t$ | $\ln D_{t-1}$ | $\Delta \ln(K)_t$ | $\ln K_{t-1}$ | Const | R ² | dw | SE | dof |
|---------------------------------|------------------|-------------------|---------------|---------------------------|---------------------------|-------------------|---------------|-------------------|---------------|-------------------|----------------|---------------------------|------------------------------|-------|----------------|------|------|-----|
| Indonesia | -0.32 (4.9) | 0.38 (1.6) | | -0.08 <u>a</u> / (2.5) | | 0.22 (4.6) | 0.24 (4.8) | 0.04 (8.9) | 0.51 (7.6) | | | -0.01 <u>b</u> / (0.9) | -0.05 <u>b</u> / (6.1) | -5.14 | 0.97 | 2.61 | 0.01 | 10 |
| Malaysia <u>c</u> / <u>d</u> | -0.09 (1.2) | 0.21 (0.7) | | -0.02 <u>e</u> / (0.5) | -0.03 <u>e</u> / (0.9) | 0.11 (2.5) | 0.01 (0.2) | 0.03 (4.9) | 0.09 (1.5) | | | -0.01 <u>f</u> / (0.2) | -0.01 <u>f</u> / (0.1) | -0.78 | 0.85 | 2.24 | 0.02 | 15 |
| Philippines | -0.30 (1.4) | 0.79 (0.6) | | -0.13 (1.2) | | 0.09 (0.6) | | 0.02 (2.5) | 0.30 (2.6) | -0.04 (1.5) | -0.09 (3.9) | -0.09 (2.3) | -0.13 (4.4) | -3.37 | 0.79 | 2.99 | 0.02 | 7 |
| Thailand | -0.11 (1.8) | | 0.21 (1.8) | | 0.09 <u>g</u> / (3.4) | | 0.02 (0.4) | 0.02 (3.6) | | | | | -0.03 <u>b</u> / (3.7) | -3.12 | 0.91 | 1.67 | 0.01 | 13 |
| Singapore <u>c</u> | -0.07 (1.7) | | 0.03 (0.3) | | 0.08 <u>g</u> / (2.4) | 0.14 (3.2) | | 0.005 (1.5) | | | | | | -1.03 | 0.86 | 2.5 | 0.01 | 12 |

Notations (lower-case letters denote logarithms of upper-case letters):

Y = Domestic GDP

Z = Foreign GDP

R = Real effective exchange rate

W = Global terms of trade

Q = World trade volume

D = Interest rate differential

K = Risk premium

a/ Bilateral REER with Japan, other Northeast Asia, USA, EU and other ASEAN-5 countries.

b/ Risk premium based on real Japanese yen/US dollar exchange rate.

c/ Includes a binary variable for 1985 (1 in 1985; 0 otherwise).

d/ Includes a binary variable for 1986 (1 in 1986; 0 otherwise).

e/ Bilateral REER with USA.

f/ Risk premium based on REER of domestic currency.

g/ Japan-USA REER.

h/ Risk premium based on interest rate differential between Japanese yen and US dollar.

Notes: R² is the adjusted square of the multiple correlation coefficient; figures in parentheses below the coefficients are t-statistics.

We initially attempted to use two alternative measures of relative prices: the terms of trade for each economy, and world market prices for primary commodities relative to those of manufactures. Data for the terms of trade for most ASEAN-5 countries, however, are not available for the more recent years and these series were therefore not included in the final estimates. The alternative series on world commodity prices is more readily available.

To approximate a terms of trade measure for individual countries, we derived a global terms of trade estimate based on the ratio of the index of commodity prices to that of prices for manufactures. Commodity exports of the ASEAN-5 encompass a fairly broad range of products such as rubber, palm oil, tin, sugar, coconut oil, maize, and other agricultural and mineral commodities. We used the IMF's broad-based price series for primary commodities, which is an index covering 31 agricultural, mineral and metal commodities. For manufactures, we used the World Bank's Manufactured Unit Value (MUV) index, which is a composite index of prices for manufactured exports from the five major (G-5) industrial countries (France, Germany, Japan, the United Kingdom, and the United States) to low- and middle-income economies, valued in U.S. dollars. The MUV index covers products in Standard International Trade Classification (SITC) groups 5–8 and is constructed using trade-weighted unit value indexes for each country.

| Table 5.4 Foreign Income, Financial Indicator and World Trade Elasticities | | | | | | | |
|---|------------|-----------------------|---------------------|-----------------------|---------------------------|-----------------------------------|----------------------|
| ASEAN-5 | | Foreign Income | REER | Terms of Trade | World Trade Volume | Interest Rate Differential | Risk Premium |
| Indonesia | Short-term | 0.38 | -0.08 <u>a/</u> | 0.22 | 0.04 | | -0.01 <u>b/</u> |
| | Long-term | 1.00 | | 0.73 | 1.60 | | -0.16 |
| Malaysia | Short-term | 0.21 | -0.02 <u>c/</u> | 0.11 | 0.03 | | -0.01 <u>d/</u> |
| | Long-term | 1.00 | -0.35 | 0.07 | 1.03 | | -0.02 |
| Philippines | Short-term | 0.79 | -0.13 <u>a/</u> | 0.11 | 0.02 | -0.04 <u>f/</u> | -0.09 <u>b/</u> |
| | Long-term | 1.00 | | 0.31 | 1.01 | -0.31 | -0.45 |
| Thailand | Short-term | 0.21 | 0.09(t-1) <u>e/</u> | 0.02(t-1) | 0.02 | | -0.03(t-1) <u>b/</u> |
| | Long-term | 2.91 | 0.82 | 0.20 | | | -0.30 |
| Singapore | Short-term | 0.03(t-1) | 0.08(t-1) <u>e/</u> | 0.14 | 0.01 | | |
| | Long-term | 1.36 | 1.00 | | | | |

a/ Bilateral REER with Japan, other Northeast Asia, USA, EU and other ASEAN-5 countries.
b/ Risk premium based on real Japanese yen/US dollar exchange rate.
c/ Bilateral REER with USA.
d/ Risk premium based on REER of domestic currency.
e/ Japan-USA REER.
f/ Risk premium based on interest rate differential between Japanese yen and US dollar.

Note: The elasticity measures the percentage change in real GDP of each ASEAN-5 country brought about by a 1 percent change in either foreign income, the REER, the terms of trade, world trade volume, interest rate differentials or risk premium.

As expected, world trade volumes and world commodity market prices relative to those of manufactures are significant in explaining changes in the ASEAN-5 countries' real GDP (Tables 5.3 and 5.4). The average of the estimated world trade volume elasticities equals only 0.02 in the short run but increases to 1.2 in the long run. This pattern is consistent among the ASEAN-5 countries: the short-term elasticity is low for all countries but the magnitude of all elasticities increases significantly in the long run, which suggests that adjustments take time but have an important influence on GDP. In the case of the global terms of trade, the average elasticity is generally higher in the short-run than that of world trade. It averages 0.12 for all ASEAN-5

countries, but it is considerably smaller in the long-run (0.33), compared with the average trade volume elasticity (1.2). These findings suggest that price transmissions occur more quickly than trade volume effects, but that changes in trade volumes tend to have a relatively larger impact on ASEAN-5 GDP than do price movements.

5.3 Differential Interest Rate Effects

Interest rate differentials affect movements in equity and debt securities on capital markets more than they do FDI movements, and therefore are likely to influence portfolio investments in the ASEAN-5 countries. In addition, it is generally acknowledged that the interest rate differential resulting from the long-term upward movement in the nominal dollar value of the yen drove nominal interest rates on yen-denominated assets below those prevailing on dollar-denominated assets. That change led banks in East Asia to undertake foreign currency indebtedness by accepting cheap yen deposits without covering their foreign exchange risk (McKinnon, 1998; Krugman, 1998). Financial intermediaries that over-borrowed and accumulated large short-term debt did not consider the risk associated with exchange rate changes, at least in their immediate future.

To measure the effect that these interest rate disparities have had on the ASEAN-5 economies, we used four alternative measures: (a) the ratio of the Japanese yen LIBOR three-month rate to the US dollar LIBOR rate, (b) the ratio of the Japanese yen lending rate to the US dollar LIBOR rate, (c) ratio of the nominal lending rates in each ASEAN-5 country to the Japanese yen LIBOR three-month rate, and (d) ratio of the nominal lending rates in each ASEAN-5 country to the US dollar LIBOR rate. In general the results did not support the use of this variable in explaining economic activity in the ASEAN-5 countries. The exception is the Philippines, where the ratio of the Japanese yen LIBOR three-month rate to the US dollar LIBOR rate was found to be statistically significant in explaining changes in real GDP (Tables 5.3 and 5.4). The reason for the general lack of significance of this variable in other countries may be the relatively short time period over which it influenced the Southeast Asian economies (mainly through portfolio investments, which did not become important to these countries until the early 1990s), compared with the fairly long time series (beginning in 1970) used for the equation estimates.

5.4 Investment Risk Effects

The main sources of risk for investors are interest rates, stock market returns, and contagion effects (Lopez-Mejia, 1999). Changes in interest rates can have large consequences on the macroeconomic performance and creditworthiness of developing countries, and more so through changes in portfolio investments than FDI (World Bank, 1997; Chuhan, Perez-Quiros, and Popper, 1996). If investments in emerging markets are used only to increase portfolio returns when investments in industrial countries are under-performing, then the investments will be very sensitive to changes in industrial countries' interest rates. In the case of the Asian financial crisis, however, it was the lack of confidence in the asset market that led to panic liquidation in all the Southeast Asian stock markets. The liquidation, in turn, instigated large movements of funds offshore that reversed capital flows and drained official reserves. The resulting downward

pressure on exchange rates was essentially domestically induced, although there were spillovers that gave rise to contagion and the pervasiveness of the Asian financial crisis (Sachs, 1997; Stiglitz, 1997).

We measured investment risk from the risk premium on foreign loans made by financial intermediaries in the ASEAN-5 countries. Based on the uncovered interest parity relationship, an investor will be indifferent between borrowing abroad or at home if the following relationship holds:

$$i_t = i_t^f + \Delta s_t^e + \gamma_t \quad (5.1)$$

where i is the domestic loan rate, i^f is the foreign loan rate, γ is the risk premium from the risk differential of the foreign and domestic loans, and the term $\Delta s_t^e = (S_{t+k}^e - S_t)/S_t$ is the expected change in the real exchange rate.¹ Since $\gamma_t = (i_t - i_t^f) - \Delta s_t^e$, the expectation of a devaluation of the domestic currency will increase the risk premium for foreign loans, while the expectation of an appreciation will lower the risk premium. If $\Delta\gamma_t > 0$ domestic intermediaries will reduce foreign borrowing, as well as domestic loans for asset purchases. Alternatively, if $\Delta\gamma_t < 0$ domestic intermediaries will increase foreign borrowing and domestic loans for asset purchases.

In practice we used the ratio of domestic to foreign loan rates and the ratio of current to past exchange rates to obtain non-negative numbers that can be used in the log-linear specification of the estimated relationships. In addition, we assumed that the formation of expectations for intermediaries in the dollar-pegged ASEAN-5 countries can take place in one of two ways. The first is from observed movements in the dollar-yen exchange rate; the second is through changes in the REER of the domestic currency. In the first case, an expected devaluation (appreciation) of the yen vis-à-vis the dollar would decrease (increase) the risk premium to ASEAN-5 intermediaries since it would lower (raise) their debt repayment costs to Japanese lenders. In the second case, an expected REER depreciation (appreciation) of the domestic currency would increase (decrease) the risk premium since it would raise (lower) the expected debt repayment cost of domestic intermediaries to foreign lenders.

A more accurate approach would be to use the expected change in the exchange rate as provided by a number of financial institutions (for an application, see MacDonald and Torrance, 1990). However, our need for fairly long time series prevented using this approach and we instead adopted the naïve rule that expectations are based on current observations. The resulting series nonetheless appears to provide a reasonable approximation of the risk premium during the period used to estimate the relationships. Using this measure we found the effect of risk premium on economic growth of the ASEAN-5 countries to generally be statistically significant. The average risk premium elasticity is -0.04 in the short run and it rises to -0.23 in the long run. The short run elasticity ranges from -0.01 (Indonesia and Malaysia) to -0.09 (Philippines), while the long run elasticity ranges from -0.02 (Malaysia) to -0.45 (Philippines).

¹ For details, see Hallwood and MacDonald (1994) and Obstfeld and Rogoff (1998). For applications to Southeast Asia, see McKibbin (1998) and McKibbin and Martin (1999).

5.5 Intra-ASEAN Linkages

Intra-regional trade in the ASEAN-5 represents about 20 percent of total trade (exports plus imports). In the traditional mechanism of international transmissions of exchange rate shocks, the competitive devaluation of one country has the effect of *beggar-thy-neighbor* relative to that of another country through its effects on cost-competitiveness. For example, when Thailand floated the baht, Malaysia and Indonesia were suddenly at a competitive disadvantage in their common export markets. The direct effect of these competitive devaluations on bilateral trade is a negative welfare impact on the economies of trading partners based on the deterioration of their export revenues. Beyond these traditional channels, the evidence for the ASEAN-5 points to strong common factors that underlie the spread of the Crisis after the Thai baht was floated in July 1997. To the extent that portfolio investors reacted to the increased risk of contagion with those countries in geographic proximity, there could also be close ties from direct trade or competition in extra-regional markets.

To test the impact of vulnerability indicators of intra-ASEAN-5 on individual member countries we included in our estimated equation (a) the bilateral real effective exchange rate (REER) with other ASEAN-5 countries and (b) the aggregate current account deficit of the ASEAN-5. The bilateral REER is an indicator of the expected growth of exports and imports both within the region and with external markets in which the ASEAN-5 countries compete, while the current account deficit is an indicator of the expected build-up in external liabilities. The estimates did not yield statistically significant coefficients for either variable in its short-term or long-term impact form. We also tested regional variables suggested by Early Warning System models used in the IMF (Borensztein, Berg, Milesi-Ferretti, and Pattillo, 1999), which included reserve losses for the ASEAN-5 as a whole. None of the estimated coefficients were found to be statistically significant.

These results are not surprising since the estimates are based on reduced form models that attempt to explain both fundamentals and spillovers not associated with direct or indirect product or financial market linkages of the ASEAN-5 countries. It is likely that a more disaggregated approach based on structural equations would yield better explanations of these intra-ASEAN-5 linkages.

5.6 Balance of Payments Effects

A widely-used approach to identify external sector effects on economies is the use of balance of payments and other indicators in place of the price-related variables discussed above (Lopez-Mejia, 1999, and references therein). To test the usefulness of this approach we adopted the indicators used by Little, Cooper, Corden and Rajapatirana (1993). With some minor adaptations of their external-sector-related indicators to ensure readily available time-series data, our indicators consist of the following variables:

- Foreign market GDP;
- Exports of goods and services as a percent of domestic GDP;
- Global terms of trade, as defined in Section 5.2 above;

- Volume of world trade;
- FDI inflows as a percentage of domestic GDP.

The results generally support the use of these indicators in explaining income changes in the ASEAN-5 countries (Tables 5.5 and 5.6). The limitation of this approach, however, is the relatively long delay in the publication of information for the selected indicators compared with the more up-to-date information available for exchange rates, international prices and interest rates. These delays are important when data are used either to explain recent developments or generate short-term forecasts. Nevertheless, the robustness of the estimates makes the approach useful in explaining movements in ASEAN-5 economic activity. Both exports and FDI changes were found to be statistically significant in explaining real GDP changes. The export/GDP elasticities of the ASEAN-5 countries average 0.04 in the short run and increase to 0.6 in the long run. Similarly, the short-term FDI/GDP elasticities average 0.03 in the short run and then increase to 0.23 in the long run. Only in the case of the Philippines were these variables not found to be statistically significant. Instead movements in the global terms of trade and world trade volumes were important in explaining GDP changes of that country.

5.7 Measuring the Impact of Balance of Payments Policies

Economic policies in the ASEAN-5 countries are also likely to significantly affect the magnitude of international transmissions. Variations in trade policies appear to have played an important role in the macroeconomic histories of Southeast Asia and other developing regions (Little, Cooper, Corden and Rajapatirana, 1993). Lucas's (1993) investigation of Southeast Asian countries also provides evidence of the relative importance of outward-oriented policies. Although trade policies appear to be the main instruments used for balance of payments policies, financial policies are also likely to influence capital movements during tightening or liberalization episodes. Variations in restrictions are clearly demarcated by regime changes, such as the elimination of quantitative restrictions (QRs), and are usually included as part of a policy package. It is therefore fairly straightforward to quantify the impact of trade or financial policy episodes (see, for example, Dollar, 1992; Easterly, 1993; Edwards, 1993; Harrison, 1996; Fischer, 1993; Sachs and Warner, 1995).

Similar econometric techniques can be used to examine whether exchange rate policy differences among ASEAN-5 countries explain divergent economic growth rates among ASEAN-5 countries despite other similarities. These policy differences can be used to examine whether countries that experienced the sharpest variations in growth in the 1980s and 1990s are those with adopted exchange controls (for example, as measured by indicators of exchange rate regimes) and with weak institutions of exchange rate management (proxied, for example, by indicators of the quality of governmental institutions, regulatory controls, and capital controls in the balance of payments). Nonetheless, since balance of payments policies are likely to form part of a broader policy package, care needs to be taken in the specification of policy episodes to avoid erroneously attributing to them income changes that were brought about by concurrent monetary or fiscal policies.

It is also likely that as countries become increasingly open and the markets for goods, capital and technology become liberalized, they will experience a tendency towards income convergence. However, the evidence points to a slow convergence between developing and industrialized countries (for a review, see Obstfeld and Rogoff, 1998, Ch. 7). Since our focus is on short-term effects from global linkages, we have not explicitly addressed convergence conditions in our analysis of global linkages. Nevertheless, our estimates identify both short and long-term components and implicitly offer some evidence on the convergence issue, albeit for a relatively shorter time period than the 100-plus year sample used by Maddison (1982) and others.

| Table 5.5 | | | | | | | | | | | | | | | | |
|---|------------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------------------|---------------|-------|----------------|------|------|-----|
| Regression Results of ASEAN-5 GDP Relationships to Balance of Payments and Other External Sector Indicators | | | | | | | | | | | | | | | | |
| $\Delta y_t = \alpha_0 + \alpha_1(y - Z)_{t-1} + \alpha_2\Delta Z_t + \alpha_3Z_{t-1} + \alpha_4\Delta X_t + \alpha_5X_{t-1} + \alpha_6\Delta f_t + \alpha_7f_{t-1} + \alpha_8\Delta W_t + \alpha_9W_{t-1} + \alpha_{10}\Delta Q_t + \alpha_{11}Q_{t-1} + v_t$ | | | | | | | | | | | | | | | | |
| ASEAN-5 | $\ln(Y/Z)_{t-1}$ | $\Delta \ln(Z)_t$ | $\ln Z_{t-1}$ | $\Delta \ln(X)_t$ | $\ln X_{t-1}$ | $\Delta \ln(F)_t$ | $\ln F_{t-1}$ | $\Delta \ln(W)_t$ | $\ln W_{t-1}$ | $\Delta \ln(Q)_t$ | $\ln Q_{t-1}$ | Const | R ² | dw | SE | dof |
| Indonesia | -0.16 (2.0) | 0.17 (0.5) | 0.16 (1.8) | 0.06 (8.3) | 0.04 (1.3) | 0.01 (1.3) | 0.01 (1.8) | | | | | -2.49 | 0.80 | 1.69 | 0.02 | 21 |
| Malaysia | -0.08 (1.2) | 1.51 (4.6) | 0.04 (0.4) | 0.01 (1.7) | 0.05 (0.9) | 0.05 (3.0) | 0.04 (3.4) | | | | | -1.15 | 0.73 | 2.05 | 0.02 | 21 |
| Philippines <i>a/</i> , <i>b/</i> | -0.06 (1.5) | 0.93 (4.2) | | | | | | | 0.08 (2.8) | 0.01 (2.7) | 0.03 (1.5) | -0.86 | 0.87 | 1.58 | 0.01 | 19 |
| Thailand <i>d/</i> | -0.19 (4.8) | 0.86 (4.9) | 0.10 (1.6) | 0.05 (13.3) | 0.20 (5.7) | | | | | | | -2.66 | 0.90 | 1.93 | 0.01 | 21 |
| Singapore <i>b/</i> , <i>e/</i> | -0.06 (2.4) | 0.23 (1.6) | 0.11 (2.3) | | 0.03 (2.0) | 0.02 (3.3) | 0.01 (0.9) | 0.09 (3.8) | | 0.01 (0.6) | | -1.56 | 0.93 | 2.72 | 0.01 | 16 |
| <p>Notations (lower-case letters denote logarithms of upper-case letters): Y = Domestic GDP Z = Foreign GDP X = Exports of goods and services relative to GDP F = FDI inflows relative to GDP W = Global terms of trade Q = World trade volume</p> <p><i>a/</i> Includes a binary variable for 1984 (1 in 1984; 0 otherwise). <i>b/</i> Includes a binary variable for 1985 (1 in 1985; 0 otherwise). <i>c/</i> Current period. <i>d/</i> Includes a binary variable for 1997 (1 in 1997; 0 otherwise). <i>e/</i> Includes a binary variable for 1986 (1 in 1986; 0 otherwise).</p> <p>Notes: R² is the adjusted square of the multiple correlation coefficient; figures in parentheses below the coefficients are t-statistics.</p> | | | | | | | | | | | | | | | | |

| Table 5.6 | | | | | | | |
|---|------------|-----------------------|----------------|------------|------------------------------|---------------------------|--|
| Balance of Payments and Other Indicator Elasticities | | | | | | | |
| ASEAN-5 | | Foreign Income | Exports | FDI | Global Terms of Trade | World Trade Volume | |
| Indonesia | Short-term | 0.16 | 0.06 | 0.01 | | | |
| | Long-term | 2.01 | 0.25 | 0.06 | | | |
| Malaysia | Short-term | 1.51 | 0.01 | 0.05 | | | |
| | Long-term | 1.49 | 0.60 | 0.53 | | | |
| Philippines | Short-term | 0.93 | | | 0.08(t-1) | 0.01 | |
| | Long-term | 1.00 | | | 0.13 | 0.05 | |
| Thailand | Short-term | 0.86 | 0.05 | | | | |
| | Long-term | 1.56 | 1.06 | | | | |
| Singapore | Short-term | 0.23 | 0.03(t-1) | 0.02 | 0.09 | 0.01 | |
| | Long-term | 2.77 | 0.44 | 0.09 | | | |

Note: The elasticity measures the percentage change in real GDP of each ASEAN-5 country brought about by a 1 percent change in either the foreign income, exports, FDI, the terms of trade or world trade volume.

VI. Conclusions

This study has examined the global linkages of the ASEAN-5 countries consisting of Indonesia, Malaysia, Philippines, Singapore and Thailand. External influences on these countries are largely driven by developments in Japan, other Northeast Asian countries, the United States, the European Union, and within the ASEAN region. Our estimates of the international transmission of income and other changes have separated the long run or equilibrium relationships between domestic income and foreign income, price and other variables from the short-run or dynamic disequilibrium components of those relationships. While the systematic determinants of the ASEAN-5 countries' global linkages are fairly stable and robust, our focus in this study has been on the short-term dynamics underlying the transmission of income, price and other factors in the global economy.

