THE IMPACT OF CAPITAL INFLOWS ON ASIAN ECONOMIC GROWTH

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DISSERTATION

SUMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN THE DEPARTMENT OF ECONOMICS AT FORDHAM UNIVERSITY

New York

August, 2000

FORDHAM UNIVERSTIY

Graduate School of Arts & Sciences

Date April 25, 2000

This dissertation prepared under my direction by:

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entitled "The Impact of Capital Inflows on Asian Economic Growth."

Has been accepted in partial fulfillment of the requirements for the Degree of

Doctor of Philosophy

in the Department of

Economics

MENTOR

READER

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Acknowledgements

I am indebted to all the members of the Economics Department, who contributed to my study. My particular thanks are for the member of my dissertation committee who are Professor Dr. Dominick Salvatore (mentor), Assistant Professor Dr. Darry McLeod (reader) and Assistant Professor Dr. Henry Schwalbenberg (reader). They provided me with invaluable guidance and constructive criticism in the preparation of this dissertation. More importantly, I would like to express my special thanks to Professor Dominick Salvatore for his continued support throughout my graduate study at Fordham. As a teacher and mentor, he helped me throughout my study and the preparation of this dissertation. I will never forget his kindness, wisdom, humanity and enthusiasm. I owe an enormous debt to Dr. McLeod who gave me a vast amount of data and knowledge on capital flows and economic growth. His help on providing useful papers and suggestion for research techniques meant a great deal to me. I would like to thank Dr. Henry Schwalbenberg for imparting useful information and knowledge on Asian economies.

My heartfelt appreciation goes to my friends at Bank of Thailand, Dr. Pichit Patrawimolporn, Therapol Ratanarungkarn, Dr. Kobsak Putrakul and Dr. Rungsun Hathaisaree who shared their ideas and knowledge with me to improve my dissertation. I am deeply grateful to Assistant Professor Dr. Kitti Limskul at Chulalongkorn University who helps me with his expertise in Econometric and provide me with facilities to run regression in his office. Thanks Uraiwan Chaichanpun for collecting some data for me.

I am deeply grateful to my mother, Vilawan Tamajai, and my friend, Supattra Stapornnanon, who sacrificed their time and patiently stood by me while this work was in process. I will never forget the encouragement that they gave over the year.

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Chapter 1

Introduction

Asian developing countries generally achieved high economic growth rates during the past two decades mainly because of the high and rising investment rates and prudential management of economic policies. Foreign capital inflows played an important role in financing investment in Asian countries. The purpose of this dissertation is to examine and analyze the impact of capital flows on Asian economic growth during 1980-1998. The paper will analyze the role of capital flow on Asian economic development. Private capital flows, although beneficial in net terms, posed two types of challenges. First, large surplus leads to economic overheating and the associated problems of the appreciation of the real exchange rate. Second, sharp reversals in capital flows could be potentially disruptive. Private capital flows should, therefore, be managed with appropriate policy and institutional responses in the East Asian countries. This paper also provides the summary of capital flow managing issues.

All Asian countries have experienced surges in capital inflows during financial liberalization period (from late 1980s to 1996 before the time of crisis). These large inflows were not simply an independent and isolated macroeconomic shock but rather the manifestation of structural changes in the world economic environment and in Asian countries themselves. The surge in capital inflows began as early as 1988 in Thailand, 1989 in Malaysia and the Philippines, 1990 in Indonesia. In the mid-1980s, Indonesia, Malaysia and Thailand had undergone successful structural adjustment programs to set the foundation for the surge of capital flows. In particular, Malaysia and Thailand had shifted the focus on the private sector and the subsequent downsizing of the public sector. The resulting budgetary surpluses substantially increased the credibility of fiscal policy, which

boosted country credit rating. Foreign capital flow, particularly in the form of FDI, has been promoted actively in Thailand since 1987 and other ASEAN countries as well.

The Thai government allocated a special budget of 51 million baht (around 2 million US dollar) to pay for additional promotional activities including investment missions, advertisement and special literature distributed in Japan and Europe (Akrasanee, 1989). The Board of Investment (BOI) is the principal government agency responsible for administering incentives for investment carried out by both local and foreign investors. Foreign direct investment to Thailand has been promoted on a routine basis. The government set clear guidelines for investment in Thailand. Priorities and guidelines for local and foreign investment are aimed at promoting export-oriented and other investment projects, which support the country's development, employment, decentralization of business to rural areas, and the carrying out of significant research and development activities. In the Philippines, the successful debt-to-equity program led to a boom in foreign direct investment in 1988-1989. Even though the program was discontinued soon thereafter, credibility had already been restored. The prospect for recovery of then ailing Philippine economy was further enhanced by the 18-month IMF-supported stabilization program in 1991. Generally, the more liberalized environment had resulted in a greater degree of capital mobility. By the 1980s and since the plaza Agreement of 1985, most of the Asian countries have exhibited solid growth benefiting greatly from expanded trade and foreign direct investment, which were boosted by exchange realignment and closer policy among developed countries. Higher economic growth has promoted the accumulation of financial assets in Asian economies. After the Plaza Agreement, as the exchange rates of NIES[1] in

[1] In this paper, "NIES" include Korea (the Republic of Korea), Taiwan, Hong Kong, and Singapore. "ASEAN" includes the Philippines, Thailand, Malaysia, and Indonesia.

effect depreciated substantially against the Japanese yen and major European currencies, the price competitiveness of these economies was substantially strengthened. Under these circumstances, Japanese industries, particularly export-oriented industries began transferring manufacturing facilities to NIEs by direct investment, partly re-exporting to Japan and partly for exporting to other regions. Since 1987, however, the increased trade surpluses of NIEs, especially with the United States, have fueled trade friction, leading to mounting pressure on these economies for exchange rate adjustment and domestic demand increases. The subsequent appreciation of their currencies has resulted in a slight deterioration in price competitiveness. In response changing circumstances, local NIE firms have been moving their manufacturing plants for labor-intensive products (or processes) to ASEAN by increasing direct investment. As a result, the volume of direct investment from NIEs to ASEAN increased dramatically, exceeding that from Japan to ASEAN in 1988. The direct investment position of NIEs to shift from net inflow to outflow in 1989 reflecting increased investment to ASEAN, and the net inflows to ASEAN have increased steadily, offsetting the larger part of current account deficits and providing an engine for continuous growth without adding to the interest payment burden. This dynamism in intra-Asian investment flows is accelerating the industrialization of ASEAN transition to a higher value-added economic structure for NIEs, and horizontal specialization in the whole region.[2]

The capital inflow phenomenon, and the associated need to intermediate efficiently large amounts of foreign capital and address potential macroeconomic overheating, were the direct products of the transition between these polar financial integration regimes. Countries in East Asia were at the forefront of the worldwide movement toward increased financial integration (See World Bank 1997) and are good examples of both the benefits, and the risks, of integration.

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[2] Watanabe, Kenichiro "Financial reform in Asian Economies and its implication" Bank of Thailand 1991.

These capital inflows eased external financing constraints and held the potential for higher investment and growth. In some countries, capital inflows were so large as to challenge macroeconomic stability by contributing to overheat economy and these become a policy concern. Such signals include the following: Empirical studies have shown that much of East Asian growth can be traced to large investments in human and physical capital. But the region's total factor productivity (TFP) growth rates are also unusual. In the study of 87 countries, Page and Petri (1993) found that: Hong Kong, Japan, Korea, Taiwan (China), and Thailand were within the top decile of all countries in terms of TFP growth rates and that Indonesia, Malaysia, and Singapore, though not as unusual, were also above developing country norms. In terms of Chenery, Robinson, and Syrquin's (1986) topology of growth, the East Asian economies look more like industrialized than developing countries since they derive nearly half of their output growth from TFP growth rather than accumulation (table 1). [3]

Common to East Asia's success were policies for macroeconomic stability, human resource investments, and outward orientation with trade and financial liberalization. Investment shares (in GDP) in major five ASEAN countries rose sharply over the past two decades, rising from somewhat higher figures than in other developing regions. Private investment was encouraged by generally supportive macroeconomic environment. Asian's investment performance has been aided by rapidly increasing saving shares (in GDP) as well as external capital flows. Domestic resource mobilization is a regional strength, fostered by high private savings as well as fiscal prudence, which generated increasing public savings. Savings shares are more than 50% higher on average than in other developing countries. East Asian Countries experience low inflation and generally higher real interest rates than elsewhere.

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[3] Petri, Peter A. Lessons from East Asia edited by Danny M. Leipziger: The university of Michigan Press 1997.

Table 1 Source of Growth

	Value Added Growth	TFP Growth	Capital Growth	Labor Growth	TFP/Valued Added Growth
Developed Economics					
1947-1973	5.4	2.7	2.0	0.7	49.0
Developing Economics					
1960-1973	5.1	1.3	7.4	2.2	25.5
1973-1987	3.5	-0.2	7.1	2.4	-5.7
East Asia					
1960-1973	7.5	2.6	9.8	2.8	34.7
1973-1987	6.5	1.3	10.7	2.6	20.0
Hong Kong					
1955-1960	8.3	2.4	4.7	6.6	29.1
1960-1970	9.1	4.3	7.6	3.0	47.0
Korea					
1955-1960	4.2	2.0	2.2	2.3	47.4
1960-1973	9.7	4.1	6.6	5.0	42.3
Singapore					
1972-1980	8.0	0.0	9.5	5.5	0.0
Taiwan					
1955-1960	5.2	3.1	2.7	1.8	59.5

East Asia's success in international trade and investment is well documented. The region's developing countries expanded their exports more than twice as fast as the average for other developing countries. The flow of trade and investments was crucial to the transfer of technology and the gains in efficiency and productivity.

Table 2 Hyper speed Growth

Country	Growth Spurt	Years	Growth Rate	Possible Engines
Indonesia	1970-73	4	8.8	Recovery from Sukarno period
	1976-79	4	7.5	Oil investment
	1989-	3+	7.5	Manufacturing, foreign investment
Korea	1963-77	15	9.6	Export promotion
	1981-	11+	9.3	Chaebul dynamism
Malaysia	1969-72	4	8.3	Raw materials
	1976-79	4	8.9	Government investment, export processing zones
	1987-	5+	8.2	Foreign investment boom
Singapore	1965-73	9	12.1	Foreign investment boom
	1976-79	4	8.5	Infrastructure investment
	1986-	6+	9.0	Communications and finance
Thailand	1962-69	8	8.4	Investment promotion, war
	1975-77	3	8.0	Industrial promotion
	1986-	6+	9.9	Manufacturing, foreign investment

The surges in private capital flows were nearly 12% of GDP per annum on average in Malaysia, followed by 7.4% in Thailand. It was about 5% in the People Republic of China (PRC) and Indonesia and 3% to 4% in the Philippines and Korea. On a cumulative basis, PRC received about $260 billion of private funds followed by Korea with $80 billion, Thailand with about $75 billion, Indonesia and Malaysia with around $68-69 billion each, and India around $23 billion. Volatile flows (defined as short-term debt, portfolio equity and bonds) comprised nearly three-quarters of the flows in Korea, while it comprised nearly one-half of the flows in the other countries. The exception are Malaysia where volatile flows comprised about one-quarter and the PRC about one-sixth. Relative to GDP, the

cumulative surges were largest in Malaysia (68%) followed by Thailand (41%), PRC (32%), Indonesia (30%) and the Philippines (27%).[4]

The share of private flows to the ASEAN also increased compared to that of other regions. The composition of private capital flows to the ASEAN countries changed as well. During 1980-1982, around 70-80% of private flows was debt creating in the form of bank or trade-related credit. By 1994-1996 the share of bank and trade-related credit had declined sharply while FDI and portfolio investment increased steadily. The rapid growth and changing composition of private capital flows reflected the increasing financial integration of major ASEAN countries with international markets. Financial markets of all ADCs, with exceptions of Myanmar and Cambodia, became more integrated with global markets. Presently, 5 ADCs are classified as having highly globally integrated financial markets – Thailand, Indonesia, Malaysia, the Philippines and Singapore. FDI seems an attractive form of capital flow because it involves a risk-sharing relationship with the supplies of this type of foreign capital. This kind of risk sharing does not exist in the formal contractual arrangements for foreign loans. Furthermore, as the World Bank (1993) claims, there may be dynamic benefits: "Foreign direct investment is a large and growing source of finance that may help developing countries close the technology gap with high-income countries, upgrade managerial skills, and develop their export markets.

Organization of the study

This paper is organized as follows: Chapter 1 Introduction and Statement of Problem. Chapter 2 reviews the explanations of high economic growth, capital flows and macroeconomic environment in East Asia and ASEAN before the crisis. Chapter 3 discusses the effects of capital flows and the role in economic

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[4] Asian Development Bank "Private capital flows to ADC" High-level Seminar on Managing capital flows:Bangkok 1998.

development Chapter 4 discusses the macroeconomic effects of short-term capital inflows Chapter 5 discusses financial liberalization, capital flows and Asian Economies Chapter 6 provides summary of capital flows managing issues. Chapter 7 is Review of Literatures (The impact of capital flow on economic growth). Chapter 8 is objective, scope of study. Chapter 9 explains Hypothesis & Theoretical Framework and Methodology. Chapter 10 Regression Analysis and Empirical Results Chapter 11 discusses the policy implications and conclusion.

Chapter 2

Explanation of Asian Economic Growth and Macroeconomic Environment before the crisis

There are at least four explanations of the factors that high economic growth in East Asia and ASEAN. Neoclassical approaches have emphasized outward orientation and macroeconomic discipline. Structuralist theories have singled out government leadership in industrial policy. Culturalist explanations have focused on governance and societal characteristics and interaction effects (contagion). These four theories will be described briefly. However this paper will focus mainly on the role of capital flows on economic growth of selected Asian countries.

Neoclassical Explanations: Right Fundamentals

Early analyses of the East Asian economic growth emphasized neoclassical causes by arguing that the NICs "got the fundamentals right" in several key policy areas. In this view, East Asian economies succeeded because they came close than other developing countries to providing a stable macroeconomic environment and strong connections to global trade and technology. Modern versions of this approach place somewhat more emphasis on the government's market-friendly support of investment, especially in human capital (World Bank 1991). In this view, East Asia's economies successful because pursued conservative macroeconomic policies, adopted an outward oriented trade strategy, invested vigorously in human capital and maintained competitive market for factors. Structuralist Explanations: Directed resources into targeted sectors

Structuralist interpretations of East Asian success emphasize that policy regimes in many East Asian countries departed significantly from market-oriented norms. In the structuralist view, these interventions are seen as remedies for

market failures in capital market (Stiglitz 1989) and externalities in the development of new industries (Pack and Westphal 1986). To overcome these common problems of early industrialization, East Asia directed resources into targeted sectors and targeted sectors that offered strong opportunities for growth and productivity.

Culturalist Explanations: Confucianism

This approach argues that East Asia's cultural traditions positively affected the behavior of individual economic agents and economic organizations and methods of governance. Confucian traditions may have been responsible for East Asia's unusually high propensities to save and educate and for its strong, publicly motivated bureaucracies. Four institutions and cultural practices rooted in the Confucian tradition but adopted to the needs of an industrial society – a meritocratic elite, an entrance exam system, the importance of the group, and the goal of self-improvement have ignited the greatest burst of sustained economic growth the world has yet seen (Vogel 1991, 101).

Interaction Effects: Contagion

The most obvious common feature of the East Asian miracles is geography. East Asian development patterns are also more alike than they might have been. This suggests that East Asian economic growth may have been shaped by regional contacts – including flows of goods, investments, technologies, aspirations, and ideas about governance. Empirical studies show that physical distance is an important correlate of economic integrated through trading, investment, and migration relationships (Petri).

Macroeconomic environment before the Asian crisis

Foreign direct investment (FDI) has appeared increasingly attractive to developing countries facing declining domestic investment and higher costs of foreign borrowing. Furthermore, as the World Bank (1993, 3) claims, there may be dynamic benefits: "Foreign direct investment is a large and growing source of finance that may help developing countries close the technology gap with high-income countries, upgrade managerial skills, and develop their export markets.[5]

In the developing world, FDI has been heavily concentrated among a small number of countries; only 18 countries received over 90% of FDI inflows to developing countries in 1990. Half of this total flowed to eight East Asian developing market economies-Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, Taiwan and Thailand. Given that neither Korea nor Taiwan has shown strong interest in attracting FDI, it may seem surprising that these economies feature in this group of developing countries. Their appearance in this list may support the view that explicit incentive packages are not the key determinants of FDI inflows. Without doubt, a much more important determinant in these countries has been their superlative investment climates (Fry 1991).

There are two arguments for capital account liberalization. First, it is an inevitable step towards increased investment. Second, free capital movements can lead to a more efficient global allocation of savings and investment. Both effects raise welfare and economic growth.

By the 1980s most of the Asian countries had implemented exchange liberalization to allow for greater economic efficiency in the financial systems. However, there were distinct differences in the implementation of liberalization programs. Indonesia, Malaysia and Thailand were pace-setters; by the 1970s, in

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[5] Fry, Maxwell J. 1997 "Foreign Direct Investment in East Asia" Lessons from East Asia edited by Danny M. Leipziger: The university of Michigan Press 1997.

these three countries, most of the controls on the current and capital accounts had already been dismantled. In contrast, the Philippines only launched its liberalization program in the 1990s but it was done swiftly. In a span of only two years, almost all foreign exchange restrictions were completely removed. Presently the degree of liberalization is at par with, if not surpassing that, of Indonesia and Malaysia. On the other hand, Korea and Taiwan adopted a cautious and gradualist approach. Like the Philippines, their liberalization efforts only took off in the 1990s. Their concern over rapid liberalization is best illustrated by Shih (1996), who concludes that a hasty relaxation of controls may eventually lead to the re-imposition of such controls and thereby create uncertainty about future rules and regulations.[6]

The level of financial liberalization in ASEAN countries is different before, during and after the crisis. Inflows of direct investment were an important influence on growth rate for higher income Asian economies. Net private long-term capital flows to the four Southeast Asian Countries increased from 3.3% of GDP in 1990 to 8.3% of GDP in 1996. These capital inflows were part of a wave of capital flows to developing countries, which increased more than six folds between 1990 and 1997, rising from 1.0% of developing country GDP to 4.1%. Nearly 4 out of 5 middle-income countries saw the net flow of long-term private capital between 1990 and 1996, and this increase was substantial for the majority of countries.

While the important of FDI in ASEAN's increase in its share in the global FDI that increased from 4.4% in 1988 to almost 9% in 1994 (Table 1). Thus, it is not surprising to find the ASEAN-4, that is Singapore, Malaysia, Indonesia and

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[6] Villanueva, Delano and Seng, Lim Choon "Managing capital flows in SEACEN countries: A Policy Agenda"

Thailand listed among the 10 largest host economies for both FDI flows and stock in 1993.

Within ASEAN, Singapore is the largest recipient of FDI inflows, followed by Malaysia, Thailand, Indonesia and the Philippines. In the context of the supply of capital to a particular location, such as the ASEAN countries, location advantages play an important role in explaining the choice of these countries over other developing countries (or LDCs). Location advantages cover a multitude of factors that can influence the choice of locations. However, they can be grouped into five main categories: 1. Macroeconomic and political stability. 2. Infrastructure conditions. 3. Availability and cost of specific inputs. 4. Market size and 5. FDI and trade regulatory measures. While the first two factors affect the inflow of FDI in general, the last three categories of location factors can influence the type of investment entering a host economy.[7]

Indonesia, Malaysia, the Philippines and Thailand also implemented similar market-oriented policies to attract FDI. Many other factors were responsible for the surge in FDI, among with was the availability of a large pool of skilled and semi-skilled labor force at relatively low cost. Perhaps more importantly, stabilization and structural reforms had been successful. On the other hand, the huge current account surplus of Japan and the appreciation of the Japanese yen saw a shift of Japanese investment towards the South East Asian countries. The yen appreciated by more than 50% against the US dollar, making Japanese investments in the region very attractive

The financial and economic crisis that started in Thailand in July 1997 quickly engulfed East Asia, sending currencies, stock markets, real estate prices tumbling. Many financial institutions and corporations went bankrupt with huge

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[7] Tham Siew Yean 1998, "Competition and cooperation for foreign direct investment: An Asean Perspective", Asia-Pacific Development Journal Vol. 5, No. 1 June 1998.

external debts in Thailand, Indonesia and other ASEAN. The liquidity crunch and severe economic contraction are common features in these countries in 1997-1998.

Can the economy of a region go from miracle to meltdown in a few short months? Are the excesses of the free market responsible for the meltdown? Are hedge funds' currency attacks responsible for the crisis? Are some economic fundamentals responsible for the crisis? The Asian crisis of 1997-1999 and its reverberations in financial markets of emerging markets around the world have intensified the debate over the nature of the crisis and what is the economic impact of this financial crisis. There is an important issue of what should come first, financial development or financial liberalization. As many emerging markets experiences show, opening capital account in a weakly regulated financial system may exacerbate the problem of lack of regulation with the consequent effect on the ability of the financial system to perform adequately its role of credit allocation.

There are unproductive activities that related to excessive capital inflows and financial liberalization in these emerging market economies. The study also analyzes the failure of monetary and exchanges rate policies during 1991-1998. In Thailand case, when capital flows were liberalized and Bangkok International Banking Facility licenses were given out during that time, then should have a considerable review of the impacts of this policy on financial system and the whole economy. They (monetary authorities) did not really acknowledge that the liberalization of financial and capital markets was a fundamental reform of the money and foreign exchange markets but they still maintained fixed exchange rate regime (peg exchange rate system) with aggressive financial liberalization. The crises between 1996-1998 clearly indicated that the old regime along with financial liberalization really destroy competitiveness of Thai economy, encourage speculative activities in the economy. The major factor of the problem is the weakness of the structure of the Thai economy. And this has been aggravated by

the tardiness of applying measures to address economic problems that have accumulated, so much so that the problems have worsened to a point where damage was inflicted on the Thai economy. Among these adverse factors were the pegging of the bath to a basket of currencies, which have not been adjusted to provide sufficient flexibility, the mistakes in addressing financial institution problems, and the weakness of the basic economic structure due to the chronic trade and current account deficits. Since mid of 1996, the value of baht which fixed at 25 baht against dollar was unquestionable overvalued compare to its weakening economic fundamentals. The currency war was beginning since the early of 1997. The disastrous attempt at defending the baht among heavy attack from hedge funds completely depleted the country's US$30 billion foreign exchange reserves and plunged Thailand into an unprecedented economic crisis.

The preceding argument points to three measures of "fundamental risks" in currency markets to explain why some countries were more likely than others to suffer a financial crisis in the aftermath of the baht devaluation. First, a real exchange rate appreciation during the capital flow period relative to past average values indicated a greater risk of currency depreciation in 1997-1998. Second, a very rapid increase, prior to 1996, in commercial bank lending to the private sector also indicated a greater risk of crisis in 1997. Presumably, the prior banking lending boom indicates greater weaknesses in bank balance sheets and, therefore more vulnerability to reversals of investor confidence. Third, when capital inflows suffer a reversal, not only do gross inflows dry up, but also holders of liquid domestic liabilities try to convert them into foreign exchange and flee the country.

There are some common features of East Asian countries before the crisis as follows:

Higher investment and consumption financed by inflows

Whether widening current account deficits reflect higher investment or lower savings is important. An increase in unproductive investment and consumption financed by inflows is unsustainable; only that associated with higher permanent income growth, made possible, for example, by investing the inflows, can be sustained.

Weaker monetary control and rising or sustained high inflation

To the extent that capital inflows do not leave the country through a widening of the current account, large inflows can push up monetary aggregates and derail inflation targets. Prices of financial assets and real estate also are frequently affected.

Real appreciation

Strong growth of domestic demand - whether consumption or investment - pushes up the real exchange rate. This is generally unwelcome because governments are loathe to give up hard-won improvements in competitiveness and to risk an overshooting when they are uncertain about the likelihood of a reversal of the inflows and the sustainability of a real appreciation.

Vulnerability to reversals

If inflows reverse, a tightening - perhaps severe and disruptive - of financial policies or depreciation, or both, may be needed. Some countries are reassured by the Lawson doctrine, but most view surges in inflows as setting up a systematic risk, particularly to the banking sector.

There are many factors and conditions led to a shift in the composition of capital flows and toward unhedged short-term debt. The surge in capital flows boosted domestic demand and, because of the more inelastic supply of non-

tradable goods, raised the price of non-tradable relative to tradable goods encouraging the allocation of investment to non-tradable sector. This led to booming asset prices and perhaps contributed to the real estate bubble (although the real estate bubble in turn may have helped pull capital in). The result was that the ability to repay the short-term foreign-currency denominated debt was largely tied to the long-term performance of the non-traded sector. Private capital flows, although beneficial in net terms, posed two types of challenges. First, large surges lead to economic overheating and the associated problems of the appreciation of the real exchange rate. Second, sharp reversals in capital flows could be potentially disruptive. Private capital inflows should, therefore, be managed with appropriate policy and institutional responses in the East Asian Countries. Failure to do so in the past, magnified the macroeconomic weaknesses and financial sector vulnerabilities led to a vicious circle between the two types of vulnerabilities and, eventually, precipitated the crisis. In other words, were it not for the mismanagement of private capital flows, the crisis could perhaps have been avoided altogether or else would have been of a smaller Magnitude (ADB/WB 1998).

Chapter 3

Effects of the capital inflows and the role in economic development

This study is concerned not with the determinants of FDI inflows to the Asian countries but rather with their effects. The effects of large capital inflows on the domestic economy depend very much on the exchange rate regimes (Table 3), level of liberalization, economic fundamentals and human capital in recipient countries. Under the Mundel-Fleming model of perfect capital mobility and a fixed exchange rate, the country can not pursue an independent monetary policy. This is also known as the "Unholy Trinity" theorem, i.e. free capital flows, fixed exchange rates, and an independent monetary policy cannot simultaneously be pursued; only two (any two) can be. Free foreign capital flows impose a constraint on the implementation of monetary policy. Under the fixed exchange rate, inflows of capital would tend to lead to an increase in money supply and thus a reduction in domestic interest rates. Domestic absorption would increase, causing domestic prices to rise. The increase in the inflation rate would translate, ceteris paribus, into an appreciation of the real exchange rate. Under a fixed exchange regime, intervention policy in the form of purchasing foreign exchange from the private sector. Intervention would then result in an increase in international reserves (the increase would not be a one-to-one relationship, as the current accounts tend to deteriorate). This can make the money supply fully endogenous and rendering domestic credit policy powerless to influence the money supply (but not its composition, as between the domestic and foreign components).

Table 3 Long-Run Effects of Capital Inflows with different Exchange Rate Regimes

Fixed Exchange Rates	Increase money supply. Lower interest rates. Increase domestic prices. Appreciation of real exchange rates. Deterioration of current accounts. Increase in international reserves by amount of capital inflows.
Floating Exchange Rates/ Managed Floats	Appreciation of real and nominal exchange rates. More capital inflow if expectation of further appreciation of Exchange rates. Current accounts may deteriorate.
	In the managed float, if partial monetary sterilization is implemented or nominal exchange rate is allowed to appreciate, the effect on the monetary base could be minimized. Effectiveness of sterilization depends on the degree of Substitutability between domestic and foreign assets. Increase in international reserves by amount of intervention.

