INTERNATIONAL CAPITAL MOVEMENTS *in the* SEACEN COUNTRIES

Danda Pani Paudel

THE SEACEN CENTRE

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The South East Asian Central Banks (SEACEN)
Research and Training Centre
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FOREWORD

The role of international capital inflow has been well recognised in most of the SEACEN countries as in the case of other developing countries in the world. Without a doubt, some of the SEACEN countries have been successful in managing the favourable effect of foreign capital inflow, while the rest of the SEACEN countries have eased administrative controls even amidst incomplete information on the effects of capital inflow just to meet their capital requirements. Evidently, there are different problems and limitations among the SEACEN countries, although most of the SEACEN countries tend to further the scope for private capital inflow in order to stimulate economic development.

This study attempts to observe the trends and patterns of capital inflow in the SEACEN countries, review the major policy implementation and examine the impact of capital inflows, especially on growth and savings. Among others, this study, using the stationarity test on the time-series data, attempts to further clarify the empirical relationship between savings and investment, together with an assessment of impact analysis as well as the causality test between foreign capital, growth and savings. As shown in the study, the empirical tests are more significant in those country cases which have had macroeconomic stability and hence, with a good track record of economic growth.

This in-house research project was carried out by Dr. Danda Pani Paudel, Senior Economist seconded from Nepal Rastra Bank to The SEACEN Centre. At various stages of the project, Dr. Paudel was assisted by Mrs. Jami'ah Jaffar, Senior Research Associate, who took charge of the data collection, compilation, transformation and provided the necessary research support. The manuscript was typed by Miss Karen How. The SEACEN Centre also takes this opportunity to express its sincere gratitude to the departments of economic research of the member central banks for their valuable and useful comments and suggestions at various stages as well as their prompt and detailed response to the questionnaire sent by The SEACEN Centre.

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Dr. Vicente B. Valdepeñas, Jr.
Director
The SEACEN Centre

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EXECUTIVE SUMMARY

INTERNATIONAL CAPITAL MOVEMENTS IN THE SEACEN COUNTRIES

As is common, foreign capital, either in the form of borrowings or foreign direct investment (FDI), remains basically needed to facilitate economic development as well as to cushion temporary shocks in the economy. However, in reality, it may also lead to a wide range of potential problems, if the recipient countries could not pursue their priorities and utilize the capital inflow properly. During the last two decades or so, the private capital inflows in the SEACEN countries as a group have been increasing impressively despite a decline in the official development assistance. As such, Malaysia and Singapore have jointly received more than three-fourths of the total FDI to SEACEN region while Indonesia, Korea, the Philippines and Thailand are at the top in receiving the total foreign resources among the SEACEN countries. ROC-Taipei is the only country with a record of capital outflows whereas Nepal (74 per cent) and Sri Lanka (64 per cent) have received very high grant element in official credit.

This study attempts to shed light on the trends and patterns of capital inflow in the SEACEN countries. Review of major policy implementation and the impact analysis of capital inflows especially on growth and savings are also among the basic objectives of the study. In addition to the policy review, the study attempts to measure empirically the degree of capital mobility and the impact of foreign capital on savings and growth as well as the causality relationship between capital inflow and macroeconomic variables. Prior to all these empirical tests, unit root test and cointegration test were conducted to test the stationarity of the time series used, and the Granger causality test was performed using Akaike's and Schwarz's optimal lag criteria to ensure non-spurious as well as non-arbitrary estimation.

Among the SEACEN countries, Malaysia, Singapore and ROC-Taipei occupied high-savings-high-investment status throughout the study period followed by Indonesia, Korea and Thailand. The rest of the SEACEN countries tended to be low-savers and investors. The savings-investment coefficients, which measure the capital mobility, indicated trends

towards perfect capital mobility comparatively in the cases of Indonesia (0.41), Korea (0.42), the Philippines (0.37) and Singapore (0.29) with and without the inclusion of the size of the country as well as the degree of openness of the economy.

The estimations of the simultaneous equations on savings and growth over different sources of foreign capital and other related variables are, however, not exactly consistent with the past studies due mainly to the methodology adopted. As such, the coefficient on official capital inflow (OFCI) in the growth equation is positively significant in the cases of Korea, Nepal and Thailand. Similarly, in the case of the savings equation, OFCI shows a significant positive impact in Nepal and Singapore. The coefficient on FDI shows a significant negative impact on the growth rate in Korea and Malaysia while it is positively significant in the cases of the Philippines and Sri Lanka. The coefficient on FDI in the savings equation is significantly favorable in the cases of Indonesia, Singapore and Sri Lanka followed by unfavorable effect in the cases of Korea and Malaysia.

Among the different sources of foreign capital, other private capital inflow (OPCI) (excluding FDI) has shown a significant positive impact on growth in Indonesia, the Philippines and Sri Lanka. In contrast, OPCI shows a negative impact on the growth rate in Korea, Malaysia and Nepal. The relationship of OPCI with savings is almost negative in all the SEACEN countries, although it is statistically significant only in the cases of Indonesia, Korea, Nepal and Singapore. The effect of exports and per capita GDP on savings and growth is favorable in most of the SEACEN countries. On the other hand, the effect of economically active population on savings and growth is negative in most of the SEACEN countries. In sum, OFCI shows a positive impact on growth rate in three-fourths of the SEACEN countries while the FDI and OPCI have made positive contribution to economic growth in half of the SEACEN countries. Similarly, OFCI and FDI have made a substitutive (negative) effect on savings in half of the SEACEN countries followed by complementary (positive) effect in the other half.

Going by the causality test results, there is a negative unidirectional causality from OFCI which consists of aid and concessional loans to the growth rate in Indonesia, Korea and the Philippines implying that these countries are more strategically important places for the major donor countries and agencies. In the cases of different private capital

inflows, the findings support the notion that the growth rate is one of the positive signals of creditworthiness for the borrowing country. Keeping in view the different directions and magnitude of causality relationships between savings and different sources of foreign capital, one could agree with the possibility of negative causality because of the consumption and savings propensity effect while a positive causality can be detected through the indirect effect on the growth rate. In sum, a higher growth rate and savings rate can be considered the best performance indicators for attracting private capital inflows.

Based on the above summary, one can tentatively suggest that (i) FDI is helpful to ease the debt burden arising from external borrowings; (ii) some SEACEN countries experiencing an overinflow of capital should balance the use of monetary sterilisation and non-sterilisation measures to neutralize the expansionary effect of foreign capital on the monetary sector; (iii) a balanced fiscal policy is a must to prevent undesirable effects from external capital; (iv) each SEACEN country has to ensure the productive use of the foreign capital; (v) macroeconomic stability is a necessary condition towards a favourable impact of foreign capital; and (vi) the cause and effect relationship between foreign capital and macroeconomic variables could not always match the conventional belief.

Chapter I

INTRODUCTION

1.1 Overview

The vital role of international capital inflow has been well recognised especially in the case of developing countries where both an excess of import over export and lack of domestic savings to meet investment needs prevail. Accordingly, this phenomenon is also encountered by most of the SEACEN countries. Foreign capital, either in the form of borrowings or foreign direct investment (FDI), is needed to facilitate economic development as well as to cushion temporary shocks in the economy. However, in reality, international capital movement is also believed to lead to a wide range of potential problems on the development objectives and priorities of recipient countries.

According to the World Bank classification, capital flows can be classified mainly into official and private flows. Official flows include: (i) official grants; and, (ii) concessional and non-concessional loans from bilateral and multilateral sources or export credit agencies; while private flows are mainly in the form of foreign direct investment, commercial bank loans and portfolio investment. There is no built-in mechanism to measure and compare the impact of different sources of capital flows. However, economists are of the general view that FDI can contribute more favourably to capital-importing countries in spite of previous empirical findings which suggest that foreign aid is mainly absorbed in imported consumption expenditures. Similarly, debt-creating capital flows require regular payments. Unlike other sources of capital flows, FDI is preferred mainly because it implies that profit payments are made only when the investment earns a positive return; it also includes the transfer of technology, managerial expertise, marketing knowledge, and so on.

Broadly speaking, the SEACEN countries as a group have been successful in attracting foreign capital either in the form of official grants and loans or in the form of private investment. As mentioned earlier, it is difficult to distill the net impact and accessibility of foreign capital

at the aggregate level. The official grants and concessional loans depend on the donor countries/ agencies strategy while private investment is mainly based on economic returns.

Since the SEACEN economies are being progressively internationalised, the net capital inflow in most of the SEACEN countries has changed dramatically from the 1980s, recording a continuously growing trend in the early 1990s. Nevertheless, most of the SEACEN countries are now placing more emphasis on the development route to industrialisation on the one hand and on the other, most of them have been facing the problem of deficits in their current accounts for many years. Therefore, foreign resources in the form of capital, technology, managerial skills, etc., are undoubtedly essential towards accelerating the pace of economic development of the region.

1.2 Objectives and Study Approach

The major objectives of the study are to:

(i) observe the trends, patterns and mobility of capital flow;
(ii) review the major policy implementation;
(iii) examine the impact of capital inflows, especially on growth and savings; and,
(iv) draw the summary and conclusion.

In order to meet the above objectives, the study includes both qualitative and quantitative analysis. While conducting the empirical test, the study, unlike in the past numerous studies, follows the process of testing the stationarity of the time series data to ensure the non-spurious results of the different empirical tests. Being an in-house study, the key data are taken from secondary sources such as publications of member banks, ADB, IMF, World Bank, OECD, etc. Together, this empirical analysis along with the more recent policy practices elicited from a questionnaire to the member banks, the study also attempts to present a comparative analysis of the flow and impact of the foreign capital in the SEACEN region. This research study only covers nine SEACEN member countries, namely Indonesia, Korea, Malaysia, Nepal, the Philippines, Singapore, Sri Lanka, ROC-Taipei and Thailand. The other SEACEN member country, i.e., Myanmar, is not included due mainly to a lack of information on policy practices.

To have a better understanding and a clear picture of foreign capital flows in the SEACEN countries, the trends and patterns with a decomposition of the foreign capital flows as well as an extensive review of major policy practices of the SEACEN countries are presented in Chapter II. A brief review of the theoretical background as well as the methodology to be used in this study are reported in Chapter III. However, the regression equations, i.e., growth and savings are respectively based on the neo-classical production function and Keynesian-type savings function. Therefore, prior to conduct of the causality test, the study, in general, assumes that the international capital inflow positively/negatively influences the growth and savings rates. Finally, the study examines the causes and effects with the support of empirical findings from causality tests. The details of all the empirical tests are presented in Chapter IV. Chapter V summarises the major conclusions.

Chapter II

TRENDS, PATTERNS AND REVIEW OF POLICY IMPLEMENTATION ON CAPITAL FLOW

Since the major emphasis of the study is to analyse the impact of foreign capital inflows on the growth and savings in the SEACEN countries, it is of great interest to observe the trends and patterns as well as the policy implementation of the SEACEN countries regarding the capital inflow. By the nature of non-homogeneous stage of development, the patterns of capital inflow as well as the policy targets based on individual country's needs and priorities will not be exactly the same.

The data on net flows of financial resources as well as the net capital inflows in terms of three components in the SEACEN region including the foreign capital inflows to all developing countries (DCs) are presented in Table 2.1. During the period 1970-1992, the average net resource flows to all the developing countries reached $64 billion whereas the SEACEN countries as a group recorded a share of about 12 percent of the total flows to DCs. The composition of external flows to the SEACEN countries has changed dramatically for the same period. Contrary to the case of all DCs, net private flows to the SEACEN countries have been increasing impressively whereas the official development assistance (ODA) has been declining. Furthermore, the flow of foreign direct investment (FDI) has achieved a higher rate of increment during the review period.

There are interesting inter-country variations in the SEACEN region regarding the flow of foreign capital. Indonesia is at the top (33 percent) in receiving the foreign resources out of the total resources to the SEACEN region, followed by Thailand (14 percent), the Philippines (13 percent), Korea (12 percent) and Singapore (11 percent). But in the case of ODA to the SEACEN region, Indonesia (35 percent) ranked first followed by the Philippines (18 percent), Sri Lanka (14 percent) and Thailand (14 percent). In the case of attracting private capital inflows into the SEACEN region, Singapore and Thailand have been more successful since the mid-1980s, followed by Korea and Malaysia. In the case of FDI, Singapore (44 percent) and Malaysia (34 percent) received more than three-fourths of the FDI to the SEACEN region.

Table 2.1
SEACEN COUNTRIES : LEVEL OF CAPITAL MOVEMENTS
(US$ Million/Percentage)

	Indo.	Korea	M'sia	Nepal	Phil.	S'pore	SLanka	Taipei	Thai.	SEACEN	All DCs
Net Flows of Financial Resources											
1970-80	1336	959	300	64	609	261	172	248	365	4313	45434
	(30.97)	(22.33)	(6.96)	(1.48)	(14.11)	(6.05)	(3.99)	(5.76)	(8.45)	(100.00)	(9.49)*
1981-85	3118	1569	1045	204	1049	713	525	97	1315	9635	76932
	(32.36)	(16.29)	(10.85)	(2.12)	(10.89)	(7.40)	(5.44)	(1.01)	(13.65)	(100.00)	(12.52)*
1986-92	3778	261	719	446	1531	1725	669	-341	1950	10738	85242
	(35.19)	(2.43)	(6.70)	(4.16)	(14.26)	(16.07)	(6.23)	(-3.18)	(18.16)	(100.00)	(12.60)*
1970-92	*2466*	*879*	*590*	*211*	*985*	*805*	*400*	*4*	*1045*	*7393*	*64397*
	(33.36)	*(11.89)*	*(7.97)*	*(2.85)*	*(13.33)*	*(10.89)*	*(5.41)*	*(0.06)*	*(14.25)*	*(100.00)*	*(11.48)**
ODA from All Sources											
1970-80	628	237	71	62	183	18	167	-6	161	1519	21201
	(41.35)	(15.58)	(4.69)	(4.10)	(12.02)	(1.17)	(11.03)	(-0.51)	(10.58)	(100.00)	(7.16)*
1981-85	780	65	202	203	396	25	439	1	430	2541	31056
	(30.71)	(2.57)	(7.96)	(7.99)	(15.59)	(0.97)	(17.26)	(0.04)	(16.91)	(100.00)	(8.18)*
1986-92	1593	24	252	412	1049	28	649	3	640	4651	50308
	(34.26)	(0.51)	(5.43)	(8.86)	(22.56)	(0.60)	(13.96)	(0.06)	(13.77)	(100.00)	(9.25)*
1970-92	*955*	*135*	*155*	*199*	*493*	*22*	*373*	*-2*	*365*	*2695*	*33852*
	(35.43)	*(4.99)*	*(5.75)*	*(7.40)*	*(18.28)*	*(0.83)*	*(13.84)*	*(-0.07)*	*(13.55)*	*(100.00)*	*(7.96)**
Net Private Flows from DAC Countries											
1970-80	522	376	166	0.01	287	205	-4	105	109	1765	28273
	(29.56)	(21.29)	(9.40)	(0.02)	(16.25)	(11.62)	(-0.24)	(5.94)	(6.16)	(100.00)	(6.24)*
1981-85	1627	840	702	1	176	701	68	117	424	4654	33051
	(34.96)	(18.05)	(15.08)	(0.01)	(3.78)	(15.05)	(1.46)	(2.51)	(9.10)	(100.00)	(14.08)*
1986-92	503	893	404	31	-63	1711	21	-157	1338	4683	22934
	(10.75)	(19.08)	(8.62)	(0.66)	(-1.35)	(36.55)	(0.46)	(-3.35)	(28.57)	(100.00)	(20.42)*
1970-92	*756*	*634*	*355*	*10*	*156*	*771*	*19*	*16*	*551*	*3267*	*27599*
	(23.15)	*(19.41)*	*(10.86)*	*(0.30)*	*(4.78)*	*(23.60)*	*(0.59)*	*(0.50)*	*(16.87)*	*(100.00)*	*(11.84)**
Foreign Direct Investment											
1970-80	194	58	381	-	40	327	18	74	83	1175	-
	(16.52)	(4.93)	(32.45)	-	(3.39)	(27.82)	(1.52)	(6.33)	(7.05)	(100.00)	-
1981-85	236	40	1083	-	63	1215	42	137	277	3094	-
	(7.64)	(1.29)	(35.01	-	(2.03)	(39.29)	(1.35)	(4.42)	(8.97)	(100.00)	-
1986-92	893	153	2014	-	462	3003	51	-1936	1340	5980	-
	(14.93)	(2.56)	(33.68)	-	(7.73)	(50.22)	(0.85)	(-32.38)	(22.41)	(100.00)	-
1970-92	*416*	*83*	*1031*	-	*173*	*1335*	*33*	*-581*	*508*	*3048*	-
	(13.65)	*(2.72)*	*(33.82)*	-	*(5.69)*	*(43.78)*	*(1.09)*	*(-19.06)*	*(16.66)*	*(100.00)*	-

Figures in parentheses indicate the share in SEACEN total.
* Indicates the share of SEACEN total in all developing countries total.
Source : Asian Development Bank, ***Key Indicators of Developing Asian and Pacific Countries,*** various issues.

Among the SEACEN countries, ROC-Taipei is the only country with a record of all types of capital outflows whereas Nepal is the only country without a record of FDI movement.

If one looks at Table 2.2, ROC-Taipei is at the top (45 percent of the total SEACEN) in holding international reserves followed by Singapore (17 percent), Korea (13 percent), Malaysia and Thailand (8 percent). On average, the ratio of international reserves to imports, which shows the capacity of reserves to maintain the import level for the SEACEN region is six months. On average, the highest ratio of international reserves to imports is recorded by ROC-Taipei (11) and the lowest by Sri Lanka (3).

Table 2.3 shows that during the period of two decades or so, the high growth of exports and GDP was because of higher inflation and depreciation of the local currency in some of the SEACEN countries. If one offsets these facts, exports and GDP would only show a marginal increment in the cases of Indonesia, Korea, Nepal, the Philippines and Sri Lanka. Similarly, the contribution of exports to GDP as represented by exports as percentage of GDP is also less progressive. In contrast, Malaysia, Singapore, ROC-Taipei and Thailand have been successful in maintaining a higher growth in exports and GDP with a comparatively low level of inflation and a stable/appreciating exchange rate. During the period, the balance of trade account was quite favourable in the cases of Indonesia, Malaysia and ROC-Taipei.

With the exception of ROC-Taipei (lack of data), the total debt and debt servicing as well as the various debt indicators are presented in Tables 2.4 and 2.5 respectively . In the case of Singapore, data on debt and debt servicing have not been published since 1987. If one looks at Table 2.6, Nepal (74 percent) and Sri Lanka (64 percent) have received substantial grant element from official creditors with a longer maturity period among the SEACEN countries.

2.1 Exchange Rate Policy and Its Impact on Capital Flows

In **Indonesia**, after the shift to floating or flexible exchange rate regime, the inflow of capital increased significantly. These inflows of capital largely comprise long-term official borrowing, and the rest are private capital. The major part of private capital are FDI, others are offshore borrowings by banks and other form of private capital inflows.

Table 2.2

INTERNATIONAL RESERVES (IR) AND RATIOS OF IR TO IMPORTS
(US$ Million)

	Indo.	Korea	M'sia	Nepal	Phil.	S'pore	SLanka	Taipei	Thai.	SEACEN
International Reserves										
1970-80	1936	1931	2257	135	1453	9711	411	14611	2728	46841
	(13.32)	(13.28)	(15.53)	(0.93)	(3.10)	(20.73)	(0.88)	(31.19)	(5.82)	(100.00)
1981-85	5486	7320	4930	191	1453	9711	411	14611	2728	46841
	(11.71)	(15.63)	(10.52)	(0.41)	(3.10)	(20.73)	(0.88)	(31.19)	(5.82)	(100.00)
1986-93	8544	22134	12540	368	3404	26959	630	78446	13235	166259
	(5.14)	(13.31)	(7.54)	(0.22)	(2.05)	(16.22)	(0.38)	(47.18)	(7.96)	(100.00)
1970-93	*4878*	*9788*	*6242*	*224*	*2105*	*12561*	*377*	*33982*	*5729*	*75886*
	(6.43)	*(12.90)*	*(8.23)*	*(0.30)*	*(2.77)*	*(16.55)*	*(0.50)*	*(44.78)*	*(7.55)*	*(100.00)*
Ratio of IR to Imports										
1970-80	3.6	2.7	7.1	12.3	5.5	5.1	2.7	2.8	7.5	5.6
1981-85	4.2	3.5	4.8	5.6	2.5	4.5	2.5	9.0	3.8	4.5
1986-93	5.3	4.4	6.4	7.0	3.9	6.3	2.5	20.0	6.0	6.8
1970-93	*4.3*	*3.4*	*6.4*	*9.1*	*4.3*	*5.4*	*2.6*	*10.8*	*6.2*	*5.8*

Figures in parentheses indicate the share in SEACEN total.

Source : Asian Development Bank , ***Key Indicators of Developing Asian and Pacific Countries ,*** various issues.

Table 2.3

AVERAGE ANNUAL GROWTH RATES OF EXPORTS AND GDP	Indo.	Korea	M'sia	Nepal	Phil.	S'pore	SLanka	Taipei	Thai.
Export Growth									
1971-75	52.22	58.66	14.93	21.84	24.62	25.17	14.93	29.49	28.51
1976-80	42.10	34.60	25.84	-0.85	21.54	26.52	37.72	29.33	24.33
1981-85	9.12	20.26	6.56	31.41	17.22	4.11	16.38	11.66	8.20
1986-92	19.78	12.48	15.58	27.02	16.69	11.84	18.48	7.81	23.16
1971-92	***29.80***	***29.77***	***15.72***	***20.50***	***19.71***	***16.45***	***21.57***	***18.50***	***21.24***
GDP Growth									
1971-75	31.77	30.24	14.15	11.63	22.59	18.47	13.67	21.43	17.82
1976-80	29.52	29.97	19.06	9.75	17.72	13.40	20.23	20.40	16.84
1981-85	16.67	16.36	7.91	13.76	19.13	9.39	19.82	10.75	9.07
1986-92	15.04	16.29	9.80	14.98	13.03	9.94	14.80	11.23	14.90
1971-92	***22.50***	***22.59***	***12.46***	***12.75***	***17.66***	***12.54***	***16.92***	***15.52***	***14.68***

AVERAGE ANNUAL CHANGE IN CPI AND EXCHANGE RATES WITH US$	Indo.	Korea	M'sia	Nepal	Phil.	S'pore	SLanka	Taipei	Thai.
CPI									
1971-75	20.31	15.59	7.47	9.06	17.49	11.03	7.54	13.34	10.14
1976-80	14.63	17.40	4.53	6.48	12.45	3.73	10.31	8.81	9.84
1981-85	9.75	7.35	4.69	9.22	21.36	3.27	12.18	4.09	4.98
1986-92	7.30	5.89	2.53	11.73	9.07	1.71	11.51	2.65	4.06
1971-92	***12.48***	***11.05***	***4.60***	***9.36***	***14.54***	***4.64***	***10.49***	***6.81***	***6.97***
Exchange Rates									
1971-75	2.78	9.51	-4.75	1.69	4.26	-4.87	3.14	-1.01	-0.41
1976-80	9.65	5.10	-1.81	1.92	0.71	-1.95	21.40	-1.07	0.10
1981-85	12.96	7.48	2.65	8.80	21.08	0.57	10.57	2.08	5.92
1986-92	9.24	-1.31	0.47	13.16	4.82	-4.17	7.12	-6.19	-0.94
1971-92	***8.71***	***4.61***	***-0.74***	***7.01***	***7.45***	***-2.75***	***10.24***	***-1.97***	***0.98***
Export as % of GDP									
1970	12.95	9.36	43.65	4.90	16.18	75.43	14.46	25.99	10.29
1980	31.19	27.95	52.85	4.40	17.83	155.23	26.08	47.82	20.03
1985	21.34	32.61	49.07	7.01	15.06	121.71	21.61	49.47	18.93
1992	26.53	25.82	69.05	11.84	35.19	133.77	26.00	39.05	30.51
Export/Import Ratio in %									
1970	110.60	42.91	120.42	56.31	97.01	78.02	87.21	97.20	53.80
1980	112.13	79.70	123.00	36.50	77.91	81.25	51.91	100.40	69.49
1985	145.82	99.93	130.96	32.93	90.57	88.39	64.34	157.90	75.42
1992	124.63	97.22	107.73	42.30	67.66	92.63	72.21	118.84	79.89

Source : ***International Financial Statistics (IFS)***, International Monetary Fund, various issues.

Table 2.4

TOTAL DEBT AND DEBT SERVICING

(US$ million)

Period Average	INDONESIA			KOREA			MALAYSIA			NEPAL		
	1980-1985	1986-1992	1980-1992	1980-1985	1986-1992	1980-1992	1980-1985	1986-1992	1980-1992	1980-1985	1986-1992	1980-1992
Total debt stock (EDT)	27531	60318	43924	38568	38953	38568	6706	19035	6706	631	1358	994
Long-term debt (LDOD)	23562	51305	37433	26050	28364	26050	12008	16671	12008	572	1295	933
Use of IMF credit	151	380	265	1269	296	1269	200	0	200	28	42	35
Short-term debt	3818	8633	6226	11248	10292	11248	961	2363	961	31	21	26
Total debt service (TDS)	3435	8915	6175	5368	9963	7666	1837	4008	2923	12	54	33
Principal repayments (PR)	1827	5360	3594	2552	6986	4769	964	2619	1791	6	30	18
Interest payments (INT)	1607	3555	2581	2817	2977	2897	873	1389	1131	6	25	15

Period Average	PHILIPPINES			SINGAPORE a/	SRI LANKA			THAILAND		
	1980-1985	1986-1992	1980-1992	1980-1986	1980-1985	1986-1992	1980-1992	1980-1985	1986-1992	1980-1992
Total debt stock (EDT)	23003	30115	26559	-	2762	5428	4095	13003	26767	19885
Long-term debt (LDOD)	12609	24585	18597	-	2062	4703	3382	9170	18919	14045
Use of IMF credit	978	1128	1053	-	390	375	383	787	425	606
Short-term debt	9416	4403	6909	244	310	350	330	3046	7422	5234
Total debt service (TDS)	1916	3549	2733	371	201	443	322	1945	4588	3267
Principal repayments (PR)	637	1772	1205	240	100	276	188	1066	2701	1883
Interest payments (INT)	1279	1776	1528	130	101	167	134	879	1887	1383

a/ No debt from 1987 onwards.

Source : ***World Debt Tables***, various issues.

Table 2.5

DEBT INDICATORS
(Percent)

Period Average	INDONESIA			KOREA			MALAYSIA			NEPAL		
	1981-1986	1987-1992	1981-1992	1981-1986	1987-1992	1981-1992	1981-1986	1987-1992	1981-1992	1981-1986	1987-1992	1981-1992
EDT / XGS	135.02	235.46	185.24	128.43	50.75	89.59	-	77.91 d/	-	194.38	332.48	263.43
EDT / GNP	34.50	63.91	49.21	51.13	18.37	34.75	-	56.10 d/	-	22.68	48.32	35.50
TDS / XGS	12.36 a/	35.09 b/	23.72 c/	18.04 e/	15.83 b/	16.93	10.28 a/	15.33 b/	12.81	7.58 a/	12.74 b/	10.16 c/
INT / GNP	1.60 a/	3.83 b/	2.71 c/	3.60 e/	1.76 b/	2.68	2.87 a/	4.00 b/	3.44	0.37 a/	0.83 b/	0.60 c/
Short-term / EDT	-	12.74 d/	-	-	26.26 d/	-	-	12.55 d/	-	-	1.99 d/	-
Concessional / EDT	-	28.10 d/	-	-	9.91 d/	-	-	10.48 d/	-	-	87.15 d/	-
Multilateral / EDT	-	19.64 d/	-	-	11.00 d/	-	-	8.43 d/	-	-	75.19 d/	-

Period Average	PHILIPPINES			SINGAPORE */	SRI LANKA			THAILAND		
	1981-1986	1987-1992	1981-1992	1980-1986	1981-1986	1987-1992	1981-1992	1981-1986	1987-1992	1981-1992
EDT / XGS	299.18	239.18	269.18	-	187.03	211.65	199.34	144.63	100.16 f/	122.40 g/
EDT / GNP	75.85	72.63	74.24	-	57.87	72.38	65.13	38.70	36.30	37.50
TDS / XGS	22.80 e/	29.04 b/	25.93	1.24	11.27 a/	17.83 b/	14.55 c/	14.43 a/	16.96 h/	15.70 g/
INT / GNP	3.68 e/	4.53 b/	4.11	0.84	1.75 a/	2.23 b/	1.99 c/	1.90 a/	2.64	2.27
Short-term / EDT	-	17.11 d/	-	-	-	6.39 d/	-	-	24.59 d/	-
Concessional / EDT	-	18.76 d/	-	-	-	68.55 d/	-	-	14.49 d/	-
Multilateral / EDT	-	17.65 d/	-	-	-	24.93 d/	-	-	15.16 d/	-

a/ Period average is from 1980-1985.
b/ Period average is from 1986-1992.
c/ Period average is from 1980-1992.
d/ Period average is from 1985-1992.
e/ Period average is from 1981-1985.
f/ Period average is from 1987-1991.
g/ Period average is from 1981-1991.
h/ Period average is from 1986-1991.
*/ Refers no debt amount 1987 onwards.

Source: World Debt Tables, various issues.

Table 2.6

AVERAGE TERMS OF NEW COMMITMENTS

Period Average	INDONESIA				KOREA				MALAYSIA				NEPAL			
	1970-1979	1980-1985	1986-1992	1970-1992	1970-1979	1980-1985	1986-1992	1970-1992	1970-1979	1980-1985	1986-1992	1970-1992	1970-1979	1980-1985	1986-1991	1970-1991
All Creditors																
Interest (%)	6.08	8.45	5.91	6.81	7.66	10.42	7.60	8.56	7.20	10.37	6.49	8.02	1.29	1.92	1.47	1.56
Maturity (years)	21.40	16.50	19.84	19.25	16.08	13.60	15.20	14.96	14.28	14.38	16.16	14.94	37.95	38.15	38.13	38.08
Grace period (years)	5.67	5.27	6.30	5.75	4.43	4.37	4.36	4.38	4.27	8.25	6.23	6.25	8.76	8.88	9.52	9.05
Grant element (%)	29.63	10.55	28.10	22.76	14.91	-1.03	12.84	8.91	15.16	-1.77	22.46	11.95	72.52	68.68	73.92	71.71
Official Creditors																
Interest (%)	4.13	7.63	5.70	5.82	6.32	8.63	6.80	7.25	6.51	7.53	6.10	6.71	1.29	1.48	0.98	1.25
Maturity (years)	29.19	22.25	22.14	24.53	22.40	17.73	17.83	19.32	20.21	18.32	19.36	19.29	37.95	39.88	39.62	39.15
Grace period (years)	7.72	6.23	6.57	6.84	6.21	4.60	5.29	5.37	5.59	5.18	5.43	5.40	8.76	9.32	9.93	9.34
Grant element (%)	46.57	17.58	30.77	31.64	26.22	8.57	20.30	18.36	22.68	15.60	26.00	21.43	72.52	72.70	78.08	74.43
Private Creditors																
Interest (%)	8.86	9.52	6.97	8.45	8.64	11.28	8.01	9.31	7.54	11.40	7.16	8.70	0.00	6.35	4.85	3.73
Maturity (years)	9.00	10.73	12.59	10.77	10.84	12.07	13.94	12.28	8.44	13.22	13.06	11.57	0.00	6.45	5.37	3.94
Grace period (years)	2.27	4.25	4.89	3.80	3.05	4.10	3.89	3.68	2.88	9.03	6.53	6.15	0.00	1.77	1.37	1.04
Grant element (%)	3.84	1.87	16.97	7.56	5.78	-5.52	9.09	3.12	9.04	-7.92	16.57	5.90	0.00	0.58	-0.22	0.12

Period Average	PHILIPPINES				SINGAPORE				SRI LANKA				THAILAND			
	1970-1979	1980-1985	1986-1992	1970-1992	1971-1979	1980-1986	1971-1986		1970-1979	1980-1985	1986-1992	1970-1992	1970-1979	1980-1985	1986-1992	1970-1992
All Creditors																
Interest (%)	7.10	9.72	5.47	7.43	7.70	10.01	8.86		3.15	4.72	2.73	3.53	6.59	9.02	5.89	7.16
Maturity (years)	16.46	15.10	21.86	17.81	11.56	10.53	11.04		25.65	31.18	32.09	29.64	20.75	17.93	17.76	18.81
Grace period (years)	4.97	4.53	7.40	5.63	3.92	3.77	3.85		6.66	7.85	8.87	7.79	5.37	6.47	6.00	5.95
Grant element (%)	17.66	3.07	32.43	17.72	11.10	-0.60	5.25		49.49	46.67	60.29	52.15	23.37	8.28	26.83	19.49
Official Creditors																
Interest (%)	6.17	7.90	5.17	6.41	6.77	5.42 a/	6.09 b/		2.14	2.30	1.96	2.13	6.08	7.80	5.04	6.31
Maturity (years)	20.61	20.25	22.76	21.21	12.28	7.43 a/	9.86 b/		29.98	38.13	35.39	34.50	23.15	22.25	24.34	23.25
Grace period (years)	5.62	5.57	6.49	5.89	3.66	1.35 a/	2.50 b/		7.82	9.37	9.76	8.98	5.94	6.40	7.21	6.52
Grant element (%)	24.94	14.40	34.43	24.59	10.79	4.72 a/	7.75 b/		59.20	65.77	68.07	64.35	27.74	16.73	36.90	27.12
Private Creditors																
Interest (%)	8.77	11.68	7.40	9.28	7.94	10.10	9.02		7.45	11.25	7.54	8.75	7.37	10.93	6.86	8.39
Maturity (years)	8.90	9.37	13.40	10.56	9.76	10.46	10.11		6.46	12.58	11.69	10.24	8.27	11.27	11.53	10.36
Grace period (years)	3.79	3.38	6.66	4.61	3.36	3.81	3.58		1.56	3.25	2.87	2.56	2.06	5.90	4.81	4.26
Grant element (%)	4.43	-9.12	15.31	3.54	8.70	-0.94	3.88		7.18	-6.22	10.40	3.79	6.47	-4.80	16.23	5.97

a/ Period average for 1980-1985.
b/ Period average for 1971-1985.

Source: ***World Debt Tables***, various issues.

The remarkable amount of private capital inflows in particular FDI was attributable, among others, to: (i) the Government's ability in maintaining political and economic stability; (ii) sound macroeconomic policy in sustaining economic growth; (iii) continuing adjustment policies to create a more hospitable climate for private investment; (iv) efforts to enhance the competitiveness of the domestic economy; and, (v) a relatively large domestic market, beside the availability of cheap labour as well as abundant natural resources. In addition, a relatively high interest rate differential between domestic and foreign interest rates, the removal of restrictions on offshore borrowings of commercial banks and the attractiveness of domestic capital market also contributed to the private capital inflow during the last few years. However, since February 1994, the situation has been reversed due to a downward trend of interest rates in Indonesia.

During the 1970s and to date, Indonesia has adopted two regimes of exchange rate system, i.e., from 1970 to November 1978, it adopted a fixed single exchange rate system in which the rupiah rate was merely pegged to US dollar. Since then, a managed floating exchange rate system has been in operation. Under this system, Bank Indonesia (BI) is allowed to manage the rupiah rate movements without keeping the exchange rate rigidly fixed. This system is considered a better exchange rate system compared to fixed system of exchange rate. Since the exchange rate is an important factor influencing the level of capital inflows, the factors affecting exchange rate are: first, the managed floating system adopted in 1978 which showed a successful result in maintaining a realistic rupiah rate; and second, the high Indonesian economic performance, i.e., economic growth and monetary stability have also played an important role in stabilising the rupiah rate.

In order to stabilise the rupiah exchange rate and at the same time to keep the inflation rate at the desired level, BI is pursuing a realistic rupiah rate by maintaining the real effective exchange rate at a proper level. In its daily operation, BI sets the rupiah rate based on a basket of trading partners' and competitors' currencies taking into account, among others, domestic market development. With this policy, the rate of depreciation is also dependent upon the prevailing inflation rate. One of the main targets of monetary policy is to maintain price stabilisation and this will imply that by stabilising prices, the Government will also stabilise exchange rates at the same time.

As of 2nd March 1990, the exchange rate system of **Korea** was changed from the previous multiple basket pegged system to the market average exchange rate system which approximates a floating exchange rate system.

The capital account of the balance of payments which had been in deficit for many years shifted to a sizable surplus from 1990, with the increase of long-term capital inflows (Appendix 2.1). From 1990, long-term capital transactions have recorded net inflows and the size has increased sharply. But in the case of short-term capital transactions, the size of the net inflows has fluctuated.

Looking at the movements of the long-term capital account, the outflow of overseas direct investment has increased steadily while the inflow of foreign portfolio investment has increased sharply. Public and commercial loans, however, have shown a pattern of steady net outflows.

The changes in the pattern of capital inflows/outflows before and after 1990 are mainly due to the following factors: first, the current account has shifted to a deficit in the early 1990s; and second, the Korean Government has eased regulations on capital account transactions from 1990, including the opening of the domestic stock market to foreigners since 1992.

When the trend of the nominal exchange rate is examined in relation to other macroeconomic variables since 1980, the price differential between Korea and the group of developed countries and the current account balance seem to be two major factors that influence the exchange rate over the long term. This implies that the nominal exchange rate has moved in almost the same pattern as the real effective exchange rate which mainly emphasises the competitiveness of the export sector.