The findings confirm expectations of strong economic linkages between selected ASEAN member countries and the major regions of the global economy. The transmission of foreign income changes has been found to have important consequences for the ASEAN-5 countries in both the short run and long run. Estimates of the international transmission of income changes based on aggregate data from all the regions show a similar pattern as those for individual regional estimates. These aggregated relationships were therefore used to estimate the international transmission of exchange rates and other influences on the ASEAN-5 countries.

In addition to foreign income effects, we have examined the effects of the following variables on ASEAN-5 economic activity: (a) *exchange rates* in the form of either the overall real effective exchange rate of the ASEAN-5 countries, bilateral real effective exchange rates with the major global regions, or the real yen/dollar exchange rate; (b) *international prices* in the form of either the terms of trade of the ASEAN-5 or world market prices for primary commodities relative to those of manufactures; (c) *interest rates* in the form of interest rate differentials either between those in Japan and those in the United States, those for ASEAN-5 lending and those for Japanese borrowing, or those for ASEAN-5 lending and those for borrowing in the Eurodollar market; (d) *investment risks* on portfolio and direct investments in the form of either real exchange rate fluctuations or more generally imbalances in the balance of payments that reflect the risk of real exchange rate changes and/or capital controls; (e) *world trade and capital inflows* in the form of world trade volumes, current account balances, the ratio of exports to GDP, and the importance of portfolio and direct investments to the economy; and (f) *intra-ASEAN linkages* in the form of the bilateral real effective exchange rate (REER) with other ASEAN-5 countries, the aggregate current account deficit of the ASEAN-5, and the region's reserve losses. In all cases, empirical measurement has been based on individual ASEAN-5 country estimates.

We have found real yen/dollar exchange rate variations to be significant in explaining real GDP changes in the ASEAN-5 countries. On average, the short-term elasticity of income with respect to the real yen/dollar exchange rate is equal to 0.05, while the average long-term elasticity is 0.8. All the coefficients have the expected positive sign suggesting that output in the ASEAN-5 economies is positively related to the yen/dollar exchange rate. The explanation for these findings is that when the yen has risen against the dollar, the export competitiveness of the dollar-pegged Asian economies has improved in the Japanese market and production costs have become more attractive to Japanese investors. Alternatively, when the yen has weakened (for example, as it did between mid-1995 and mid-1997) Japanese export demand and FDI outflows have contracted and economic growth in the Southeast Asian economies has fallen.

The REER of the ASEAN-5 countries was found to be statistically significant in explaining income changes of Indonesia, Malaysia and the Philippines. However, only in the case of Malaysia was the REER significant in the long run. These findings are not surprising since reduced form estimates that related real GDP of countries to their REER are often unable to capture the transmission effects of this variable through the demand for exports and imports and direct and portfolio investments. Instead it is usually necessary to estimate structural equations relating each of the national income components (for example, export demand) to the REER and then estimating the individual effects on aggregate income.

In addition to real exchange rate changes, movements in world market prices for traded commodities and manufactures have impacted on the foreign demand for ASEAN-5 exports and domestic demand for imports, as well as export-oriented FDI activities. As expected, world trade volumes and world commodity market prices relative to those of manufactures have been found to be significant in explaining changes in the ASEAN-5 countries' real GDP. The average of the estimated world trade volume elasticities equals only 0.02 in the short run and increases to 1.2 in the long run. This pattern is consistent among the ASEAN-5 countries: the short-term elasticity is low for all countries but the magnitude of all elasticities increases significantly in the long run, which suggests that adjustments take time but have an important influence on GDP. In the case of the global terms of trade, the average elasticity is generally higher in the short-run than that of world trade. These findings suggest that price transmissions occur more quickly than trade volume effects, but that movements in trade volumes tend to have a relatively larger impact on ASEAN-5 GDP than do price variations.

Interest rate differentials tend to affect movements in equity and debt securities on capital markets more than they do FDI movements, and therefore are likely to have had a large influence on portfolio investments. However, in the ASEAN-5 the results did not support the use of this variable in explaining economic activity. The exception is the Philippines, where the ratio of the Japanese yen LIBOR three-month rate to the US dollar LIBOR rate was found to be statistically significant in explaining changes in real GDP. The reason for the general lack of significance of this variable in other countries may be the relatively short time period over which it influenced the Southeast Asian economies, compared with the fairly long time series (beginning in 1970) used for the equation estimates.

Investment risk has been measured from the risk premium on foreign loans made by financial intermediaries in the ASEAN-5 countries using the uncovered interest parity relationship. Using this measure we found the effect of risk premium on economic growth of the ASEAN-5 countries to be statistically significant in most cases. The average risk premium elasticity is -0.04 in the short run and it rises to -0.23 in the long run.

We also examined the global linkages of ASEAN-5 based on alternative set of data with balance of payments and world trade indicators. The results generally support the use of these indicators in explaining income changes in the ASEAN-5 countries. The limitation of this approach, however, is the relatively long delay in the publication of information for the selected indicators compared with the more up-to-date information available for exchange rates, international prices and interest rates. These delays are important when data are being used either to explain recent developments or to generate short-term forecasts. Nevertheless, the robustness of the estimates makes the approach useful in explaining movements in ASEAN-5 economic activity. Both exports and FDI changes were found to be significant in explaining real GDP changes. The export/GDP elasticities of the ASEAN-5 countries average 0.04 in the short run and then increase to 0.6 in the long run. Similarly, the short-term FDI/GDP elasticities average 0.03 in the short run and then increase to 0.23 in the long run. Only in the case of the Philippines were these variables not found to be statistically significant. Instead movements in the global terms of trade and world trade volumes were important in explaining GDP changes of that country.

Additional research on the global linkages of the ASEAN countries would benefit from extensions in two areas. The first is the measurement of the effects of economic policies. Balance of payments policies using trade policy instruments and capital controls have been found to play an important role in the macroeconomic histories of Southeast Asia and other developing regions. Financial policies are also likely to influence capital movements during tightening or liberalization episodes. Quantification of these policy effects would help to identify their effects on ASEAN economic activity. Similar econometric techniques could also be used to examine whether exchange rate policy differences among ASEAN countries explain divergent economic growth rates among these countries despite other similarities.

Another useful area of research would consider ASEAN global linkages based on estimates of the structural relationships in the economies of the member countries. It is likely that such an approach would yield more robust estimates of the international transmission mechanisms impacting on these countries than those based on reduced form equations.

Technical Appendix

A.1 Unit Root Tests

In modeling the global linkages of the ASEAN-5 economies, we are initially concerned with two questions: the first is whether the individual variables are stationary or non-stationary and therefore may require some linear transformation before estimating their relationship to one another; the second is whether the order of integration of the individual time series that are included in the empirical relationship is the same and therefore allows us to estimate their long-run equilibrium relationship and derive the short-term deviations from that relationship.

For series that tend to grow either positively or negatively over time, it is first necessary to examine whether or not the series are themselves stationary before proceeding to find the long-term equilibrium relationship of two or more economic variables. In practice, when only a one-period lag of the dependent variable is included in the regression, then a Dickey-Fuller (DF) test is performed to determine whether the series is stationary. When first difference terms are included in the regression, then an Augmented Dickey-Fuller (ADF) test is performed. The number of lagged first difference terms to include in the regression should be sufficient to remove any serial correlation in the residuals, in which case the DW statistic should approximate 2.¹

Initially the test is performed on the levels form of the regression. If the test fails to reject the test in levels then a first difference test regression should be performed. If the test fails to reject the test in levels but rejects the test in first differences, then the series is of integrated order one $I(1)$. If, on the other hand, the test fails to reject the test in levels and first differences but rejects the test in second differences, then the series is of integrated order two $I(2)$.

The results of the Augmented Dickey-Fuller test and the Durbin-Watson test are presented in Table 1. As expected, the tests all fail to establish stationarity of the log levels and indicate that all the log levels are integrated processes. For all the ASEAN-5 countries, the real GDP series are all of integrated order 2. For the three global regions, the real GDP series of Japan is also of integrated order 2, but those of the United States and the European Union are of integrated order 1. The properties of the series for the latter two global regions suggest that complications are likely to arise in estimates of the relationship between the real GDP time series of the ASEAN members and those of the United States and the European Union. In particular, when the series are integrated of different orders, then the two series cannot then be cointegrated. In such a case, it becomes difficult to describe the existence of an equilibrium, or stationary, relationship between, say, the transmission of changes in economic activity of the United States to

¹ A constant and trend variable should be included if the series exhibits a trend and non-zero mean in the descriptive statistics. Alternatively, if the series does not exhibit any trend but has a non-zero mean, only a constant should be included in the test regression. Finally, if the series appears to fluctuate around a zero mean, neither a constant nor a trend should be included in the test regression.

| TABLE A.1 | | | | |
|--|-----------------------------|--|-----------------------|--------------------------------|
| DESCRIPTIVE STATISTICS FOR REAL GDP OF ASEAN-5 AND GLOBAL REGIONS | | | | |
| (Calculated for log levels of corresponding variables) | | | | |
| | Order of Integration | Augmented Dickey-Fuller Test Stat | Critical Value | Durbin-Watson Statistic |
| Indonesia | I(2) | -5.79 | 1%=-2.65 | 1.98 |
| Malaysia | I(2) | -5.57 | 1%=-3.70 | 2.05 |
| Philippines | I(2) | -4.91 | 1%=-3.70 | 1.84 |
| Thailand | I(2) | -4.08 | 1%=-2.65 | 1.91 |
| Singapore | I(2) | -5.62 | 1%=-2.65 | 1.97 |
| ASEAN-5 | I(2) | -3.36 | 1%=-2.66 | 2.00 |
| Japan | I(2) | -6.32 | 1%=-2.65 | 1.64 |
| United States | I(1) | -4.66 | 1%=-3.69 | 2.19 |
| European Union | I(1) | -4.11 | 1%=-3.69 | 2.00 |
| Japan, US and EU | I(1) | -4.58 | 1%=-3.70 | 1.63 |

Note 1: The sample period varies from 1971-73 to 1998.
Note 2: A negative Dickey-Fuller statistic that is larger (in absolute terms) than the critical value allows rejection of the hypothesis of a unit root and suggests that the series is stationary.

Indonesia, since each is individually non-stationary but is of a different integrated order than the other. In contrast, in the case of the transmission mechanism of real GDP changes in Japan to the ASEAN-5, there is likely to exist an equilibrium, or stationary, relationship since each series is individually non-stationary. In these cases, there may exist a linear combination of the real GDP series for each ASEAN country and Japan that has a lower order of integration than any one of them has individually. These results are examined further in the following section.

A.2 The ECM Relationship

Economic series that are related to the long-run adjustment processes of other variables have been designated to be cointegrated series by Granger and Weiss (1983) and Engle and Granger (1987). The theory of cointegration states that if two series, y and z , grow over time in such a way that the linear combination of these two variables, given by $d_t = y_t - \alpha z_t$, is stationary, and if α is unique, then y and z are said to be cointegrated. The series d_t measures the disequilibrium at period t when the long-run relationship between the two variables is $y_t = \alpha z_t$. The theory of cointegration states that movements in variables are related in a predictable way to the discrepancy between observed and equilibrium states. The sequence of this discrepancy tends to decay to its mean of zero.

Engle and Granger (1987) have demonstrated that a data-generating process of the form known as the “error-correction mechanism” (ECM) adjusts for any disequilibrium between variables that are cointegrated. The ECM specification thus provides the means by which the short-run observed behavior of variables is associated with their long-run equilibrium growth paths. Davidson *et al.* (1978) established a closely-related specification known as the “equilibrium-correcting mechanism” (also having the acronym ECM) that models both the short and long-run relationships between variables.

Rearranging the terms of a first-order stochastic difference equation yields the following ECM:

$$\Delta y_t = \alpha_0 + \alpha_1(y - z)_{t-1} + \alpha_2\Delta z_t + \alpha_3z_{t-1} + v_t \quad (\text{A.4})$$

where $-1 < \alpha_1 < 0$, $\alpha_2 > 0$ and $\alpha_3 > -1$, and where all variables are measured in logarithmic terms.

The second term, $\alpha_1(y - z)_{t-1}$, is the mechanism for adjusting any disequilibrium in the previous period. When the rate of growth of the dependent variable y_t falls below its steady-state path, the value of the ratio of variables in the second term decreases in the subsequent period. That decrease, combined with the negative coefficient of the term, has a positive influence on the growth rate of the dependent variable. Conversely, when the growth rate of the dependent variable increases above its steady-state path, the adjustment mechanism embodied in the second term generates downward pressure on the growth rate of the dependent variable until it reaches that of its steady-state path. The speed with which the system approaches its steady-state path depends on the proximity of the coefficient to minus one. If the coefficient is close to minus one, the system converges to its steady-state path quickly; if it is near to zero, the approach of the system to the steady-state path is slow. Since the variables are measured in logarithms, Δy and Δz can be interpreted as the rate of change of the variables. Thus the third term, $\alpha_2\Delta z_t$, expresses the steady-state growth in Y associated with Z . Finally, the fourth term, α_3z_{t-1} , shows that the steady-state response of the dependent variable Y to the variable Z is non-proportional when the coefficient has non-zero significance.

Open economies such as the ASEAN-5 have a long-term relationship with one or more series in the global economy after transient effects from all other series have disappeared. That part of the response of each ASEAN country's real GDP that never decays to zero is the steady-state response, while that part that decays to zero in the long run is the transient response. Examples in the global economy of relationships in which steady-state responses occur are those between the real GDP of a country and the real GDP in its major foreign markets. An example of a transient response is exchange rate movements, since if relative price changes were not transient, the disparity between prices of the home country and the foreign market would continuously widen. In that case, consumers would eventually switch entirely to the supplier with the lower priced products. Hence, it is important to distinguish the short-run adjustment component from the long-run equilibrium component in global linkages.

The equilibrium solution of equation (A.4) is a constant value if there is convergence. Since the solution is unrelated to time, the rate of change over time of the dependent variable Y (given by Δy_t) and the explanatory variable Z (given by Δz_t) are equal to zero. However, in dynamic equilibrium, equation (A.4) generates a steady-state response in which growth occurs at a constant rate, say g . For the dynamic specification of the relationship in (A.4), if g_1 is defined as the steady-state growth rate of the dependent variable Y , and g_2 corresponds to the steady-state growth rate of the explanatory variable Z , then, since lower-case letters denote the logarithms of variables, $g_1 = \Delta y$ and $g_2 = \Delta z$

in dynamic equilibrium. In equilibrium the systematic dynamics of equation (A.4) are expressed as:

$$g_1 = \alpha_0 + \alpha_1(y - z) + \alpha_2g_2 + \alpha_3z \quad (\text{A.5})$$

or, in terms of the original (anti-logarithmic) values of the variables:

$$Y = k_0 Z^\beta \quad (\text{A.6})$$

where $k_0 = \exp\{(-\alpha_0/\alpha_1) + [(\alpha_1 - \alpha_2\alpha_1 - \alpha_3)/\alpha_1^2]g_2\}$, and where $\beta = 1 - \alpha_3/\alpha_1$.

The dynamic solution of equation (A.6) therefore shows Y to be influenced by changes in the rate of growth of Z , as well as the long-run elasticity of Y with respect to Z . For example, were the rate of growth of the explanatory variable accelerate, say from g_2 to g'_2 , the value of the variable Y would increase. However, it is important to reiterate that the response to each explanatory variable can be either transient or steady-state. When theoretical considerations suggest that an explanatory variable generates a transient, rather than steady-state, response, it is appropriate to constrain its long-run effect to zero.

When consolidating the effects of income changes in several global regions on the ASEAN-5 economies, we can include the relationship between economic activity in each ASEAN-5 economy and economic activity in all the global regions. To simplify the presentation, we specify the relationship for two global regions. The ECM that includes economic activity in two geographic markets z_1 and z_2 is as follows

$$\Delta y_t = \alpha_0 + \alpha_1(y - z_1 - z_2)_{t-1} + \alpha_2\Delta z_{1,t} + \alpha_3\Delta z_{2,t} + \alpha_4z_{1,t-1} + \alpha_5z_{2,t-1} + v_t \quad (\text{A.7})$$

where $-1 < \alpha_1 < 0$; $\alpha_2, \alpha_3 > 0$ and $\alpha_4, \alpha_5 > -1$, and where all variables are measured in logarithmic terms. The extension to the five global regions used in this study is straightforward.

The effects of changes in the real effective exchange rate (REER), r , can be measured by extending the first-order stochastic difference equation. Transformation of an autoregressive distributed lag into an ECM with a ‘differences’ formulation of the relative price or exchange rate term nested in the levels form of the equation yields the equation:

$$\Delta y_t = \alpha_0 + \alpha_1(y - z)_{t-1} + \alpha_2\Delta z_t + \alpha_3z_{t-1} + \alpha_4\Delta r_t + \alpha_5r_{t-1} + v_t \quad (\text{A.8})$$

where $-1 < \alpha_1 < 0$, $\alpha_2 > 0$, $\alpha_3 > -1$, $\alpha_4 < 0$ and $\alpha_5 < 0$, and where all variables are measured in logarithmic terms.

Extensions of equation (A.8) to include the terms of trade, interest rate differentials, the risk premium, and other variables included in the relationship in Section V of this study are straightforward.

Statistical Appendix

Table A.1

Real GDP of ASEAN-5 Countries and Global Regions, in Constant US Dollar Prices, 1980-2000

(billions of 1998 US dollars)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| INDONESIA | 37 | 40 | 39 | 41 | 43 | 45 | 47 | 50 | 52 | 57 | 62 | 68 | 73 | 78 | 84 | 91 | 98 | 103 | 89 | 85 | 87 |
| MALAYSIA | 23 | 24 | 26 | 28 | 30 | 29 | 30 | 31 | 34 | 37 | 41 | 44 | 48 | 52 | 57 | 62 | 67 | 72 | 67 | 68 | 69 |
| PHILIPPINES | 44 | 46 | 47 | 48 | 45 | 42 | 43 | 45 | 48 | 51 | 52 | 52 | 52 | 53 | 56 | 58 | 62 | 65 | 65 | 66 | 68 |
| THAILAND | 38 | 40 | 42 | 44 | 47 | 49 | 52 | 57 | 64 | 72 | 81 | 87 | 94 | 102 | 111 | 121 | 128 | 127 | 117 | 118 | 122 |
| SINGAPORE | 23 | 26 | 27 | 30 | 32 | 32 | 32 | 35 | 40 | 43 | 47 | 51 | 54 | 59 | 66 | 72 | 77 | 83 | 84 | 85 | 88 |
| ASEAN-5 | 165 | 175 | 182 | 191 | 197 | 196 | 204 | 218 | 238 | 261 | 283 | 302 | 321 | 345 | 373 | 404 | 432 | 450 | 422 | 422 | 435 |
| JAPAN | 2298 | 2371 | 2444 | 2501 | 2599 | 2713 | 2792 | 2908 | 3088 | 3237 | 3401 | 3530 | 3566 | 3578 | 3600 | 3653 | 3838 | 3893 | 3783 | 3732 | 3745 |
| USA | 5202 | 5321 | 5207 | 5414 | 5793 | 6000 | 6185 | 6367 | 6610 | 6832 | 6916 | 6852 | 7038 | 7201 | 7450 | 7620 | 7883 | 8193 | 8511 | 8787 | 8977 |
| EU | 5725 | 5728 | 5774 | 5871 | 6011 | 6164 | 6338 | 6512 | 6783 | 7019 | 7234 | 7356 | 7435 | 7399 | 7622 | 7800 | 7942 | 8154 | 8380 | 8529 | 8761 |
| JAPAN, USA, EU | 13225 | 13420 | 13425 | 13786 | 14402 | 14877 | 15314 | 15787 | 16481 | 17088 | 17552 | 17738 | 18040 | 18177 | 18673 | 19073 | 19663 | 20240 | 20674 | 21048 | 21483 |

Source: Derived from IMF, *World Economic Outlook* (May, 1999).

Table A.2
ASEAN-5 Trade of Goods and Services, 1980-1997
(Billions of local currency units)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|----------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|
| Exports of Goods and NFS | | | | | | | | | | | | | | | | | | |
| INDONESIA | 13,849 | 16,177 | 15,103 | 19,847 | 22,999 | 21,867 | 21,486 | 30,837 | 36,493 | 45,764 | 55,852 | 68,452 | 83,050 | 88,231 | 101,332 | 119,593 | 137,533 | 174,871 |
| MALAYSIA | 31 | 30 | 32 | 36 | 43 | 43 | 40 | 51 | 61 | 75 | 88 | 105 | 114 | 136 | 174 | 209 | 230 | 261 |
| PHILIPPINES | 57 | 67 | 64 | 79 | 126 | 137 | 160 | 182 | 227 | 260 | 296 | 369 | 394 | 462 | 573 | 693 | 880 | 1,188 |
| SINGAPORE | 11 | 13 | 14 | 14 | 14 | 13 | 13 | 17 | 24 | 28 | 37 | 44 | 51 | 60 | 79 | 105 | 111 | 105 |
| THAILAND | 160 | 181 | 193 | 185 | 216 | 245 | 290 | 376 | 515 | 648 | 745 | 901 | 1,047 | 1,199 | 1,408 | 1,749 | 1,809 | 2,270 |
| ASEAN-5 | 14,108 | 16,469 | 15,406 | 20,161 | 23,399 | 22,305 | 21,989 | 31,462 | 37,320 | 46,776 | 57,019 | 69,871 | 84,655 | 90,087 | 103,566 | 122,348 | 140,562 | 178,696 |
| Imports of Goods and NFS | | | | | | | | | | | | | | | | | | |
| INDONESIA | 10,080 | 14,119 | 15,186 | 19,626 | 19,845 | 20,142 | 22,645 | 28,825 | 32,830 | 41,564 | 54,827 | 67,453 | 76,438 | 78,383 | 96,953 | 125,657 | 140,812 | 176,600 |
| MALAYSIA | 29 | 34 | 37 | 40 | 42 | 39 | 36 | 40 | 52 | 69 | 86 | 110 | 112 | 136 | 177 | 217 | 227 | 257 |
| PHILIPPINES | 69 | 77 | 83 | 104 | 132 | 125 | 136 | 179 | 215 | 280 | 359 | 407 | 460 | 587 | 679 | 842 | 1,071 | 1,439 |
| SINGAPORE | 12 | 14 | 14 | 14 | 14 | 13 | 13 | 17 | 23 | 27 | 36 | 41 | 48 | 57 | 72 | 95 | 102 | 97 |
| THAILAND | 201 | 229 | 207 | 251 | 259 | 274 | 267 | 368 | 537 | 696 | 909 | 1,065 | 1,160 | 1,316 | 1,565 | 2,008 | 2,076 | 2,238 |
| ASEAN-5 | 10,392 | 14,472 | 15,527 | 20,035 | 20,291 | 20,593 | 23,097 | 29,428 | 33,657 | 42,636 | 56,217 | 69,076 | 78,218 | 80,478 | 99,447 | 128,820 | 144,287 | 180,631 |
| Total Imports and Exports | | | | | | | | | | | | | | | | | | |
| INDONESIA | 23,929 | 30,296 | 30,289 | 39,473 | 42,844 | 42,009 | 44,131 | 59,662 | 69,323 | 87,328 | 110,679 | 135,905 | 159,488 | 166,614 | 198,285 | 245,250 | 278,345 | 351,471 |
| MALAYSIA | 60 | 64 | 69 | 76 | 85 | 81 | 76 | 90 | 113 | 143 | 174 | 214 | 226 | 271 | 351 | 426 | 457 | 519 |
| PHILIPPINES | 127 | 144 | 147 | 182 | 258 | 263 | 297 | 361 | 442 | 540 | 655 | 776 | 854 | 1,049 | 1,252 | 1,535 | 1,950 | 2,627 |
| SINGAPORE | 23 | 27 | 28 | 28 | 29 | 26 | 25 | 33 | 47 | 55 | 73 | 84 | 99 | 117 | 151 | 200 | 212 | 202 |
| THAILAND | 361 | 410 | 400 | 436 | 475 | 519 | 557 | 744 | 1,052 | 1,345 | 1,655 | 1,967 | 2,207 | 2,515 | 2,973 | 3,757 | 3,885 | 4,508 |
| ASEAN-5 | 24,500 | 30,941 | 30,933 | 40,196 | 43,690 | 42,897 | 45,086 | 60,890 | 70,977 | 89,412 | 113,236 | 138,947 | 162,873 | 170,566 | 203,012 | 251,168 | 284,849 | 359,327 |
| Trade / GDP * 100 | | | | | | | | | | | | | | | | | | |
| INDONESIA | 44 | 49 | 46 | 48 | 45 | 41 | 41 | 45 | 46 | 49 | 52 | 54 | 56 | 51 | 52 | 54 | 52 | 56 |
| MALAYSIA | 113 | 111 | 110 | 109 | 107 | 105 | 106 | 113 | 124 | 140 | 151 | 162 | 152 | 164 | 184 | 195 | 183 | 188 |
| PHILIPPINES | 52 | 51 | 46 | 49 | 49 | 46 | 49 | 53 | 55 | 58 | 61 | 62 | 63 | 71 | 74 | 81 | 90 | 108 |
| SINGAPORE | 92 | 92 | 84 | 77 | 71 | 66 | 64 | 76 | 91 | 94 | 108 | 112 | 122 | 124 | 140 | 169 | 164 | 143 |
| THAILAND | 54 | 54 | 48 | 47 | 48 | 49 | 49 | 57 | 67 | 72 | 76 | 78 | 78 | 79 | 82 | 90 | 84 | 93 |
| ASEAN-5 | 44 | 50 | 46 | 48 | 45 | 41 | 41 | 46 | 47 | 49 | 53 | 55 | 57 | 51 | 52 | 54 | 53 | 57 |

Source: Derived from IMF, *International Financial Statistics* (June 1999).