Under a purely floating regime, the nominal exchange rate is allowed to appreciate (depreciate) in response to capital flows (outflows). Thus, net foreign assets are constant, and domestic credit policy fully determines the money supply. In a managed float system, the authority can resist appreciation (depreciation) of the exchange rate by intervening in the exchange rate market. In many cases, intervention is deemed necessary as an appreciated exchange rate has adverse

implications for export performance, except for a real appreciation induced by real factors such as technological progress and productivity improvements. This is particularly applicable to export-oriented economies; and export growth is an important determinant of long-term economic growth (Villanueva, 1997). In addition, a real exchange rate appreciation could lead to misallocation of resources, known as the "Dutch disease" problem. Currency appreciation lowers the supply prices of tradable goods, inducing a reallocation of resources to non-tradable goods. Moreover, allowing the currency to appreciate in response to transitory inflows would be risky as a sudden reversal could result in costly macroeconomic adjustments. Furthermore, even if the exchange rate appreciation may just be temporary, it may have a permanent effects on trade and investments (IMF, 1995a).

The effects of capital inflows on the recipient country depend on the size and composition of the inflows, the foreign-exchange rate system, developments in domestic financial markets, and the availability and flexibility of economic policy measures. The surges of capital inflows has the following effects: increase in consumption and investment; rise in real money balances and foreign reserves; a real exchange rate appreciation; a larger external current account deficit; and higher price of domestic assets. This conclusion is broadly consistent with actual macroeconomic developments in several Asean countries during the 1990s (Table 4).

During the recent surges and up until the eruption of the financial crisis, Indonesia was operating a managed float exchange rate system whereby the central bank announced an intervention band and a conversion rate. In fact, Indonesia implemented a policy of targeting a depreciation of its currency (Koenig, 1996). In dealing with the episode of currency speculation, the central bank saw the merit of allowing greater flexibility of the exchange rate by widening the intervention

bands several times. Up until the crisis, the rupiah appreciated every time the band was widened. The inflow-related appreciation was viewed as temporary and as such was likely to reduce short-term inflows by increasing the currency risk premier in local interest rates and at the same time avoiding disinvestment in the tradable sector (Reisen, 1996).

Table 4 Selected Macroeconomic Indicators, 1988-1996

		Cumulative Change form First Year of Inflows to 1996	Annual Average from First Year of Inflows to 1996 (percent Change)		
Country	**Year in Which the Capital Inflow Began**	**Reserves (billion of U.S. Dollars)**	**Real GDP**	**Prices**	**Money/Price**
Indonesia	1990	12.8	8.0	8.6	15.3
Korea	1991	19.2	7.4	6.0	10.6
Malaysia	1989	19.2	8.8	3.4	14.4
Thailand	1988	28.2	9.5	5.0	13.0

Furthermore, a more flexible exchange rate can create an element of uncertainty, the easing of speculative pressures being equivalent to a Tobin-type transaction tax on foreign exchange (IMF, 1995a). The specific arrangement of crawling intervention band in Indonesia has worked well until the rupiah fell under extreme heavy selling pressure following the floating of the Thai baht in July 1997. Subsequently the central bank floated the rupiah in response to rapidly dwindling reserves, and to transfer a higher degree of risk premier to capital flows. In general, there were virtually no major restrictions on capital flows.

In the Philippines, as early as 1977, a number of Offshore Banking Units (OBUs) and Foreign Currency Deposit Units (FCDUs) were set up to facilitate capital flows. However, it was the exchange liberalization of 1992 that explicitly removed most major restrictions on capital flows. Among the restrictions lifted were the repatriation by foreign investors under the debt-to equity conversion program and the remittance of profits. In 1996, the Foreign Investment Act was amended to further liberalize foreign investment by increasing the scope of opportunities in the Philippines. In Thailand, the First and Second Three-Year plans implemented measures to liberalize exchange rate controls and reduce restrictions on capital flows in the early 1990s. These measures included free repatriation of investment funds. In 1993, the Bangkok International Offshore Banking Facility (BIBF) was set up as a vehicle to introduce new financial instruments into the domestic markets as well as to effective mobilize funds from abroad (Nijathaworn, 1995).

The immediate increase in growth was greatest in ASEAN during the inflow episode, absorption outpaced output, and the current account deficit widened sharply. Fiscal adjustments and structural reform played a relatively large role in attracting the inflows, the surge was accompanied by an increase in output, albeit with some lag in some countries. Inflows also raised supply (through higher investment). Thailand was particularly impressive in this regard: the investment ratio rose almost 15% points above its average before the inflow episode. However, while it is tempting to disregard increases in the current account deficit matched by a strengthening of investment. There are at least two sources of concerns: first, the likelihood of incoming capital (often bank deposits) and the gestation period of investments: and second, uncertainties about the foreign exchange earning potential of investments. The latter was the genesis of concern about real appreciation and its effect on the allocation of investment. The widening

of the current account deficit and the sustainability of the inflows were a serious concern when falling domestic savings were the cause.

TABLE 5 Net Private Capital Inflows in Selected SEACEN Countries, 1988-1995

County	Inflow Episode A/	1988	1989	1990	1991	1992	1993	1994	1995	Cumulative Flows/GDP at end of Episode	Mean Ratio	Coefficient Variation
Indonesia	1990-95			2.5	1.9	1.3	0.2	1.1	3.6	8.3	1.8	0.66
Korea	1991-95				2.6	2.5	0.6	2.4	3.5	9.3	2.3	0.45
Malaysia	1989-95		2.9	5.7	11.1	15.3	23.2	1.2	6.6	45.8	9.4	0.82
Philippines	1989-95		2.1	3.9	4.4	2.3	4.4	7.9	5.2	23.1	4.3	0.45
Sri Lanka	1991-95				3.9	5.3	8.2	6.5	3.5	22.6	5.5	0.36
Thailand	1988-95	7.4	10.4	12.3	12.3	8.6	7.7	8.3	12.1	51.5	9.9	0.21

Foreign Capital, Capital Formation and Growth

Voivodas (1973) and Go (1985) have analyses the relationship among foreign capital inflows, capital formation and growth. They have estimated an investment function where foreign capital is one of the independent variables. Stonemason (1975), Papanek (1973), Dowling and Hiemenz (1983) and Gupta and Islam (1985) have estimated a neoclassical production function of the type Y = f (Kd, Kf, L), where Y denotes output, Kd domestic savings, Kf foreign capital and L labor force. These studies using pooled cross-section time-series data have found that foreign capital is associated with rapid capital formation and growth in developing countries. Go has estimated an equation of the type I = f (GNPR, F, OF), where I denotes the investment rate, GNPR real GNP, F net foreign flows and OF investment outflows. Her results using data from the Asian countries indicate that a 1% increase in foreign capital inflows increases the investment rate by two-tenths of 1%. The growth rate of real GDP is basically determined by the level of investment and its efficiency. Foreign capital inflows can affect the growth rate

through its effect on both the level of investment and the efficiency of investment. It can be shown that as long as foreign capital is not entirely consumed, the direct effect of foreign capital inflows on the volume of total investment is always positive. However, the indirect effect of foreign capital inflows on the volume of investment through its effect on the propensity to save out of GDP may be either positive or negative. Thus, the total effect on the volume of investment, i.e., the direct volume effect plus saving propensity effect, could be either positive or negative. We, therefore, can not rule out the possibility that the amount of foreign capital that is used to finance investment is more than offset by a decrease in the saving out of GDP due to unfavorable effects of foreign capital inflows on the propensity to save. In such an extreme case, an inflow of foreign capital would reduce the total saving (domestic saving plus foreign saving).

Chenery and Carter (1973) suggested that countries that are seen to be effective users of foreign capital have had high incremental output-capital ratio (IOCR), tend to be favored by both private lenders and official aid donors. Therefore, we may posit that a high IOCR will attract more foreign capital inflows. However, from the demand side, a high IOCR may have a negative effect on foreign capital inflows since, for a given target growth rate, less investible resources are required and therefore for a given amount of domestic saving the need for foreign capital inflows will be smaller. Consequently, the combined effect of both volume and efficiency effects of foreign capital inflows on the growth rate can be either positive or negative.

Foreign Capital and Efficiency of Investment

Foreign capital can improve the productivity of factors in the recipient countries through the introduction and spread of new technology through training and managerial and other improvements. Improvements in factor productivity in turn play a major role in growth. On the other hand, foreign capital can also

support inefficient resource allocation with adverse effects on growth. Using the incremental output-capital ratio as a proxy for efficiency of investment and pooled data from 20 developing countries, Voivodas (1973) found that foreign capital tended to reduce the efficiency of investment. In the case of Asia, however, Go's findings suggest otherwise – foreign capital inflows appear to have increased efficiency of investment.

The improvement in the efficiency of investment, which is assumed to be constant in both the Harrod-Domar and traditional two-gap models, has been found to be a vital factor explaining the rapid economic growth of many developing countries in Asia. Foreign capital inflows can have both positive and negative effect on the efficiency of investment. Many developing economies are constrained by shortages of technology and skills as well as financial resources. Private foreign capital inflows, in particular private direct investment, may improve the efficiency of domestic investment by mitigating or solving such problems. In addition, the efficiency of investment may be improved by official lenders' insistence on certain minimum levels for the rate of return on projects they will finance. Foreign capital inflows can also have a negative effect on IOCR. For instance, foreign aid is often allocated to economic infrastructure, or health and education projects, which do not have an immediate positive impact on investment efficiency (Griffin and Enos 1970). Furthermore, capital goods purchased from donor countries under "tied" loans can be more costly and probably less suitable for the specific purpose than those available elsewhere on a commercial basis (Yeats 1982).

Interest Rates and Asset Prices

Surges in capital flows should ease domestic money market conditions and lower domestic interest rates. This is true almost regardless of the causes of the inflows, although when changes in real domestic economy. Small open economies

are small relative to the pool of foreign capital, regardless of the reason these flows are coming in. They can find capital rushing in at very rapid rates, and rushing out at even more rapid rates. In the observation of the ASEAN experience suggests two other general policies toward capital flows. First, much of the rapid capital inflows into ASEAN, especially in the form of short-term debt, were the result of domestic distortions that artificially lowered the price of foreign, short-term borrowing either to tax incentives or more lax regulations. The most flagrant example of these distortions the BIBF which were set up in 1993 with the goal of attracting relatively unregulated capital requirements for banks, for instance, incentives for holding certain assets and liabilities will be distorted. Second, these measures may not go far enough, especially once it is recalled that corporate exposure may itself give rise to vulnerabilities. (In the case of Indonesia, two-thirds of the foreign indebtedness was corporate.) And the systematic risks to which such exposure can give rise provide ample justification for taking further measures. Among the ideas currently under discussion are inhibitions on capital inflows - essentially a tax on short-maturity loans.

Inflation and Exchange Rate

Usually, a surge in capital inflows causes the nominal and the real value of the currency to appreciate and the current account to deteriorate. It may also lead to an expansion of monetary aggregates, thus giving rise to increased inflationary pressure. The actual data of average consumer price inflation and the rate of real effective currency devaluation in selected Asian countries in this study during the first half of 1990s when these countries witnessed a surge in foreign capital flows is higher than during the second half of the 1980s. Inflation increased in all six countries in the 1990s

Compared to the previous period. However, this was not necessarily a result of foreign capital inflows. Obviously, a more sophisticated and extensive

econometric study is required to establish the causality between a higher rate of inflation and foreign capital inflow in these countries. The difference in the movement of real exchange rates is closely related to the composition of aggregate demand.

The stability of these countries' real effective exchange rates in the 1990s has also been greatly affected by the steep nominal appreciation of the yen against the US dollar. This brought about a sharp nominal depreciation of their currencies against the yen Given that Japan is a major trading partner; this generated substantial downward pressure on their real effective currency values. By contrast, these developments were only a minor influence on the real effective exchange rates of Latin American countries, as their trade with Japan is relatively less important.

The results do not show clear evidence that exchange-rate volatility increased during the period of capital inflows to earlier period. This is presumably due to the exchange-rate policies adopted: the policy response has been to maintain the international price competitiveness of exports by preventing a rapid nominal appreciation of the currency or even inducing depreciation through intervention in the local foreign-exchange market. The fact that the movement of the won-dollar exchange rate has become more volatile since early 1995 could be explained by the fact that the Government of the Republic of Korea refrained from intervention in the foreign-exchange market, suggesting that volatility may have been suppressed by intervention until 1994. The rupiah-dollar rate exhibited high volatility from the second half of 1990 through the first half of 1991, because the Indonesian government pursued depreciation of the rupiah more actively than before, as the current-account deficit increased rapidly during that period. The increased volatility of the ringgit-dollar rate in early 1994 was closely related to capital inflows. The Malaysian government imposed several direct measures in

early 1994 to curb the inflow of speculative short-term capital. This prompted foreign investors to withdraw investments from Malaysia. The result was a large depreciation of the ringgit over a short period of time.

Volatility of domestic financial markets

The movement of foreign capital in massive amounts may increase the volatility of domestic financial markets, including the foreign-exchange market. To examine whether financial markets have become more volatile compared to the pre-capital-inflow period. Financial volatility may also arise in response to an increase in foreign participation in the stock market (Folkerts-Landau et al.,1995; and IMF, 1995a). Domestic investors in emerging markets sometimes follow the strategies of foreign institutional investors who are considered to have more advanced skills in stock investment, thereby amplifying volatility. However, there is no strong evidence that the opening of stock markets or the inflow of capital during the 1990s resulted in increased volatility. The estimates do show that the presence of more foreign capital can weaken the stability of a stock market for at least a short period of time. In late 1993 and early January 1994 massive capital inflows contributed to a rapid rise in stock prices on the Kuala Lumpur Stock Exchange, and in the first half of 1994 an outflow of foreign capital led to a rapid fall in stock prices. These flows thus resulted in increased volatility of stock returns in Malaysia. The Thai stock market saw a sudden outflow of foreign funds (related to Gulf War) in the second half of 1990, and the Thai and Malaysian stock markets in early 1995 witnessed quick withdrawals of foreign investment prompted by the Mexican crisis. Such flows caused an increase in volatility of stock returns.

Capital Flows, Output, Domestic Investment, Saving, Consumption and The Current Account

In the Asian countries, investment as a share of GDP generally showed a rising trend during the period of capital inflows. In Latin America, investment fell and consumption rose, especially during 1990 and 1991. Differences in the behavior of government consumption have also been a factor (Khan and Reinhart, 1995; Leiderman, 1995; and Calvo et al., 1993). The Asian countries managed to maintain fiscal discipline in the face of rising capital inflows. Usually, public consumption is more oriented than private consumption towards non-traded goods.

In this section, we also examine the current account deficit and its association with cross-country capital inflow (-CA/Y) and investment booms. The current account reflects the interaction of all major macroeconomic variables. If a country faces current account imbalance, and the government reacts to trade deficits induced by an increase in investment by cutting government expenditure, or raising taxes in this case, national saving and investment will be correlated for reasons having nothing to do with capital mobility. In addition, the behavior of the disturbances over the cross-sectional units (households, states, and countries) is clearly different from the behavior of the disturbances of a given cross-country unit over time. In this research project, since we are dealing with the structural determinants of current account variability, it is essential to have some specific information on time series properties of major macroeconomic variables in this context. The current account and investment regression equation could be written as

$$(CA/Y)\,t = Ai + BI\,(GDP/Y)I$$

$$\text{for all } I = 1, \ldots 100$$

Where (CA/Y) is the value of the total current account and income share for ith country in period t (1960-1992). CA is the current account balance after the official adjustments. GDI/Y is the domestic investment and income share for ith country in period t (1960-1992). It is rightly explained as the following: "Underperfect capital mobility conditions and fully flexible exchange rates, given the prices are fixed, fiscal and monetary policies could work effectively without any market intervention under an open economy. Since, under fully flexible exchange rates, the absence of intervention implies a zero balance of payments. Any current account deficit must be financed by private capital inflows and a surplus by capital outflows. Adjustments in the exchange rate ensure that the sum of the current and capital accounts is zero. "[8] Many studies found that current account deficits are associated with strong capital inflow (-CA/Y) and investment booms.

The roles of capital inflow in economic development

An obvious role of capital inflow in the development of the country is as a source of financing. Most developing countries, including Thailand, need external resources to fill their savings-investment gaps (resource gaps). However, the role of foreign capital flow in a host country is more than just the filling in a resource gap. Foreign capital flow also brings in production technology, managerial skills, employment and the opportunity for accessing international markets. These roles are discussed below.

Foreign capital and structural transformation

Foreign capital has played a major role in the development of developing countries by helping it to make the transformation from an essentially agricultural to an agro-industrial economy. Foreign capital flow in the form of direct

[8] Dornbusch and Fischer "Macroeconomics, 2nd edition"

investment in Asean has been going mostly to the manufacturing, services and real estate sectors. Only a small part of the capital has been going to agriculture. The reasons why most of foreign capital has gone to manufacturing and services are that these sectors have higher rate of return. That government policy had encouraged foreign capital into the manufacturing sector. The surge in foreign capital to manufacturing and services has been associated with very strong growth in these sectors.

Foreign capital flow and exports

Agarwal et al (1991) found a strong impact of German exports on German foreign direct investment outflow. The relationship between foreign direct investment and trade can also be investigated in the host countries (foreign capital recipient countries). Foreign direct investment can induce or reduce exports from the host countries. Fry (1993) found that there was an immediate negative effect of an increase of FDI on exports from the host countries. This negative impact could be explained by the diversion of resources from exports to additional investment or by trade barriers. In the long-run (i.e. after five years), he found that foreign direct investment increased exports although the effect was small. These findings suggest that foreign direct investment have been directed successfully towards export-oriented activities. In the case of Thailand, capital inflow particularly in the form of foreign direct investment has assisted in strengthening the industrial base with new technologies and modern plants. FDI helps improve physical and financial structure as well as the standard of manpower and management training. FDI also help facilitate world market access through parent companies. This is of importance in enhancing export competitiveness, investment climate and economic growth and development in Asean countries. In the case of Thailand[9], to see the

[9] Siksamat, Somsachee "A Multi-Regionl Computable General Equilibrium Model of the Thai Economy: A Surge in Foreign Capital" Monash University March 1998.

relationship between foreign capital and Thai exports, we refer to an empirical study by Rojanathamrong (1991). In his study, Thailand's exports were regressed with FDI and others explanatory variables. The model was estimated using annual time-series data from 1977-1990. The results are:

$$EXPT = 49697.9 + 3.41FDI - 1316PCOMP4 + 273.3QNONP$$

$$(0.53) \quad (6.1) \quad (-1.0) \quad (5.22)$$

$$R^2 = 0.987 \qquad D.W. = 1.57$$

Where EXPT is the value of exports from Thailand, FDI is foreign direct investment, PCOMP4 is a measure of costs in Thailand relative to those in Thailand's major trading partner and QNONP is the demand for non-oil imports by Thailand's major trading partners. The figures beneath the estimates are t-statistics. From the above multiple regression, the FDI's coefficient is positive and statistically significant. Thus, increases in FDI to Thailand imply increases in Thai exports.

The literature on trade versus aid has proceeded along two directions. Thirlwall (1976) and Yassin (1982) argued that while aid provides resources directly as well as indirectly (by saving the excess cost of import substitution), trade provides resources only indirectly. (the opportunity provided to transform resources into goods and services more cheaply than if the transformation had to be done domestically). Focusing on direct effects, they show that a dollar of aid is always more valuable than a dollar of exports. Several other studies (Cohen 1968, Yeats 1982; Massel, Pearson and Fitch 1972) have evaluated the trade versus aid controversy by using a multiple regression approach. These studies unlike those of Thirlwall and Yassin, capture both direct and indirect effects of trade and aid on economic growth. Cohen has estimated an equation in which GDP growth is a function of foreign investment and increase in exports (both expressed as a ratio of GNP) using data from 27 developing countries during the periods 1956-1969 and

1960-1965. He found that in both periods the regression coefficient for foreign investment is considerably smaller than that for increased exports and therefore concludes that a dollar of extra export earnings has contributed more than a dollar of foreign capital to development. Although the focus of his paper is slightly different, Yeats (1982) too has estimated an equation in which growth is explained by increased exports and aid. His results support Cohen's findings.

Foreign capital inflows and Domestic savings[10]

One of the key questions explored in the literature on the impact of foreign capital on growth is its relationship to domestic savings. A number of authors, Rahman (1968), Areskoug (1973) and Griffin and Enos (1970), estimated a saving function in the form S = f (Y, F), where S denotes the domestic saving rate (obtained by expressing an indirect estimate of domestic saving as percentage of GDP), Y the growth rate, and F the foreign capital as a percentage of GDP, using cross-section data. They found that

The estimated coefficient of the variable was negative but less than unity in absolute terms, and so they concluded that foreign capital substantial partly for domestic saving. Weiskopf (1972) who estimated an ex ante saving function using both cross-section and time-series data from LDCs reached similar conclusions. Papanek (1972) improved on the earlier studies by desegregating financial flows into three components, but the results of his regressions using pooled data relating to the 1950s and 1960s showed that all three components had a negative effect on the domestic saving rate. Although most studies have found a negative relationship between foreign capital and domestic savings, only a few of these studies have found that the coefficient of the foreign capital variable is less than minus unity and that foreign capital reduces total savings. These findings, therefore, suggest

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[10] Lee, Jungsoo., Rana , Pradumna B., Iwasaki, Yoshihiro., Effects of foreign capital inflows on developing

that when analyzing the impact of foreign capital on economic growth a more pragmatic approach should be taken. While a portion of foreign saving is used for consumption and may substitute for domestic saving, the remainder augments capital formation and growth. Two different authors have attempts to estimate the relationship between savings and foreign capital in the Asian region. Fry (1984) using time series data from 1960-1980 found that in all four countries in his sample (Bangladesh, Republic of Korea, Nepal and Thailand) foreign capital had a negative effect on domestic saving. Only in one country (Bangladesh), however, was the substitution effect less than minus unity. Gupta and Islam (1983) using cross-section data from 18 Asia countries (including Japan) have found that while foreign private investment has had a favorable effect on the Asian saving rate, and that AID has had a highly substitutive effect. The magnitude and sign of the aid variable in the Asian case, however, come as a surprise because they find it to be positive in other developing regions. They, however, offer no explanation. When the authors estimated a saving function with total financial flows as the explanatory variable, they did not find a substitutive effect. The traditional two-gap Model and estimate of foreign resource requirement based on it typically assume that inflows of foreign capital are entirely used for investment. However, the assumption is unrealistic. If consumption and saving are determined by a comparison of the current benefits to be derived from investment resulting from saving, there is no reason to believe consumption will always be sacrificed for investment. If this is the case, when additional resources are made available by an inflow of foreign capital part of the resources will be consumed (Weisskopf 1972; Areskoug 1976; Griffin and Enos 1970), so that foreign capital inflows (Ft) will have negative impact on domestic saving. We shall refer to this as the "consumption effect" of foreign capital inflows on domestic savings. Some authors

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countries of Asia Asian Development Bank

claim that this consumption effect is simply a result of the convention used in national income accounting of assuming that all foreign capital inflows as dissaving is justified in accounting terms, it does not reflect the effect foreign capital inflows and domestic saving is predictable from the national income accounting identities, it does not necessarily follow that there is a causal relation between the two variables in the sense that an increased inflow of foreign capital leads residents of the recipient country to decide to save less. However, such claims can be questioned. Newlyn and Thirlwall seem to overlook the fact that an inflow of foreign capital lifts the ceiling on current consumption and investment set by the level of current GDP and makes the stream of future GDP available for the current expenditures. To the extent that foreign capital inflows create a claim on future savings, the part of consumption financed by an inflow should be treated as dissaving for it involves a conversion of future domestic saving into current consumption. The consumption effect therefore implies that foreign capital inflows influence the level of domestic saving. To examine the possible effect of foreign capital inflows on the propensity to save out of current GDP, This may be increased or reduced by an inflow of foreign capital. It will be increased if foreign capital creates more profitable investment opportunities, which can be matched by domestically mobilized resources and/or if foreign capital inflows are allocated to projects that increase disproportionately the income of groups whose propensity to save are substantially higher than the national average. It will be reduced on the other hand if foreign capital inflows substitute investment opportunities for domestic capital and/or if saving out of current GDP is substantially determined by government policies which set fixed growth and investment targets. In the latter case, government efforts to save will be less vigorous if more foreign capital is available. The "saving propensity effect" of foreign capital can therefore be both positive and negative, and we cannot exclude the case where the combined effect

of the consumption and saving propensity effects is positive although the former is negative.

Foreign capital and employment generation

Even though FDI has caused economic transformation away from labor-intensive activities towards capital intensive activities, it has been found that FDI also has a positive influence on employment. FDI projects promoted and operated during 1987-1990 were estimated to have contributed about 63,000 new jobs in Thailand economy (Pupphavesa, W. in: the FDI Relations between the OECD and the Dynamic Asian Economies: The Bangkok workshop, 1993).

Another important characteristic of private capital flows to East Asia was that, unlike Latin America, it was preceded rather than followed by a surge in investment (table 5). In the second half of the 1980s and the early 1990s, the bulk of the increase in investment was financed by a corresponding increase in national savings. During the more recent period, however, a higher fraction of the increase in investment was financed abroad. Nevertheless, the magnitude of private capital flows was much higher than the amount of foreign savings absorbed, leading to substantial reserve accumulation. There was considerable variation, however, at the individual country level: Malaysia and Thailand received the largest magnitude of capital inflows, cumulative in excess of 30% of GDP; the Philippines also received substantial inflows during 1993-96; but Korea did not receive more than 15% of GDP. In contrast, in Latin America there has not been an investment boom—the investment ratio has remained constant since the mid-1980s—but a decrease in savings, although again important differences among countries exists.

The macro-economic effects on employment vary with macro-economic policies, cyclical conditions, institutional frameworks and micro-economic factors particular to sector, industries, and firms. The micro-economic effects depend on the motivations and corporate strategies underlying the decision to invest aboard.

The available empirical evidence shows that the prospect of investment significantly to reducing unemployment in host countries is not good.

Foreign direct investment affects the level of employment in multinational corporations with the reference of such characteristics as scale, concentration, foreigners, and transnationality. The large scale and the technological base of subsidiaries result in a decrease in the relative usage of workers. The overall employment effect of the activities of multinational corporations on the host countries has been very small. Evidence shows that in the late sixties the "total labor force of the transactional enterprises' subsidiaries in the manufacturing minerals and commodities sectors in all the developing countries is less than four million people and more likely it should be around to two and a half million marks.

Improved penetration of markets and customer services in the host country could then translate into increasing demand for the whole range of products of the investors, creating employment abroad but also in the home country through increased production for export. The effects of FDI on employment in the auto parts producers in the US primarily supply the Japanese automakers located in the US. The commission concluded that presently there has been a net gain in auto part employment. While the FDI employment has grown rapidly in China. Where in 1993 six million Chinese were employed in foreign manufacturing up from close to zero in 1987.

Lee and Ramteller write about the effects of foreign direct investment on employment in Korea over the period of 1974-1986. They state that the contribution to value added share of foreign firms employment in total Korean employment gradually increases from 1% to 3% over the period mentioned above.

Clear understanding of the implications of FDI for employment is limited. Few studies have been undertaken to gauge their relation by the lack of data in most countries. Certain studies carried out for individual firms do not provide a

proper answer as to whether or not the net effect is beneficial on labor market performance for individual countries.