From a short-term perspective, since the scale of the foreign exchange market is still very small compared to the scale of the economy or the size of external transactions, the exchange rate can fluctuate sharply because of large-scale demand for import settlement or expanded supply caused by capital inflows. In particular, since 1992, the opening of the stock market for foreign investors has induced the rapid increases in capital inflows, which has directly influenced the market-determined exchange rate.

In the near future, as the limit on the daily fluctuation band of the interbank foreign exchange rate is abolished and transactions of foreign exchange are further promoted, the economic fundamentals such as relative monetary growth rate, relative economic growth rate and interest rate differential will influence further the market-determined exchange rate.

The shift from a fixed to a flexible exchange rate regime in 1973 did not exert major changes in the movements of capital into **Malaysia**. Since the early 1960s, the long-term capital account of Malaysia has recorded surpluses (except for 1987 and 1988). Initially, prior to 1980, the net inflow of long-term capital was relatively small, averaging around RM 330 million a year in the 1960s and RM 1.3 billion in the 1970s (Appendix 2.1). Thereafter, capital inflows accelerated and reached RM 9.2 billion in 1983 before moderating to RM 3.4 billion in 1986. The large inflows in early 1980s were due mainly to the large external borrowings particularly by the Federal Government to finance expanded public sector activities. In the case of private long-term capital, inflows increased gradually and peaked at RM 3.3 billion in 1982, before declining to about RM 1 billion in 1987. However, of late, the strength of the balance of payments has shifted to the capital account with the long-term private capital inflows contributing significantly to the growth in Malaysia's external reserves. The net inflows of capital (both the long- and short-term private capital) rose from RM 3.6 billion in 1989 to reach an unprecedented level of RM 24.2 billion in 1993. The large inflow of private capital was the result of several internal and external factors that came into play since the mid-1980s. The major factors that contributed to the surge in capital flows were as follows:

(i) Domestic Conditions

Pragmatic Economic Management

The role of the public sector has been deliberately downsized since the early 1980s. Focus was then shifted towards the private sector to provide the main impetus to economic growth. Consequently, a wide range of fiscal measures and financial incentives were introduced to promote private sector activity and investment. FDI was also actively promoted during this period through the introduction of a wide range of policy measures, including relaxation in foreign ownership requirement in manufacturing projects, allowing up to 100-percent foreign equity. The introduction of these measures, together with favourable economic conditions, led

to a market acceleration in private sector activity and a significant surge in private investment, including foreign investment, from the second half of the 1980s.

Favourable Investment Climate

The surge in inflows of foreign capital was due to a prevalence of political stability, prudent macroeconomic policies, price stability, free and open trade regime, liberal exchange control, good infrastructure and ready availability of easily trainable labour and materials.

Internationalisation of the Capital Market

In recent years, more and more foreign investors are investing in Malaysian stocks. For example, in 1992 and 1993, the strong performance of the stock market was partly due to large inflows of foreign portfolio funds.

(ii) External Developments

The sharp appreciation of the Japanese yen and subsequently the currencies of the Newly Industrialising Economies (NIEs) following the Plaza Accord (1985), and the high cost of production and shortages of labour in the NIEs led to the relocation of industries to developing countries. Malaysia has benefitted much from these flows. Based on the approved foreign equity investment in the manufacturing sector for the period 1989-1993, the largest foreign investment were from Japan, the United States, ROC-Taipei, Singapore and the United Kingdom.

The performance of the ringgit, however, had an indirect impact on the flow of capital into the country. During the period 1985-1991, the ringgit depreciated by 29.6 percent against the average composite index due mainly to the strengthening of most component currencies of the composite. The weaker ringgit during this period made investment in Malaysia less costly and made Malaysia an even more attractive centre for investment.

The performance of the ringgit is dependent on several factors:[1]

(i) Developments in overseas foreign exchange markets;
(ii) Payments and receipts for trade and services transactions;
(iii) The investment climate, which determines the level of

1. For details see ***Money and Banking in Malaysia***, 35th Anniversary Edition 1959-1994, Bank Negara Malaysia, pp. 14-17

government borrowings/repayments of external loans and FDI; and,

(iv) Interest rate differentials between Malaysia and other countries which influence the movement of short-term capital.

Since 1975, the value of the ringgit is determined in terms of a 'composite basket' of currencies of Malaysia's major trading partners and major currencies used in international settlements. Under this system, the market will automatically fix the external value of the ringgit, depending on the underlying market forces of supply and demand. Bank Negara Malaysia (BNM) only intervenes in the foreign exchange market to buy or sell US dollar to maintain orderly market conditions.

In the foreign exchange market, BNM operations can only affect the US$/RM exchange rate. The value of the ringgit against other currencies is determined through cross rates. The final rate for these currencies will be dependent on these currencies against the US dollar.

The Government has implemented a comprehensive package of anti-inflationary measures to contain price pressures. Since 1989, a tight monetary policy stance has been maintained to mop up excess liquidity in the banking system to ensure that it did not fan inflation. At the same time, the Government remains committed to fiscal prudence, to ensure that the public sector did not become a source of inflationary pressures. This was reflected in the achievement of an overall budget surplus in 1993, for the first time in more than 30 years. In addition, the 1993 and 1994 budgets provided for tax cuts on a total of more than 1,100 essential items and various administrative measures (such as stricter enforcement and price checks) have also been introduced to ensure that the benefits of lower taxes are passed on to the consumers in the form of lower prices.

At the very outset, it should be mentioned that the capital account in **Nepal's** balance of payments statistics is highly aggregative and it encompasses only two major components, net official capital flow and net miscellaneous capital items. The latter includes private capital and errors and omissions arising out of the difference between customs records and exchange records of external sector (mainly, current account) transactions. So it is not possible to give details of the types and sources of private capital.

Nepal faced severe balance of payments crisis in the early 1980s. To correct such imbalances, Nepalese rupee was devalued in mid-1980s and the currency basket system was introduced in order to bring about flexibility in the exchange rate. This resulted in a balance of payments

surplus in the subsequent years which is attributed mainly to capital flow, both official and private. The inflow of official capital increased from Rs. 1.3 billion in 1984/1985 to Rs. 5.5 billion in 1992/1993 and miscellaneous capital flow increased from a net outflow of Rs. 0.3 billion in 1984/1985 to an inflow of Rs. 11.5 billion in 1992/1993. The implementation of convertibility of the rupee in the currency account in February 1993 and the adoption of a market-determined exchange rate vis-à-vis convertible currencies has resulted in a higher inflow of miscellaneous capital. This is evident from the capital inflow of Rs. 4.4 billion during the first five months of 1993/1994 as compared to Rs. 2.5 billion during the corresponding period in 1992/1993.

The exchange rate system in Nepal is characterised by a fixed exchange rate regime with the Indian currency and a flexible (market-determined) exchange rate with convertible currencies. India is Nepal's major trading partner against the backdrop of open border, free mobility of goods, services and capital, and unlimited convertibility of the Nepalese rupee into Indian rupee and vice-versa. These characteristics make the Nepalese economy highly sensitive to any changes in the Indian economy either in the domestic or in the external sector. The maintenance of a fixed exchange rate regime with the Indian currency is guided by the objective of avoiding uncertainties in: (i) bilateral trade; (ii) industrial activities having backward and forward linkages with the Indian economy; and, (iii) domestic prices. The maintenance of a fixed exchange rate with the Indian currency has resulted in a de facto peg of the Nepalese rupee with convertible currencies as well; for, if the exchange rate of Nepalese rupee vis-à-vis convertible currencies diverges from the cross rate emerging from Indian rupee - convertible currency exchange rate, the divergent cross rate has to be minimised by correcting the Nepalese rupee - convertible currency exchange rate through official intervention in the foreign exchange market or by the foreign exchange dealers themselves. Otherwise, the divergent cross rate provides room for unhealthy arbitrage in foreign currencies across the border. In this respect, the exchange rate in Nepal is still highly influenced by the exchange rate of the Indian currency vis-à-vis convertible currencies.

Nepal had a regulated exchange rate regime until June 1983 when the currency basket system was introduced. In the regulated exchange rate regime, Nepalese currency was pegged to Indian rupee as well as to the US dollar. Introduction of the currency basket system was sup-

posed to bring about a flexibility in the exchange rate regime and do away with the distortions arising out of pegged regime. However, Nepal, having strong economic ties with India, could not bring about a flexibility in Nepalese-Indian rupee exchange rate and ensure the effective functioning of the basket. As a result, despite the adoption of the basket system, Nepalese currency remained pegged to Indian rupee and the rest of the currencies in the basket up to March 1992 when partial convertibility of the Nepalese rupee in the current account was implemented. Following this, initially 65 percent and later 75 percent of the export earnings are allowed for exchange at the free market rate and the balance of 35 percent (and later 25 percent) are to be surrendered at the official rate. Such a dual exchange rate system is unified with the implementation of full convertibility of the rupee in the current account, effective February 1993. With this, the exchange rate of the Nepalese rupee vis-à-vis convertible currencies has been determined by the market forces. However, the exchange rate with the Indian currency continues to be administered by the authorities.

The introduction of flexibility in the exchange rate which brought about the value of Nepalese rupee from a high overvalued level in the controlled regime to a more realistic level through a series of adjustment (devaluation) has prompted export trade by minimising the anti-export bias of the exchange rate policy in the past. The resultant growth in export trade has been noteworthy. This has helped to contain the widening trade gap in recent years.

As stressed above, inflation in Nepal is not solely generated at home; it is also imported, particularly from India. In this respect, even the most stringent monetary policy cannot completely contain inflationary tendency. Accordingly, the only way to stabilise real exchange rate would be to revise the nominal exchange rate frequently which was carried out by the Nepalese authorities during the period of fixed exchange rate regime. Now that the exchange rate with convertible currencies has been set free to market forces, the authorities have to intervene frequently in the foreign exchange market in order to maintain nominal exchange rate and hence the real exchange rate as well as the desired band.

The behaviour of capital flows in the **Philippines** during the period 1980-1993 was influenced by several factors other than the change in the exchange rate regime. It should be clarified though that during the

period under review, the Philippines has consistently been under one exchange rate regime, i.e., the floating rate system. During the period, capital flows consisted mainly of medium- and long-term (MLT) flows, over 90 percent of gross inflows during 1980-1986. By 1987, however, investments started to record an increasing share in the total inflows at 30.9 percent of total in 1988, slowly declining in the succeeding years and again recovered in 1993 to reach 41.2 percent.

The behaviour of private inflows into the country during the early 1980s was reflective of the global conditions then. The effects of the second oil price shock in 1979-1980 and the subsequent recession and interest rate hike led to a widespread default on debt service payments, putting the financial position of international commercial banks at grave risk. This tended banks to reduce and, in some instances, discontinue lending to developing countries. As a result, gross inflows, both medium- and long-term loans and foreign investments, substantially dropped in 1984 (Appendices 2.3 to 2.7). Given the decline in private lending, official creditors had to pick up the slack as shown by the increasing bilateral loan despite the declining inflows from other creditors. Private loan inflows recovered only in 1985, to reach almost $3 billion, as the first restructuring agreement with the commercial banks, including a new money agreement, was finalised. During 1986-1989, total loan inflows remained stable at the $3 billion mark, largely coming from bilateral sources in the form of rescheduled loans and some amount of new money. By 1990, long-term loan inflows reached the $4 billion mark with the share of private flows reaching 45 percent of total MLT from only 33-percent average during 1987-1989 as a result of the negotiated debt management strategy. In December 1992, the Brady Deal with commercial banks was successfully concluded and it paved the way for the country's re-entry into the voluntary capital markets in February 1993. This is a significant step forward in the normalisation of the country's access to world capital markets. This development resulted in a marked expansion of 216 percent to P 2.1 billion in long-term loans (net) by 1993.

FDI was an inconsistent source of capital inflow from 1980-1987 as it exhibited an erratic trend. While the policy to attract foreign investments has been in place since the 1970s, investment inflows remained at consistently low levels due mainly to the debt crisis aggravated by unstable political developments which eroded the confidence of investors.

The responsible debt management strategy implemented by the authorities helped avoid serious damage to the country's international credibility. This has made the continuous inflow of debt as shown in the above developments and reflow of investments beginning 1988. As part of the overall debt management programme, the debt-to-equity (DE) programme and other debt swaps began to operate in 1986, the objective of which was to channel the country's payment of external debt into investments and to help ease the debt service burden. This induced the inflow of foreign investments. By 1988, investments rose to $1,077 million from only $439 million in the previous year, the substantial increase largely arising from debt conversions into equity amounting to $806 million or 75 percent of total investments. In 1989-1991, foreign investments declined relative to 1988 levels due in part to the slowing down of the DE programme implementation as it resulted in some complications particularly from the point of view of macro management. Such development was felt in 1989 and 1990 when debt conversions posted declining flows but still significant compared to other investment inflows during the period (Appendices 2.8 and 2.9). Investments picked up anew in 1992 as a result of the much improved climate for foreign investments in the country brought about by the fundamental improvements in the economy under the Ramos administration, the political stability, the much improved peace and order condition, and the sweeping foreign exchange reforms. In 1992 and 1993, there was an observed dramatic increase in portfolio investments of 149.3 percent and 298.8 percent, respectively, attributable mainly to the foreign exchange liberalisation measures implemented in 1991 and 1992 as well as the interest rate differential.

The exchange rate is allowed to be determined by market forces of demand and supply of foreign exchange. The daily reference rate is determined by the weighted average of previous day foreign exchange transactions among commercial banks and Bangko Sentral ng Pilipinas (BSP) at the Philippine Dealing System (PDS). Normally, BSP buys and sells foreign exchange in the PDS for its own operational purposes. Occasionally, BSP also intervenes in the foreign exchange market through extraordinary purchases and sales of foreign exchange in order to moderate the erratic movements in the exchange rate stemming from market speculations.

Market-based factors which have been observed to affect the peso-dollar exchange rate, include from the demand side — demand for

imports and levels of domestic and foreign interest rates which result in shifts in investors' preference between foreign exchange and alternative peso-denominated assets; and, from the supply side — supply of foreign exchange which is influenced mainly by inflows from workers' remittances and travel, foreign borrowings, foreign investments and speculation. Notably, the abrupt depreciation seen in end-September 1993 was evidently due to speculations fanned by reiteration of proposals made by certain sectors for a substantial devaluation of the peso to P 35 to the US dollar. However, the effect was short-lived as the exchange rate returned shortly to its previous levels when devaluation sentiments waned and coupled with corrections from BSP intervention in the PDS.

In spite of comprehensive exchange market controls during the 1950s, the fundamental balance of payments position remained chronically weak and the room for further import substitution had already been exhausted. Nevertheless, the official exchange rate then was maintained and defended with intensified controls including the requirement of full surrender of export proceeds at the official rate.

By 1960, strong pressures to devalue the Philippine peso mounted from the traditional export sector. The Central Bank responded by implementing a multiple exchange rate system starting 20th April 1960 which paved the way for a gradual de facto devaluation of the peso which ushered in a programme of decontrol. Under the multiple exchange rate system, the free market rate was initially set at P 3.20 to the dollar while the official rate remained pegged at P2.00 to the dollar. An increasing proportion of foreign exchange transactions was progressively transferred to the free market segment: 25 percent in April 1960, 50 percent in November 1960, 75 percent in March 1991 and virtually 100 percent by January 1982, except for the provision that 20 percent of export proceeds should be sold to the Central Bank at the official rate.

As a matter of policy, BSP continues to allow the exchange rate to seek its own level and intervenes only to dampen sharp movements and rapid short-term fluctuations stemming from speculative or other abnormal factors. BSP has been guided by a monetary programme to secure an overall liquidity level which is sufficient to sustain or promote non-inflationary growth. In terms of the foreign exchange liberalisation, BSP will continue to review the remaining measures on

foreign exchange transactions and maintain its momentum towards the full deregulation of capital flows. More particularly, assessments are being made whether existing regulations pertaining to loans and investments can be removed without seriously affecting macroeconomic indicators such as interest rates and inflation rates.

Keeping in view of the sharp fluctuations in exchange rates in the international currency markets as well as to curb the heavy influx of capital which was creating excess liquidity in the economy and to reduce imported inflation, the **Singapore** dollar was floated in June 1973.[2] Singapore adopts an exchange rate-based monetary policy. The Singapore dollar is managed against a trade-weighted basket of currencies and allowed to float within a target band. The Monetary Authority of Singapore (MAS) would intervene in the foreign exchange market to keep the exchange rate within this band. Given the high import content of expenditure and exports, Singapore supports a strong currency to keep inflation low. In addition, given the export dependence of the economy, a strong exchange rate would help to curb aggregate demand in the short-run, thus reducing the demand for labour and moderating wage growth.

However, monetary policy alone could not have supported the Singapore dollar. Conservative fiscal policy has freed the MAS from the burden of financing budget deficits. On the contrary, deposits of government budget surpluses and net contributions of the Central Provident Fund (CPF) with the MAS have drained liquidity from the domestic banking system, giving rise to pressures for the Singapore dollar to strengthen. To prevent excessive appreciation of the Singapore dollar, MAS has tended to recycle these funds back to the banking system through its operations.

In addition, the emphasis on productive expenditures rather than redistribution of income and efficient and well-functioning markets have helped sustain strong economic growth and attract FDI and other capital inflows, providing fundamental support for a strong currency.

There is no long-term trade off between a stronger exchange rate and competitiveness in the medium to long term in Singapore. As prices and wages are relatively flexible in Singapore, an exchange rate

2. For details see ***MAS Annual Report***, 1974.

appreciation is translated into cheaper imports. Wage growth is also moderated as demand for labour falls in response to the short-term deterioration in export competitiveness. Nominal exchange rate changes thus do not create an impact on the real exchange rate and the real economy beyond the short run. On the other hand, real exchange competitiveness is achieved through restraining growth in unit labour costs through measures aimed at boosting productivity growth. Skills upgrading, the adoption of new technologies and improvements in the efficiency with which resources are employed would be critical.

Sri Lanka shifted to the managed floating exchange rate system in November 1977. Under the managed floating exchange rate system, the exchange rate is influenced by the normal market forces of demand for the supply of foreign exchange. However, the Central Bank intervenes in the market to maintain the competitiveness of exports and to mitigate the adverse implications of substantial fluctuations in the exchange rate. A number of monetary policy measures were implemented including aggressive open market operations, increase in reserve requirements and bringing foreign currency denominated deposits under the reserve requirement and moral suasion to restrain credit expansion. More recently, the authorities' concern over the monetary implications of external reserve build-up has also influenced the exchange rate.

Since 1979, a flexible exchange rate system has been adopted in the **ROC-Taipei**. However, the capital movement had little to do with the exchange rate system. In fact, the remarkable changes that occurred in capital movements took place after foreign exchange controls were removed in 1987. The capital account exhibited sustained capital outflows during 1982-1993, except for the years 1986 and 1987. The long-term net capital outflow was due mainly to increases in direct investment abroad as well as purchases of foreign securities and real estate. However, during 1986-1987, the capital account showed a large net inflow, which was related to short-term speculative capital inflows due in large part to expectations of New Taiwan (NT) dollar appreciation.

The factors which have been observed to have an effect on the exchange rate fluctuations in ROC-Taipei include: (i) the current account balance; (ii) the interest rate differentials between domestic and foreign markets; (iii) expectations regarding the NT dollar exchange rate; (iv) short-term capital movements; and, (v) the attitude and intervention policies of the monetary authorities.

The Government has implemented several policies to stabilise both the real exchange rate and the price level, including expanding imports by reducing tariffs and removing non-tariff barriers, liberalising interest rate controls, managing monetary and sterilisation policies, encouraging foreign investment abroad, and deregulating the foreign exchange market and the transactions in the capital account. Besides the foreign exchange rate of the NT dollar has been appreciating since the 1980s which has helped in controlling inflation.

In November 1984, a more flexible exchange rate regime was introduced with the adoption of a basket pegging system in which the baht was tied to a basket of currencies of **Thailand's** major trading partners, instead of the US dollar. At the same time, the authorities devalued the baht by 14.8 percent from B23 to B27 per US dollar.

The baht devaluation, in effect, led to an influx of capital flow where in 1984, the surplus in private capital account amounted to B41,152 million, more than doubled that of the previous year while the surplus in the public capital stood at B16,213 million, similar to that of the preceding year. Noticeable changes were observed in loans which experienced a surplus of B24,566 million, an increase of over four-fold from the previous year.

Under the current system of pegging the baht to a basket of currencies, three criteria are considered by the Exchange Equalization Fund (EEF) in fixing the daily exchange rate: (i) the movements of the currencies in the basket; (ii) the volume of US dollar traded in the market; and, (iii) the economic conditions - export, import and domestic price levels, in particular.

Anti-inflationary and foreign exchange policies pursued by the Thai authorities are part of the overall stabilisation policies which are aimed at increasing the effectiveness of policy coordination in dealing with multiple objectives. When planning stabilisation policies, the authorities carefully take account of the following principles — balance, flexibility and caution — in addition to the appropriate policy mix. The overall policies aim to balance growth with stability objectives while at the same time maintaining flexibility that allows for necessary changes and timely adjustments in terms of policy shift to suit changing circumstances. Apart from policy coordination to stabilise the economy, structural adjustment policies have at times been implemented as a supplement to stabilisation policies.

Prior to November 1984, the burden of adjustment fell largely on monetary and fiscal policies at the expense of growth. With the introduction of exchange rate adjustment, the restrictive policy stance could be relaxed gradually to accommodate economic recovery. The authorities, therefore, had more freedom in implementing measures to control inflation. In general, policies and measures to control inflation vary with its causes, i.e., cost-push inflation can be addressed by macroeconomic policies to curb speculative demand and contain aggregate demand in line with productive capacity. For example, in coping with the inflationary pressure during the period 1989-1991, the authorities responded with tight monetary policies, particularly with direct control over credit to a rate of growth deemed appropriate for the productive capacity of the country. On fiscal policy, the Government introduced a balanced budget for the first time in fiscal year 1991 and this was continued in 1992. Customs tariffs on imports were also reduced for commodities experiencing shortages.

2.2 Impact of Capital Flows on Major Economic Sectors

In the **Indonesian** monetary sector, capital inflows, which have started since the 1990s, have an expansionary impact on reserve money through the increase of net foreign assets (NFA) of monetary authorities. This expansionary impact is reflected by the high growth of the autonomous factors of reserve money which in 1993 has an annual growth rate of 24.7 percent. This high growth is mainly due to the increase of monetary authorities' NFA by 14.8 percent per annum in 1993.

In connection with this phenomenon, monetary authorities in Indonesia have taken several steps, including sterilisation policy and the lowering of domestic interest rates. The sterilisation policy is aimed at reducing the expansionary impact of NFA through open market operation (OMO) by increasing the sales of Bank Indonesia Certificates (SBI). As a result, the SBI position has increased to Rp. 23.4 trillion in 1993 compared with only Rp. 20.6 trillion in 1992.

The implementation of sterilisation policy managed to absorb excess liquidity in the economy and lessen the growth of reserve money to 19.7 percent in 1993. Although this policy has lessened the expansionary impact of NFA, it created a heavy burden for monetary authorities (especially Bank Indonesia) in terms of the increase in the interest rate payments.

This condition induced monetary authorities to adopt a set of policy which could support monetary control without putting heavy burden on monetary authorities. This policy involves the reduction of domestic interest rates by lowering the rate of SBI to 7 percent, starting in mid-1993. This rate is considered more appropriate since it has been set up in line with the development of domestic currency depreciation.

The decline in SBI rate coupled with more favourable development in the capital market have induced investors to reduce their SBI in their portfolio. As a consequence, the SBI position tended to decline and reached a level of Rp. 19.8 trillion in March 1994. The lower SBI rate of 7 percent is not a fixed rate. This rate will be adjusted in accordance with recent monetary development, but every change must take into account the depreciation rate of the domestic currency.

One of the objectives for the adoption of monetary policy is to control the inflation rate or to maintain price stability. The price stability in turn will support the competitiveness of Indonesian products in the international market as well as in the domestic market. Meanwhile, the exchange rate policy is focussed mainly on the maintenance of competitiveness of Indonesian products in the international market as well as in the domestic market. However, in adopting exchange rate policy, the Government also takes into account the effect of this policy on inflation. In addition to this policy, the Government has a long-term strategy for promoting non-oil/gas exports to keep the current account deficit within a reasonable level.

In general, if a country is experiencing a rapid increase in capital inflows, it would exert an upward pressure on the exchange rate to appreciate. In order to stabilise the exchange rate, the monetary authorities would increase the money supply by intervening in the foreign exchange market. Moreover, in the process of sterilising the increase in the money supply, interest rates will generally increase. Thus, under the rapid surge of capital inflows, the relationship between the interest rate, money supply and exchange rate becomes more interrelated and the conflict of policy goals between stabilising the money supply and exchange rate becomes more apparent. **Korea** has experienced considerable capital inflows especially in the form of stock investment from foreigners since 1992. This is likely to lead to a build-up of pressure for an expansion in money supply and an exchange rate appreciation.

So Korea is seriously concerned over the difficulties that will be posed in reconciling the performance of the major macroeconomic variables such as economic growth, prices and the current account position.

In a recent empirical study on exchange rate and inflation in **Malaysia**, Bank Negara Malaysia (BNM) found that the exchange rate did not play a significant role in affecting domestic prices. This could be due to demand inelasticity, market structure and the reluctance of traders to pass on the benefits to consumers.[3] The Economics Department of BNM is also currently studying the linkages between interest rates and exchange rates.

(i) Exchange Rate

Since 1990, the inflow of foreign funds into Malaysia has been fairly substantial. BNM encourages the inflow of genuine investment funds, including those for the expansion of productive capacity and investment in stocks and shares. However, the inflow of short-term speculative funds posed a threat not only to monetary management but also to exchange rate stability. The inflow of short-term speculative funds was particularly substantial in 1993 and early 1994 due to sustained interest differentials in Malaysia's favour. Such inflows, which could be repatriated at a short notice, can undermine orderly exchange rate movements consistent with economic fundamentals. Therefore, BNM has introduced a series of measures to weed out speculators in order to regain control of monetary management as well as to ensure exchange rate stability on a sustained basis.

(ii) Monetary Policy

Prior to 1989, Malaysia has never experienced any massive capital inflows. It was only after 1989 that these inflows, particularly short-term funds, became increasingly substantial as well as an increasingly important source of monetary instability. The conduct of monetary policy, consequently, became more difficult and complicated.

3. For further details see ***Annual Report 1993***, Bank Negara Malaysia, pp. 315-320.

The prolonged and rapid domestic economic growth since 1989 led to a steady increase in inflation, from 2.5 percent in 1988 to 4.7 percent in 1992 before easing to 3.4 percent in 1993. Accordingly, BNM adopted a tight monetary stance during the period to reduce excess demand and contain the inflationary pressures. BNM's contractionary liquidity operations, conducted mainly through direct short-term borrowing from the money market and centralisation of funds of the Government and Employees' Provident Fund in BNM, was accompanied by a rise in the domestic interest rate level. In allowing the latter, BNM had to balance the interest of depositors and investors for reasonably priced funds.

Concomitantly, the presence of wide interest rate differentials favouring Malaysia amidst declining foreign interest rates attracted large capital inflows from abroad and added further liquidity to the already large pool of excess liquidity in the domestic banking system. Of greater concern was that a greater proportion of the capital inflows, especially in the closing days of 1993 and in early 1994, comprised short-term speculative funds. These inflows accelerated significantly in early 1994 and had created a new dimension in monetary management in 1994. In the absence of determined central bank policy to effectively manage the situation, these massive speculative inflows would have caused instability in both the domestic and external sectors. As a result, by early 1994, the monetary policy measures of BNM had to assume a different character. A liberal policy on capital inflows at zero costs was no longer tenable without which the downward pressures on domestic interest rates would unwind the success that monetary policy had achieved so far in reducing inflation. However, it was also necessary to ensure that any measure to address these speculative funds should not adversely affect long-term investments. The task was to strike a delicate balance in terms of managing the excess liquidity to reduce inflationary expectations and preserving the demand for investment funds in productive sectors while at the same time preventing undesirable speculative inflows. Careful consideration of these factors led BNM to introduce a series of new measures in early 1994.

(iii) Fiscal Policy

With the adoption of a comprehensive structural adjustment programme to address the twin deficits in the government budget

and the balance of payments, public policy since the mid 1980s was directed towards downsizing the role of Government in the economy and the promotion of private sector activity as the main engine of growth. On the fiscal front, the Government provided a wide range of fiscal incentives to promote private investment, including foreign investment. The strengthening of public sector finances together with the emerging importance of private capital inflows, especially foreign direct investment (FDI), provided the Government with new policy options in the management of the national external debt. This involved the reduction in total external debt outstanding through prepayment and refinancing together with continued restraint on external borrowing. As a result, the growth in the absolute size of the national medium- and long-term external debt was contained (down from a peak of 76 percent of GNP in 1986 to 32 percent by end-1993), while the debt servicing ratio improved from 18.9 percent to 5.7 percent over the same period.

In 1993, the unprecedented large influx of foreign capital posed new challenges in the management of macroeconomic policy. The conduct of fiscal policy was tailored to complement the restrictive monetary stance to ensure that the overhang of excess liquidity did not become a permanent source of inflationary pressure. A balanced budget was achieved in 1993, providing the clearest possible signal of the Government's seriousness about fiscal consolidation to reduce excess demand and price pressures to ensure sustainable non-inflationary growth over the medium term. The thrust of fiscal policy continued to focus on tighter budgetary control to contain government expenditure, particularly on non-essential consumption spending. At the same time, continued efforts were made to address the problems of supply constraints, with selective increases in public investment outlays on infrastructure and support facilities.

(iv) Structural Policy

Actually, the substantial increase in foreign capital inflows, particularly of FDI in 1988-1992, was a reflection of the Government's structural adjustment policy to address the problem of twin deficits in the fiscal and external balances in the mid-1980s. A key

component of the structural adjustment process was the downsizing of the public sector while at the same time, promoting private initiative as the main engine of growth in the economy. In line with this policy shift, the Promotion of Investment Act, 1986, was introduced to provide generous incentives to encourage private investment, including approval for foreign investors to retain 100-percent foreign equity in certain cases, for investment projects which were approved before the end of 1990 (subsequently extended to 1991).

With the economy approaching full employment in the early 1990s, there has been a gradual shift in investment policy. While the Government continues to encourage foreign investment, it is now more selective in approving investment projects to avoid aggravating the pressures on the tight labour market. Consequently, there is a general policy to discourage low value-added, labour-intensive investment projects, with increased emphasis on high-tech, capital and skill-intensive industries which are in line with the Government's aim to achieve the developed-nation status by the year 2020.

Unlike other developing countries, Malaysia has not relied on exchange rate targets in monetary and economic management. Instead, the floating of the ringgit has enabled the authorities to use monetary and fiscal policies to achieve macroeconomic stabilisation objectives such as stable prices and balance of payments equilibrium. For instance, when the problem of twin deficits (fiscal and current account deficits) confronted the country in the early 1980s, the adjustment policies which were adopted in mid-1982 resulted in massive cutbacks in public sector spending, particularly in high import content development expenditure. The policy of fiscal restraint not only turned around the peak current account deficit of RM 8.4 billion (14 percent of GNP) in 1982 to a balanced position in 1986, but generated large surpluses in 1987 and 1988. The deficit in the current account position since 1990 is due mainly to the rising deficit in the services account. Traditionally, Malaysia has always incurred a deficit in the services account of the balance of payments. The need for concerted policy measures to promote the services sector, not only to ease the pressure on the external account but also to improve the competitive position of the manufacturing sector, has been widely acknowledged by the Government. Hence, the promotion of the services sector was accorded high national pri-

ority with the establishment in 1992 of a Cabinet Committee on Services (CCS) to implement the recommendations of the Council on Malaysian Invisible Trade (COMIT) already accepted by the Government, and to coordinate efforts among the various ministries and government agencies to reduce the services deficit. Following the establishment of the CCS, COMIT which was established in 1980 to advise the Government on issues relating to the country's trade in services was disbanded.

The interest rate structure in **Nepal** was administered by the authorities for a long time up to 1989. On the other hand, despite the adoption of currency basket system for ensuring flexibility in the exchange rate regime, the adoption of fixed exchange rate regime with Indian currency prevented perfect flexibility in the exchange rate regime as well. However, there were discrete devaluations of the rupee in 1985 and 1991 following which domestic prices increased substantially. A few empirical studies have also established a positive relationship between exchange rate and prices and the causality running from exchange rate to prices, and not the other way round. But neither any empirical study has been done to establish a relationship between interest rate and inflation nor does the historic trend in these variables indicate any relationship. As inflation in Nepal is mainly the outcome of excess demand at home and prices in India, the major trading partner country of Nepal, no straightforward relationship between interest rate and inflation (a cost-push type of inflationary situation) can be observed in Nepal.

It is evident that an increasing inflow of foreign exchange and the resultant surge in the volume of foreign currency reserves exert pressure on the market to appreciate the domestic currency. This phenomenon has been observed in many countries which have liberalised their external sector; and, Nepal is no exception. As a consequence of huge capital inflows and subsequent balance of payments surplus, the foreign currency reserves (net) of the banking system in Nepal increased from Rs. 1.9 billion in July 1985 to Rs. 9.3 billion in July 1990 and further to Rs. 29.2 billion in July 1993. The upsurge in the reserves position brought down the market exchange rate of rupee vis-à-vis US dollar from more than Rs. 51 per dollar in December 1992 to Rs. 49 in December 1993. Had Nepal Rastra Bank (NRB) not intervened in the foreign exchange market, the rate would have been even lower. This signal that the huge foreign capital inflow has a tendency to appreciate the domestic currency and to deteriorate the export competitiveness of the country.

The major effect of increasing foreign capital inflow has been the excessive expansion of money supply in Nepal. The surplus in the balance of payments position resulting from the higher inflows of foreign capital has resulted in a narrow money supply (M1) growth of about 20 percent, on an average during 1985-1993. Particularly, with the liberalisation of the external sector since the early 1990s, the growing foreign currency inflow has posed a challenge to prudential monetary management by exerting expansionary effects on money supply. As an effort to sterilise the effect of this foreign exchange inflow on money supply, NRB has been undertaking regular OMO by issuing its own bonds. So far, about Rs. 6 billion worth of NRB bond has been issued and marketed to mop up the liquidity emanating mainly from foreign exchange inflows. The continuation of this process in the wake of perennial inflow of foreign capital has been a policy challenge, for the interest cost of issuing bonds has eroded substantially the profit of the Bank.

The fiscal implication of increasing foreign exchange inflows, in general, is to contain fiscal deficit to the lowest possible level so that it would not exacerbate the expansionary monetary situation. This is what the policy-making authorities of Nepal are also concerned about. The fiscal policy in the recent years has been focussing on reducing dependence on the banking system for financing a fiscal deficit. Otherwise, a higher fiscal deficit would tend not only to exacerbate monetary expansion but also to increase the domestic interest rate which already has a tendency to rise in the course of increasing sterilisation activity by NRB.

The other implication of increasing foreign capital inflow has been the further liberalisation of the current account and partial liberalisation of the capital account, particularly in the area of FDI. The authorities have recently allowed selected imports from India (which trade in non-convertible currency to take place) also to trade against the payment of convertible currencies. The permission granted to the commercial banks to extend credit to convertible currencies is another implication of growing foreign capital inflows. The possibility of completely opening the capital account is also being ventured in the context of growing capital inflows.

In a relatively small and open economy like that of Nepal, it is obvious that the balance of payments is heavily influenced by the

monetary developments in the country, particularly disequilibrium in the money market (excess of money supply over the demand for it) spills over into the demand for improved goods, services and capital. If the major demand pressure is on the goods and services, the current account balance will deteriorate. Hence, the obvious tool of containing the current account imbalance is also the monetary policy, if the exchange rate is not completely flexible, which is what the Nepalese authorities are also pursuing for the last several years. But containing the current account imbalance is not feasible unless fiscal policy is also coordinated with monetary policy. Efforts are, therefore, being made for a coordinated approach of monetary and fiscal policies to ameliorate the problem of growing current account imbalances.

In the case of the **Philippines**, based on the pairwise Granger causality tests conducted on interest rate, exchange rate and inflation rate, the following conclusions have been established in previous econometric/quantitative studies: (i) inflation rate is Granger-caused by exchange rate but inflation does not Granger-cause the exchange rate; (ii) inflation rate and 91-day Treasury bill rate have two-way Granger causality; and, (iii) 91-day Treasury bill rate Granger-cause exchange rate while exchange rate does not Granger-cause the 91-day Treasury bill rate.

Under the present deregulated foreign exchange market, capital inflows/outflows have been observed to be sensitive to interest rate and exchange rate and inflation expectations but during the period when foreign exchange controls were in effect together with the presence of interest rate ceilings, capital flows have responded only to exchange rate and inflation expectations.

Less formally, linkages with capital flows are apparent from recent developments. Bangko Sentral ng Pilipinas (BSP) data showed that net inflows of medium- and long-term loans and investments increased sharply in 1991-1993. This development has been credited to the rebuilding of investors confidence in the country that came with the improved political situation, the comparatively higher yield of local placements compared with foreign interest rates and the relative ease in moving investments in and out of the country following the deregulation in capital account transactions.