Table A.3

Capital Inflows by Type, 1980-1997

(Millions of US dollars and percentages)

| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|------------------------------|-----------|-------|--------|--------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|
| VALUE OF INFLOWS: | | | | | | | | | | | | | | | | | | | |
| Indonesia | Mil. US\$ | n.a. | 1,861 | 5,622 | 6,054 | 3,457 | 1,782 | 4,177 | 3,481 | 2,217 | 2,918 | 4,495 | 5,697 | 6,129 | 5,988 | 4,448 | 10,862 | 11,447 | -429 |
| Foreign direct investment | Mil. US\$ | n.a. | 133 | 225 | 292 | 222 | 310 | 258 | 385 | 576 | 682 | 1,093 | 1,482 | 1,777 | 2,004 | 2,109 | 4,346 | 6,194 | 4,673 |
| Portfolio investment | Mil. US\$ | n.a. | 47 | 315 | 368 | -10 | -35 | 268 | -88 | -98 | -173 | -93 | -12 | -88 | 1,805 | 3,877 | 4,100 | 5,005 | -2,632 |
| Other investment liabilities | Mil. US\$ | n.a. | 1,681 | 5,082 | 5,394 | 3,245 | 1,507 | 3,651 | 3,184 | 1,739 | 2,409 | 3,495 | 4,227 | 4,440 | 2,179 | -1,538 | 2,416 | 248 | -2,470 |
| Malaysia | Mil. US\$ | 1,532 | 2,892 | 3,879 | 5,326 | 2,765 | 1,774 | 1,050 | -989 | -918 | 1,303 | 1,989 | 4,664 | 7,244 | 11,738 | 784 | 8,422 | 9,418 | 3,732 |
| Foreign direct investment | Mil. US\$ | 934 | 1,265 | 1,397 | 1,261 | 797 | 695 | 489 | 423 | 719 | 1,668 | 2,332 | 3,998 | 5,183 | 5,006 | 4,342 | 4,178 | 5,078 | 5,106 |
| Portfolio investment | Mil. US\$ | -11 | 1,131 | 601 | 668 | 1,108 | 1,942 | 30 | 140 | -448 | -107 | -255 | 170 | -1,122 | -709 | -1,649 | -436 | -268 | -248 |
| Other investment liabilities | Mil. US\$ | 609 | 496 | 1,881 | 3,398 | 859 | -862 | 531 | -1,551 | -1,189 | -258 | -89 | 496 | 3,183 | 7,441 | -1,909 | 4,679 | 4,607 | -1,126 |
| Philippines | Mil. US\$ | 3,074 | 2,733 | 3,202 | -497 | 695 | 340 | 146 | 320 | 572 | 1,368 | 2,057 | 2,942 | 3,323 | 4,590 | 6,054 | 7,137 | 13,013 | 6,218 |
| Foreign direct investment | Mil. US\$ | -106 | 172 | 16 | 105 | 9 | 12 | 127 | 307 | 936 | 563 | 530 | 544 | 228 | 1,238 | 1,591 | 1,478 | 1,517 | 1,222 |
| Portfolio investment | Mil. US\$ | 5 | 5 | 1 | 7 | 11 | 17 | 13 | 21 | 51 | 294 | -50 | 125 | 155 | 897 | 901 | 2,619 | 5,126 | 600 |
| Other investment liabilities | Mil. US\$ | 3,175 | 2,556 | 3,185 | -609 | 675 | 311 | 6 | -8 | -415 | 511 | 1,577 | 2,273 | 2,940 | 2,455 | 3,562 | 3,040 | 6,370 | 4,396 |
| Singapore | Mil. US\$ | 2,542 | 4,991 | 2,535 | 3,496 | 4,905 | 3,532 | 3,221 | 3,015 | 4,022 | 10,675 | 7,812 | 1,706 | 8,703 | 15,877 | 14,392 | 20,280 | 23,232 | 46,062 |
| Foreign direct investment | Mil. US\$ | 1,236 | 1,660 | 1,602 | 1,134 | 1,302 | 1,047 | 1,710 | 2,836 | 3,655 | 2,887 | 5,575 | 4,887 | 2,204 | 4,686 | 8,368 | 7,386 | 7,444 | 8,631 |
| Portfolio investment | Mil. US\$ | 134 | 145 | 78 | 111 | 10 | 521 | -261 | 320 | 36 | 375 | 573 | -242 | 1,398 | 2,867 | 114 | 410 | 1,672 | 938 |
| Other investment liabilities | Mil. US\$ | 1,173 | 3,186 | 856 | 2,251 | 3,593 | 1,964 | 1,772 | -141 | 332 | 7,413 | 1,664 | -2,940 | 5,101 | 8,324 | 5,911 | 12,484 | 14,116 | 36,492 |
| Thailand | Mil. US\$ | 2,068 | 2,523 | 1,379 | 2,076 | 2,647 | 1,781 | 20 | 1,091 | 3,595 | 6,962 | 9,402 | 11,575 | 9,517 | 13,998 | 13,691 | 25,534 | 17,797 | -13,637 |
| Foreign direct investment | Mil. US\$ | 190 | 291 | 191 | 350 | 401 | 163 | 263 | 352 | 1,105 | 1,775 | 2,444 | 2,014 | 2,113 | 1,804 | 1,366 | 2,068 | 2,336 | 3,746 |
| Portfolio investment | Mil. US\$ | 96 | 44 | 68 | 108 | 155 | 895 | -29 | 346 | 530 | 1,486 | -38 | -81 | 924 | 5,455 | 2,486 | 4,083 | 3,585 | 4,798 |
| Other investment liabilities | Mil. US\$ | 1,782 | 2,188 | 1,120 | 1,618 | 2,091 | 722 | -213 | 393 | 1,960 | 3,700 | 6,996 | 9,642 | 6,479 | 6,739 | 9,839 | 19,383 | 11,876 | -22,181 |
| ASEAN-5 | Mil. US\$ | n.a. | 14,999 | 16,618 | 16,455 | 14,468 | 9,210 | 8,614 | 6,918 | 9,488 | 23,226 | 25,754 | 26,583 | 34,917 | 52,192 | 39,370 | 72,234 | 74,907 | 41,945 |
| Foreign direct investment | Mil. US\$ | n.a. | 3,520 | 3,431 | 3,141 | 2,731 | 2,227 | 2,847 | 4,303 | 6,992 | 7,575 | 11,974 | 12,926 | 11,506 | 14,738 | 17,776 | 19,456 | 22,569 | 23,378 |
| Portfolio investment | Mil. US\$ | n.a. | 1,372 | 1,063 | 1,262 | 1,274 | 3,340 | 20 | 738 | 71 | 1,875 | 137 | -40 | 1,267 | 10,316 | 5,729 | 10,776 | 15,120 | 3,456 |
| Other investment liabilities | Mil. US\$ | n.a. | 10,107 | 12,124 | 12,052 | 10,463 | 3,643 | 5,747 | 1,877 | 2,426 | 13,776 | 13,644 | 13,698 | 22,144 | 27,138 | 15,865 | 42,002 | 37,217 | 15,111 |

(cont'd)

Table A.3 (cont'd)

Capital Inflows by Type, 1980-1997

(Millions of US dollars and percentages)

| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|--------------------------------|---------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|------|--------|
| PERCENTAGE COMPOSITION: | | | | | | | | | | | | | | | | | | | |
| Indonesia | percent | n.a. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | n.a. | 7 | 4 | 5 | 6 | 17 | 6 | 11 | 26 | 23 | 24 | 26 | 29 | 33 | 47 | 40 | 54 | -1,089 |
| Portfolio investment | percent | n.a. | 3 | 6 | 6 | 0 | -2 | 6 | -3 | -4 | -6 | -2 | 0 | -1 | 30 | 87 | 38 | 44 | 614 |
| Other investment liabilities | percent | n.a. | 90 | 90 | 89 | 94 | 85 | 87 | 91 | 78 | 83 | 78 | 74 | 72 | 36 | -35 | 22 | 2 | 576 |
| Malaysia | percent | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | 61 | 44 | 36 | 24 | 29 | 39 | 47 | -43 | -78 | 128 | 117 | 86 | 72 | 43 | 554 | 50 | 54 | 137 |
| Portfolio investment | percent | -1 | 39 | 15 | 13 | 40 | 109 | 3 | -14 | 49 | -8 | -13 | 4 | -15 | -6 | -210 | -5 | -3 | -7 |
| Other investment liabilities | percent | 40 | 17 | 48 | 64 | 31 | -49 | 51 | 157 | 130 | -20 | -4 | 11 | 44 | 63 | -244 | 56 | 49 | -30 |
| Philippines | percent | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | -3 | 6 | 0 | -21 | 1 | 4 | 87 | 96 | 164 | 41 | 26 | 18 | 7 | 27 | 26 | 21 | 12 | 20 |
| Portfolio investment | percent | 0 | 0 | 0 | -1 | 2 | 5 | 9 | 7 | 9 | 21 | -2 | 4 | 5 | 20 | 15 | 37 | 39 | 10 |
| Other investment liabilities | percent | 103 | 94 | 99 | 123 | 97 | 91 | 4 | -3 | -73 | 37 | 77 | 77 | 88 | 53 | 59 | 43 | 49 | 71 |
| Singapore | percent | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | 49 | 33 | 63 | 32 | 27 | 30 | 53 | 94 | 91 | 27 | 71 | 287 | 25 | 30 | 58 | 36 | 32 | 19 |
| Portfolio investment | percent | 5 | 3 | 3 | 3 | 0 | 15 | -8 | 11 | 1 | 4 | 7 | -14 | 16 | 18 | 1 | 2 | 7 | 2 |
| Other investment liabilities | percent | 46 | 64 | 34 | 64 | 73 | 56 | 55 | -5 | 8 | 69 | 21 | -172 | 59 | 52 | 41 | 62 | 61 | 79 |
| Thailand | percent | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | 9 | 12 | 14 | 17 | 15 | 9 | 1,306 | 32 | 31 | 26 | 26 | 17 | 22 | 13 | 10 | 8 | 13 | -27 |
| Portfolio investment | percent | 5 | 2 | 5 | 5 | 6 | 50 | -147 | 32 | 15 | 21 | 0 | -1 | 10 | 39 | 18 | 16 | 20 | -35 |
| Other investment liabilities | percent | 86 | 87 | 81 | 78 | 79 | 41 | -1,060 | 36 | 55 | 53 | 74 | 83 | 68 | 48 | 72 | 76 | 67 | 163 |
| ASEAN-5 | percent | n.a. | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Foreign direct investment | percent | n.a. | 23 | 21 | 19 | 19 | 24 | 33 | 62 | 74 | 33 | 46 | 49 | 33 | 28 | 45 | 27 | 30 | 56 |
| Portfolio investment | percent | n.a. | 9 | 6 | 8 | 9 | 36 | 0 | 11 | 1 | 8 | 1 | 0 | 4 | 20 | 15 | 15 | 20 | 8 |
| Other investment liabilities | percent | n.a. | 67 | 73 | 73 | 72 | 40 | 67 | 27 | 26 | 59 | 53 | 52 | 63 | 52 | 40 | 58 | 50 | 36 |

Source: Derived from IMF, *International Financial Statistics* (June 1999).

Table A.4**Interest Rate Lending and Borrowing Wedge, 1980-1998****(percentages)**

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|--|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Indonesia Lending Rate | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 21.5 | 21.7 | 22.1 | 21.7 | 20.8 | 25.5 | 24.0 | 20.6 | 17.8 | 18.9 | 19.2 | 21.8 | 32.2 |
| Malaysia Lending Rate | 7.8 | 8.5 | 8.8 | 11.1 | 11.4 | 11.5 | 10.7 | 8.2 | 7.3 | 7.0 | 7.2 | 8.1 | 9.3 | 9.1 | 7.6 | 7.6 | 8.9 | 9.5 | 10.6 |
| Philippines Lending Rate | 14.0 | 15.3 | 18.1 | 19.2 | 28.2 | 28.6 | 17.5 | 13.3 | 15.9 | 19.3 | 24.1 | 23.1 | 19.5 | 14.7 | 15.1 | 14.7 | 14.8 | 16.3 | 16.8 |
| Singapore Lending Rate | 11.7 | 13.6 | 10.2 | 9.1 | 9.7 | 7.9 | 6.8 | 6.1 | 6.0 | 6.2 | 7.4 | 7.6 | 6.0 | 5.4 | 5.9 | 6.4 | 6.3 | 6.3 | 7.4 |
| Thailand Lending Rate | 16.1 | 17.2 | 17.0 | 15.2 | 16.8 | 16.1 | 13.4 | 10.7 | 11.6 | 12.3 | 14.4 | 15.4 | 12.2 | 11.2 | 10.9 | 13.3 | 13.4 | 13.6 | 14.4 |
| US Dollar LIBOR on 3-Month Deposits | 14.2 | 16.9 | 13.3 | 9.7 | 10.9 | 8.4 | 6.9 | 7.2 | 8.0 | 9.3 | 8.3 | 6.0 | 3.9 | 3.3 | 4.7 | 6.0 | 5.5 | 5.8 | 5.6 |
| Japanese Yen LIBOR on 3-Month Deposits | 11.3 | 7.7 | 7.0 | 6.6 | 6.4 | 6.7 | 5.1 | 4.3 | 4.5 | 5.5 | 7.8 | 7.4 | 4.5 | 3.0 | 2.3 | 1.3 | 0.6 | 0.6 | 0.7 |
| Spread with US dollar LIBOR | | | | | | | | | | | | | | | | | | | |
| Indonesia Lending Rate - US Dollar LIBOR Spread | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 14.6 | 14.5 | 14.1 | 12.4 | 12.5 | 19.5 | 20.2 | 17.3 | 13.0 | 12.8 | 13.7 | 16.1 | 26.6 |
| Malaysia Lending Rate - US Dollar LIBOR Spread | -6.4 | -8.4 | -4.5 | 1.4 | 0.4 | 3.1 | 3.8 | 1.0 | -0.7 | -2.3 | -1.1 | 2.1 | 5.5 | 5.8 | 2.9 | 1.6 | 3.4 | 3.8 | 5.0 |
| Philippines Lending Rate - US Dollar LIBOR Spread | -0.2 | -1.5 | 4.8 | 9.5 | 17.3 | 20.2 | 10.7 | 6.2 | 7.9 | 10.0 | 15.8 | 17.1 | 15.6 | 11.4 | 10.3 | 8.6 | 9.3 | 10.5 | 11.2 |
| Singapore Lending Rate - US Dollar LIBOR Spread | -2.5 | -3.2 | -3.1 | -0.7 | -1.2 | -0.5 | 0.0 | -1.1 | -2.0 | -3.1 | -1.0 | 1.6 | 2.1 | 2.1 | 1.1 | 0.3 | 0.7 | 0.6 | 1.9 |
| Thailand Lending Rate - US Dollar LIBOR Spread | 2.0 | 0.3 | 3.7 | 5.5 | 5.9 | 7.7 | 6.5 | 3.5 | 3.6 | 3.0 | 6.1 | 9.4 | 8.3 | 7.9 | 6.2 | 7.2 | 7.9 | 7.9 | 8.8 |
| Spread with Japanese Yen LIBOR | | | | | | | | | | | | | | | | | | | |
| Indonesia Lending Rate - Japanese Yen LIBOR Spread | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 16.4 | 17.4 | 17.6 | 16.2 | 13.1 | 18.2 | 19.6 | 17.6 | 15.5 | 17.6 | 18.6 | 21.2 | 31.4 |
| Malaysia Lending Rate - Japanese Yen LIBOR Spread | -3.5 | 0.8 | 1.8 | 4.5 | 4.9 | 4.9 | 5.6 | 3.9 | 2.7 | 1.5 | -0.6 | 0.7 | 4.8 | 6.0 | 5.3 | 6.4 | 8.3 | 8.9 | 9.9 |
| Philippines Lending Rate - Japanese Yen LIBOR Spread | 2.7 | 7.6 | 11.1 | 12.7 | 21.8 | 21.9 | 12.4 | 9.1 | 11.4 | 13.8 | 16.4 | 15.7 | 15.0 | 11.7 | 12.8 | 13.4 | 14.2 | 15.7 | 16.1 |
| Singapore Lending Rate - Japanese Yen LIBOR Spread | 0.4 | 5.9 | 3.2 | 2.5 | 3.3 | 1.3 | 1.7 | 1.8 | 1.5 | 0.7 | -0.4 | 0.2 | 1.5 | 2.4 | 3.6 | 5.1 | 5.6 | 5.7 | 6.7 |
| Thailand Lending Rate - Japanese Yen LIBOR Spread | 4.8 | 9.5 | 10.0 | 8.6 | 10.4 | 9.4 | 8.3 | 6.4 | 7.1 | 6.8 | 6.7 | 8.0 | 7.7 | 8.2 | 8.6 | 12.0 | 12.8 | 13.0 | 13.7 |

Source: Derived from IMF, *International Financial Statistics* (June 1999).

Table A.5

Nominal Exchange Rates of ASEAN-5 Countries and Global Regions, 1980-2000

(Local currency per US dollar)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-------------|-------|-------|-------|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|---------|---------|
| INDONESIA | 627.0 | 631.8 | 661.4 | 909.3 | 1,025.9 | 1,110.6 | 1,282.6 | 1,643.9 | 1,685.7 | 1,770.1 | 1,842.8 | 1,950.3 | 2,029.9 | 2,087.1 | 2,160.8 | 2,248.6 | 2,342.3 | 2,909.4 | 10,013.6 | 8,000.0 | 8,000.0 |
| MALAYSIA | 2.2 | 2.3 | 2.3 | 2.3 | 2.3 | 2.5 | 2.6 | 2.5 | 2.6 | 2.7 | 2.7 | 2.8 | 2.5 | 2.6 | 2.6 | 2.5 | 2.5 | 2.8 | 3.9 | 3.8 | 3.8 |
| PHILIPPINES | 7.5 | 7.9 | 8.5 | 11.1 | 16.7 | 18.6 | 20.4 | 20.6 | 21.1 | 21.7 | 24.3 | 27.5 | 25.5 | 27.1 | 26.4 | 25.7 | 26.2 | 29.5 | 40.9 | 39.4 | 39.5 |
| SINGAPORE | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.2 | 2.2 | 2.1 | 2.0 | 2.0 | 1.8 | 1.7 | 1.6 | 1.6 | 1.5 | 1.4 | 1.4 | 1.5 | 1.7 | 1.7 | 1.7 |
| THAILAND | 20.5 | 21.8 | 23.0 | 23.0 | 23.6 | 27.2 | 26.3 | 25.7 | 25.3 | 25.7 | 25.6 | 25.5 | 25.4 | 25.3 | 25.2 | 24.9 | 25.3 | 31.4 | 41.4 | 37.0 | 37.2 |
| JAPAN | 226.7 | 220.5 | 249.1 | 237.5 | 237.5 | 238.5 | 168.5 | 144.6 | 128.2 | 138.0 | 144.8 | 134.7 | 126.7 | 111.2 | 102.2 | 94.1 | 108.8 | 121.0 | 130.9 | 119.5 | 119.1 |
| USA | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |

Source:

Table A.6

Nominal Cross Exchange Rates for Indonesia, 1980-2000

(Local currency per trading partner currency)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| INDONESIA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| MALAYSIA | 288 | 274 | 283 | 392 | 438 | 447 | 497 | 652 | 644 | 653 | 681 | 709 | 797 | 811 | 823 | 898 | 931 | 1,034 | 2,552 | 2,105 | 2,105 |
| PHILIPPINES | 83 | 80 | 77 | 82 | 61 | 60 | 63 | 80 | 80 | 81 | 76 | 71 | 80 | 77 | 82 | 87 | 89 | 99 | 245 | 203 | 202 |
| SINGAPORE | 293 | 299 | 309 | 430 | 481 | 505 | 589 | 781 | 838 | 908 | 1,017 | 1,129 | 1,246 | 1,292 | 1,415 | 1,586 | 1,661 | 1,959 | 5,983 | 4,661 | 4,673 |
| THAILAND | 31 | 29 | 29 | 40 | 43 | 41 | 49 | 64 | 67 | 69 | 72 | 76 | 80 | 82 | 86 | 90 | 92 | 93 | 242 | 216 | 215 |
| JAPAN | 3 | 3 | 3 | 4 | 4 | 5 | 8 | 11 | 13 | 13 | 13 | 14 | 16 | 19 | 21 | 24 | 22 | 24 | 76 | 67 | 67 |
| UNITED STATES | 627 | 632 | 661 | 909 | 1,026 | 1,111 | 1,283 | 1,644 | 1,686 | 1,770 | 1,843 | 1,950 | 2,030 | 2,087 | 2,161 | 2,249 | 2,342 | 2,909 | 10,014 | 8,000 | 8,000 |
| AUSTRIA | 48 | 40 | 39 | 51 | 51 | 54 | 84 | 130 | 137 | 134 | 162 | 167 | 185 | 179 | 189 | 223 | 221 | 238 | 811 | 645 | 649 |
| BELGIUM-LUXEM | 21 | 17 | 14 | 18 | 18 | 19 | 29 | 44 | 46 | 45 | 55 | 57 | 63 | 60 | 65 | 76 | 76 | 81 | 277 | 220 | 221 |
| DENMARK | 111 | 89 | 79 | 99 | 99 | 105 | 159 | 240 | 250 | 242 | 298 | 305 | 336 | 322 | 340 | 401 | 404 | 441 | 1,494 | 1,187 | 1,173 |
| FINLAND | 168 | 146 | 137 | 163 | 171 | 179 | 253 | 374 | 403 | 412 | 482 | 482 | 453 | 365 | 414 | 515 | 510 | 560 | 1,879 | 1,574 | 1,579 |
| FRANCE | 148 | 116 | 101 | 119 | 117 | 124 | 185 | 273 | 283 | 277 | 338 | 346 | 383 | 369 | 389 | 450 | 458 | 498 | 1,702 | 1,353 | 1,361 |
| GERMANY | 345 | 280 | 273 | 356 | 360 | 377 | 591 | 915 | 960 | 942 | 1,141 | 1,175 | 1,300 | 1,262 | 1,331 | 1,569 | 1,557 | 1,678 | 5,707 | 4,537 | 4,566 |
| GREECE | 15 | 11 | 10 | 10 | 9 | 8 | 9 | 12 | 12 | 11 | 12 | 11 | 11 | 9 | 9 | 10 | 10 | 11 | 34 | 27 | 27 |
| IRELAND | 1,290 | 1,021 | 941 | 1,135 | 1,115 | 1,183 | 1,721 | 2,446 | 2,573 | 2,512 | 3,056 | 3,151 | 3,462 | 3,062 | 3,236 | 3,606 | 3,749 | 4,416 | 14,319 | 11,268 | 11,338 |
| ITALY | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 1 | 1 | 1 | 2 | 2 | 6 | 5 | 5 |
| NETHERLANDS | 315 | 253 | 248 | 319 | 320 | 334 | 523 | 811 | 853 | 835 | 1,012 | 1,043 | 1,154 | 1,124 | 1,187 | 1,400 | 1,389 | 1,491 | 5,061 | 4,027 | 4,052 |
| PORTUGAL | 13 | 10 | 8 | 8 | 7 | 7 | 9 | 12 | 12 | 11 | 13 | 13 | 15 | 13 | 13 | 15 | 15 | 17 | 56 | 44 | 45 |
| SPAIN | 9 | 7 | 6 | 6 | 6 | 7 | 9 | 13 | 14 | 15 | 18 | 19 | 20 | 16 | 16 | 18 | 18 | 20 | 67 | 53 | 54 |
| SWEDEN | 148 | 125 | 105 | 119 | 124 | 129 | 180 | 259 | 275 | 275 | 311 | 323 | 349 | 268 | 280 | 315 | 349 | 381 | 1,260 | 991 | 996 |
| UNITED KINGDOM | 1,459 | 1,281 | 1,158 | 1,379 | 1,371 | 1,440 | 1,882 | 2,694 | 3,003 | 2,902 | 3,289 | 3,451 | 3,584 | 3,135 | 3,309 | 3,549 | 3,658 | 4,765 | 16,587 | 12,882 | 12,569 |
| CHINA,P.R.:HONG KONG | 126 | 113 | 109 | 126 | 131 | 143 | 164 | 211 | 216 | 227 | 237 | 251 | 262 | 270 | 280 | 291 | 303 | 376 | 1,293 | 1,034 | 1,034 |
| CHINA,P.R.: MAINLAND | 418 | 371 | 349 | 460 | 442 | 378 | 371 | 442 | 346 | 358 | 385 | 366 | 368 | 362 | 251 | 269 | 282 | 351 | 1,209 | 966 | 966 |
| KOREA | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 7 | 7 | 7 |

Source:

Table A.7

Nominal Cross Exchange Rates for Malaysia, 1980-2000

(Local currency per trading partner currency)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|----------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| INDONESIA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MALAYSIA | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| PHILIPPINES | 0.29 | 0.29 | 0.27 | 0.21 | 0.14 | 0.13 | 0.13 | 0.12 | 0.12 | 0.12 | 0.11 | 0.10 | 0.10 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| SINGAPORE | 1.02 | 1.09 | 1.09 | 1.10 | 1.10 | 1.13 | 1.19 | 1.20 | 1.30 | 1.39 | 1.49 | 1.59 | 1.56 | 1.59 | 1.72 | 1.77 | 1.78 | 1.89 | 2.34 | 2.21 | 2.22 |
| THAILAND | 0.11 | 0.11 | 0.10 | 0.10 | 0.10 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.10 | 0.10 |
| JAPAN | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 |
| UNITED STATES | 2.18 | 2.30 | 2.34 | 2.32 | 2.34 | 2.48 | 2.58 | 2.52 | 2.62 | 2.71 | 2.70 | 2.75 | 2.55 | 2.57 | 2.62 | 2.50 | 2.52 | 2.81 | 3.92 | 3.80 | 3.80 |
| AUSTRIA | 0.17 | 0.14 | 0.14 | 0.13 | 0.12 | 0.12 | 0.17 | 0.20 | 0.21 | 0.20 | 0.24 | 0.24 | 0.23 | 0.22 | 0.23 | 0.25 | 0.24 | 0.23 | 0.32 | 0.31 | 0.31 |
| BELGIUM-LUXEM | 0.07 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.06 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.11 | 0.10 | 0.11 |
| DENMARK | 0.39 | 0.32 | 0.28 | 0.25 | 0.23 | 0.23 | 0.32 | 0.37 | 0.39 | 0.37 | 0.44 | 0.43 | 0.42 | 0.40 | 0.41 | 0.45 | 0.43 | 0.43 | 0.59 | 0.56 | 0.56 |
| FINLAND | 0.58 | 0.53 | 0.48 | 0.42 | 0.39 | 0.40 | 0.51 | 0.57 | 0.63 | 0.63 | 0.71 | 0.68 | 0.57 | 0.45 | 0.50 | 0.57 | 0.55 | 0.54 | 0.74 | 0.75 | 0.75 |
| FRANCE | 0.52 | 0.42 | 0.36 | 0.30 | 0.27 | 0.28 | 0.37 | 0.42 | 0.44 | 0.42 | 0.50 | 0.49 | 0.48 | 0.45 | 0.47 | 0.50 | 0.49 | 0.48 | 0.67 | 0.64 | 0.65 |
| GERMANY | 1.20 | 1.02 | 0.96 | 0.91 | 0.82 | 0.84 | 1.19 | 1.40 | 1.49 | 1.44 | 1.67 | 1.66 | 1.63 | 1.56 | 1.62 | 1.75 | 1.67 | 1.62 | 2.24 | 2.16 | 2.17 |
| GREECE | 0.05 | 0.04 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| IRELAND | 4.48 | 3.73 | 3.32 | 2.90 | 2.55 | 2.65 | 3.46 | 3.75 | 4.00 | 3.84 | 4.49 | 4.44 | 4.34 | 3.78 | 3.93 | 4.02 | 4.03 | 4.27 | 5.61 | 5.35 | 5.39 |
| ITALY | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NETHERLANDS | 1.09 | 0.92 | 0.87 | 0.81 | 0.73 | 0.75 | 1.05 | 1.24 | 1.32 | 1.28 | 1.49 | 1.47 | 1.45 | 1.39 | 1.44 | 1.56 | 1.49 | 1.44 | 1.98 | 1.91 | 1.92 |
| PORTUGAL | 0.04 | 0.04 | 0.03 | 0.02 | 0.02 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| SPAIN | 0.03 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 |
| SWEDEN | 0.51 | 0.46 | 0.37 | 0.30 | 0.28 | 0.29 | 0.36 | 0.40 | 0.43 | 0.42 | 0.46 | 0.45 | 0.44 | 0.33 | 0.34 | 0.35 | 0.38 | 0.37 | 0.49 | 0.47 | 0.47 |
| UNITED KINGDOM | 5.06 | 4.67 | 4.09 | 3.52 | 3.13 | 3.22 | 3.79 | 4.13 | 4.66 | 4.44 | 4.83 | 4.87 | 4.50 | 3.87 | 4.02 | 3.95 | 3.93 | 4.61 | 6.50 | 6.12 | 5.97 |
| CHINA,P.R.:HONG KONG | 0.44 | 0.41 | 0.39 | 0.32 | 0.30 | 0.32 | 0.33 | 0.32 | 0.34 | 0.35 | 0.35 | 0.35 | 0.33 | 0.33 | 0.34 | 0.32 | 0.33 | 0.36 | 0.51 | 0.49 | 0.49 |
| CHINA,P.R.: MAINLAND | 1.45 | 1.35 | 1.23 | 1.17 | 1.01 | 0.85 | 0.75 | 0.68 | 0.54 | 0.55 | 0.57 | 0.52 | 0.46 | 0.45 | 0.30 | 0.30 | 0.30 | 0.34 | 0.47 | 0.46 | 0.46 |
| KOREA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Source:

Table A.8

Nominal Cross Exchange Rates for Philippines, 1980-2000

(Local currency per trading partner currency)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| INDONESIA | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.00 | 0.00 | 0.00 |
| MALAYSIA | 3.45 | 3.43 | 3.66 | 4.79 | 7.13 | 7.49 | 7.90 | 8.16 | 8.06 | 8.02 | 8.99 | 9.99 | 10.02 | 10.54 | 10.07 | 10.27 | 10.42 | 10.48 | 10.42 | 10.37 | 10.41 |
| PHILIPPINES | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| SINGAPORE | 3.51 | 3.74 | 3.99 | 5.26 | 7.83 | 8.46 | 9.36 | 9.77 | 10.48 | 11.15 | 13.41 | 15.91 | 15.66 | 16.78 | 17.30 | 18.14 | 18.59 | 19.85 | 24.43 | 22.97 | 23.10 |
| THAILAND | 0.37 | 0.36 | 0.37 | 0.48 | 0.71 | 0.69 | 0.78 | 0.80 | 0.83 | 0.85 | 0.95 | 1.08 | 1.00 | 1.07 | 1.05 | 1.03 | 1.03 | 0.94 | 0.99 | 1.07 | 1.06 |
| JAPAN | 0.03 | 0.04 | 0.03 | 0.05 | 0.07 | 0.08 | 0.12 | 0.14 | 0.16 | 0.16 | 0.17 | 0.20 | 0.20 | 0.24 | 0.26 | 0.27 | 0.24 | 0.24 | 0.31 | 0.33 | 0.33 |
| UNITED STATES | 7.51 | 7.90 | 8.54 | 11.11 | 16.70 | 18.61 | 20.39 | 20.57 | 21.09 | 21.74 | 24.31 | 27.48 | 25.51 | 27.12 | 26.42 | 25.71 | 26.22 | 29.47 | 40.89 | 39.42 | 39.55 |
| AUSTRIA | 0.58 | 0.50 | 0.50 | 0.62 | 0.83 | 0.90 | 1.34 | 1.63 | 1.71 | 1.64 | 2.14 | 2.35 | 2.32 | 2.33 | 2.31 | 2.55 | 2.48 | 2.41 | 3.31 | 3.18 | 3.21 |
| BELGIUM-LUXEM | 0.26 | 0.21 | 0.19 | 0.22 | 0.29 | 0.31 | 0.46 | 0.55 | 0.57 | 0.55 | 0.73 | 0.80 | 0.79 | 0.78 | 0.79 | 0.87 | 0.85 | 0.82 | 1.13 | 1.08 | 1.09 |
| DENMARK | 1.33 | 1.11 | 1.02 | 1.22 | 1.61 | 1.76 | 2.52 | 3.01 | 3.13 | 2.97 | 3.93 | 4.30 | 4.23 | 4.18 | 4.15 | 4.59 | 4.52 | 4.46 | 6.10 | 5.85 | 5.80 |
| FINLAND | 2.01 | 1.83 | 1.77 | 2.00 | 2.78 | 3.00 | 4.02 | 4.68 | 5.04 | 5.07 | 6.36 | 6.79 | 5.70 | 4.75 | 5.06 | 5.89 | 5.71 | 5.68 | 7.67 | 7.75 | 7.80 |
| FRANCE | 1.78 | 1.45 | 1.30 | 1.46 | 1.91 | 2.07 | 2.94 | 3.42 | 3.54 | 3.41 | 4.46 | 4.87 | 4.82 | 4.79 | 4.76 | 5.15 | 5.12 | 5.05 | 6.95 | 6.67 | 6.73 |
| GERMANY | 4.13 | 3.50 | 3.52 | 4.35 | 5.87 | 6.32 | 9.39 | 11.44 | 12.01 | 11.56 | 15.05 | 16.56 | 16.34 | 16.40 | 16.28 | 17.94 | 17.42 | 17.00 | 23.30 | 22.36 | 22.57 |
| GREECE | 0.18 | 0.14 | 0.13 | 0.13 | 0.15 | 0.13 | 0.15 | 0.15 | 0.15 | 0.13 | 0.15 | 0.15 | 0.13 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 | 0.14 | 0.14 | 0.14 |
| IRELAND | 15.46 | 12.77 | 12.15 | 13.87 | 18.15 | 19.83 | 27.35 | 30.61 | 32.19 | 30.84 | 40.32 | 44.39 | 43.51 | 39.79 | 39.57 | 41.24 | 41.96 | 44.74 | 58.48 | 55.53 | 56.05 |
| ITALY | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| NETHERLANDS | 3.78 | 3.17 | 3.20 | 3.89 | 5.20 | 5.60 | 8.32 | 10.15 | 10.67 | 10.25 | 13.35 | 14.70 | 14.51 | 14.60 | 14.51 | 16.01 | 15.55 | 15.10 | 20.67 | 19.85 | 20.03 |
| PORTUGAL | 0.15 | 0.13 | 0.11 | 0.10 | 0.11 | 0.11 | 0.14 | 0.15 | 0.15 | 0.14 | 0.17 | 0.19 | 0.19 | 0.17 | 0.16 | 0.17 | 0.17 | 0.17 | 0.23 | 0.22 | 0.22 |
| SPAIN | 0.10 | 0.09 | 0.08 | 0.08 | 0.10 | 0.11 | 0.15 | 0.17 | 0.18 | 0.18 | 0.24 | 0.26 | 0.25 | 0.21 | 0.20 | 0.21 | 0.21 | 0.20 | 0.27 | 0.26 | 0.27 |
| SWEDEN | 1.78 | 1.56 | 1.36 | 1.45 | 2.02 | 2.16 | 2.86 | 3.24 | 3.44 | 3.37 | 4.11 | 4.54 | 4.38 | 3.48 | 3.42 | 3.60 | 3.91 | 3.86 | 5.14 | 4.89 | 4.92 |
| UNITED KINGDOM | 17.47 | 16.02 | 14.95 | 16.86 | 22.32 | 24.12 | 29.91 | 33.71 | 37.58 | 35.64 | 43.39 | 48.62 | 45.04 | 40.73 | 40.46 | 40.59 | 40.94 | 48.26 | 67.74 | 63.49 | 62.13 |
| CHINA,P.R.:HONG KONG | 1.51 | 1.42 | 1.41 | 1.54 | 2.14 | 2.39 | 2.61 | 2.64 | 2.70 | 2.79 | 3.12 | 3.54 | 3.30 | 3.51 | 3.42 | 3.32 | 3.39 | 3.81 | 5.28 | 5.09 | 5.11 |
| CHINA,P.R.: MAINLAND | 5.01 | 4.63 | 4.51 | 5.62 | 7.20 | 6.34 | 5.90 | 5.53 | 4.33 | 4.39 | 5.08 | 5.16 | 4.63 | 4.71 | 3.07 | 3.08 | 3.16 | 3.55 | 4.94 | 4.76 | 4.78 |
| KOREA | 0.01 | 0.01 | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 | 0.03 | 0.03 | 0.04 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 | 0.03 |

Source:

Table A.9

Nominal Cross Exchange Rates for Singapore, 1980-2000

(Local currency per trading partner currency)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| INDONESIA | 0.003 | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 |
| MALAYSIA | 0.984 | 0.917 | 0.916 | 0.910 | 0.910 | 0.886 | 0.843 | 0.836 | 0.768 | 0.720 | 0.670 | 0.628 | 0.639 | 0.628 | 0.582 | 0.566 | 0.560 | 0.528 | 0.426 | 0.452 | 0.451 |
| PHILIPPINES | 0.285 | 0.267 | 0.251 | 0.190 | 0.128 | 0.118 | 0.107 | 0.102 | 0.095 | 0.090 | 0.075 | 0.063 | 0.064 | 0.060 | 0.058 | 0.055 | 0.054 | 0.050 | 0.041 | 0.044 | 0.043 |
| SINGAPORE | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| THAILAND | 0.105 | 0.097 | 0.093 | 0.092 | 0.090 | 0.081 | 0.083 | 0.082 | 0.080 | 0.076 | 0.071 | 0.068 | 0.064 | 0.064 | 0.061 | 0.057 | 0.056 | 0.047 | 0.040 | 0.046 | 0.046 |
| JAPAN | 0.009 | 0.010 | 0.009 | 0.009 | 0.009 | 0.009 | 0.013 | 0.015 | 0.016 | 0.014 | 0.013 | 0.013 | 0.013 | 0.015 | 0.015 | 0.015 | 0.013 | 0.012 | 0.013 | 0.014 | 0.014 |
| UNITED STATES | 2.141 | 2.113 | 2.140 | 2.113 | 2.133 | 2.200 | 2.177 | 2.106 | 2.012 | 1.950 | 1.813 | 1.728 | 1.629 | 1.616 | 1.527 | 1.417 | 1.410 | 1.485 | 1.674 | 1.716 | 1.712 |
| AUSTRIA | 0.165 | 0.133 | 0.125 | 0.118 | 0.107 | 0.106 | 0.143 | 0.167 | 0.163 | 0.147 | 0.159 | 0.148 | 0.148 | 0.139 | 0.134 | 0.141 | 0.133 | 0.122 | 0.136 | 0.138 | 0.139 |
| BELGIUM-LUXEM | 0.073 | 0.057 | 0.047 | 0.041 | 0.037 | 0.037 | 0.049 | 0.056 | 0.055 | 0.049 | 0.054 | 0.051 | 0.051 | 0.047 | 0.046 | 0.048 | 0.046 | 0.042 | 0.046 | 0.047 | 0.047 |
| DENMARK | 0.380 | 0.297 | 0.257 | 0.231 | 0.206 | 0.208 | 0.269 | 0.308 | 0.299 | 0.267 | 0.293 | 0.270 | 0.270 | 0.249 | 0.240 | 0.253 | 0.243 | 0.225 | 0.250 | 0.255 | 0.251 |
| FINLAND | 0.574 | 0.490 | 0.444 | 0.379 | 0.355 | 0.355 | 0.430 | 0.479 | 0.481 | 0.454 | 0.474 | 0.427 | 0.364 | 0.283 | 0.292 | 0.325 | 0.307 | 0.286 | 0.314 | 0.338 | 0.338 |
| FRANCE | 0.507 | 0.389 | 0.326 | 0.277 | 0.244 | 0.245 | 0.314 | 0.350 | 0.338 | 0.306 | 0.333 | 0.306 | 0.308 | 0.285 | 0.275 | 0.284 | 0.276 | 0.254 | 0.284 | 0.290 | 0.291 |
| GERMANY | 1.178 | 0.935 | 0.882 | 0.828 | 0.750 | 0.747 | 1.003 | 1.172 | 1.146 | 1.037 | 1.122 | 1.041 | 1.043 | 0.977 | 0.941 | 0.989 | 0.937 | 0.856 | 0.954 | 0.973 | 0.977 |
| GREECE | 0.050 | 0.038 | 0.032 | 0.024 | 0.019 | 0.016 | 0.016 | 0.016 | 0.014 | 0.012 | 0.011 | 0.009 | 0.009 | 0.007 | 0.006 | 0.006 | 0.006 | 0.005 | 0.006 | 0.006 | 0.006 |
| IRELAND | 4.407 | 3.416 | 3.043 | 2.638 | 2.319 | 2.345 | 2.921 | 3.134 | 3.071 | 2.767 | 3.006 | 2.791 | 2.778 | 2.371 | 2.288 | 2.273 | 2.257 | 2.254 | 2.393 | 2.417 | 2.426 |
| ITALY | 0.003 | 0.002 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.002 | 0.002 | 0.001 | 0.002 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 | 0.001 |
| NETHERLANDS | 1.077 | 0.847 | 0.801 | 0.740 | 0.665 | 0.662 | 0.889 | 1.040 | 1.018 | 0.920 | 0.995 | 0.924 | 0.926 | 0.870 | 0.839 | 0.883 | 0.836 | 0.761 | 0.846 | 0.864 | 0.867 |
| PORTUGAL | 0.043 | 0.034 | 0.027 | 0.019 | 0.015 | 0.013 | 0.015 | 0.015 | 0.014 | 0.012 | 0.013 | 0.012 | 0.012 | 0.010 | 0.009 | 0.009 | 0.009 | 0.008 | 0.009 | 0.009 | 0.010 |
| SPAIN | 0.030 | 0.023 | 0.019 | 0.015 | 0.013 | 0.013 | 0.016 | 0.017 | 0.017 | 0.016 | 0.018 | 0.017 | 0.016 | 0.013 | 0.011 | 0.011 | 0.011 | 0.010 | 0.011 | 0.011 | 0.011 |
| SWEDEN | 0.506 | 0.417 | 0.341 | 0.276 | 0.258 | 0.256 | 0.306 | 0.332 | 0.328 | 0.303 | 0.306 | 0.286 | 0.280 | 0.208 | 0.198 | 0.199 | 0.210 | 0.194 | 0.211 | 0.213 | 0.213 |
| UNITED KINGDOM | 4.981 | 4.284 | 3.746 | 3.205 | 2.851 | 2.852 | 3.194 | 3.451 | 3.585 | 3.198 | 3.235 | 3.057 | 2.876 | 2.427 | 2.339 | 2.237 | 2.202 | 2.432 | 2.772 | 2.764 | 2.690 |
| CHINA,P.R.:HKONG | 0.430 | 0.379 | 0.354 | 0.292 | 0.273 | 0.282 | 0.279 | 0.270 | 0.258 | 0.250 | 0.233 | 0.222 | 0.210 | 0.209 | 0.198 | 0.183 | 0.182 | 0.192 | 0.216 | 0.222 | 0.221 |
| CHINA,P.R.: MLND | 1.429 | 1.239 | 1.131 | 1.070 | 0.919 | 0.749 | 0.631 | 0.566 | 0.413 | 0.394 | 0.379 | 0.325 | 0.295 | 0.280 | 0.177 | 0.170 | 0.170 | 0.179 | 0.202 | 0.207 | 0.207 |
| KOREA | 0.004 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.002 | 0.003 | 0.003 | 0.003 | 0.003 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.001 | 0.001 | 0.001 |