Table 5 Magnitude and Composition of Capital Inflows (% of GDP)

	LAC			*ASEAN-4*		
	85-88	*89-92*	*93-96*	*85-88*	*89-92*	*93-96*
Net long-term capital flows	1.3	1.7	4.3	2.0	4.8	6.9
- Net official flows	0.5	0.3	0.0	1.2	1.3	0.4
- Net private flows	0.8	1.4	4.4	0.8	3.5	6.6
Bank/trade lending	0.3	0.0	0.5	-0.3	0.9	0.8
Portfolio bond	-0.2	0.2	1.2	0.2	-0.1	1.4
FDI	0.7	0.9	1.6	0.9	2.3	2.4
Portfolio equity	0.0	0.3	1.1	0.1	0.4	2.0
IMF credit	0.0	0.0	0.1	-1.0	-0.1	0.0
Other private flows	-0.7	0.7	-1.0	0.3	2	-0.1
of which:short-term debt	-0.1	0.7	0.6	0.1	2	2.3

Table 6 Investment, Savings and Capital Flows (%of GDP)

	LAC			*ASEAN-4*		
	85-88	*89-92*	*93-96*	*85-88*	*89-92*	*93-96*
Investment	20.5	20.6	20.1	25.7	32.6	35.0
National Savings	20.6	19.6	17.6	23.9	28.6	30.3
- Private	16.5	16.2	15.1	13.2	20	20.4
- Public	4.1	3.3	2.5			
Current Account Deficit	1.0	1.1	2.4	1.1	3.8	4.6
Total Capital Inflows	0.7	2.4	3.5	2.2	6.7	6.8
Reserve Accumulation	-0.3	1.3	1.0	1.0	2.9	2.2

ASEAN 4 = Indonesia, Malaysia, Philippines and Thailand

Source: World Bank Data

During the inflow periods, macro-economic policies in most East Asian countries shared three broad elements in common. First, many adopted an exchange rate regime oriented toward enhanced competitiveness, i.e., the achievement of a real exchange rate target to complement the outward orientation embodied in structural policies. This policies was implemented through step

devaluation in several countries in the region during the mid-1980s, followed in some countries by continuous depreciation in some cases more than offsetting the differential between domestic and foreign inflation. In East Asia, therefore unlike in many countries of Latin America, nominal exchange rate management during the capital inflow episode was not primarily devoted to the establishment of a nominal anchor. This exchange rate policy indeed seems to have been relatively successful in avoiding currency overvaluation from the mid-80s to the mid-90s.

Second was the adoption of a tight medium-term stance for fiscal policy. Overall public sector budgets in the region, which had exhibited deficits not out of line with those of other middle-income developing countries at that time, moved steadily into surplus after the mid-80s. By the late 1980s, several countries in the region had achieved sizable fiscal surpluses[2]. As the economies of these countries grew and the tight fiscal stance restrained and at times reversed the growth of public-sector debt, public-sector-debt-to-GDP ratios fell throughout the region. As a result, by the mid 90s several countries in East Asia had achieved ratios of debt to GDP substantially below those of many industrial countries. This fiscal stance also promoted the depreciation of the real exchange rate, and helped prevent the emergence of exchange rate misalignment.

Third, especially once the sizable fiscal surpluses were achieved in the early 1990s countries began to rely more on monetary policy to prevent overheating. Countries placed heavy reliance on monetary policy as a short-run stabilization instrument, varying the intensity of sterilized intervention in the foreign exchange market in accordance with domestic macroeconomic needs. On the structural side, the economies of East Asia continued in the 1990s the process of liberalization that had begun in the mid 80s. Trade liberalization, capital account liberalization, and especially financial sector liberalization, all proceeded during the inflow period.

This mix of structural and macroeconomic policies provide both attractive to foreign capital and, in combination with tight fiscal policy, was largely successful in preventing macroeconomic overheating, at least early in the inflow period. The World Bank (1997) found that countries that relied more on fiscal policy to prevent overheating during the capital-inflow period were also more successful in avoiding excessive real exchange rate appreciation and achieved a mix of aggregate demand oriented toward investment rather than consumption. This link can be interpreted naturally as the outcome of the policy mix undertaken. Since the effects of tight money tend to fall disproportionately on investment, an outward-oriented strategy in which tight fiscal policy supports a depreciated real exchange rate exerts a systematic effect on the composition of aggregate demand favoring investment over consumption. During this period, East Asian countries saw sharp increases in their investment rates (Figure 5). For example, in Indonesia investment/GDP rose from an average 25 percent during 1985-89, to 32 percent during 1990-96, while in Korea the investment rates rose from an average of 30 percent to 37 percent during the same period. Malaysia and Thailand saw even larger increases—from 26 percent to 40 percent, and from 30 percent to 42 percent of GDP, respectively.

By 1994-96, however, the acceleration in the growth of domestic demand that was accompanied by an increase in net capital inflows, led to the emergence of demand pressures in all the four countries that have been hard hit by the crisis---Indonesia, Korea, Malaysia, and Thailand. In all four countries the acceleration in the growth of domestic demand reflected both the pickup in the growth of investment and to a lesser degree in consumption, although the relative mix differed across countries. But, in all four countries, with the sharp pick up in the contribution of domestic demand, the contribution of the external sector to GDP growth turned negative during the period.

Private capital flows and domestic macroeconomic cycles

In principle, private capital flows can both generate and exacerbate domestic macroeconomic cycles through various channels.

First, in a more integrated setting, domestic demand pressures can be accommodated more easily by borrowing abroad. This is, private capital flows can validate excess demand pressures. If this excess demand falls primarily on the tradable sector, it is likely to be manifested in a widening of the current account deficit, while if it falls on non-tradable goods, it will lead to domestic inflationary pressures.

Second, a country that has become relatively more attractive to investors. Whether due higher domestic returns and improved prospects or due to decline in return elsewhere will receive inflows of private capital, which, in turn, can lead to problems of domestic absorption and "overheating" pressures. Even if these flows are financing investments, since in general, there is lead-time involved before these investments translate into productive capacity.

This dissertation attempts to explain the economic impact of capital flow on Asian economic growth during 1980-1998. We test the effects of Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI) and Short Term External Debt (STED) in a cross country regression framework, utilizing data on capital flows from foreign countries to major Asian countries over the last two decades between 1980-1998. This study will answer the question how different types of capital flows effect the economy differently. Most of previous studies shown FDI is the type of capital flows which has a highest effect on growth. FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However, the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Thus, FDI contributes to economic growth only when a sufficient absorptive

capability of the advanced technologies available in the host economy. Not many researches have been done about the role of foreign portfolio investment and short term external debts on economic growth and how excess short term capital flows and short term external debt are harmful for economic stability and cause Asian financial crisis. What is the correlation among the level of financial liberalization, financial development, capital flows and economic growth also the question we try toanswer.

Chapter 4

Macroeconomic effects of short-term Capital flows

Short-term capital inflows, in particular, foreign borrowings are interest-elastic. During the surge, domestic interest rates were kept relatively high to prevent economic overheating and to effectively contain inflationary pressures. In the industrial countries' recession of 1990-1993, the interest rate differential further widened as international interest rates declined.

In Indonesia, throughout the 1990s domestic interest rates were relatively high as the Indonesia authorities pursued tight monetary policy to reduce inflationary pressures and rates were burdening the central bank in the course of its sterilization efforts. Initially, the efforts were only partially successful because commercial banks at that time were reluctant to expand credit. The Banking system time was undergoing consolidation in order to meet stricter prudential requirements. However, the situation was the reserve in Malaysia and Thailand where large inflows led to excessive bank credit creation. In turn, the high domestic interest rates caused by rapid economic growth led to a surge in foreign borrowings by the private sector. However, when credit demand subdued slightly in 1994, Malaysia tried to ease interest rates in order to lower the interest rate differential. In the Philippines, active monetary sterilization to dampen pressure on the peso appreciation caused the domestic interest rates to move upwards. The central bank tried to reduce the interest rate differential through lower reserve requirements for all types of deposits in August 1994 and lower lending rates in 1996. In Sri Lanka, the continuous use of open market operations to siphon off excess liquidity caused interest rates to crawl upwards. Apart from the interest rate differential, the increasing use of short-term trade financing instruments and the decline in long-term official capital flows had increased the proportion of short-term capital inflows. However, the distinction between short and long-term capital

movements had raised some concerns. For example, in Indonesia, foreign short-term borrowings were used to finance long-term investment projects, thus creating a mismatch of maturity (Bank Indonesia, 1991/92). In Thailand, the source of funding through the BIBF has led to the shortening of Thailand's external debt maturity as BIBF normally funded lending through revolving short-term facilities. When it was clear those short-term inflows could easily be transferred out of the countries just as quickly as they could flow into the country, Malaysia. In March 1990, Korea adopted the market-average exchange rate system (MAR). Under this system, the exchange rate of the Korean won against the US dollar was calculated as a weighted average of the rates in the previous business day's transactions among banks. The MAR system allowed the exchange rate to fluctuate within a narrow but flexible band. In October 1993, like Indonesia, Korea widened the narrow range to effectively lessen the degree of moral hazard by transferring some risks to market participants. During the surge, both Malaysia and the Philippines were under the "managed" floating exchange rate regimes. However, unlike in Indonesia, the intervention band, which existed in practice, were neither explicitly nor officially stated. This may have given the respective central banks greater flexibility to deal with currency speculation. Malaysia's exchange rate had been determined by demand and supply, with occasional intervention to avoid excessive fluctuations of the currency. In Thailand, until the recent financial crisis, the exchange rate was rapidly pegged to a weighted basket of currencies of its major trading partners.

The Building-up in Vulnerability: A Simple Analytical Framework[11]

The growing vulnerability of East Asia was rooted in the private investment boom beginning in the late 1980s just described, but two factors amplified these

trends and the build-up of demand pressures. First, the process of external financial integration, and the surge in private capital inflows that accompanied it, worked as an additional force to reinforce the upswing in the domestic business cycle. The increase in private capital inflows, which in the case of East Asian countries was motivated mainly for investment purposes, provided the additional liquidity that allowed banks and non-bank financial intermediaries to increase lending, despite efforts to sterilize inflows. Capital flows also contributed to increases in asset prices. Furthermore, the policy response to the surge in inflows, which increasingly relied on tight monetary policy and heavy sterilization, provided further impetus to these flows, add to the process and aggravated the fragility in the corporate (and therefore) banking sector through sustained high interest rates.

Second, the high degree of segmentation of financial markets, and the growing importance of banks and non-bank financial intermediaries, allowed agents who could not directly borrow abroad to finance investments and increased expenditures through domestic borrowing. Indeed, banks dominate the financial systems in East Asia and credit plays an important role as the transmission channel of monetary policy in these countries. Except in Malaysia, equity and bond markets play a minor role in financing new investment and firms depend heavily on bank credit. Securities outstanding represent a much smaller share of financial intermediaries than in the United States and other industrial countries (World Bank 1997). In Malaysia, the capitalization of the equity market is very large, but accounting conventions account for some of the market size. Figure 6 illustrates the importance of the credit channel in East Asia through correlation coefficients between changes in economic activity and changes in credit and money during

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[11] Pedro Alba, Amar Bhattacharya "The Role of Macro-economic and Financial Sector Linkages in East Asia's Financial Crisis" World Bank –ADB joint paper 1998.

1990-96. In all four Asian countries, except perhaps Korea, the correlation coefficients suggest the credit play a more important role than money, although the lag structure varies between countries. Credit also seems to play a more important role in East Asian countries than in industrial countries in the sense that credit and money are broadly of equal importance in the latter. The credit channel, hence, played an important role in exacerbating the booms in asset prices, consumption and investment in East Asia.

Figure 6 Self-reinforcing dynamics resulted in increased vulnerability

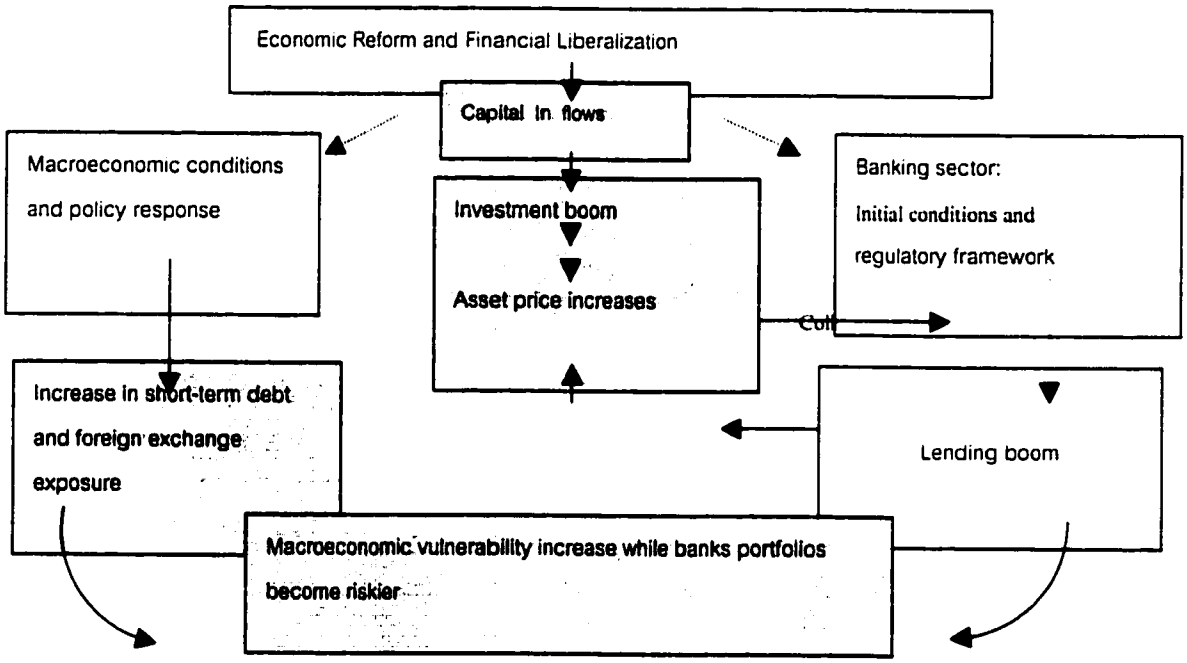

Figure 6 illustrates the several self- reinforcing channels at work, and how the combination of weak initial conditions, in particular regarding the quality of the intermediation process in the recipient countries, and macro policies can lead to a rapid build-up of macro financial fragility. For instance, the inflows that

initially occur because of the economic reforms – and improved prospects – can lead to a lending boom which, in turn, can finance a real estate boom and asset prices increases. If these assets are used as collateral for additional loans, then this will reinforce the increase in asset prices. Also, the greater availability of credit will accelerate economic activity, validating and reinforcing the expectations about the recipient country. The latter can lead to a surge in consumption, as agents believe that their permanent income and wealth has increased. In sum, the initial surge in inflows can put in motion a process in which the economy starts growing faster while economic agents, firms and households, increase their leverage. However, if the investment that is being financed results of poor quality, then the process will prove to be unsustainable and a downward correction in asset prices will occur. The latter depends on the quality of the banking system – which depends in part on the supervisory and regulatory framework – and management in the corporate sector.

Chapter 5

Financial Liberalization, Capital Flows and Asian Economies

Throughout the past two decades, most of Asian countries have liberalized their economies while world markets have moved into the more internationalization and globalization aspects. The World Bank (1993) study of East Asia attributed East Asia's high economic growth to the right macroeconomic fundamentals and emphasized the importance of trade and financial liberalization. In addition, McKinnon (1973) and Shaw (1973) pointed out the adverse effects of financially repressed economies and the beneficial effects of financial liberalization. They claimed that the liberalization of the financial sector from interest rate ceilings and other relaxation facilitates economic growth since it provided greater efficiency of capital allocation.

Common to East Asia's success were policies for macroeconomic stability, human resource investments, and outward orientation with trade and financial liberalization.

Investment shares (in GDP) in five countries rose sharply over the past two decades, rising from somewhat higher figures than in other developing regions. Private investment was encouraged by generally supportive macroeconomic environment with economic liberalization and by leading public sector infrastructure investments. The lack of high tariffs on imported capital goods and lower barriers for capital movements was also helpful in raising foreign investments.

East Asia's investment performance has been aided by rapidly increasing saving shares (in GDP) as well as external capital flows. Domestic resource mobilization is a regional strength, fostered by high private savings as well as

fiscal prudence, which generated increasing public savings. Savings shares are more than 50% higher on average than in other developing countries. Although savings propensities may be dominated by income gain, demographics, and the like, East Asian experience points to low inflation and generally higher real interest rates than elsewhere. Given the high rates of return on invested capital, encouraging savings in the high growth of East Asia has not been a problem and has led to a virtuous savings-income cycle. East Asia's success in international trade and investment is well documented. The region's developing countries expanded their exports more than twice as fast as the average for other developing countries, tripling their share of exports in GDP over the past quarter of a century. Their share of foreign direct investment to the developing countries rose from about 16% in 1970 to over 33% in 1990. The flow of trade and investments was crucial to the transfer of technology and the gains in efficiency and productivity. Thus, exports fueled growth to an extraordinary degree.[12]

Reasons for Economic Liberalization in Asia

Financial markets in various nations were changing very rapidly, reflecting the contradictions between the old financial system with various kinds of regulations and the new technological and economic conditions. The new conditions which have brought about the recent worldwide and simultaneous trend of financial deregulation include (Suzuki, 1987).

Asia's rapid growth and industrialization have created an urgent need for removal of out-date and cumbersome laws and regulations that obstruct the conduct of business. In an environment of increased globalization of trade and investment, economic liberalization is being undertaken for the following reasons:

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[12] Danny M. Leipziger and Vinod Thomas Lessons from East Asia P9-11 The university of Michigan press.

Asia's economic growth over the past ten years has created the necessity to mobilize an enormous amount of external savings to finance huge investments. Financial liberalization has therefore been undertaken to facilitate the mobilization of savings at home and the flow of capital from abroad. Using economic liberalization as tools to fund investments and generate economic growth.

Asia's growing internationalization requires a more efficient economic framework to keep the cost of doing business low. Economic liberalization could create more efficient and competitive economy.

The reasons outlined above confirm that economic liberalization is essential for the continued successful development of the East Asian economies. However, caution must be taken in the implementation of liberalization. In short, the country needs liberalization measures that are timely, systematic and well coordinated. Follow-up efforts must also be made regularly to assess the effect of liberalization and deregulation.

Reasons for Financial Liberalization

Financial liberalization in most East Asian countries has been undertaken since late 1980s under increasing globalization of trade and investment environment. There have been the major reasons for financial liberalization:

1. WTO agreements

The Uruguay round Agreements and WTO marks that members of GATT have negotiated a liberalization of trade and services, which includes the financial and banking services and the insurance. In response, there have been the principles that members have to follow such as Market Access, most Favored Nation and so on. Since five countries are members of WTO, Thai financial institutions must therefore be prepared for fierce competition from their foreign counterparts when GATT/WTO free trade and services become the rule of the game. Financial

liberalization is basically aimed at letting market mechanism work freely to enhance efficiency of these financial institutions.

2. Mobilization of savings.

Asian economic growth over the last 10 years has created the necessity to mobilize an enormous amount of savings, both domestic and foreign, to finance huge investments, particularly for infrastructure projects. Interest rate deregulation as well as other forms of liberalization such as the relaxation of foreign exchange control are therefore undertake to facilitate the mobilization of savings at home and the flow of capital from abroad. Thailand's and other East Asian countries' fiscal and financial position during 1990-1996 enables Thailand and other East Asian countries to take financial liberalization of various forms.

It is generally agreed that financial liberalization raises financial activity relative to the production of goods and non-financial services. However, there is much less consensus on the causes and effects of this "financial deepening". According to the financial repression theory (McKinnon, 1973: Shaw, 1973) financial deepening represents increased intermediate between savers and investors because higher interest rates raise savings and shift them from unproductive assets towards financial assets, thereby raising the volume of productive investment. Financial liberalization can also lead to deepening by redistributing savings and investment among various sectors, and also creating greater opportunities for speculation. Since these can worsen the use of savings, financial deepening is not necessarily a positive development. Financial liberalization often raises holdings of both financial assets and liabilities by firms and individuals at any given level of income, investment and savings. This tendency to borrow in order to purchase assets is driven by the increased scope for capital gains generated by financial liberalization. Financial liberalization increases the instability of interest rates and asset prices, thereby raising prospects to get quick profits through speculation on

changes in the market valuation of financial assets. It also allows greater freedom for banks and other financial institutions to lend to finance activities unrelated to production and investment, and to firms and individuals to issue debt in order to finance speculation. These can generate considerable financial activity unrelated to the real economy, and lead to financial deepening as in the United States in recent years through leverage takeovers, mergers, acquisition and so on (UNCTAD 1992).

Thailand Case

Thai Economy before the crisis during the past three decades, Thai economy has grown by 7.8% annually. In 1988, 1989, 1990, the economic growth (real GDP growth) grew at double-digit growth at the rate of 13.3%, 12.2% and 11.6% per annum respectively. After a decade of extraordinary GDP growth largely fueled by a strong export orientation and a fast-expanding manufacturing sector with continued significant growth of domestic investments, foreign direct and portfolio investments. Private consumption during the boom period is also becoming an engine of economic growth, as Thai consumers take advantage of their fast-increasing purchasing power. Manufacturing industries have fueled Thailand's economic success. Between 1987 and 1992 alone, manufacturing output increased over 150%, rising from 24.3% to 28.3% of GDP. Meanwhile, agricultural production as a portion of GDP fell from 15.7% to 11.9% in spite of an extraordinary 60% increase in output. Export-oriented direct investment has made its mark on Thai manufacturing. New industries that arose in the 1980s tended to be labor-intensive. At the same time, massive imports of industrial capital goods changed the nature of production. Garment and textile production has grown from a start-up industry in the 1970s to surpass food processing as the largest source of manufacturing output. The electronics and computer industries have benefited from large-scale investment since 1990.

Exceptionally strong growth in 1990-1995 was recorded in the sectors producing primarily for domestic consumption, namely vehicles and transportation equipment, construction materials, petroleum products, food processing, and beverages. Producers who previously increased capacity to meet foreign demand for their products are now finding fast expanding to home markets for their goods. Manufacturing industries are still heavily concentrated in the Bangkok metropolitan area, but investment incentives and lower costs have prompted many new factories to open their doors in the upcountry provinces. Rising wages in Bangkok suggest that the city's comparative advantage in coming years will be in higher value added industries. In 1994 Thailand's annual export growth reached 19%, and exports exceeded 1% of total global exports for the first time. The pace of growth of the Thai economy ought to slow down after six consecutive years of steady and rapid economic expansion between 1987-1992. However, during 1993-1995 economic growth continue to grow in a higher rate, one factor which make growth sustain under some weakness of economic fundamentals is the establishment of BIBFs in 1993. The launching of the facilities has resulted in a very large inflow of funds from abroad. The amount of funds flowing in through BIBF prior to the de facto devaluation of the baht on July 2, 1997, amounted to as much as baht 1,250 billion, 66% (baht 830 billion) of which was of the out-in type, and 34% (baht 420 billion) the out-out type. Although the Thai economy, after the introduction of BIBF, grew favorably during 1993-1995, inflation has prove to be a problem, rising from 3.4% in 1993 to 5.1% in 1994 and 5.8% in 1995. The Thai economy started slowing down in 1996 when growth, which had averaged at above 8% for 9 consecutive years, decreased to 6.6%, while inflation was very high at 5.9%. Moreover, export growth, which had been higher than 20%, turned negative at 0.2% in 1996. That warning signal on the economy sharply worsened in 1997. Thailand has learned an expensive lesson from underestimated the strength of hedge funds and losing the fight against the hedge funds. The current

account deficit both in nominal terms and as percentage of GDP, has greatly increased to baht 338 billion in 1995 and baht 372 billion in 1996, or 8% of GDP in both years. The shortage of savings after 1993, net household savings decreased substantially and the investment-savings gap widen. Thailand has had to rely on foreign funds to fill the current account deficit that caused the weakness in its economic structure. The higher the proportion of foreign funds which could be moved out easily, such as short term loans and portfolio investment, the riskier Thailand's position became: this placed Thailand's fragile economy at great risk.

Financial liberalization in Thailand (1988-1998)

Since the early 1990's, the Thai economy has been claimed to be more open.[13] The monetary environment has been relaxed and the financial system has been progressively implemented (Hataiseree, 1995d, 1995f, 1996a). Example in this regard included the official acceptance IMF's Article VIII in 1990 and the elimination of all interest rate ceilings for financial institutions in 1992. Such a relaxation of financial policies has allowed the Thai economy and financial system to become increasingly integrated with global economy. This can be observed from the increased flow of international capital that came into the country since the beginning of the 1990s until the economic crisis in July 1997. In such the rapidly changing economic and financial environment, the movements of the exchange rate have become increasingly important in the Thai economy.[14]

Thailand has made significant steps in a long-term process of financial deregulation designed to make Bangkok one of the world's major financial centers.

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[13] Empirical evidences obtained thus far have shown that the Thai financial system has become increasingly open. The degree of financial integration has increased form the level of 0.85 during the period 1980-1992 to 0.89 during the period 1980-1994. Further details on this, matter, see Hataiseree (1995a), Hataiseree and Phipps (1996a).

[14] Hataiseree, Rungsun The Roles of Monetary Conditions and the Monetary Conditions Index in the Conducts of Monetary Policy: The case of Thailand under the Floating Rate Regime. Bank of Thailand Quarterly Bulletin, September 1998.

The first major step of the financial liberalization came in 1991 with extensive foreign exchange deregulation. In 1992 interest rate ceilings for both loans and deposits were abolished, followed by the establishment of a minimum retail rate to be used as a benchmark. The Bangkok International Banking Facility (BIBF) in 1993 permitted 47 Thai and foreign commercial banks to operate offshore banking units. Foreign commercial banks anticipate further liberalization, including permission to operate new branches in addition to the single branch they are currently permitted. In 1994, the creation of Provincial International Banking Facility (PIBF) will permit foreign banks to extend limited local currency credit at PIBF offices upcountry. Thailand embarked on an ambitious five-year Master plan of financial deregulation in 1995. The plan aims to: 1. Enhance the efficiency and competitiveness of the financial system to meet the country's fast-expanding demand for capital and financial services. 2. Strengthen the solvency and quality of financial institutions. 3. Channel credit and financial services to provincial areas to support the government's provincial development policy. 4. Boost domestic savings to raise the long-term competitiveness of the economy. 5. Develop Thailand as a regional financial center and internationalize the domestic money and capital markets.

South Korea Case

After a number of false starts in the 1950s, when Korea was almost totally dependent on U.S. foreign assistance, early attempts at "development" began, first in the form of reconstruction. The dominant feature of the Korean economy has been its export orientation. Exports, as a proportion of GNP, rose from 7.4% in 1967 to 27.2% in 1977 and 36.7% in 1987. In broad terms, Korea's real GNP has tripled every decade since 1962.

Financial Liberalization in South Korea

Financial sector development in Korea has been lagging due to a variety of government regulations imposed in order to support government-led resource allocation. The most recent five years plan has set several goals, including 1. Elimination of underlying documentation requirements for financial transaction by 1997: 2. lifting the ceiling on foreign investments in the stock and bond markets; 3. Allowing offshore borrowing for all firms since 1997. 4. Easing government control on most lending and deposit rates; 5. Reduce "policy loans" The current five-year plan will open up 132 of 224 currently restricted businesses for FDI. Capital account liberalization has also allowed Korean firms to expand overseas investment. In 1994, Korean firms' outward investment rose by 88%.[15] More speedy of financial liberalization are seen in 1998 under IMF economic reforms. The first round of financial sector reforms during Asian financial crisis was finished at the end of September 1998. In 1998, 89 financial institutions and five banks have either been closed or their operations have been suspended.