The rise in capital inflows created significant appreciation pressures on the nominal exchange rate in 1992 which warranted heavy

purchases by BSP in the foreign exchange market to slow down the otherwise rapid exchange rate appreciation. To contain the potential by-product liquidity growth within the pre-committed targets under the IMF stabilisation programme, BSP partially mopped up the liquidity effect of said foreign exchange purchases by issuing central bank bills. This in turn led to increases in the nominal interest rates.

The continued increase in capital inflows in 1993 required BSP to again purchase heavily in the foreign exchange market in the first three months of the year to dampen the appreciation of the exchange rate. However, adjustments for narrower differentials between domestic and foreign interest rates, coupled with stronger import demand and non-trade payment, precipitated the depreciations in the exchange rate over the next six months. In spite of the strong selling position maintained by BSP, the peso-dollar exchange rate depreciated from P25.366/US$ in March to P27.206/US$ in June and further to P20.160/US$ in October. Fear of a major devaluation, owing to sustained and collaborated clamor by certain sectors, accelerated the weakening of the peso towards the end of the third quarter, in spite of the strong selling position maintained by BSP. This depreciating trend of exchange rate was reversed during the last two months of the year as speculation waned and larger inflows of foreign exchange in the form of portfolio investments and seasonal remittances from Filipino overseas contract workers contributed to the strengthening of the peso to P27.79/US$ at the end of 1993.

A boom in capital inflows imposes its own burden and challenges on domestic policymaking. Large capital inflows induce exchange rate appreciation which would adversely affect the export sector through loss of external competitiveness. Such economy-wide effects may provide rationale for policy intervention. Likewise, concerns that capital inflows could be reversed on short notice and possibly lead to a domestic financial crisis gives another reason for intervention. In response to heavy capital inflows, policy-makers can opt for sterilised or non-sterilised intervention.

Central Bank sterilised intervention amounts to a sale of government bonds in exchange for foreign currencies arising from the inflows. This move insulates the stock of domestic money from variations associated with capital flows. However, there are two main difficulties with this sterilised intervention. One, the OMO involving the sale of government bonds is likely to lead to an increase in domestic interest rates which perpetuates a high domestic-to-foreign interest rate differ-

ential, and gives rise to increased fiscal burden in terms of higher interest payments. Two, the persistently high interest rate differential leads to further capital inflows which exacerbates the problem.

Another alternative is a non-sterilised intervention whereby BSP purchases all foreign exchange brought in by the capital inflow in exchange for domestic currency. Such a policy deters nominal exchange rate appreciation and is likely to narrow the domestic/foreign interest rate differential, but is likely to generate an increase in the monetary base beyond targetted levels. In turn, this could fuel inflationary pressures and contribute to an appreciation of the real exchange rate.

Another policy response to the capital inflow problem is a tightening of the fiscal stance through higher taxes or lower government expenditures. This lowers the aggregate demand and may cushion the inflationary impact of capital inflows.

Trade policy measures such as higher export subsidies can help insulate the export sector from the debilitating effects of lost competitiveness. This has a fiscal cost, however, apart from distorting the allocation between exportables and importables.

The Government aims to improve the policy environment of the external sector to be more conducive to sustain economic growth and international competitiveness. In this regard, full-scale foreign exchange liberalisation measures were implemented, mainly in August 1992 and April 1993 by virtue of Circular Nos. 1353 and 1389. These measures aim to cut costs and improve operational efficiency in the foreign exchange market and to induce greater competition. More specifically, these involved the liberalisation of current account transactions, particularly the abolition of the mandatory surrender requirement of exporters of goods and services. In effect, the remaining restrictions on the proceeds from and payments for invisibles have also been removed, including those imposed on 15 types of service operations. Meanwhile, ceilings on the sale of foreign exchange by authorised agent banks (AABs) to residents for invisible payments have been removed so that banks can now freely sell foreign exchange without prior BSP approval as long as the legitimacy of these payments is documented.

Complementary to the reforms in foreign payment system was the restructuring of the foreign exchange system through the establishment of the off-floor computer-based interbank trading under the Philippine Dealing System (PDS). This aimed to deepen the foreign exchange market and make more transparent and efficient the mechanism for exchange rate determination.

Further in 1993, BSP enlarged the scope of foreign exchange liberalisation as it eased some remaining restrictions on medium- and long-term private sector foreign loans, including access to FCDU loans. BSP also took steps to ensure lower cost financing for priority sectors, notably exporters by slashing its rediscount rate to 12.8 percent in early 1993 and further to 9.4 percent in late 1993 even as it enlarged the rediscounting budget for the year from P 8 billion to P 10 billion.

Additionally, positive image build-up for the country abroad has also been intensified through various programmes and various innovative schemes/incentives are being worked out to lure overseas contract workers — considered a vital source of foreign exchange — to course their remittances through official or banking channels.

The link between interest rates and exchange rates is quite straightforward, given a high degree of financial openness in **Singapore**. Some studies have shown that uncovered interest parity held, i.e., the domestic interest rate was on average equal to US interest rates, adjusted for expected exchange rate changes.

Inflation in Singapore is also closely related to the exchange rate, given the high import content of her expenditure and the absence of import tariffs and other barriers. A simulation by the Monetary Authority of Singapore (MAS) shows that inflation in Singapore during 1989-1992 would have been double its actual rate of 3 percent per annum if the dollar had not appreciated since 1988.

Short-term monetary capital flows in and out of the economy have largely responded to developments in expected rates of return on domestic and foreign assets, including expected exchange rate changes. Direct investment and longer-term capital inflows, however, have depended more on Singapore's competitiveness in world markets, e.g., skilled labour force, good infrastructure, efficient government, open trading system, fiscal incentives, etc.

Increasing flows of foreign capital, particularly short-term capital inflows to the financial markets, are likely to lead to increased liquidity and exert upward pressure on the exchange rate and/or asset price inflation. In a free and open economy, prices will achieve equilibrium and Singapore has had, in the absence of speculation, to allow her exchange rate to appreciate and the interest rates to fall, to stem the capital inflow.

Fiscal policy is not directly concerned with increasing capital inflows. And, increasing capital inflows are not viewed as a problem if the capital is utilised productively. The Government would not curb direct investment flows to offset the effect of large inflows of speculative capital.

Current account imbalances so far have not been a cause for policy concern. The current account deficits in the 1970s and early 1980s were not a concern; they were largely financed by FDI and not by external borrowings. Singapore has enjoyed current account surpluses since the mid-1980s. The increasing savings-investment surplus has largely reflected demographic factors and is likely to reverse over the next few decades as the population ages. The accumulated current account surpluses have contributed to the build-up of Singapore's external assets, and the increasing importance of net factor income from abroad.

Increasing capital inflows have exerted pressure on the exchange rate to appreciate and made exchange rate management more difficult in **Sri Lanka**. The need to maintain the competitiveness of export requires that a real appreciation of the exchange rate be avoided. A sustained increase in capital inflows exerts a considerable expansionary impact on the money supply fuelling continued pressure on domestic prices. Therefore, even if a nominal appreciation of exchange rate is avoided, rising inflation would result in a real appreciation of exchange rate. An appropriate policy to contain the inflows and to restrain the growth in money supply is to effect a real appreciation of exchange rate through nominal appreciation. However, this would have an adverse impact on the current account. Under the circumstances, sterilisation of the inflows is another policy option. However, there are limits to the effectiveness of sterilisation because the resulting rise in interest rate could encourage further inflows and also dampen investment. Hence, sterilisation of capital inflows will have to be reinforced by increasing fiscal restraint. Fiscal tightening is the most effective means

of preventing the overheating that typically results from a surge in capital inflows.

Monetary policy is mainly used to control inflation and continued effort to bring down inflation is one of the measures employed to address current account imbalances. The country has employed exchange rate policy towards correcting current account imbalances but with the recent surge of foreign capital inflows, exchange rate policy may not necessarily be guided by current account imbalances.

Based on previous experiences, **ROC-Taipei** has found that capital flows are sensitive to interest rates, inflation and exchange rates. For instance, when there are strong expectations of an appreciation of the New Taiwan (NT) dollar, capital inflow will be induced and this will result in an appreciation of the NT dollar. If there is a widening in the interest rate differentials between the domestic and overseas markets, there will be short-term capital inflows, which will cause the NT dollar to appreciate. Moreover, short-term capital inflows will result in an increase in the monetary base and hence, in the money supply. The rapid growth of money will exert pressure on the inflation rate. In general, the magnitude and types of capital movements are related to the interest rates, inflation and exchange rates in ROC-Taipei.

During the 1982-1993 period, the capital account exhibited a net outflow, except in 1986 and 1987. The policy implications of the capital inflow that took place in 1986 and 1987 with regard to the exchange rate may be described as follows. The increase in net short-term capital was due to the strong expectations of NT dollar appreciation. These huge capital inflows had an adverse effect on the exchange rate stability and the control of monetary aggregates. Therefore, the Government had introduced a series of measures to liberalise foreign exchange controls, which included the mopping up of excess liquidity by means of sterilisation operations and reducing tariffs in addition to relaxing import controls.

Since the early 1980s, ROC-Taipei has generated a very large current account surplus. To address the resulting imbalance, measures to reduce tariffs and remove non-tariff barriers and other import restrictions were adopted to reduce the size of the current account surplus. In addition, the exchange rate policy, which was to appreciate the NT dollar, was also adopted to reduce the size of the current account surplus.

In **Thailand**, since mid-1992, interest rates on deposits and loans which were previously restricted by law have been liberalised or floated and many restrictions on foreign exchange controls have been lifted. As a result, this has made the Thai economy more open. Interest rate, therefore, was determined mainly by factors such as the interest rate differential and the expected depreciation of the Thai currency. As indicated in one study[4], during the period 1988-1993, these two factors accounted for 40 to 50 percent of total changes in the Thai interest rate. Another factor which also made significant contribution to changes in the interest rate was, in particular, inflation. The impact on interest rate level due to inflation can be explained by non-price mechanism controls of inflation such as subsidisation and price fixing, reduction of government expenditure and tax measures to level off consumption. The rationale behind the selection of these measures to combat inflation instead of interest rate increases was to avoid the adverse effect on domestic investment.

For instance, the effects of interest rate, inflation and exchange rate on Thailand are: (i) direct investment, 40 percent of which came from Japan, was closely related to the value of the baht rather than the minimum wage and GDP growth; (ii) loans, especially short-term loans, were significantly related to the interest rate differential (on-shore interest rate vis-à-vis off-shore) and domestic currency rather than domestic liquidity; and, (iii) portfolio investment was related to economic expansion, political stability which in turn influenced stock prices and capital gains on equity investment — however, its relation to interest rate, inflation and exchange rate was significant, though small in scale.

(i) Exchange Rate

Since the Thai exchange rate system is a pegged basket system, exchange rate movements depend greatly on exchange rate of foreign currencies in international markets. Consequently, the increasing inflow of foreign capital has a minimal impact on the baht exchange rate determination due to the self-adjusting mechanism of the system. Therefore, the basket system is still maintained and the baht exchange rate moves according to developments in the international foreign currency market with minimal intervention by the authorities.

4. Study based on replies to the SEACEN International Capital Movements Project Survey Questionaire.

(ii) Monetary Policy

During the last quarter of 1993, Thailand experienced a surge in capital inflows, particularly portfolio investment. To maintain a manageable level of current account deficit and low inflation, the authorities at that time adopted a neutral monetary policy stance and allowed the domestic interest rate to fall to foster the momentum of economic recovery. However, in the first quarter of 1994, the capital account recorded a net capital outflow of equity movement and non-resident baht accounts due to both domestic and external factors. As domestic prices are on a rising trend, the authorities are in the process of formulating a policy package to cope with a potential increase in capital inflows.

(iii) Fiscal Policy

Large capital inflows from abroad have emerged since 1993, as a result of liberalisation measures undertaken in monetary and foreign exchange sectors and favourable economic conditions. As a result, the domestic market was flushed with funds and a build up in inflationary pressure. Fiscal measures are not effective to affect this inflow in the short run and thus not implemented. In the longer term, however, the Government emphasises fiscal discipline by containing the growth of budgetary expenditure in order not to contribute to inflationary pressure. That is, the expenditure policy will be directed towards limiting the size of the budget to a level deemed necessary for sustaining the growth and stability of the country.

(iv) Structural Policy

In addition, the authorities continue to liberalise the foreign exchange controls to allow a freer movement of capital flows inwards/outwards. Domestic interest rates are allowed to correspond more closely with the demand and supply in the domestic and foreign markets. Likewise, various macroeconomic measures, including monetary and exchange rate policies, were implemented cautiously to strike a balance between various targets aimed at stabilising the economy. As far as the current account target is concerned, fiscal policy plays an important role.

2.3 Deregulatory Moves on Capital Controls

Following the deregulation in the foreign exchange mechanism which took place in 1982, **Indonesian** residents are allowed to hold

foreign exchange and use it for their needs. There is no regulation that prohibits Indonesian residents to invest abroad either in the form of direct investment or in the form of portfolio investment through the purchase of foreign securities. Similarly, there are no limitations on the amount of funds the non-financial corporations and private individuals can invest abroad. However, in order to maintain a sound external debt management, particularly in regard to commercial borrowing activities which continued to surge intensively, and to reduce the negative economic consequences associated with the rapidly rising level of foreign commercial borrowing, the Government has decided to impose a ceiling on commercial borrowing. This limitation includes the ceiling on commercial borrowing of the state-owned enterprises and private companies. For non-financial corporations and private individuals, the ceiling is merely an indicative measure to be observed by borrowers and lenders. Basically, the adoption of a ceiling by the Government since the fiscal year of 1991/1992 is aimed at preventing a negative impact of the commercial borrowing on the economy, particularly on the balance of payments. This regulation does not have any impact on non-residents' activities in Indonesia.

The opening up of Indonesia's current/capital account is reflected in its free foreign exchange system which has been adopted since 1970. Initially, under the regulation adopted in 1970, foreign exchange proceeds from exports must be surrendered to Bank Indonesia (BI). However, since the adoption of the Government Decree of No. 1 of 1982, exporters and foreign exchange banks were no longer required to surrender their foreign exchange proceeds to BI. Anyone can hold foreign exchange and convert it into rupiah and vice-versa.

The Government does not put a restriction on capital flows and welcomes particularly those in the form of foreign direct investment (FDI) in order to fill the savings-investment gap and to increase employment. With regard to short-term capital inflows, the Government is consistently maintaining the macroeconomic stability and improving the business climate in order to lessen the negative impact of sudden reversal of capital flows, and to encourage capital particularly in the form of FDI. Under the balanced budget policy currently adopted in Indonesia, the Government does not raise debt domestically. The major financial derivatives being traded are, among others, currency as well as interest rate swaps, options, futures, margin trading and deposit swaps.

The **Korean** Government has expanded the category of institutional investors who may invest in foreign securities and eased the limits on the objects and amounts of investment since it first allowed securities companies to invest in foreign securities in 1987. Now institutional investors, comprising securities companies, insurance companies, investment and trust companies, investment and finance companies, and pension funds may invest in foreign securities. Also, non-financial firms with a record performance of external transactions in excess of US$ 100 million in the previous 12 months are allowed to invest in foreign securities. In addition to institutional investors, the Government has allowed all residents including individual investors to make outward portfolio investment from 1st July 1994.

Investment in foreign currency securities is allowed for institutional investors including securities companies, insurance companies, investment and trust companies. Exceptionally, it is allowed for non-financial companies which exported or imported commodities of more than US$ 100 million in the previous year. The limit of investment for these companies is 10 percent of export or import value (maximum US$ 100 million). Individual investors are also permitted for securities investment abroad through investment trust companies. The limit of securities investment is US$ 50 million for each investment and trust company. Also, overseas direct investment is allowed for qualified individuals and corporations. The limit for each individual is US$ 0.3 million and the limit for each corporation is not specified but it should be based on approval by the Bank of Korea or other affiliated authority.

As a form of borrowing funds from abroad, the issuance of foreign currency securities in foreign countries is permitted for local self-governing bodies, foreign exchange banks, enterprises with high credit rating, etc. The limit of issuances for the corporation is 50 percent of the corporation's total number of stocks issued. Even though regulations on portfolio investment and direct investment have been relaxed, Korea is still at an early stage in the process of opening up its capital account. Major deregulatory policies on capital account which have been implemented from mid-1980s are summarised in Appendix 2.10.

Residents who have not obtained any domestic borrowing from any source in **Malaysia** are freely permitted to invest their funds in securities issued abroad. Residents with domestic borrowing are re-

quired to obtain prior approval of the Controller of Foreign Exchange for investments abroad.

There are no limits on the amount a resident can invest abroad or extend as loans to non-residents as long as the resident (an individual or corporation) does not have any domestic borrowing from any source in Malaysia. The prior approval of the Controller is required for investment abroad or extension of loans to non-residents only if the resident has obtained domestic borrowing. There is also no limit on borrowing from abroad. However, residents are required to obtain prior permission of the Controller when the borrowing in foreign currencies exceeds the equivalent of RM 1 million in aggregate. Borrowing from non-residents in ringgit, regardless of the amount, requires the prior permission of the Controller. Major liberalisation efforts on capital inflow/outflow since 1980 are summarised in Appendix 2.10.

The exchange control restrictions are imposed only on the residents. Therefore, non-residents would not be directly affected by the administration of exchange control, except if they intend to borrow locally in ringgit from the financial institutions in Malaysia. Commercial banks are freely allowed to lend in foreign currency of any amount to non-residents, subject only to the banks being able to comply with their respective net open position limits.

Statistics on non-resident holdings of domestic public debt instruments are not available. Nevertheless, it is estimated that such holdings would be relatively small, accounting for under 5 percent of the Federal Government's domestic debt of RM 76.5 billion at end-1993.

At present, there are only a handful of financial derivatives in Malaysia. Among the major financial derivatives for the foreign investors are interest rate swaps, transferable subscription rights (TSRs) and warrants. Other derivatives such as financial futures and options would also be introduced soon when two such markets, namely the Kuala Lumpur Futures Market (KLFM) and the Kuala Lumpur Options and Financial Futures Exchange (KLOFFE) begin operations. The KLFM will initially trade in five-year MGS and three-month KLIBOR futures contracts, while KLOFFE will trade in stock options.

Short-term capital inflows into the country have become increasingly significant since 1991. While Bank Negara Malaysia (BNM) en-

couraged investment-related inflows, speculative inflows were undesirable. Hence, in September 1991, the statutory reserve and liquidity requirements were imposed on ringgit borrowings from foreign-banking customers and ringgit bid swaps with foreign customers. In June 1992, a more direct approach was initiated to contain the short-term inflows. All non-trade-related swaps and forward transactions entered into by commercial banks with their foreign customers on the bid side (the limit on the offer side was imposed on 17th February 1989) were subject to a daily limit of US$ 2 million per name per day and an overall limit of US$ 4 million in aggregate per day. Ringgit borrowings from and placements and deposits by foreign customers were also subject to the limit. Notwithstanding these measures, the pace of the short-term inflows accelerated significantly in the latter part of 1993 and in early 1994. Given this, BNM introduced a series of monetary measures directed entirely at better managing speculative inflows in order to limit their undesirable domino effects on liquidity, money supply and inflation in the early 1994, and slowly relaxed at the end of 1994. The measures included are as follows:

(i) Redefinition of the eligible liabilities base of the banking institutions to capture all inflows of funds from abroad: All funds sourced from abroad would be subjected to the statutory reserve and liquidity ratio requirements;
(ii) Limit on non-trade-related external liabilities of the banking institutions: The net external liabilities position of each banking institution, after deducting inflows which were trade-related or for genuine investments in Malaysia, was subject to a ceiling specified by BNM;
(iii) Sale of short-term monetary instruments to residents only: All residents were prohibited under the Exchange Control Act 1953 from selling short-term monetary instruments to non-residents;
(iv) Placement of foreign vostro accounts with the Central Bank: Commercial banks were required to place with BNM the ringgit funds of foreign banking institutions held in non-interest bearing accounts. These funds (except a maximum of RM 10 million) for the purpose of trading in stocks and shares and RM 1 million for other purposes) were also included in the eligible liabilities base and subject to the statutory reserve and liquidity ratio requirements; and,
(v) Swap transactions with non-residents: Commercial banks were not allowed to undertake non-trade-related swap (including over-

night swap) and outright forward transactions on the bid side with offshore parties.

As the capital account in **Nepal** is still controlled, Nepalese residents are not usually allowed to invest abroad. Similarly, investment abroad is generally restricted. However, there is no limit regarding borrowing but one has to seek the permission of the authorities and the amount sanctioned for borrowing entirely depends upon the need of the borrowing institution.

There are no investment-cum-fund raising activities across national borders. Concerning the status of opening the current/capital account, Nepal has already implemented current account convertibility in February 1993 and the Government has shown its commitment to open the capital account as well in the near future. Some liberal measures in the capital account have already been taken. As mentioned earlier, liberalisation of FDI is tantamount to a complete opening of the capital account; for the investors can repatriate cent for cent of their profit and equity capital in convertible currencies. The Industrial Enterprise Act enacted in 1981 has been revised in 1992 and the Foreign Investment and One Window Policy were introduced in 1992 to facilitate the inflow of foreign capital in the form of direct investment. Foreign Technology Transfer Act (1992) has also been introduced which ensures the transfer of technology in cottage and small industries in which foreign participation is not generally allowed. For medium- and large-scale industries, the policy allows 100-percent share participation of the foreigners. The One Window Policy aims at simplifying the official procedure for FDI activities by providing all types of services under one umbrella.

The non-residents do not respond sensitively to administrative controls, the major reason being the lack of hitherto control on portfolio investment for the non-residents. For direct investment also, it is the infrastructural bottleneck rather than the administrative procedure which has been hindering the higher inflow of foreign capital. The domestic debt instruments are owned by residents only. As permission is not needed for the foreigners to hold portfolio investment, there is no non-resident holding of public debt instruments.

Although the foreign capital inflows have been persistently growing over the last few years, the authorities are more concerned with the use of such capital rather than controlling the inflow.

By virtue of Circular No. 1389, a **Philippine** resident may invest abroad only if: (i) the investment is funded by withdrawals from Foreign Currency Deposit Units (FCDUs), or (ii) the funds to be invested are not among those required to be sold to AABs for pesos, or (iii) the funds to be invested are sourced from AABs but in amounts of less than $1 million per investor per year.

Based on CB Circular 1389 concerning foreign exchange rules and regulations, Philippine residents can invest abroad up to $1 million per investor per year if funds to be invested are sourced from the banking system. There is no limit, however, if the investments are funded by FCDUs, or if funds to be invested are not among those required to be sold to AABs for pesos.

With respect to foreign borrowings, there is an internal ceiling set by the BSP Monetary Board on the amount of medium- and long-term loans. This internal ceiling conforms with the ceiling proposed under the IMF programme. In addition, in order to comply with the maximum debt service ratio of 20 percent as mandated by the Foreign Borrowings Law, BSP has further instituted administrative mechanisms to ensure compliance. Under the liberalised foreign exchange market, private firms have already been granted flexibility with respect to sourcing of foreign funds subject, however, to the prior approval and/or registration requirement for those loans intended to be serviced with foreign exchange from the banking system. For loans intended to be serviced with foreign exchange from either the borrower's own foreign exchange account or from the parallel market, no such requirement exists.

The Philippines does not have investment-cum-fund-raising activities across national borders. Foreign investments in the country come only in the form of: (i) direct foreign equity investments in Philippine firms or enterprises; (ii) investments in government securities and/or securities listed in the Philippine Stock Exchange; and, (iii) investments in money market instruments and/or bank deposits.

With regard to the status of opening up the country's current/capital accounts, current account transactions have now been completely liberalised in the sense that all foreign exchange surrender requirements for exports, and quantitative restrictions and prior approval requirements for imports have been removed. There are just a handful of items, the importation of which requires the prior clearance from cer-

tain government agencies for reasons of health, public safety and national security.

On the other hand, some restrictions are still applicable on key capital accounts. Proceeds of foreign investments and loans still have to be surrendered to the banking system, at the prevailing market rate, as a requirement for registration with BSP of such loan or investment. Without such registration, future debt servicing, capital repatriation or profit remittance cannot be sourced from the banking system although they can still be legitimately sourced from withdrawals against FCDU accounts and non-bank sources. Furthermore, outward foreign investment is still subject to a quantitative limit of US$ 1 million per investor per year if funds are to be sourced from the banking system. These remaining restrictions will be reviewed further with the view to moving towards full deregulation of capital flows. The major liberalisation efforts are summarised in Appendix 2.10.

The Philippines does not impose administrative or capital controls on non-residents. It should be noted that the liberalisation of the country's foreign exchange regulatory system, which started in 1991, was pursued to further encourage and facilitate inflows of foreign exchange and as stated above, except for the few restrictions on key capital accounts.

As of end-1993, outstanding public debt amounted to P1,398.5 billion, 30.6 percent higher than its year-ago level. Of this amount, external public debt accounted for the bulk or 52.6 percent (equivalent to US$ 26.6 billion), while internal public debt comprised the remaining 47.4 percent or P663.1 billion held entirely by resident investors. The most recent record of non-resident investments in public debt instruments was in 1987 when 0.6 percent of outstanding government securities was held by non-residents.

Derivatives are trading instruments whose values are derived from the price of the underlying traded financial assets such as stocks, currencies, bonds or commercial papers. In the Philippines, stock warrants have recently been adopted as a corporate financial vehicle to test the acceptability and pricing of the underlying stock to be issued later on. On the other hand, the derivatives of debt instruments are more complex and are also inherently riskier in terms of volatility. The Philippine market has debt derivatives such as the asset-backed securities (ABS) and the asset participation certificates (APCs). ABS are trust

certificates issued by a trust created pursuant to certain rules and regulations representing undivided ownership interests of investors in the assets forming the asset pool. The ABS are thus securitised loans or receivables of a corporation. APCs, on the other hand, are similar to ABS except that these are issued to creditors of corporations undergoing rehabilitation.

There has been no glut of foreign capital in the Philippines. However, in 1993 through the first quarter of 1994, there has been an observed increase in foreign exchange inflows coming from both invisible receipts and capital inflows. These inflows created significant appreciation pressures on the nominal exchange rate. As an initial response, BSP absorbed part of the pressure through significant purchases in the foreign exchange market. To keep the liquidity in line with the monetary programme, BSP sterilised some of the purchases through open market sales of Treasury bills and borrowings through reverse repurchase agreements.

There are no restrictions on **Singapore** residents' investments in foreign securities abroad and also on the volume of funds which non-financial corporations and private individuals can invest/borrow abroad.

The investment-cum-fund raising activities include the raising of funds by foreign companies in Singapore through the issuance of stocks and bonds and by Singapore companies in foreign capital markets.[5] In addition, Singapore has a policy of attracting FDI into manufacturing and other sectors. More recently, the Government has encouraged overseas direct investments by local companies, with the move spearheaded by government-linked companies.

There are generally no restrictions on the current and capital accounts in Singapore. Exchange controls have been absent since 1978 and also, administrative controls are minimal. The major financial derivatives in Singapore are currency and equity options, interest rate swaps, interest rate, currency and equity futures and forward rate agreements.

5. Non-residents are, however, not allowed to borrow Singapore dollar for uses which have no bearing on the Singapore economy, including third-country trade financing, or for speculation in the Singapore financial and property markets. Such activities do not contribute to Singapore's growth but instead contribute to increased volatility in exchange and interest rates. Apart from this, non-resident businesses can borrow Singapore dollar for other purposes such as to finance their working capital or investment in productive capacity or for financing of trade with Singapore.

In **Sri Lanka**, the residents are not allowed to invest in foreign securities as capital account transactions have not yet been liberalised. Similarly, the non-financial corporations and individuals are not allowed to invest/borrow abroad. However, Sri Lanka expatriates have been allowed to maintain foreign currency accounts. In addition, since March 1993, exporters are allowed to maintain their export proceeds in foreign currency accounts either in Sri Lanka or abroad. Only the firms established under the Board of Investments are allowed to borrow abroad without any limit. Exporters are allowed short-term borrowings in foreign currency to finance their import requirements from domestic banking units. Exporters of value-added goods are also permitted to borrow in foreign currency from domestic banking units with the approval of the Controller of Exchange on a case-by-case basis.

The Colombo Stock Exchange is open to foreign investors, and the current account is now fully liberalised. A brief note on liberalisation measures appears in Appendix 2.9. With the implementation of a second round of liberalisation measures in 1989 and the complete removal of exchange control restrictions on the current account in 1993, there has been a substantial increase in the inflows of foreign capital both in direct investments and portfolio investments. As at end-December 1993, 56 percent of the public debt were foreign borrowings. However, foreign investors are not permitted to invest in domestic financial instruments except in shares of companies. In the light of the recent large capital inflows, the experience of other countries particularly those in the South-East Asian region which have managed the problems of excess capital inflows successfully is being closely monitored by the Sri Lankan authorities.

In **ROC-Taipei**, residents are allowed to invest in foreign securities. Similarly, non-financial corporations and private individuals can invest/borrow abroad freely without any limit. However, if the total amount of foreign exchange funds is exchanged or converted into New Taiwan (NT) dollar, the inward or outward remittances that each person may freely remit is US$ 5 million per year. If the entity making the remittance is a company, the ceiling is further raised to US$ 10 million. The remittance of any amount in excess of these upper limits requires the prior approval of the Central Bank of China (CBC).

After the revised "Statute for Foreign Exchange Regulation" was promulgated in July 1987, capital flows were very significantly liberalised.

Private individuals were able to hold and use foreign exchange and outwardly freely remit up to US$ 5 million per person per year, while being allowed to inwardly remit up to US$ 50,000 per person per year. In March 1991, however, each individual was allowed to outwardly or inwardly freely remit up to a uniform amount of US$ 3 million per year. The ceiling has been further raised to US$ 5 million since October 1992. The limit on direct investments in domestic securities by foreigners has been raised to US$ 10 billion, while the limit on indirect investments has also been allowed up to an amount of US$ 3 billion since March 1994. Public debt outstanding (loans) in 1993 was US$ 395.4 million, but there were no public debt instruments outstanding such as bonds and bills in 1993.

In ROC-Taipei, banks may engage in foreign currency transactions with foreign investors involving the following kinds of financial derivatives: foreign exchange swaps, interest rate swaps, forward rate agreements, margin trading, cross-currency interest rate swaps, over-the-counter (OTC) currency options, caps, floors and collars.

If the glut of foreign capital is expected to affect adversely the performance of the national economy, the CBC may recommend altering the content of or suspending capital transactions. The measures which might be implemented include setting a ceiling on the foreign liabilities position of banks, on the total amount that foreign investors may invest in domestic securities, or by adjusting the required reserve ratios of banks with respect to foreign currency deposits.

In **Thailand**, non-financial corporations and private individuals can borrow abroad without restrictions and invest abroad up to US$ 10 million without authorisation, and any amount above this limit requires an approval from the Bank of Thailand (BOT).

Funds raised abroad are mainly in the form of loans; and Floating Rate Notes (FRN), Floating Rate Certificates of Deposits (FRCD) and Negotiable Certificates of Deposits (NCD) are instruments also used to mobilise foreign funds. Recently, a large portion of foreign funds was raised by issuing debenture and convertible debentures abroad. In 1990, Thailand accepted Article 8 of the IMF, meaning that Thailand will not impose any restrictions on payments and transfers for current account transactions. The capital account is open and transparent to non-residents while some minor restrictions are imposed on capital

transfers by Thai residents. The major exchange control liberalisation is summarised in Appendix 2.10.

In brief, Thailand has undergone three major foreign exchange liberalisations — in 1990, 1991 and 1994. All foreign exchange transactions by non-residents for transfers of current or capital account are now freed from any restrictions. In 1993, large quantities of foreign funds flowed into Thailand, particularly short-term funds and portfolio investment. A large amount of funds were channelled through non-resident baht accounts in 1993. The influx of capital inflows is a major factor contributing to the expansion of M2. High volatility in the domestic money and stock market in 1993 is a result of an influx of short-term funds and portfolio investment.

Total public debt instruments in the hands of non-residents which were issued in foreign markets amounted to US$ 932.8 million at the end of December 1993. This total comprised US$ 513.2 million government bonds and US$ 419.6 million state enterprise bonds. Debt instruments issued by state enterprises in the domestic market in the hands of non-residents amounted to B7,436.4 million at the end of March 1993, or 5.07 percent of the total amount issued. Government bonds issued domestically are not available to non-residents.

Financial derivative instruments available to foreign investors in Thailand include currency and interest rate options, interest rate swaps and forward rate agreements. Commercial banks which offer these products are doing so on an OTC basis or tailor-made to suit the need of individual customers. Mention must be made that these products are not generally offered by all commercial banks, and are not priced at competitive rates.

The present exchange control system brought about a freer flow of foreign capital. The surge of short-term capital inflows has resulted in excess liquidity in the money and the stock market. However, in view of the liberalisation trend, direct control by the authorities to restrict capital flows is deemed inappropriate. Strategies adopted to manage the capital inflows are:

(i) Market mechanism: Generally, the monetary authorities allow the money market to adjust itself to avoid distortions which may arise from direct controls. The adjustment of interest rate along with

liquidity in the money market will be the key factor in neutralising the surge of capital inflow.

(ii) The sterilisation policies available to mop up excess domestic liquidity arising from the effects of capital inflow are: (a) the increase in commercial banks' reserve requirement[6]; (b) the mopping-up operations conducted through the issuance of BOT's bonds or through the repurchase market; and, (c) the use of tax measures.

6. This measure has rarely been implementd by the Thai authorities.

Chapter III

ANALYTICAL APPROACH

3.1 Review of Recent Efforts

Theoretically, in an open economy, capital flows from a low-interest to high-interest and from a high-risk to low-risk country. Similarly, there is a tendency for resources to move from capital-rich to labour-abundant, and from capital and labour to land-abundant location. The movement of international capital has a long history in economics although the theory of foreign direct investment (FDI) is of recent origin. To be very specific, the capital flows in the form of aid and concessional loans depend solely on the donor country's strategy although recently, the donor countries have tried to define it purely on humanitarian ground. Donors may wish to enhance the military powers of a recipient country, to promote their commercial interests, to support a friendly government in power, and to acquire goodwill now in the expectation that it will be politically valuable later (for full exposition see Krueger, 1986). However, one cannot underestimate the role of aid which, thus far, is provided to assist in technical knowledge, managerial skills and on the whole, the welfare of the people of the recipient country. The rest of foreign capital in the form of official loan and/or private investment depends mainly on the various risk premiums and performance indicators of the recipient country and on top of these, the rate of return on capital plays a key role in the flow of such capital. In other words, the level of capital movement can be considered optimum when the marginal rate of return on investment exceeds the marginal cost of capital.

Foreign investment basically comprises two components of lending and equity. For simplicity, if foreign investors offer a loan to the government and/or firm, it is known as lending. Similarly, if foreign investors own and operate a firm in the host country, it is a direct investment whereas holding shares of a firm without any control over the firm is a portfolio investment. The rationale behind capital movements was due to a shortage of capital in the host country where a critical bottleneck on investment arises as a result of low domestic savings. In such a situation, the recipient country could utilise the additional capital to achieve a higher growth and among other things, the investor can obtain a higher rate of return anticipating the high marginal produc-

tivity of the investment. However, varying opinions among economists are matters regarding the role and impact of foreign capital on the host economy. For this, a brief review of selected empirical studies would certainly help one to know the effects of foreign capital in general.

The degree of foreign capital mobility, although inapplicable in a closed economy, is an important element in international economies. The quantitative analysis of capital mobility started with the pioneering study of Feldstein and Horioka (1980). Subsequently, a number of empirical studies based on savings and investment correlations have been done (details will be presented in methodology).[7] Very recently, stationarity tests (unit root test) on the time series of current accounts have been used to measure capital mobility on whether or not a country is linked to the international market (see Gundlach and Sinn, 1991).

In addition to the savings and investment correlations, many of the past studies have followed a standard practice of regressing growth rate/domestic savings/domestic investment on foreign capital and other related explanatory variables to analyse the impact of foreign capital on major macroeconomic variables. The studies by Leff (1969), Rahman (1968), Griffin (1970), Massell et.al. (1972), Weisskopf (1972), Papanek (1972, 1973), and Areskoug (1973) have shown that either foreign capital has virtually no effect on domestic savings or it has encouraged domestic consumption and discouraged domestic savings and hence, domestic investment. In other words, total investments increased by less than capital inflows. Similarly, Fry (1984) found that foreign capital had a negative effect on domestic savings in three Asian countries out of the four. Papanek (ibid.) improved on earlier studies by disaggregating the different type of capital flows but a rigorous analysis with a comparison of single and simultaneous equation estimation was attempted by Gupta and Islam (1983) although there were some omissions in the selection of exogenous variables. According to their results, aid has had a substitution effect whereas private investment has had a favourable effect on domestic savings. Lee, Rana and Iwasaki (1986) further improved on the earlier studies by incorporating more relevant explanatory variables in the growth and savings equations such as exports, and they found a favourable effect on other capital except for aid on domestic

7. Although the interest rate parity test is an alternative approach in measuring capital mobility, the study relies on savings and investment correlations since free market-determined interest rates are not readily available in most of the SEACEN countries

savings. Based on the Lee et.al. methodology, Husain and Jun (1992) found private capital as opposed to official capital as unfavourable for savings in the case of ASEAN countries whereas both types of capital showed an unfavourable impact in the case of south Asian countries. It is clear that at the aggregate level, foreign capital generally shows a negative impact on the domestic savings. It is therefore vital to conduct further study to examine the role of different sources of foreign capital and their impact on domestic savings.