Source:

Table A.10

Nominal Cross Exchange Rates for Thailand, 1980-2000

(Local currency per trading partner currency)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| INDONESIA | 0.033 | 0.035 | 0.035 | 0.025 | 0.023 | 0.024 | 0.021 | 0.016 | 0.015 | 0.015 | 0.014 | 0.013 | 0.013 | 0.012 | 0.012 | 0.011 | 0.011 | 0.011 | 0.004 | 0.005 | 0.005 |
| MALAYSIA | 9.406 | 9.470 | 9.849 | 9.908 | 10.087 | 10.938 | 10.188 | 10.209 | 9.659 | 9.488 | 9.459 | 9.279 | 9.971 | 9.836 | 9.584 | 9.949 | 10.073 | 11.149 | 10.539 | 9.737 | 9.786 |
| PHILIPPINES | 2.726 | 2.762 | 2.693 | 2.070 | 1.416 | 1.460 | 1.290 | 1.251 | 1.199 | 1.182 | 1.052 | 0.929 | 0.996 | 0.934 | 0.952 | 0.969 | 0.967 | 1.064 | 1.011 | 0.938 | 0.940 |
| SINGAPORE | 9.563 | 10.328 | 10.748 | 10.885 | 11.082 | 12.344 | 12.078 | 12.214 | 12.569 | 13.179 | 14.116 | 14.771 | 15.593 | 15.670 | 16.465 | 17.578 | 17.973 | 21.123 | 24.713 | 21.558 | 21.720 |
| THAILAND | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| JAPAN | 0.090 | 0.099 | 0.092 | 0.097 | 0.100 | 0.114 | 0.156 | 0.178 | 0.197 | 0.186 | 0.177 | 0.189 | 0.201 | 0.228 | 0.246 | 0.265 | 0.233 | 0.259 | 0.316 | 0.310 | 0.312 |
| UNITED STATES | 20.476 | 21.820 | 23.000 | 23.000 | 23.639 | 27.159 | 26.299 | 25.723 | 25.294 | 25.702 | 25.586 | 25.517 | 25.400 | 25.320 | 25.150 | 24.915 | 25.343 | 31.364 | 41.359 | 37.000 | 37.185 |
| AUSTRIA | 1.583 | 1.370 | 1.348 | 1.280 | 1.181 | 1.313 | 1.723 | 2.035 | 2.048 | 1.943 | 2.250 | 2.185 | 2.311 | 2.177 | 2.202 | 2.471 | 2.394 | 2.570 | 3.351 | 2.983 | 3.016 |
| BELGIUM-LUXEM | 0.700 | 0.588 | 0.503 | 0.450 | 0.409 | 0.457 | 0.589 | 0.689 | 0.688 | 0.652 | 0.766 | 0.747 | 0.790 | 0.732 | 0.752 | 0.845 | 0.819 | 0.877 | 1.143 | 1.017 | 1.029 |
| DENMARK | 3.633 | 3.063 | 2.760 | 2.515 | 2.283 | 2.563 | 3.250 | 3.760 | 3.758 | 3.516 | 4.134 | 3.989 | 4.208 | 3.905 | 3.954 | 4.447 | 4.370 | 4.749 | 6.172 | 5.488 | 5.450 |
| FINLAND | 5.490 | 5.057 | 4.771 | 4.129 | 3.933 | 4.382 | 5.188 | 5.852 | 6.047 | 5.989 | 6.692 | 6.310 | 5.670 | 4.432 | 4.815 | 5.706 | 5.517 | 6.042 | 7.760 | 7.278 | 7.338 |
| FRANCE | 4.846 | 4.015 | 3.500 | 3.018 | 2.705 | 3.023 | 3.797 | 4.279 | 4.246 | 4.028 | 4.699 | 4.523 | 4.798 | 4.471 | 4.530 | 4.992 | 4.954 | 5.374 | 7.031 | 6.257 | 6.328 |
| GERMANY | 11.265 | 9.655 | 9.478 | 9.008 | 8.306 | 9.225 | 12.111 | 14.311 | 14.402 | 13.671 | 15.835 | 15.376 | 16.265 | 15.314 | 15.498 | 17.385 | 16.842 | 18.087 | 23.570 | 20.985 | 21.222 |
| GREECE | 0.480 | 0.394 | 0.344 | 0.261 | 0.210 | 0.197 | 0.188 | 0.190 | 0.178 | 0.158 | 0.161 | 0.140 | 0.133 | 0.110 | 0.104 | 0.108 | 0.105 | 0.115 | 0.140 | 0.127 | 0.127 |
| IRELAND | 42.140 | 35.277 | 32.710 | 28.710 | 25.699 | 28.942 | 35.280 | 38.279 | 38.602 | 36.471 | 42.433 | 41.223 | 43.314 | 37.146 | 37.669 | 39.958 | 40.564 | 47.610 | 59.144 | 52.114 | 52.702 |
| ITALY | 0.024 | 0.019 | 0.017 | 0.015 | 0.013 | 0.014 | 0.018 | 0.020 | 0.019 | 0.019 | 0.021 | 0.021 | 0.021 | 0.016 | 0.016 | 0.015 | 0.016 | 0.018 | 0.024 | 0.021 | 0.021 |
| NETHERLANDS | 10.299 | 8.745 | 8.614 | 8.059 | 7.367 | 8.177 | 10.734 | 12.698 | 12.797 | 12.119 | 14.051 | 13.648 | 14.444 | 13.632 | 13.819 | 15.517 | 15.032 | 16.074 | 20.904 | 18.625 | 18.835 |
| PORTUGAL | 0.409 | 0.355 | 0.289 | 0.208 | 0.161 | 0.159 | 0.176 | 0.183 | 0.176 | 0.163 | 0.179 | 0.177 | 0.188 | 0.157 | 0.152 | 0.165 | 0.164 | 0.179 | 0.230 | 0.205 | 0.207 |
| SPAIN | 0.286 | 0.236 | 0.209 | 0.160 | 0.147 | 0.160 | 0.188 | 0.208 | 0.217 | 0.217 | 0.251 | 0.246 | 0.248 | 0.199 | 0.188 | 0.200 | 0.200 | 0.214 | 0.278 | 0.247 | 0.249 |
| SWEDEN | 4.841 | 4.309 | 3.661 | 3.000 | 2.858 | 3.157 | 3.692 | 4.057 | 4.128 | 3.987 | 4.323 | 4.219 | 4.361 | 3.253 | 3.259 | 3.493 | 3.779 | 4.108 | 5.203 | 4.585 | 4.628 |
| UNITED KINGDOM | 47.634 | 44.250 | 40.262 | 34.891 | 31.590 | 35.207 | 38.581 | 42.157 | 45.058 | 42.144 | 45.663 | 45.149 | 44.844 | 38.031 | 38.520 | 39.328 | 39.579 | 51.365 | 68.508 | 59.581 | 58.424 |
| CHINA,P.R.:HKONG | 4.116 | 3.913 | 3.800 | 3.183 | 3.024 | 3.486 | 3.370 | 3.299 | 3.240 | 3.295 | 3.285 | 3.284 | 3.281 | 3.273 | 3.254 | 3.221 | 3.277 | 4.051 | 5.340 | 4.780 | 4.804 |
| CHINA,P.R.: MNL | 13.666 | 12.801 | 12.153 | 11.642 | 10.189 | 9.248 | 7.617 | 6.911 | 5.191 | 5.196 | 5.349 | 4.793 | 4.606 | 4.394 | 2.918 | 2.983 | 3.053 | 3.783 | 4.995 | 4.469 | 4.491 |
| KOREA | 0.034 | 0.032 | 0.031 | 0.030 | 0.029 | 0.031 | 0.030 | 0.031 | 0.035 | 0.038 | 0.036 | 0.035 | 0.033 | 0.032 | 0.031 | 0.032 | 0.032 | 0.033 | 0.030 | 0.031 | 0.031 |

Source:

Table A.11
General Price Index, 1980-2000

(Based on Consumer Price Index, 1990=100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 |
|----------------------|------|------|------|------|------|------|------|------|
| INDONESIA | 43.9 | 49.2 | 53.9 | 60.3 | 66.5 | 69.7 | 73.8 | 80.6 |
| MALAYSIA | 72.9 | 80.0 | 84.6 | 87.8 | 91.2 | 93.5 | 93.9 | 94.6 |
| PHILIPPINES | 27.0 | 30.6 | 33.7 | 37.1 | 55.8 | 68.7 | 69.2 | 71.8 |
| SINGAPORE | 80.0 | 86.6 | 89.9 | 91.0 | 93.4 | 93.8 | 92.5 | 93.0 |
| THAILAND | 64.9 | 73.1 | 76.4 | 80.0 | 80.5 | 82.5 | 84.0 | 86.1 |
| JAPAN | 81.6 | 85.6 | 88.0 | 89.6 | 91.7 | 93.5 | 94.1 | 94.2 |
| UNITED STATES | 63.0 | 69.5 | 72.4 | 76.2 | 79.5 | 82.3 | 83.9 | 87.0 |
| AUSTRIA | 72.0 | 76.9 | 81.1 | 83.8 | 88.5 | 91.4 | 93.0 | 94.3 |
| BELGIUM-LUXEM | 64.1 | 69.0 | 75.0 | 80.8 | 85.9 | 90.1 | 91.3 | 92.7 |
| DENMARK | 56.4 | 62.9 | 69.3 | 74.1 | 78.8 | 82.5 | 85.5 | 88.9 |
| FINLAND | 52.3 | 58.6 | 64.0 | 69.4 | 74.2 | 78.6 | 80.8 | 84.1 |
| FRANCE | 54.3 | 61.5 | 68.9 | 75.4 | 81.2 | 85.9 | 88.1 | 91.0 |
| GERMANY | 77.4 | 82.2 | 86.6 | 89.4 | 91.6 | 93.5 | 93.3 | 93.6 |
| GREECE | 28.1 | 30.2 | 32.9 | 35.4 | 37.7 | 45.0 | 55.3 | 64.4 |
| IRELAND | 47.7 | 57.4 | 67.2 | 74.2 | 80.6 | 85.0 | 88.3 | 91.0 |
| ITALY | 39.3 | 47.0 | 54.7 | 62.7 | 69.6 | 75.9 | 80.3 | 84.1 |
| NETHERLANDS | 78.8 | 84.1 | 89.1 | 91.7 | 94.8 | 97.0 | 97.0 | 96.0 |
| PORTUGAL | 20.8 | 24.9 | 30.6 | 38.2 | 49.5 | 59.0 | 65.9 | 72.2 |
| SPAIN | 41.0 | 47.0 | 53.8 | 60.4 | 67.2 | 73.1 | 79.5 | 83.7 |
| SWEDEN | 48.1 | 54.0 | 58.6 | 63.8 | 68.9 | 74.0 | 77.1 | 80.4 |
| UNITED KINGDOM | 55.1 | 61.8 | 67.0 | 70.5 | 73.6 | 77.4 | 80.3 | 83.5 |
| CHINA,P.R.: MAINLAND | 51.3 | 52.5 | 53.5 | 54.3 | 55.9 | 60.8 | 64.4 | 69.1 |
| CHINA,P.R.:HONG KONG | 46.2 | 52.5 | 58.1 | 63.9 | 69.1 | 70.9 | 73.1 | 77.1 |
| KOREA | 54.5 | 66.2 | 70.9 | 73.3 | 75.0 | 76.8 | 78.9 | 81.4 |

Source:

Table A.12

Direction of Trade (Imports + Exports) of Indonesia, 1980-2000

(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|-----------------------|--------|--------|--------|--------|--------|--------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| INDONESIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MALAYSIA | 96 | 107 | 116 | 118 | 184 | 129 | 133 | 233 | 484 | 582 | 543 | 748 | 1,012 | 1,103 | 1,424 | 1,829 | 1,933 | 2,474 | 2,710 |
| PHILIPPINES | 272 | 692 | 521 | 424 | 181 | 222 | 137 | 172 | 123 | 206 | 216 | 249 | 233 | 342 | 439 | 653 | 778 | 909 | 970 |
| SINGAPORE | 3,420 | 3,564 | 5,940 | 6,592 | 3,917 | 2,465 | 2,208 | 2,807 | 2,552 | 2,847 | 3,186 | 4,108 | 4,984 | 5,165 | 5,817 | 6,104 | 7,440 | 8,812 | 9,600 |
| THAILAND | 323 | 183 | 225 | 257 | 153 | 129 | 155 | 163 | 247 | 448 | 372 | 545 | 697 | 703 | 806 | 1,562 | 1,918 | 1,803 | 2,060 |
| ASEAN-5 | 4,110 | 4,546 | 6,801 | 7,391 | 4,435 | 2,945 | 2,632 | 3,374 | 3,406 | 4,082 | 4,317 | 5,650 | 6,927 | 7,314 | 8,487 | 10,148 | 12,069 | 13,998 | 15,360 |
| JAPAN | 14,206 | 15,405 | 15,471 | 13,471 | 13,660 | 11,238 | 9,772 | 10,989 | 11,514 | 13,085 | 16,378 | 17,094 | 16,774 | 17,421 | 19,247 | 22,064 | 21,389 | 21,028 | 15,000 |
| UNITED STATES | 5,712 | 6,155 | 5,963 | 6,800 | 7,065 | 5,761 | 4,384 | 4,764 | 4,872 | 5,691 | 5,884 | 6,905 | 8,242 | 8,484 | 9,658 | 10,920 | 11,854 | 12,883 | 11,100 |
| AUSTRIA | 14 | 20 | 80 | 99 | 55 | 32 | 54 | 96 | 88 | 101 | 104 | 138 | 228 | 310 | 250 | 337 | 342 | 307 | 210 |
| BELGIUM-LUXEMBOURG | 81 | 106 | 116 | 157 | 165 | 146 | 179 | 251 | 336 | 339 | 458 | 511 | 726 | 706 | 649 | 894 | 1,075 | 1,131 | 1,100 |
| DENMARK | 52 | 30 | 63 | 25 | 26 | 21 | 32 | 39 | 42 | 67 | 114 | 123 | 221 | 256 | 216 | 218 | 317 | 319 | 330 |
| FINLAND | 38 | 36 | 25 | 24 | 24 | 21 | 23 | 54 | 39 | 57 | 67 | 98 | 123 | 284 | 207 | 328 | 412 | 409 | 340 |
| FRANCE | 358 | 400 | 648 | 644 | 481 | 355 | 374 | 494 | 643 | 615 | 948 | 930 | 1,311 | 1,353 | 1,267 | 1,614 | 1,570 | 1,651 | 1,360 |
| GERMANY | 1,074 | 1,163 | 1,445 | 994 | 1,066 | 932 | 1,053 | 1,197 | 1,364 | 1,405 | 2,279 | 2,975 | 3,119 | 3,251 | 3,626 | 4,220 | 4,490 | 4,331 | 3,960 |
| GREECE | 5 | 97 | 4 | 4 | 5 | 3 | 7 | 5 | 5 | 6 | 15 | 23 | 36 | 58 | 95 | 126 | 162 | 158 | 110 |
| IRELAND | 4 | 4 | 5 | 9 | 13 | 10 | 7 | 13 | 23 | 30 | 109 | 56 | 70 | 62 | 62 | 68 | 77 | 90 | 90 |
| ITALY | 331 | 275 | 246 | 244 | 281 | 253 | 296 | 412 | 471 | 594 | 686 | 917 | 1,141 | 1,138 | 1,332 | 1,592 | 1,956 | 1,720 | 1,440 |
| NETHERLANDS | 530 | 572 | 450 | 547 | 598 | 607 | 642 | 810 | 913 | 940 | 1,295 | 1,342 | 1,607 | 1,712 | 1,620 | 2,188 | 2,160 | 2,153 | 1,490 |
| PORTUGAL | 9 | 1 | 1 | 2 | 2 | 4 | 9 | 16 | 25 | 26 | 23 | 18 | 18 | 31 | 37 | 52 | 51 | 45 | 40 |
| SPAIN | 58 | 103 | 120 | 251 | 135 | 138 | 87 | 127 | 238 | 163 | 289 | 300 | 433 | 595 | 598 | 659 | 1,158 | 1,259 | 1,100 |
| SWEDEN | 60 | 87 | 84 | 114 | 122 | 105 | 128 | 162 | 126 | 191 | 233 | 312 | 313 | 502 | 372 | 313 | 877 | 455 | 410 |
| UNITED KINGDOM | 403 | 682 | 572 | 563 | 465 | 492 | 538 | 537 | 691 | 730 | 958 | 1,257 | 1,563 | 1,787 | 1,704 | 2,034 | 2,311 | 2,361 | 2,050 |
| EUROPEAN UNION | 3,016 | 3,576 | 3,860 | 3,676 | 3,435 | 3,119 | 3,426 | 4,212 | 5,004 | 5,264 | 7,577 | 9,000 | 10,907 | 12,043 | 12,034 | 14,643 | 16,957 | 16,389 | 14,250 |
| CHINA,P.R.:HONG KONG | 291 | 215 | 232 | 247 | 347 | 401 | 440 | 524 | 688 | 708 | 891 | 935 | 1,110 | 1,148 | 1,776 | 2,091 | 1,887 | 2,163 | 2,410 |
| CHINA,P.R.: MAINLAND | 197 | 262 | 245 | 231 | 232 | 333 | 476 | 751 | 901 | 1,072 | 1,487 | 2,026 | 2,148 | 2,185 | 2,793 | 3,418 | 3,655 | 3,967 | 3,860 |
| KOREA | 528 | 784 | 915 | 714 | 808 | 861 | 515 | 942 | 1,290 | 1,477 | 2,355 | 3,387 | 3,977 | 4,324 | 4,986 | 5,528 | 5,692 | 5,979 | 6,090 |

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| OTHER NE ASIA | 1,016 | 1,261 | 1,392 | 1,192 | 1,388 | 1,595 | 1,430 | 2,217 | 2,879 | 3,256 | 4,733 | 6,348 | 7,235 | 7,657 | 9,555 | 11,037 | 11,235 | 12,109 | 12,37 |
| TOTAL | 28,061 | 30,943 | 33,487 | 32,531 | 29,982 | 24,658 | 21,645 | 25,556 | 27,675 | 31,378 | 38,889 | 44,997 | 50,085 | 52,918 | 58,981 | 68,812 | 73,504 | 76,407 | 68,09 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.13

Direction of Trade (Imports + Exports) of Malaysia, 1980-2000
(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| INDONESIA | 115 | 128 | 107 | 156 | 273 | 205 | 198 | 323 | 561 |
| MALAYSIA | - | - | - | - | - | - | - | - | - |
| PHILIPPINES | 305 | 281 | 284 | 322 | 605 | 598 | 372 | 471 | 451 |
| SINGAPORE | 3,745 | 4,197 | 4,787 | 5,026 | 5,219 | 4,939 | 3,996 | 5,137 | 6,261 |
| THAILAND | 509 | 591 | 901 | 976 | 946 | 963 | 790 | 954 | 921 |
| ASEAN-5 | 4,673 | 5,196 | 6,080 | 6,480 | 7,043 | 6,704 | 5,356 | 6,885 | 8,201 |
| JAPAN | 5,428 | 5,318 | 5,550 | 6,144 | 7,461 | 6,617 | 5,477 | 6,254 | 7,351 |
| UNITED STATES | 3,751 | 3,226 | 3,581 | 3,991 | 4,526 | 3,851 | 4,331 | 5,348 | 6,581 |
| AUSTRIA | 16 | 14 | 17 | 21 | 19 | 32 | 25 | 30 | 41 |
| BELGIUM-LUXEMBOURG | 173 | 132 | 140 | 217 | 230 | 220 | 222 | 305 | 331 |
| DENMARK | 61 | 82 | 83 | 51 | 72 | 72 | 60 | 68 | 81 |
| FINLAND | 13 | 25 | 20 | 22 | 33 | 34 | 26 | 37 | 41 |
| FRANCE | 434 | 379 | 301 | 488 | 489 | 446 | 422 | 442 | 561 |
| GERMANY | 1,053 | 862 | 864 | 1,137 | 1,097 | 955 | 988 | 1,154 | 1,371 |
| GREECE | 9 | 6 | 9 | 8 | 9 | 8 | 12 | 15 | 21 |
| IRELAND | 23 | 19 | 19 | 20 | 23 | 18 | 18 | 19 | 21 |
| ITALY | 335 | 245 | 238 | 259 | 314 | 271 | 263 | 302 | 381 |
| NETHERLANDS | 843 | 796 | 812 | 886 | 814 | 1,036 | 567 | 722 | 761 |
| PORTUGAL | 30 | 42 | 66 | 70 | 79 | 102 | 92 | 66 | 71 |
| SPAIN | 94 | 81 | 61 | 91 | 82 | 72 | 73 | 95 | 131 |
| SWEDEN | 173 | 156 | 114 | 154 | 187 | 216 | 150 | 154 | 171 |
| UNITED KINGDOM | 943 | 874 | 837 | 854 | 927 | 883 | 973 | 1,120 | 1,551 |
| EUROPEAN UNION | 4,202 | 3,713 | 3,580 | 4,278 | 4,374 | 4,365 | 3,892 | 4,528 | 5,571 |
| CHINA,P.R.:HONG KONG | 391 | 385 | 396 | 439 | 513 | 416 | 535 | 787 | 1,051 |
| CHINA,P.R.: MAINLAND | 470 | 363 | 387 | 426 | 450 | 412 | 445 | 654 | 851 |
| KOREA | 464 | 594 | 701 | 900 | 1,081 | 1,182 | 967 | 1,286 | 1,451 |

| | | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| OTHER NE ASIA | 1,326 | 1,342 | 1,484 | 1,766 | 2,043 | 2,010 | 1,947 | 2,726 | 3,43 |
| TOTAL | 19,381 | 18,795 | 20,275 | 22,660 | 25,449 | 23,547 | 21,003 | 25,741 | 31,19 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.14