Indonesia Case[16]

Indonesia has made substantial progress since 1980s. It achieved GDP growth of almost 7% per annum in 1965-1990, far above the average for low-and middle-income developing countries and comparable to other East Asian economies. In 1988 Indonesia implemented a thorough financial and investment liberalization. Liberalization of capital and dividend repatriation for foreign capital was included. The years that followed witnessed an investment boom. Economic growth accelerated accordingly. However Indonesia is the hard-hit during the Asian financial crisis. The GDP growth hit -15% and inflation rose to 50% in

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[15] Kihwan, Kim and Leipziger, Danny M. "Korea: a case of government-led development" Lessons from East Asia The University of Michigan Press 1997.

[16] See Khan and Reinhart IMF (1995)

1998. Economic hardship was leading to the collapse of Suharto's regime during the crisis.

Financial liberalization in Indonesia

The October 1988 deregulation removed most of the entry barriers. New banks whether joint ventures or domestic, can be set up with enough capital requirement. Regulations on opening new branches were substantially relaxed, and foreign banks were allowed to open sub-branch in six other major cities. In December 1988, some capital markets deregulation eased the requirements for companies to go public, eliminated the limits on price fluctuations. The new banking law was passed in July 1992 and ratified in October. It stipulated that there would be no more specialized banks. Since 1988 financial liberalization, the growth of the financial sector has been dramatic. The number of new banks increased from 61 to 119 in 1991, and the number of foreign banks increased from 11 to 29. The relaxation of branching requirements led to a big increase in the number of bank offices, especially of private domestic banks whose branches expanded from just 559 in1998 to 2,639 by end of 1991. Since 1996, there are signs of some financial instability in the banking sector, although it is difficult to say on what scale some banks with problems have already been "rescued" by arranging for a merger or takeover by another bank. The problem loans appear to have arisen in the period of rapid expansion after the deregulation. Strengthening of banking supervision is crucial in Indonesia.[17]

Malaysia Case[18]

Except for the 1985-1986 recession, Malaysia has had relatively uninterrupted and rapid growth since 1957. Between 1960 and 1990, real GDP

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[18] Bhattacharya, Amar and Pangestu, Mari "Indonesia: Develoment Transformation and the role of public policy" Lessions from East Asia.
[18] Khan adn Reinhart, IMF (1995)

increased sevenfold at an annual growth rate of 6.8%. In 1985 Malaysia experienced a small recession, largely due to the sharp drop in oil prices at that time. The government responded with micro liberalization (labor market, tax relief) measures aimed at improving the investment climate. Both portfolio and foreign direct investment restrictions were also lifted at the time. Higher investment and growth followed. Interestingly, this coincided with large current account surpluses in 1987-88, as domestic saving increased sharply. Starting in 1989 Malaysia experienced a vast surge in capital inflows: a positive balance in the capital account of US$1.5 billion (2.4% of GDP) grew systematically thereafter, peaking at an extraordinary US$9.6 billion (22.3% of GDP) on 1993. The bulk of this capital was long-term (both public and private).

Financial liberalization in Malaysia

Long periods of economic stability and a strong tradition of banking supervision enabled the government to liberalize interest rates without the adverse consequence of an immediate increase in interest rates. Commercial banks were allowed to determine their own deposit and lending rates in 1978. The debt problems caused by the promotion of heavy industries in the early 1980s had a major impact on the financial sector and forced some change in policy. Starting in 1992, some forms of capital controls were instituted: in particular, non-trade-related swaps by commercial banks were limited. In early 1994, a battery of capital controls on short-term inflows followed: banking institutions faced limits on their non-trade or non-investment-related external liabilities; residents were prohibited from selling short-term financial instruments to non-residents; commercial banks were forced to deposit at the Central Bank the deposits by foreign financial institutions. Malaysia imposed capital control in 1998.

Three major areas of financial liberalization

1. Abolition of Interest Rate Ceilings

Abolition of interest rate ceilings in Asian countries took place since late 1980's. The systematic and liberalization of interest rate was undertaken in June 1989 in Thailand. The Bank of Thailand announced the first deregulation of interest rate ceiling on time deposit with maturity longer than one-year. In March 1990, ceilings of all time deposit rates were abolished. This was followed by a removal of ceilings on the saving deposits and the lending rates in January and June 1992, respectively.

2. Relaxation of Foreign Exchange Control

Most of Asian countries started to relax since the late 1980's. In May 1990, the first stage of foreign exchange control liberalization in Thailand was undertaken. This measure focused on boosting confidence among investors and entrepreneurs as well as to improve Thailand's credit worthiness in international markets. A further package of the liberalization measures concentrating on capital accounts follows in April 1991. It was basically aimed mainly at facilitating the flows of funds in and out of Thailand. To induce greater flexibility and efficiency of the international payment systems, the Bank of Thailand announced further relaxation of the foreign exchange control from the second phase, which was effective from May 1992.

3. Liberalization on banking system

Monetary authorities embarked on a strategy to promote more flexible portfolio management and to widen the scope of operations of selected Asian countries' banking system. It is aimed at improving mobilization of domestic

savings and foreign capital inflows and also enhancing the efficiency of banking system.

Review of Literature – Financial liberalization

This section surveys some literatures that examine the impact of financial liberalization and crisis on economic growth. Most of Asian economic open their capital account and promote economic liberalization since 1980. In a closed economy, investment is equal to savings, and this is why financial liberalization can generate higher growth by using external savings. The financial liberalization policy does not only give the beneficial effect on economic development and growth as McKinnon and Shaw (1973) suggestion, but sometimes provides some unfavorable effects. McKinnon and Shaw (1973) concluded that financial deepening implies not only higher savings rate and, therefore, a higher volume of investment. They also argue that policies that lead to financial repression - for example, controlling which result in negative real interest rates - reduce the incentive to save. Lower savings, in turn, result in lower investment and growth. However another study by Diaz-Alejandro (1985) argues that the Latin American experience shows that financial deepening is unlikely to increase savings; therefore, the main contribution of financial deepening to growth should be thought of as increasing the marginal productivity of capital, rather than the volume of savings and investment. Financial liberalization and development may enhance the efficiency of capital accumulation was emphasized by Goldsmith (1969), who also finds some positive correlation between financial development and the level of real per capita GNP.

Chamley and Hussian (1988) studied the removal of financial repression policy, especially the abolition of interest rates ceilings, in the three Southeast Asia countries; Thailand, Indonesia and The Philippines. The empirical results suggested that the liberalization measure including removal of interest rate ceilings

and other regulations on credit led to an increase in M2 to GDP ratio in both Thailand and Indonesia. In the Philippines, there was a significant relationship between real deposit rate and growth of deposit; however, the result differed from Thailand and Indonesia cases. The interest rate liberalization failed to generate an increase in the bank deposit, because the positive effect of financial liberalization was offset by the interaction of inflation and taxes on financial institutions. Accordingly, the ratio of M2 to GDP did not change after the interest rate liberalization. Pornpen S. (1992) investigated the degree of openness of the financial sector in Thailand by examining the extent to which domestic interest rates are influenced by foreign interest rates. The results of the study suggested that the domestic interest rates were increasingly influenced by international interest rates after the period of financial liberalization.

William Easterly and Patrick Honohan (1990) have studied financial policy in Thailand. The domestic interest rate will be affected by private sector excess demand of fiscal deficits but will be determined solely by international interest rates (plus expected devaluation of the domestic currency). Changes in the fiscal deficit or autonomous private demand will pass through into the current account deficit of the balance of payments rather than increasing domestic interest rates.

Wanda Tseng and Robert Corker (1991) attempted to focus on the relationship between financial liberalization, money demand, and monetary policy in a number of Asian countries including Indonesia, Korea, Malaysia, Myanmar, Philippines, Nepal, Singapore, Sri Lanka, and Thailand. Prior to the financial liberalization, the financial system in these countries shared the same characteristics such as interest rate restrictions, high reserve requirements, the restrictions limiting competition in the financial system, and international capital flow controls. The interest rates controls were designed to provide low-cost funds to encourage investment. However, these restrictions led to financial

disintermediation i.e., savers and investors sought alternative choices outside the formal financial system. It caused an accelerated growth in unregulated financial markets and non-bank institutions. In addition, the high reserve requirements with no interest paid on reserves served as an implicit tax on commercial banks and acted to raise the cost of financial intermediation. The regulation on entry of new institutions was aimed at improving the financial intermediation and developing the new services and instruments. Furthermore, the controls of international capital flows were intended to protect the fluctuation of domestic interest rates and monetary conditions from abroad.

The financial liberalization in most of East Asian countries has been a gradual and continuing process. The objectives of the financial reform were to expand the reliance on market forces, in order to improve the efficiency and the effectiveness of monetary policy. The empirical results showed that the important effects of interest rate liberalization were to promote savings and efficient investments. Moreover, the positive real interest rates contributed to economic growth by promoting financial deepening and the investment productivity. The financial depth, which was measured by M2 to GDP ratio, rose in the most of these countries.

Wanda Tseng and Robert Corker (1991) also investigated the implications of financial liberalization for money demand. The financial reform would make the instability of money demand because the interest rate deregulation could prompt the portfolio shift, However, it depended on which level of interest rates changed. If interest rates on time deposits increased after liberalization, the demand for broad money might rise while the demand for narrow money might decline. The financial liberalization might results in the inability of money demand function to predict short run monetary aggregate development since the new influences might become important determinants of money demand after liberalization. The

precision of the predicted monetary development might be changed. The liberalization of interest rates has also contributed to improve resource allocation, the mobilization of savings, and the efficiency of investment.

Another recent work of Greenwood and Javanoic (1990) present a model in which both financial intermediation and growth are endogenous. Greenwood and Jovanovic (1990) show that there is a positive two-way causal relationship between economic growth and financial development. Pami Dua, Aneesa Ismail Rshid and Dominick Salvatore (1999) study found that government expenditure, income taxes and foreign capital flow have the same effects in India and South Korea on economic growth, interest rates, foreign reserve and financial liberalization have different effects, bringing out the differences in the two economies. This paper applies a simple macroeconomic model developed by Green and Murinde (1993) to South Korea and India and studies the potency of fiscal and financial policies. The fiscal variables are real government spending, the income tax rate, and the export tax rate; while financial policy variables are the official interest rate, loans from commercial banks, foreign reserves or the exchange rate and foreign aid inflows. Dummies for political instability and financial reforms specific to the two countries are also included.

Chapter 6

Capital Flows Managing Issues

In dealing with overheating pressure from an upturn in domestic demand and capital inflows during financial liberalization period, the East Asian economies relied mainly on **monetary policy**. Monetary tightening, of course, served to increase interest rates and the differential between domestic and international interest rates. The increased differential between domestic and international interest rates, in turn, provided further impetus for capital flows. In fact, with growing integration, resulting from a breakdown of barriers to capital inflows and increasing familiarity of investors with emerging markets, domestic assets in these countries were becoming closer substitutes to international assets. In other words, the interest sensitivity of capital flows to these countries increased during the 1990s. The implication of this was monetary policy of many Asian countries during the period was becoming less effective as an instrument to deal with the overheating and capital flows – and was in fact serving to encourage further inflows and hence the rapid accumulation of external debts. And since short-term flows tend to be the most sensitive to interest differentials, a large proportion of the inflows look the form of short-term obligations. The use of this policy was most pronounced – Indonesia and Thailand – saw the most significant increase in short-term external debts. **Exchange rate policy** in many Asian countries also contributed to the rapid accumulation short term and unhedged obligations. More flexible exchange rate regimes are crucial to prevent financial crisis and deal with surge of foreign capital flows. In the face of capital inflows, most of selected countries in this study have acted to maintain, or even depreciate, their currencies in order to help the price competitiveness of their exports. A policy of flexible exchange rates implies that the exchange rate is allowed to fluctuate according to market conditions. Given that the countries studied here have a large

overall surplus due to the massive inflow of foreign capital, a flexible-exchange-rate policy would result in an appreciation of their domestic currency. By allowing appreciation, they can reduce the burden of sterilization. The magnitude of capital inflows might be reduced through a rise in the expected rate of depreciation. Flexible exchange rates would also help reduce inflation by lowering import prices because these countries depend heavily on Japanese-produced industrial equipment and intermediate goods. When the capital inflow is fully absorbed through nominal appreciation of the currency, the real value of the currency also appreciates, and this can lead to a large current-account deficit. If a country adopts a single policy variable such as the money supply or the exchange rate to absorb the impact of capital inflows, it is likely to experience side effects that are considered undesirable. It is thus better to employ both monetary and exchange rate policy to maintain sustainable growth with price stability. In any case, the integration of the domestic economy into the world economy makes it more difficult to manage exchange rates and the money supply separately.

Fiscal policy actually turned procyclical in all four major Asean countries with tightened monetary policy. Although the underlying fiscal positions remained strong, fiscal policy was not sufficiently contractionary. The (implicit or explicit) insurance on liabilities provided by the government to the financial system, as well as implicit guarantees provided to the corporate sector, has been an important factor in motivating excessive risk-taking, including large foreign risks (McKinnon and Pill, 1997, provide an analytical model). Fiscal policy is also a useful tool in dealing with capital inflows. Increasing the budget surplus can mitigate both inflationary pressure and real appreciation of the currency. Moreover, because a reduction in government expenditure has the same effect as a decrease in demand for loanable funds, it can lower interest rates. Thailand provides an example for the successful use of this approach. However, fiscal policy is generally designed on

the basis of medium-and long-term considerations, which makes it too slow to allow timely intervention in dealing with short-term speculative capital inflows.

Those East Asia countries which received foreign capital mostly international through the domestic banking system or lent directly to the corporate sector (in the form of bonds, loans and short term paper) became more vulnerable than countries which had received mostly flows in the form of FDI.[19] The weaknesses in the financial and corporate sectors are worth studying since an important explanation for the failure of aggregate macro-economic policies to stem capital inflows, alter their composition or adequately minimize their adverse consequences, lied in the quality of domestic financial intermediation and the governance of private firms.

Increased capital mobility and economic reform in developing countries have also brought more deregulated and diversified financial sectors. Financial liberalization and the opening up of international capital flows in Asian countries have resulted in significant economic benefits over the last decade. However, in countries where these measures have not been accompanied by policies to maintain the resilience of the financial system, economic and financial sector vulnerabilities have increased. The process of financial liberalization must be managed effectively in order to avoid creating distortions that can undermine financial stability.

Central banking in each nation has two important objectives: stabilize the price level and to promote sound banking. Ideally, in the context of a surge in capital inflows, the twin objectives should be to minimize the inflationary impact of the inflows, as well as ensure that they are efficiently but safely utilized by the financial system. In practice, however, ASEAN central banks had been handicapped in their efforts to achieve these two objectives. First, central banks'

efforts to meet reserve money targets, and hence inflation targets, had been compromised by the large role of targeting the nominal exchange rate in the monetary policy reaction to the capital inflows. In order to defend the nominal exchange rate or to keep it within a specified band, ASEAN central banks had had to purchase foreign exchange and at the same time to sterilize the liquidity impact through various policy instruments. Sterilization, however, has its own limits, as the experiences of the ASEAN countries surveyed in this paper indicate. Thus, reserve money targets, and hence, inflation targets, had often been exceeded (e.g. the Philippines). Second, structural weaknesses in risk management practices of financial institutions and in risk-focused supervision by the national authorities of several ASEAN countries (particularly in Indonesia, Korea, and Thailand) had contributed to the inability of the authorities to ensure that the proceeds from the capital inflows were invested productively and safely. This section reviews the central banks policies adopted by several ASEAN countries in response to the surge in capital inflows. For present purpose, the following categories of policies are used for analytical convenience:

Promote sound banking

The Monetary Authority of Singapore (MAS)/Hong Kong Monetary Authority (HMA) model and The New Zealand (NZ) model.

It is important to note that the objectives of sound money and sound banking are interdependent, so that policies to promote one objective will affect the other objective. For example, the imposition of capital controls on certain types of domestic financial institutions (prohibition or setting up of limits on foreign borrowing) may prevent unsound banking practices by the prohibited group while at the same time limiting the liquidity and hence inflationary effects of the potential capital inflow. In the MAS/HMA model, there is a large role for

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[19] Kaminsky and Reinhart 1997 confirm this finding.

supervision to ensure compliance with strict prudential regulation. Self-regulation by banks is emphasized by the New Zealand model, backed up by quarterly public disclosure of the condition of bank and stiff criminal and civil penalties (including imprisonment, fines, and unlimited personal liability for depositors' losses) for false or misleading statements. The New Zealand model has two distinct advantages: it minimizes the budgetary cost of supervision, and it also minimizes the potential for corruption of bank regulators and supervisors. The classical response to large sustained capital inflows is to let the nominal exchange rate appreciate. This apparently was not **de facto** the case for four ASEAN countries (Indonesia, Malaysia, Philippines, and Thailand) even though their exchange rate regimes were **de jury** relatively flexible. Furthermore, the use of both explicit and implicit intervention bands for exchange rates indicates that ASEAN countries placed greater value on nominal exchange rate stability. Thailand aggressively defended its nominal exchange rate, which stabilized at around 25 baht to the US dollar. In Indonesia, the implementation of the crawling peg allowed the exchange rate to depreciate gradually against the US dollar. Malaysia and Philippines allowed some nominal appreciation of their respective currencies. But the peso appreciated much more than the ringgit despite the relatively large capital inflows into Malaysia. In fact, the ringgit depreciated somewhat in 1993 and 1994. The appropriate policy response in dealing with large capital inflows in a liberalized environment is to find the right mix between monetary and fiscal policies. The authorities have to assess not only the favorable impact but also the destabilizing effects of excessive inflows on macroeconomic stability.

Intervention – The main purpose of intervention in the foreign exchange market is to ensure that both nominal and real exchange rates do not deviate too substantially from the perceived equilibrium rates. As non-sterilization intervention increases liquidity, the financial system becomes more vulnerable to financial distress, especially when the appropriate prudential and supervisory

framework is not in place. Monetary sterilization is a process in which central banks simultaneously attempt to minimize the appreciation of the exchange rate and reduce or leave the monetary base unchanged by selling domestic assets.[20] It can also be broadly defined to include attempts to leave broad money supply unchanged instead of the monetary base, for example, by increasing reserve requirements to reduce the money multiplier. In this case, the change in money supply largely depends on the size of the inflows, the extent of monetary sterilization as well as the volatility and magnitude of the money multiplier. Until the central bank can ascertain the nature of the inflows, monetary sterilization is often the first response to a surge in capital flows as it is easy to use and quickly reversible (Bercuson and Koenig, 1993). Normally, capital inflows perceived to be of a speculative nature are sterilized.

Sterilization through open market operations

One of the most common sterilization instruments is open market operation (OMO). The chief advantage of open market operation over many other forms of sterilization is that no extra burden is imposed on the banking system (IMF 1995a). It is common to conduct open market operation using government securities but in many circumstances, central banks find it necessary to issue their own bills to absorb liquidity from the banking system.

[20] The adverse effect of capital inflows can be mitigated by an increase in demand of money. Money supply grew at an average of more than 14% in four ASEAN countries (Indonesia, Malaysia, Philippines and Thailand) during the inflow period.

Table 7 Selected Indirect Instruments of Monetary Policy

Instruments	Advantages	Disadvantages	Issues and Design
Reserve Requirements	Enhance predictability of reserve demand. Useful in one-of Sterilization of excess liquidity or To accommodate structural Changes in demand for reserves.	Imposes tax on bank intermediation, lead to a widening of between lending and deposit rates. Frequent changes may disrupt Bank portfolio management. Not effective if excess reserve Is unevenly distributed.	Design includes definition and monitoring of requirement base, eligibility of Assets rules, etc.
Primary market Sales of central Bank paper	Flexible instruments of short-term management. Issuance at discretion of central bank and Various auction/tender format can Be used. Can be used when Secondary markets are Insufficiently developed.	Can be costly if primary issuance is large. Absence of coordination with other issuing agents (Treasury) may generate problems.	Management of liquidity can be achieved through staggered primary issuance.
Primary market Of government Securities	Similar to central bank paper. Encourages fiscal discipline if direct central financing is Discontinued.	Debt-management objective may conflict with monetary management if treasury Manipulates auction to keep Funding cost low or high Frequent issuance may impede Secondary market development.	When central bank has government securities in its portfolio, reverse repo auctions can be used.
Foreign Exchange (FX) Swaps and Outright sales And purchases	Swaps can substitute repo operations. FX outright sales and purchases may be useful if FX market is more developed than money market.	Suffer losses if foreign exchange operations are used to preserve an unsustainable exchange rate.	Need to design appropriate risk-management procedures.
Shifting Government Funds between The central Bank and Commercial banks	Convenient and accurate way of achieving monetary goals. Useful when secondary market is not yet developed. Involve smaller quasi-fiscal costs.	Not truly market-based and large withdrawal of deposit may create liquidity problems for individual banks. Interfere with bank's liquidity management.	Need to establish operational arrangements with the treasury.

In **Malaysia**, during the peak of the capital surge in 1993, Bank Negara issued series of Bank Negara Bills and Malaysia Savings Bonds. In the **Philippines**, the central bank had frequently undertaken outright

In **Thailand,** in 1987 the central bank started to issue Bank of Thailand bonds with maturity of 6 months to one year to absorb liquidity. Prior to that, over 90% of the volume transacted in the repurchase market for government and state enterprise bonds were between one-to fourteen-day maturities (Kittisrikangwan et al., 1995).

Prolonged sterilization could lead to massive increases in quasi-fiscal costs and domestic debt stocks. Besides, there are some uncertainties regarding the effectiveness of open market operations in dealing with persistent large capital flows. The ability of open market operations to sterilize capital inflows on a sustained basis is questionable (Calvo, 1991). The inter-temporal budget constraint that future taxes have to be raised may eventually ruin the credibility of the stabilization program. Hence, there is a genuine practical limitation to using Open Market Operations over the course of an extended capital inflow episode (Spiegel, 1995). Quasi-fiscal costs of sterilization can become significant during periods of capital surges. Prolonged sterilization prevents domestic interest rates from falling, thus increasing the yield differential even further. This puts in motion not only a vicious cycle of drawing more volatile short-term placements, but also causes a distortion in the composition of capital flows. The effectiveness of OMOs depends not only on the degree of substitutability between foreign and domestic bonds, but also on the supply of domestic assets available to the central bank and, more importantly, on the quasi-fiscal costs of sterilization. The effectiveness of OMOs as a sterilization instrument which can be also hampered by an immature secondary market for the relevant domestic asset.

Sterilization through increase in reserve requirements

Malaysia have raised reserve requirements extensively to sterilize capital inflows. The main purpose of this instrument is to reduce the impact of foreign inflows on the banking sector. Since no quasi-fiscal cost is involved, the use of

reserve requirement indirectly transfers the effective cost of sterilization to the banks. Large capital inflows coupled with weak bank balance sheets and poor banking supervision may exacerbate the moral hazard problem, resulting in a financial bubble (Corbo and Hernandez, 1996). In such a circumstance, reserve requirements can be a useful instrument in short-term liquidity management (IMF, 1995b). In the **Philippines**, the relatively high reserve requirement encouraged banks to circumvent it by engaging in off-balance sheet activities through common trust funds, fuelling exchange rate speculation. These trust funds were at that time not subject to any restriction. To close this loophole, the central bank imposed a 10-percent reserve requirement on peso-dominated common trust fund effective from October 1993. **Indonesia** reactivated the use of statutory reserve requirement by raising the ratio in Feb. 1996 and again in April 1997 (Bank Indonesia, 1996/97). Like Indonesia, **Thailand** until recently was reluctant to use reserve requirement as one of its main monetary instruments. Until 1996, the current ratio of the reserve requirement (liquid assets requirement) has not been changed since June 1979 (Tivakul, 1995). In 1996, short-term offshore borrowings by banks and finance companies and deposits from non-residents with maturity of less than one year were subjected to non-remunerated reserve requirements.

Sterilization through shifts in government deposits

In Malaysia and Singapore, the authorities frequently shifted deposits from the Employee Provident Fund and the Central Provident Fund from the commercial banks to the respective central banks. The transfer of these deposits is effectively equivalent to a 100% increase in reserve requirement. Thailand have also actively shifted government deposits to the central banks when deemed necessary. Indonesia has also imposed a ceiling for the Treasury office's deposits maintained with banks.

Fiscal Surplus

Maintaining a strong fiscal position over the long term can signal a clear and desirable policy intention to market participants. The existence of a large government sector that is not cost and interest sensitive is also likely to erode the effectiveness of sterilization (Karunasena, 1996). Fiscal consolidation can have direct impact on aggregate demand if it is associated with the reduction of the purchase of non-traded goods and services (Calvo et al., 1993). Furthermore, if the reduction is reflected in the external current account, there will be less pressure on the exchange rate to appreciate. **Thailand** turned fiscal deficits to surpluses in 1988 while the **Philippines**, for the first time in twenty years experienced a budget surplus in 1994.

Table 7 Fiscal Balance before the economic crisis

	(Percentage of GDP)	
Country	**1993-1995**	**1996**
Indonesia	1.2	0.9
Korea	0.4	0.3
Malaysia	2.3	1.1
Philippines	0.0	-0.4
Thailand	2.3	2.3

(Source: IMF and World Bank)

Capital Controls

When it was deemed that market-based instruments such as Open Market Operations might not be too effective, ASEAN countries employed direct capital controls. Capital controls are often implemented to enable the authorities to use monetary policy to achieve domestic economic objectives, while ensuring that irrespective of external developments the exchange rate remains stable (Bakker, 1996).

Via Price

1. Dual or multiple exchange rate system: imposes different exchange rates for different types of commercial and financial transactions.
2. Taxation of cross-border financial flows or income resulting from external portfolio.
3. Residual category of indirect restrictions or regulations, including among others limitations on interest payments on deposit accounts of non-residents and other measures to limit capital flows, though not prohibit them outright.

A cross-border transactions tax[21]

There are strong theoretical and practical grounds for relying on taxes on international transactions rather than direct controls. Such taxes (often known as a "Tobin tax") are likely to interfere less with the allocate efficiency of the relevant capital markets, and to be administrative task of distinguishing long-term from short-term flows by leaving market agents to decide what types of flows will be altered. They also have the important side-benefit of raising fiscal revenue. Obstfeld (1995) argued that a coherent case can be made for a Tobin tax in the context of stabilizing developing countries, which need to manage exchange rates and have relatively shallow financial markets, and where the cost of failed stabilization is extremely high. Dornbusch (1998) agues for a small tax, levied by individual countries, which could be varied over time, on all international (cross-border) transactions so as to discourage short-term capital flows and lengthen investor horizons. Such a tax is superior to administrative controls in that "a maximum of market choice and discipline is maintained and a minimum of bureaucratic control intrudes. He also suggests that most of the relevant problems

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[21] Helleiner, G.K. (1998) "Capital Account Regimes and the Developing Countries: Issues and Approaches"

of tax evasion could readily be overcome by imposing the tax on all transactions in foreign exchange, whether for trade in goods or services, or for international capital movements. Since the tax applies to all cross-border flows rather than only to financial transactions, and since its object is to moderate instability in cross-border flows not financial asset markets, the arguments concerning the ineffectiveness of financial transactions taxes are irrelevant. There could be come negative effects on international trade but, at the tax rates contemplated, they would be minimal. Rather, Dornbusch argues, the tax would smooth the process of national integration into the world economy. Dornbusch's proposed tax is on cross-border payments, which lead to reserve losses or gains, exchange-rate movements, inflation or deflation. The focus is not on whether, offshore, someone buys from someone else a claim on domestic assets. Here is a critical difference from financial transaction taxes.