Unlike in the case of domestic savings, the impact of foreign capital on the growth rate is mixed. Various economists with different estimation procedures like Massell et.al. (ibid.), Papanek (ibid.), Reuber (1973), Moore (1976), Go (1985), Stoneman (1975), Dowling-Hiemenz (1982), Gupta and Islam (ibid.), Lee et.al. (ibid.), and Hussain and Jun (ibid.) (with the exception of South Asian countries) have found a favourable impact of all foreign capital on economic growth. But Griffin and Enos (1970) found an inverse association of foreign capital with growth whereas Voivodas (1973) and Xuan (1979) (especially in FDI flows) drew the conclusion that foreign capital had either no effect or a very weak effect. In sum, what one can generalise from the above discussion is that in the developing country context, the effects of foreign capital on domestic savings in general and economic growth in particular depend largely on the sample size, method to be adopted, level of capital flows, etc.

3.2 Methodology

As mentioned earlier, following the pioneering study of Feldstein and Horioka (ibid.), a number of empirical studies used savings and investment correlations in examining the dependency of international capital flows on domestic savings as well as the degree of capital mobility on a cross-section basis. Some of the empirical studies suggest that savings and investment rates are influenced by the same exogenous factors even though interest rates are equalised across the countries. This is to say, they move in the same direction because of the influence of the business cycle. Similarly, some of the studies have pointed out that savings and investment correlations also depend on the size of the country[8].

8. For an eloquent discussion, see Obstfeld (1986), Murphy (1986), Fry (1986), Wong (1990) and Leachman (1991).

From the foregoing, there is substantial evidence that a cross-section analysis of savings and investment correlations based on different sizes and different degrees of openness of an economy could lead to different interpretations[9]. On the other hand, most of the empirical studies are based on a cross-section analysis mainly to offset the cyclical movement of income effect. In a cross-section approach, Obstfeld (ibid.) found that savings and investment are simultaneously affected by the changes in the growth rate of income. As such, the time-series data may provide a higher possibility for the potential simultaneity of savings and investment through the income effect. However, the study by Sinn (ibid.) shows that the calculation of correlation of savings and investment using long-term averages is biased towards capital immobility; it also measures real capital mobility rather than financial capital mobility.

The dispute among economists calls for further research regarding Feldstein and Horioka's findings. In this regard, the study on the time-series data to explore this issue further proceeds with the savings and investment correlations rather than interest rate parity tests which measure the capital mobility based on the interest rate differential[10]. Before the estimation, unit root tests were used to check for the stationarity of time-series data to ensure that the results are non-spurious. Similarly, cointegration tests were performed to estimate the long-run equilibrium relationship between savings and investment which would be a cushion for the sort of controversy created by Feldstein and Horioka's model. The study further re-examines the impact of the size of a country and the degree of openness of an economy to validate the dependency of investment on these factors. In line with Gundlach and Sinn (ibid.), the following equation is considered to be well specified and consistent for the long run only if savings and investment are cointegrated:

$$GDI = \alpha + \beta\, GDS \quad \text{.....} \quad (1)$$

where, GDI = Ratio of gross domestic investment to gross domestic product (=I/Y)

GDS = Ratios of gross domestic savings to gross domestic product (=S/Y)

9. For rigorous discussion, see Gundlach and Sinn (ibid.), Sinn (1991) and Horne et. al. (1989).

10. Obstfeld (ibid.), Miller (1988), Leachman (ibid.), and Gundlach and Sinn (ibid.) have already adopted the time-series approach in different context.

If β is close to zero, gross domestic investment is not affected by gross domestic savings, i.e., there would be perfect capital mobility and if β is close to one, capital immobility occurs.

Since the current account balance equals the difference between savings and investment, assuming the statistical discrepancy is split equally between savings and investment, the study presents the movements of savings, investment and current account to validate the notion that high savings rate leads to high investment rate prior to estimating the savings-investment regression. Similarly, the study also attempts to find out whether the SEACEN countries are linked individually to international capital market or not by conducting a unit root test on the current account balance of the SEACEN countries. This is to say, if the time series on the current account is stationary, then the country concerned is not linked to the international capital market and vice versa. This will also shed light on the long-run relationship between savings and investment.

Apart from the level of international capital mobility in the SEACEN countries, the study also attempts to analyse the impact of foreign capital inflows on the major macroeconomic variables. As stressed earlier, studies especially in the Asian context show a favourable effect of foreign capital on economic growth. But, insofar as the growth rate and savings are concerned, they move simultaneously and if simultaneity prevails, the single equation models are inappropriate and the results are biased and inconsistent.[11] Therefore, a simultaneous system is essential to correct the endogeneity problem because the savings and growth rates are interdependent. To analyse the effects of capital inflows on the economies of the SEACEN region, the study adapts the methodology improved by Lee et.al. (ibid.) and the slightly modified version by Husain and Jun (ibid.) for time-series data. The model consists of a growth equation based on a traditional export-augmented neoclassical production function and a savings equation based on the Keynesian-type savings function augmented by additional variables. Moreover, a disaggregate impact of foreign capital inflows in the form of official capital inflows, FDI as well as other private capital inflows on macroeconomic variables, i.e., growth rate and savings, of the SEACEN countries will help draw up some policy implications. Since there is

11. For a fuller discussion regarding the theoretical interpretation of the specification of the model, see Gupta and Islam (ibid.), and Lee et.al. (ibid).

a growth rate variable in the estimating equation, all variables in the models are standardised in ratio form by expressing them in percentage of GDP to ensure comparability of data.

The following are the growth and savings equations to be solved in a simultaneous process:

$$RGR = a_0 + a_1 \overset{+}{\overline{OFCI}} + a_2 \overset{+}{\overline{FDI}} + a_3 \overset{+}{\overline{OPCI}} + a_4 \overset{+}{GDS} + a_5 \overset{+}{CXGDP} + a_6 \overset{+}{CLF} + U_t \quad \text{.....(2)}$$

$$GDS = a_7 + a_8 \overset{+}{\overline{OFCI}} + a_9 \overset{+}{\overline{FDI}} + a_{10} \overset{+}{\overline{OPCI}} + a_{11} \overset{+}{CXGDP} + a_{12} \overset{+}{PGDP} + a_{13} \overset{+}{RGR} + V_t \quad \text{.....(3)}$$

where,

RGR	=	Growth rate of real GDP
OFCI	=	Official capital inflow as percentage of GDP
FDI	=	Foreign direct investment as percentage of GDP
OPCI	=	Other private investment (excluding FDI) as percentage of GDP
GDS	=	Gross domestic savings as percentage of GDP
CXGDP	=	Change in export as percentage of GDP
CLF	=	Change in labour force
PGDP	=	Per capita GDP
U, V	=	Stochastic error terms

Keeping in view the disputes among economists, the signs denote the expected direction of relationships. Sources and data definition are presented in Appendix 3.1. The period of coverage in empirical analysis varies from country to country and is mentioned in the regression results table.

The reduced form of the above structural model can be stated as follows:

$$RGR = \beta_0 + \beta_1 OFCI + \beta_2 FDI + \beta_3 OPCI + \beta_4 CXGDP + \beta_5 PGDP + \beta_6 CLF + \xi_t \quad \text{.....(4)}$$

where,

$$\beta_0 = \frac{a_0 + a_4a_7}{1 - a_4a_{13}}, \quad \beta_1 = \frac{a_1 + a_4a_8}{1 - a_4a_{13}},$$

$$\beta_2 = \frac{a_2 + a_4a_9}{1 - a_4a_{13}}, \quad \beta_3 = \frac{a_3 + a_4a_{10}}{1 - a_4a_{13}},$$

$$\beta_4 = \frac{a_4a_{11} + a_5}{1 - a_4a_{13}}, \quad \beta_5 = \frac{a_4a_{12}}{1 - a_4a_{13}},$$

$$\beta_6 = \frac{a_6}{1 - a_4a_{13}}$$

$$GDS = \beta_7 + \beta_8\ OFCI + \beta_9\ FDI + \beta_{10}\ OPCI + \beta_{11}\ CXGDP + \beta_{12}\ PGDP + \beta_{13}\ CLF + \lambda_t \quad \text{.....(5)}$$

where,

$$\beta_7 = \frac{a_7 + a_0a_{13}}{1 - a_4a_{13}}, \quad \beta_8 = \frac{a_8 + a_1a_{13}}{1 - a_4a_{13}},$$

$$\beta_9 = \frac{a_9 + a_2a_{13}}{1 - a_4a_{13}}, \quad \beta_{10} = \frac{a_{10} + a_3a_{13}}{1 - a_4a_{13}},$$

$$\beta_{11} = \frac{a_{11} + a_5a_{13}}{1 - a_4a_{13}}, \quad \beta_{12} = \frac{a_{12}}{1 - a_4a_{13}},$$

$$\beta_{13} = \frac{a_6a_{13}}{1 - a_4a_{13}}$$

Since the estimating equations are identified, the indirect least square technique appears to be a fairly straight forward method of overcoming the problem of simultaneous equation bias (see for detailed discussion, Thomas, 1985).

The direct and total effects of the different sources of foreign capital and exports on growth and savings can be calculated on the basis of the coefficients of the reduced form equation. As such, the structural coefficients show the direct effects whereas the reduced form coefficients show the total effects. The direct and total effects may differ both in direction and magnitude. Therefore, the reduced form estimation will check against the misleading effects of structural coefficients.

The study simply follows the concept of traditional regression method which shows only the dependence of one variable on the others. In other words, the study re-estimates the growth and savings functions on the assumptions that, among others, different sources .of foreign capital affect the growth and savings. This is to say, the study ignores the specification bias assuming the different sources of foreign capital are exogenous variables in the growth and savings equations.

But, unlike the purely traditional hypothetical case of unidirectional causality of foreign capital inflows on growth rate and savings, it is more important to see whether the domestic macroeconomic variables such as growth rate and savings may also cause inflows of the international capital. Thus, a causality test is essential in validating the impact of variables or to identify bidirectional relationships or independent movements. For this, the study examines the causal relationship by using the Granger (1969) bivariate causality test between growth rate, savings rate and different sources of foreign capital such as official, FDI, other private, long-term, short-term and total flows.

A large number of studies in the past never attempted the stationarity test of time-series data. If so, one can easily criticise that most of the past studies are subject to the so-called spurious relationships and to incorrect statistical inferences. Although some of the studies advocated differentiating data for the first or second order and/or to include a time trend assuming the data are difference or trend-stationary. This procedure, however, has been sharply criticised by Nelson and Plosser (1982) when they proved that most of the macroeconomic time series are not trend-stationary, and differencing itself may lead to a loss of

long-run information. Therefore, the study, prior to estimating the growth and savings functions as well as the causality test, applies the unit root test to capture the order of integration and the cointegration tests to determine the stationarity of a linear combination of selected variables. In other words, the study ensures the stationarity of the time series in order to avoid regression equations that relate non-stationary variables. Similarly, instead of using arbitrarily chosen lag length, the study follows the popular information criteria of Final Prediction Errors (FPE) (Akaike, 1969) and Schwarz Criterion (SC) (Schwarz, 1978) to select the optimal lag length for the causality test.

Chapter IV

FOREIGN CAPITAL INFLOWS, SAVINGS AND GROWTH : EMPIRICAL ANALYSIS

The measurement of the degree of capital mobility and the impact of foreign capital on growth and savings has been widely debated in literature. Therefore, this chapter, using the stationarity test on the time-series data, attempts to further clarify the empirical relationship between savings and investment and to assess the impact and causality analysis of foreign capital on growth and savings in the SEACEN countries.

Before dealing with the issues mentioned above, a brief discussion on the movements of savings and investment rates and the current account is essential to observe whether a country with high savings rates tends to have high investment rates and vice versa. As shown in Table 4.1, among the SEACEN countries, Malaysia, Singapore and ROC-Taipei have high-savings-high-investment rates throughout the study period followed by Indonesia, Korea and Thailand. The rest of the SEACEN countries tended to be low savers and investors. ROC-Taipei has had positive current account balances throughout the study period while Korea and Singapore have been successful in posting a positive balance since the mid-1980s. The rest of the SEACEN countries have been experiencing the problem of current account deficits. However, the current accounts constitute a smaller share of GDP than savings and investment in all the SEACEN countries. Since the magnitude of the current account has not significantly increased over time, one can argue that the relationship between savings and investment is strengthened over time in the SEACEN countries.

4.1 Unit Root Test

Many studies in the past have either applied cross-section data to measure the capital mobility or to estimate the impact of foreign capital on major macroeconomic variables. Very recently, time-series estimation of the savings and investment correlations or of the impact of foreign capital on growth and savings has generated much interest[12]. In order to ensure a meaningful relationship in a time-series analysis, it is

12. See for details, *Why and How the Time-Series Approach is Superior to Cross-Section*, Murphy (ibid.), Obstfeld (ibid.) and Gundlach and Sinn (ibid).

Table 4.1

SAVINGS, INVESTMENT AND CURRENT ACCOUNT AS A PERCENTAGE OF GDP

	1966-1974			1975-1984			1985-1992			1966-1992		
	Savings	Investment	Current A/c	Savings	Investment	Current A/c	Savings	Investment	Current A/c	Savings	Investment	Current A/c
Indonesia	13.90	14.10 a/	-2.83 b/	30.90	26.73	-1.87	34.36	32.53	-2.74	26.39	24.45 k/	-2.48 l/
Korea	15.89	24.23 a/	-3.03 c/	25.81	29.46	-5.23 f/	35.42	32.43 h/	0.18 i/	25.70	28.76 m/	-2.69 n/
Malaysia	27.20	23.26 a/	0.30 d/	32.46	30.77	-0.47 f/	33.88	29.24	-3.81 i/	31.18	27.76 k/	-1.33 o/
Nepal	3.78	6.48 a/	n.a.	11.35	17.28	-1.97 g/	12.71	21.53	-7.33	9.28	15.10 k/	-4.65 p/
Philippines	20.42	20.84 a/	-0.21 c/	23.32	27.63	-2.32 f/	18.90	19.61	-3.18 i/	20.88	22.69 k/	-1.91 n/
Singapore	20.50	32.57 a/	-13.56 e/	37.96	43.65	-7.60	42.86	38.73	4.08	33.77	38.32 k/	-5.69 q/
Sri Lanka	12.11	16.09 a/	-2.69 c/	13.75	23.91	-3.28 f/	12.92	23.02	-6.10 j/	12.93	21.01 k/	-4.02 r/
ROC-Taipei 1/	26.46 a/	26.41 a/	n.a.	31.90	28.51	3.24	32.83	21.13	10.76	30.40	25.35	7.00
Thailand	22.32	24.41 a/	-1.14 c/	21.03	25.97	-3.53 f/	30.64	23.78	-4.72 i/	24.66	28.05 k/	-3.13 n/

1/ Data for savings and investment is as a percentage of Gross National Product
a/ Period average is from 1965-1974
b/ Period average is from 1967-1974
c/ Period average is from 1960-1970
d/ Period average is from 1961-1970
e/ Period average is from 1963-1974
f/ Period average is from 1971-1980
g/ Period average is from 1976-1984
h/ Period average is from 1985-1991
i/ Period average is from 1981-1992
j/ Period average is from 1981-1993
k/ Period average is from 1965-1992
l/ Period average is from 1967-1992
m/ Period average is from 1965-1991
n/ Period average is from 1960-1992
o/ Period average is from 1961-1992
p/ Period average is from 1976-1992
q/ Period average is from 1963-1992
r/ Period average is from 1960-1993

Sources: ***International Financial Statistics,*** various issues.
Key Indicators of Developing Asian and Pacific Countries, various issues.
SEACEN Financial Statistics, various issues.
Taiwan Statistical Data Book 1993.
World Tables , various issues.

necessary to test for the stationarity of the variables. This is essential to avoid spurious relationships which may invalidate statistical inferences (Granger and Newbold, 1974). This stationary test is based on step-wise procedure to determine the stationarity of the variables on the level values and their differences by using the augmented Dicky-Fuller (ADF) (1981). Meanwhile, the lag length is selected by applying the Campbell and Perron criteria (1991).

The results of the ADF test are summarised in Table 4.2. According to the test results, the selected time series are integrated either at zero order, i.e., I(0) or the first order I(1), implying that the variables are stationary or contain a unit root. As such, all variables to be used in the different regression equations are found stationary in the cases of Singapore and ROC-Taipei, whereas most of the variables are stationary in the rest of the SEACEN countries.

4.2 Cointegration Test

The concept of cointegration suggests that it is possible to determine whether a linear combination of a group of variables is stationary or not, although individually the variables may have unit roots (Granger, 1981; Engle and Granger, 1987). There are several methods of testing for cointegration and the one used in this study is proposed by Engle and Granger (ibid.). The first step is to test the selected individual time series for stationarity. If some of them have unit roots, the next step would be to examine further the residuals from their regressions. If the residuals are stationary, then the individually non-stationary variables are said to be cointegrated.

The cointegration tests are, however, not necessary where the variables are of zero-order integration. For simplicity, the test results of each selected combination are summarised in Table 4.3. The + sign in the Table denotes zero-order integration, implying that a cointegration test is not necessary for the relevant function. In other words, since the time series are stationary, one can simply estimate the regression at the level values of the variables. The x sign in the Table shows that one or some of the time series are stationary while the rest are non-stationary, i.e., the cointegration test is not applicable. In other words, one cannot use a cointegration test on the selected combination of the variables, and the regression can be estimated only by differencing the non-stationary data. The - sign in the Table shows that all the selected time series in the function are non-stationary, and also not cointegrated.

Table 4.2

UNIT ROOT TEST RESULTS

Variables	Indonesia		Korea		Malaysia		Nepal	
CAB								
Constant, No Trend	1	-3.4851 **	1	-2.7501 *	1	-3.1496 **	Δ 1	-3.2665 **
CLF								
Constant, No Trend	0	-3.3672 **	1	-4.4904 ***	2	-3.7842 ***	0	-3.3889 **
Constant & Trend	1	-4.4304 ***	1	-6.0249 ***	1	-7.7921 ***	0	-4.7153 **
CXGDP								
Constant, No Trend	1	-3.9114 ***	1	-3.1042 **	1	-4.5400 ***	0	-3.7165 **
Constant & Trend	1	-4.0118 **	1	-4.3101 **	1	-4.7701	0	-4.4156 **
FDI								
Constant, No Trend	1	-3.5714 **	4	-2.6565 *	Δ 0	-3.1672 **		N/A
Constant & Trend	1	-3.4847 *	4	-5.8090 ***	Δ 0	-4.9546 ***		
GDI								
Constant, No Trend	1	-2.7833 *		-		-	4	-3.7524
Constant & Trend	2	-3.8344 **	2	-3.6576 **	4	-4.0314 **		-
GDS								
Constant, No Trend	2	-2.6381 *		-	0	-2.7268 *	4	-2.8259 *
Constant & Trend		-	1	-3.4489 *	1	-3.6203 **	4	-4.6559 **
LGDP								
Constant, No Trend	3	-3.4098 *	0	-4.4532 ***	Δ 1	-3.6471 **	Δ 2	-4.0320 ***
Constant & Trend		-		-	Δ 0	-4.0414 **	Δ 2	-4.5465 ***
LTC								
Constant, No Trend	1	-3.9819 ***	Δ 1	-3.6481 **	3	-3.0867 **	Δ 0	-5.1655 ***
Constant & Trend	1	-3.9754 **	Δ 1	-3.6790 **		-	Δ 0	-4.6807 **
OFCI								
Constant, No Trend	Δ 1	-4.9878 ***	Δ 1	-4.1616 ***	1	-3.4965 **		-
Constant & Trend	Δ 1	-5.2252 ***	Δ 1	-4.1597 **	1	-3.4771 *	0	-3.5078 *
OPCI								
Constant, No Trend	1	-2.9824 *		-	0	-2.6431 *		N/A
Constant & Trend	0	-3.2958 *	1	-3.3904 *	4	-4.0027 **		
PCI								
Constant, No Trend	0	-2.6639 *		-		-		-
Constant & Trend		-	1	-3.4834 *	0	-6.1734 ***	1	-3.3692 *
PGDP								
Constant, No Trend	1	-2.7633 *	0	-3.2146 **	1	-3.7247 ***	0	-4.7195 ***
Constant & Trend	5	-3.7699 **	0	-3.3450 *	1	-3.6862 **	1	-10.1297 ***
RGR								
Constant, No Trend	1	-3.3938 **	1	-3.3997 **	1	-3.2343 **	0	-4.5484 ***
Constant & Trend	1	-3.6233 **	1	-3.3916 *	0	-3.9404 **	1	-5.2400 ***
STC								
Constant, No Trend	1	-2.8712 *	0	-2.8839 *	Δ 1	-2.9484 **	Δ 1	-5.1373 ***
Constant & Trend	4	-3.8164 **		-	1	-3.3958 *	Δ 1	-5.8377 ***
TCI								
Constant, No Trend	1	-3.6581 **		-	4	-3.0520 **		-
Constant & Trend	1	-3.5691 *	1	-3.5221 *	4	-6.0422 ***	4	-4.2160 **

Table 4.2 (cont'd)

Variables	Philippines		Singapore		Sri Lanka		ROC-Taipei		Thailand	
CAB										
Constant, No Trend	*0*	-2.7552 *	Δ *1*	-3.9223 **	*0*	-2.7552 *	Δ *1*	-2.7083 *	*2*	2.9423 *
CLF										
Constant, No Trend	*0*	-3.0329 **	*0*	-3.9031 ***	*0*	-3.1486 **		-	*0*	-3.2484 **
Constant & Trend	*0*	-4.1153 **	*0*	-3.3128 *	*0*	-4.5513 ***	*4*	-4.5967 **	*1*	-4.6089 ***
CXGDP										
Constant, No Trend	*1*	-5.3537 ***	*1*	-3.5337 **	*1*	-3.4467 **	*0*	-4.4339 ***	*0*	-5.0136 ***
Constant & Trend	*1*	-5.2248 ***	*0*	-4.4831 ***	*1*	-3.3976 *	*0*	-5.7970 ***	*0*	-5.0400 ***
FDI										
Constant, No Trend	Δ *0*	6.2744 ***		-	Δ *1*	-3.7418 ***		-	Δ *2*	-3.6864 **
Constant & Trend	Δ *0*	6.1398 ***	*2*	-4.7370 ***	Δ *1*	-3.6375 **	*1*	-3.9945 **	Δ *2*	-4.1667 **
GDI										
Constant, No Trend	Δ *1*	-4.2370 ***	*2*	-3.1782 **		-	*4*	-3.2845 **	Δ *0*	-4.3019 ***
Constant & Trend	Δ *1*	-4.2102 **		-	*4*	-3.2474 *		-	Δ *0*	-4.6088 ***
GDS										
Constant, No Trend	Δ *1*	-4.1204 ***	*5*	-2.6929 *	*1*	-4.1550 ***	*6*	-4.8595 ***	Δ *1*	-3.1063 **
Constant & Trend	Δ *1*	-4.4536 ***		-	*1*	-4.2500 **	*6*	-3.6117 *	Δ *1*	-3.8193 **
LGDP										
Constant, No Trend	Δ *1*	-4.5232 ***	*0*	-2.6952 *	Δ *1*	-3.3652 **	*0*	-3.4589 **	Δ *1*	-3.8356 ***
Constant & Trend	Δ *1*	-4.5510 ***		-	Δ *0*	-3.8710 **	*4*	-5.9332 ***	Δ *1*	-3.7230 **
LTC										
Constant, No Trend	Δ *1*	-4.0871 ***	*0*	-2.7420 *	Δ *1*	-4.7971 ***	*0*	-4.0522 ***	Δ *0*	-4.2478 ***
Constant & Trend	Δ *1*	-4.0751 **	*0*	-3.8324 **	Δ *1*	-5.0148 ***	*2*	-3.8357 **	Δ *0*	-4.1461 **
OFCI										
Constant, No Trend	*1*	-4.1003 ***	*2*	-9.8329 ***	Δ *1*	-3.7668 ***	*2*	-6.8366 ***	*1*	-3.6053 **
Constant & Trend	*1*	-4.1379 **	*2*	-5.7211 ***	Δ *1*	-3.8446 **	*2*	-5.8774 ***	*1*	-3.6612 **
OPCI										
Constant, No Trend	*0*	-3.5941 **		-	Δ *0*	-5.4642 **	*1*	-2.7010 *		-
Constant & Trend	*0*	-3.4147 *	*1*	-3.6077 **	Δ *0*	-5.3606 ***		-	*2*	-3.9820 **
PCI										
Constant, No Trend	*0*	-3.2549 **		-	*0*	-4.7524 ***	*1*	-3.2771 **		-
Constant & Trend		-	*3*	-5.7400 ***	*0*	-4.6648 ***	*4*	-4.5907 **	*2*	-3.7023 **
PGDP										
Constant, No Trend	*0*	-3.2321 **	*1*	-3.7112 **	*1*	-4.1541 ***	*3*	-3.7104 **	*1*	-3.5818 **
Constant & Trend		-	*1*	-3.9191 **	*1*	-4.0931 **	*3*	-3.4897 *	*1*	-3.5271 *
RGR										
Constant, No Trend	*1*	-2.7274 *	*1*	-2.7427 *	*2*	-3.9492 ***	*3*	-3.2416 **	*1*	-3.4755 **
Constant & Trend	*1*	-3.3498 *	*1*	-3.6126 **	*2*	-3.8911 **	*0*	-3.3344 *	*0*	-3.6621 **
STC										
Constant, No Trend	Δ *1*	-5.1969 ***		-	*1*	-4.7120 ***	*1*	-3.4747 **	Δ *1*	-3.3499 **
Constant & Trend	Δ *1*	-5.2815 ***	*3*	-4.4686 **	*1*	-4.5340 ***	*0*	-4.4647 **	Δ *0*	-3.9224 **
TCI										
Constant, No Trend	*0*	-3.5076 **		-	Δ *0*	-4.8913 ***	*1*	-3.1993 **		-
Constant & Trend	*0*	-3.4027 *	*3*	-5.5343 ***	Δ *0*	-4.7862 ***	*4*	-4.8531 **	*2*	-3.7520 **

*** Significant at 1-percent level
** Significant at 5-percent level
* Significant at 10-percent level

The single digit figure in italic shows the number of lag lengths
Δ Denotes first differencing
N/A Data not available

CAB = Current account balance as percentage of GDP
CLF = Change in labour force proxied by population growth
CXGDP = Change in export as percentage of GDP
FDI = Foreign direct investment as percentage of GDP
GDI = Ratio of gross domestic investment to GDP
GDS = Ratio of gross domestic savings to GDP
LGDP = Size of country proxied by log of GDP
LTC = Long-term capital inflow as percentage of GDP
OFCI = Official capital inflow as percentage of GDP
OPCI = Other private capital inflow (PCI-FDI) as percentage of GDP
PCI = Private capital inflow as percentage of GDP
PGDP = Per capita GDP
RGR = Growth rate of real GDP
STC = Short-term capital inflow as percentage of GDP
TCI = Total capital inflow (OFCI+PCI) as percentage of GDP

Table 4.3

COINTEGRATION TEST RESULTS

	GDI, GDS	GDI, GDS, CXGDP	GDI, GDS, CXGDP, LGDP	RGR, OFCI, FDI OPCI, CXGDP, PGDP, CLF	GDS, OFCI, FDI, OPCI, CXGDP, PGDP, CLF
Indonesia					
Constant, No Trend	+	+	+	x	x
Constant & Trend	+	+	+	x	x
Korea					
Constant, No Trend	+	+	+	x	x
Constant & Trend	+	+	+	x	x
Malaysia					
Constant, No Trend	+	+	x	x	x
Constant & Trend	+	+	x	x	x
Nepal					
Constant, No Trend	+	+	x	+	+
Constant & Trend	+	+	x	+	+
Philippines					
Constant, No Trend	-	x	x	x	x
Constant & Trend	-	x	x	x	x
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	+	+	x	x	x
Constant & Trend	+	+	x	x	x
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	2 3.2368 *	x	x	x	x
Constant & Trend	-	x	x	x	x

	OFCI, RGR	RGR, OFCI	PCI, RGR	RGR, PCI	FDI, RGR
Indonesia					
Constant, No Trend	x	x	+	+	+
Constant & Trend	x	x	+	+	+
Korea					
Constant, No Trend	x	x	+	+	+
Constant & Trend	x	x	+	+	+
Malaysia					
Constant, No Trend	+	+	+	+	x
Constant & Trend	+	+	+	+	x
Nepal					
Constant, No Trend	+	+	+	+	N/A
Constant & Trend	+	+	+	+	N/A
Philippines					
Constant, No Trend	+	+	+	+	x
Constant & Trend	+	+	+	+	x
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	+	+	+	+	x
Constant & Trend	+	+	+	+	x

Table 4.3 (cont'd-1)

	RGR, FDI	OPCI, RGR	RGR, OPCI	TCI, RGR	RGR, TCI
Indonesia					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Korea					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Malaysia					
Constant, No Trend	x	+	+	+	+
Constant & Trend	x	+	+	+	+
Nepal					
Constant, No Trend	N/A	N/A	N/A	+	+
Constant & Trend	N/A	N/A	N/A	+	+
Philippines					
Constant, No Trend	x	+	+	+	+
Constant & Trend	x	+	+	+	+
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	x	+	+	+	+
Constant & Trend	x	+	+	+	+

	LTC, RGR	RGR, LTC	STC, RGR	RGR, STC	GDS, RGR
Indonesia					
Constant, No Trend	+	+	+	+	x
Constant & Trend	+	+	+	+	x
Korea					
Constant, No Trend	x	x	+	+	+
Constant & Trend	x	x	+	+	+
Malaysia					
Constant, No Trend	+	+	x	x	+
Constant & Trend	+	+	x	x	+
Nepal					
Constant, No Trend	x	x	x	x	+
Constant & Trend	x	x	x	x	+
Philippines					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	x	x	+	+	+
Constant & Trend	x	x	+	+	+
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x

Table 4.3 (cont'd-2)

	RGR, GDS	OFCI, GDS	GDS, OFCI	PCI, GDS	GDS, PCI
Indonesia					
Constant, No Trend	x	-	-	x	x
Constant & Trend	x	-	-	x	x
Korea					
Constant, No Trend	+	x	x	+	+
Constant & Trend	+	x	x	+	+
Malaysia					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Nepal					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Philippines					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	+	x	x	x	x
Constant & Trend	+	x	x	x	x
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x

	FDI, GDS	GDS, FDI	OPCI, GDS	GDS, OPCI	TCI, GDS
Indonesia					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
Korea					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Malaysia					
Constant, No Trend	x	x	+	+	+
Constant & Trend	x	x	+	+	+
Nepal					
Constant, No Trend	N/A	N/A	N/A	N/A	+
Constant & Trend	N/A	N/A	N/A	N/A	+
Philippines					
Constant, No Trend	-	-	x	x	x
Constant & Trend	-	-	x	x	x
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	*2* -3.7380 **	-	x	x	x
Constant & Trend	*0* -3.8336 *	-	x	x	x

Table 4.3 (cont'd-3)

	GDS, TCI	LTC, GDS	GDS, LTC	STC, GDS	GDS, STC
Indonesia					
Constant, No Trend	x	x	x	x	x
Constant & Trend	x	x	x	x	x
Korea					
Constant, No Trend	+	x	x	+	+
Constant & Trend	+	x	x	+	+
Malaysia					
Constant, No Trend	+	+	+	x	x
Constant & Trend	+	+	+	x	x
Nepal					
Constant, No Trend	+	x	x	x	x
Constant & Trend	+	x	x	x	x
Philippines					
Constant, No Trend	x	-	-	-	-
Constant & Trend	x	-	-	-	-
Singapore					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Sri Lanka					
Constant, No Trend	x	x	x	+	+
Constant & Trend	x	x	x	+	+
ROC-Taipei					
Constant, No Trend	+	+	+	+	+
Constant & Trend	+	+	+	+	+
Thailand					
Constant, No Trend	x	*0* -3.9537 **	*0* -4.4432 **	*0* -4.3358 **	*0* -4.9995 ***
Constant & Trend	x	*0* -3.9457 *	*0* -4.9526 **	*0* -4.3418 **	*0* -5.6498 ***

*** Significant at 1-percent level
** Significant at 5-percent level
* Significant at 10-percent level
+ Not necessary
x Not applicable
- Not cointegrated
The single digit figure in italic refers to the number of lag lengths

Thus, the study follows the standard procedure of stationarity and cointegration method while estimating the various regression equations. In sum, the estimation is based on the level of growth or ratio if the selected time series are stationary or at least cointegrated, otherwise, the estimation is based on a first-differencing of variables.

4.3 Savings and Investment: Estimation Results

As stressed in the methodology, this section presents empirical findings of the savings and investment correlations to measure the degree of international capital mobility in the SEACEN countries on the basis of time-series data with a view to neutralising biases due to a cross-section approach. The summary of investment equations estimated by ordinary least squares (OLS) technique is presented in Table 4.4. According to the test results, the coefficient on savings for all the SEACEN countries is positive except in the cases of Sri Lanka and ROC-Taipei where the correlation is negative but statistically insignificant. In the case of ROC-Taipei, there has always been an excess of savings over investment throughout the study period while the resource gap is a fundamental issue in the case of Sri Lanka. Therefore, capital mobility in the form of capital outflow may be the reason for the negative correlations in the case of ROC-Taipei whereas it is difficult to draw any economic reason in the case of Sri Lanka. Except in the case of Malaysia where the coefficient on savings is statistically insignificant, Nepal and Thailand have shown a higher range of magnitude on the savings coefficient, implying that 81 - 89 percent of their national savings is invested within the country. Therefore, one can draw a tentative conclusion that these countries have a lesser tendency towards capital mobility. For the rest of the SEACEN countries which have a relatively low coefficient on savings namely Indonesia (0.41), Korea (0.42), the Philippines (0.37) and Singapore (0.29) have shown evidences for less than perfect capital mobility. Except in the case of the Philippines, the explanatory power of the model, i.e., $\bar{R}^2$, and DW and F-values are quite acceptable in most of the SEACEN countries, if one goes by the good fit of the model.