Direction of Trade (Imports + Exports) of Philippines, 1980-2000

(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|
| INDONESIA | 294 | 386 | 208 | 207 | 207 | 208 | 165 | 157 | 186 | 237 | 261 | 220 | 221 | 391 | 470 | 746 | - | 885 | 955 | 955 | |
| MALAYSIA | 257 | 287 | 300 | 321 | 533 | 564 | 312 | 353 | 363 | 382 | 414 | 527 | 541 | 517 | 707 | 936 | 1,479 | 2,112 | 2,408 | 2,408 | 2,408 |
| PHILIPPINES | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| SINGAPORE | 245 | 243 | 342 | 429 | 441 | 377 | 280 | 434 | 574 | 737 | 748 | 705 | 803 | 1,357 | 2,196 | 2,272 | 2,913 | 5,047 | 5,055 | 5,055 | 5,055 |
| THAILAND | 85 | 54 | 47 | 70 | 60 | 139 | 97 | 169 | 179 | 245 | 306 | 321 | 237 | 346 | 212 | 1,221 | 1,355 | 1,266 | 1,366 | 1,366 | 1,366 |
| ASEAN-5 | 881 | 970 | 896 | 1,027 | 1,241 | 1,287 | 854 | 1,112 | 1,303 | 1,601 | 1,729 | 1,773 | 1,802 | 2,612 | 3,585 | 5,175 | 5,747 | 9,310 | 9,784 | 9,784 | 9,784 |
| JAPAN | 3,191 | 2,863 | 2,811 | 2,326 | 1,885 | 1,624 | 1,738 | 2,129 | 2,918 | 3,755 | 4,019 | 4,288 | 4,832 | 5,833 | 7,467 | 9,043 | 10,584 | 14,122 | 12,433 | 12,433 | 12,433 |
| UNITED STATES | 3,544 | 3,701 | 3,449 | 3,624 | 3,745 | 3,002 | 3,003 | 3,600 | 4,335 | 5,067 | 5,642 | 5,761 | 6,469 | 7,873 | 9,340 | 11,442 | 13,209 | 17,986 | 18,623 | 18,623 | 18,623 |
| AUSTRIA | 9 | 12 | 14 | 17 | 33 | 19 | 12 | 12 | 15 | 25 | 30 | 29 | 27 | 33 | 41 | 39 | - | 87 | 109 | 109 | 109 |
| BELGIUM-LUXEM | 71 | 62 | 58 | 74 | 101 | 34 | 49 | 69 | 107 | 152 | 174 | 191 | 189 | 206 | 339 | 298 | - | 344 | 332 | 332 | 332 |
| DENMARK | 36 | 40 | 51 | 71 | 21 | 19 | 22 | 41 | 44 | 44 | 48 | 61 | 53 | 52 | 59 | 59 | - | 108 | 119 | 119 | 119 |
| FINLAND | 11 | 45 | 10 | 11 | 12 | 11 | 12 | 20 | 23 | 33 | 25 | 32 | 27 | 90 | 102 | 78 | 118 | 145 | 165 | 165 | 165 |
| FRANCE | 189 | 221 | 189 | 185 | 231 | 161 | 190 | 254 | 293 | 326 | 305 | 313 | 391 | 411 | 441 | 526 | 630 | 2,194 | 1,200 | 1,200 | 1,200 |
| GERMANY | 600 | 576 | 559 | 588 | 379 | 323 | 457 | 573 | 639 | 769 | 977 | 992 | 1,192 | 1,196 | 1,463 | 1,675 | 2,055 | 2,607 | 2,264 | 2,264 | 2,264 |
| GREECE | 3 | 3 | 2 | 2 | 3 | 4 | 4 | 5 | 8 | 6 | | 10 | 7 | 6 | | 10 | 11 | - | 13 | 15 | 15 |
| IRELAND | 7 | 10 | 13 | 13 | 9 | 9 | 16 | 14 | 26 | 23 | 29 | 26 | 39 | 47 | 58 | 133 | - | 354 | 618 | 618 | 618 |
| ITALY | 137 | 115 | 85 | 93 | 54 | 62 | 48 | 72 | 158 | 119 | 155 | 184 | 220 | 221 | 269 | 355 | 386 | 550 | 436 | 436 | 436 |
| NETHERLANDS | 485 | 402 | 282 | 304 | 224 | 190 | 288 | 403 | 450 | 542 | 538 | 493 | 587 | 596 | 809 | 1,141 | 1,440 | 1,657 | 1,281 | 1,281 | 1,281 |
| PORTUGAL | 3 | 2 | 6 | 2 | 1 | 1 | 3 | 3 | 5 | 9 | | 12 | 11 | 12 | 9 | 8 | | 10 | - | 26 | 26 |
| SPAIN | 32 | 34 | 91 | 46 | 34 | 25 | 30 | 89 | 71 | 71 | 71 | 86 | 133 | 91 | 117 | 142 | - | 239 | 251 | 251 | 251 |
| SWEDEN | 88 | 67 | 56 | 50 | 41 | 32 | 33 | 39 | 46 | 55 | 55 | 54 | 51 | 81 | 94 | 125 | 220 | 334 | 367 | 367 | 367 |
| UNITED KINGDOM | 337 | 369 | 363 | 411 | 371 | 273 | 339 | 393 | 496 | 507 | 617 | 597 | 767 | 914 | 1,043 | 1,496 | 1,411 | 2,213 | 1,938 | 1,938 | 1,938 |
| EUROPEAN UNION | 2,008 | 1,958 | 1,779 | 1,869 | 1,515 | 1,165 | 1,504 | 1,986 | 2,377 | 2,683 | 3,042 | 3,078 | 3,693 | 3,952 | 4,854 | 6,088 | 6,260 | 10,870 | 9,122 | 9,122 | 9,122 |
| CHINA,P.R.: H KONG | 395 | 446 | 417 | 423 | 477 | 396 | 479 | 586 | 732 | 802 | 907 | 1,006 | 1,184 | 1,425 | 1,796 | 2,197 | 2,211 | 3,583 | 3,060 | 3,060 | 3,060 |
| CHINA,P.R.: MLAND | 266 | 288 | 328 | 102 | 288 | 371 | 222 | 305 | 333 | 292 | 243 | 371 | 298 | 349 | 484 | 869 | 981 | 1,765 | 1,985 | 1,985 | 1,985 |

| | | | | | | | | | | | | | | | | | | | | | |
|----------------------|--------|--------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| KOREA | 348 | 316 | 312 | 310 | 254 | 289 | 281 | 299 | 508 | 605 | 728 | 867 | 873 | 1,122 | 1,461 | 1,871 | 2,014 | 3,504 | 3,995 | 3,995 | 3,9 |
| OTHER NE ASIA | 1,010 | 1,050 | 1,057 | 835 | 1,019 | 1,056 | 981 | 1,189 | 1,574 | 1,699 | 1,879 | 2,243 | 2,355 | 2,897 | 3,742 | 4,937 | 5,206 | 8,853 | 9,039 | 9,039 | 9,0 |
| TOTAL | 10,634 | 10,542 | 9,993 | 9,681 | 9,404 | 8,134 | 8,080 | 10,016 | 12,507 | 14,805 | 16,310 | 17,143 | 19,150 | 23,167 | 28,987 | 36,685 | 41,006 | 61,141 | 59,002 | 59,002 | 59,0 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.15

Direction of Trade (Imports + Exports) of Singapore, 1980-2000

(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|-----------------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| INDONESIA | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MALAYSIA | 6,232 | 6,681 | 7,447 | 7,931 | 8,208 | 7,275 | 6,727 | 8,612 | 11,763 | 12,628 | 15,130 | 18,928 | 18,541 | 24,539 | 35,754 |
| PHILIPPINES | 348 | 381 | 425 | 549 | 392 | 417 | 432 | 595 | 782 | 931 | 984 | 956 | 1,126 | 1,877 | 2,358 |
| SINGAPORE | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| THAILAND | 1,319 | 1,355 | 1,328 | 1,450 | 1,787 | 1,493 | 1,559 | 2,232 | 3,330 | 3,718 | 5,160 | 5,812 | 6,636 | 7,731 | 10,241 |
| ASEAN-5 | 7,900 | 8,418 | 9,200 | 9,930 | 10,387 | 9,186 | 8,718 | 11,439 | 15,875 | 17,276 | 21,273 | 25,696 | 26,302 | 34,147 | 48,352 |
| JAPAN | 5,871 | 7,313 | 7,306 | 7,082 | 7,516 | 6,634 | 7,009 | 9,273 | 13,025 | 14,440 | 16,879 | 19,248 | 20,027 | 24,189 | 29,277 |
| UNITED STATES | 5,813 | 6,254 | 6,244 | 8,216 | 9,002 | 8,818 | 9,077 | 11,786 | 16,194 | 18,954 | 21,016 | 22,175 | 25,278 | 29,030 | 33,723 |
| AUSTRIA | 40 | 42 | 48 | 54 | 55 | 57 | 70 | 93 | 136 | 183 | 239 | 279 | 378 | 302 | 357 |
| BELGIUM-LUXEMBOURG | 209 | 194 | 192 | 195 | 214 | 221 | 208 | 292 | 436 | 609 | 748 | 701 | 859 | 932 | 1,085 |
| DENMARK | 89 | 99 | 106 | 156 | 100 | 107 | 111 | 222 | 250 | 216 | 250 | 261 | 383 | 255 | 306 |
| FINLAND | 21 | 30 | 29 | 44 | 53 | 49 | 53 | 66 | 103 | 133 | 159 | 177 | 264 | 395 | 486 |
| FRANCE | 751 | 836 | 841 | 809 | 777 | 948 | 774 | 1,189 | 1,443 | 1,815 | 2,331 | 2,390 | 2,772 | 2,809 | 3,477 |
| GERMANY | 1,368 | 1,298 | 1,350 | 1,273 | 1,357 | 1,228 | 1,549 | 2,049 | 2,992 | 3,452 | 4,312 | 4,624 | 5,053 | 5,546 | 6,867 |
| GREECE | 128 | 113 | 94 | 71 | 116 | 150 | 73 | 103 | 166 | 145 | 202 | 181 | 176 | 415 | 206 |
| IRELAND | 20 | 27 | 25 | 40 | 56 | 33 | 29 | 49 | 111 | 113 | 209 | 243 | 315 | 633 | 896 |
| ITALY | 475 | 454 | 444 | 573 | 673 | 625 | 569 | 769 | 1,224 | 1,410 | 1,655 | 1,473 | 1,937 | 1,792 | 2,131 |
| NETHERLANDS | 676 | 566 | 568 | 493 | 526 | 543 | 573 | 774 | 1,017 | 1,190 | 1,668 | 2,122 | 2,643 | 2,713 | 3,636 |
| PORTUGAL | 26 | 16 | 17 | 27 | 24 | 16 | 18 | 24 | 38 | 42 | 58 | 68 | 75 | 85 | 87 |
| SPAIN | 126 | 102 | 97 | 137 | 159 | 125 | 117 | 169 | 285 | 313 | 442 | 491 | 555 | 558 | 722 |
| SWEDEN | 287 | 271 | 225 | 162 | 189 | 193 | 208 | 330 | 340 | 435 | 494 | 572 | 550 | 555 | 673 |
| UNITED KINGDOM | 1,311 | 1,322 | 1,222 | 1,277 | 1,391 | 1,396 | 1,456 | 1,850 | 2,418 | 2,950 | 3,553 | 3,701 | 3,858 | 4,451 | 5,426 |
| EUROPEAN UNION | 5,528 | 5,369 | 5,257 | 5,311 | 5,692 | 5,692 | 5,807 | 7,980 | 10,960 | 13,006 | 16,320 | 17,285 | 19,818 | 21,439 | 26,357 |
| CHINA,P.R.:HONG KONG | 1,990 | 2,354 | 2,340 | 2,082 | 2,089 | 1,947 | 2,063 | 2,675 | 3,666 | 4,245 | 5,309 | 6,252 | 7,166 | 9,114 | 11,838 |
| CHINA,P.R.: MAINLAND | 936 | 951 | 1,121 | 1,040 | 1,590 | 2,601 | 2,001 | 2,149 | 2,884 | 2,897 | 2,893 | 3,086 | 3,366 | 4,309 | 4,983 |
| KOREA | 562 | 606 | 664 | 885 | 750 | 704 | 916 | 1,351 | 2,035 | 2,354 | 2,948 | 3,282 | 3,434 | 4,810 | 6,447 |

| | | | | | | | | | | | | | | | |
|----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|----------------|
| OTHER NE ASIA | 3,488 | 3,911 | 4,125 | 4,006 | 4,428 | 5,252 | 4,980 | 6,175 | 8,584 | 9,496 | 11,151 | 12,619 | 13,965 | 18,232 | 23,268 |
| TOTAL | 28,599 | 31,265 | 32,132 | 34,546 | 37,026 | 35,581 | 35,591 | 46,654 | 64,639 | 73,173 | 86,639 | 97,023 | 105,390 | 127,036 | 160,977 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.16

Direction of Trade (Imports + Exports) of Thailand

(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|
| INDONESIA | 281 | 159 | 207 | 154 | 126 | 104 | 120 | 170 | 258 | 430 | 352 | 434 | 574 | 715 | 893 |
| MALAYSIA | 458 | 588 | 800 | 839 | 856 | 902 | 766 | 909 | 899 | 1,235 | 1,700 | 1,875 | 2,437 | 2,715 | 4,309 |
| PHILIPPINES | 102 | 40 | 53 | 83 | 43 | 113 | 100 | 212 | 250 | 190 | 276 | 203 | 276 | 379 | 577 |
| SINGAPORE | 1,101 | 1,246 | 1,042 | 1,154 | 1,445 | 1,254 | 1,388 | 2,061 | 2,735 | 3,303 | 4,176 | 5,326 | 5,793 | 7,428 | 9,606 |
| THAILAND | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| ASEAN-5 | 1,943 | 2,034 | 2,103 | 2,229 | 2,470 | 2,373 | 2,373 | 3,352 | 4,141 | 5,157 | 6,504 | 7,837 | 9,079 | 11,237 | 15,384 |
| JAPAN | 2,934 | 3,409 | 2,955 | 3,776 | 3,768 | 3,402 | 3,681 | 5,108 | 8,038 | 11,158 | 14,113 | 16,173 | 17,591 | 20,263 | 24,170 |
| UNITED STATES | 2,156 | 2,202 | 2,025 | 2,252 | 2,682 | 2,454 | 2,918 | 3,783 | 5,953 | 7,199 | 8,841 | 10,057 | 12,079 | 13,384 | 15,976 |
| AUSTRIA | 46 | 52 | 16 | 28 | 27 | 28 | 35 | 52 | 75 | 100 | 156 | 324 | 205 | 275 | 211 |
| BELGIUM-LUXEMBOURG | 213 | 166 | 139 | 185 | 174 | 165 | 199 | 332 | 544 | 632 | 871 | 1,524 | 842 | 1,349 | 1,140 |
| DENMARK | 70 | 51 | 55 | 77 | 85 | 82 | 103 | 123 | 146 | 145 | 228 | 278 | 315 | 343 | 334 |
| FINLAND | 45 | 26 | 21 | 28 | 23 | 23 | 23 | 48 | 78 | 107 | 159 | 173 | 204 | 369 | 314 |
| FRANCE | 200 | 307 | 259 | 279 | 294 | 382 | 352 | 482 | 870 | 851 | 1,381 | 1,221 | 1,684 | 1,690 | 1,561 |
| GERMANY | 671 | 653 | 564 | 703 | 681 | 767 | 939 | 1,344 | 1,827 | 2,129 | 2,900 | 3,564 | 3,592 | 3,961 | 4,810 |
| GREECE | 11 | 5 | 5 | 6 | 10 | 8 | 8 | 11 | 20 | 40 | 52 | 73 | 90 | 78 | 68 |
| IRELAND | 7 | 9 | 20 | 10 | 10 | 16 | 10 | 19 | 31 | 28 | 37 | 40 | 55 | 51 | 75 |
| ITALY | 258 | 215 | 203 | 229 | 250 | 228 | 245 | 386 | 534 | 667 | 847 | 1,069 | 1,167 | 1,370 | 1,311 |
| NETHERLANDS | 1,088 | 984 | 1,012 | 807 | 856 | 597 | 739 | 930 | 1,086 | 1,194 | 1,357 | 1,574 | 1,832 | 1,559 | 1,760 |
| PORTUGAL | 5 | 6 | 7 | 4 | 10 | 26 | 38 | 34 | 47 | 58 | 64 | 62 | 102 | 91 | 99 |
| SPAIN | 28 | 35 | 32 | 40 | 48 | 48 | 72 | 117 | 161 | 261 | 328 | 428 | 450 | 447 | 510 |
| SWEDEN | 128 | 110 | 87 | 115 | 128 | 108 | 145 | 169 | 234 | 303 | 415 | 464 | 481 | 553 | 610 |
| UNITED KINGDOM | 368 | 379 | 350 | 364 | 407 | 406 | 578 | 826 | 1,188 | 1,397 | 1,843 | 1,877 | 2,116 | 2,248 | 2,498 |
| EUROPEAN UNION | 3,138 | 2,999 | 2,770 | 2,876 | 3,001 | 2,885 | 3,486 | 4,874 | 6,841 | 7,913 | 10,635 | 12,670 | 13,134 | 14,386 | 15,301 |
| CHINA,P.R.: HONG KONG | 417 | 427 | 431 | 434 | 410 | 396 | 493 | 677 | 963 | 1,206 | 1,453 | 2,124 | 2,000 | 2,496 | 3,078 |
| CHINA,P.R.: MAINLAND | 540 | 507 | 540 | 372 | 501 | 494 | 539 | 891 | 1,154 | 1,286 | 1,376 | 1,485 | 1,605 | 1,334 | 2,318 |
| KOREA | 247 | 290 | 237 | 335 | 414 | 319 | 462 | 464 | 817 | 1,042 | 1,439 | 2,053 | 2,318 | 2,409 | 2,550 |

| | | | | | | | | | | | | | | | |
|----------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| OTHER NE ASIA | 1,204 | 1,223 | 1,209 | 1,141 | 1,325 | 1,208 | 1,494 | 2,033 | 2,933 | 3,533 | 4,268 | 5,661 | 5,923 | 6,239 | 7,946 |
| TOTAL | 11,375 | 11,868 | 11,061 | 12,275 | 13,245 | 12,321 | 13,953 | 19,149 | 27,906 | 34,960 | 44,362 | 52,397 | 57,806 | 65,510 | 78,777 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.17

Direction of Trade (Imports + Exports) of ASEAN-5, 1980-2000

(millions of US\$)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | |
|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|
| INDONESIA | 691 | 673 | 522 | 516 | 606 | 517 | 483 | 650 | 1,008 | 1,427 | 1,271 | 1,662 | 1,937 | 2,367 | 3,020 | 4 |
| MALAYSIA | 7,042 | 7,663 | 8,662 | 9,209 | 9,781 | 8,870 | 7,938 | 10,105 | 13,509 | 14,827 | 17,788 | 22,078 | 22,530 | 28,875 | 42,194 | 45 |
| PHILIPPINES | 1,026 | 1,395 | 1,283 | 1,377 | 1,221 | 1,349 | 1,041 | 1,450 | 1,604 | 1,810 | 2,026 | 1,873 | 2,352 | 3,297 | 4,306 | 5 |
| SINGAPORE | 8,511 | 9,250 | 12,111 | 13,202 | 11,022 | 9,035 | 7,872 | 10,439 | 12,127 | 14,894 | 19,170 | 23,859 | 27,240 | 31,133 | 38,172 | 45 |
| THAILAND | 2,236 | 2,183 | 2,501 | 2,754 | 2,946 | 2,724 | 2,600 | 3,518 | 4,678 | 5,704 | 7,573 | 8,667 | 10,054 | 11,609 | 14,950 | 20 |
| ASEAN-5 | 19,506 | 21,164 | 25,079 | 27,059 | 25,577 | 22,495 | 19,934 | 26,162 | 32,926 | 38,662 | 47,827 | 58,139 | 64,113 | 77,281 | 102,642 | 125 |
| JAPAN | 31,630 | 34,308 | 34,094 | 32,799 | 34,291 | 29,514 | 27,678 | 33,753 | 42,890 | 51,892 | 62,950 | 71,843 | 75,004 | 86,351 | 103,078 | 128 |
| UNITED STATES | 20,976 | 21,539 | 21,262 | 24,883 | 27,020 | 23,885 | 23,713 | 29,281 | 37,942 | 45,399 | 51,313 | 56,332 | 65,992 | 76,077 | 91,044 | 109 |
| AUSTRIA | 126 | 140 | 174 | 218 | 189 | 168 | 196 | 283 | 361 | 476 | 612 | 896 | 982 | 1,064 | 1,022 | 1 |
| BELGIUM-LUXEMBOURG | 747 | 658 | 645 | 828 | 884 | 786 | 857 | 1,249 | 1,758 | 2,182 | 2,841 | 3,552 | 3,394 | 4,016 | 4,332 | 5 |
| DENMARK | 308 | 302 | 358 | 381 | 303 | 302 | 328 | 493 | 572 | 578 | 766 | 874 | 1,172 | 1,088 | 1,121 | 1 |
| FINLAND | 128 | 162 | 104 | 129 | 145 | 138 | 136 | 225 | 289 | 395 | 484 | 577 | 805 | 1,307 | 1,314 | 1 |
| FRANCE | 1,933 | 2,142 | 2,238 | 2,405 | 2,272 | 2,292 | 2,112 | 2,861 | 3,812 | 4,262 | 5,816 | 5,796 | 7,246 | 7,581 | 9,117 | 12 |
| GERMANY | 4,767 | 4,553 | 4,781 | 4,695 | 4,580 | 4,205 | 4,986 | 6,318 | 8,192 | 9,505 | 12,884 | 14,993 | 16,276 | 17,419 | 21,207 | 25 |
| GREECE | 157 | 225 | 114 | 92 | 143 | 173 | 104 | 139 | 216 | 221 | 300 | 317 | 347 | 603 | 427 | |
| IRELAND | 61 | 69 | 82 | 91 | 111 | 86 | 79 | 114 | 220 | 250 | 449 | 485 | 576 | 927 | 1,591 | 2 |
| ITALY | 1,536 | 1,304 | 1,216 | 1,399 | 1,572 | 1,440 | 1,421 | 1,941 | 2,767 | 3,286 | 4,013 | 4,421 | 5,359 | 5,448 | 6,276 | 7 |
| NETHERLANDS | 3,622 | 3,321 | 3,124 | 3,037 | 3,018 | 2,974 | 2,810 | 3,639 | 4,226 | 5,008 | 5,854 | 6,687 | 7,997 | 8,083 | 9,579 | 12 |
| PORTUGAL | 73 | 68 | 98 | 105 | 116 | 150 | 160 | 144 | 191 | 165 | 203 | 198 | 239 | 241 | 317 | |
| SPAIN | 337 | 356 | 401 | 566 | 458 | 407 | 380 | 597 | 891 | 950 | 1,297 | 1,506 | 1,790 | 1,924 | 2,297 | 3 |
| SWEDEN | 736 | 690 | 567 | 595 | 666 | 655 | 663 | 853 | 916 | 1,230 | 1,506 | 1,905 | 1,754 | 2,081 | 2,352 | 2 |
| UNITED KINGDOM | 3,362 | 3,626 | 3,344 | 3,469 | 3,561 | 3,450 | 3,883 | 4,726 | 6,344 | 7,741 | 9,731 | 10,633 | 11,308 | 12,809 | 14,805 | 18 |
| EUROPEAN UNION | 17,892 | 17,615 | 17,246 | 18,011 | 18,017 | 17,225 | 18,116 | 23,580 | 30,756 | 36,249 | 46,757 | 52,840 | 59,244 | 64,592 | 75,757 | 95,16 |
| CHINA,P.R.:HONG KONG | 3,485 | 3,826 | 3,816 | 3,625 | 3,835 | 3,555 | 4,009 | 5,249 | 7,146 | 8,194 | 10,052 | 12,218 | 13,914 | 17,045 | 22,392 | 27 |
| CHINA,P.R.: MAINLAND | 2,410 | 2,371 | 2,621 | 2,172 | 3,060 | 4,211 | 3,683 | 4,750 | 6,169 | 6,637 | 7,180 | 8,408 | 9,164 | 10,477 | 13,874 | 18 |
| KOREA | 2,150 | 2,590 | 2,829 | 3,144 | 3,307 | 3,355 | 3,140 | 4,342 | 6,089 | 7,294 | 9,573 | 12,174 | 13,204 | 15,669 | 18,988 | 24 |

| | | | | | | | | | | | | | | | | |
|----------------------|---------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|--------------|
| OTHER NE ASIA | 8,045 | 8,787 | 9,267 | 8,940 | 10,203 | 11,121 | 10,832 | 14,340 | 19,405 | 22,126 | 26,805 | 32,800 | 36,282 | 43,192 | 55,254 | 70,73 |
| TOTAL | 98,050 | 103,413 | 106,948 | 111,692 | 115,107 | 104,241 | 100,272 | 127,116 | 163,918 | 194,328 | 235,652 | 271,953 | 300,635 | 347,493 | 427,775 | 528 |

Source: IMF *Direction of Trade*, CD Rom version.