Dornbusch's purpose is not to reduce the volatility of stock or bond prices but rather to manage the pace of cross-border flows. The prospect of accomplishing this is far better than of stabilizing asset prices. How effective would the tax need the answer. The immediate temptation, not surprisingly, is to ask how the tax can be avoided. It is obvious that unless it applies to all and any cross-border transaction, the untaxed transactions will become vehicles for under-or-over invoicing. Once it is comprehensive, avoidance is difficult, much more difficult than in the case of financial transaction taxes. The latter can be avoided by trading outside the jurisdiction where tax is levied. A tax that applies only to cross-border transactions falls fully within the jurisdiction of the levying country. Consider the example of a securities transactions tax designed to reduce short-term speculative in stocks and the resulting volatility. Levying the tax forces the business offshore and leaves the volatility unchanged. By contract, cross-border payments by definition cannot be forced offshore. This difference takes away the central criticism of financial transaction taxes, namely that they cannot work

unless they are practiced at the world level. This is an important aspect of Donbusch's proposal. Suppose cross-border investments in stocks and bonds are taxed as is bank borrowing abroad. That obviously forces large corporations into borrowing abroad. That does not make a difference because they, too, are taxed upon repatriating their borrowing. If the tax is administered in a comprehensive way, by registration of capital transactions where they do not enter the foreign-exchange market and by stiff penalties, the system can be broadly effective.[22] There are costs of Cross-Border tax. There are at least two kinds of costs. First, this is a tax on trade in goods, services and assets and as such reduces the level of trade. That is undesirable but also unlikely to be quantitatively of great importance. Second, the additional question of the administrative bureaucracy required implementing the tax.

Via Quantity

Administrative controls on FDI, foreign equity transactions, foreign exchange transactions, and short-term external position of the commercial banks; ASEAN countries have tried to curb banks' offshore borrowings and impose restrictions on the open foreign exchange position of commercial banks. They imposed restrictions on the net difference between off-balance sheet assets and liabilities or by limiting short-term external liabilities up to a maximum of a certain percentage of a bank's capital. The justification for imposing such restriction was the significant increase in short-term foreign borrowings. In 1994, in the Philippines, Thailand, and Indonesia short-term borrowings as a percentage of foreign exchange reserves stood at 123.2, 114.7, and 60.9%, respectively. In contrast, Malaysia's ratio was a relatively low level of 19.6%. The Philippines limited loan approval in 1994 while in Malaysia, Korea and Thailand, swaps and forward

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[22] Dornbusch, Rudi Cross-Border Payments taxes and Alternative Capital Account Regimes "Capital Account Regimes and the Developing Countries" edited by G.K. Helleiner 1998

transactions were limited only to those associated with foreign trade. In an extreme move, Indonesia terminated altogether the commercial banks' swap facility with Bank Indonesia. In 1994, in a surprise move Malaysia imposed an outright ban on the sale of short-term market instruments to foreigners by domestic residents. For comparison, it is interesting to note that Singapore was able to manage large capital flows without resource to capital controls. The prolonged use of capital controls can jeopardize financial developments in the long run.

Alternative Measures

Encouraging Capital Outflows

Increasing capital outflows can play an important role in dealing with inflows. All the countries under consideration have lifted restrictions on capital outflows to reduce, directly and indirectly, the volume or the potential adverse effects of the capital inflow. However, the size of outflows is still negligible relative to that of inflows in all four countries. The main reason is the reluctance of domestic residents to invest abroad. This is particularly true for portfolio investment, because of lower returns and lack of requisite investment skills by domestic financial institutions. However, central bank swap arrangement could be used to provide additional incentives for domestic residents to make portfolio investment abroad. When the accumulation of foreign reserves exceeds a desired level, the central bank sells a part of the reserves to domestic financial institutions in exchange for domestic currency. The buyers are required to invest the acquired funds abroad for specified period.

If the issue is to contain capital flows, a broad array of policies can be thought of. At one extreme, there is full financial repression with a heavy exchange-control bureaucracy. A milder form is selective control of capital flows according to stated criteria such as nature of investment vehicles or maturity or

characteristics of financial intermediaries. At the other end, there is comprehensive, moderate cross-border transaction tax. Controls are strictly undesirable – they involve bureaucracies, corruption and a lack of flexibility in response to economic criteria. The more moderate strategy of selective controls at least allows the prospect of full liberalization for direct investment, possibly the stock market and long-term fixed income. Of course, financial engineering may easily play havoc with such attempted controls. Then there is the possibility of reserve requirements on cross-border flows, either across the board or at the margin. The trouble here is that these deposits must be fully comprehensive, including not only all forms of inward-bound financial transactions but also reserves on offshore borrowing of non-financial agents. A clean reserve requirement system is effectively the same as a cross-border transaction tax. The only difference is that a cross-border payments tax is more comprehensive and involves less administrative complication. It thus limits from the outset the incentive to invent transactions that could circumvent the tax.

Managing Foreign Capital Flows: Experiences of Selected Countries

Thailand

The inflows played an important role in financing the high rate of investment under the large gap between domestic investment and saving. Simultaneously, Thailand had to deal with some adverse effects of the large capital flow. High priority has given to exchange rate stability under fixed exchange rate system during 1980-1996. Price competitiveness for Thai exports has been crucial under export-led growth strategy. A stable exchange rate has enabled the economy to continue to attract the foreign capital needed to maintain a high rate of domestic investment. However, the firm commitment of the government to keep the nominal exchange rate stable has added to the burden borne by monetary sterilization to

mop up excess liquidity arising from the increase in foreign assets of the central bank as a result of FX intervention.

Fiscal discipline has been of key policy in managing the inflow of foreign capital. The government tightened fiscal policy in order to reduce domestic aggregate demand and inflationary pressures, as well as to lower the dependence on foreign capital by increasing national savings. The choice of fiscal policy is related to the ineffectiveness of monetary policy under a system of fixed exchange rates with free cross-border capital movements. According to Nijathaworn (1995), it is also related towards strict fiscal discipline as the main medium-term means of macroeconomic stabilization. Actual government spending on investment is usually lower than budgeted expenditure, which enables the government to achieve a fiscal surplus more easily. Between 1988 and 1994 the average surplus was about 3% of GDP. As its fiscal position improved, the government repaid foreign debt in an effort to offset the inflow of foreign capital.

On monetary policy front, the Bank of Thailand has used open-market operations in an attempt to control excess liquidity resulting from the increase in its net foreign assets and to reduce the volatility of domestic interest rates. This has been a tool of short-term management of excess liquidity, while fiscal policy has been used in a medium and long-term perspective. Frequent open-market operations have been necessary because under a system of fixed exchange rates with an open capital account as in Thailand, monetary tightening is only effective in controlling liquidity and interest rates in the short run. As a result, domestic interest rates were higher than those of the industrial economies throughout the 1990s, providing an ongoing incentive for foreign capital to flow in. Interventions in the repurchase market for government and state enterprise bonds and issuing central bank securities have been the main tools of monetary sterilization, which has usually been accompanies by "window guidance", through which the Bank of

Thailand persuades commercial banks to restrain domestic credit. Thailand established a repurchase market in 1979 to encourage the development of money market and to provide the Bank of Thailand with a new instrument for open-market operations (See Kittisrikangwan 1994). In fact, open-market operations through the repurchase market in Thailand are effective only for very short-term liquidity management, as participants in this market prefer transactions with maturity of no more than two weeks. In general, financial institutions use the repurchase market for managing excess demand or the supply of funds with a very short time-horizon. Bank of Thailand has issued central bank bonds with maturity between six and twelve months since 1987. It also established a short-term Central Bank bond market in August 1995 and this made the bank's injection or absorption of reserve money more effective.

Deregulating the outflow of capital – The government has also dealt with the inflow of foreign capital by deregulating the outflow of capital. In three rounds of foreign-exchange liberalization since 1990 it removed all restrictions on capital outflows, except a few that are related to portfolio and property investment. This was also accompanied by tighter prudential requirements for the financial sector with respect to capital adequacy, loan-loss provisions, and exposure to foreign-exchange risk. As a result of fiscal discipline, monetary tightening, deregulation of capital outflows and tighter prudential requirements, the growth of the money supply decelerated and inflation has been stable throughout the 1990s, despite increasing capital inflows. Increased foreign portfolio investment exposes Thailand's financial markets to external shocks. Foreign acquisition of Thai stocks was a major factor in the 88% increase in the SET index in 1993.

Malaysia

This rapid growth has been due largely to a rapid increase in investment, with foreign capital providing an important source of financing. According to the

estimates by Bank Negara Malaysia (1995), a 1% increase in real FDI and foreign borrowing resulted, respectively, in 0.111% and 0.056% growth in real GDP during 1970-1993. Faced with a substantial foreign capital inflow, until early 1994, the government mainly used sterilized intervention in the foreign-exchange market to avoid negative consequences for the economy. During 1990-1993, despite a large current account deficit, the overall balance-of-payments account maintained a surplus as a result of the huge inflow of foreign capital. In particular, during 1991-1993, the interest-rate differential between Malaysia and the rest of the world began to widen. At the same time, the market expected the ringgit to appreciate, as it was considered significantly undervalued; this resulted in a pronounced increase in the inflow of foreign capital during this period. The overall surplus raised pressure on the ringgit, Bank Negara Malaysia was to stabilize both nominal and real exchange rate. Active intervention by the bank led to a substantial increase in its foreign-exchange reserves: they jumped from $7.4 billion at the end of 1989 to $10.4 billion at the end of 1991, and to $26.8 billion at the end of 1993. These reserves led to increased liquidity and raised inflationary pressures in the economy. The Central Bank has often relied on monetary sterilization to control excess liquidity. The main instruments were interbank market operations and change in the statutory reserve requirement. In 1991, the bank added foreign loans related to swaps and foreign borrowing from offshore financial markets to the list of liabilities subject to reserve requirement. Monetary sterilization resulted in a rise in domestic interest rates until early 1993, leading to a widening gap between domestic and foreign rates. Fiscal consolidation was also pursued to manage the expansion of the money supply resulting from the inflow of foreign capital. Efforts were made to restrain government spending. As a result, the fiscal deficit continued to decrease and, in 1993, the fiscal balance recorded a surplus. Regulation of the capital account was also reintroduced. For example, limits on non-trade-related transactions were imposed on commercial bank in 1992. The

growth of monetary aggregates accelerated during 1990-1993 despite monetary sterilization and fiscal restraint. Given that the growth rate of the Malaysia economy had exceeded the potential rate, rapid monetary growth resulting from the inflow of foreign capital raised inflationary pressure further. The inflow of foreign capital destabilized the economy and led to a loss of monetary control by the Central Bank (Aziz, 1994). More importantly, the increase in the inflow of short-term speculative capital, especially in 1993, made the financial markets vulnerable to a reversal in the flow. All these effects prompted Bank Negara Malaysia to implement six administrative measures in January and February 1994 to contain the inflow, particularly of speculative short-term capital. These included the prohibition of short-term money-market instrument sales to non-residents, a ban on commercial bank swaps unless trade-related, and tight restrictions on forward transactions with foreigners. Liabilities included in computing statutory reserves and liquidity requirements were expanded to cover foreign-currency deposits, foreign-currency borrowing from foreign banking institutions, and interbank borrowing. Also, the statutory reserve requirement was raised to 9.5% (it was raised again in May and July 1995). There was an immediate response from the foreign exchange and stock markets. The ringgit depreciated rapidly due to an outflow of foreign capital. By the end of Feb. 1994, it had depreciated against the US dollar by 3.3% from the end of the previous year. A net outflow of foreign capital was recorded, as short-term speculative funds moved elsewhere. This resulted in a deceleration of the expansion of M3, which had grown by 23.5% in 1993, to only 13.1% in 1994. CPI also moderated: it peaked at 4.4% in Feb. 1994, falling to 3% in June 1994. The use of administrative measures is controversial. It is often argued that such measures should be used rarely and only temporarily, as they lend to distortions in the long run and damage a country's reputation. However, direct controls, coupled with a policy of low interest rates, were

considered helpful in curtailing destabilizing short-term flows of foreign capital and restoring economic stability in Malaysia.

Republic of Korea or South Korea

Since the mid-1960s, economic growth in the Republic of Korea has been propelled by the rapid expansion of exports and investment arising from increase in foreign demand. Reflecting this export-oriented development, the degree of openness has been very high since the mid-1980s. The foreign-exchange rate policy was geared to maintaining a weak won regardless of whether the overall balance was in surplus or deficit. As a result, the Korean won depreciated even when a large capital inflow generated an overall surplus. The overall balance of payments account recorded deficits in 1990 and 1991 because of a large current account deficit. Bank of Korea resorted to active sterilization to counter the effects of foreign capital inflows on the money supply. Foreign-exchange market intervention increased the holdings of foreign assets by the Central Bank, thereby increasing the money supply – which is the most carefully monitored intermediate target of monetary policy. To offset the increase, the monetary authorities required financial institutions to purchase monetary stabilization bonds. Due to sterilization, money supply growth in the republic of Korea has been kept under control. It has been decelerating continuously since 1990 and inflation has also been falling. While the Republic of Korea has avoided serious inflation, its interest rates have risen gradually since 1990 due to the crowding-out effect of the massive sterilization. The wide interest-rate gap between the Republic of Korea and the industrial economies continues to cause capital inflows.

Indonesia

Rapid economic growth of Indonesia in the 1990s benefited from the inflow of foreign capital. However, foreign capital inflow also created some adverse

effects such as accelerating money supply growth, higher inflation and increasing imports. Rapid domestic demand caused by a substantial inflow of foreign capital. CPI rose from 6.4% in 1989 to 7.8% in 1990, and to 9.9% in 1991. There was also deterioration in the current account resulting from increasing imports: the deficit widened by $3.2 billion between 1989 and 1991, and the ratio of the deficit to GDP rose from 2.5% to 4.4%. The inflow of foreign capital increased domestic liquidity and foreign-exchange reserves held by Bank Indonesia. As in the Republic of Korea and Malaysia, the government attempted to absorb the excess liquidity mainly through monetary sterilization. The inflow of foreign capital increased domestic liquidity and foreign-exchange reserves held by Bank Indonesia. As in the Republic of Korea and Malaysia, the government attempted to absorb the excess liquidity mainly through monetary sterilization. It also increased prudential requirements for commercial bank and imposed some direct controls on credit expansion. Weak rupiah policy was implemented to promote export competitiveness. The policy of stabilization the real exchange rate has been aimed at containing short-term capital inflows. A persistent depreciation of the rupiah's nominal value was able to keep the domestic effective interest rate (interest rate minus expected depreciation rate of the rupiah) lower than it would have been if the currency had appreciated. This policy helped reduce the incentive for foreign capital inflows. A persistent depreciation of the rupiah's nominal value was able to keep the domestic effective interest rate (interest rate minus expected depreciation rate of the rupiah lower than it would have been if the currency had appreciated. This policy helped reduce the incentive for foreign capital inflows. The policy aimed to maintain exchange-rate stability during the surge of foreign capital flows led to an increase in the money supply. This outcome led Bank Indonesia to pursue monetary sterilization continuously. To absorb liquidity, Bank Indonesia relies mainly on sales of short-term Central Bank securities, Bank Indonesia Certificates. These were first issued in Feb. 1984. Bank of Indonesia used several additional

methods to control excess liquidity. It raised the discount rate on export drafts, and imposed direct controls on banks to contain credit expansion. In an attempt to reduce the inflow of short-term capital, Bank Indonesia began to lower the discount rates of SBIs in 1992 and continued to maintain nominal depreciation of the rupiah. Nonetheless, Indonesia's effective rate of return (domestic interest rate minus depreciation rate of rupiah) remained high relative to returns available in industrial countries. In addition, institutional investors' worldwide rush into emerging markets contributed to a flood of foreign portfolio investment, especially after mid-1993. The Mexican crisis in December 1994 shook Indonesia's foreign exchange and capital markets. Rumours of rupiah devaluation linked to the size of Indonesia's large foreign debt (about $87 billion in 1994, the equivalent of about eight times the value of foreign exchange reserves at the end of 1993) triggered a withdrawal of funds. To restore exchange-rate stability, Bank Indonesia intervened by selling $580 million in spot, forward and squaring transactions. Simultaneously, it raised its official discount rate by 50 basis points. These measures helped restore confidence that the rupiah would not be devalued further, so that demand for the dollar subsided.

Chapter 7

Literature Review

The available literature indicates that economists have followed several different approaches when exploring the relationship between foreign capital inflows and economic growth. Some have explored the relationship between foreign capital and domestic savings; others have examined the relationship between foreign capital, capital formation and economic growth, while some others have looked at the relationship between foreign capital and the incremental output-capital ratio (IOCR).

Most of the studies related with economic impacts of capital flows focused on the role of foreign direct investment. This paper explores three forms of capital flows:

Foreign direct investment, short term external debt and foreign portfolio investment. An important form of international integration is the flow of direct investment across countries. Foreign investment flows have only secondary effects on overall financial development, and via that channel on economic growth.

Economic growth is not the only result of a single factor, it is a result of a combination of many domestic factors and foreign elements including foreign direct investment. So it is very difficult to trace out the effects of a variable on economic growth.

Prior literature shows that different approaches are used to trace out the link between foreign direct investment and economic growth. The relation has been analyzed in cross-country comparative analysis, linking the rate of growth to both the level of foreign direct investment inflows and to the value of accumulated stock of foreign direct investment. These studies failed to guide systematic results.

Other studies that analyze the connection between capital inflows and the growth through a growth equation driven from the production function, which is then, Tested on (pooled) time-series data for a group of countries. In most of these studies, total capital inflows shift up into compound parts, one of which is foreign direct investment. If foreign direct investment inflows increase the competition and efficiency on domestic market and if they introduce superior technology and management and market methods, an improvement of efficiency is to be expected.

E. Borensztein, J. De Gregorio and J-W Lee (1997) present a model to test the effect of foreign direct investment (FDI) on economic growth in a cross country regression framework, utilizing data on FDI flows from industrial countries to 69 developing countries over the last two decades. Our results suggest that FDI is an important vehicle for the transfer of technology, contributing relatively more to growth than domestic investment. However, the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital. Thus, FDI contributes to economic growth only when a sufficient absorptive capability of the advanced technologies available in the host economy. The most robust finding of the paper is that the effect of FDI on economic growth is dependent on the level of human capital available in the host country. There is a strong positive interaction between FDI and the level of educational attainment (our proxy for human capital). Notably, the same interaction is not significant in the case of domestic investment, possibly a reflection of differences of technological nature between FDI and domestic investment. We also found some evidence of a crowding-in effect, namely that FDI is complementary to domestic investment. This effect, however, seems to be less robust than our other findings. The effects of FDI on economic growth are tested in a sample of 69 developing countries over the last two decades. The

contribution of FDI to economic growth is enhanced by its interaction with the level of human capital in the host country. A representative regression is:

$$\gamma i = -0.72\ FDIi + 1.61\ FDIi \times SCHA + others \qquad (8)$$

$$(0.93) \qquad (2.55)$$

$$R^2 = 0.25(0.19) \qquad \text{No. of observations} = 138$$

Where SCHA is male secondary school attainment of the population.

Some caution must be exercised, however, in the interpretation of the size of the effect on economic growth of FDI. The paper's data measures the international flow of resources for foreign direct investment, as recorded in balance of payments statistics. This is, however, only part of the resources invested by a multinational firm, because some part of the investment may be financed through debt or equity issues raised in the domestic market. Thus, the papers measure of FDI underestimates the total value of fixed investment made by a multinational firm and the coefficients on FDI may be proportionally overestimated. To the extent that this bias in the measure of FDI is uniform across countries and over time, the qualitative results are not affected. However, the results of the paper suggest some directions for further research. The results suggest that the beneficial effects on growth of FDI come through higher efficiency rather than simply from higher capital accumulation. This suggests the possibility of testing the effect of FDI on the rate of total factor productivity growth in recipient countries. In addition, given the robustness of the effect of interaction between human capital and FDI, it might be interesting to explore the effects of FDI on the level of human capital. As we have argued above, FDI is a vehicle for the adoption of new technologies, and therefore, the training required

preparing the labor force to work with new technologies suggests that there may also be an effect of FDI on human capital accumulation.

Calvo 1996 standard open economy models predict that a surge in capital flows has the following effects: increase in consumption and investment; rise in real money balance and foreign reserve; a real exchange rate appreciation; a large external current account deficit; and higher prices of equity and real estate.

Magnus Blomstrom, Mario Zejan and Robert E Lipsey (1992) ran the empirical analysis focuses on growth in real income per capita for 78 developing countries. Using data from Summer and Heston (1991), supplemented with data from various other sources. The inflow of foreign direct investment had a significant positive influence in income growth rates. The influence seemed to be confined to higher-income growth rates. It was not evident among the poorer countries. These results may therefore imply that inward FDI is a source of more rapid growth only for a country already has a relatively high level of development. We suggest that a certain threshold level of development is needed if the host countries are to absorb new technology from investment by foreign firms. The paper also found there was no gross relationship between real income per capita in 1960 and subsequent growth in per capita income. However, once other significant influences, such as education, changes in labor force participation rates, inflows of foreign investment, price structure, and fixed investment ratios are taken into account, the lower the country income level, the faster the income growth. The "conditional" convergence was particularly strong among the poorest half of the developing countries, contradicting the idea of a "convergence club" confined to relatively well off countries.

Jungsoon Lee, Rana and Yoshihio Iwasaki (1986) estimate a simultaneous equation model of saving and growth for a sample of Asian developing countries. Of the various capital flows components included their growth rate equation, FDI

has the greatest positive impact. Ishrat Husain and Kwang Jun (1992) use a similar approach and also detect a significantly positive effect of FDI on the rate of economic growth for four Asean countries – Indonesia, Malaysia, the Philippines, and Thailand.

Dani Rodrik, Andres Velasco (September 1999) provide a conceptual and empirical framework for evaluating the effects of short-term capital flows. The paper found almost all of the countries affected by the financial turmoil of the last few years had one thing in common: large ratios of short-term foreign debt, whether public or private, to international reserve. A simple model of the joint determination of the maturity and cost of external borrowing highlights the role-played by self-fulfilling crises. The model also specifies the circumstances under which short-term debt accumulation is socially excessive. The empirical analysis shows that the short-term debt to reserve ratio is a robust predictor of financial crises, and the greater short-term exposure is associated with more severe crises when capital flows reverse. Higher levels of M2/GDP and per-capita income are associated with shorter-term maturity of external debt. The level of international trade does not seem to have any relationship with levels of short-term indebtedness, which suggests that trade credit play an insignificant role in driving short-term capital flows. Our policy analysis focuses on ways in which potential illiquidity can be avoided.

Qinglai Meng, Andres Velasco (July 1999) use a standard two-sector neoclassical model with distortions. The paper try to answer the question is often asked in the policy literature. In this model, capital mobility can render the steady state indeterminate, in the closed economy with no international capital mobility, the utility function must be linear or close to it for indeterminacy to occur, while in the open economy the shape of the utility function makes no difference. The reason is that in the no mobility case (autarchic case) change in aggregate

investment must be matched by changes in aggregate consumption, while in the case of full capital mobility they can simply be financed by borrowing abroad. Indeterminacy depends only on technology and factors affecting it. In this model without increasing marginal returns, distortions must exist that drive a wedge between private and social returns. Those wedges can arise from externalities, but also from the presence of taxes or equivalent distortions. This general principle should prove useful in many applications. The paper provides some theoretical underpinnings to the concerns that de-regulating the capital account may be destabilizing.

Thorsten Beck, Ross Levine, and Norman Loayza (June 1999) examined the impact of financial development on the sources of economic growth. The paper uses two econometric methods. To assess the long-run impact of the exogenous component of financial intermediary development on the sources of economic growth, The paper find an economically large and statistically significant relationship between financial intermediary development and both real per capita GDP growth and total factor productivity growth. The paper use a cross-country sample with data averaged over the period 1960-1995 and uses the legal origin of countries as instruments. To exploit the time-series nature of the data, we create a panel data set and use recent dynamic panel techniques as proposed by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1997). This procedure controls for the possible endogeneity of the regressors and for country-specific effects in dynamic, lagged-dependent variable models, such as growth regression. After controlling for these potential biases, we find that 1) financial intermediaries exert a large, positive impact on total factor productivity growth, which feeds through to overall GDP growth. 2) the long-run links between financial intermediary development and both physical capital growth and private saving rates are tenuous.

Peter J. Montiel (1994) describes and evaluates alternative tests of capital mobility and applies four such tests to assess the degree of integration with external financial markets exhibited by a large group of developing countries in recent years. The evidence suggests that a substantial number of developing countries can be considered financially open. An economy's degree of financial integration with the rest of the world is a key determinant of many of its most important macroeconomic properties. The paper presents the first systematic application of existing approaches to the measurement of capital mobility to large groups of developing countries. Unfortunately, a number of complicating conceptual and empirical factors is encountered in attempting to answer this question. Conceptual, there are two types of complicating factors 1) there is no widely accepted empirical measure of the degree of an economy's financial integration with the rest of the world. 2) Each of the existing empirical tests presents problems of interpretation. The tests are based on the magnitude of gross capital flows, the strength of saving-investment correlation, the applicability of arbitrage conditions, the scope for sterilization, and the cross-country uniformity of Euler equation relationships.

Robert J. Barro (1989) found the growth rate of real per capita GDP is positively related to initial human capital (proxies by 1960 by 1960 school-enrollment rates) and negatively related to the initial (1960) level of real per capita GDP for 98 countries in the period 1960-1985. Countries with higher human capital also have lower fertility rates and higher ratios of physical investment to GDP. Growth is inversely related to the share of government consumption in GDP, but insignificantly related to the share of public investment. Growth rates are positively related to measures of political stability and inversely related to a proxy for market distortions. A poor country tends to grow faster than a rich country, but only for a given quantity of human capital; that is, only if the poor country's

human capital exceeds the amount that typically accompanies the low level of per capita income.

Nelson and Phelps (1966) suggested in their study that a larger stock of human capital make it easier for a country to absorb the new products or ideas that have been discovered elsewhere. Therefore, a follower country with more human capital tends to grow faster because it catches up more rapidly to the technological leader.

Becker, Murphy and Tamura (1990) assume that the rate of return on human capital increases over some range, an effect that could arise because of the spillover benefits from human capital that Lucas (1988) stresses. As an example, the return to some kinds of ability, such as talent in communications, is higher if other people are also more able. In this setting, increases in the quantity of human capital per person tend to lead to higher rates of investment in human and physical capital, and hence, to higher per capita growth. A supporting force is that more human capital per person reduces fertility rates, because human capital is more productive in producing goods and additional human capital rather than more children.

Roomer (1990) human capital is the key input to the research sector, which generates the new products or ideas that underlie technological progress. Thus, countries with greater initial stocks of human capital experience a more rapid rate of introduction of new goods and thereby tend to grow faster. In multicountry models of technological change, the spread of new ideas across countries (or firms or industries) is also important.