Although the study could not measure the impact of the breakdown of the Bretton Woods System on the capital movement in the SEACEN countries due to a lack of data, it nonetheless attempts to capture the effect of the degree of openness of the economy. The results presented in Table 4.4 showed that the coefficients on savings recorded a considerable improvement with a higher level of significance towards capital mobility in the cases of Korea, Malaysia, Singa-

Table 4.4

SUMMARY OF INVESTMENT EQUATIONS

Dependent Variables	GDI = a + b GDS + Trend								
	a	b	Trend	$R^2/\bar{R}^2$	DW	F-Value	CO		
Indonesia (1967-1992)	7.6252 (6.6419)***	0.4052 (6.0459)***	0.4892 (5.6171)***	0.94/0.94	1.7192	196.3310 (0.0000)	-		
Korea (1967-1992)	18.1983 (6.5318)***	0.4189 (4.1118)***	-	0.68/0.64	1.9214	15.5525 (0.0000)	AR(2)		
Malaysia (1967-1992)	18.8947 (3.1628)***	0.0641 (0.3522)	0.4894 (2.2658)**	0.74/0.69	2.2352	14.9166 (0.0000)	AR(2)		
Nepal (1970-1992)	3.2384 (3.9477)***	0.8058 (9.1897)***	0.4647 (10.8408)**	0.94/0.94	1.5683	164.6626 (0.0000)	-		
Philippines # (1968-1992)	0.0468 (0.0984)	0.3661 (2.0095)**	-	0.32/0.22	1.8857	3.2486 (0.0423)	AR(2)		
Singapore (1967-1992)	42.0828 (2.7492)**	0.2891 (0.8562)+	-0.6718 (-1.1091)	0.77/0.74	2.0148	24.6593 (0.0000)	AR(1)		
Sri Lanka (1966-1992)	26.9079 (5.6612)***	-0.2416 (-1.2237)	-	0.74/0.72	1.9035	34.7423 (0.0000)	AR(1)		
ROC-Taipei (1977-1992)	35.7358 (2.7817)**	-0.1447 (-0.3970)	-0.6222 (-1.9296)*	0.83/0.77	1.3776	13.7525 (0.0003)	AR(2)		
Thailand (1966-1992)	6.5584 (1.4953)	0.8945 (5.0817)***	-	0.81/0.80	1.9673	51.8925 (0.0000)	-		
	GDI = a + b GDS + c CXGDP + Trend								
	a	b	c	Trend	$R^2/\bar{R}^2$	DW	F-Value	CO	
Indonesia (1967-1992)	7.5590 (6.4255)***	0.4173 (5.7316)***	-0.0124 (-0.4711)	0.4732 (4.9894)***	0.95/0.94	1.6894	126.5334 (0.0000)	-	
Korea (1967-1992)	21.5784 (8.5709)***	0.3178 (3.5297)***	-0.1137 (-3.5618)***	-	0.80/0.76	2.1349	20.4011 (0.0000)	AR(2)	
Malaysia (1967-1992)	15.7850 (1.4799)	0.4261 (1.3246)+	-0.1103 (-1.1951)+	-	0.71/0.66	2.1513	12.9421 (0.0000)	AR(2)	
Nepal (1970-1992)	3.2327 (3.9221)***	0.7909 (8.8219)***	-0.0127 (-0.9011)	0.4820 (10.0654)***	0.94/0.94	1.6831	109.0139 (0.0000)	-	
Philippines # (1968-1992)	0.2743 (0.5800)	0.5941 (2.5412)**	-0.0573 (-1.4574)	-	0.38/0.26	1.8821	3.0949 (0.0389)	AR(2)	
Singapore (1967-1992)	43.6495 (2.6487)**	0.2969 (0.6842)+	0.0363 (0.7306)	-0.6389 (-0.9947)	0.78/0.74	1.8863	18.2327 (0.0000)	AR(1)	
Sri Lanka (1966-1992)	26.3155 (5.3582)***	-0.1932 (-0.9395)	-0.0278 (-0.8884)	-	0.75/0.72	2.0727	23.2321 (0.0000)	AR(1)	
ROC-Taipei (1977-1992)	27.7253 (1.9082)*	-0.1114 (-0.2382)	0.0176 (0.2509)	-	0.81/0.74	1.4345	11.9246 (0.0005)	AR(2)	
Thailand # (1966-1992)	0.3275 (0.3613)	0.4916 (2.0692)**	-0.0650 (-2.4005)**	0.0159 (0.2849)	0.32/0.23	1.8233	3.6073 (0.0288)	-	
	GDI = a + b GDS + c CXGDP + d LGDP + Trend								
	a	b	c	d	Trend	$R^2/\bar{R}^2$	DW	F-Value	CO
Indonesia (1967-1992)	19.3746 (1.4933)+	0.4822 (4.7318)***	-0.0226 (-0.7882)	-3.9506 (-0.9144)	0.7670 (2.2893)**	0.95/0.94	1.7414	94.4027 (0.0000)	-
Nepal # (1972-1992)	0.8296 (1.0747)+	0.6578 (5.3959)***	-0.0107 (-0.7980)	-7.7444 (-0.5535)	-	0.73/0.66	2.0895	10.6922 (0.0002)	AR(1)
Philippines # (1968-1992)	0.3033 (0.2247)	0.5919 (2.3891)**	-0.0568 (-1.3099)	-0.4663 (-0.0233)	-	0.38/0.22	1.8828	2.3523 (0.0803)	AR(2)
Singapore (1967-1992)	69.1129 (0.5573)	0.0828 (0.2043)+	0.0428 (0.8354)	-3.2961 (-0.2343)	-	0.76/0.72	1.7228	16.8891 (0.0000)	AR(1)
Thailand # (1966-1992)	-1.7349 (-1.8416)*	0.3441 (1.6702)*	-0.0573 (-2.4003)**	42.5251 (2.6426)**	-	0.48/0.41	1.7885	6.9787 (0.0016)	-

*** Significant at 1-percent level
** Significant at 5-percent level
* Significant at 10-percent level
\+ Marginally significance (coefficient larger than the standard error)
Figures in parentheses are t-ratios
Figures below the F-value show the significance level
Figures below the country name show the sample range
\# Refers to the estimation on first difference
CO = Estimated regression equation with Cochrane-Orcutt procredure
LXGDP = Change in exports as a percentage of GDP
GDI = Ratio of gross domestic investment to GDP
GDS = Ratio of gross domestic savings to GDP
XGDP = Export as percentage of GDP
LGDP = Size of country proxied by log of GDP
Note: Regression results in the case of Korea, Malaysia, Sri Lanka and Taiwan were totally insignificant after the inclusion of the log of GDP

pore and Thailand with the inclusion of exports as percentage of GDP as a good proxy for the degree of openness, while the situation is more or less the same or even worse off in the rest of the SEACEN member countries. Similarly, many studies expounded favourably in the past the size of a country in some case studies. Proceeding similarly, the coefficient on savings is towards capital mobility especially in the cases of Nepal, Singapore and Thailand whereas it is the reverse in the cases of Indonesia and the Philippines. But for the rest of the SEACEN countries, the inclusion of the size of the country was insignificant. Based on these facts, one can agree to some extent with Gundlach and Sinn (ibid.) that models of small open economies on time-series estimation typically predict how much of an increase in savings would yield domestic investment. Furthermore, one cannot assume that savings and investment rates are influenced by the same exogenous factors.

As mentioned in Chapter III, the unit root test on the current account balance has been used very recently as a preliminary attempt to see whether there is a long-run stable relationship between a country's savings and investment rates. This approach seems to be more relevant in this study for most of the SEACEN countries have achieved relatively open economies. If a country's current account balance expressed as a ratio of GDP contains a unit root, i.e., if it is non-stationary, the country is linked to the international market (see Gundlach and Sinn, ibid.). Based on a priori hypothesis that the current account balance is one of the few economic time series which does not exhibit a trend, the unit root test was conducted on the current account balance as a percentage of GDP for all the SEACEN countries with a constant component (Table 4.2). According to the results, the current account balance contains a unit root in the cases of Nepal, Singapore and ROC-Taipei, implying that these countries are linked to the international capital market. These findings are quite supportive of the earlier findings of savings and investment correlations in the cases of Singapore and ROC-Taipei. The case of Nepal seems reasonable if one agrees with the conjectures of Harberger (1980) that a small and poor country would experience larger capital flows in and out of her borders than would a large industrialised country. It seems logical when one compares the coefficient on savings after the inclusion of the size of country to other equations in Table 4.4. As mentioned earlier, going by the stationarity test of the current account balance as suggested by Gundlach and Sinn, one can say that there is a long-run stable relationship between savings and investment instead of foreign capital inflows in the rest of the SEACEN countries other than Nepal, Singapore and ROC-Taipei.

4.4 Foreign Capital, Growth and Savings: Estimation Results

The two-equation model specified in the previous chapter was estimated for the SEACEN countries by the indirect least square technique. Among other things, a lack of sufficiently long-time series and the different sample periods for all countries are some of the problems encountered in the estimation. Nevertheless, the study stressed on a longer-time period resulting in different sample sizes. However, if one talks about the ideal size of a sample, the significance of the test hardly depends on the number of observations per se but is rather influenced by the span of the data (Campbell and Perron, ibid.). In other words, the final results are selected on the basis of overall fitness of the model as well as the inclusion of all exogenous variables with a view to comparing the different countries.

The regression results are summarised in Table 4.5. According to these results, the coefficient on official capital flow (OFCI) in the growth equation is positively significant in the cases of Korea, Nepal and Thailand. With the exception of Thailand, the coefficient is positively significant in Nepal and Singapore in the savings equation. The coefficient on FDI shows a negative and significant relationship with the growth rate in Korea and Malaysia while a positive and significant relationship is found in the cases of the Philippines and Sri Lanka.

The impact of FDI on the savings rate is positive and significant in the cases of Indonesia, Singapore and Sri Lanka while it is negative and statistically significant in Korea and Malaysia. Among the different sources of foreign capital, other private capital (total private capital minus FDI) has a positive and statistically significant effect on growth in the cases of Indonesia, the Philippines and Sri Lanka. However, there is a negative and significant relationship between OPCI and growth rate in the cases of Korea, Malaysia and Nepal. The relationship of OPCI with savings is negative in almost all the SEACEN countries but is statistically significant in Indonesia, Korea, Nepal and Singapore. The effect of exports on GDP is negative and statistically significant in Malaysia while it shows a positive effect in Korea, Nepal, Singapore, Sri Lanka and ROC-Taipei. The effect of export performance on savings is positive and statistically significant in all the SEACEN countries except Thailand. The effect of per capita GDP to growth rate is also positive and statistically significant in all the SEACEN countries except in Sri Lanka. The effect of per capita GDP is also significantly positive in the savings equation except in the cases of Nepal and the Philippines which may

Table 4.5

SUMMARY OF GROWTH EQUATION

Function: $RGR = B_0 + B_1 OFCI + B_2 FDI + B_3 OPCI + B_4 CXGDP + B_5 PGDP + B_6 CLF + \xi_t$

Parameters	B_0	B_1	B_2	B_3	B_4	B_5	B_6	Trend	$R^2 / \bar{R}^2$	DW	F-Value	MSE	CO
Indonesia # *(1970-1992)*	-0.2192 (-0.7430)	-0.1295 (-0.1674)	0.5070 (0.4786)	0.2621 (1.1329)+	0.0246 (0.7030)	0.1027 (2.3558)**	-2.2687 (-1.1841)	-	0.59/0.35	1.9516	2.4838 (0.0653)	6.8853	AR(2)
Korea # *(1968-1992)*	-0.2779 (-1.0508)	1.5259 (3.4801)***	-5.9914 (-2.2029)**	-0.6369 (-3.5029)***	0.0461 (1.3401)+	0.2126 (5.1798)***	-3.0298 (-2.0331)**	-	0.83/0.75	1.9392	9.9311 (0.0000)	3.8296	AR(2)
Malaysia # *(1968-1992)*	-0.1740 (-0.3203)	0.0629 (0.2502)	0.0676 (-0.2125)***	-0.6072 (-3.3717)***	-0.1161 (-1.9361)*	0.2266 (6.0809)***	-0.4907 (-0.3872)	0.0196 (0.6181)	0.77/0.63	2.0621	5.5677 (0.0018)	3.6832	AR(2)
Nepal *(1978-1992)*	-10.9372 (-1.9426)*	0.9594 (1.6632)+	-	-0.9433 (-5.0532)** 1/	0.0371 (1.5381)+	0.9142 (3.8425)***	0.2257 (0.3539)	-	0.90/0.78	1.8630	7.8546 (0.0121)	1.3801	AR(2)
Philippines # *(1968-1992)*	-0.3728 (-1.4145)	0.0845 (0.2914)	4.5913 (4.4121)***	0.2928 (1.1874)+	0.0221 (0.5181)	0.1248 (2.0554)**	1.9776 (1.0772)+	-	0.58/0.38	1.6446	2.7949 (0.0382)	5.3729	AR(2)
Singapore *(1968-1992)*	9.8827 (2.4773)**	0.0761 (0.0948)	0.3940 (1.6056)	0.0043 (0.0452)	0.0195 (0.5197)+	0.1768 (2.1684)**	-1.5291 (-1.1649)	-0.2973 (-1.5806)	0.75/0.61	2.0667	5.1074	3.5309	AR(2)
Sri Lanka # *(1966-1992)*	-1.6544 (-0.8147)	-0.1317 (-0.8481)	1.0114 (1.2548)+	0.3734 (2.9045)***	0.0707 (3.2068)***	0.0108 (0.3802)	3.3005 (3.7833)***	-0.0375 (-0.5757)	0.61/0.46	1.7198	4.2009 (0.0059)	1.3404	-
ROC-Taipei 2/ *(1977-1992)*	5.8229 (3.1654)**	-	-0.3328 (-0.3856)	-0.2349 (-0.3138)	0.3148 (6.6956)***	0.2490 (7.7555)**	-1.0414 (-0.9257)	-	0.92/0.85	2.3256	13.3898 (0.0007)	0.6779	AR(2)
Thailand # *(1968-1992)*	-0.5086 (-0.5425)	1.1794 (1.8097)*	-1.5535 (-0.8701)	0.1773 (0.7144)	-0.0335 (-0.9642)	0.3026 (4.0631)***	-0.2274 (-0.3874)	0.0399 (0.7030)	0.63/0.41	2.1774	2.8283 (0.0363)	3.8411	AR(2)

SUMMARY OF SAVINGS EQUATION

Function: $GDS = B_7 + B_8 OFCI + B_9 FDI + B_{10} OPCI + B_{11} CXGDP + B_{12} PGDP + B_{13} CLF + \lambda_t$

Parameters	B_7	B_8	B_9	B_{10}	B_{11}	B_{12}	B_{13}	Trend	$R^2 / \bar{R}^2$	DW	F-Value	MSE	CO
Indonesia # *(1970-1992)*	2.6028 (2.5324)**	-0.5934 (-1.3424)	4.0966 (3.6504)***	-0.3157 (-1.7249)*	0.1267 (5.5965)***	0.1817 (4.2956)***	-0.4223 (-0.5109)	-0.1035 (-1.6371)+	0.80/0.70	2.0446	7.2848 (0.0007)	2.8095	AR(2)
Korea # *(1968-1992)*	0.6742 (1.9581)*	0.1284 (0.3359)	-4.5120 (-2.4123)**	-0.3278 (-1.9087)*	0.0460 (1.8312)*	0.1286 (4.1922)***	-0.6173 (-1.2429)	-	0.62/0.51	1.8952	5.3507 (0.0019)	2.3384	-
Malaysia # *(1968-1992)*	0.3484 (1.2473)	-0.0827 (-0.3516)	-0.5996 (-1.7985)*	0.0044 (0.0214)	0.1876 (3.0921)***	0.0506 (1.0516)+	-0.7011 (-0.5323)	-	0.79/0.69	2.1061	7.6474 (0.0003)	3.2391	AR(2)
Nepal *(1979-1992)*	9.3664 (2.4586)**	0.5216 (1.2820)+	-	-0.6297 (-2.7763)** 1/	0.0175 (1.1008)+	-0.0535 (-0.5971)	-0.0407 (-0.1413)	-	0.74/0.43	2.0699	2.3809 (0.1551)	1.2031	AR(2)
Philippines # *(1966-1992)*	-0.3878 (-1.3041)	0.0409 (0.2497)	0.9302 (1.4653)	-0.1291 (-0.8302)	0.0887 (4.7551)***	-0.0032 (-0.1082)	-1.9127 (-2.1575)**	-	0.65/0.54	1.8666	6.0879 (0.0009)	1.8734	-
Singapore *(1968-1992)*	21.9963 (5.7484)***	1.3487 (3.5595)***	0.0336 (0.2735)+	-0.1915 (-3.3752)***	0.0503 (2.7829)**	0.0098 (0.1948)+	-1.1888 (-2.0935)*	1.0511 (5.0085)***	0.98/0.97	1.5193	100.1013 (0.0000)	1.5668	AR(2)
Sri Lanka # *(1968-1992)*	8.6821 (3.3147)***	-0.1331 (-0.7991)	1.2405 (1.0365)+	0.1098 (0.4445)	0.0983 (2.6680)**	0.1118 (2.8176)**	1.5961 (1.5015)+	0.0428 (0.3745)	0.58/0.32	2.2617	2.2785 (0.0762)	3.2719	AR(2)
ROC-Taipei 2/ *(1977-1992)*	29.4139 (11.2205)***	-	0.3021 (0.4941)	-0.0691 (-0.1341)	0.1168 (3.5669)***	0.0913 (3.6606)***	0.3577 (0.2035)	-	0.93/0.88	1.2913	16.1109 (0.0003)	0.6783	AR(2)
Thailand # *(1968-1992)*	-0.8972 (-2.5345)**	-1.6532 (-2.3571)**	-0.8566 (-0.8590)	-0.0437 (-0.2638)	0.0078 (0.3047)	0.1675 (4.0025)***	1.1466 (1.8329)*	0.0861 (4.0742)***	0.59/0.35	2.1393	2.3785 (0.0664)	1.5379	AR(2)

*** Significant at 1-percent level
** Significant at 5-percent level
* Significant at 10-percent level
+ Marginally significant

Refers to the estimation on first-difference
1/ Refers to PCI
2/ The net official capital inflow was excluded because of the smallness of its value

Figures in parentheses are t-ratios
Figures below F-value show the significance level
Figures below country name show the sample range

CO = Estimated regression equation with Cochrane-Orcutt procedure
RGR = Growth rate of real GDP
OFCI = Official capital inflow as percentage of GDP
FDI = Foreign direct investment as percentage of GDP
OPCI = Other private capital inflow (PCI-FDI) as percentage of GDP

CXGDP = Change in export as percentage of GDP
PGDP = Per capita GDP
CLF = Change in labour force proxied by population growth
GDS = Ratio of gross domestic savings to GDP

be due to a low subsistence level of income. In other words, an increase in the per capita level may help simply to increase the consumption level rather than to increase the marginal propensity to save. The economically active population proxied by population growth shows mostly a negative relationship with few exceptions both in the growth and savings equations.

The explanatory power ($\bar{R}^2$) as well as the overall significance of the models (F-values) are acceptable in most cases. Serial correlation seems to be no problem in most of the cases if one looks at the level of significance for the DW test. For this, the Cochrane-Orcutt procedure was adopted up to AR(2), keeping in view the frequency of data. It is also noteworthy to mention that the selected results are based on the least mean square errors (MSE) of the equations.

There are two distinct criteria for the present study which one should keep in mind before comparing the findings with earlier studies. First, the study is purely based on time-series data. Second, the time-series data were tested for their stationarity prior to the regression estimation to ensure non-spurious results. Given this situation, if one looks at the results, in three-fourths of the SEACEN countries' cases, net official capital flows have made a positive contribution to economic growth, while FDI and other private capital flows have made a positive impact on the growth rate of half of the SEACEN countries. Similarly, if one looks at the impact of foreign capital on savings, net official capital flows and FDI have had a substitutive (negative) effect in half of the SEACEN countries while in the other half, they have shown a complementary (positive) effect. Among the different sources of foreign capital inflows, the net other private capital flows complement the domestic savings in four-fifths of the SEACEN countries. Based on these findings, one cannot understate the positive contribution of foreign capital on the growth rate and savings of the SEACEN countries. The impact analysis of foreign capital on growth and savings is not actually the same as in earlier studies even as it is more or less on the same wave length. When one compares the methodological approach, the results of this study are not spurious.

Table 4.6 shows the direct and total effects of foreign capital and exports on the growth and savings rates. The single equation estimation, i.e., the structural parameters, show only the direct effect while the two equations or reduced form parameters show the total effects (direct plus indirect). Insofar as growth and savings are to be deter-

Table 4.6

DIRECT AND TOTAL EFFECTS OF FOREIGN CAPITAL AND EXPORTS ON GROWTH RATE AND SAVINGS

Country	Direct Effects				Total Effects			
	OFCI	FDI	OPCI	CXGDP	OFCI	FDI	OPCI	CXGDP
Indonesia								
Growth	0.3392	-0.2776	-1.0861	-0.0558	-0.1295	0.5070	0.2621	0.0246
Savings	-0.0424	-1.4883	0.7147	-0.0055	-0.5934	4.0966	-0.3157	0.1267
Korea								
Growth	1.4665	11.2964	0.0714	-0.0607	1.5259	-5.9914	-0.6369	0.0461
Savings	-0.2750	-8.6437	-0.2987	-0.0552	0.1284	-4.5120	-0.3278	0.0460
Malaysia								
Growth	-0.4002	-1.5441	0.4132	0.8116	0.0629	0.0676	-0.6072	-0.1161
Savings	0.0594	0.3126	0.1971	-0.1259	-0.0827	-0.5996	0.0044	0.1876
Nepal								
Growth	3.1667	N/A	-0.0902 *	0.1226	0.9594	N/A	-0.9433 *	0.0371
Savings	4.1450	N/A	-4.1037 *	0.1596	0.5216	N/A	-0.6279	0.0175
Philippines								
Growth	-1.8999	40.8691	0.1292	-0.0948	0.0845	4.5913	0.2928	0.0221
Savings	-3.3391	5.3704	0.2789	0.0184	0.0409	0.9302	-0.1291	0.0887
Singapore								
Growth	-24.2555	0.2122	2.6435	-0.8878	0.0761	0.3940	0.0043	0.0195
Savings	0.6224	-0.2727	-0.1949	0.0351	1.3487	0.0336	-0.1915	0.0503
Sri Lanka								
Growth	-0.1221	0.7817	0.3787	5.8429	-0.1317	1.0114	0.3734	0.0707
Savings	0.1739	0.2863	-0.8276	-0.0599	-0.1331	1.2405	0.1098	0.0983
ROC-Taipei								
Growth	-	-0.4301	-0.3535	0.4782	-	-0.3328	-0.2349	0.3148
Savings	-	0.6246	0.2951	-0.3829	-	0.3021	-0.0691	0.1168
Thailand								
Growth	3.4896	-3.0368	0.2522	-0.0439	1.1794	-1.5535	0.1773	-0.0335
Savings	-1.0449	0.5131	-0.0063	-0.0009	-1.6532	-0.8566	-0.0437	0.0078

Note: Structural coefficients show the direct effects and reduced form coefficients show the total effects.

* Refers to PCI.

mined simultaneously, the results of single equation estimations of earlier studies are biased and inconsistent. Therefore, based on the reduced form coefficients, the parameters of the structural equation were estimated. According to the results, most of the direct effects are totally different on the direction of the impact of foreign capital and exports on growth and savings. Similarly, the magnitude of the coefficients are also absolutely different between direct and total effect. Therefore, one can easily conclude that the single equation estimation, in the case where simultaneity prevails, either overestimates or underestimates the effects of foreign capital and exports on growth and savings.

4.5 Foreign Capital, Growth, Savings and Causality

As stressed earlier, most of the past studies implicitly assumed a unidirectional causality from foreign capital flows on growth and savings without any valid reason for ignoring the possibility of unidirectional causality from growth/savings to capital flows or feedback effects. Although some economists like Papanek (ibid.) and Mosley (1980) have suggested that the volume of foreign aid inflows both determines and is determined by domestic savings and the growth rate, none of them has applied the causality test. The study by Lee et.al. is in the Asian context which has estimated the Sims (1972) causality test between foreign capital flows and domestic macroeconomic variables[13]. However, the present study introduces the following techniques in the Granger's (ibid.) two-variable model. The thrust of the Granger causality test, which is theoretically equivalent to Sims (ibid.) test, is that x causes y if the coefficients on the lagged x help to predict y more accurately and vice versa. First the time-series data should be tested for their stationarity and, if they are non-stationary, the cointegration test would help to establish the long-run relationship between the selected variables. As mentioned earlier, the time-series estimation without a prior test of the stationarity of the data is subject to spurious results.

Second, in the causality test, the lag length substantially influences the test results. The study of Lee, et.al. (ibid.), was based on arbitrarily chosen lag lengths of 1 and 2 which is basically the instantaneous effect. However, one cannot generalise as such due to the long gestation period of foreign capital. Thus, the present test is aimed at using the optimal lag length based on the popular information criteria of Final Prediction

13. See for an extensive discussion, Lee et. al. (ibid.), for the possible channels of causation through which foreign capital inflows affect domestic savings and growth rate, and also the likely feedback effects of savings and growth rate on foreign capital inflows.

Error (FPE) (Akaike, ibid.) and Schwarz Criteria (SC) (Schwarz, ibid.). For this, the autoregressive least square estimation was carried out from lag length 1 to lag length 6, taking into consideration the small sample size. The selection of optimal lag length was based on whichever is the least of FPE or SC statistics. Since the lag length based on FPE is normally longer than the lag length based on SC, the lag length used here is based on SC. As an efficient step-wise procedure, firstly, the lag length of the independent variable was determined. And on the conditions of the given lag length of the independent variables, the lag length of the dependent variable was determined.

Third, one should keep in mind that the directions and magnitudes of causality test cannot be a priori determined. It depends on the test procedures (Chowdhury, 1987) method of detrending non-stationary time series (Nelson and Kang, 1984; Besseler and Kling, 1984; Kang, 1985; Stock and Watson, 1989), lag length selection (Guilkey and Salemi, 1982; Batten and Thornton, 1983, 1985; Kang, 1989). Finally, one should keep in mind the test procedure while comparing the present study with earlier studies.

4.5.1 Estimation Results

The Granger causality test results are summarised in Table 4.7, while the lag length test results are presented in Appendix 4.1. To know the instantaneous effect of the causal variable over the dependent variable, the regressions were sequentially conducted with the optimally selected past lags plus current year. However, the results are more significant without the inclusion of the current year. Going by these results, one can say that the optimally selected lagged effects alone are at a higher level of significance. In the Granger causality test, the F-statistics show the degree of the causal relationships, whereas the plus (+) or minus (-) sign represents the sign of the sum of the coefficients of the significant causal variable.

A. Foreign Capital Inflows and the Economic Growth Rate

According to the results, there is a unidirectional negative causality from growth rate to official capital inflows in the cases of Indonesia, Korea and the Philippines, while there is a positive causality in the case of Sri Lanka. In the former case, the average growth rate was relatively

higher whereas the official capital inflow as a percentage of GDP was declining, and the share of official capital flow as a percentage of GDP is very small. In the case of Sri Lanka, official capital inflow as a percentage of GDP is relatively higher.

There is a positive feedback relationship between the private capital inflows and the growth rate in the case of Korea whereas there is a positive unidirectional causality from growth rate to private capital inflows in the cases of Malaysia, the Philippines, Sri Lanka and Thailand. Surprisingly, in the case of ROC-Taipei, there is a negative causality from private capital inflow to the growth rate and growth rate has a positive feedback effect on the private capital inflow. Similarly, unidirectional positive causality runs from FDI to growth rate in the case of Indonesia whereas the reverse is true in the cases of Malaysia, Singapore, Sri Lanka and Thailand. Also there is unidirectional positive causality from growth rate to other private capital inflows (OPCI) in the cases of Malaysia, the Philippines, Singapore and Thailand. There is a unidirectional positive causality from long-term capital inflow to growth in the case of Singapore and a feedback relationship is found in the case of Sri Lanka. Malaysia and the Philippines have respectively shown a positive and negative unidirectional causality from growth rate to long-term capital inflow. A negative feedback relationship is detected between short-term capital and growth rate in the case of Korea whereas a positive feedback relationship is found in the case of Thailand. There is a positive causality from growth rate to short-term capital inflows in the case of the Philippines. At the aggregate level, there is an opposite direction feedback relationship between total capital inflow of growth rate only in the case of ROC-Taipei, where the size of capital outflow is very small (less than 1 percent of GDP) during the period under study. With the exception of Korea where there is a negative causality from growth rate to total capital inflow, a unidirectional positive causality is detected in the cases of Malaysia, Sri Lanka and Thailand.

Going by these results, one can easily agree with the notion that in the cases of FDI and other private capital inflows, the foreign investors, among other things, may take the growth rate as one of the positive signals of creditworthiness of the borrowing country. That is why in most of the cases, there is a positive unidirectional causality from growth rate to private capital inflows. But in the case of official capital inflows which consist of aid and concessional loans, there is a negative causality from the growth rate, implying that among the SEACEN coun-

Table 4.7

GRANGER CAUSALITY TEST RESULTS

Series List	Indonesia			Korea			Malaysia			Nepal			Philippines			Singapore			Sri Lanka			ROC-Taipei			Thailand		
OFCI => RGR	1/1		0.0966 (0.7589)	2/1		1.6697 (0.2113)	1/1		0.7145 (0.5000)	2/2		2.0537 (0.1790)	1/1		0.9817 (0.3317)	4/2		0.9441 (0.4811)	1/3		0.1099 (0.7438)	3/1		2.1895 (0.1523)	1/2		0.8617 (0.3633)
RGR => OFCI	1/1	-	5.2326 (0.0321)**	1/2	-	5.1359 (0.0336)**	1/1		0.5928 (0.5610)	1/2		0.4357 (0.5228)	1/1	-	7.0281 (0.0140)**	1/4		0.7367 (0.4942)	3/1	+	2.8563 (0.0644)*	4/1		0.6891 (0.6196)	1/1		1.5661 (0.2228)
PCI => RGR	1/1		0.1545 (0.6981)	2/2	+	2.9306 (0.0754)*	1/1		0.3916 (0.6804)	3/3		1.4617 (0.3049)	1/1		0.0009 (0.9752)	6/2		1.0133 (0.4720)	1/3		0.0109 (0.9177)	1/2	-	8.2966 (0.0138)***	1/1		1.6474 (0.2145)
RGR => PCI	1/1		0.2061 (0.6543)	1/2	+	4.7049 (0.0412)**	1/1	+	10.3920 (0.0036)***	1/3		0.0401 (0.8459)	1/1	+	12.7160 (0.0016)***	1/6		1.0997 (0.3643)	3/6	+	5.1717 (0.0180)**	4/1	+	5.4459 (0.0204)**	1/1	+	5.8853 (0.0232)**
FDI => RGR	1/2	+	5.3035 (0.0322)**	6/1		0.6594 (0.6833)	1/1		0.8951 (0.4223)			n.a.	1/1		0.0228 (0.8812)	1/1		2.3619 (0.1177)	1/3		0.9198 (0.3496)	2/1		0.6128 (0.5579)	1/2		0.7084 (0.5044)
RGR => FDI	1/1		0.4554 (0.6403)	1/6		0.0909 (0.7674)	1/1	+	7.4454 (0.0117)**			n.a.	1/1		1.5414 (0.2269)	1/1	+	3.0053 (0.0702)*	3/1	+	2.3555 (0.1041)*	4/4		0.6049 (0.6718)	1/1	+	3.9410 (0.0592)**
OPCI => RGR	1/1		0.0059 (0.9941)	1/1		0.0346 (0.8538)	1/1		1.3403 (0.2584)			n.a.	1/1		0.0017 (0.9671)	6/2		0.4778 (0.8318)	1/3		0.0024 (0.9618)	2/1		1.9389 (0.1864)	1/1		1.6569 (0.2127)
RGR => OPCI	1/1		0.1884 (0.6685)	1/1		1.1603 (0.2921)	1/1	+	6.2324 (0.0198)**			n.a.	1/2	+	18.4700 (0.0003)***	1/6	+	4.3613 (0.0570)*	3/3		1.2219 (0.3532)	4/1		1.3440 (0.3337)	1/1	+	5.4343 (0.0285)**
TCI => RGR	1/1		0.2537 (0.6195)	1/1		1.6423 (0.2154)	2/1		0.3126 (0.7347)	1/1		0.2655 (0.6150)	2/2		2.1543 (0.1409)	6/2		1.0527 (0.4402)	1/3		0.0136 (0.9081)	1/2	-	9.7128 (0.0089)***	1/1		1.9543 (0.1645)
RGR => TCI	1/1		0.1971 (0.6614)	1/1	-	2.4473 (0.1087)*	1/1	+	5.5894 (0.0265)**	1/1		0.6093 (0.4490)	1/2		1.6983 (0.2060)	1/6		1.8750 (0.1941)	3/1	+	4.8104 (0.0117)**	4/2	+	6.7426 (0.0150)***	1/1	+	5.4357 (0.0285)**
GDS => RGR	1/1		1.0121 (0.3253)	2/1	-	15.7400 (0.0000)***	3/1	-	2.6419 (0.0773)*	1/1		0.1335 (0.7207)	1/1	-	4.8553 (0.0378)**	1/1	-	11.8200 (0.0003)***	1/3		0.1947 (0.6640)	2/4	+	3.1907 (0.1035)*	1/2		2.3558 (0.1194)
RGR => GDS	1/1		0.2919 (0.5944)	1/2	+	20.6840 (0.0000)***	1/3	-	2.6249 (0.0985)*	1/1		0.0509 (0.8249)	1/1	+	4.0154 (0.0326)**	1/1	+	6.4663 (0.0062)***	3/6		0.9503 (0.4499)	4/3	-	5.0522 (0.0311)**	1/1		2.2873 (0.1242)
OFCI => GDS	1/1		0.1918 (0.6657)	2/1		1.0907 (0.3535)	1/3		1.4637 (0.2563)	2/2		2.2802 (0.1528)	1/1		0.5207 (0.4778)	4/3		1.0454 (0.4167)	1/5		1.1249 (0.3057)	3/2		1.0570 (0.4142)	1/1		0.9020 (0.4196)
GDS => OFCI	1/1		1.4421 (0.2426)	2/1	-	7.9293 (0.0026)***	3/1		1.5989 (0.2155)	1/2		0.0306 (0.8644)	1/5		1.4875 (0.2595)	1/4		0.5333 (0.5967)	1/1	-	3.6209 (0.0697)*	2/4		0.3981 (0.6859)	1/1	-	7.4419 (0.0117)**
PCI => GDS	1/1		1.3675 (0.2548)	2/1	-	7.8633 (0.0011)***	1/1	+	4.3262 (0.0254)**	3/3		1.4693 (0.3031)	1/1		0.0318 (0.8600)	6/1		1.4387 (0.2765)	1/6		1.5717 (0.2320)	1/2		2.8232 (0.1187)	1/1		2.2217 (0.1491)
GDS => PCI	1/1		0.0028 (0.9581)	2/2	-	4.9304 (0.0101)**	3/3	+	4.1775 (0.0207)**	1/3		1.8749 (0.2149)	1/1	+	5.0606 (0.0343)**	1/6		0.2484 (0.7840)	1/1		0.0482 (0.8282)	2/1		0.6462 (0.5419)	1/1	+	8.4831 (0.0076)**

Table 4.7 (cont'd)

Series List	Indonesia			Korea			Malaysia			Nepal			Philippines			Singapore			Sri Lanka			ROC-Taipei			Thailand		
FDI => GDS	1/1		1.1096 (0.3036)	6/1		1.2461 (0.3469)	1/3		0.9309 (0.4114)			n.a.	1/1		0.7867 (0.3843)	1/1	+	4.7707 (0.0394) **	1/1		1.2718 (0.2710)	2/1	+	4.2170 (0.0326)	1/1		0.8676 (0.3613)
GDS => FDI	1/1		1.8926 (0.1940)	2/6		1.7562 (0.1745)	3/3	+	2.5194 (0.0906) *			n.a.	1/1		2.1338 (0.1422)	1/1		1.2029 (0.2841)	1/1		0.5187 (0.4787)	2/4	-	4.8961 (0.0468) **	1/1		0.4315 (0.6549)
OPCI => GDS	1/1		0.8535 (0.3656)	1/3	-	5.0590 (0.0173) **	1/1	+	4.0212 (0.0563) *			n.a.	1/1		0.4672 (0.6328)	6/2		2.0405 (0.1397)	1/6		1.9039 (0.1909)	2/1	-	4.9357 (0.0273) **	1/1		1.7409 (0.1995)
GDS => OPCI	1/1		0.0954 (0.9950)	2/1	-	4.3326 (0.0159) **	1/1		0.1497 (0.9608)			n.a.	1/3	+	11.1030 (0.0035) ***	1/6		0.2775 (0.6072)	1/1		0.1452 (0.7067)	2/1	+	6.4441 (0.0126) **	1/1	+	8.6750 (0.0071) ***
TCI => GDS	1/1		1.8573 (0.1867)	1/3	-	5.4572 (0.0134) **	2/3	+	4.9450 (0.0187) **	1/1		2.1737 (0.1565)	2/1		0.4086 (0.6697)	6/2	-	2.3112 (0.1022) *	1/1	-	3.4070 (0.0514) **	1/2	-	3.0306 (0.1073) *	1/1		2.1650 (0.1542)
GDS => TCI	1/1		0.3701 (0.5492)	2/1	-	4.6339 (0.0122) **	3/5	+	4.8154 (0.0166) **	1/1		2.6283 (0.1131)	1/1		2.1009 (0.1462)	1/6		0.4250 (0.5258)	1/1	-	3.9622 (0.0339) **	2/1		0.7181 (0.5075)	1/1	+	7.6342 (0.0108) **
LTC => RGR	1/1		0.5195 (0.4798)	1/1		0.4548 (0.6413)	1/1		0.5607 (0.4612)	1/4		0.1029 (0.7550)	1/1		2.3551 (0.1423)	1/2	+	3.8046 (0.0701) *	1/2	+	2.7081 (0.0971) *	1/4		0.0277 (0.8718)	1/4		0.7098 (0.4160)
RGR => LTC	1/2		2.0985 (0.1656)	1/1		0.5122 (0.6072)	1/1	+	3.6029 (0.0698) *	1/1		0.7764 (0.3956)	1/6	-	28.5670 (0.0007) ***			0.3835 (0.7665)	3/1	+	2.9933 (0.0559) **	4/1		0.6336 (0.6527)	1/1		1.0249 (0.3800)
STC => RGR	6/1		0.2415 (0.9511)	1/1	-	5.3370 (0.0145) **	1/1		0.0580 (0.8117)	4/4		1.7408 (0.2359)	1/1		1.6113 (0.2202)	1/2		1.3311 (0.2956)	1/2		0.0071 (0.9337)	1/4		0.1962 (0.6695)	1/4	+	2.8591 (0.1000) *
RGR => STC	1/6		2.4410 (0.1526)	1/1	-	5.2560 (0.0152) **	1/1		2.2258 (0.1488)	1/4		0.5694 (0.5850)	1/1	+	11.5890 (0.0032) ***	2/5		1.9646 (0.2080)	3/1		1.1185 (0.3728)	4/4		0.8975 (0.5082)	1/1	+	3.7678 (0.0442) **
LTC => GDS	1/1		0.0668 (0.7988)	1/1	-	2.6953 (0.0932) *	1/1	+	6.4377 (0.0060) ***	1/1		0.0167 (0.9834)	1/1		2.0872 (0.1657)	1/3		1.0286 (0.3290)	1/6		1.5102 (0.2503)	1/2		0.8367 (0.3783)	1/5		0.7345 (0.5060)
GDS => LTC	1/1		0.1073 (0.7468)	1/1	-	2.7633 (0.0884) *	3/1	-	3.4907 (0.0268) **	1/1		0.0164 (0.9838)	3/1	+	2.4461 (0.0988) *	3/1		1.1071 (0.3816)	1/1		1.0838 (0.3594)	2/1	+	3.0643 (0.0841) *	1/1		1.9154 (0.1777)
STC => GDS	6/1	+	2.5749 (0.0979) *	1/3	-	16.0160 (0.0002) ***	1/3		0.4937 (0.4904)	4/1		1.5613 (0.2570)	1/3		2.6066 (0.1287)	1/3		0.4627 (0.6404)	1/6		0.0075 (0.9326)	1/2		1.4315 (0.2546)	1/5		0.5652 (0.4695)
GDS => STC	1/6	-	6.2592 (0.0338) **	1/1	-	12.7510 (0.0003)	3/1		0.3484 (0.7907)	1/4		1.0184 (0.3993)	3/1		1.8035 (0.1928)	3/1	-	5.6762 (0.0104) **	1/1	-	5.6706 (0.0123) ***	2/1		0.1149 (0.8924)	1/1		0.3720 (0.6948)

*** Significant at 1-percent level
** Significant at 5-percent level
* Significant at 10-percent level
+ or - Sign indicates the sign of the sum of the coefficients of the significant causal variable.
A -> B = Causality from A to B. Lag lengths of dependent variable are decided on the given lag lengths of independent variable.
The numbers before the F-value show the lag length of causal and dependent variable respectively.
Figures in parentheses are significant level of F-value.

tries, Indonesia, Korea and the Philippines are priority areas for the major donor countries during the period under study. In short, one cannot simply assume that official capital flows depend only on low growth rates.