Table A.18

Real Effective Exchange Rates of Indonesia, 1980-2000
(1995=100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|
| INDONESIA | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| MALAYSIA | 142.3 | 152.9 | 153.2 | 119.4 | 113.6 | 113.5 | 107.8 | 89.0 | 97.3 | 99.4 | 100.0 | 102.4 | 93.6 | 97.4 | 100.4 | 97.4 | 97.9 | 91.5 | 56.6 | 84.9 | 88.9 |
| PHILIPPINES | 147.3 | 152.5 | 156.5 | 150.5 | 147.2 | 128.9 | 128.5 | 106.5 | 105.9 | 98.5 | 100.0 | 98.4 | 86.7 | 91.3 | 85.5 | 81.0 | 78.9 | 72.5 | 43.1 | 61.4 | 63.9 |
| SINGAPORE | 190.3 | 193.1 | 197.1 | 156.4 | 150.5 | 149.6 | 137.6 | 112.9 | 112.0 | 107.5 | 100.0 | 95.2 | 90.7 | 93.9 | 90.2 | 86.5 | 88.0 | 77.9 | 41.1 | 67.8 | 73.5 |
| THAILAND | 159.0 | 167.4 | 176.6 | 137.2 | 137.1 | 148.8 | 129.7 | 105.5 | 105.3 | 102.8 | 100.0 | 97.5 | 96.4 | 99.1 | 98.2 | 96.7 | 96.3 | 96.9 | 55.2 | 77.3 | 82.1 |
| ASEAN-5 | 182.5 | 183.4 | 191.7 | 154.5 | 147.9 | 145.8 | 134.7 | 110.1 | 108.9 | 105.2 | 100.0 | 96.5 | 91.5 | 94.7 | 92.2 | 89.4 | 90.0 | 81.7 | 45.0 | 71.0 | 76.2 |
| JAPAN | 247.2 | 255.3 | 293.6 | 223.5 | 213.9 | 203.7 | 131.1 | 95.8 | 88.9 | 94.8 | 100.0 | 93.1 | 88.9 | 82.3 | 78.7 | 76.2 | 91.2 | 85.6 | 43.0 | 63.1 | 69.2 |
| UNITED STATES | 204.6 | 206.4 | 207.6 | 160.4 | 150.3 | 140.5 | 126.4 | 103.9 | 105.3 | 101.8 | 100.0 | 99.2 | 99.4 | 103.0 | 105.2 | 107.6 | 108.4 | 90.9 | 41.8 | 65.7 | 70.5 |
| AUSTRIA | 203.7 | 261.5 | 277.9 | 230.3 | 237.6 | 230.3 | 153.1 | 106.6 | 107.7 | 116.0 | 100.0 | 102.7 | 96.0 | 104.6 | 104.6 | 94.9 | 101.4 | 99.0 | 46.3 | 74.0 | 79.8 |
| BELGIUM-LUXEM | 175.9 | 231.1 | 273.7 | 231.4 | 240.6 | 228.1 | 155.3 | 109.0 | 111.8 | 117.8 | 100.0 | 102.3 | 97.2 | 108.5 | 107.5 | 98.1 | 104.7 | 102.1 | 47.8 | 76.2 | 82.1 |
| DENMARK | 208.3 | 262.5 | 291.7 | 243.5 | 253.9 | 240.0 | 162.1 | 112.3 | 111.4 | 117.0 | 100.0 | 104.3 | 99.6 | 112.7 | 113.6 | 103.1 | 108.3 | 103.6 | 48.2 | 76.4 | 83.3 |
| FINLAND | 240.5 | 276.7 | 295.8 | 256.5 | 253.1 | 238.6 | 173.9 | 123.5 | 117.8 | 114.9 | 100.0 | 104.9 | 116.7 | 155.4 | 147.3 | 128.2 | 139.0 | 133.2 | 62.9 | 94.8 | 101.9 |
| FRANCE | 184.3 | 232.9 | 263.1 | 226.7 | 236.3 | 222.1 | 153.0 | 109.6 | 111.5 | 116.9 | 100.0 | 103.7 | 98.2 | 109.8 | 111.0 | 103.1 | 107.3 | 103.8 | 48.5 | 77.9 | 84.1 |
| GERMANY | 187.5 | 244.1 | 260.6 | 215.9 | 229.9 | 225.5 | 152.6 | 107.5 | 109.3 | 115.4 | 100.0 | 102.6 | 94.9 | 102.6 | 102.8 | 93.7 | 100.5 | 97.7 | 45.7 | 73.3 | 79.3 |
| GREECE | 123.3 | 165.9 | 192.4 | 191.6 | 225.6 | 224.2 | 169.3 | 120.0 | 116.7 | 119.1 | 100.0 | 99.4 | 92.7 | 104.0 | 104.0 | 95.9 | 95.4 | 88.1 | 42.4 | 65.5 | 70.1 |
| IRELAND | 217.8 | 256.7 | 260.5 | 218.7 | 226.2 | 211.7 | 148.5 | 110.6 | 111.4 | 116.6 | 100.0 | 102.8 | 97.6 | 119.3 | 119.6 | 114.7 | 117.2 | 104.5 | 50.6 | 80.8 | 86.5 |
| ITALY | 234.3 | 289.8 | 309.8 | 246.8 | 251.9 | 243.0 | 164.2 | 116.2 | 117.1 | 117.7 | 100.0 | 100.7 | 98.2 | 127.8 | 131.9 | 133.2 | 125.8 | 117.1 | 54.6 | 87.2 | 93.9 |
| NETHERLANDS | 178.6 | 233.8 | 247.1 | 208.8 | 222.1 | 217.5 | 147.1 | 104.7 | 107.2 | 115.2 | 100.0 | 102.9 | 96.9 | 106.4 | 106.4 | 96.8 | 103.2 | 100.3 | 46.5 | 73.8 | 78.9 |
| PORTUGAL | 217.7 | 248.6 | 273.8 | 248.1 | 248.2 | 234.1 | 168.8 | 123.8 | 121.8 | 120.9 | 100.0 | 94.0 | 83.3 | 99.4 | 102.3 | 94.0 | 96.5 | 92.1 | 42.9 | 67.6 | 72.5 |
| SPAIN | 220.9 | 276.3 | 300.8 | 284.7 | 280.6 | 263.9 | 183.1 | 130.8 | 124.1 | 119.6 | 100.0 | 99.5 | 95.6 | 121.2 | 127.7 | 119.4 | 121.4 | 118.1 | 55.1 | 87.4 | 93.6 |
| SWEDEN | 191.4 | 227.6 | 272.1 | 248.0 | 242.4 | 227.2 | 165.4 | 120.4 | 116.0 | 116.2 | 100.0 | 96.6 | 93.9 | 128.0 | 130.1 | 123.4 | 119.6 | 116.3 | 56.6 | 92.0 | 99.7 |
| UNITED KINGDOM | 179.6 | 204.5 | 228.5 | 203.8 | 216.7 | 205.6 | 160.7 | 117.8 | 109.3 | 113.6 | 100.0 | 97.6 | 96.6 | 117.5 | 118.0 | 117.1 | 119.1 | 94.9 | 42.7 | 68.6 | 75.5 |
| EUROPEAN UNION | 189.6 | 233.0 | 259.2 | 222.4 | 232.1 | 223.2 | 155.3 | 110.6 | 111.0 | 115.9 | 100.0 | 101.5 | 96.6 | 111.5 | 111.9 | 104.2 | 109.8 | 102.9 | 47.8 | 76.4 | 82.6 |
| CHINA,P.R.:HONG KONG | 160.5 | 195.6 | 218.0 | 208.5 | 214.7 | 190.2 | 164.8 | 131.0 | 116.4 | 99.7 | 100.0 | 99.5 | 96.3 | 89.5 | 75.4 | 68.0 | 65.0 | 54.3 | 25.6 | 40.8 | 44.0 |
| CHINA,P.R.: MAINLAND | 87.5 | 97.4 | 102.2 | 79.0 | 83.8 | 100.1 | 104.7 | 91.2 | 117.1 | 109.5 | 100.0 | 103.0 | 100.8 | 103.5 | 150.2 | 140.8 | 136.8 | 110.9 | 50.4 | 82.7 | 91.0 |
| KOREA | 202.9 | 208.6 | 218.8 | 182.6 | 181.5 | 185.1 | 167.3 | 129.1 | 113.0 | 99.4 | 100.0 | 97.9 | 101.4 | 106.1 | 104.8 | 101.2 | 104.3 | 101.3 | 64.6 | 87.5 | 94.3 |
| OTHER NE ASIA | 152.3 | 167.1 | 182.1 | 148.7 | 157.0 | 158.1 | 139.0 | 113.5 | 115.1 | 102.6 | 100.0 | 99.8 | 100.4 | 102.5 | 106.5 | 100.7 | 101.8 | 90.0 | 46.6 | 70.5 | 76.4 |
| TOTAL | 215.1 | 224.5 | 240.1 | 185.8 | 182.3 | 175.6 | 134.3 | 102.7 | 99.8 | 101.3 | 100.0 | 97.0 | 94.1 | 95.5 | 94.3 | 91.2 | 99.0 | 89.6 | 44.8 | 69.1 | 74.8 |

Source:

Table A.19

Real Effective Exchange Rates of Malaysia, 1980-2000
(1995=100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|-------|
| INDONESIA | 17.9 | 16.2 | 17.3 | 33.1 | 41.3 | 43.1 | 53.2 | 91.7 | 89.3 | 92.0 | 100.0 | 108.4 | 136.8 | 141.6 | 146.1 | 173.7 | 186.7 | 230.4 | 1402.7 | 954.9 | 954.9 | |
| MALAYSIA | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| PHILIPPINES | 14.7 | 14.6 | 16.6 | 28.4 | 62.8 | 69.5 | 77.2 | 82.5 | 80.3 | 79.7 | 100.0 | 123.6 | 124.2 | 137.4 | 125.4 | 130.5 | 134.4 | 135.9 | 134.4 | 133.3 | 134.1 | |
| SINGAPORE | 215.5 | 187.2 | 187.0 | 184.5 | 184.5 | 174.8 | 158.4 | 155.6 | 131.5 | 115.4 | 100.0 | 87.9 | 91.1 | 87.7 | 75.4 | 71.3 | 69.9 | 62.0 | 40.5 | 45.4 | 45.2 | |
| THAILAND | 98.9 | 100.2 | 108.4 | 109.7 | 113.7 | 133.7 | 116.0 | 116.5 | 104.3 | 100.6 | 100.0 | 96.2 | 111.1 | 108.1 | 102.7 | 110.6 | 113.4 | 138.9 | 124.1 | 106.0 | 107.0 | |
| ASEAN-5 | 94.1 | 93.6 | 106.1 | 124.2 | 133.3 | 137.4 | 132.0 | 136.5 | 119.9 | 109.2 | 100.0 | 90.5 | 96.0 | 93.1 | 82.0 | 79.9 | 80.3 | 74.6 | 50.1 | 55.0 | 54.8 | |
| JAPAN | 378.6 | 319.7 | 397.0 | 365.4 | 358.4 | 322.1 | 148.7 | 115.0 | 83.6 | 90.5 | 100.0 | 83.7 | 86.3 | 65.1 | 52.9 | 49.2 | 65.2 | 64.6 | 38.8 | 34.5 | 34.3 | |
| UNITED STATES | 154.4 | 137.8 | 134.1 | 135.8 | 133.2 | 118.7 | 109.8 | 115.2 | 106.7 | 99.7 | 100.0 | 96.7 | 112.7 | 110.4 | 106.2 | 116.7 | 115.6 | 92.4 | 47.5 | 50.7 | 50.7 | |
| AUSTRIA | 199.9 | 270.4 | 302.0 | 338.9 | 412.5 | 392.9 | 198.0 | 142.5 | 125.8 | 135.0 | 100.0 | 102.0 | 105.3 | 115.6 | 107.2 | 91.7 | 100.2 | 106.5 | 56.0 | 60.3 | 59.6 | |
| BELGIUM-LUXEM | 118.2 | 170.1 | 250.8 | 317.9 | 398.3 | 374.6 | 196.2 | 143.8 | 129.1 | 138.6 | 100.0 | 101.0 | 104.4 | 118.3 | 106.5 | 90.8 | 99.2 | 105.9 | 55.7 | 60.0 | 59.3 | |
| DENMARK | 128.0 | 182.6 | 243.2 | 296.5 | 373.0 | 347.9 | 187.7 | 140.8 | 126.2 | 139.1 | 100.0 | 103.3 | 107.3 | 121.2 | 112.2 | 95.6 | 101.5 | 105.3 | 55.7 | 60.1 | 61.6 | |
| FINLAND | 146.9 | 175.5 | 213.2 | 288.2 | 329.1 | 311.8 | 193.0 | 152.3 | 127.7 | 125.6 | 100.0 | 108.2 | 154.7 | 246.5 | 198.3 | 152.1 | 166.8 | 170.4 | 92.3 | 89.6 | 89.0 | |
| FRANCE | 93.0 | 137.3 | 195.4 | 266.0 | 343.1 | 323.1 | 177.6 | 140.4 | 127.7 | 136.9 | 100.0 | 103.9 | 106.6 | 119.4 | 110.4 | 98.0 | 102.0 | 106.2 | 55.4 | 59.8 | 59.0 | |
| GERMANY | 195.4 | 269.6 | 302.6 | 339.1 | 413.3 | 394.0 | 198.3 | 142.6 | 126.0 | 135.0 | 100.0 | 102.1 | 105.3 | 115.6 | 107.2 | 91.8 | 100.3 | 106.5 | 56.0 | 60.3 | 59.6 | |
| GREECE | 11.2 | 16.8 | 23.8 | 41.9 | 67.4 | 90.1 | 85.6 | 84.1 | 85.4 | 104.7 | 100.0 | 127.9 | 163.1 | 231.0 | 248.8 | 249.2 | 266.5 | 274.3 | 165.1 | 171.0 | 171.5 | |
| IRELAND | 100.3 | 145.0 | 182.4 | 239.7 | 310.0 | 287.4 | 167.8 | 143.1 | 126.0 | 136.2 | 100.0 | 101.9 | 106.6 | 141.1 | 130.3 | 124.7 | 124.1 | 110.4 | 63.9 | 70.2 | 69.4 | |
| ITALY | 78.9 | 124.1 | 170.9 | 218.2 | 286.4 | 301.4 | 170.0 | 134.9 | 125.9 | 130.8 | 100.0 | 103.7 | 119.3 | 190.5 | 192.4 | 215.6 | 191.7 | 186.8 | 99.2 | 107.5 | 106.2 | |
| NETHERLANDS | 184.0 | 258.8 | 288.5 | 333.6 | 413.6 | 394.8 | 198.8 | 142.6 | 125.7 | 135.2 | 100.0 | 102.0 | 105.1 | 114.9 | 106.1 | 90.7 | 99.1 | 106.2 | 56.1 | 60.3 | 59.6 | |
| PORTUGAL | 19.0 | 25.7 | 41.7 | 82.0 | 140.5 | 169.5 | 120.9 | 112.6 | 108.8 | 121.6 | 100.0 | 99.4 | 101.1 | 140.5 | 144.0 | 131.1 | 135.3 | 139.8 | 75.6 | 81.4 | 80.4 | |
| SPAIN | 76.4 | 113.0 | 155.8 | 268.8 | 331.3 | 330.2 | 207.2 | 169.1 | 139.3 | 134.5 | 100.0 | 100.5 | 113.7 | 172.1 | 183.5 | 174.5 | 178.5 | 190.7 | 101.4 | 109.7 | 108.4 | |
| SWEDEN | 78.8 | 100.9 | 151.1 | 227.8 | 260.2 | 250.8 | 159.0 | 132.2 | 114.3 | 118.3 | 100.0 | 101.0 | 109.2 | 191.0 | 180.5 | 169.4 | 148.4 | 153.8 | 85.7 | 94.2 | 93.4 | |
| UNITED KINGDOM | 90.9 | 106.7 | 139.4 | 187.9 | 237.6 | 224.9 | 162.5 | 136.7 | 107.1 | 118.1 | 100.0 | 98.4 | 115.2 | 155.9 | 144.3 | 149.1 | 150.9 | 109.8 | 55.2 | 62.2 | 65.4 | |
| EUROPEAN UNION | 112.2 | 148.4 | 189.8 | 256.0 | 319.4 | 310.2 | 178.8 | 139.7 | 119.8 | 128.9 | 100.0 | 101.2 | 109.7 | 133.1 | 123.6 | 112.7 | 117.8 | 114.2 | 59.9 | 65.3 | 65.5 | |
| CHINA,P.R.:HONG KONG | 63.0 | 70.6 | 81.0 | 116.8 | 134.2 | 118.7 | 110.2 | 115.5 | 107.1 | 100.0 | 100.0 | 96.3 | 111.3 | 108.9 | 104.6 | 115.0 | 113.9 | 91.3 | 47.0 | 50.0 | 50.0 | |
| CHINA,P.R.: MAINLAND | 15.2 | 17.5 | 21.0 | 23.2 | 31.3 | 44.7 | 57.2 | 69.8 | 110.7 | 106.6 | 100.0 | 119.8 | 149.9 | 160.2 | 344.9 | 355.6 | 348.0 | 277.7 | 142.4 | 151.8 | 151.8 | |
| KOREA | 113.7 | 127.6 | 143.1 | 163.1 | 172.7 | 179.3 | 170.3 | 155.7 | 113.9 | 89.7 | 100.0 | 103.9 | 137.2 | 142.0 | 136.9 | 138.5 | 149.3 | 167.0 | 184.8 | 145.7 | 145.7 | |
| OTHER NE ASIA | 32.1 | 43.5 | 52.6 | 63.8 | 83.6 | 104.1 | 106.3 | 111.5 | 110.8 | 96.7 | 100.0 | 104.6 | 129.2 | 132.2 | 147.6 | 149.4 | 150.7 | 138.4 | 93.2 | 92.0 | 92.0 | |
| WORLD | 116.0 | 124.1 | 139.8 | 158.7 | 174.6 | 174.2 | 133.8 | 123.7 | 105.3 | 103.6 | 100.0 | 92.7 | 101.2 | 94.2 | 84.6 | 81.9 | 91.4 | 85.4 | 51.7 | 53.3 | 53.2 | |

Source:

Table A.20

Real Effective Exchange Rates of Philippines, 1980-2000
(1995=100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| INDONESIA | 67.9 | 65.6 | 63.9 | 66.4 | 67.9 | 77.6 | 77.8 | 93.9 | 94.4 | 101.5 | 100.0 | 101.6 | 115.4 | 109.5 | 116.9 | 123.5 | 126.7 | 138.0 | 232.1 | 162.7 | 156.4 |
| MALAYSIA | 96.6 | 100.3 | 97.9 | 79.4 | 77.1 | 88.0 | 83.9 | 83.6 | 91.9 | 100.9 | 100.0 | 104.0 | 108.0 | 106.7 | 117.4 | 120.3 | 124.1 | 126.3 | 131.4 | 138.2 | 139.1 |
| PHILIPPINES | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| SINGAPORE | 129.2 | 126.6 | 126.0 | 103.9 | 102.2 | 116.0 | 107.1 | 106.0 | 105.8 | 109.1 | 100.0 | 96.8 | 104.7 | 102.8 | 105.5 | 106.8 | 111.5 | 107.6 | 95.4 | 110.3 | 115.0 |
| THAILAND | 108.0 | 109.8 | 112.8 | 91.2 | 93.1 | 115.4 | 100.9 | 99.1 | 99.5 | 104.3 | 100.0 | 99.1 | 111.2 | 108.5 | 114.8 | 119.4 | 122.0 | 133.7 | 128.0 | 125.7 | 128.4 |
| ASEAN-5 | 91.1 | 86.9 | 94.9 | 85.2 | 83.2 | 95.1 | 90.7 | 95.2 | 99.0 | 105.1 | 100.0 | 99.9 | 107.7 | 105.2 | 109.6 | 114.2 | 116.9 | 117.1 | 113.7 | 122.3 | 125.4 |
| JAPAN | 167.9 | 167.4 | 187.6 | 148.5 | 145.3 | 158.0 | 102.0 | 90.0 | 84.0 | 96.2 | 100.0 | 94.6 | 102.6 | 90.1 | 92.0 | 94.1 | 115.6 | 118.1 | 99.7 | 102.6 | 108.3 |
| UNITED STATES | 138.9 | 135.3 | 132.6 | 106.5 | 102.1 | 109.0 | 98.3 | 97.6 | 99.4 | 103.3 | 100.0 | 100.8 | 114.7 | 112.8 | 123.1 | 132.9 | 137.3 | 125.4 | 96.9 | 106.9 | 110.3 |
| AUSTRIA | 138.4 | 171.5 | 177.6 | 153.0 | 161.4 | 178.6 | 119.2 | 100.1 | 101.7 | 117.7 | 100.0 | 104.4 | 110.8 | 114.5 | 122.3 | 117.2 | 128.5 | 136.7 | 107.6 | 120.4 | 124.9 |
| BELGIUM-LUXEM | 119.5 | 151.6 | 174.9 | 153.7 | 163.4 | 176.9 | 120.8 | 102.3 | 105.6 | 119.5 | 100.0 | 104.0 | 112.1 | 118.8 | 125.7 | 121.2 | 132.6 | 140.9 | 110.8 | 123.9 | 128.4 |
| DENMARK | 141.5 | 172.1 | 186.4 | 161.8 | 172.5 | 186.1 | 126.1 | 105.5 | 105.2 | 118.8 | 100.0 | 106.0 | 114.9 | 123.4 | 132.9 | 127.3 | 137.2 | 142.9 | 111.9 | 124.4 | 130.3 |
| FINLAND | 163.3 | 181.4 | 189.0 | 170.4 | 171.9 | 185.1 | 135.3 | 115.9 | 111.3 | 116.7 | 100.0 | 106.6 | 134.7 | 170.1 | 172.3 | 158.4 | 176.1 | 183.8 | 145.9 | 154.4 | 159.4 |
| FRANCE | 125.1 | 152.7 | 168.1 | 150.6 | 160.5 | 172.3 | 119.1 | 102.9 | 105.3 | 118.7 | 100.0 | 105.4 | 113.4 | 120.2 | 129.8 | 127.3 | 136.0 | 143.3 | 112.6 | 126.7 | 131.6 |
| GERMANY | 127.3 | 160.1 | 166.5 | 143.4 | 156.2 | 174.9 | 118.8 | 100.9 | 103.2 | 117.1 | 100.0 | 104.3 | 109.5 | 112.4 | 120.2 | 115.7 | 127.3 | 134.8 | 106.1 | 119.3 | 124.0 |
| GREECE | 83.7 | 108.8 | 123.0 | 127.3 | 153.3 | 173.9 | 131.7 | 112.6 | 110.2 | 120.9 | 100.0 | 101.1 | 107.0 | 113.8 | 121.6 | 118.4 | 120.9 | 121.5 | 98.5 | 106.6 | 109.6 |
| IRELAND | 147.9 | 168.3 | 166.5 | 145.3 | 153.6 | 164.2 | 115.5 | 103.9 | 105.2 | 118.3 | 100.0 | 104.5 | 112.6 | 130.6 | 139.9 | 141.6 | 148.5 | 144.2 | 117.4 | 131.5 | 135.4 |
| ITALY | 159.1 | 190.0 | 198.0 | 164.0 | 171.1 | 188.4 | 127.8 | 109.1 | 110.6 | 119.5 | 100.0 | 102.3 | 113.3 | 139.9 | 154.3 | 164.4 | 159.4 | 161.6 | 126.7 | 141.9 | 146.8 |
| NETHERLANDS | 121.3 | 153.3 | 157.9 | 138.7 | 150.9 | 168.7 | 114.4 | 98.3 | 101.2 | 117.0 | 100.0 | 104.6 | 111.8 | 116.5 | 124.5 | 119.5 | 130.7 | 138.3 | 108.0 | 120.1 | 123.4 |
| PORTUGAL | 147.9 | 163.0 | 175.0 | 164.9 | 168.6 | 181.6 | 131.3 | 116.2 | 115.0 | 122.7 | 100.0 | 95.5 | 96.2 | 108.9 | 119.6 | 116.1 | 122.3 | 127.1 | 99.5 | 110.1 | 113.3 |
| SPAIN | 150.0 | 181.2 | 192.2 | 189.1 | 190.6 | 204.7 | 142.5 | 122.8 | 117.2 | 121.4 | 100.0 | 101.1 | 110.3 | 132.7 | 149.3 | 147.5 | 153.8 | 162.9 | 127.8 | 142.2 | 146.4 |
| SWEDEN | 130.0 | 149.2 | 173.9 | 164.8 | 164.6 | 176.2 | 128.7 | 113.1 | 109.5 | 117.9 | 100.0 | 98.1 | 108.4 | 140.1 | 152.2 | 152.4 | 151.6 | 160.4 | 131.4 | 149.8 | 156.0 |
| UNITED KINGDOM | 122.0 | 134.1 | 146.0 | 135.4 | 147.2 | 159.5 | 125.0 | 110.6 | 103.2 | 115.3 | 100.0 | 99.2 | 111.4 | 128.7 | 138.0 | 144.6 | 151.0 | 130.9 | 99.0 | 111.6 | 118.1 |
| EUROPEAN UNION | 126.9 | 154.0 | 164.0 | 144.9 | 155.9 | 171.1 | 120.5 | 104.1 | 104.3 | 117.4 | 100.0 | 103.1 | 111.3 | 121.3 | 129.7 | 128.7 | 137.0 | 139.6 | 109.2 | 122.5 | 127.5 |
| CHINA,P.R.:HONG KONG | 109.0 | 128.3 | 139.3 | 138.5 | 145.8 | 147.5 | 128.2 | 123.0 | 110.0 | 101.2 | 100.0 | 101.2 | 111.1 | 98.0 | 88.2 | 84.0 | 82.3 | 74.9 | 59.3 | 66.4 | 68.8 |
| CHINA,P.R.: MAINLAND | 59.4 | 63.8 | 65.3 | 52.5 | 57.0 | 77.6 | 81.5 | 85.7 | 110.6 | 111.2 | 100.0 | 104.7 | 116.3 | 113.3 | 175.6 | 173.9 | 173.4 | 153.1 | 117.0 | 134.6 | 142.3 |
| KOREA | 137.8 | 136.8 | 139.8 | 121.3 | 123.3 | 143.5 | 130.1 | 121.2 | 106.7 | 100.9 | 100.0 | 99.5 | 117.0 | 116.2 | 122.5 | 125.0 | 132.1 | 139.8 | 149.9 | 142.4 | 147.6 |
| OTHER NE ASIA | 94.9 | 102.0 | 103.2 | 110.6 | 98.1 | 111.4 | 113.9 | 110.3 | 109.0 | 102.7 | 100.0 | 101.1 | 113.9 | 106.2 | 106.7 | 107.0 | 109.0 | 104.9 | 95.0 | 101.7 | 105.7 |
| WORLD | 131.9 | 134.1 | 139.7 | 117.8 | 111.1 | 120.2 | 103.5 | 98.1 | 97.1 | 103.7 | 100.0 | 99.5 | 110.0 | 105.7 | 110.5 | 114.3 | 124.1 | 121.1 | 101.4 | 109.5 | 113.7 |

Source:

Table A.21

Real Effective Exchange Rates of Singapore, 1980-2000
(1995=100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----------------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| INDONESIA | 52.6 | 51.8 | 50.7 | 63.9 | 66.4 | 66.8 | 72.7 | 88.6 | 89.3 | 93.0 | 100.0 | 105.0 | 110.3 | 106.5 | 110.8 | 115.6 | 113.7 | 128.3 | 243.1 | 147.6 | 136.0 |
| MALAYSIA | 74.8 | 79.2 | 77.7 | 76.4 | 75.5 | 75.9 | 78.3 | 78.9 | 86.8 | 92.5 | 100.0 | 107.5 | 103.2 | 103.8 | 111.2 | 112.6 | 111.3 | 117.4 | 137.7 | 125.3 | 121.0 |
| PHILIPPINES | 77.4 | 79.0 | 79.4 | 96.2 | 97.8 | 86.2 | 93.4 | 94.4 | 94.5 | 91.7 | 100.0 | 103.3 | 95.5 | 97.3 | 94.8 | 93.6 | 89.7 | 93.0 | 104.8 | 90.7 | 87.0 |
| SINGAPORE | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| THAILAND | 83.6 | 86.7 | 89.6 | 87.7 | 91.1 | 99.5 | 94.2 | 93.5 | 94.0 | 95.7 | 100.0 | 102.4 | 106.2 | 105.6 | 108.8 | 111.8 | 109.5 | 124.3 | 134.1 | 114.0 | 111.7 |
| ASEAN-5 | 76.2 | 80.3 | 79.3 | 78.8 | 78.4 | 79.4 | 81.4 | 82.1 | 88.6 | 93.1 | 100.0 | 106.2 | 103.6 | 103.8 | 109.8 | 111.2 | 109.3 | 116.3 | 132.9 | 118.5 | 114.7 |
| JAPAN | 129.9 | 132.2 | 148.9 | 142.9 | 142.1 | 136.2 | 95.3 | 84.9 | 79.4 | 88.2 | 100.0 | 97.8 | 98.0 | 87.6 | 87.2 | 88.1 | 103.7 | 109.8 | 104.5 | 93.1 | 94.2 |
| UNITED STATES | 107.5 | 106.9 | 105.3 | 102.5 | 99.9 | 93.9 | 91.8 | 92.1 | 94.0 | 94.7 | 100.0 | 104.1 | 109.6 | 109.7 | 116.6 | 124.4 | 123.2 | 116.6 | 101.6 | 96.9 | 95.9 |
| AUSTRIA | 107.1 | 135.4 | 141.0 | 147.2 | 157.8 | 154.0 | 111.3 | 94.4 | 96.2 | 107.9 | 100.0 | 107.8 | 105.8 | 111.4 | 115.9 | 109.7 | 115.3 | 127.1 | 112.7 | 109.2 | 108.6 |
| BELGIUM-LUXEM | 92.5 | 119.7 | 138.8 | 147.9 | 159.8 | 152.5 | 112.8 | 96.5 | 99.8 | 109.6 | 100.0 | 107.4 | 107.1 | 115.6 | 119.1 | 113.4 | 119.0 | 131.0 | 116.1 | 112.4 | 111.7 |
| DENMARK | 109.5 | 135.9 | 148.0 | 155.7 | 168.7 | 160.4 | 117.8 | 99.5 | 99.5 | 108.9 | 100.0 | 109.5 | 109.8 | 120.1 | 125.9 | 119.2 | 123.1 | 132.9 | 117.3 | 112.8 | 113.3 |
| FINLAND | 126.4 | 143.3 | 150.1 | 164.0 | 168.1 | 159.5 | 126.4 | 109.4 | 105.2 | 106.9 | 100.0 | 110.2 | 128.7 | 165.5 | 163.3 | 148.2 | 158.0 | 170.9 | 152.9 | 140.0 | 138.6 |
| FRANCE | 96.9 | 120.6 | 133.5 | 145.0 | 157.0 | 148.5 | 111.2 | 97.1 | 99.6 | 108.8 | 100.0 | 108.9 | 108.3 | 116.9 | 123.0 | 119.1 | 122.0 | 133.2 | 118.0 | 114.9 | 114.5 |
| GERMANY | 98.5 | 126.4 | 132.2 | 138.0 | 152.8 | 150.7 | 110.9 | 95.2 | 97.6 | 107.3 | 100.0 | 107.7 | 104.7 | 109.3 | 113.9 | 108.3 | 114.2 | 125.3 | 111.2 | 108.2 | 107.8 |
| GREECE | 64.8 | 85.9 | 97.6 | 122.5 | 149.9 | 149.9 | 123.0 | 106.3 | 104.2 | 110.8 | 100.0 | 104.4 | 102.2 | 110.8 | 115.3 | 110.8 | 108.5 | 113.0 | 103.2 | 96.6 | 95.4 |
| IRELAND | 114.5 | 132.9 | 132.2 | 139.8 | 150.2 | 141.5 | 107.9 | 98.0 | 99.4 | 108.5 | 100.0 | 108.0 | 107.6 | 127.1 | 132.6 | 132.5 | 133.2 | 134.1 | 123.0 | 119.2 | 117.7 |
| ITALY | 123.1 | 150.1 | 157.1 | 157.8 | 167.4 | 162.4 | 119.3 | 102.9 | 104.5 | 109.5 | 100.0 | 105.7 | 108.2 | 136.1 | 146.2 | 153.9 | 142.9 | 150.2 | 132.8 | 128.7 | 127.7 |
| NETHERLANDS | 93.9 | 121.1 | 125.4 | 133.5 | 147.6 | 145.4 | 106.9 | 92.8 | 95.7 | 107.2 | 100.0 | 108.1 | 106.8 | 113.4 | 117.9 | 111.9 | 117.2 | 128.6 | 113.1 | 108.9 | 107.3 |
| PORTUGAL | 114.4 | 128.7 | 138.9 | 158.7 | 164.9 | 156.5 | 122.7 | 109.7 | 108.7 | 112.5 | 100.0 | 98.7 | 91.9 | 105.9 | 113.3 | 108.7 | 109.7 | 118.1 | 104.3 | 99.8 | 98.6 |
| SPAIN | 116.1 | 143.1 | 152.6 | 182.0 | 186.4 | 176.4 | 133.1 | 115.9 | 110.8 | 111.3 | 100.0 | 104.4 | 105.4 | 129.1 | 141.5 | 138.0 | 138.0 | 151.5 | 133.9 | 129.0 | 127.3 |
| SWEDEN | 100.6 | 117.9 | 138.0 | 158.6 | 161.0 | 151.9 | 120.2 | 106.7 | 103.5 | 108.1 | 100.0 | 101.4 | 103.6 | 136.3 | 144.2 | 142.6 | 136.0 | 149.2 | 137.6 | 135.8 | 135.7 |
| UNITED KINGDOM | 94.4 | 105.9 | 115.9 | 130.3 | 144.0 | 137.4 | 116.8 | 104.4 | 97.6 | 105.7 | 100.0 | 102.5 | 106.5 | 125.2 | 130.8 | 135.4 | 135.4 | 121.7 | 103.7 | 101.2 | 102.7 |
| EUROPEAN UNION | 97.8 | 119.6 | 129.5 | 140.9 | 153.8 | 148.3 | 113.9 | 99.3 | 99.2 | 107.7 | 100.0 | 106.3 | 106.6 | 118.7 | 124.2 | 121.5 | 124.6 | 130.2 | 114.7 | 111.3 | 111.1 |
| CHINA,P.R.:HONG KONG | 84.3 | 101.3 | 110.6 | 133.3 | 142.6 | 127.2 | 119.8 | 116.0 | 104.0 | 92.7 | 100.0 | 104.5 | 106.1 | 95.3 | 83.5 | 78.6 | 73.9 | 69.7 | 62.2 | 60.2 | 59.8 |
| CHINA,P.R.: MAINLAND | 46.0 | 50.4 | 51.9 | 50.5 | 55.7 | 66.9 | 76.1 | 80.8 | 104.5 | 101.9 | 100.0 | 108.2 | 111.1 | 110.3 | 166.4 | 162.8 | 155.5 | 142.3 | 122.6 | 122.1 | 123.7 |
| KOREA | 106.6 | 108.0 | 111.0 | 116.8 | 120.6 | 123.7 | 121.5 | 114.4 | 100.9 | 92.5 | 100.0 | 102.8 | 111.8 | 113.0 | 116.1 | 117.0 | 118.5 | 130.0 | 157.0 | 129.1 | 128.3 |
| OTHER NE ASIA | 70.9 | 82.0 | 84.6 | 91.5 | 89.6 | 87.7 | 97.5 | 100.5 | 103.4 | 95.3 | 100.0 | 104.9 | 108.7 | 102.9 | 102.4 | 100.0 | 97.5 | 93.7 | 89.7 | 85.5 | 85.4 |
| WORLD | 92.7 | 100.4 | 102.4 | 102.4 | 102.3 | 99.8 | 93.3 | 90.0 | 91.2 | 95.1 | 100.0 | 103.8 | 105.0 | 103.5 | 107.0 | 108.1 | 111.3 | 112.9 | 109.4 | 101.9 | 100.9 |

Source:

Table A.22

Real Effective Exchange Rates for Thailand, 1980-2000

(1990 = 100)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|-----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|-------------|-------------|-------------|
| INDONESIA | 62.9 | 59.7 | 56.6 | 72.9 | 72.9 | 67.2 | 77.1 | 94.8 | 94.9 | 97.3 | 100.0 | 102.5 | 103.8 | 100.9 | 101.8 | 103.4 | 103.8 | 103.2 | 181.3 | 129.4 | 121.8 |
| MALAYSIA | 89.5 | 91.4 | 86.8 | 87.0 | 82.8 | 76.3 | 83.1 | 84.4 | 92.3 | 96.7 | 100.0 | 105.0 | 97.1 | 98.3 | 102.2 | 100.7 | 101.7 | 94.5 | 102.7 | 109.9 | 108.3 |
| PHILIPPINES | 92.6 | 91.1 | 88.6 | 109.7 | 107.4 | 86.6 | 99.1 | 100.9 | 100.5 | 95.8 | 100.0 | 100.9 | 89.9 | 92.1 | 87.1 | 83.7 | 81.9 | 74.8 | 78.1 | 79.5 | 77.9 |
| SINGAPORE | 119.7 | 115.4 | 111.6 | 114.0 | 109.8 | 100.5 | 106.1 | 107.0 | 106.3 | 104.5 | 100.0 | 97.7 | 94.1 | 94.7 | 91.9 | 89.5 | 91.3 | 80.5 | 74.6 | 87.7 | 89.5 |
| THAILAND | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| ASEAN-5 | 97.7 | 100.0 | 92.2 | 98.5 | 96.4 | 87.4 | 95.5 | 98.8 | 101.9 | 101.6 | 100.0 | 99.7 | 95.3 | 95.8 | 94.9 | 92.6 | 94.5 | 86.1 | 88.8 | 96.8 | 96.8 |
| JAPAN | 155.5 | 152.5 | 166.2 | 162.9 | 156.0 | 136.9 | 101.1 | 90.8 | 84.4 | 92.2 | 100.0 | 95.5 | 92.3 | 83.0 | 80.1 | 78.8 | 94.7 | 88.4 | 77.9 | 81.6 | 84.3 |
| UNITED STATES | 128.7 | 123.3 | 117.5 | 116.9 | 109.7 | 94.4 | 97.4 | 98.5 | 99.9 | 99.0 | 100.0 | 101.7 | 103.2 | 103.9 | 107.2 | 111.3 | 112.5 | 93.8 | 75.7 | 85.0 | 85.9 |
| AUSTRIA | 128.2 | 156.2 | 157.4 | 167.8 | 173.3 | 154.8 | 118.1 | 101.0 | 102.3 | 112.8 | 100.0 | 105.3 | 99.6 | 105.5 | 106.5 | 98.1 | 105.3 | 102.2 | 84.0 | 95.8 | 97.2 |
| BELGIUM-LUXEM | 110.7 | 138.1 | 155.0 | 168.6 | 175.5 | 153.3 | 119.7 | 103.2 | 106.2 | 114.6 | 100.0 | 104.9 | 100.8 | 109.5 | 109.4 | 101.5 | 108.7 | 105.4 | 86.6 | 98.6 | 100.0 |
| DENMARK | 131.0 | 156.8 | 165.2 | 177.5 | 185.2 | 161.3 | 125.0 | 106.4 | 105.8 | 113.8 | 100.0 | 107.0 | 103.4 | 113.7 | 115.7 | 106.6 | 112.5 | 106.9 | 87.4 | 98.9 | 101.5 |
| FINLAND | 151.3 | 165.3 | 167.5 | 186.9 | 184.6 | 160.4 | 134.1 | 117.0 | 111.9 | 111.8 | 100.0 | 107.6 | 121.2 | 156.7 | 150.0 | 132.6 | 144.3 | 137.5 | 114.0 | 122.8 | 124.1 |
| FRANCE | 115.9 | 139.1 | 149.0 | 165.2 | 172.3 | 149.2 | 118.0 | 103.9 | 105.9 | 113.8 | 100.0 | 106.4 | 101.9 | 110.7 | 113.0 | 106.6 | 111.4 | 107.2 | 88.0 | 100.8 | 102.5 |
| GERMANY | 117.9 | 145.9 | 147.5 | 157.3 | 167.7 | 151.5 | 117.7 | 101.8 | 103.8 | 112.2 | 100.0 | 105.2 | 98.5 | 103.5 | 104.7 | 96.9 | 104.3 | 100.8 | 82.9 | 94.9 | 96.6 |
| GREECE | 77.5 | 99.1 | 109.0 | 139.6 | 164.5 | 150.6 | 130.5 | 113.7 | 110.8 | 115.9 | 100.0 | 102.0 | 96.2 | 104.9 | 105.9 | 99.2 | 99.1 | 90.9 | 76.9 | 84.8 | 85.4 |
| IRELAND | 137.0 | 153.4 | 147.5 | 159.4 | 164.9 | 142.2 | 114.5 | 104.8 | 105.7 | 113.4 | 100.0 | 105.4 | 101.3 | 120.3 | 121.8 | 118.5 | 121.7 | 107.9 | 91.7 | 104.5 | 105.4 |
| ITALY | 147.4 | 173.1 | 175.4 | 179.9 | 183.7 | 163.2 | 126.6 | 110.1 | 111.2 | 114.5 | 100.0 | 103.3 | 101.9 | 128.9 | 134.3 | 137.7 | 130.6 | 120.9 | 99.0 | 112.9 | 114.4 |
| NETHERLANDS | 112.4 | 139.7 | 140.0 | 152.2 | 162.0 | 146.1 | 113.4 | 99.2 | 101.7 | 112.1 | 100.0 | 105.5 | 100.6 | 107.3 | 108.4 | 100.1 | 107.1 | 103.5 | 84.3 | 95.5 | 96.1 |
| PORTUGAL | 137.0 | 148.5 | 155.0 | 180.8 | 181.0 | 157.3 | 130.1 | 117.3 | 115.6 | 117.6 | 100.0 | 96.4 | 86.5 | 100.3 | 104.1 | 97.2 | 100.2 | 95.1 | 77.8 | 87.5 | 88.3 |
| SPAIN | 139.0 | 165.1 | 170.3 | 207.5 | 204.6 | 177.4 | 141.2 | 123.9 | 117.8 | 116.4 | 100.0 | 102.0 | 99.2 | 122.3 | 130.0 | 123.5 | 126.0 | 121.9 | 99.8 | 113.1 | 114.0 |
| SWEDEN | 120.4 | 136.0 | 154.1 | 180.7 | 176.8 | 152.7 | 127.5 | 114.1 | 110.1 | 113.0 | 100.0 | 99.0 | 97.5 | 129.1 | 132.5 | 127.6 | 124.2 | 120.0 | 102.6 | 119.1 | 121.5 |
| UNITED KINGDOM | 113.0 | 122.2 | 129.4 | 148.5 | 158.1 | 138.1 | 123.9 | 111.7 | 103.7 | 110.5 | 100.0 | 100.1 | 100.2 | 118.6 | 120.2 | 121.1 | 123.7 | 98.0 | 77.4 | 88.8 | 91.9 |
| EUROPEAN UNION | 117.5 | 141.0 | 145.1 | 159.8 | 168.2 | 149.7 | 119.7 | 105.0 | 105.1 | 112.7 | 100.0 | 104.0 | 100.2 | 112.4 | 113.6 | 108.0 | 113.8 | 105.4 | 85.9 | 98.0 | 99.8 |
| CHINA,P.R.:HONG KONG | 100.9 | 116.9 | 123.4 | 151.9 | 156.6 | 127.8 | 127.1 | 124.1 | 110.6 | 96.9 | 100.0 | 102.1 | 99.9 | 90.3 | 76.8 | 70.3 | 67.5 | 56.1 | 46.4 | 52.8 | 53.6 |
| CHINA,P.R.: MAINLAND | 55.0 | 58.2 | 57.9 | 57.6 | 61.2 | 67.2 | 80.7 | 86.5 | 111.2 | 106.6 | 100.0 | 105.7 | 104.6 | 104.4 | 152.9 | 145.6 | 142.1 | 114.5 | 91.4 | 107.1 | 110.8 |
| KOREA | 127.6 | 124.6 | 123.9 | 133.1 | 132.4 | 124.4 | 129.0 | 122.3 | 107.2 | 96.7 | 100.0 | 100.4 | 105.2 | 107.1 | 106.7 | 104.7 | 108.3 | 104.6 | 117.1 | 113.3 | 114.9 |
| OTHER NE ASIA | 75.8 | 83.3 | 82.0 | 96.4 | 95.1 | 92.9 | 105.7 | 103.9 | 109.9 | 100.2 | 100.0 | 102.4 | 103.2 | 99.1 | 100.4 | 97.9 | 95.4 | 81.2 | 70.3 | 78.3 | 79.9 |
| WORLD | 115.9 | 123.0 | 120.7 | 129.3 | 124.9 | 111.7 | 103.7 | 98.4 | 97.2 | 99.9 | 100.0 | 100.0 | 97.8 | 96.2 | 95.3 | 93.6 | 101.2 | 90.9 | 79.9 | 87.9 | 89.3 |

Source:

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