Ross Levine and David Renelt (1991), the paper identify a positive, robust correlation between growth and the share of investment in GDP and between the investment share and the ratio of international trade to GDP. The paper clarifies the conditions under which there is evidence of per capita output convergence. In

much respect, this paper is a natural extension of the types of exploratory cross-country empirical investigations of growth pioneered by Kormendi and Meguire (1985) and recently advanced by Barro (1990, 1991). Representative of the large empirical cross-country growth literature, each of these studies uses an assortment of theoretical papers to motivate a variety of economic variables that are then used in cross-country growth regression Although each study presents intuitively appealing results, they use different explanatory variables. The methodology of this paper based on the influential work of Kormendi and Meguire (1985); a common feature of most cross-country growth regressions is that the explanatory variables are entered independently and linearly. The paper use a variant of Edward E. Leamer's (1983) extreme-bounds analysis (EBA) to test the robustness of coefficient estimates to alterations in the conditioning set of information. Thus, our EBA uses equations of the form

$$Y = \beta_I I + \beta_m M + \beta_z Z + u$$

Where Y is either per capita GDP growth or the share of investment in GDP. I is a set of variables always included in the regression. M is the variable of interest, and Z is a subset of variables chosen from a pool of variables identified by past studies as potentially important explanatory variables of growth. I briefly summarize our findings as follows:

1. The paper found a positive and robust correlation between average growth rates and the average share of investment in GDP.
2. They found a positive and robust correlation between the share of investment in GDP and the average share of trade in GDP.
3. They found that all findings using the share of exports in GDP could be obtained almost identically using the total trade or import share. Thus, studies that use export indicators should not be interpreted as

studying the relationship between growth and trade defined more broadly.

4. The paper that a large variety of trade policy measures were not robustly correlated with growth when the equation included the investment share.

They found that a large variety of trade policy measures were not robustly correlated with growth when the equation included the investment share.

Choudhry M. Sharif (1997), this paper tried to review modern empirical literature on the relationship between foreign direct investment and economic growth and many other factors which are related with them. The discussion is focused on two bodies of work. First, cross-country regression analysis on the relationship between foreign direct investment and economic growth, labor cost, the openness and the real exchange rate. Second, the relationship between economic growth and foreign direct investment, domestic investment, openness, secondary school enrollment ratio, and the relative income gap. The results of the first work indicate a positive correlation between foreign direct investment and economic growth, openness of an economy and the devaluation of an economy. A negative relation exists between foreign direct investment is concerned is selected Asian countries. It is clear that the region represents a large and fast growing market, low labor cost, appropriate trade and foreign exchange policies, help to make it a good place for foreign firms to locate their plants. Despite several attractive factors, there are some major issues such as political instability and lack of proper education that limit the inflow of foreign investment. Another important analysis of this paper is to provide details discussion on the way in which the exogenous variables (FDI, secondary school enrollment ratio, labor cost, real exchange rate and relative income gap) have affected the economic growth in the selected Asian countries. It is found that the growth rate is positively related with

direct investment, the openness, domestic investment, the secondary enrollment ratio and the relative income gap. But only the positive correlation between growth rate and foreign investment is strong. So for raising the growth rate they must maintain the inflow of foreign direct investment and for maintain and raising the inflow of foreign direct investment they have to succeed in stabilizing the macroeconomic environment, reducing price distortions, liberalizing foreign exchange system, deregulation investment procedure and increasing general economic efficiency.

Hussain and Jun ran a regression to explain growth with a set of pooled cross-country and time series data for ASEAN countries over 1970-1988. They find a significant positive effect for foreign direct investment. Foreign direct investment presents an opportunity for these (developing) countries to finance their economic growth, particularly if FDI is used to generate some foreign exchange on the side.

Lee, Rana, and Iwasaki framed a simultaneous equation model of growth and savings for Asian Developing Countries and estimated that FDI had a greatest positive impact on economic growth and total factor productivity. There are more dynamic gains from the industrial development induced by FDI, including more employment, a better-trained labor force, a higher national income, more innovations, better technology, advanced managerial assets and enhanced competitiveness in addition to foreign market outlets for their exports. In the case of Thailand, Jansen stated that if one looks at the coincidence of the rise in foreign direct investment and double-digit growth in the year after 1986. We can easily find that foreign direct investment inflows has a positive growth effects likely since the FDI flows help to release that foreign exchange constraint.

Choang Ahn concludes that export-oriented FDI is likely to have a positive effect on private investment and growth, but can have adverse balance-of-payment

consequences. Saltz examines the effect of FDI on economic growth over the period of 1970-1980. Seventy-five countries are divided into two groups, the low and the high FDI countries. The low FDI countries had a higher rate of growth of 5.3% of GDP and the high FDI countries had a lower growth rate of 4.2 during the period of 1980-1988. It is suggested in this study that the level of FDI does increase the level of savings, but does not increase the rate of growth of gross domestic products. It shows negative correlation between foreign direct investment and the economic growth.

A regression was run by Gupta and Islam during the period 1950-1973 to explain the growth with the set of time-series and pools cross country data for a large group of developing countries and found that the coefficient of the foreign direct investment variable remains insignificant. The results were the same for all periods, for all groups of countries and in all types of regression equation.

Blomstarm and Wolf extended the analysis of Mexican data to examine the impact of foreign presence on the dispersion of productivity and on the growth rate of total factor productivity. Using sectoral level data, Blomstarm finds that an increase in foreign presence fails to increase productivity growth. While, Blomstorm and Wolf find faster productivity growth and faster convergence of productivity levels in sectors with higher level of FDI.

Countries that are well-integrated in world financial markets are able to smooth their consumption and adjust saving and investment expenditures regardless of the domestic flow of capital, investment, and output through international borrowing and lending. In facts, in an open economy, a higher rate of return always attracts capital inflow across national boundaries, which confirms the view that there is evidence of perfect capital mobility among the nations. The saving-investment correlation has been the subject of intense debate because of an alleged lack of the capital mobility implied by the empirical findings of Martin

Feldstein and Charles Horioka. Feldstein and Horioka (1980) measured the degree of capital mobility by comparing the national saving rate and domestic rate of investment. By using saving-GDP ratios and investment-GDP ratios averaged for the period 1960-1974 for a sample of 17 OECD countries, Feldstein and Horioka ran the following Ordinary Least Square regression:

$$(I/Y)_I = \alpha + \beta(S/Y) + \varepsilon_i$$

In above mentioned equation, $(I/Y)_I$ is the ratio of gross domestic investment to gross domestic product in country I and S/Yi is the corresponding ratio of gross domestic saving to GDP, the coefficient, the coefficient β indicates the proportion of the incremental savings that is invested domestically and is also referred to as the "savings and retention coefficient." On the basis of the evidence from the above regression equation for a sample of 17 OECD countries, they reject the notion of perfect capital mobility. Feldstein and Horioka found a β coefficient almost close to one (0.9). This led them to conclude that capital is not perfectly mobile internationally. Feldstein and Horioka hypothesized that the less closely saving and investment in each country is related, the better the international capital market operates (less value of the beta coefficient for each country). A number of authors have criticized the Feldstein-Horioka analysis on different grounds. Empirical investigations by Obstefeld (1986), Frankel (1986), Murphy (1984), and Wong (1990) found a large degree of capital mobility among middle income developing countries even though there exists strong control of capital flows. Showkat Ali (1996), the paper is to examine the underlying factors that cause current account variability, and their impact on the domestic saving-investment relationship and foreign capital inflow through the international capital market integration, particularly in developing economies. By using OLS methodology, the paper estimated the equation for a sample of 100 countries over the period 1960-1992. The paper distinguished the correlation between saving and investment in

each of the three sub-periods: 1960-1980, 1960-1985 and 1960-92. In general, this study contrary to Feldstein-Horioka's results, the study found the saving-investment correlation declined on the average among the economies. These results lend support to the views that the economies are more open now in the 1990s than before in the 1960s or the 1970s. Only 17 countries show that the beta coefficients are equal to one or over. In addition, the correlation coefficient estimated for 40 developed and developing countries during the same period effectively suggest that saving-investment correlation declined significantly in absolute terms.

Obstfeld (1986) differs with the Feldstein-Horioka analysis on different grounds. Obstfeld suggests that there may be a common cause or some other factors that influence the shifting of both investment and saving in the same direction in developed and developing countries to a certain extent. He explains that, in an open economy model, smoothing consumption patterns among the resident of different nations is important. Obstfeld (1986) introduced an alternative approach, based on the Euler equation method to measure the correlation between saving and investment. Montiel (1994), following Obstfeld's analysis constructs the Euler equation approach for sixty developing countries. This intertemporal behavior of consumption function (traded goods only) can easily detect whether both home country and foreign country residents have the same opportunities to get risk free assets and the consumption opportunities in the market place.

Basu and Mcleod (1991) explored how terms of trade changes affect saving-investment relationships in a small open economy. They suggested that terms of trade changes are likely to cause more short-term current account variability than shifts insaving propensities and productivity levels. While Haque and Montiel (1991) investigate 15 developing countries (1969-1987) against the common assumptions of imperfect capital mobility. The authors found that capital

is highly mobile despite capital controls by government agencies in developing countries in general, especially in Asia.

Williamson (1996) provides an updated account of the literature on growth, convergence, and economic integration. Although he argues that convergence in income levels and globalization were correlated both in the late nineteenth century and after World War II, and that there are reasons to believe that causation runs from integration to convergence at least in the former period. He suggests that mass migration and trade were the main engines of the process of equalization of per capita incomes. He estimates that mass migration accounted for 70% of real wage convergence between 1870 and 1910 among those countries that now constitute the OECD, but at that time showed marked income differences. Other forces like trade integration (< biblio >) explain the remaining 30%. According to Williamson, the contribution of capital market integration to the catching-up of the backward western economies in the late nineteenth to early twentieth century was rather limited. Of course things might have gone differently in the New World (a net recipient of both immigrants and capital flows) and in today's Third World countries (colonies included) but once again it is quite difficult to disentangle the net effect of one single aspect of globalization.

The long-term benefits of capital inflows are by no means mechanical: they crucially depend on whether the destination of external financing within the recipient country is investment or consumption, on the allocation of the investment resources to highly profitable projects. All of these conditions must be fulfilled in order for capital inflows to support economic growth and development. Manzocchi and Martin (1996) find that larger per capita inflows were positively and significantly associated with economic growth in developing countries during the period 1960-1972, but that this statistically significant association between growth and capital inflows vanished during the period 1973-1982. We show that those

developing countries that received more external finance (on a per capita basis) experienced an increase in investment rates in the sixties, but an increase in consumption and a decrease in investment rates in the seventies.[23]

The counterpart of the foreign capital contribution to growth is the accumulation of an external debt (or in general, of a negative net foreign asset position). The accumulation of external liabilities is viable if domestic output and exports are also growing. [24]

The contrast between the findings of different economists raises the question whether the nature and the impact of capital inflows will have changed between the different periods of study. The contrast may be because of the difference in the country's sample; the characteristics that show the link between capital inflows and growth may differ from period to period or may be due to the different types of capital inflows. It is very difficult to come to a satisfactory empirical estimate of the direct contribution of foreign capital flows to growth and financial development, as its effects are channeled through investment, trade consumption, and so on.

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[23] Manzocchi, Stefano "Capital flows to Developing Economies throughout the Twentieth Century" in Financial Globalization and Democracy in Emerging Markets edited by Leslie Elliott Armijo.
[24] On the experience of the transition economies of Central and Eastern Europe see Manzocchi (1997).

Chapter 8

Objective and Scope of Study

This dissertation attempt to measure the economic impact of capital flows on selected Asian countries and try to explain the correlation among capital flows, level of financial liberalization, financial development, human capital and economic growth. This study also examine the policy implications related with capital flow.

The main objectives of this study are as follows:

To develop the time series data and across country regression framework which related to the impact of capital flows over GDP on economic growth.

To explain how different types of capital flow effects economic growth in selected Asian countries.

To explain the correlation among capital flows, level of financial liberalization, financial development, human capital and economic growth.

The scope of study

This study will cover four major ASEAN countries and one major East Asia countries. The effects of capital flows on economic growth are tested in a sample of 4 major ASEAN countries and 1 major East Asia countries (South Korea) during 1980-1999. The four major ASEAN countries are Indonesia, Malaysia, Thailand and The Philippines. The capital flows, which this study monitored, are Foreign Direct Investment, Short-term External debts and Foreign Portfolio Investment.

Chapter 9

Theoretical Framework, Hypothesis and Methodology

9.1 Theoretical Framework and Model

There does not exist a consensus theoretical framework to guide empirical work on growth, and existing models do not completely specify the variables that should be held constant while conducting statistical inference on the relationship between growth and the variables of primary interest. This has produced a diverse and sometimes unwieldy literature, in which few studies control for the variables analyzed by other researchers. To provide evidence on the sensitivity of past findings to small alterations in the explanatory variables, based on the influential work of Kormendi and Megurie (1985), a common feature of most cross-country growth regressions is that the explanatory variables are entered independently and linearly. Thus extreme-bounds analysis uses equations of the form:

$$Y = \beta i\, I + \beta m\, M + \beta z\, Z + u$$

Where Y is either per capita GDP growth or the share of investment in GDP, I is a set of variables always included in the regression, M is the variable of interest, and Z is a subset of variables chosen from a pool of variables identified by past studies as potentially important explanatory variables of growth.

Economic growth may come from the following two channels: growth in the amount of factors of production or increase in the efficiency with which those factors are used. In other words, growth is induced by the increase in investment (accumulation of capital) and the efficiency of investment. In a closed economy investment is equal to savings and this is why savings is viewed as an important vehicle to increase growth. The efficiency of investment, in turn, includes not only total factor productivity growth, but also the accumulation of other factors not included in physical capital, and hence, not included in standard measures of

investment. This becomes important as new theories of economic growth emphasize that we should look at a broader concept of capital, rather than simply equipment and buildings. We should also include human capital, organizational capital, information, etc. To simplify, the economy is closed so investment equal savings. It could be assumed that the economy is open and there is in addition an upward sloping-supply of funds (Fry, 1993) or some other form of imperfect capital mobility such as the lack of collateral to obtain foreign financing for human capital accumulation (Barro, Mankiw and Sala-i-Martin, 1995). In all of these cases higher national savings would encourage capital accumulation, and the implications for growth would be qualitatively similar to those of the closed economy. [25]

The role of foreign capital as a determinant of growth in the developing countries is a controversial subject. A group of economists in the 1950s and 1960s showed that foreign capital inflows had a favorable effect on the growth rate. These economists assumed that all capital inflows constituted net additions to an LDC's productive resources without in any way substituting for savings made available from domestic sources and further that such inflows had no effect on the incremental capital-output ratio of the recipient country. This favorable effect was illustrated sometimes through the use of the Harrod-Domar model and at other times through the use of the two-gap model where inflows facilitated and accelerated growth by removing the foreign exchange and/or domestic saving-investment gap. This position came under attack in the early 1970s.[26] A group of economists argued that given any plausible welfare function which includes present and future consumption among its arguments, optimal allocation of resources would lead to the conclusion that part of the foreign capital will be

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[25] De Gregorio, Jose "Financial Integration, Financial Development and Economic Growth" University of Chile, July 1998

[26] See literature reviews for more details.

allocated to present consumption and the remainder to augment resources available for investment. Two hypotheses were advanced to explain how foreign capital could lead to a decline in domestic savings. First, foreign capital could induce government to relax their tax efforts and increase their consumption expenditure or else to liberalize imports. Second, private foreign investment pre-empts investment opportunities and displaces domestic investment. If savings were determined by available investment opportunities, this would be a cause domestic saving to fall. Another group of economists also argued that since aid is given for a variety of objectives besides economic growth of the recipient countries, foreign capital inflows could increase the overall incremental capital-output ratio, and other things remaining the same, reduce the efficiency of investment in developing countries. Private flows could also have a similar effect if they introduced inappropriate technology and managerial systems.

The available literature indicates that authors have followed several different approaches when exploring the relationship between foreign capital and economic growth. Some have explored the relationship between foreign capital and domestic savings; others have examined the relationship between foreign capital, capital formation and economic growth, while some others have looked at the relationship between foreign capital and the incremental output-capital ratio.

Capital flows especially foreign direct investment have been considered as one of the main factors underlying the strong growth rate experienced by the Asian economies for the last fifteen years. Its role in growth process has for long been a topic of intense debate. This debate has provided much literature, for example Salvatore (1983), Lee, Rana and Iwasaki (1986), Ahn (1988), Hill (1990), Hussain and Kwang (1992), Saltz (1992), Akhtar (1993), Fry (1993), Amirahmasi (1994), and Heng and Linda (1994), about the relationship between foreign direct investment and economic growth but still, more empirical work is needed. The

contribution and performance of external capital to these countries can be evaluated with reference to its effects of economic growth.[27]

There have been many theories attempting to explain the impact of capital flow on the economy. Some theories test how does capital flow and foreign direct investment affect economic growth. Some theories explain capital flow from one place to another. Agarwat (1991) summarized that the flow of capital from home to host countries could be explained by three traditional micro-theories 1. The theory of differential rate of return. 2. The portfolio theory. 3. The product-cycle theory. The brief outlines of these theories are as follows:

The rate of return theory: this theory postulates that capital flow is a function of international differences in rates of return on capital relative to required rate of return. Required rate of return reflect such factors as clear cut foreign investment policy, ease of repatriating profits, openness of capital markets and political stability. Capital flows from countries with low rates of return relative to requirements to countries with high relative rates of return. Evidences in support of this hypothesis can be found in Popkin (1965), Reuber et al. (1973) and Blais (1975). However, some research work by, for example, Bandera and White (1968), Bandera and Lucken (1972) and Walia (1976) did not find the evidence gives support to this theory. The ambiguous findings resulted mainly from the inconsistency of data on expected profits.

Portfolio theory: Steven (1969), Prachoway (1972), Cohen (1975) and Rugman (1975) applied the theory of portfolio selection developed by Tobin (1958) and Markowitz (1959) to foreign direct investment. The main hypothesis is that besides maximizing profits, investors try to minimize then risks by distributing their investment in various countries.

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[27] Sharif, Choudhry "Foreign Direct Investment and Economic Growth:The Case of Asian Developing Countries" Fordham University 1997

Eclectic theory: This theory picks up ideas from various fields and combines them into a broader theory of foreign direct investment. Three main conditions to be undertaken by a firm in making decisions for investing abroad are:

Firm-specific advantage: Foreign firms must have some competitive advantages over firms in host countries. These advantages are such as patented or non-patented proprietary technology, trade marks, managerial or marketing know-how, and control of market entry. These advantages must be high enough to compensate for some disadvantages and costs arising from operating from abroad in a foreign market where local firms may have cheaper access to require information.

Internationalization incentives: The costs of exploitation of the above advantages must be lower than those of any other means such as outright sale of a patent, licensing or export of the final product. The costs of exploitation of such advantages can be low because of market failure and information asymmetry. Thus foreign firms who posses those advantages can enjoy a large market share in their products.

Location advantage: The host country must have location advantages over the home country of the firm, so as to attract this firm to invest in its country. Location advantages arise from a wide range of factors. These factors include relative low labor costs, cheaper raw materials, abundant of resources, adequacy of necessary infrastructure, investment incentives, membership of preferential trade areas, tariff and non-tariff protection, creation of free trade zone, and efficient bureaucratic procedures.

Historical observations suggest that international trade induce foreign capital flow especially in the form of foreign direct investment. It is evidence that when a firm has developed a certain market share in foreign markets by exporting, it is likely to become a foreign direct investor. This is because the high fixed costs

associated with establishing a production plant in a foreign country are compensated by lower costs when economies of scale can be realized (Buckley and Casson, 1985, cited in Agarwal et al., 1991).

9.2 The impact of foreign capital inflows: Several interesting models

There are several model help explain the impact of foreign capital inflows. In order to illustrate more clearly the controversy of this topic. We present both the Harrod-Domar and the two-gap models and analyze their implications as follows:

Harrod-Domar Model

The simplified version of the Harrod-Domar model can be represented by one functional equation,

$$\Delta Y_t = 1/V \Delta K_t = 1/V I_t \quad (9.2.1)$$

And two identities,

$$I_t - S_t = M_t - X_t \quad (9.2.2)$$

$$F_t = M_t - X_t \quad (9.2.3)$$

Where ΔY_t = Change in output

$\Delta K_t = I$ = Change in capital stock or investment

S = Total savings

M = Total imports

X = Exports

F = Foreign capital inflows

t = time period t

V = incremental capital-output ratio

Substituting values from equation (9.2.2) and (9.2.3) in (9.2.1), we get

$$\Delta Y_t/Y_t = 1/V\,(S_t/Y_t + F\,t/Y_t) \quad (9.2.4)$$

Equation (9.2.4) shows that as long as V is independence of S/Y and F/Y, both domestic and foreign resources have favorable effect on growth.

Two-Gap Model

In order to examine the role of foreign capital in terms of a two-gap Chenery et al analysis, we can develop a model consisting of the behavioral equations and four identities by adding to the Harrod-Domar model and investment function,

$$I_t = \min (a\,I_t^d, b\,M_t^k) \quad (9.2.5)$$

And two identities,

$$M_t^k = M_t - M_t^c \quad (9.2.6)$$

$$I_t = I_t^d + M_t^K \quad (9.2.7)$$

Where I^d = Domestic investment resources

M_t^K = Import of capital goods

M^c = Import of consumer goods

An important feature of this model is the assumption of two limits to capital formation. The first limit is operative when capital formation and growth are constrained by insufficiency of domestic investment resources. Under these conditions,

$$I_t = a\,I_t^d \quad (9.2.8)$$

$$\text{And } \Delta Y_t = a/v\,I_t^d \quad (9.2.9)$$

Substituting for I_t^d from equation (9.2.7) and then for I_t from equation (9.2.2) and (9.2.3), we get

$$\Delta Y_t/Y = a/v\,(S_t/Y_t + F_t/Y_t - M_t^k/Y_t) \quad (9.2.10)$$

Equation (9.2.10) postulates a positive relationship between the growth rate and the inflow of foreign capital and the domestic saving rate when v is independent of F_t/Y_t

An alternative hypothesis is that capital formation is limited by inadequate imports of capital goods. In that case,

$$I_t = b\,M_t^K \quad (9.2.11)$$

$$\text{And } \Delta Y_t = b/v\;M_t^K \quad (9.2.12)$$

Substituting for M_t^k from equation (9.2.6) and then for M_t from equation (9.2.3), we get

$$\Delta Y_t/Y = b/v\,(F_t/Y_t + X_t/Y_t - M_t^c/Y_t) \quad (9.2.13)$$

Equation (9.2.13), like equation (9.2.10) and equation (9.2.4), also derives a positive relationship between growth rate and inflow of foreign capital and exports as a ratio of output, thereby supporting the orthodox view.

Contemporary Position

The contemporary position can be illustrated by the following model:

$$\Delta Y_t = 1/V\,I_t \quad (9.2.14)$$

$$I_t - S_t = M_t - X_t \quad (9.2.15)$$

$$F_t = M_t - X_t \quad (9.2.16)$$

$$S_t = S_1\,Y_t - S_2\,F_t \quad (9.2.17)$$

$$V = f(F_t/Y_t) \quad (9.2.18)$$

Where equation (9.2.17) allows for the substitution effect of foreign capital on domestic savings and equation (9.2.18) postulates that the incremental capital-output ratio is not independent of foreign capital.

The reduced form of the above model is

$$\Delta Y_t/Y_t = S_t/V + (1-S_2/V)\ F t/Y_t \qquad (9.2.19)$$

In order to analyze the effect of foreign capital on growth inflow we take the first derivative of the reduced form equation, which gives

$$\partial \Delta Y_t/Y_t/\partial (F t/Y_t) = [(1-S_2)/V - (S_t + (1-S_2)(F t/Y_t)]/V^2\ \partial V/(F t/Y_t) \qquad (9.2.20)$$

Equation (9.2.20) shows that as long as the incremental capital-output ratio is independent of foreign capital inflow, a necessary and sufficient condition for foreign capital to reduce the growth rate is that S_2 be greater than unity in absolute terms. If, however, the independence assumption does not hold no a priori conclusion can be derived regarding the role of foreign capital on the growth rate.

9.3 Other interesting model related with this study

According to Maxwell J. Fry, The balance of payments accounts show that current account deficit is financed by capital inflows or decreases in official reserves. One way of presenting this identity is:

$$CA + KA = \Delta R$$

Where

CA is the current account.

KA is the capital account.

ΔR is the change in official reserves.

As an item in the balance of payments accounts, FDI is one of several capital flows. Other things being equal, therefore, an increase in FDI increases capital inflows. If the change in official reserves is unaffected, a smaller current account surplus or a larger current account deficit matches the increased capital inflow.

The current account can also be defined as the difference between exports of goods and services (X) plus net factor income from abroad (NFI) and imports of goods and services (IM):

$$CA = X + NFI - IM$$

Some of the literature on FDI suggests that FDI can serve two purposes, namely, increasing investment and relieving foreign exchange shortages. For example, Laurence Cockcroft and Roger Riddell (1991, 3) note: Two of the principal inhibiting higher levels of economic growth in Sub-Saharan Africa in the 1990s are low levels of investment and foreign exchange shortages. The first attraction of foreign investment lies in its potential to address both these constraints. By analyzing FDI to Asian economies within a macroeconomic framework, FDI influences the balance of payments on the current account deficit and economic growth through its effects on saving, investment, exports, imports, factor productivity and technology transfer.

According to Grossman and Helpman (1991) and Barro and Sala-I-Martin (1995). The economy produces a single consumption well according to the following technology:

$$Y = AH_t^{\propto} K_{t\propto-1}$$

Where A represents the exogenous state of "environment", H denotes human capital, and K stands for physical capital. The state of environment

comprises various control and policy variables influencing the level of productivity in the economy.

We assume that human capital H is a given endowment. Physical capital consists of an aggregate of different varieties of capital goods, and hence capital accumulation takes place through the expansion of the number of varieties.

A production function expresses the technical or the engineering relation between input and output. It is a process of transforming various inputs, such as labor, capital, land, raw materials, etc. into the output of goods and services. In its simplest form, productivity is often measure as a ratio of output to input. There can be as many indices of productivity as there are factors of production. For example, we may have productivity indices for labor, or Y/L, and for capital, or Y/K, where Y, L and K are respectively output, labor input and capital input. The total factor productivity index is defined as output per unit of all inputs combined. The total factor productivity index is sometimes referred to as the index of "technical progress" or "technical change". The concept of TFP came about because the use of input variables to explain the movement in output has often left a large portion of output unexplained. The unexplained part, or the residual, is viewed loosely as the effect of technical progress. With a specific form of production function it is quite straightforward to arrive at an index of technical progress. However, the studies of many economists during the 1950s through the 1970s have shown that we can use the Division index approach to measure technical change without specific information about the production function. (See, for example, Solow 1957, Domar 1961, Jorgensonand Griliches 1967 and Star and Hall 1976). The following provides a simplified version of their framework.

Let $Y(t)$ = Output at time t

$X(t)$ = Input at time t

$f(.)^*/f(.)$ = $Y^*/Y - \sum^{n}_{i=1} \eta_i Xi(t)^* /Xi(t)$

Where ηi = $\delta f(.)/\delta xi(t) \times xi(t)/f(.) = \delta y(t)/\delta xi(t) \times xi(t)/y(t)$

Y^*/Y = the rate of change in output.

X^*/X = the rate of change in input.

ηi = elasticity of output with respect to input i.

$f(.)^*/f(.)$ = the shift of production function through time.

TFP = Total Factor Productivity or the rate of technical progress.

Let $Wi(t)$ = price of input i

$Pi(t)$ = price of output

$A(T)$ = $Y(T)/Y(O) / \Pi^{n}_{I=1} [xi(T)/xi(0)]^{\beta I}$

Where βI = $[\beta I(T)/\beta I(0)/2]$

$A(T)$ = an index of technical progress.

βi = Share of receipts going to input i.