B. Foreign Capital Inflows and Domestic Savings

If one looks at the relationship of different sources of foreign capital inflows with domestic savings, there is no consistent pattern in the direction of causality in all countries cases. In other words, one cannot fully agree with the notion that foreign capital inflows are entirely used for investment. This means part of the foreign capital inflows may be used for consumption purposes. Similarly, the possibility of one-way causality from savings to capital inflow and feedback effect between the two variables is an important fact in evaluating the conventional notion of unidirectional causality from foreign capital inflows to domestic savings.

According to the results, there is a unidirectional negative causality from domestic savings to official capital inflows in the cases of Korea, Sri Lanka and Thailand. Korea and Malaysia respectively show a negative and positive feedback effects between total private capital inflows and domestic savings whereas there is a one-way positive causality running from savings to total private capital inflow in the Philippines and Thailand. Singapore shows a positive effect of FDI on domestic savings while ROC-Taipei shows a reverse direction of feedback effect between these two variables. Malaysia stands as a single country among the SEACEN countries where there is a one-way positive effect of domestic savings on FDI. Similarly, there is a negative feedback effect between other private capital inflow (OPCI) and domestic savings in Korea and a reverse direction of feedback effect is found for FDI on domestic savings in ROC-Taipei. Malaysia shows one-way positive effect of OPCI on domestic savings while the reverse is found in the Philippines and Thailand.

If one looks at the relationship between long-term capital inflows and domestic savings, Korea shows a negative feedback effect whereas Malaysia shows the reverse direction. The Philippines and ROC-Taipei show a positive unidirectional causality from domestic savings to long-term capital inflows. In the case of Korea, the causality relationship between short-term capital inflows and domestic savings is the same as in the case of long-term capital inflows, while a reverse feedback effect

(positive causality from short-term capital to domestic savings, and negative causality from domestic savings to short-term capital) is detected in the case of Indonesia. Singapore and Sri Lanka show a unidirectional negative causality from domestic savings to short-term capital inflows. If one refers to the relationship between total capital inflow and domestic savings, there is a negative feedback effect in the cases of Korea and Sri Lanka while in Malaysia, there is a positive feedback effect. There is one-way causality from TCI to domestic savings in the cases of Singapore and ROC-Taipei followed by a one-way causality from domestic savings to TCI in Thailand.

Based on these results, one cannot draw a consistent conclusion regarding the magnitude and direction of causality between domestic savings and the various components of foreign capital inflows. Therefore, keeping in view the different directions of causality, one can agree that the effect of foreign capital inflows on domestic savings can be negative because of the consumption and savings propensity effect whereas the positive effect can be explained by the indirect effect through a higher growth rate. A higher growth rate and higher savings can be considered the best indicators to attract the foreign capital especially private capital flows. One interesting point is that the size of the capital inflow as a percentage of GDP is not the main reason for determining the causal relationship between foreign capital, growth rates and domestic savings. It is because, if one looks at the size of foreign capital as a percentage of GDP, Nepal and Sri Lanka have had a higher share, but no causality was detected in the case of Nepal in all the cases. In sum, one cannot simply follow the conventional belief that there is a unidirectional causality from foreign capital inflow to growth rate and domestic savings. Furthermore, as stressed earlier, causal relationships and their direction cannot be determined a priori.

If one looks at the causal relationship between the growth rate and savings, except for Malaysia where there is a negative feedback effect, there is a reverse direction of feedback effects in Korea, the Philippines, Singapore and ROC-Taipei. It shows that the growth rate and savings though normally moving in the same direction might sometimes move in the oppposite direction unless the consumption and investment patterns also move in the same direction.

Chapter V

SUMMARY AND CONCLUSION

In today's international capital markets, most of the risk premiums are generally covered under different guarantee schemes, especially in a fully market-based economy. But in reality, most of the SEACEN countries have yet to develop a completely market-based approach without any control and regulation. Despite the coverage of various risk premiums, it is obvious that non-residents are less risk averse than residents due to a lack of competing knowledge and confidence in the domestic financial markets. Recently, there are evidence in some SEACEN countries that capital inflows from non-residents are discouraged by forcing them to maintain domestic currency deposits, and imposing measures like minimum reserve requirements or charging negative interest rate on their deposits. However, it is a normal tendency for those SEACEN countries which have been able to maintain stable/appreciating domestic currency to be more concerned about the short-term capital inflows for speculative purposes. However, capital controls, both for the residents and/or non-residents, if applied to prevent an excessive devaluation of the domestic currency, may cause some reduction in domestic liquidity in the same way that central bank intervention on the foreign exchange market is resorted to in order to stabilise prices and interest rates. Some countries have been making efforts to ease administrative controls amidst incomplete information on the effects of capital inflow to meet their capital requirements.

During the last two decades or so, private capital inflows to the SEACEN countries as a group have been increasing rapidly despite a decline in the official development assistance. Moreover, foreign direct investment (FDI) flows have recorded a remarkable increase, implying that the capital inflow to the SEACEN countries is attracted by economic returns. Except in the case of FDI wherein Singapore and Malaysia have jointly received more than three-fourths of the total FDI to the SEACEN region, Indonesia, Korea, the Philippines and Thailand ranked among the top in receiving the total foreign resources among the SEACEN countries. Among the SEACEN countries, ROC-Taipei is the only country with a record of capital outflows whereas Nepal has

no record of FDI movement. Similarly, ROC-Taipei is ranked first in holding the international reserves (IR) with the highest ratio of IR to imports. Among the SEACEN countries, Nepal (74 percent) and Sri Lanka (64 percent) have received high levels of official grants with longer maturity period.

In **Indonesia**, the inflow of capital increased significantly after the shift to a managed floating exchange rate system in 1978. The political and economic stability, sound macroeconomic policy, policy adjustment to enhance the competitiveness, large domestic market, availability of cheap labour and a relatively high interest rate differential are the major factors contributing to higher private capital inflows. Bank Indonesia (BI) is pursuing a realistic rupiah rate by maintaining a proper real effective exchange rate. However, in the recent past, capital inflows have had an expansionary impact on reserve money through the increase of net foreign assets of monetary authorities. Accordingly, BI has used, among others, sterilisation policies and the lowering of domestic interest rates. While maintaining a proper exchange rate policy, the Government also takes into account the effect of this policy on inflation. Indonesia also has a long-term strategy for promoting non-oil/gas exports to maintain the current account deficit within reasonable level.

There is no regulation that prohibits Indonesian individuals and non-financial corporations from investing abroad. However, recently the Government has imposed a ceiling on commercial borrowings of state-owned enterprises and private companies with a view to preventing a negative impact of such borrowings on the economy. Since 1982, exporters and foreign exchange banks are no longer required to surrender their foreign exchange proceeds to BI. Similarly, one can hold foreign exchange and easily convert it into local currency and vice versa. Under the balanced budget concept, the Government does not raise debt domestically. The major financial derivative being traded in the exchange market are currency, interest rate swaps, futures, options, margin trading and deposit swaps.

The exchange rate system of **Korea** was changed to a market average exchange rate system in 1990. With the increase of long-term capital inflows, Korea has been successful in posting a sizable surplus in the capital account since 1990 which had been in deficit for many years. Among the different sources of capital flows, the inflow of portfolio investment increased very sharply. The changes in the pattern

of capital flows are due mainly to a surplus in the current account and the liberalisation on the capital account transactions, including the opening of the domestic stock market to foreigners. The nominal exchange rate has moved in almost the same direction as the real effective exchange rate to ensure the competitiveness of the export sector. Since the limit on the daily fluctuation band on the interbank foreign exchange rate is abolished and transactions of foreign exchange are further liberalised, the economic fundamentals would additionally affect the market-determined exchange rate.

As Korea has experienced considerable capital inflows especially in the form of stock investment from foreigners since 1992, there would be a tendency for the money supply to expand and the exchange rate to appreciate. Institutional investors may invest in foreign securities. Similarly, non-financial firms are allowed to invest in foreign securities within limits based on record of external transactions. Very recently, individual investors are allowed to make outward portfolio investment. Similarly, borrowings from abroad are permitted for local/self-governing bodies, foreign exchange banks and enterprises with high credit rating. Even though regulations on portfolio investment and direct investment have been relaxed rapidly, Korea is still at an early stage in the process of opening up its capital account.

Malaysia shifted her exchange rate from a fixed to a flexible system in 1973. Prior to 1980, the net inflow of long-term capital was relatively small. The large inflows in the early 1980s were due mainly to the borrowings by the Federal Government to finance expanded public sector activities. The net inflows of capital rose from RM 3.6 billion in 1989 to reach an unprecedented level of RM 24.2 billion in 1993. The major factors that contributed to the surge in capital inflows are: (i) pragmatic economic management; (ii) favourable investment climate; (iii) internationalisation of the capital market; and, (iv) the external developments following the Plaza Accord (1985). Based on the approved foreign equity investments in the manufacturing sector for the period 1989-1993, the largest foreign investments were from Japan, the United States, ROC-Taipei, Singapore and the United Kingdom. During the period 1985-1991, the ringgit appreciated by 29.6 percent against the average composite index due mainly to the strengthening of most component currencies of the composite. The weaker ringgit during this period made investments in Malaysia less costly and hence, a more attractive place for investment.

Because of the heavy influx of short-term speculative funds in 1993 and early 1994 due to sustained interest differentials, Bank Negara Malaysia (BNM) introduced a series of measures to stem speculative activities and regain control of monetary management as well as to ensure exchange rate stability. However, the measures were to strike a delicate balance in terms of managing the excess liquidity to reduce inflationary expectations and preserving the demand for investment funds in productive sectors by preventing undesirable speculative inflows. Together with a tight monetary policy, a balanced budget was achieved in 1993 with a view to ensuring sustainable non-inflationary growth. The structural adjustment process was the downsizing of the public sector and promoting private initiative as the main engine of growth. Similarly, the investment policy is now focussed on discouraging low value-added, labour-intensive projects, with increased emphasis on high-tech, capital and skill-intensive industries.

Residents who have not obtained any domestic borrowings are freely permitted to invest in securities issued abroad without any limit. Similarly, residents can also borrow from abroad freely when the foreign currencies borrowing is less or equivalent of RM 1 million. Commercial banks are freely allowed to lend in foreign currency of any amount to non-residents, subject to the ability to comply with their respective net open position limits. The major financial derivatives for the foreign investors are interest rate swaps, transferable subscription rights and warrants while futures and options would also be introduced when KLFM and KLOFFE begin operations. The major measures taken to control the undesirable capital inflow were: (i) the statutory reserve and liquidity requirements on ringgit borrowings from foreign customers as well as ringgit bid swaps with foreign customers; (ii) the non-trade-related swaps and forward transactions subject to a daily limit per name per day; (iii) the sale of short-term monetary instruments to residents only; (iv) placement of foreign vostro accounts with BNM; and, (v) the control on non-trade-related swaps with offshore parties.

To correct the balance of payments (BOP) crisis, the **Nepalese** rupee was devalued during the mid-1980s and the currency basket system was introduced in order to bring flexibility in the exchange rate. As a result, due to official and private capital inflows, the BOP showed a surplus record in the subsequent years. Together, the implementation of convertibility of the rupee and the adoption of a market-determined exchange rate have resulted in a higher inflow of private capital very recently. In Nepal, the exchange rate system is characterised by a fixed

exchange rate regime with the Indian currency and market-determined exchange rate with convertible currencies. As Nepal has a common border with India, there is a free mobility of goods, services and capital as well as unlimited convertibility of the Nepalese rupee into Indian rupee and vice versa. The Nepalese economy is highly sensitive to any changes in the Indian economy. Thus, the exchange rate in Nepal is still highly influenced by the exchange rate of Indian currency vis-à-vis convertible currencies. The dual exchange rate was unified with the implementation of full convertibility of the Nepalese rupee in the current account in 1993. Similarly, inflation in Nepal is also partly imported from India. Therefore, in the past, frequent revisions in nominal exchange rate were the only way to stabilise the real exchange rate. Even under the new market-determined system, the authorities have to make frequent interventions in the foreign exchange market in order to maintain the nominal exchange rate and hence, the real exchange rate.

The major effect of increasing foreign capital inflows has been the excessive expansion in money supply. Nepal Rastra Bank (NRB) has been undertaking regular open market operations (OMO) by issuing its bonds to sterilise the effect of the capital inflow. Similarly, to keep the rupee stable, NRB has frequently intervened in the foreign exchange market. Recently, commercial banks are permitted to extend credit for convertible currencies. Nepalese residents are not allowed to invest abroad and borrowings from abroad also need prior permission. The liberalisation of FDI has opened the door to repatriate cent for cent of the profit and equity capital in convertible currencies. Similarly, the implementation of one-window system and the opening of prioritised sectors are aimed at attracting the FDI flows.

The **Philippines** has consistently been under the floating rate system. During the period 1980-1993, capital flows consisted mainly of medium- and long-term flows. By 1990, long-term loan inflows reached US$ 4 billion mark with the share of private flows reaching 45 percent, slightly higher than before. The successful Brady Deal with commercial banks in 1992 was a significant step forward in the normalisation of the country's access to world capital markets. This development resulted in a marked expansion of 216 percent to P2.1 billion of net long-term loans in 1993. Despite the policy to attract FDI initiated in the 1970s, it was an inconsistent source of capital inflow till the late 1980s due mainly to the debt crisis aggravated by the unstable political developments which eroded confidence in the administration. As part of the

overall debt management programme, the debt-to-equity programme and other debt swaps began to operate in 1986 with a view to channelling the country's payments of external debt into investments and to help ease the debt service burden and to induce the inflow of foreign investments. By 1988, the substantial increase in investment was largely from debt conversions into equity. Investments picked up anew in 1992 as a result of a much improved climate of investment under the Ramos administration, the political stability, the much improved peace and order condition, and the sweeping foreign exchange reforms. The exchange rate is determined by market forces. The daily reference rate is determined by the weighted average of previous day foreign exchange transactions among commercial banks and Bangko Sentral ng Pilipinas (BSP) at the Philippine Dealing System.

The sharp increase in capital inflows in 1991-1993 has been credited to the rebuilding of investors confidence, among others, due to the deregulation in capital account transactions. To dampen the appreciation of the exchange rate due mainly to the rise in capital flows, BSP in the recent past, purchased heavily in the foreign exchange market by issuing central bank bills. The full-scale foreign exchange liberalisation measures of 1992 aimed to cut costs and improve operational efficiency in the foreign exchange market and induce greater competition.

Philippine investors may invest abroad with the compliance of some conditions. With respect to foreign borrowings, there is an internal ceiling set by the BSP Monetary Board on the amount of medium- and long-term loans. Foreign investments in the country come only in the form of: (i) direct foreign equity investment; (ii) investments in government securities and/ or securities listed with the Philippine Stock Exchange; and, (iii) investments in money market instruments/ bank deposits.

To curb the heavy influx of capital, the **Singapore** dollar was floated in 1973. Keeping in view the high import content, Singapore supports a strong currency to keep inflation low. Therefore, the Monetary Authority of Singapore (MAS) would intervene in the foreign exchange market to keep the exchange rate within a target band. Similarly, to prevent excessive appreciation of the Singapore dollar, MAS has on average tended to recycle government surpluses and CPF funds back to the banking system through its operations. Real exchange competitiveness is achieved through restraining growth in unit labour costs

with measures aimed at boosting productivity growth. Skills upgrading, the adoption of new technologies and improvements in the efficiency with which resources are employed would be critical.

Given a high degree of financial openness, the domestic interest rate on average matches US interest rates, adjusted for expected exchange rate changes. A simulation by the MAS reveals that inflation in Singapore during 1989-1992 would have been double its actual rate of 3 percent if the dollar had not appreciated since 1988. The current account deficits in the past were not a concern; they were largely financed by FDI and not by external borrowings. The increasing savings-investment surplus has largely reflected demographic factors. The Government would not curb FDI to offset the effect of large inflows of speculative capital. There are no restrictions on Singapore residents and non-financial corporations to invest/borrow abroad. Exchange controls have been abandoned since 1978. The major financial derivatives in Singapore are currency and equity options, interest rate swaps, interest rate, currency and equity futures and forward rate agreements.

Sri Lanka shifted to a managed floating exchange rate system in 1977. The Central Bank intervenes in the foreign exchange market to stabilise the exchange rate. More recently, the authorities' concern over the monetary implications of external reserve build-up has also influenced the exchange rate. A sustained increase in capital inflows has exerted a considerable expansionary impact on the money supply, fuelling continued pressure on domestic prices. In such a situation, if the Central Bank uses sterilisation, the resulting rise in the interest rate could encourage further inflows and also dampen investments. Thus, fiscal tightening is the most effective means of preventing an overheating of an economy that typically results from a surge in capital inflows. The country has employed exchange rate policy towards correcting current account imbalances.

Sri Lanka residents are not allowed to invest in foreign securities nor can non-financial corporations and individuals borrow from abroad. However, Sri Lanka expatriates have been allowed to maintain foreign currency accounts. Very recently, exporters are allowed to maintain their export proceeds in foreign currency accounts. Only the firms established under the Board of Investments are allowed to borrow abroad without any limit. The Colombo Stock Exchange is opened to foreign investors, and the current account is now fully opened. However, foreign

investors are not permitted to invest in domestic financial instruments except in shares of companies. With the complete removal of exchange control restrictions on the current account, there has been a substantial increase both in FDI and portfolio investments.

Since 1979, **ROC-Taipei** has been adopting a flexible exchange rate system. The remarkable changes that occurred in capital movements took place after foreign exchange controls were removed in 1987. For the last one decade or so, the capital account exhibited sustained capital outflows with some exceptions. The long-term net capital outflow was due to increases in FDI abroad as well as purchases of foreign securities and real estate. The exceptional net capital inflows during 1986-1987 were related to short-term speculative capital inflows due to expectations of an appreciation of the New Taiwan (NT) dollar. The factors which have an effect on the exchange rate fluctuations include: (i) current account balance; (ii) interest rate differential; (iii) expectation of NT dollar exchange rate; (iv) short-term capital movements; and, (v) attitude and intervention policies of the monetary authorities. The foreign exchange rate of the NT dollar has been appreciating since the 1980s and has contributed to the control of inflation largely as a result of policy measures undertaken by the Government.

In general, the magnitude and types of capital movements are related to the interest rates, inflation and exchange rates in ROC-Taipei. The huge capital inflows in 1986-1987 had an adverse effect on the exchange rate stability. Therefore, the Government introduced a series of measures to liberalise foreign exchange controls including the mopping up of excess liquidity by means of sterilisation operations and reducing tariffs in addition to relaxing import controls. Individuals can remit freely inward or outward up to US$ 5 million per year and US$ 10 million in the case of companies. The limit on direct investments in domestic securities by foreigners has been raised to US$ 10 billion whereas the limit on indirect investments is US$ 3 billion since 1994. Banks may engage in foreign currency transactions with foreign investors employing derivatives like foreign exchange swaps, interest rate swaps, forward rate agreements, margin trading, cross-currency interest rate swaps, over-the-counter currency options, caps, floors and collars.

Since 1984, **Thailand** has been adopting a flexible exchange rate system. Due to the devaluation of the baht, Thailand experienced a huge influx of capital flows. Under the current basket system of cur-

rencies, three criteria are considered by the EEF in fixing the daily exchange rate: (i) the movements of the currencies in the basket; (ii) the volume of US dollar traded in the market; and, (iii) the economic conditions.

Since mid-1992, many restrictions on foreign exchange control have been lifted in Thailand. As a result of these liberalising measures, Thailand experienced a surge in capital inflow, particularly portfolio investment in 1993 whereas in 1994, the capital account recorded a net capital outflow of equity movement and non-resident baht accounts. The authorities, however, have continued to liberalise the foreign exchange controls to allow for a freer movement of capital flows inwards and outwards. They also floated domestic interest rates to correspond more closely to the domestic and foreign market. Non-financial corporations and private individuals can invest/borrow abroad up to US$ 10 million without authorisation. In 1990, Thailand accepted Article 8 of the IMF, meaning that Thailand will not impose any restrictions on payments and transfers for current account transactions. High volatility in the domestic money and the stock market in 1993 was a result of influx of short-term funds and portfolio investments. The major financial derivatives are currency and interest rate options, interest rate swaps and forward rate agreements. The major policies to manage the capital inflows are: (i) market mechanism; and, (ii) sterilisation policy to neutralise the surge of capital inflows.

Among the SEACEN countries, Malaysia, Singapore and ROC-Taipei have achieved high-savings as well as high-investment levels throughout the period under study followed by Indonesia, Korea and Thailand. The rest of the SEACEN countries tended to be low savers and investors. Since the magnitude of the volume of the current account has not increased significantly, the relationship between savings and investment is strengthened over time in the SEACEN countries.

Based on the savings and investment correlations in measuring the degree of capital mobility, the coefficient on savings for all the SEACEN countries is positive except in the case of Sri Lanka and ROC-Taipei. In the case of ROC-Taipei, the negative relationship seems reasonable since there has always been an excess of savings over investments as well as capital outflows. But in the case of Sri Lanka where the resource gap is a fundamental issue, one cannot find any economic reason for the negative relationship between savings and investment. Among

the SEACEN countries, Nepal and Thailand have shown a higher range of magnitude for the coefficient on savings, implying that their national savings are invested within the country. The rest of the SEACEN countries, namely Indonesia (0.41), Korea (0.42), the Philippines (0.37) and Singapore (0.29) have a relatively low coefficient on savings which is some evidence for less than perfect capital mobility. With the inclusion of exports as a percentage of GDP as a good proxy for the degree of openness of an economy, the coefficient on savings shows a great improvement towards capital mobility in the cases of Korea, Malaysia, Singapore and Thailand. Similarly, the inclusion of the size of a country is found to be quite significant in the cases of Nepal, Singapore and Thailand although the reverse seems to be the case in Indonesia and the Philippines. It shows that models of small open economy can typically predict how much an increase in savings ends up as domestic investments in time-series estimation.

As mentioned earlier, the unit root test on the current account balance as a ratio of GDP shows up the linkage of a country to the international market. As such, the current account balance of Nepal, Singapore and ROC-Taipei contains a unit root, implying that these countries are linked to the international capital market. This finding is quite supportive of the savings and investment correlation in the cases of Singapore and ROC-Taipei, while it seems reasonable in the case of Nepal if one agrees with the possibility that a relatively small and poor country will experience larger capital flows than a large industrialised country. For the rest of the SEACEN countries, the current account balance is stationary — suggesting a long-run stable relationship between domestic savings and investments though not with international capital mobility.

According to estimates from the simultaneous equations of savings and growth over different sources of foreign capital and other related variables, the coefficient on official capital inflows in the growth equation is positively significant in the cases of Korea, Nepal and Thailand. Similarly, the OFCI in the savings equation shows a significant positive impact in Nepal and Singapore. The coefficient on FDI shows a significant negative impact on the growth rate in Korea and Malaysia while the FDI has a significant positive impact on growth in the cases of the Philippines and Sri Lanka. The impact of FDI on savings is significantly positive in the cases of Indonesia, Singapore and Sri Lanka though it showed a negative effect in Korea and Malaysia.

Among the different sources of foreign capital, OPCI has shown a significant positive impact on growth in Indonesia, the Philippines and Sri Lanka. In contrast, OPCI shows a negative impact on growth rates in Korea, Malaysia and Nepal. The relationship of OPCI with savings is almost negative in all the SEACEN countries and statistically significant only in the cases of Indonesia, Korea, Nepal and Singapore. The overall effect of exports on growth is positive in Korea, Nepal, Singapore, Sri Lanka and ROC-Taipei while it is apparently negative in the case of Malaysia. The effect of export performance on savings is positive and statistically significant in all the SEACEN countries except for Thailand. Needless to emphasise, the effect of per capita GDP on growth rate is positive and statistically significant in all the SEACEN countries except for Sri Lanka. Similarly, per capita GDP shows a positive effect on savings for all the SEACEN countries except for Nepal and the Philippines. The economically active population growth shows a negative relationship with a few exceptions both in the growth and savings equations. In sum, net official capital flows have shown a positive impact on growth rates in three-fourths of the SEACEN countries while the FDI and OPCI have made a positive contribution to economic growth in half of the SEACEN countries. On the other hand, the OFCI and FDI have had a substitutive (negative) effect on savings in half of the SEACEN countries while the rest show a reverse direction.

Looking at the direct and total effects of the different sources of foreign capital, one can say that, in a case where simultaneity prevails, the single equation either overestimates or underestimates the effects of foreign capital and exports on growth and savings.

Going by the causality test results as explained in the previous chapter, one can agree that the FDI and other private capital flows into the SEACEN countries are influenced by the growth rate which is a signal of the creditworthiness of the borrowing country. This means that in the majority of cases, the causality runs positively from growth rate to the different private sources of foreign capital inflows. However, in the case of official capital inflows which consists of aid and concessional loans, negative unidirectional causality is found from the growth rate to OFCI in Indonesia, Korea and the Philippines. This implies that these countries are strategically more important for the major donor countries and agencies. But to identify the actual importance of status, one has to decompose the presently defined OFCI into different sources such as aid, concessional loans and others. However, this finding

raises doubts in the belief that official capital flows depend on low growth rates.

Based on the causality test results between savings and different sources of foreign capital, one cannot be conclusive on the relationships of magnitude and direction of causality. Therefore, keeping in view the different directions and magnitude of causality, one can agree that the causality from foreign capital inflows to domestic savings and vice versa can be negative because of the consumption and savings propensity effects while a positive causality can be detected through the indirect effect of higher growth rates. Similarly, the higher growth rates and higher savings can be considered the best ways of attracting private capital flows.

In summary, one can tentatively suggest that those SEACEN countries which are in need of foreign capital should try to attract FDI to lessen the debt burden caused by external borrowings. Similarly, past experiences in some of the SEACEN countries indicated that one must be prepared to use the monetary sterilisation and non-sterilisation measures to neutralise the expansionary effect of foreign capital on the monetary sector, keeping in view the resulting rise in interest rate and its expansionary impact on capital inflows. Monetary policy must be complemented by a tight or balanced fiscal policy to prevent undesirable effects arising from external capital flows. Moreover, most of the SEACEN countries have to be careful in the productive use of foreign capital. The impact analysis of foreign capital on savings and growth rate is, to some extent, similar to past studies but it is clear that foreign capital would have a positive effect if the recipient country can maintain its macroeconomic stability. The causality test analysis indicates that there is no basis for simply following the conventional belief of unidirectional causality from foreign capital inflow to savings and growth rate. The cause and effect tests are performed in parallel with policy changes including the test procedure on a disaggregated basis to find a more accurate impact of foreign capital on macroeconomic variables and vice versa on a case-by-case basis. While the findings of multiple regression analysis and the Granger causality tests differ somewhat, both results are considered worthwhile based as they are on the stationarity test of time-series data and the selection of optimal lag length. Unlike past studies, the analysis in this study shows no spurious statistical inferences.

SELECTED REFERENCES

1. Akaike, H. (1969), *Fitting Autoregressions for Prediction*, ***Annals of the Institute of Statistical Mathematics 21***, pp. 243-247.

2. Areskong, K. (1973), *Foreign Capital Utilization and Economic Policies in Developing Countries*, ***Review of Economics and Statistics***.

3. Batten, D.S. and D.L. Thornton (1983), *Polynomial Distributed Lags and the Estimation of the St. Louis Equation*, ***Federal Reserve Bank of St. Louis Review 65***, pp. 13-25.

4. Bessler, D.A. and J.L. King (1984), *A Note on Tests of Granger Causality*, ***Applied Economics 16***, pp. 335-342.

5. Campbell, J.Y. and P. Perron (1991), *Pitfalls and Opportunities: What Macroeconomists Should Know About Unit Roots*, Econometrics Research Program, ***Research Memorandum No. 360***, Princeton, New Jersey.

6. Chowdhury, A.R. (1987), *Are Causal Relationships Sensitive to Causality Tests?*, ***Applied Economics 19***, pp. 459-465.

7. Dickey, D.A. and W.A. Fuller (1981), *Likelyhood Ratio Statistics for Autoregressive Time Series With a Unit Root*, ***Econometrica 49***, pp. 1057-1072.

8. Dowling, J.M. and U. Hiemenz (1982), *Aid, Savings and Growth in the Asian Region*, ***The Developing Economies 21***, pp. 3-13.

9. Engle, R.F. and C.W.J. Granger (1987), *Cointegration and Error Correction: Representation, Estimation and Testings*, ***Econometrica 55***, pp. 251-276.

10. Feldstein, M. and C. Horioka (1980), *Domestic Saving and International Capital Flows*, ***The Economic Journal***, vol. 90, pp. 314-329.

11. Fry, M.J. (1984), *Domestic Resource Mobilisation Through Financial Development*, vol. II, Appendices, Asian Development Bank (ADB), Economic Office.

12. _____ (1986), *Terms-of-Trade Dynamics in Asia: An Analysis of National Saving and Domestic Investment Responses to Terms-of-Trade Changes in 14 Asian LDCs*, ***Journal of International Money and Finance 5***, vol. 9, pp. 60-75.

13. Go, E.M. (1985), *The Impact of Foreign Capital Inflow on Investment and Economic Growth in Developing Asia*, ADB, ***Economic Office Report Series, no. 33***.

14. Granger, C.W.J. (1969), *Investigating Causal Relations by Econometric Modes and Cross Spectral Methods*, ***Econometrica 37***, no. 3, pp. 424-438.

15. _____ (1981), *Some Properties of Time Series Data and Their Use in Econometric Model Specification*, ***Journal of Econometrics 28***, pp. 121-130.

16. _____ and P. Newbold (1974), *Spurious Regression in Econometrics*, ***Journal of Econometrics***, vol. 2, no. 2, pp. 110-120.

17. Griffin, K.B. (1970), *Foreign Capital, Domestic Savings and Economic Development*, ***Bulletin of the Oxford University Institute of Economics and Statistics 32***, pp. 99-112.

18. _____ and J.L. Enos (1970), *Foreign Assistance: Objectives and Consequences*, ***Economic Development and Cultural Change 18***, pp. 313-327.

19. Guilkey, D.K. and M.K. Salemi (1982), *Small Sample Properties of Three Tests for Granger-Causal Ordering in a Bivariate Stochastic System*, ***Review of Economics and Statistics 64***, pp. 668-680.

20. Gundlach, E. and S. Sinn (1991), *Unit Root Tests of the Current Account Balance: Implications for International Capital Mobility*, The Kiel Institute of World Economics, ***Working Paper No. 495***.

21. Gupta, K.L. and M.A. Islam (1983), ***Foreign Capital, Savings and Growth: An International Cross-Section Study***, D. Reidel Publishing Co., London.

22. Harberger, A.C. (1980), *Vignettes on the World Capital Market*, ***American Economic Review 70***, pp. 331-337.

23. Horne, J., et.al. (1989), *Net Foreign Assets and International Adjustment in the United States, Japan and the Federal Republic of Germany*, ***IMF Working Paper No. 22***.

24. Husain, I. and K.W. Jun (1992), *Capital Flows to South Asian and ASEAN Countries: Trends, Determinants and Policy Implications*, ***Working Paper No. 842***, The World Bank.

25. Kang, H. (1985), *The Effects of Detrending in Granger Causality Tests*, ***Journal of Business and Economic Statistics 3***, pp. 344-349.

26. _____ (1989), *The Optimal Lag Selection and Transfer Function Analysis in Granger Causality Tests*, ***Journal of Economic Dynamics and Control 13***, pp. 151-169.

27. Krueger, A.O. (1986), *Aid in the Development Process*, ***Research Observer***, vol. 1, no. 1, The World Bank, pp. 57-78.

28. Leachman, L.L. (1991), *Saving, Investment and Capital Mobility Among OECD Countries*, ***Open Economies Review***, vol. 2, pp. 137-163.

29. Lee, J., P.B. Rana and Y. Iwasaki (1986), *Effects of Foreign Capital Inflows on Developing Countries of Asia*, ***ADB Economic Staff Paper No. 30***.

30. Leff, N.H. (1969), *Dependency Rates and Savings Rates*, ***American Economic Review 59***, pp. 86-96.

31. Massell, B.T., et.al. (1972), *Foreign Exchange and Economic Development: An Empirical Study of Selected Latin American Countries*, ***Review of Economics and Statistics***, pp. 208-212.

32. Miller, S.M. (1988), *Are Saving and Investment Cointegrate?*, ***Economics Letters***, vol. 27, pp. 31-34.

33. Moore, J.R. (1976), ***The Impact of Foreign Direct Investment on An Underdeveloped Economy, The Venezuelan Case***, New York, Avno Press.

34. Mosley, P. (1980), *Aid, Savings and Growth Revisited*, ***Oxford Bulletin of Economics and Statistics 42***.

35. Murphy, R.G. (1986), *Productivity Shocks, Nontraded Goods and Optimal Capital Accumulation*, ***European Economic Review***, vol. 30, pp. 1081-1095.

36. Nelson, C.R. and C.I. Plosser (1982), *Trends and Random Walks in Macroeconomic Time Series*, ***Journal of Monetary Economics 10***, pp. 139-162.

37. _____ and H. Kang (1984), *Pitfalls in the Use of Time as An Explanatory Variable in Regression*, ***Journal of Business and Economic Statistics 2***, pp. 73-82.

38. Obstfeld, M. (1986), *Capital Mobility in the World Economy: Theory and Measurement*, ***Carnegie-Rochester Conference Series on Public Policy***, vol. 24, pp. 55-104.

39. Papanek, G.F. (1972), *The Effect of Aid and Other Resources Transfers on Savings and Growth in Less Developed Countries*, ***Economic Journal 82***, pp. 934-950.

40. _____ (1973), *Aid, Foreign Private Investment, Savings and Growth in Less Developed Countries*, ***Journal of Political Economy 81***, pp. 120-130.

41. Paudel, D.P. (1993), *Exports, Growth and Causality in the SEACEN Countries*, ***SEACEN Staff Papers No. 51***, The SEACEN Centre, Kuala Lumpur.

42. _____ (1994), *Money, Income, Prices and Causality: The Nepalese Case*, ***SEACEN Staff Papers No. 53***, The SEACEN Centre, Kuala Lumpur.

43. Rahman, M.A. (1968), *Foreign Capital and Domestic Savings: A Test of Haavelmo's Hypothesis with Cross-Country Data*, ***Review of Economics and Statistics 50***, pp. 137-138.

44. Reuber, G.L. (1973), ***Private Foreign Investment in Development***, Oxford, Clarendon Press.

45. Schwarz, G. (1978), *Estimating the Dimension of a Model*, ***Annals of Statistics 6***, pp. 461-464.

46. Sims, C.A. (1972), *Money, Income and Causality*, ***American Economic Review 62***, no. 4, pp. 540-552.

47. Sinn, Stefan (1991), *Measuring International Capital Mobility: A Critical Assessment of the Use of Saving and Investment Correlations*, The Kiel Institute of World Economics, ***Working Paper No. 458***.

48. Stock, J. and M. Watson (1989), *Interpreting the Evidence on Money Income Causality*, ***Journal of Econometrics 40***, pp. 161-181.

49. Stoneman, C. (1975), *Foreign Capital and Economic Growth*, ***World Development 3***, pp. 11-26.

50. Thomas, R.L. (1985), ***Introductory Econometrics: Theory and Applications***, Longman Group U.K. Ltd., London.

51. Voivodas, C.S. (1973), *Exports, Foreign Capital Inflows and Economic Growth*, ***Journal of International Economics 3***, pp. 337-349.

52. Weisskopf, T.E. (1972), *An Econometric Test of Alternative Constraints on the Growth of Underdeveloped Countries, Part III*, ***Review of Economics and Statistics 54***, no. 1, pp. 67-78.

53. Wong, David (1990), *What do Saving-Investment Relationships Tell Us About Capital Mobility?*, ***Journal of International Money and Finance***, vol. 9, pp. 60-74.

54. Xuan, Vo Han (1979), *Foreign Direct Investment in Economic Development: A Quantitative Study*, University Microfilms International, Michigan, U.S.A.

Appendix 2.1

KOREA: TRENDS OF BALANCE OF PAYMENTS
(US$ Million)

	1987	1988	1989	1990	1991	1992	1993
Current Balance	9854	14161	5055	-2179	-8728	-4529	450
Capital Balance	-5842	-1397	-3302	3881	4227	8343	6751
Liabilities	-5524	-811	-1545	4976	6241	8823	8419
Long-Term	-5517	-2355	-1958	1311	5709	6656	9620
Loans	*-2433*	*-2302*	*-1892*	*-1581*	*-1179*	*-1152*	*-2833*
FDI 1/	*601*	*981*	*758*	*715*	*1116*	*551*	*517*
FPI 2/	*-113*	*-461*	*29*	*899*	*3155*	*5761*	*11022*
Short-Term	-7	1544	413	3665	532	2167	-1201
Assets 3/	-319	-586	-1758	-1096	-2014	-480	-1667
Long-Term	-319	-378	-1405	-764	-1523	577	-820
Loans	*0*	*0*	*-2*	*-9*	*-7*	*-15*	*-70*
ODI 4/	*-183*	*-151*	*-305*	*-820*	*-1357*	*-1048*	*-1056*
OPI 5/	*0*	*-22*	*-59*	*-88*	*-38*	*-19*	*-297*
Short-Term	0	-208	-353	-332	-491	-1057	-847
Overall Balance	5202	12175	2453	-274	-3741	4898	6456

Notes:

1/ Foreign Direct Investment
2/ Foreign Portfolio Investment
3/ Minus (-) indicates increase in assets
4/ Overseas Direct Investment
5/ Overseas Portfolio Investment

Appendix 2.2

MALAYSIA: CAPITAL ACCOUNT
(RM Million)

Year	Long-Term Capital (Net)			Private Short-Term Capital (Net)
	Official	Private	Total	
1961	-159	180	21	77
1962	87	235	322	23
1963	146	270	416	59
1964	229	165	394	0
1965	174	150	324	-102
1966	218	170	388	33
1967	382	130	512	191
1968	161	93	254	115
1969	75	245	320	-153
1970	26	287	313	-10
1971	380	306	686	73
1972	873	320	1193	-6
1973	162	420	582	254
1974	205	1374	1579	101
1975	854	839	1693	-83
1976	650	969	1619	-175
1977	570	999	1569	-1280
1978	429	1158	1587	-349
1979	800	1255	2055	-1584
1980	180	2033	2213	902
1981	3017	2914	5931	97
1982	5169	3263	8432	326
1983	6284	2926	9210	-263
1984	4691	1869	6560	-288
1985	2504	1725	4229	870
1986	2124	1262	3386	-47
1987	-2470	1065	-1405	-2491
1988	-5102	1884	-3218	-1962
1989	-2458	4518	2060	1562
1990	-2836	6309	3473	1356
1991	-626	10996	10370	6735
1992	-2802	11385	8583	11968
1993	531	11200	11731	12502

Source: Economics Department, Bank Negara Malaysia.

PHILIPPINES: CAPITAL FLOWS 1/
(Million US$)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
A. Long-Term Loans	1032	1332	1548	1392	478	2787	732	159	-519	381	406	922	666	2105
Inflow	1579	2072	2533	2336	1259	3962	2605	2598	2412	2797	4321	3613	7436	4853
Outflow	547	740	985	944	781	1175	1873	2439	2931	2416	3915	2691	6770	2748
B. Foreign Investments	-102	175	17	112	17	17	140	326	986	843	480	654	737	612
Inflow	119	248	194	255	137	124	186	439	1077	961	706	798	1364	3394
Outflow	221	73	177	143	120	107	46	113	91	118	226	144	627	2782
Total	930	1507	1565	1504	495	2804	872	485	467	1224	886	1576	1403	2717
Inflow	1698	2320	2727	2591	1396	4086	2791	3037	3489	3758	5027	4411	8800	8247
Outflow	768	813	1162	1087	901	1282	1919	2552	3022	2534	4141	2835	7397	5530

1/ Excludes allowance for errors and omissions and short-term capital which were mostly trade facility agreements.

Appendix 2.4

PHILIPPINES: CAPITAL FLOWS
(Growth Rates)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
A. Long-Term Loans	29.1	16.2	-10.1	-65.7	483.1	-73.7	-78.3	-426.4	-173.4	6.6	127.1	-27.8	216.1
Inflow	31.2	22.2	-7.8	-46.1	214.7	-34.3	-0.3	-7.2	16.0	54.5	-16.4	105.8	-34.7
Outflow	35.3	33.1	-4.2	-17.3	50.4	59.4	30.2	20.2	-17.6	62.0	-31.3	151.6	-59.4
B. Foreign Investments	-271.6	-90.3	558.8	-84.8	0.0	723.5	132.9	202.5	-14.5	-43.1	36.3	12.7	-17.0
Inflow	108.4	-21.8	31.4	-46.3	-9.5	50.0	136.0	145.3	-10.8	-26.5	13.0	70.9	148.8
Outflow	-67.0	142.5	-19.2	-16.1	-10.8	-57.0	145.7	-19.5	29.7	91.5	-36.3	335.4	343.7
Total Capital Inflows/ Outflows	62.0	3.8	-3.9	-67.1	466.5	-68.9	-44.4	-3.7	162.1	-27.6	77.9	-11.0	93.7

PHILIPPINES: MEDIUM- AND LONG-TERM LOANS
(Million US$)

Items	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a/	1993 b/
Long-Term Loans, Net	1032	1332	1548	1392	478	2787	732	159	-519	381	406	922	666	2105
I. Inflows	1579	2072	2533	2336	1259	3962	2605	2598	2412	2797	4321	3613	7436	4853
A. Multilateral	272	518	364	775	471	283	348	396	423	671	987	686	940	994
B. Bilateral	102	260	381	328	516	1093	943	1335	1140	1241	1383	1769	2365	1911
C. Commercial Banks	1205	1294	1788	1083	151	2545	1256	857	827	769	1638	916	901	954
D. Others	0	0	0	150	121	41	58	10	22	116	313	242	3230	994
II. Outflows	547	740	985	944	781	1175	1873	2439	2931	2416	3915	2691	6770	2748
A. Multilateral	37	83	68	95	129	114	225	254	364	354	378	389	428	473
B. Bilateral	28	37	40	79	65	602	618	765	574	531	505	736	1510	1564
C. Commercial Banks	482	620	877	560	294	407	742	1158	1663	1342	2791	1393	4646	540
D. Others	0	0	0	210	293	52	288	262	330	189	241	173	186	171

a/ For pipeline, refers to disbursements of loans signed before 1st January 1992; for new money, refers to loans committed in 1992.
b/ For pipeline, refers to disbursements of loans signed before 1st January 1993; for new money, refers to loans committed in 1993.

Appendix 2.6

PHILIPPINES: MEDIUM- AND LONG-TERM LOANS
(Growth Rates)

Items	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a/	1993 b/
Long-Term Loans, Net	29.1	16.2	-10.1	-65.7	483.1	-73.7	-78.3	-426.4	-173.4	6.6	127.1	-27.8	216.1
I. Inflows	31.2	22.2	-7.8	-46.1	214.7	-34.3	-0.3	-7.2	16.0	54.5	-16.4	105.8	-34.7
A. Multilateral	90.4	-29.7	112.9	-39.2	-39.9	23.0	13.8	6.8	58.6	47.1	-30.5	37.0	5.7
B. Bilateral	154.9	46.5	-13.9	57.3	111.8	-13.7	41.6	-14.6	8.9	11.4	27.9	33.7	-19.2
C. Commercial Banks	7.4	38.2	-39.4	-86.1	1585.4	-50.6	-31.8	-3.5	-7.0	113.0	-44.1	-1.6	5.9
D. Others	-	-	-	-19.3	-66.1	41.5	-82.8	120.0	427.3	169.8	-22.7	1234.7	-69.2
II. Outflows	35.3	33.1	-4.2	-17.3	50.4	59.4	30.2	20.2	-17.6	62.0	-31.3	151.6	-59.4
A. Multilateral	124.3	-18.1	39.7	35.8	-11.6	97.4	12.9	43.3	-2.7	6.8	2.9	10.0	10.5
B. Bilateral	32.1	8.1	97.5	-17.7	626.2	2.7	23.8	-25.0	-7.5	-4.9	45.7	105.2	3.6
C. Commercial Banks	28.6	41.5	-36.1	-47.5	38.4	82.3	56.1	43.6	-19.3	108.0	-50.1	233.5	-88.4
D. Others	0.0	0.0	0.0	39.5	-82.3	453.8	-9.0	26.0	-42.7	27.5	-28.2	7.5	-8.1

a/ For pipeline, refers to disbursements of loans signed before 1st January 1992; for new money, refers to loans committed in 1992.

b/ For pipeline, refers to disbursements of loans signed before 1st January 1993; for new money, refers to loans committed in 1993.

Appendix 2.7

PHILIPPINES: MEDIUM- AND LONG-TERM LOANS
(Percent Dis ibution)

Items	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a/	1993 b/
I. Inflows	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
A. Multilateral	17.2	25.0	14.0	33.2	37.4	7.1	13.4	15.2	17.5	24.0	22.8	19.0	12.6	20.5
B. Bilateral	6.5	12.5	15.0	14.0	41.0	27.6	36.2	51.4	47.3	44.4	32.0	49.0	31.8	39.4
C. Commercial Banks	76.3	62.5	70.6	46.4	12.0	64.2	48.2	33.0	34.3	27.5	37.9	25.4	12.1	19.7
D. Others	0.0	0.0	0.0	6.4	9.6	1.0	2.2	0.4	0.9	4.1	7.2	6.7	43.4	20.5
II. Outflows	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
A. Multilateral	6.8	11.2	6.9	10.1	16.5	9.7	12.0	10.4	12.4	14.7	9.7	14.5	6.3	17.2
B. Bilateral	5.1	5.0	4.1	8.4	8.3	51.2	33.0	31.4	19.6	22.0	12.9	27.4	22.3	56.9
C. Commercial Banks	88.1	83.8	90.0	59.3	37.6	34.6	39.6	47.5	56.7	55.5	71.3	51.8	68.6	19.7
D. Others	0.0	0.0	0.0	22.2	37.5	4.4	15.4	10.7	11.3	7.8	6.2	6.4	2.7	6.2

a/ For pipeline, refers to disbursements of loans signed before 1st January 1992; for new money, refers to loans committed in 1992.
b/ For pipeline, refers to disbursements of loans signed before 1st January 1993; for new money, refers to loans committed in 1993.

Appendix 2.8

PHILIPPINES: FOREIGN INVESTMENTS
(Million US$)

Items	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Foreign Investments, Net	-102	175	17	112	17	17	140	326	986	843	480	654	737	612
I. Inflows	119	248	194	255	137	124	186	439	1077	961	706	798	1364	3394
- Withdrawal of Foreign Investments Abroad	0	0	0	1	0	2	16	3	27	7	4	15	22	112
- New Foreign Investments in the Philippines	75	91	25	119	32	9	17	34	81	93	171	130	234	334
- Reinvested Earnings	39	62	44	26	15	10	20	22	17	56	28	34	42	43
- Portfolio Investments	5	5	1	7	0	17	13	21	51	386	152	227	566	2257
- Debt Conversions	0	0	0	0	0	0	14	287	806	306	226	273	269	193
- Technical Fees Converted into Equity	0	90	124	98	61	31	32	17	8	38	22	50	41	5
- Imports Converted into Investments	0	0	0	4	29	14	6	14	5	1	2	6	5	0
- Bank Inter-Branch Operations	0	0	0	0	0	41	68	41	82	74	101	63	185	313
- Others	0	0	0	0	0	0	0	0	0	0	0	0	0	137
II. Outflows	221	73	177	143	120	107	46	113	91	118	226	144	627	2782
- Capital for Investment Abroad	86	47	61	27	15	24	2	1	2	0	4	2	16	106
- Capital Withdrawn from the Philippines	104	24	116	116	102	37	35	58	74	95	204	102	411	1106
- Portfolio Investments	1	2	0	0	3	12	0	2	1	14	0	15	115	1302
- Bank Inter-Branch Operations	30	0	0	0	0	34	9	52	12	9	18	25	77	51
- Others	0	0	0	0	0	0	0	0	2	0	0	0	8	217

Appendix 2.9

PHILIPPINES: FOREIGN INVESTMENTS
(Growth Rates)

Items	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Foreign Investments, Net	271.5	-90.3	558.8	-84.8	0.0	723.5	132.9	202.5	-14.5	-43.1	36.3	12.7	-17.0
I. Inflows	108.4	-21.8	31.4	-46.3	-9.5	50.0	136.0	145.3	-10.8	-26.5	13.0	70.9	148.8
- Withdrawal of Foreign Investments Abroad	-	-	-	-	100.0	700.0	-81.3	800.0	-74.1	-42.9	275.0	46.7	409.1
- New Foreign Investments in the Philippines	21.3	-72.5	376.0	-73.1	-71.9	88.9	100.0	138.2	14.8	83.9	-24.0	80.0	42.7
- Reinvested Earnings	59.0	-29.0	-40.9	-42.3	-33.3	100.0	10.0	-22.7	229.4	-50.0	21.4	23.5	2.4
- Portfolio Investments	0.0	-80.0	600.0	-100.0	100.0	-23.5	61.5	142.9	656.9	-60.6	49.3	149.3	298.8
- Debt Conversions	-	-	-	-	-	100.0	1950.0	180.8	-62.0	-26.1	20.8	-1.5	-28.3
- Technical Fees Converted into Equity	100.0	37.8	-21.0	-37.8	-49.2	3.2	-46.9	-52.9	375.0	-42.1	127.3	-18.0	-87.8
- Imports Converted into Investments	-	-	100.0	625.0	-51.7	-57.1	133.3	-64.3	-80.0	100.0	200.0	-16.7	-100.0
- Bank Inter-Branch Operations	-	-	-	-	100.0	65.9	-39.7	100.0	-9.8	36.5	-37.6	193.7	69.2
- Others	-	-	-	-	-	-	-	-	-	-	-	-	100.0
II. Outflows	-67.0	142.5	-19.2	-16.1	-10.8	-57.0	145.7	-19.5	29.7	91.5	-36.3	335.4	343.7
- Capital for Investment Abroad	-45.3	29.8	-55.7	-44.4	60.0	-91.7	-50.0	100.0	-100.0	100.0	-50.0	700.0	562.5
- Capital Withdrawn from the Philippines	-76.9	383.3	0.0	-12.1	-63.7	-5.4	65.7	27.6	28.4	114.7	-50.0	302.9	169.1
- Portfolio Investments	100.0	-100.0	-	100.0	300.0	-100.0	100.0	-50.0	1300.0	-100.0	100.0	666.7	1032.2
- Bank Inter-Branch Operations	-100.0	-100.0	-	-	100.0	-73.5	477.8	-76.9	-25.0	100.0	38.9	208.0	-33.8
- Others	-	-	-	-	-	-	-	100.0	-100.0	-	-	100.0	2612.5

Appendix 2.10

CHRONOLOGY OF MAJOR LIBERALISATION EFFORTS

KOREA

1. DIRECT INVESTMENT BY FOREIGNERS

1 Jul. 1984 The regulation system transformed from a positive list system to a negative list system.

Automatic approval system for foreign direct investment (FDI) adopted for foreign investment in manufacturing businesses with a share of under 50 percent and the investment amount under $ 1 million, unless tax exemption is applied.

1 Jul. 1987 Responsibility for the approval of those direct investments subject to automatic approval transferred from the Minister of Finance to the Bank of Korea (BOK).

- The amount of FDI subject to automatic approval raised from US$ 1 million to US$ 3 million.

1 Jan. 1990 The amount of FDI subject to automatic approval raised from US$ 3 million to US$ 100 million.

1 Jul. 1991 Automatic approval system replaced by a simple reporting system.

1 Jan. 1993 FDI firms operating the high-technology industry were allowed to borrow the short-term foreign currency funds under three years within the limits of 50 percent of the investment amount.

2. PORTFOLIO INVESTMENT BY FOREIGNERS

28 Oct. 1981 Investment trust companies approved to issue Matching Fund to foreigners.

29 Jun. 1984 Transaction of domestic securities by foreign investment companies approved. The Korea Fund established on 1 July 1984.

25 Nov. 1985 Issuance of convertible bonds and bonds with subscription warrants or stock depository receipts allowed for domestic firms.

24 Mar. 1987 The Korea Europe Fund established.

11 Jun. 1990 The issuance of mixed form of matching fund allowed for investment trust companies.

1 Jan. 1992 Portfolio investment in the domestic stock market allowed up to 3 percent of the outstanding shares of a single company, by single investor or 10 percent thereof for total foreign holdings.

1 Jan. 1993 Japanese investors were permitted to invest in Korean stocks.

3. DIRECT OVERSEAS INVESTMENT

21 Jul. 1981 The Evaluation Committee for Foreign Investment established in the BOK.

Criterion for investors relaxed from three years to one year's experience, and that for capital also relaxed.

The withdrawal obligation for invested funds and prior approval system for foreign investment project plans abolished.

19 Jul. 1982 The approval procedure simplified for foreign investments - required holding reduced from over 50 percent to less than 50 percent in cases of investments of less than US$ 100,000.

The required ownership ratio for joint-ventures eased - the required share reduced from over 50 percent to less than 50 percent when effective management control can be secured.

21 Dec. 1983 The limit for automatic profit reserve increased.

16 Nov. 1984 Foreign investment prerequisite and evaluation criteria for foreign investments approval enacted.

24 May 1985 Size of investment requiring evaluation by the Inquiry Commission for foreign investment projects adjusted upward from US$ 500,000 to more than US$ 1 million.

29 Aug. 1985 Participation in cooperative projects added to the foreign investment category.

27 Dec. 1986 Confirmation of foreign investment requirements replaced authorisation in cases of technical service.

1 Sep. 1987 The minimum amount subject to confirmation of foreign investment requirements increase from US$ 500,000.

The maximum reserved profit of overseas corporations increased from less than US$ 100,000 to US$ 500,000.

1 Nov. 1988 The category of investment subject to the simple reporting obligation expanded from less than US$ 1 million to US$ 2 million.

13 Feb. 1989 The limit for foreign investments by individuals abolished. The previous limit was US$ 1 million.

Satisfaction requirements for investment relaxed. The ownership share reduced from 50 percent to 20 percent for securities investment, and the minimum interest rate requirement (above 6-month LIBOR rate) abolished.

10 Aug. 1989 The category of investment in foreign real estate expanded.

- Corporations: Real estate related to businesses such as facilities for research or training institutes.
- Individuals: Overseas acquisition of real estate for business operation and residential houses for workers who work at a foreign branch for a long period.

1 Jul. 1990 Screening criteria strengthened for the business prospect of large investments exceeding self-financed capital.

- Large-scale projects: Projects larger than US$ 50 million with Korean share larger than 50 percent or Korean share larger than US$ 30 million.

1 Apr. 1993 In the case of small size overseas investment exceeding not more than US$ 10 million that is invested successively more than three years, the valid period of permission was lengthened to three years from one year.

7 Dec. 1993 Thirteen businesses were excluded from the category of overseas investment restrictions.

The insurance companies' real estate for portfolio management and residential building of workers in overseas offices were included in the items of real estate that were permitted to purchase.

4. OVERSEAS PORTFOLIO INVESTMENT

4.1 Investment in foreign currency denominated securities by institutional investors

1 Aug. 1985 Regulations related to participation in underwriting groups for foreign currency bonds and stock depository receipts which are issued by domestic corporations enacted.

- Underwriting securities: Foreign currency bonds and stock depository receipts which are issued by domestic corporations in foreign markets.
- Scope of underwriting: Underwriting limits for each securities company set to within 1 percent of the total amount of issuance or less than US$ 1 million.
- Selling method: Sale in foreign countries.
- Financial funding for underwriting: Funds raised through selling securities in foreign countries.

1 Sep. 1987 Regulations on investments in foreign currency securities by domestic securities companies relaxed.

2 Mar. 1990 The limit for investment in foreign currency securities by institutional investors extended.

- Securities companies: US$ 50 million for securities companies which acquired dealing licences for international businesses, US$ 30 million for others.
- Investment trust companies: US$ 30 million for investment trust companies dealing with international businesses, US$ 10 million for others.
- Insurance companies: US$ 30 million for insurance companies with more than Won 5 trillion in total assets.

1 Apr. 1993 The investment and finance company, pension, fund and company with a record performance of external transactions in excess of US$ 100 million were included in the scope of eligible institutional investors to make outward portfolio investment.

1 Oct. 1993 The investment limit on portfolio investments by domestic securities companies and insurance companies, investment and trust companies was raised from previous US$ 50 million - 100 million to US$ 100 million - 200 million.

4.2 Acquisition of main office stocks by Korean employees who work for domestic branch offices of foreign companies

7 Sep. 1987 Acquisition of main office stocks by Korean employees working for branch offices or offices of foreign banks allowed.

25 Mar. 1988 Regulations on acquiring main office stocks relaxed.

- Stock acquisition approved for Korean employees who work for foreign direct invested companies or domestic branches of foreign companies in which stocks are allocated specially by the main office.

MALAYSIA

1. INVESTMENTS/LOANS TO NON-RESIDENTS

1980 - 13 Apr. 1983

Residents were freely allowed to invest overseas or extend loans to non-residents up to RM 2 million or its equivalent in foreign currency. Overseas investment/ extension of loans of more than RM 2 million or its equivalent in foreign currency required prior exchange control approval.

14 Apr. 1983 - 31 Dec. 1986

Residents were freely allowed to invest overseas or extend loans to non-residents, regardless of the amount, subject to the condition that the investments/extension of loans were not financed by any domestic loans. Overseas investments/extension of loans which were financed by domestic loans required prior exchange control approval.

1 Jan. 1987 - To-date

Residents with no domestic borrowing are freely allowed to invest overseas or to extend loans to non-residents. Exchange control approval is required only if the resident has obtained domestic borrowing from any source in Malaysia.

On the other hand, foreign investment by foreigners in Malaysia is freely allowed under exchange control rules, although limits on equity shares are imposed by other Malaysian authorities.

The financial institutions are also freely allowed to extend ringgit-denominated credit facilities to a non-resident up to RM 100,000 in aggregate. Loans exceeding RM 100,000 require the specific approval of the Controller.

2. LOANS FROM NON-RESIDENTS

1980 - 31 Dec. 1986

Residents were freely allowed to obtain loans, whether in ringgit or foreign currency, which were individually below RM 100,000 or its equivalent in foreign currency. Offshore borrowings of RM 100,000 or more required prior exchange control approval.

1 Jan. 1987 - To-date

Offshore borrowing in foreign currency exceeding the equivalent of RM 1 million in the aggregate and offshore borrowing in ringgit for any amount requires prior exchange control approval.

PHILIPPINES

1. LIBERALISATION MEASURES

25 Apr. 1991 (CB Circular No. 1284)

Provided a new simplified system for registration of foreign investment in CB-approved Philippine securities and repatriation of sale proceeds and remittance of dividends/profits.

2 May 1991 (CB Circular No. 1285)

Relaxed the rules governing switch transactions in CB-approved Philippine securities.

1991 (CB CIrcular No. 1317)

Allowed exporters to avail themselves of FCDU loans without need of prior CB approval up to 70 percent of the value of their export LC, SC or PO.

3 Jan. 1992 (CB Circular No. 1318)

Allowed full and immediate repatriation and remittance privileges for all types of foreign investments duly registered with the CB.

Allowed outward investments provided funds are withdrawn from FCDUs or are not among those required to be sold to AABs or are sourced from AABs but in amounts of less than US$ 1 million per investor per year.

22 Apr. 1992 (CB Circular No. 1336)

Allowed service exporters to avail themselves of FCDU loans without prior CB approval up to 70 percent of their expected foreign exchange receipts.

21 Aug. 1992 (CB Circular No. 1351)

Allowed FCDUs to grant foreign currency loans without prior CB approval to exporters, domestic producers and manufacturers and FCDU depositors (loans granted to the latter shall be paid out of the borrowers' own foreign currency holdings).

24 Aug. 1992 (CB Circular No. 1353)

Allowed inward foreign investments not to be registered and proceeds not to be surrendered except if bank funds are to be used subsequently for capital repatriation and dividend remittance.

Allowed outward investments without prior CB approval in amounts less than US$ 1 million per investor per year.

Allowed exporters, domestic manufacturers and FCDU depositors to avail themselves of short-term foreign currency loans without prior CB approval. However, medium- and long-term loans as well as short-term loans of the public sector still require prior approval of the

CB. With or without prior approval, foreign currency loans need not be registered and proceeds thereof surrendered to the banking system unless bank funds are to be used subsequently for debt servicing.

13 Apr. 1993 (CB Circular No. 1389)

Consolidated all existing rules and regulations on current accounts, capital accounts (including foreign currency loans), FCDUs, representative offices of foreign banks and OBUs.

23 Jun. 1993 (CB Circular No. 1393)

Included short-term loans of private sector exports/ importers from OBUs and other offshore sources in the list of loans not requiring prior CB approval provided these are used to finance trade transactions and are granted against previously approved credit line of the creditors concerned.

15 Sep. 1993 (BSP Circular No. 5)

Waived the prior BSP approval requirement for two types of private loans:

- Loans covering importations of freely importable commodities under defered letters of credit provided that these are not guaranteed by government and official export credit agencies; and,

- Loans granted by foreign companies to their local branches/subsidiaries, irrespective of amount and maturity provided these are used to finance projects and costs eligible for foreign financing.

THAILAND

1. ADJUSTMENT OF EXCHANGE RATE

The exchange rate of the Thai baht remained stable with the US dollar for a long period of time and was allowed to adjust due to change in internal and external economic environment.

Aug. 1981 Due to high volatility of the US dollar, the "daily fixing system" exchange rate was abolished. The value of the baht against US dollar was devalued by 8.7 percent.

Nov. 1984 The value of the baht against US dollar was devalued by another 14.8 percent. From this time, the value of the baht has been allowed to adjust with the basket of Thai major trading partners' currencies instead of fixing with the US dollar.

2. EXCHANGE CONTROL LIBERALISATION

Commercial banks are authorised to approve the following transactions on behalf of the Bank of Thailand (BOT):

30 Apr. 1985 Repayment of foreign loans that were registered with the BOT.

26 Dec. 1989 Remittance of portfolio investment that were registered with the BOT.

22 May 1990 (Thailand accepted Article 8, Section 2 to 4 of the IMF)

All kinds of trade and services transactions.

Repayment of foreign loans that were not registered with the BOT up to US$ 500,000 per transaction.

Remittance of non-residents' portfolio and direct investment up to US$ 500,000 per transaction.

Deposit of service payments owed to non-residents by residents into "transferable" non-resident baht account

up to B5 million per day; withdrawal of baht to be converted into foreign currencies for remittance abroad from "blocked" non-resident baht account up to B5 million per day. Any amount above this limit required approval from the BOT.

1 Apr. 1991 FDI by residents or lending to their affiliates abroad not exceeding US$ 5 million per year.

Residents and non-residents can freely open foreign currency accounts with funds that originate from abroad. Non-residents can withdraw for payments abroad without limit. For resident account, daily outstanding balances in all accounts of a juristic person and an individual must not exceed US$ 5 million and US$ 500,000, respectively.

The transferable and blocked non-resident baht accounts were unified. There is no restriction on drawing funds from the accounts, including conversion into foreign currencies for remittance abroad.

2 Feb. 1994 FDI by residents and lending to their affiliates abroad was up to US$ 10 million a year.

Foreign currency receiving from BIBF, foreign currency borrowing by non-residents from domestic banks and foreign currency resulting from conversion of baht withdrawn from non-resident baht accounts can be deposited freely into foreign currency accounts.

Non-resident baht accounts can be freely credited with:

- baht as proceeds from sale of foreign currency withdrawn from non-residents' foreign currency accounts; and,
- baht borrowing from authorised banks.

Residents are permitted to use foreign exchange that originates from abroad to service external obligation without surrendering or depositing them in domestic banking accounts.

THAILAND: CONTRIBUTION TO INFLATION, 1980-1993

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Domestic Demand	2.98	2.15	3.20	3.15	2.57	1.36	1.77	2.67	2.41	3.48	3.53	2.62	2.06	2.49
% Δ M2 (in %)	(22.5)	(16.3)	(24.2)	(23.8)	(19.4)	(10.3)	(13.4)	(20.2)	(18.2)	(26.3)	(26.7)	(19.8)	(15.6)	(18.8)
Cost Push	10.65	6.17	2.23	-0.15	0.35	1.55	-0.63	0.74	1.38	1.20	2.94	3.60	1.98	1.61
- Wage and Salaries	4.40	3.03	1.79	0.56	0.50	0.89	0.00	0.56	0.19	1.00	1.85	1.85	2.18	1.57
% Δ Wages (in %)	(28.3)	(19.5)	(11.5)	(3.6)	(3.2)	(5.7)	(0.0)	(3.6)	(1.2)	(6.4)	(11.9)	(11.9)	(14.0)	(10.1)
- Oil Prices	5.48	1.80	0.14	-0.39	-0.43	0.00	-0.97	-0.44	0.02	-0.30	0.86	1.36	-0.34	-0.11
% Δ Domestic Oil (in %)	(55.4)	(18.2)	(1.4)	(-3.9)	(-4.3)	(0.0)	(-9.8)	(-4.4)	(0.2)	(-3.0)	(3.7)	(13.7)	(-3.4)	(-1.1)
- Import Prices	0.77	1.34	0.30	-0.32	0.28	0.66	0.34	0.62	1.17	0.50	0.23	0.39	0.14	0.15
% Δ Import (in %)	(9.5)	(16.5)	(3.7)	(-3.9)	(3.4)	(8.1)	(4.2)	(7.7)	(14.4)	(6.2)	(2.9)	(4.8)	(1.7)	(1.8)
Others	6.07	4.37	-0.23	0.80	-2.02	-0.51	0.76	-0.91	0.01	0.72	-0.47	-0.52	0.06	-0.80
Inflation	19.7	12.7	5.2	3.8	0.9	2.4	1.9	2.5	3.8	5.4	6.0	5.7	4.1	3.3

$$\ln CPI = \underset{(17.02)}{1.38401} + \underset{(12.15)}{0.13229} \ln M2 + \underset{(6.69)}{0.099} \ln POIL + \underset{(6.71)}{0.15556} \ln MINWAGE + \underset{(4.25)}{0.08099} \ln PMNO$$

$R^2 = 0.99$ S.E. = 0.0121 DW = 0.28

OBS: Jan. 1981 - May 1993

Source: Bank of Thailand.

DATA DEFINITIONS AND SOURCES

GDI = Gross domestic investment as percentage of GDP (from the World Bank, ***World Tables***; Council for Economic Planning and Development, Republic of China, ***Taiwan Statistical Data Book 1993 (TSDB)***.

GDS = Gross domestic savings as percentage of GDP (from Asian Development Bank, ***Key Indicators of Developing Asian and Pacific Countries***; and ***TSDB***).

RGR = Annual rate of growth of GDP at constant price (from International Monetary Fund, ***International Financial Statistics (IFS)***; and ***TSDB***).

OFCI = Official capital inflow as percentage of GDP. Sum of both "Other Long- and Short-Term Resident Official Sector and Official Unrequited Transfer" ((from ***IFS***; ***Balance of Payments Statistics*** (BOP); ADB, ***Key Indicators*** (for Taiwan)).

FDI = Foreign direct investment as percentage of GDP (from IFS; ADB, ***Key Indicators***).

OPCI = Other private capital inflow as percentage of GDP. Sum of "Other Long- and Short-Term Capital minus Resident Official Sector plus Private Unrequited Transfer plus Net Errors and Omissions" (from ***IFS***; BOP; ADB, ***Key Indicators*** (for Taiwan)).

PCI = Total private capital inflow as percentage of GDP. Sum of "OPCI plus FDI".

TCI = Total capital inflow as percentage of GDP. Sum of "OFCI plus PCI".

Appendix 4.1

LAG LENGTH SELECTION

Country	No. of Lags	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	RGR/PCI SC	RGR/PCI FPE	PCI/RGR SC	PCI/RGR FPE
Indonesia	1	2.4386 *	9.9090 *	-0.0007 *	0.8643 *	2.4360 *	9.8840 *	1.9052 *	5.8128 *
	2	2.5379	10.4303	0.0991	0.9012	2.5336	10.3853	2.0559	6.4411
	3	2.6949	11.6476	0.2212	0.9816	2.6817	11.4947	2.2099	7.1715
	4	2.8729	13.3236	0.4016	1.1254	2.8656	13.2265	2.3396	7.8159
	5	3.0829	15.8196	0.5577	1.2662	3.0739	15.6773	2.5513	9.2966
	6	3.1587	16.5725	0.7791	1.5344	3.1595	16.5851	2.5901	9.3849
Korea	1	2.8128 *	13.7599 *	0.6573	1.6724	2.7200	12.5403	1.9092	5.8479
	2	2.9381	14.8954	0.2464 *	1.0568 *	2.6994 *	11.7012 *	1.7535 *	4.7705 *
	3	3.0996	16.7195	0.3921	1.1663	2.8956	13.6302	1.9256	5.4049
	4	3.2745	19.0751	0.5658	1.3259	3.0368	15.1061	1.9587	5.3391
	5	3.3719	20.2324	0.7662	1.5536	3.1277	16.0657	2.0651	5.6939
	6	3.2788	17.8747	0.8603	1.6461	3.2805	18.4550	2.2274	6.4594
Malaysia	1	2.4997 *	10.5560 *	1.5109 *	3.9271 *	2.4847 *	10.3981 *	2.5017 *	10.5761 *
	2	2.6658	11.8780	1.6733	4.4025	2.6562	11.7646	2.6494	11.6854
	3	2.7948	12.8901	1.8235	4.8799	2.7557	12.3962	2.8216	13.2405
	4	2.9329	14.1437	2.0135	5.6396	2.9269	14.0589	2,8900	13.5495
	5	3.0871	15.8225	2.1025	5.9111	3.0513	15.2653	2.8392	12.3485
	6	3.2423	17.8220	2.3028	6.9652	3.1187	15.7494	2.7998	11.4496
Nepal	1	3.0075	16.9778	0.5103	1.4476	3.2911	22.1051	2.2548	8.2856
	2	2.8590 *	14.1465 *	0.2433 *	1.0700 *	3.2261	20.3159	2.3439	8.7442
	3	2.9002	14.6650	0.4398	1.2770	3.0414 *	16.7842 *	2.1069 *	6.7640 *
	4	3.1188	18.9471	0.5659	1.4632	3.1121	19.4670	2.2732	8.0677
Philippines	1	2.5421 *	11.0125 *	1.2404 *	2.9962 *	2.5821 *	11.4625 *	1.4192 *	3.5826
	2	2.6587	11.7942	1.2935	3.0114	2.6395	11.5704	1.4267	3.4407 *
	3	2.7976	12.9262	1.4491	3.3562	2.7084	11.8244	1.5934	3.8772
	4	2.9043	13.7439	1.5930	3.7038	2.8832	13.4579	1.7705	4.4232
	5	3.0555	15.3297	1.6511	3.7636	3.0321	14.9749	1.7720	4.2476
	6	3.2281	17.5704	1.7659	4.0718	3.1406	16.0992	1.7740	4.1047

Country	No. of Lags	RGR/FDI SC	RGR/FDI FPE	FDI/RGR SC	FDI/RGR FPE	RGR/OFCI SC	RGR/OFCI FPE	OFCI/RGR SC	OFCI/RGR FPE
Indonesia	1	2.3238	8.8352	-1.0819 *	0.2931	2.4430 *	9.9532 *	1.9038 *	5.8048 *
	2	2.3027 *	8.2442 *	-1.0474	0.2892 *	2.5364	10.4142	2.0493	6.3988
	3	2.4843	9.4355	-0.9239	0.3123	2.6949	11.6474	2.2160	7.2153
	4	2.6601	10.7697	-0.8009	0.3381	2.8812	13.4346	2.3490	7.8902
	5	2.8593	12.6494	-0.6971	0.3610	3.0895	15.9241	2.5463	9.2498
	6	3.0549	14.9386	-0.8425	0.3031	3.1591	16.5780	2.6853	10.3226
Korea	1	3.3455 *	19.7610 *	-2.9068	0.0474	2.8179 *	14.5113 *	2.0176 *	6.5179 *
	2	3.4640	21.5107	-2.8368	0:0484	2.9507	15.7937	2.1689	7.2271
	3	3.5547	22.8869	-2.6633	0.0549	3.0816	17.1728	2.2818	7.7179
	4	3.6208	23.9004	-2.5514	0.0587	3.2106	18.6711	2.2958	7.4792
	5	3.7564	26.9567	-2.5920	0.0541	3.3123	19.8195	2.4925	8.7309
	6	3.4711	20.1397	-3.5269 *	0.0205 *	3.2992	18.8664	2.6366	9.7258
Malaysia	1	2.5112 *	10.6777 *	0.5795 *	1.5472	2.4569 *	10.1130 *	1.7832 *	5.1561 *
	2	2.6717	11.9483	0.7482	1.7456	2.6292	11.4515	1.9523	5.8196
	3	2.8037	13.0060	0.6174	1.4609 *	2.7269	12.0454	2.1294	6.6265
	4	2.9491	14.3735	0.7395	1.5774	2.8839	13.4671	2.3047	7.5462
	5	3.1102	16.1928	0.8844	1.7484	3.0089	14.6331	2.3734	7.7498
	6	3.2669	18.2670	1.0851	2.0609	3.1435	16.1452	2.4958	8.4484
Nepal	1								
	2	n/a		n/a		n/a		n/a	
	3								
	4								
Philippines	1	2.8241 *	14.5843	-0.9891 *	0.3219 *	2.5821 *	11.4622 *	1.1977	2.8709
	2	2.8650	14.4798 *	-0.8122	0.3661	2.6381	11.5539	1.1235 *	2.5406 *
	3	3.0487	16.6024	-0.6609	0.4065	2.6926	11.6391	1.2825	2.8412
	4	3.0576	16.0180	-0.5426	0.4376	2.8441	12.9421	1.4234	3.1261
	5	3.1150	16.2935	-0.3808	0.4941	3.0059	14.5897	1.5386	3.3635
	6	3.3328	19.5961	-0.2158	0.5633	3.1291	15.9153	1.5557	3.2999