Which Star (1974) claimed to have no estimation error if the actual mean income share is equal to the estimated share or if each input grows at a constant geometric rate. This approximation is also likely to have a small approximation error when we use data observations that are widely spaced in time. The above approach comes from the theory of production function in economic analysis. Thus, all variables should be measured in real physical units. However, at the aggregate level it is impossible to add up output in different physical units. Therefore, the usual measure for output is the flow of goods and services during an accounting period. It is well known that economists use value added at constant prices to measure real output at the national level. Labor input has been measured as the number of persons employed or in terms of man-hours. Capital and land are usually measured as stocks. Klein (1962) suggested that, in cases where it is

possible to measure man-hours (flow of labor services), machine-hours (flow of capital consumption) and land depletion (flow of land use), it is preferable to use the flow variables. Furthermore, so far as there is no undeveloped frontier land in an economy, land can be regarded as a fixed factor of production and excluded from the estimated relation. This is often done in most empirical work on the aggregate production function for the industrialized countries. If the quantities of output and input are measured accurately, the growth in total output should be largely explained by the growth in total input. If we can construct appropriate indices to account for the increase in both quantities and qualities of all factor inputs, then the residual may justifiably be called technical change. Even then, the term "technical change" still covers a wide range of effects. Among these is the structural change in the economy. The pioneer economist who attempts to account for growth alone the above mentioned is Edward F. Denison. The growth accounting method starts with identifying what measure of output is to be used and dividing it into income shares among relevant factor inputs. The share of national income earned by each factor of production and the rate of increase in the quantity of each factor input, one must be careful to account for changes in both quantities and various qualities of that factor. The Asia rapid growth in the past decade has been achieved mainly by adding more labor, capital and land into production. Some technological or productivity improvements have been achieved, but these may have been through the importation of more efficient and modern machinery and through the employment of better or more productive workers.

9.4 The Hypotheses of this study

The main hypotheses of this study is to test a relations exist between the growth rate of gross domestic product and the inflows of foreign direct investment, foreign portfolio investment and foreign short-term external debts in the countries.

A single equation model is being framed to explain the relation among the growth rate and the factors, which affect it. Direct relations are presented between growth rate and capital inflows in equation.

There are four main hypotheses need to be tested in this dissertation as follows:

H1: A positive relation exists between the growth rate of GDP and the gross foreign direct investment.

H2: A positive relation exists between the growth rate of GDP and the foreign portfolio investment.

H3: A negative relation exists between the growth rate of GDP and the short-term external debts.

H4: Foreign Direct Investment has higher positive impact on growth than foreign short-term external debt and foreign portfolio investment.

According to the model, other variables such as human capital, financial liberalization and financial development have immediate and indirect effects on the growth rate of gross domestic product. These effects are presented in equations.

The following hypotheses are developed for these effects.

H5: A positive relation exists between the growth rate of gross domestic products and the human capital.

H6: A positive relation exists between the growth rate of gross domestic products and financial development.

H7: A positive relation exists between the growth rate of gross domestic products and financial liberalization.

9.5 Data

There are several sources for data on capital flows and foreign direct investment. World Development Indicators 1999 CD-ROM provides gross foreign direct investment, Gross Domestic Products (PPP) and other macroeconomic data in this study. GDP (PPP) is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the US dollar. GDP (PPP) seems more appropriate to use in this study since it will prevent the difference of purchasing power and exchange rate fluctuation across countries.

IMF publications provide data on net foreign direct investment and portfolio investment (International Financial Statistics, and Balance of Payments Statistic, respectively). Net capital flows refer to inflows net of outflows, and gross capital flow refers only to inflows, that is FDI into the country. World Bank publication, World Debt Tables, provide short-term external debt. UN statistical yearbook for Asia and the Pacific provide data on human capital secondary school graduate and total population. Asian Ddevelopment outlook published by the Asian Development Bank provide data on domestic saving, investment rate. In the study, one observation is used for each variable for each year and for each country.

9.6 The Variables of this study

Eight specific variables are in the model: Gross domestic products, Foreign direct investment, Foreign portfolio investment and Short-term external debt, financial liberalization, financial development, human capital and gross domestic investment. The data collected for these variables are annual basis between 1980-1998.

Dependent Variables of this study

In this study, GDP growth rate is used as a dependent variable that is regressed by foreign direct investment, foreign portfolio investment, short-term external debt, financial liberalization, financial development, human capital, domestic investment.

The growth rate of GDP (PPP) are used as the indicator of economic growth. All variables are collected in US dollars on annual base.

Independent Variables of this study

The independent variables used in this study are foreign direct investment, foreign portfolio investment, short-term external debt, financial liberalization, financial development, human capital, and domestic investment. Foreign direct investment and foreign portfolio investment are collected from World Bank World Development Indicators on CD-ROM 1999, IMF International Financial Statistics and Balance of Payments Statistic while short-term external debts are collected from World Debt Table – World Bank publications. Financial liberalization is measured by using gross private capital flow per GDP and the data are collected from IMF Balance of Payment Statistic publications.

Financial development is measured by M2 per GDP and the data are collected from IMF publications. Secondary school graduate per total population is used to measure the level of human capital in Asian countries and the data are collected from UN publications.

Instrumental Variables of this study

Instrumental Variables in two-stage least square regressions are as follows: Foreign direct investment flows to East Asia countries, Japanese GDP, US GDP, US interest rate, (with and without) one-year lagged capital inflows in this study.

The data are collected from World Development Indicators 1999 CD-ROM and IMF publication.

9.7 The Model of this study

This study focuses mainly on the effects of capital flows on Asian economic growth. The study related with the impacts of capital flows on Asian economic growth in major Asian countries will base on model developed by E. Borensztein, J. De Gregorio, J-W Lee (1998) and Maxwell J. Fry (1997) including Bosworth and Collins (1999) and Levine R. and S. Zervos (1995, 1998). The model will be construct to test the effects of Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI) and Short-term External Debt (STED) in a cross country regression framework, utilizing data on capital flows from foreign countries to major Asian countries over the last two decades. Over the past two decades, the role of capital flows has been a hot topic in the development of Asian developing nations. A large number of empirical studies have provided rich insights into the relation between capital flows, economic growth and economic crisis but still the theoretical controversy on the contribution of capital flows in development and crisis is not over.

Even though single equation type study often deals with only one aspect of the issue, the single equation regression results which are more relevant to theory and correct expected signs of coefficient in this study, besides the t-statistics and the R-square is quite high and significant. Overall, a model of the impacts of capital flows on economic growth must identify the role and relative importance of external capital on the rate of economic growth. The model as used to test these hypotheses as driven from conventional production function in which foreign capital flow is used as input in addition to labor and domestic capital stock.

Set out the model that has been designed to analyze the effects of capital flows on the rate of economic growth. The model is tested empirically by pooling

cross sections and time series data for five countries over the period from 1980-1998. Second stage, divided selected countries in this study into group of countries and then tested separately.

Each equation is compound of factors determining growth of Gross Domestic Products and the effects of capital flows on Asian economic growth. There are three main equations in this study.

1. An equation of economic growth with Foreign Direct Investment over GDP (Growth equation with FDI/GDP)
2. An equation of economic growth with Foreign Portfolio Investment over GDP (Growth equation with FPI/GDP)
4. An equation of economic growth with Short-term External Debt over GDP (Growth equation with STED/GDP)

The model starts from the general production function.

$$Y = f(K, L, A)$$

Where Y represents gross domestic products and K and L are used as capital and labor inputs in the "physical" units and factors A is for the level of technological knowledge. K denotes the total capital formation in an economy and is equal to domestic investment and foreign capital inflows. So

$$Y = f(FDI, I, L, A)$$

$$Y = f(FPI, I, L, A)$$

$$Y = f(STED, I, L, A)$$

$$Y = f(\text{Capital inflows}, I, L, A)$$

In Asian developing countries, financial liberalization or openness is used as indicators of technological knowledge, on the assumption that financial liberalization or openness provide and impose a higher efficiency of financial

system and the economy. Financial liberalization denoted by "FL". This leads to a general growth function.

$$Y = f(CF, I, L, FL) \quad (9.7.1)$$

In equation (9.7.1) "Financial Development" is added as an additional variable that shows the financial development of selected Asian countries. This variable was used as a determinant of GDP growth rate in many World Bank, IMF and academic research papers.

$$Y = f(CF, I, L, FL, FD) \quad (9.7.2)$$

In equation 9.7.2 labor is exchanged with "human capital" as an active labor force. "H" denotes human capital. CF is capital inflows.

$$Y = f(CF, I, H, FL, FD) \quad (9.7.3)$$

9.8 Description of the model

The purpose of this model is to assess the various impacts of capital flows on growth process. The effects of capital inflows included in the model are 1) The impact of foreign direct investment on the GDP growth of the receiving countries; 2) the impact of foreign portfolio investment on the growth of GDP; 3) the impact of external short- term debt on the growth of GDP.

The above equation can be written in the linear form

Log Git = α_1+ β1 log Capital inflow + α2 log Hit + α3 log FLit + α4 log FDit + + α5 log Iit+eit

9.9 Growth Equation with FDI/GDP

Test a positive relation exists between the growth rate of GDP and the inflows of Foreign Direct Investment

$$Y = f(FDI, FL, FD, H, I)$$

$$G = f(FDI, FL, FD, H, I)$$

$$\text{Log Git} = \alpha 1 + \beta 1 \log \mathbf{FDI}it + \alpha 2 \log \mathbf{H}it + \alpha 3 \log \mathbf{FL}it + \alpha 4 \log \mathbf{FD}it + + \alpha 5 \log \mathbf{I}it + eit \quad (9.9)$$

In equation (9.9) the growth rate of GDP is identified as the various components such as foreign direct investment, domestic investment or domestic capital stocks, financial development, openness financial sector, human capital. Foreign direct investment can influence economic growth in various ways (direct and indirect).

Yit = GDP (PPP) is gross domestic product converted to international dollars using purchasing power parity rates of countries i at period t.

Git = The growth rate of GDP (PPP) of country i at period t.

FDIit = The Inflows of Foreign Direct Investment (gross foreign direct investment) over real GDP (dollar term) in country i at period t.

Hit = Human capital by using secondary school graduate/ attainment as percentage of the population as a proxy in country i at period t.

FLit = Level of financial liberalization or openness of financial sector in country i at period t. Using the magnitude of private capital flows to GDP ratio.

FDit = Financial development in country i at period t. by using the ratio of M2 per real GDP as a proxy.

Iit = Gross domestic Investment (GDI) as percentage of GDP

Growth effects of Foreign Direct Investment

$$\mathbf{Git} = \alpha 0+\alpha 1\mathbf{FDIit}+\alpha 2\mathbf{FDIitxHi}+\alpha 3\mathbf{FLitxFDI}+\alpha 4\mathbf{FDitxFDIit}+\alpha 5\mathbf{Iit}+\varepsilon it$$

Take log on both sides

$$\mathbf{Log\ Git} = \alpha 0+\alpha 1 \log \mathbf{FDIit}+ \alpha 2 \log \mathbf{FDIitxHit} + \alpha 3 \log \mathbf{FLitxFDIit} + \alpha 4 \log \mathbf{FDitxFDIit} + \alpha 5 \log \mathbf{Iit} +\varepsilon i$$

$$\mathbf{Log\ Git} = \alpha 0+\alpha 1 \log \mathbf{FDIit}+ \alpha 2 (\log \mathbf{FDIit}+\log \mathbf{Hit}) +\alpha 3 (\log \mathbf{FLit} + \log \mathbf{FDIit}) + \alpha 4 (\log \mathbf{FDit} + \log \mathbf{FDIit}) + \alpha 5 \log \mathbf{Iit}+\varepsilon i$$

$$\mathbf{Log\ Git} = \alpha 0+\alpha 1 \log \mathbf{FDIit}+ \alpha 2 \log \mathbf{FDIit}+\alpha 2 \log \mathbf{Hit} + \alpha 3 \log \mathbf{FLit} + \alpha 3 \log \mathbf{FDIit} + \alpha 4 \log \mathbf{FDit} + \alpha 4 \log \mathbf{FDIit} + \alpha 5 \log \mathbf{Iit}+\varepsilon i$$

$$\mathbf{Log\ Git} = \alpha 0+ (\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4) \log \mathbf{FDIit} + \alpha 2 \log \mathbf{Hit} + \alpha 3 \log \mathbf{FLit} + \alpha 4 \log \mathbf{FDit} + + \alpha 5 \log \mathbf{Iit}+\varepsilon i$$

Given $(\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4) = \beta 1$

$$\mathbf{Log\ Git} = \alpha 0+ \beta 1 \log \mathbf{FDIit} + \alpha 2 \log \mathbf{Hit} + \alpha 3 \log \mathbf{FLit} + \alpha 4 \log \mathbf{FDit} + + \alpha 5 \log \mathbf{Iit}+\varepsilon i$$

9.10 Growth Equation with FPI/GDP

$$G = f(FPI, FL, FD, H, I)$$

$$\text{Log Git} = 0+ \beta 1 \log \mathbf{FPIit} + \alpha 2 \log \mathbf{Hit} + \alpha 3 \log \mathbf{FLit} + \alpha 4 \log \mathbf{FDit} + + \alpha 5 \log \mathbf{Iit}+eit \qquad (9.10)$$

In equation (9.10) the growth rate of GDP is identified as the various components such as foreign portfolio investment, domestic investment or domestic capital stocks, financial development, openness financial sector, human capital and lagged GDP growth rate. With the role of capital inflows (K=I +FDI+FPI) is counted as an endogenous variable in the process of economic growth. Its primary

role in the model is explained by the fact that in developing countries, the gap of domestic and investment is large and foreign capital plays a key role in the development process. Therefore, it is supposed that foreign direct investment and portfolio investment raises the capital stock and that increased capital formation will lead to increase in the growth of GDP. It interacts with other variables of the system to affect the gross domestic product. Total capital formation is desegregated into foreign and domestic savings. Foreign savings are attracted in the form of foreign direct investment, foreign portfolio investment and foreign debts.

$$\mathbf{Git} = \alpha 0+\alpha 1 \log \mathbf{FPIit} + \alpha 2 \log \mathbf{FPIitxHit} + \alpha 3 \log \mathbf{FLitxFPIit} + \alpha 4 \log \mathbf{FDitxFPIit} + \alpha 5 \log \mathbf{Iit} + \varepsilon i$$

Git = The growth rate of GDP (PPP) of country i at period t.

FPIit = The Foreign Portfolio Investment in (dollar term) stock market as a percentage of real GDP of country i at period t.

Hit = human capital by using secondary school graduate/attainment as percentage of the population as a proxy in country i at period t.

FLit = Level of financial liberalization or openness of financial sector in country i at period t. Using the magnitude of private capital flows to GDP ratio.

FDit = Financial development in country i at period t. by using the ratio of M2 to GDP as a proxy.

I = Gross domestic Investment (GDI) as percentage of GDP

Growth effects of capital flow - Foreign Portfolio Investment

$$\mathbf{Git} = \alpha 0+\alpha 1\mathbf{FPIit}+\alpha 2\mathbf{FPIitxHi}+\alpha 3\mathbf{FLitxFPI}+\alpha 4\mathbf{FDitxFPIit}+\alpha 5\mathbf{Iit}+\varepsilon i$$

Take log on both sides

Log Git = $\alpha 0+\alpha 1$ log **FPIit**+ $\alpha 2$ (log **FPIit**+log **Hit**) +$\alpha 3$ (log **FLit** + log **FPIit**) + $\alpha 4$ (log **FDit** + log **FPIit**) + $\alpha 5$ log **Iit**+εi

Log Git = $\alpha 0+\alpha 1$ log **FPIit**+ $\alpha 2$ log **FPIit**+$\alpha 2$ log **Hit** + $\alpha 3$ log **FLit** + α 3 log **FPIit** + $\alpha 4$ log **FPIit** + $\alpha 4$ log **FDit** + $\alpha 5$ log **Iit**+εi

Log Git = $\alpha 0+ (\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4)$ log **FPIit** + $\alpha 2$ log **Hit** + $\alpha 3$ log **FLit** + $\alpha 4$ log **FDit** + + $\alpha 5$ log **Iit**+εi

Given $(\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4) = \beta 1$

Log Git = $\alpha 0+ \beta 1$ log **FPIit** + $\alpha 2$ log **Hit** + $\alpha 3$ log **FLit** + $\alpha 4$ log **FDit** + $\alpha 5$ log **Iit**+εi

Given Log Yit = Git

Git = $\alpha 0+ \beta 1$ log **FPIit** + $\alpha 2$ log **Hit** + $\alpha 3$ log **FLit** + $\alpha 4$ log **FDit** + + $\alpha 5$ log **Iit**+εI (9.10)

9.11 Growth Equation with STED

G = f (STED, FL, FD, H, I)

Log **Git** = 0+ $\beta 1$ log **STEDit** + $\alpha 2$ log **Hit** + $\alpha 3$ log **FLit** + $\alpha 4$ log **FDit** + + $\alpha 5$ log **Iit**+eit (9.11)

In equation (9.11) the growth rate of GDP is identified as the various components such as short-term foreign debt, domestic investment or domestic capital stocks, financial development, openness financial sector, human capital.

Git = $\alpha 0+\alpha 1$ **STEDit**+ $\alpha 2$ **STEDitxHit** +$\alpha 3$**FLitxSTEDit** + $\alpha 4$ **FDitxSTEDit** + $\alpha 5$ **Iit**+εi

Git = the growth rate of GDP (PPP) of country i at period t.

STEDi = Short Term External Debt (dollar term) as a percentage of GDP in country i at period t.

Hi = Human capital by using university graduate/attainment or secondary school graduate/attainment of the population as a proxy in country i at period t.

FLi = Financial liberalization or openness of financial sector in country i at period t. Using the magnitude of private capital flows to GDP ratio for the period 1980-1998.

FDi = Financial development by using the ratio of M2 or M2a to GDP as a proxy.

Growth effects of short term external debt

$$Git = \alpha 0+\alpha 1 \mathbf{STED}it+\alpha 2 \mathbf{STED}it x \mathbf{H}it+\alpha 3 \mathbf{FL}it x \mathbf{STED}it+\alpha 4 \mathbf{FD}it x \mathbf{STED}it+\alpha 5 \mathbf{I}it+\varepsilon i$$

Take log on both sides

$$\mathbf{Log\ G}it = \alpha 0+\alpha 1 \log \mathbf{STED}it+ \alpha 2 (\log \mathbf{STED}it+\log \mathbf{H}it) +\alpha 3 (\log \mathbf{FL}it + \log \mathbf{STED}it) + \alpha 4 (\log \mathbf{FD}it + \log \mathbf{STED}it) + \alpha 5 \log \mathbf{I}it+\alpha 6 \log \mathbf{G}it\text{-}1+\varepsilon i$$

$$\mathbf{Log\ G}it = \alpha 0+\alpha 1 \log \mathbf{STED}it+ \alpha 2 \log \mathbf{STED}it+\alpha 2 \log \mathbf{H}it + \alpha 3 \log \mathbf{FL}it + \alpha 3 \log \mathbf{STED}it + \alpha 4 \log \mathbf{STED}it + \alpha 4 \log \mathbf{FD}it + \alpha 5 \log \mathbf{I}it+\alpha 6 \log \mathbf{G}it\text{-}1+\varepsilon i$$

$$\mathbf{Log\ G}it = \alpha 0+ (\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4) \log \mathbf{STED}it + \alpha 2 \log \mathbf{H}it + \alpha 3 \log \mathbf{FL}it + \alpha 4 \log \mathbf{FD}it + + \alpha 5 \log \mathbf{I}it+\alpha 6 \log \mathbf{G}it\text{-}1+\varepsilon i$$

Given $(\alpha 1+ \alpha 2 + \alpha 3 + \alpha 4) = \beta 1$

$$\textbf{Log Git} = \alpha 0 + \beta 1 \log \textbf{STEDit} + \alpha 2 \log \textbf{Hit} + \alpha 3 \log \textbf{FLit} + \alpha 4 \log \textbf{FDit} + + \alpha 5 \log \textbf{Iit} + \alpha 6 \log \textbf{Git-1} + \varepsilon I$$

9.12 The Endogeneity of capital inflows

The two-way interaction between economic growth and capital inflows creates an endogeneity that may lead to biased coefficient estimates when capital inflows are used as an explanatory variables. However, the direction of this bias is unclear. A domestic shock that raise the return on domestic investment may increase both capital inflows and economic growth. This would tend to bias the coefficient on foreign direct investment and foreign portfolio investment in growth equations. While; consider a domestic policy change that lower interests rates. This may be expected both to increase economic growth (with higher domestic investment), and decrease short-term capital inflows, tending to induce a negative correlation. In contrast, if tight monetary policy is implemented, this may be expected both to increase the flow of capital into the country and to reduce economic activities, tending to induce a negative correlation. Similarly, errors in the measurement of capital inflows would tend to bias the coefficient estimate downward. To uncover the impacts of capital inflows on economic growth, this study use instrumental variables to isolate the flows that are related to exogenous factors and using two-stage least square to solve the problem.

Chapter 10

Regression Analysis and Empirical Results

Economic theory suggest that integration into world capital markets favors economic growth and welfare for several reasons: domestic investment is de-coupled from national saving; consumption can be smoothed in the face of country-specific shocks; and world-wide pooling of financial allows more efficient insurance against risk and lower borrowing costs. A widely shared contemporary opinion is that these long-term benefits of capital market integration must be weighted against the short-term difficulties associated with the macroeconomic management of capital movement. Capital Inflows can provide foreign exchange reserves and help overcome a liquidity shortage in economies affected by a dramatic fall in the real value of monetary balances. Capital imports can stimulate competition for external funds among domestic financial institutions, thus enhancing the efficiency of the domestic financial system. The impact of capital flows on growth necessarily depends on the policies that are implemented by medium and long-term structural reform. Therefore, two different approaches to this issue can be taken: one can look at the general connection between international economic integration and development; or one can try to define an empirical methodology to single out the specific contribution of external capital.

Recent theoretical work has incorporated the role of financial factors in models of endogenous growth in an attempt to analyze formally the interaction between financial market and financial variables and long-run economic growth. In the short term, the imperfections of international capital market can cause financial markets to allocate too much or too little capital (underlying returns) to some recipients at a given moment. When the short-term misallocation is very large, it can induce a crisis and have devastating consequences for firms, economic sectors and economies.

10.1 Empirical results of the impact of Foreign Direct Investment over GDP on Asian Growth

The purpose of this section is to understand the impact of foreign direct investment in Asian economies in a systematic manner. In the first section the regressions are estimated and tests are performed to ascertain that the model has been properly specified and all conditions for ordinary least square regressions are satisfied. In the second section, empirical results are examined and their results are interpreted.

10.1.1 Regression analysis of the pool data

First the method of Ordinary Least Square was used to derive estimate of the coefficients of various variables. The empirical findings are presented in Table 1.1. The t-statistics are shown in parenthesis, At the first stage, the equation is regressed with the data of five Asian countries (pool and cross section). At the second stage, the equation is regressed with the data of group of countries. The impact of gross foreign direct investment on economic growth in higher and lower income countries is shown in table 2.1. The higher income countries are Korea, Malaysia and the lower income countries are Thailand, Indonesia and The Philippines. Selected Asian countries were divided into higher and lower human capital countries and then ordinary least square was used to derive estimate the impact of gross foreign direct investment on economic growth of those countries separately in Table 3.1. The higher human capital countries are Korea, Malaysia and the Philippines and lower human capital countries are Thailand and Indonesia. In Table 4.1, the impact of foreign direct investment on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries are shown. The higher financial liberalization and financial development are

Malaysia, Thailand, and the Philippines. The lower financial liberalization and financial development are Indonesia, Korea.

A number of tests were performed to check the validity of the model and to avoid misleading findings of tests because of inappropriate selection of variables and model. Two stage least square was used to test the validity of OLS results.

10.1.2 Empirical Results and the Interpretation

The equation hypothesizes that the growth of GDP is a function of capital inflows (FDI/GDP), domestic investment, financial liberalization, human capital and financial development. Equation is regressed in each model where the growth rate of gross domestic products (PPP) is dependent variable. When consider of the pool and cross section weights results, most of them are satisfactory and consistent with expectation.

The pool regression results of growth equation with FDI/GDP are shown in table 1.1. The signs of the regression coefficients for the gross foreign direct investment are positive and significant. The positive impact is higher and more significant when using Two-Stage Least Square (2SLS) estimates. The comparative results between the impact of net foreign direct investment over GDP and the impact of gross foreign direct investment over GDP were shown in table 1.4. The regression results clearly indicated that gross foreign direct investment over GDP has higher positive effect on growth than net foreign direct investment over GDP. Composition of net FDI over GDP has lower positive effect on growth than composition of Gross FDI over GDP. When Two-Stage Least Square was used to test the effects of ratio of net foreign direct investment to GDP in Table 1.5. The results showed negative relation exists between net foreign direct investment but the coefficient is quite low and insignificant.

The regression results in table 5.1 (with Log) are in line with the regression results in Table 5.2 (without log) which basically yield the same qualitative results as those of panel estimation. We do not report the regression results in table 5.2.

All regressions are based on panel data for the almost two decades 1980-1998. Table 5.1 reveals several interesting results for the effects of ratio of FDI to GDP on economic growth. The positive effects of gross FDI/GDP are increasing when add more independent variables in the equation. When additional regressors are included the positive relationship is increasing.

The purpose of our empirical investigations in table 5.1-5.2 is to estimate the effects of FDI/GDP on economic growth, and to investigate the channel through which FDI may be beneficial for growth. We also examine whether gross FDI/GDP interacts with the human capital has a positive overall effect on economic growth, although the magnitude of composition of foreign direct investment over GDP depends on other factors and the stock of human capital available in the host countries. The interaction term between gross FDI and human capital has the strongest positive effects on economic growth. Regression number 1 shows that gross FDI/GDP have positive impact on economic growth by excluding other independent variables from equation. We included the interaction between FDI/GDP and human capital, and yield a positive coefficient in regression number 2. Including the interaction between FDI/GDP and human capital improves the overall performance of the regression. The specification in regression in regression number 7 in table 5.1.1 replaces FDI over GDP variable by the product between FDI/GDP and human capital, and yield a coefficient that is positive and higher statistically significant. The significance of the interaction term may be the result of the omission of other relevant factors, in particular, the FDI variable by itself. Thus it is necessary to include FDI individually alongside (in regression number 2 in table 5.1) and FDI/GDP and human capital (in

regression number 8) along with their interaction. In that way, we can test jointly whether these variables affect growth by themselves or through the interaction term. Regression numbers 4 to 6 included additional variable financial liberalization, financial development and domestic investment. Regression number 7-14 except regression number 9 included the interaction term along with FDI. In all cases, the interaction term between FDI/GDP and human capital is statistically significant, implying that the estimated effect does not result from the omission of other variables. Human capital is positively correlated with growth with statistically significant when included interaction term between FDI/GDP and human capital (see table 5.1.1). Overall, the results from the regressions displayed in table 5.1 and Table 5.1.1 show strong complementary effects between FDI/GDP and human capital on the growth rate. This result is consistent with the idea that the flow of advanced technology brought along by gross FDI can increase higher growth rate of the recipient countries when interacting with that country's absorptive capability. E. Borensztein (1997) found the higher productivity of FDI holds only when the host country has a minimum threshold stock of human capital and that paper also suggested FDI contributed to economic growth only when a sufficient absorptive capability of the advanced technologies available in the host economy. Romer (1993) found a positive effect on economic growth from the interaction between secondary school enrollment and imports of machinery. Romer also found a minimum threshold level for the interaction term to have a positive impact on growth. While imports of machinery and equipment may be one channel for the international transmission of technological advances, FDI has probably an even larger role, as it also allows the transmissions of technical knowledge, management techniques and business practices etc.