Country	No. of Lags	RGR/TCI SC	RGR/TCI FPE	TCI/RGR SC	TCI/RGR FPE	[illegible] SC	[illegible] FPE	GDS/RGR SC	GDS/RGR FPE
Indonesia	1	2.4316 *	9.8399 *	1.9075 *	5.8266 *	2.3980 *	9.5156 *	2.6731 *	12.5280 *
	2	2.5336	10.3854	1.9826	5.9859	2.5332	10.3809	2.8367	14.0624
	3	2.6836	11.5173	2.1292	6.6154	2.6795	11.4701	2.9766	15.4380
	4	2.8725	13.3174	2.3137	7.6161	2.8784	13.3968	3.1665	17.8694
	5	3.0801	15.7753	2.5222	9.0297	3.0762	15.7131	3.3593	20.8544
	6	3.1599	16.5923	2.5641	9.1437	3.1571	16.5448	3.5767	25.1721
Korea	1	2.8175 *	14.5055 *	1.9333 *	5.9914 *	2.9636 *	15.2603 *	2.0779	6.9229
	2	2.9504	15.7893	2.0725	6.5627	3.0912	16.5798	1.9883 *	6.0331 *
	3	3.0806	17.1552	2.1906	7.0449	3.2186	18.0423	2.0852	6.3402
	4	3.2108	18.6748	2.1855	6.6983	3.3319	19.4092	2.2589	7.2082
	5	3.3157	19.8865	2.3793	7.7967	3.4506	21.1220	2.4324	8.2216
	6	3.2975	18.8333	2.5495	8.9138	3.4508	20.6271	2.5017	8.4977
Malaysia	1	2.6508 *	11.7018 *	2.8883 *	15.5684	2.4778 *	9.3894 *	2.6751	12.5791
	2	2.7656	15.5349	2.9035	15.0656 *	2.6043	10.1897	2.7881	13.4240
	3	2.8818	13.4482	3.0656	16.8992	2.6255	9.9699	2.6242 *	10.8690 *
	4	3.0689	15.5306	3.2082	18.6253	2.8130	11.5517	2.7465	11.7374
	5	3.2074	17.1627	3.2265	18.1882	2.9485	12.7847	2.8445	12.4147
	6	3.3401	19.0029	3.1656	16.5062	3.0974	14.4867	2.8353	11.8626
Nepal	1	2.8613 *	15.1953 *	2.4641 *	10.2139 *	2.8713 *	15.3480 *	1.5860 *	4.2446
	2	2.9635	16.2466	2.7149	12.6713	3.0143	17.0927	1.6204	4.2408 *
	3	3.1435	19.0707	2.5411	10.4422	3.1462	19.1223	1.8424	5.1921
	4	3.3703	24.1675	2.7664	13.2116	3.3584	23.8812	2.0683	6.5734
Philippines	1	2.6345	11.5128	1.8994	5.7627	2.6335 *	12.0542 *	1.7868 *	5.1692 *
	2	2.6088 *	10.7163 *	1.8025 *	5.0098 *	2.6941	12.2053	1.8927	5.4765
	3	2.6822	11.0148	1.9513	5.5459	2.8378	13.4454	1.8950	5.2372
	4	2.8498	12.4750	2.1226	6.2896	2.9644	14.5933	2.0157	5.6510
	5	2.9607	13.4101	2.2752	7.0253	2.9571	13.9128	2.0424	5.5739
	6	3.1284	15.3774	2.4459	8.0374	3.0964	15.4707	2.1694	6.1222

Country	No. of Lags	GDS/OFCI SC	GDS/OFCI FPE	OFCI/GDS SC	OFCI/GDS FPE	GDS/PCI SC	GDS/PCI FPE	PCI/GDS SC	PCI/GDS FPE
Indonesia	1	2.6776 *	12.5845 *	0.1492 *	1.0040 *	2.6259 *	11.9513 *	1.9144 *	5.8665 *
	2	2.8502	14.2537	0.2847	1.0959	2.7965	13.5077	2.0655	6.5034
	3	2.9788	15.4716	0.4665	1.2545	2.9351	14.8095	2.2158	7.2139
	4	3.1636	17.8175	0.6221	1.4031	3.1218	17.0887	2.3432	7.8446
	5	3.3489	20.6403	0.8040	1.5505	3.3139	19.9312	2.5536	9.3174
	6	3.5656	24.8935	1.0100	1.9329	3.5328	24.0896	2.5235	8.7798
Korea	1	1.9975 *	6.0885	0.0650 *	0.8815 *	1.7007 *	4.5250 *	1.9586	5.8568
	2	2.1227	6.5909	0.1257	0.8945	1.7815	4.6850	1.8361 *	4.9483 *
	3	2.0757	6.0059 *	0.2613	0.9785	1.8829	4.9528	2.0207	5.6842
	4	2.2623	6.9316	0.4258	1.1048	2.0416	5.5591	2.1489	6.1891
	5	2.4324	7.9069	0.5867	1.2486	2.1215	5.7940	2.2981	6.9129
	6	2.5279	8.4352	0.7804	1.4695	2.1876	6.0027	2.4045	7.4565
Malaysia	1	2.7115	13.0452	1.6699 *	4.1857 *	2.6322 *	12.0509	3.1156	17.7660
	2	2.8171	13.8188	1.7926	4.5253	2.7818	13.3396	3.1427	17.4569
	3	2.7076 *	11.8142 *	1.9129	4.8888	2.7124	11.8714 *	2.8826 *	12.8930
	4	2.8438	12.9377	2.0986	5.6543	2.8485	12.9986	3.0536	14.6938
	5	2.9755	14.1518	2.2259	6.2068	2.9824	14.2498	2.9298	12.5487 *
	6	3.0592	14.8395	2.4426	7.5268	3.0328	14.4530	3.0947	14.4476
Nepal	1	1.5323	3.8834	0.5325	1.4801	1.7983	4.9678	2.1247	7.2742
	2	1.4252 *	3.3725 *	0.2793 *	1.1093 *	1.7370	4.5828	2.2483	7.9466
	3	1.6837	4.3449	0.4911	1.3442	1.7315 *	4.5293 *	2.1110 *	6.7918 *
	4	1.7581	4.8598	0.6776	1.6361	1.9635	6.1729	2.2754	8.0859
Philippines	1	1.8787 *	5.6665 *	1.9331	5.9833	1.8997 *	5.7867 *	1.9257 *	5.9393
	2	2.0101	6.1584	1.9167	5.6096	2.0182	6.2084	2.0042	6.1221
	3	2.1193	6.5542	1.9039	5.2842	2.1152	6.5275	2.0478	6.1021
	4	2.2727	7.3072	2.0982	6.1374	2.2758	7.3301	2.1710	6.6006
	5	2.3535	7.6086	1.7507 *	4.1641 *	2.3237	7.3853	2.0234	5.4692
	6	2.5405	8.8734	1.8481	4.4399	2.4728	8.2929	1.9516	4.9242 *

Country	No. of Lags	GDS/FDI SC	GDS/FDI FPE	FDI/GDS SC	FDI/GDS FPE	GDS/OPCI SC	GDS/OPCI FPE	OPCI/GDS SC	OPCI/GDS FPE
Indonesia	1	2.6370 *	12.0847 *	-1.0831 *	0.2928	2.6482 *	12.2201 *	1.9123 *	5.8545 *
	2	2.8140	13.7466	-1.0437	0.2903	2.8170	13.7883	2.0583	6.4567
	3	2.9463	14.9768	-0.9655	0.2996	2.9485	15.0104	2.2191	7.2376
	4	3.1307	17.2416	-0.8173	0.3326	3.1351	17.3173	2.3479	7.8816
	5	3.3249	20.1506	-0.6975	0.3609	3.3268	20.1876	2.5469	9.2556
	6	3.5494	24.4934	-0.9889	0.2618 *	3.5435	24.3503	2.6619	10.0830
Korea	1	2.3428 *	7.2495 *	-2.9733	0.0422	2.0372	6.6472	2.2303 *	7.3301 *
	2	2.3976	7.4052	-2.8479	0.0457	2.0081	6.1534	2.3036	7.5427
	3	2.4936	7.9205	-2.6646	0.0525	1.9714 *	5.6582 *	2.3880	7.8626
	4	2.6325	8.8964	-2.6451	0.0512	2.1183	6.2627	2.5320	8.7215
	5	2.7517	9.8692	-3.1260	0.0305	2.2939	7.1578	2.7418	10.3976
	6	2.8311	10.6193	-3.6698 *	0.0172 *	2.3797	7.5223	2.8816	11.6752
Malaysia	1	2.7255	13.2293	1.0612	2.2772	2.5783 *	11.4181	2.3386 *	8.1691 *
	2	2.8599	14.4237	1.1239	2.3185	2.7392	12.7824	2.4666	8.8606
	3	2.7202 *	11.9643 *	0.9651 *	1.8949 *	2.6406	11.0488 *	2.5306	9.0676
	4	2.8587	13.1320	1.1195	2.1239	2.7777	12.1102	2.6905	10.2195
	5	2.9581	13.9081	1.1178	2.0494	2.9354	13.5958	2.7765	10.7646
	6	3.0566	14.8008	1.1016	1.9687	2.9113	13.7992	2.9249	12.1923
Nepal	1	n.a.		n.a.		n.a.		n.a.	
	2								
	3								
	4								
Philippines	1	1.8674 *	5.6031 *	-0.9762 *	0.3262 *	1.8904 *	5.7336 *	1.6785	4.6387
	2	1.9841	6.0005	-0.8068	0.3681	2.0052	6.1287	1.7308	4.6581
	3	2.1001	6.4292	-0.6491	0.4111	2.1204	6.5608	1.6487 *	4.0939
	4	2.2782	7.3474	-0.5528	0.4331	2.2815	7.3722	1.7625	4.3871
	5	2.3464	7.5542	-0.4188	0.4756	2.3348	7.4676	1.7686	4.2391
	6	2.4866	8.4080	-0.2376	0.5514	2.4921	8.4541	1.7583	4.0587 *

Country	No. of Lags	GDS/TCI SC	GDS/TCI FPE	TCI/GDS SC	TCI/GDS FPE	RGR/LTC SC	RGR/LTC FPE	LTC/RGR SC	LTC/RGR FPE
Indonesia	1	2.6052 *	11.7059 *	1.8998 *	5.7815	2.4832 *	10.3415 *	0.5169	1.4475
	2	2.7765	13.2407	1.9258	5.6554 *	2.6749	11.9491	0.4857 *	1.3384 *
	3	2.9286	14.7140	2.1031	6.4450	2.7801	12.7050	0.6915	1.5737
	4	3.1220	17.0920	2.2906	7.4427	2.8657	13.3279	0.8336	1.7466
	5	3.3201	20.0534	2.5041	8.8673	3.0670	15.8627	0.8850	1.7895
	6	3.5388	24.2368	2.5932	9.4143	3.2980	19.8140	1.0149	2.0203
Korea	1	2.0355	6.6359	2.0607 *	6.4861 *	2.8206 *	14.4985 *	1.5876 *	4.2249 *
	2	1.9978	6.0903	2.1091	6.5015	3.0076	16.6657	1.7664	4.8176
	3	1.9619 *	5.6051 *	2.2504	7.1519	3.1915	19.1470	1.9087	5.3087
	4	2.1098	6.2097	2.3288	7.4087	3.3877	22.3774	2.1158	6.2724
	5	2.2863	7.1038	2.5349	8.7606	3.3512	20.8978	2.3453	7.6428
	6	2.3630	7.3974	2.7308	10.3334	3.4199	21.9956	2.4009	7.9390
Malaysia	1	2.5463	10.5404	3.3379	22.1901	2.4881 *	10.4340 *	2.2939 *	8.5926 *
	2	2.6338	10.9871	3.2341	19.1280	2.6559	11.7618	2.4045	9.1474
	3	2.4345 *	8.5980 *	3.3021	19.6129	2.7774	12.6675	2.5708	10.3040
	4	2.5658	9.3908	3.1222	15.7361	2.9468	14.3415	2.7117	11.3362
	5	2.7097	10.4339	2.8593 *	11.6933 *	3.0952	15.9505	2.8902	12.9945
	6	2.7636	10.6780	3.0807	14.2465	3.2672	18.2714	3.0067	14.0813
Nepal	1	1.5501 *	4.0949	2.4159 *	9.7337 *	3.6376	33.1657	0.7879 *	1.9189 *
	2	1.5562	3.9774 *	2.6579	11.9698	3.1669	20.1003	1.0632	2.4521
	3	1.7999	4.9759	2.5286	10.3122	3.3234	23.2872	1.3384	3.1987
	4	2.0102	6.2025	2.7473	12.9622	2.9155 *	15.9843 *	1.5888	4.2417
Philippines	1	1.8904 *	5.7330 *	1.9547 *	6.1140 *	2.9549 *	16.5724 *	1.4934	3.8424
	2	2.0158	6.1943	2.0719	6.5516	3.1224	18.7037	1.6985	4.5037
	3	2.1125	6.5101	2.1327	6.6424	3.2406	20.1823	1.6248	4.0108
	4	2.2496	7.1401	2.3163	7.6331	3.1205	17.2917	1.7932	4.5853
	5	2.3112	7.2931	2.4362	8.2649	3.1202	16.9295	2.0517	5.8159
	6	2.4899	8.4360	2.5534	8.9885	3.3865	22.1723	1.3211 *	2.8107 *

Country	No. of Lags	PGDP/STC SC	PGDP/STC FPE	STC/PGDP SC	STC/PGDP FPE	GDS/STC SC	GDS/STC FPE	STC/GDS SC	STC/GDS FPE
Indonesia	1	3.3065 *	19.9837 *	1.1766	2.7997	2.7731 *	13.8191 *	0.5732 *	1.5314
	2	3.4372	22.5549	1.3538	3.1885	2.9512	15.7512	0.5989	1.4987 *
	3	3.6028	26.7402	1.4892	3.4941	3.1405	18.2176	0.8016	1.7568
	4	3.5039	24.8056	1.6364	3.8983	3.3192	20.9753	0.9732	2.0083
	5	3.6416	29.9509	1.8715	4.7994	3.4613	23.5296	1.0231	2.0545
	6	3.4251	26.4003	-0.3291 *	0.5268 *	3.5642	25.8568	1.1641	2.3455
Korea	1	2.7386 *	13.3571 *	0.9744 *	2.2884 *	2.0009 *	6.3870 *	1.5543 *	4.0866 *
	2	2.9186	15.2467	1.1325	2.5554	2.0693	6.5212	1.6335	4.2175
	3	3.0705	16.9618	1.3107	2.9193	2.1029	6.4463	1.8295	4.9044
	4	3.2746	19.9842	1.4535	3.2343	2.2515	7.1841	1.9542	5.3364
	5	3.3493	20.8584	1.6218	3.7071	2.4044	8.1078	2.0982	5.9693
	6	3.4275	22.1623	1.5698	3.4582	2.3345	7.4293	2.3043	7.2083
Malaysia	1	2.5088 *	10.6520 *	1.7039 *	4.7627 *	2.6436 *	12.1897	2.7175 *	11.9320
	2	2.6734	11.9694	1.8527	5.2679	2.7859	13.3952	2.7964	12.3476
	3	2.8037	13.0069	1.9879	5.7523	2.6897	11.6051 *	2.7363	11.1387 *
	4	2.9527	14.4267	2.1466	6.4428	2.8189	12.6196	2.7872	11.2565
	5	3.1079	16.1562	2.2292	6.7098	2.9642	13.9934	2.9929	13.3657
	6	3.2352	17.6953	2.4350	7.9498	2.9912	13.8648	3.0462	13.7630
Nepal	1	3.6196	32.5744	2.1585	7.5565	1.8326 *	5.4550 *	0.8506 *	2.0431 *
	2	2.7044	12.6575	1.8428	5.3476	1.9863	6.1726	1.1246	2.6076
	3	2.7091	12.5974	2.1377	7.1147	2.2460	7.9282	1.3976	3.3942
	4	2.4055 *	9.5997 *	1.6551 *	4.5326 *	2.5785	11.4128	-1.6068	4.3189
Philippines	1	2.9921 *	17.1989 *	1.1784 *	2.8043 *	1.8507 *	5.4932	2.1195 *	6.5794 *
	2	3.1555	19.3326	1.3677	3.2349	2.0584	6.4544	2.2742	7.3765
	3	3.2649	20.6782	1.5737	3.8112	1.8786	5.1694 *	2.3525	7.6975
	4	3.2452	19.5886	1.7084	4.2129	2.0820	6.1208	2.3525	7.6975
	5	3.2336	18.9623	1.9339	5.1694	2.3001	7.4551	2.8993	9.5852
	6	3.5018	24.8831	1.7653	4.3827	2.3476	7.8453	2.7992	12.5869

Country	No. of Lags	GDS/TCI SC	GDS/TCI FPE	TCI/GDS SC	TCI/GDS FPE
Indonesia	1	2.7714 *	11.7020 *	1.1893	2.8355
	2	2.8269	12.2511	1.3848	3.2889
	3	2.9926	14.5265	1.5443	3.6921
	4	3.1588	17.5666	1.7221	4.2471
	5	2.9085	14.3888	1.9613	5.2501
	6	3.0334	17.8454	-0.6171 *	0.3951 *
Korea	1	1.9215	5.9000	1.0445 *	2.4544 *
	2	1.9396	5.7278	1.1308	2.5512
	3	1.8835 *	5.1766 *	1.3211	2.9498
	4	1.9780	5.4651	1.4334	3.1700
	5	2.1621	6.3629	1.5888	3.5868
	6	2.1509	6.1831	1.5198	3.2895
Malaysia	1	2.7329	13.3281	2.0717 *	6.2548 *
	2	2.8631	14.4689	2.1406	6.4082
	3	2.7004 *	11.7296 *	2.2384	6.7700
	4	2.8485	12.9979	2.3907	7.5726
	5	2.9399	13.6579	2.4972	8.1409
	6	3.0349	14.4848	2.7139	9.8730
Nepal	1	2.3202 *	8.8142 *	2.0301	6.6455
	2	2.5238	11.1259	1.8692	5.4903 *
	3	2.5477	12.1894	2.1517	7.2146
	4	2.7541	17.0540	1.8531 *	5.5251
Philippines	1	1.8037	5.2408	1.7853 *	4.7091 *
	2	2.0079	6.1361	1.9279	5.2176
	3	1.7913 *	4.7375 *	2.0321	5.5878
	4	2.0248	5.7806	2.1912	6.4377
	5	2.2587	7.1535	2.3532	7.6288
	6	2.1036	6.1466	1.9398	5.3299

Country	Lag	SC	FPE	SC	FPE	SC	FPE	SC	FPE	Lag	SC	FPE	SC	FPE	SC	FPE	SC	FPE
Singapore	1	2.7699	12.0143	0.0333	0.8951	2.8981	12.6873	4.0463	49.5083	1	2.3749 *	9.3069	1.9827 *	6.2874 *	3.0837	15.2750	3.9959	47.0794
	2	2.6408 *	10.1258	-0.0074	0.8190	2.7957 *	11.1029	4.2202	56.1435	2	2.3979	9.0770 *	2.1108	6.8110	2.9607 *	13.0945 *	4.1581	52.7648
	3	2.7747	11.1345	-3.3815	0.0268	2.9392	12.4977	4.3659	61.9735	3	2.5012	9.6021	2.1860	7.0061	3.1055	14.7585	4.2614	55.8201
	4	2.6761	9.7359 *	-3.8859 *	0.0153 *	2.8318	11.0249 *	4.4978	67.6257	4	2.6284	10.4279	2.3531	7.9189	3.0429	13.6172	4.4356	63.5467
	5	2.8551	11.3689	-3.7520	0.0169	2.8878	11.5576	4.1856	47.5316	5	2.7687	11.5242	2.5382	9.1517	3.1395	14.8654	4.1439	45.5861
	6	2.9901	12.9187	-3.6754	0.0177	2.9849	12.7701	3.7121 *	28.6345 *	6	2.9662	13.5814	2.3013	6.9851	3.2565	16.7554	3.5476 *	24.2916 *
Sri Lanka	1	1.7007	4.7427	1.3879 *	3.1542 *	1.7559	5.0116	1.8933	5.2284	1	1.7285	4.8765	-1.7164 *	0.1414 *	1.7571	5.0174	1.8711	5.1137
	2	1.7691	4.8398	1.4468	3.2000	1.7529	4.7622	2.0146	5.6440	2	1.6861	4.4539	-1.5856	0.1542	1.7639	4.8148	1.9870	5.4921
	3	1.5993 *	3.8967 *	1.5792	3.5009	1.6045 *	3.9171 *	2.1349	6.1029	3	1.5578 *	3.7383 *	-1.4661	0.1665	1.6050 *	3.9188 *	2.0902	5.8364
	4	1.7320	4.2552	1.6665	3.6760	1.7561	4.3587	1.8662	4.4885	4	1.7020	4.1295	-1.5892	0.1417	1.7537	4.3485	1.8812	4.5566
	5	1.8615	4.6520	1.8753	4.3924	1.8571	4.6311	1.8161	4.1395	5	1.8508	4.6025	-1.4006	0.1659	1.8528	4.6117	1.7097 *	3.7220 *
	6	1.8553	4.4722	1.9897	4.8357	1.8504	4.4501	1.7931 *	3.9724 *	6	1.7971	4.2195	-1.2380	0.1917	1.8544	4.4681	1.7472	3.7945
ROC-Taipei	1	2.4143 *	9.0681 *	-7.7215 *	0.0004 *	2.6573	12.3544	-2.0350 *	0.1054 *	1	2.5572 *	10.7500 *	0.5351	1.3776	2.3744 *	8.9544 *	0.6707 *	1.3778 *
	2	2.5940	10.5706	-7.6405	0.0004	2.1262 *	6.9856 *	-2.0247	0.1059	2	2.7283	12.2869	0.4515	1.2593	2.5042	9.8198	0.7128	1.6354
	3	2.7412	12.0500	-7.4523	0.0005	2.2342	7.5735	-1.8415	0.1287	3	2.9831	15.5985	0.3449	1.1459	2.7741	12.6564	0.9012	1.9987
	4	2.8679	14.2852	-7.4305	0.0005	2.3844	8.7557	-1.6885	0.1558	4	2.7066	12.0096	0.1095 *	0.9409 *	2.6465	11.3088	0.9043	2.0831
Thailand	1	2.2475	8.2028	-0.7661 *	0.4028 *	2.2242 *	8.0135	1.8132 *	5.3126 *	1	2.5601	11.2003	-1.1515 *	0.2737 *	2.2092 *	7.8945 *	1.5552 *	4.1050 *
	2	2.2293 *	7.6766 *	-0.6551	0.4291	2.2663	7.9666 *	1.9837	6.0051	2	2.5493 *	10.5603	-0.9778	0.3103	2.2619	7.9315	1.7092	4.5637
	3	2.4013	8.6971	-0.5017	0.4770	2.4201	8.8624	2.0248	5.9686	3	2.7188	11.9364	-0.9191	0.3139	2.4112	8.7842	1.7266	4.4292
	4	2.5229	9.3866	-0.4204	0.4945	2.5555	9.6971	2.1852	6.6960	4	2.8302	12.7604	-0.7687	0.3490	2.5521	9.6642	1.8509	4.7935
	5	2.7199	10.9606	-0.4202	0.4743	2.7472	11.2635	2.3627	7.6679	5	2.9658	14.0360	-0.6322	0.3842	2.7395	11.1766	2.0402	5.5543
	6	2.5730	9.1263	-0.2925	0.5197	2.6315	9.6762	2.4492	8.0636	6	2.5952	9.3719 *	-0.4923	0.4275	2.6280	9.6422	2.1067	5.7249

Country	Lag	SC	FPE	SC	FPE	SC	FPE	SC	FPE	Lag	SC	FPE	SC	FPE	SC	FPE	SC	FPE
Singapore	1	2.9078	12.8113	4.1654	55.7738	2.1877 *	6.7113	1.8355 *	5.4269	1	2.0174	5.6603	-0.5888	0.4805	1.8504	4.4503	4.0219	42.0143
	2	2.8019 *	11.1717	4.3271	62.4814	2.3221	7.3624	1.8980	5.5056	2	1.9824	5.2418	-0.5378	0.4818	1.7584 *	3.9349 *	4.0025	39.5228
	3	2.9454	12.5749	4.4175	65.2499	2.4377	7.9492	1.9387	5.4714	3	1.9095 *	4.6872 *	-3.4432	0.0252	1.8729	4.3026	4.0889	41.4423
	4	2.8413	11.1301 *	4.5099	68.4455	2.2706	6.4906 *	1.8612	4.8420 *	4	2.0455	5.1821	-3.9305 *	0.0148 *	2.0135	4.8641	3.9439	34.5944
	5	2.9009	11.7108	4.1341	45.1405	2.3934	7.1651	2.0497	5.6153	5	2.1675	5.7151	-3.7640	0.0168	2.1036	5.2759	3.9231 *	33.0815 *
	6	2.9734	12.6247	3.6947 *	28.1419 *	2.3777	7.0012	2.0667	5.5247	6	2.3767	6.9940	-3.6645	0.0179	2.2371	6.0455	3.9848	34.9247
Sri Lanka	1	1.7424	4.9445	2.1907 *	7.0393	1.7504	4.9843	2.8706	13.8932	1	2.6130	11.8093	1.2985 *	3.1721 *	2.6148	11.8306	1.7861 *	5.1654 *
	2	1.7673	4.8314	2.3145	7.6209	1.7485	4.7409	2.9656	14.6125	2	2.7349	12.7139	1.4289	3.4441	2.7252	12.5911	1.9615	5.8668
	3	1.6044 *	3.9165 *	2.4374	8.2590	1.5949 *	3.8795	3.0589	15.3758	3	2.8218	13.2323	1.6006	3.9016	2.8297	13.3360	2.1348	6.6562
	4	1.7431	4.3027	2.2638	6.6805 *	1.7424	4.2999	2.8659	12.1983	4	2.7694	12.0074	1.5599	3.5824	2.7667	11.9757	2.1185	6.2630
	5	1.8488	4.5930	2.4741	7.9933	1.7974	4.3628	2.7907	10.9713	5	2.6031 *	9.7659 *	1.7047	3.9767	2.6312	10.0438	2.2439	6.8186
	6	1.8506	4.4512	2.6424	9.2879	1.6964	3.8151 *	2.7386 *	10.2268 *	6	2.6445	9.8464	1.8898	4.6292	2.5651 *	9.0937 *	2.3816	7.5698
ROC-Taipei	1	2.6283	12.0018	-2.0930	0.0995	2.3652	8.8718	1.9187	5.4961	1	2.1415	6.9033	-7.3242	0.0005	2.1122	7.1631	-1.2712 *	0.2337 *
	2	2.0587 *	6.5301 *	-2.1006 *	0.0981 *	2.3385	8.3205	1.2068	2.6803	2	2.0420 *	6.0865 *	-7.1549	0.0006	1.7232 *	4.6686 *	-1.1002	0.2671
	3	2.1947	7.2803	-1.9144	0.1196	2.6132	10.7751	1.1342 *	2.5230 *	3	2.2225	7.1732	-7.6271	0.0004	1.9323	5.6003	-0.8963	0.3223
	4	2.3709	8.6382	-1.7565	0.1455	2.1417 *	6.8265 *	1.2666	2.9927	4	2.4396	9.3077	-7.6406 *	0.0003 *	2.2096	7.3514	-0.7428	0.3814
Thailand	1	2.2135 *	7.9289	1.7020 *	4.7539 *	2.2389	8.1328	1.5685 *	4.1398 *	1	1.5604 *	4.1262 *	-0.9729 *	0.3275 *	1.4827 *	3.8176 *	1.7298 *	4.8878 *
	2	2.2603	7.9191 *	1.8658	5.3373	2.2206 *	7.6107 *	1.7058	4.5485	2	1.6962	4.5046	-0.8328	0.3592	1.6383	4.2513	1.8207	5.1018
	3	2.4087	8.7624	1.8926	5.2296	2.3914	8.6121	1.8369	4.9464	3	1.8379	4.9514	-0.6799	0.3992	1.7825	4.6842	1.8925	5.2288
	4	2.5517	9.6607	2.0514	5.8575	2.4744	8.9417	1.9839	5.4752	4	1.9819	5.4643	-0.6553	0.3910	1.9522	5.3044	2.0261	5.7109
	5	2.7415	11.1999	2.2214	6.6575	2.6716	10.4438	1.9922	5.2939	5	1.9479	5.0645	-0.6696	0.3696	1.9398	5.0238	2.1307	6.0802
	6	2.6284	9.6460	2.3110	7.0226	2.4676	8.2131	1.9955	5.1222	6	1.9935	5.1126	-0.5319	0.4091	1.9549	4.9185	2.2913	6.8856

Country	Lags	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	Lags	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE
Singapore	1	1.6569 *	4.5393 *	2.1030 *	6.1666 *	2.0867	5.6366	3.9422	44.6153	1	1.8338	4.3772	3.9920	46.8939	2.4017	9.5313	1.4128 *	3.3884 *
	2	1.7500	4.7482	2.2312	6.7232	1.8966 *	4.5179 *	4.0758	48.5990	2	1.7446 *	3.8809 *	4.1108	50.3281	2.1305 *	6.9451 *	1.5023	3.5481
	3	1.8105	4.8125	2.2374	6.5062	1.9569	4.6794	4.2439	54.8554	3	1.8636	4.2626	4.2640	55.9693	2.3470	8.2869	1.7020	4.1859
	4	1.8049	4.5773	2.3655	7.1363	2.1008	5.3081	4.3002	55.4964	4	2.0017	4.8073	4.0429	42.9078	2.4304	8.7415	1.9248	5.1225
	5	1.9939	5.3102	2.4420	7.5219	2.2018	5.8203	4.2192	49.1515	5	2.0927	5.2192	3.9625	38.0255	2.5009	9.2647	2.1386	6.3658
	6	1.9843	5.0878	2.6129	8.8579	2.2985	6.4283	3.8158 *	31.7630 *	6	2.2268	5.9837	3.7973 *	31.1814 *	-	-	-	-
Sri Lanka	1	2.5728 *	11.3442	-1.7848 *	0.1453 *	2.6021	11.6805	1.6893 *	4.6887 *	1	2.5994 *	11.6500	2.3614 *	9.1822 *	1.3728	3.4068	1.5623 *	3.7591
	2	2.6587	11.7810	-1.6323	0.1613	2.7106	12.4076	1.8576	5.2877	2	2.7239	12.5749	2.4684	9.7397	1.1066 *	2.4902 *	1.6832	4.0697
	3	2.7646	12.4957	-1.4523	0.1842	2.8160	13.1547	2.0192	5.9294	3	2.8112	13.0917	2.6347	10.9742	1.3053	2.9073	1.7197	4.0637
	4	2.7765	12.0941	-1.4114	0.1835	2.7616	11.9150	1.9958	5.5398	4	2.7498	11.7750	2.7291	11.5330	1.5114	3.4401	1.9105	4.8003
	5	2.6738	10.4811	-1.2074	0.2162	2.6246	9.9779	2.0662	5.7083	5	2.6742	10.4843	2.8408	12.3865	1.5091	3.3403	2.0312	5.3904
	6	2.6722	10.1222 *	-0.9958	0.2583	2.5425 *	8.8910 *	2.1745	6.1541	6	2.6391	9.7928 *	3.0505	14.7769	1.7161	4.0734	2.2425	6.8610
ROC-Taipei	1	1.7228 *	4.6672 *	-0.2932	0.6215	1.4887 *	3.6930 *	-0.0752 *	0.7729	1	2.1016	7.0876	-1.2411 *	0.2409 *	2.6788	12.6238	3.7166 *	33.0110 *
	2	1.8572	5.1416	-0.1201	0.7118	1.6621	4.2302	-0.0514	0.7625 *	2	1.7092 *	4.6042 *	-1.0720	0.2747	2.6369	11.6415	3.8698	38.4322
	3	2.0625	6.2126	-0.3584	0.5519	1.9323	5.4545	0.1572	0.9243	3	1.9192	5.5273	-0.8779	0.3282	2.8500	14.0202	3.8234	37.1402
	4	2.2751	7.8009	-0.5817 *	0.4481 *	2.0733	6.3749	0.1612	0.9419	4	2.2014	7.2915	-0.7582	0.3756	2.5977 *	10.8372 *	3.8944	41.4265
Thailand	1	1.5724 *	4.1716 *	-1.0130 *	0.3144 *	1.5011 *	3.8889 *	1.4508 *	3.6978 *	1	1.4848 *	3.8258 *	1.6300 *	4.4236 *	2.5443	10.9916	0.9976 *	2.3405 *
	2	1.7113	4.5682	-0.8492	0.3529	1.6541	4.3191	1.6020	4.0997	2	1.6433	4.2727	1.7613	4.8079	2.5310	10.3535	1.1415	2.5803
	3	1.8744	5.1302	-0.7995	0.3538	1.7962	4.7486	1.6571	4.1322	3	1.7825	4.6842	1.8431	4.9770	2.6381	11.0482	1.2455	2.7446
	4	1.8605	4.8387	-0.6315	0.4004	1.9645	5.3697	1.7311	4.2522	4	1.9538	5.3132	1.9628	5.3610	2.3599 *	8.0816 *	1.4552	3.2703
	5	1.9663	5.1654	-0.4767	0.4481	1.9454	5.0518	1.8495	4.5899	5	1.9556	5.1039	2.1469	6.1797	2.5107	9.2035	1.6778	4.0015
	6	2.0830	5.6155	-0.2826	0.5272	1.9517	4.9033	2.0024	5.1581	6	1.9543	4.9159	2.3005	6.9496	2.3925	8.2055	1.9222	5.1268

Country	Lags	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	Lags	[illegible] SC	[illegible] FPE	[illegible] SC	[illegible] FPE	[illegible]	[illegible]
Singapore	1	2.4193	9.7011	3.7984	36.8171	1.7181	4.8114	1.4427 *	3.3548 *	1	1.7485	4.9601	3.2286 *	20.0113 *		
	2	2.3343 *	8.5155 *	3.9469	40.8959	1.7595	4.7929	1.5877	3.7338	2	1.7846	4.9141	3.3702	22.1950		
	3	2.5506	10.1584	3.8684	36.5285	1.6652 *	4.1907 *	1.6774	3.9526	3	1.7338 *	4.4885 *	3.5224	25.0121		
	4	2.6747	11.1598	4.0384	42.4047	1.9098	5.1940	1.7105	4.0507	4	1.9620	5.4720	3.3852	21.6196		
	5	2.8905	13.6774	3.7173 *	30.8648 *	1.8414	4.7906	1.7697	4.4068	5	2.0847	6.1100	3.3053	20.4642		
	6	-	-	-	-	-	-	-	-	6	-	-	-	-		
Sri Lanka	1	1.3693	3.3949	0.6012 *	1.4377 *	2.2168	7.9231	1.4647 *	3.7347 *	1	2.2637	8.3037	0.3651 *	1.2436 *		
	2	1.1615 *	2.6307 *	0.7194	1.5524	2.1548	7.1035	1.6657	4.3556	2	2.2347	7.6942	0.4512	1.2931		
	3	1.3255	2.9667	0.8185	1.6503	2.0565	6.1621	1.7095	4.3551	3	2.2059	7.1552	0.6065	1.4455		
	4	1.5408	3.5427	0.6251	1.3274	1.9858	5.5288	1.8536	4.8440	4	2.1362	6.4255	0.5525	1.3187		
	5	1.5721	3.5573	0.8838	1.7113	2.0703	5.8547	1.8913	4.8952	5	2.2472	6.9878	0.5921	1.3351		
	6	1.6429	3.7858	0.9279	1.8427	1.8960 *	4.8764 *	2.0988	5.9726	6	2.0503 *	5.6899 *	0.8209	1.6641		
ROC-Taipei	1	2.6797	12.6351	3.4948	26.5788	2.1123	7.1633	3.0082 *	16.8772 *	1	2.1086	7.1375	3.0467 *	18.2360 *		
	2	2.6493	11.7868	3.6646	31.3024	1.8671 *	5.3911 *	3.1815	19.3306	2	1.8218 *	5.1523 *	3.2229	20.9188		
	3	2.8838	14.5026	3.5461	28.1465	1.9804	5.8756	3.3401	22.2910	3	2.0125	6.0676	3.4392	25.2721		
	4	2.5769 *	10.6144 *	3.2866 *	22.5589 *	2.2132	7.3781	3.6106	29.6584	4	2.1594	6.9917	3.4385	25.1233		
Thailand	1	2.5864	11.4642	1.2871 *	3.1262 *	1.7785	5.1103	0.9948 *	2.3341 *	1	1.6976	4.7133	1.3829 *	3.4408 *		
	2	2.6077	11.1791	1.4649	3.5652	1.9686	5.8997	1.1813	2.6849	2	1.8916	5.4629	1.5559	3.9052		
	3	2.7348	12.1698	1.6399	4.0718	1.9356	5.4729	1.2853	2.8561	3	1.8273	4.9109	1.7428	4.5129		
	4	2.4146 *	8.5366 *	1.7480	4.3828	1.7965	4.6006	1.4749	3.3354	4	1.7191	4.2580	1.9138	5.1736		
	5	2.6371	10.4441	1.8783	4.8899	1.7005 *	4.0930 *	1.7177	4.1644	5	1.6723 *	3.9794 *	2.0677	5.9094		
	6	2.5404	9.5136	2.1172	6.2310	1.7935	4.5081	1.9274	5.1534	6	1.7633	4.3737	2.3319	7.7235		