Financial development is measured by the ratio of the liquid liabilities of the financial system to GDP, which for most countries equals M2/GDP. Many studies show that this measure is closely associated with long-term growth.

According to the analysis of the regression results of growth equation with FDI that are given in table 1.1 show that the adjusted R squared is quite high. It means the variation in GDP growth "explained" by the estimated regression equation. Signs of the regression coefficients of FDI/GDP and financial development are according to the economic theory and first hypothesis and sixth hypothesis are accepted. The signs of regression coefficient for human capital in OLS estimations yield positive but the results become negative in 2SLS estimation. One unit of FDI is increased then the growth rate can go up to 0.22 in regression number 1 in table 1.1. The 2SLS method results in a sharply increased coefficient on FDI in the growth equation. FDI has strongest positive relationship if compare to foreign portfolio investment and short-term external debts, with an estimated coefficient close to one. One unit of FDI is increased then the growth rate can go up to 0.52 in 2SLS regression number 3 in table 1.1. Coefficient is even higher when take out lagged FDI from group of instrumental variables as results shown in regression number 3 and 4 in Table 1.1.1.

We can confirm our fourth hypothesis that indicates foreign direct investment has higher positive impact on growth than foreign short-term external debts and foreign portfolio investment. The impact of financial liberalization on growth is unclear due to the problems of financial liberalization measurement. The degree of financial liberalization or financial openness is bound to differ both across countries and over time, of course, but surprisingly little empirical work has been undertake to explore this issue. Developing countries tend to be treated, in both policy and analytical work, as either completely closed to capital flows or as completely integrated with world financial markets. There are four common approaches to measure financial integration or financial liberalization. Four common approaches are the magnitude of gross flows, tests of interest rate conditions, tests of monetary autonomy and saving-investment correlation.

Each approach has its own limitation and problem of measurement. However, this study uses magnitude of gross private capital flows as indicator of level of financial liberalization. Evidence on past episodes of substantial capital movements in and out of developing countries, we can not always conclude that higher magnitude of gross capital flows must be higher level of financial openness or financial liberalization.

The results from many previous studies indicated that there is no independent relationship between financial liberalization and economic growth. In general there is very low or no correlation between financial liberalization and growth.

A positive relation exists between the growth rate of GDP and financial development. The results from both OLS regressions and 2SLS regressions confirmed the sixth hypothesis. Our results supported earlier findings about the role of financial deepening on economic growth. Less attention has been paid about the role of international financial integration in promoting a deep domestic financial market and through that channel fostering economic growth. Financial integration also permits portfolio diversification, allowing higher profitability of investment and, hence, higher rates of economic growth.

In Jose De Gregorio's paper, he analyzed empirically the relationships between financial integration and financial development, and between financial development and economic growth.

10.1.3 Regression results and the interpretation of group of countries results

Higher and lower income countries

The countries are divided into two groups. One is the higher income country and the other is the lower income country. All coefficients of gross FDI/GDP in both higher and lower are positive but significant in lower income countries. We

may conclude that gross foreign direct investment over GDP in lower income countries contribute to growth more than gross foreign direct investment over GDP in higher income countries. Secondary school (human capital), financial liberalization in higher income countries are more important to growth than in lower income countries.

Higher and lower human capital countries

The countries are divided into two groups. One is the higher human capital country and the other is the lower human capital country. All coefficients of gross FDI/GDP in both higher and lower human capital countries are positive. The regression results are insignificant in higher human capital countries but the results are significant in lower human capital countries. In table 3.1, the positive effects of gross FDI over GDP on growth are a bit higher in lower human capital countries. These results is not relevant our expectation and economic theory. However, the regression results may be misleading since the samples are too small and the level of human capital are slightly different among five countries in this study. Thus, it is difficult to separate between higher and lower human capital countries in this study.

Higher and lower financial liberalization and financial development countries

The countries are divided into two groups. One is the higher financial liberalization and financial development country and the other is the lower financial liberalization and financial development country. We may conclude from the regression results in table 4.1 that the higher financial development and financial liberalization, the higher the positive effects of gross FDI on economic growth. These results are relevant to economic theory. In recent years there has been a large literature highlighting, at both theoretical and empirical level, the importance of having a financial development or a deep financial system to

promote economic growth. The allocation effects of financial markets can allocate investment funds into their most profitable uses. Thorsten Beck, Ross Levine (1999) evaluate the empirical relationship between the level of financial intermediary development and economic growth, total factor productivity growth, physical capital accumulation and private saving rates. They use a pure cross-country instrumental variable estimator to extract the exogenous component of financial intermediary development, and a new panel technique that controls for biases associated to simultaneity and unobserved country-specific effects. After controlling for these potential biases, they found that financial intermediaries exert a large, positive impact on total factor productivity growth, which feeds through to overall GDP growth. They also found the long-run links between financial intermediary development and both physical capital growth and private saving rates are tenuous.

10.2 Empirical test of the impact of Foreign Portfolio Investment over GDP on Asian Growth

The purpose of this section is to understand the impacts of foreign portfolio investment (FPI/GDP) on Asian economies in a systematic manner. In the first section the regression is estimated and test is performed to ascertain that the model has been properly specified and all conditions for ordinary least square regressions are satisfied. In the second section, empirical results are examined and their results are interpreted.

10.2.1 Regression analysis

First the method of Ordinary Least Square was used to derive estimate of the coefficients of various variables. The empirical findings are presented in Table 1.2. The t-statistics are also shown in the tables. At the first stage, the equation is regressed with the data of five Asian countries (pooled and cross-section). A

number of tests (two-stage least square) were performed to check the validity of the model and to avoid misleading findings of tests because of inappropriate selection of variables and model. The impacts of foreign portfolio investment on economic growth in higher and lower income countries are shown in table 2.2. The higher income countries are Korea; Malaysia and the lower income countries are Thailand, Indonesia and The Philippines. Selected Asian countries were also divided into higher and lower human capital countries and then ordinary least square was used to derive estimate the impact of foreign portfolio investment on economic growth of those countries separately in Table 3.2. The higher human capital countries are Korea, Malaysia and the Philippines and lower human capital countries are Thailand and Indonesia. In Table 4.2, the impact of foreign portfolio investment on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries are shown. The higher financial liberalization and financial development countries are Malaysia, Thailand, and the Philippines. The lower financial liberalization and financial development countries are Indonesia, Korea.

10.2.2 Empirical Results and the Interpretation

The purpose of this empirical investigation is to estimate the effects of FPI on economic growth. The equation hypothesizes that the growth rate of GDP is a function of foreign portfolio investment (FPI/GDP), the domestic investment, financial liberalization, human capital and financial development. Equation is regressed in each model where the growth rate of gross domestic products (PPP) is dependent variable. Other variables are independent variables. When consider of the pool and cross section weight results, most of them are satisfactory and consistent with expectation.

According to the analysis of the OLS regression results of growth equation with FPI/GDP that are given in table 1.2 show that the adjusted R squared is quite

high. It means the variation in GDP growth "explained" by the estimated regression equation. However, the adjusted R squared is quite low with two-stage least square. Signs of the regression coefficients of foreign portfolio investment (FPI/GDP) are negative but insignificant.

The signs of coefficients of financial development are according to the economic theory and positive so sixth hypothesis is accepted in regression number 2. The signs of regression coefficient for human capital in OLS estimation yields positive but in 2SLS estimation yields negative. However, the results are insignificant with t-statistics less than one. The impact of human capital on growth in OLS estimations and 2SLS could be biased. One unit of FPI is increased then the growth rate can go down to 0.03 in regression number 1 (including domestic investment as independent variable) in table 1.2. While one unit of FPI changed causes economic growth rate decrease up to 0.02 in regression number 2 (excluding domestic investment as independent variable) in table 2.1. The 2SLS method results in a bit higher negative coefficient of FPI on growth. FPI has smaller positive relationship if compare to foreign direct investment (accepted the fourth hypothesis). We can confirmed our sixth hypothesis which indicated financial development has positive impact on growth. The impact of financial liberalization on growth is unclear due to the problems of financial liberalization measurement.

10.2.3 Regression analysis and interpretation of group of countries results

Higher and lower income countries

The countries are divided into two groups. One is the higher income country and the other is the lower income country. All coefficients of foreign portfolio investment (FPI/GDP) in both higher and lower are insignificant. The impact of portfolio investment on growth is unclear in this case. In table 2.2, there are positive relation exist between human capital and economic growth.

Higher and lower human capital countries

The countries are divided into two groups. One is the higher human capital country and the other is the lower human capital country. The coefficients of foreign portfolio investment (FPI/GDP) in higher human capital countries are negative but insignificant and the coefficient in lower human capital countries are positive with 90% confidence level when adding gross domestic investment per GDP as independence variable.

Higher and lower financial liberalization and financial development countries

The countries are divided into two groups. One is the higher financial liberalization and financial development and the other is the lower financial liberalization and financial development countries. Human capital is positively related with growth rate of GDP in higher financial liberalization and financial development countries. Almost all of regression results are insignificant and the results are unclear and difficult to make any clear conclusion.

10.3 Empirical test of the impact of Short-Term External Debt over GDP on Asian Growth

The purpose of this section is to understand the impacts of short-term external debt on Asian economies in a systematic manner. In the first section the regression is estimated and test is performed to ascertain that the model has been properly specified and all conditions for ordinary least square regressions are satisfied. In the second section, empirical results are examined and their results are interpreted.

10.3.1 Regression analysis

First the method of Ordinary Least Square (OLS) was used to derive estimate of the coefficients of various variables. The empirical findings are

presented in Table 1.3. The t-statistics are shown in parenthesis. At the first stage, the equation is regressed with the data of five Asian countries (pooled cross-section). A number of tests (two-stage least square) were performed to check the validity of the model and to avoid misleading findings of OLS tests because of inappropriate selection of variables and model. The impacts of short-term external debt on economic growth in higher and lower income countries are shown in table 2.3. The higher income countries are Korea; Malaysia and the lower income countries are Thailand, Indonesia and The Philippines. Selected Asian countries were divided into higher and lower human capital countries and then ordinary least square was used to derive estimate the impact of short-term external debt on economic growth of those countries separately in Table 3.3. The higher human capital countries are Korea, Malaysia and the Philippines and lower human capital countries are Thailand and Indonesia. In Table 4.3, the impact of short-term external debts (STED) over GDP on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries are shown. The higher financial liberalization and financial development countries are Malaysia, Thailand, and the Philippines. The lower financial liberalization and financial development countries are Indonesia, Korea.

10.3.2 Empirical Results and the Interpretation

The equation hypothesizes that the growth of GDP is a function of short-term external debt (STED/GDP), the domestic investment, financial liberalization, human capital and financial development. Equation is regressed in each model where the growth rate of gross domestic products (GDP PPP) is dependent variable. Other variables are independent variables. When consider of the pool and cross section weight results. The pool regression results of growth equation with Short-term external debt are shown in table 1.3. Under ordinary least square (OLS), the signs of the regression coefficients of the short-term external debts

(with gross domestic investment in growth equation) and financial development agree with hypothesis but insignificant. When two-stage least square are used, the signs of the coefficients of the short-term external debts are negative but still insignificant. However, the results that show the relationship between financial development and economic growth are significant and relevant to economic theory and also confirm our sixth hypothesis.

According to the analysis of the regression results of growth equation with short-term external debt (STED) that are given in table 3.1 OLS results show that the adjusted R square is high. It means that variation in the growth rate of GDP is because of short-term external debt, human capital, domestic investment, financial liberalization and financial development. However, the adjusted R square is quite low with 2SLS estimations.

There is growing agreement that an excessive buildup of short-term debt was a proximate cause of the Asian crisis in 1997-1998. Almost all of the countries affected by the financial turmoil of the last few years had one thing in common: large ratios of short-term debt to international reserves. When the capital account reversal came in East Asia, it caused a collapse in asset prices and exchange rates. The financial panic fed on itself, causing foreign creditors to call in loans and depositors to withdraw funds from banks, all of which magnified the illiquidity of the domestic financial system and forced yet another round of costly asset liquidation and price deflation. In Thailand, Korea and Indonesia, domestic financial institutions came to the brink of default on their external short-term obligations. In Dani Rodrik and Andres Velasco's paper (1999), they provide a conceptual and empirical framework for evaluating the effects of short-term capital flows. The empirical analysis shows that the short-term debt to reserve ratio is a robust predictor of financial crises, and that greater short-term exposure is associated with more severe crises when capital flows reverse.

10.3.3 Regression analysis and interpretation of group of countries results

Higher and lower income countries

The countries are divided into two groups. One is the higher income country and the other is the lower income country. All coefficients of short-term external debts in both higher and lower are negative but there are only significant in lower income countries. Adjusted R squared is lower in higher income countries

The impact of financial development on growth in table 2.3 is different by group of countries. It is negative in higher income countries and positive in lower income countries. In table 2.3, there is positive relation exist between human capital and economic growth in higher income countries and significant. More openness of financial sector also contributed to growth in higher income countries.

Higher and lower human capital countries

The countries are divided into two groups. One is the higher human capital country and the other is the lower human capital country. The coefficients of short-term external debts over GDP are negative in lower human capital countries indicating the negative relationship between growth rate and short-term external debts. However, the regression results are different in higher human capital countries but insignificant. Financial liberalization and human capital are positively related with growth rate of GDP in higher human capital countries.

Higher and lower financial liberalization and financial development countries

The countries are divided into two groups. One is the higher financial liberalization and financial development and the other is the lower financial liberalization and financial development countries. The regression results in higher financial liberalization and financial development confirmed third hypothesis and indicate that there is negative relation exists between short-term external debts

over GDP and growth rate of GDP and are significant in Table 4.3. Higher level of M2/GDP could associated with short-term external debt. All regression results in lower financial liberalization and financial development countries are insignificant. Short-term external debt also plays an insignificant role in growth process in lower financial liberalization and financial development countries. Financial liberalization and human capital have positive impacts on growth in higher financial development countries.

Table 1.1 – Impact of Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		2SLS regression[28]	
Dependent Variable : Log GDP (PPP) Growth Rate				
	Regression Number			
Independent Variable	(1)	(2)	(3)	(4)
Constant	3.04 (8.55)	2.11 (1.48)	2.42 (4.73)	4.64 (1.77)
Log Gross Foreign Direct Investment over GDP (PPP)	0.22 (3.04)	0.20 (2.52)	0.52 (5.03)	0.54 (4.64)
Log Second School Graduate over population	0.02 (0.79)	0.02 (0.88)	-0.51 (-2.80)	-0.54 (-1.55)
Log Gross Private Capital Flow over GDP (PPP)	-0.15 (-1.57)	-0.15 (-1.53)	-0.47 (-3.73)	-0.40 (-2.64)
Log M2 over GDP (PPP)	0.40 (2.77)	0.31 (1.62)	0.49 (3.95)	1.04 (2.16)
Log Gross Domestic Investment over GDP (PPP)	–	0.21 (0.66)	–	-1.67 (-1.17)
Number of Observations	77	77	77	77
Adjusted R squared	0.78	0.785	0.30	0.28

[28]The following variables were used as instruments: Foreign Direct Investment to East Asia Region, Japan GDP, US GDP, US interest rate, one-year lagged foreign direct investment.

Table 1.1.1 – Impact of Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		2SLS regression[29]	
Dependent Variable : Log GDP (PPP) Growth Rate				
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	3.04 (8.55)	2.11 (1.48)	2.43 (3.25)	4.57 (1.58)
Log Gross Foreign Direct Investment over GDP (PPP)	0.22 (3.04)	0.20 (2.52)	0.87 (3.53)	1.25 (2.16)
Log Second School Graduate over population	0.02 (0.79)	0.02 (0.88)	-0.75 (-2.68)	-0.46 (-1.96)
Log Gross Private Capital Flow over GDP (PPP)	-0.15 (-1.57)	-0.15 (-1.53)	-0.79 (-4.05)	-0.79 (-4.03)
Log M2 over GDP (PPP)	0.40 (2.77)	0.31 (1.62)	0.77 (3.56)	0.83 (3.02)
Log Gross Domestic Investment over GDP (PPP)	–	0.21 (0.66)	–	-0.53 (-0.92)
Number of Observations	77	77	77	77
Adjusted R squared	0.78	0.785	0.053	0.050

Note: t-statistics are in parentheses

[29]The following variables were used as instruments: Foreign Direct Investment to East Asia Region, Japan GDP, US GDP, US interest rate.

Table 1.2 – Impact of Foreign Portfolio Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		2SLS regression[30]	
Dependent Variable : Log GDP (PPP) Growth Rate				
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	0.74 (0.35)	2.50 (3.99)	4.42 (1.21)	1.30 (0.75)
Log Foreign Portfolio Investment over GDP (PPP)	-0.03 (-0.86)	-0.02 (-0.74)	-0.09 (-0.43)	-0.07 (-0.56)
Log Second School Graduate over population	0.03 (0.94)	0.034 (0.96)	-0.16 (-0.39)	-0.337 (-0.73)
Log Gross Private Capital Flow over GDP (PPP)	-0.20 (-0.14)	0.002 (0.015)	-0.03 (-0.08)	-0.002 (-0.005)
Log M2 over GDP (PPP)	0.24 (0.90)	0.39 (2.01)	0.63 (1.07)	0.40 (0.82)
Log Gross Domestic Investment over GDP (PPP)	0.43 (0.88)	_	-0.46 (-0.85)	_
Number of Observations	54	54	54	54
Adjusted R squared	0.84	0.83	0.19	0.16

Note: t-statistics are in parentheses

[30]The following variables were used as instruments: Foreign Direct Investment to East Asia Region, Japan GDP, US GDP, US interest rate, one-year lagged foreign portfolio investment.

Table 1.3 – Impact of Short-term External Debts on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		2SLS regression[31]	
Dependent Variable: Log GDP (PPP) Growth Rate				
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	0.18 (0.12)	2.48 (6.91)	2.23 (3.56)	5.38 (1.53)
Log Short-Term External Debts over GDP (PPP)	-0.08 (-0.78)	0.0007 (0.0007)	-0.04 (-0.08)	-0.08 (-0.06)
Log Second School Graduate over population	0.017 (0.56)	0.008 (0.301)	-0.40 (-1.05)	-0.159 (-0.47)
Log Gross Private Capital Flow over GDP (PPP)	0.006 (0.078)	0.079 (0.98)	-0.19 (-1.87)	-0.168 (-1.02)
Log M2 over GDP (PPP)	0.23 (0.95)	0.31 (1.51)	0.65 (3.28)	0.87 (2.68)
Log Gross Domestic Investment over GDP (PPP)	0.56 (1.69)	–	–	-0.48 (-0.73)
Number of Observations	72	72	72	72
Adjusted R squared	0.75	0.77	0.21	0.21

Note: t-statistics are in parentheses

[31]The following variables were used as instruments: Foreign Direct Investment to East Asia Region, Japan GDP, US GDP, US interest rate, one-year lagged short-term external debts.

Table 1.4 – Compare impact of gross Foreign Direct Investment with net Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		OLS regression	
Dependent Variable	**Log GDP (PPP) Growth Rate**			
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	3.04 (8.55)	2.11 (1.48)	3.33 (6.46)	0.52 (0.29)
Log Gross Foreign Direct Investment over GDP (PPP)	0.22 (3.04)	0.20 (2.52)	–	–
Log Net Foreign Direct Investment over GDP (PPP)	–	–	0.10 (2.19)	0.03 (0.63)
Log Second School Graduate over population	0.02 (0.79)	0.02 (0.88)	-0.0003 (-0.012)	0.01 (0.57)
Log Gross Private Capital Flow over GDP (PPP)	-0.15 (-1.57)	-0.15 (-1.53)	-0.027 (-0.32)	0.01 (0.14)
Log M2 over GDP (PPP)	0.40 (2.77)	0.31 (1.62)	0.44 (2.68)	0.09 (0.38)
Log Gross Domestic Investment over GDP (PPP)	–	0.21 (0.66)	–	0.52 (1.41)
Number of Observations	77	77	75	75
Adjusted R squared	0.78	0.785	0.74	0.78

Table 1.5 – Impact of Net Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data

	OLS regression		2SLS regression[32]	
Dependent Variable	**Log GDP (PPP) Growth Rate**			
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	3.33 (6.46)	0.52 (0.29)	1.78 (2.46)	2.08 (0.53)
Log Net Foreign Direct Investment over GDP (PPP)	0.10 (2.19)	0.03 (0.63)	-0.33 (-1.63)	-0.31 (-1.39)
Log Second School Graduate over population	-0.0003 (-0.012)	0.01 (0.57)	-0.31 (-1.08)	-0.29 (-0.79)
Log Gross Private Capital Flow over GDP (PPP)	-0.027 (-0.32)	0.01 (0.14)	-0.018 (-0.112)	-0.018 (-0.13)
Log M2 over GDP (PPP)	0.44 (2.68)	0.09 (0.38)	0.81 (3.9)	0.72 (2.67)
Log Gross Domestic Investment over GDP (PPP)	–	0.52 (1.41)	–	-0.09 (-0.17)
Number of Observations	75	75	75	75
Adjusted R squared	0.74	0.78	0.32	0.28

[32]The following variables were used as instruments: Foreign Direct Investment to East Asia Region, Japan GDP, US GDP, US interest rate, one-year lagged foreign direct investment.

Table 2.1 – Impact of Foreign Direct Investment on economic growth in higher and lower income countries (selected Asian Countries), using Pooled Cross Section 1980-1998 data

	OLS regression			
	Higher Income Countries		Lower Income Countries	
Dependent Variable : Log GDP (PPP) Growth Rate				
	Regression Number			
Independent Variable	(1)	(2)	(3)	(4)
Constant	6.20 (3.34)	5.48 (1.71)	3.14 (7.89)	2.24 (1.22)
Log Gross Foreign Direct Investment over GDP (PPP)	0.11 (0.89)	0.10 (0.81)	0.44 (4.008)	0.41 (3.44)
Log Second School Graduate over population	3.05 (2.73)	3.03 (2.64)	0.068 (1.43)	0.08 (1.48)
Log Gross Private Capital Flow over GDP (PPP)	0.38 (1.66)	0.36 (1.46)	-0.37 (-2.88)	-0.39 (-2.90)
Log M2 over GDP (PPP)	-1.20 (-2.60)	-1.23 (-2.58)	0.26 (1.43)	0.163 (0.57)
Log Gross Domestic Investment over GDP (PPP)	–	0.19 (0.28)	–	0.202 (0.50)
Number of Observations	31	31	46	46
Adjusted R squared	0.58	0.56	0.87	0.87

Note: t-statistics are in parentheses
Higher Income Countries: Korea, Malaysia
Lower Income Countries: Thailand, Indonesia, The Philippines

Table 2.2 – Impact of Foreign Portfolio Investment on economic growth in higher and lower income countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

	OLS regression Higher Income Countries		Lower Income Countries	
Dependent Variable : Log GDP (PPP) Growth Rate				
	Regression Number			
Independent Variable	(1)	(2)	(3)	(4)
Constant	5.08 (2.90)	-0.13 (-0.03)	2.98 (3.20)	-0.36 (-0.09)
Log Foreign Portfolio Investment over GDP (PPP)	-0.01 (-0.20)	-0.02 (-0.257)	0.02 (0.44)	-0.009 (-0.117)
Log Second School Graduate over population	2.69 (1.77)	3.09 (2.05)	0.15 (1.85)	0.166 (2.035)
Log Gross Private Capital Flow over GDP (PPP)	0.61 (1.47)	0.47 (1.16)	-0.27 (-1.09)	-0.31 (-1.25)
Log M2 over GDP (PPP)	-1.01 (-1.36)	-1.42 (-1.81)	0.37 (1.33)	-0.04 (-0.09)
Log Gross Domestic Investment over GDP (PPP)	–	1.60 (1.43)	–	0.702 (0.900)
Number of Observations	20	20	35	35
Adjusted R squared	0.57	0.66	0.81	0.83

Note: t-statistics are in parentheses

Table 2.3 – Impact of Short-term External Debts on economic growth in higher and lower income countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

	OLS regression			
	Higher Income Countries		Lower Income Countries	
Dependent Variable:	**Log GDP (PPP) Growth Rate**			
	Regression Number			
Independent Variable	(1)	(2)	(3)	(4)
Constant	5.68 (3.37)	7.11 (1.79)	2.59 (5.002)	-2.86 (1.53)
Log Short-Term External Debts over GDP (PPP)	-0.057 (-0.331)	-0.09 (-0.49)	-0.23 (-1.14)	-0.48 (-2.32)
Log Second School Graduate over population	3.007 (2.23)	3.33 (2.26)	0.02 (0.287)	0.021 (0.296)
Log Gross Private Capital Flow over GDP (PPP)	0.58 (2.33)	0.69 (2.11)	-0.06 (-0.44)	-0.096 (-0.67)
Log M2 over GDP (PPP)	-1.13 (-2.23)	-1.14 (-2.20)	0.75 (2.21)	0.40 (1.04)
Log Gross Domestic Investment over GDP (PPP)	–	-0.29 (-0.35)	–	1.15 (2.94)
Number of Observations	27	27	45	45
Adjusted R squared	0.50	0.37	0.79	0.89

Note: t-statistics are in parentheses

Table 3.1 – Impact of Foreign Direct Investment on economic growth in higher and lower human capital countries (selected Asian Countries), using Pooled Cross Section 1980-1998 data

OLS regression

Higher Human Capital Countries Lower Human Capital Countries

Dependent Variable : Log GDP (PPP) Growth Rate

Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	5.41 (4.87)	4.34 (1.76)	1.92 (3.17)	0.25 (0.12)
Log Gross Foreign Direct Investment over GDP (PPP)	0.15 (1.59)	0.14 (1.49)	0.63 (4.93)	0.56 (3.65)
Log Second School Graduate over population	1.74 (2.50)	1.80 (2.53)	0.01 (0.36)	0.04 (0.69)
Log Gross Private Capital Flow over GDP (PPP)	0.01 (0.07)	-0.001 (-0.0072)	-0.21 (-1.41)	-0.21 (-1.42)
Log M2 over GDP (PPP)	-0.31 (-0.84)	-0.41 (-0.97)	-0.41 (-1.38)	-0.62 (-1.58)
Log Gross Domestic Investment over GDP (PPP)	–	0.30 (0.49)	–	0.35 (0.81)
Number of Observations	45	45	32	32
Adjusted R squared	0.78	0.77	0.91	0.91

Note: t-statistics are in parentheses
Higher Human Capital Countries: Korea, Malaysia, The Philippines
Lower Human Capital Countries: Thailand, Indonesia

Table 3.2 – Impact of Foreign Portfolio Investment on economic growth in higher and lower human capital countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

OLS regression

Higher Human Capital Countries Lower Human Capital Countries

Dependent Variable : Log GDP (PPP) Growth Rate

Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	3.88 (2.80)	2.55 (0.79)	2.60 (2.39)	-6.05 (-1.34)
Log Foreign Portfolio Investment over GDP (PPP)	-0.03 (-0.73)	-0.028 (-0.59)	0.13 (1.12)	0.08 (0.71)
Log Second School Graduate over population	1.07 (1.29)	1.19 (1.33)	0.13 (1.48)	0.165 (1.937)
Log Gross Private Capital Flow over GDP (PPP)	0.10 (0.45)	0.08 (0.36)	-0.18 (-0.58)	-0.30 (-1.04)
Log M2 over GDP (PPP)	-0.04 (-0.10)	-0.19 (-0.34)	-0.13 (-0.23)	-1.40 (-1.65)
Log Gross Domestic Investment over GDP (PPP)	–	0.40 (0.46)	–	1.81 (1.99)
Number of Observations	33	33	21	21
Adjusted R squared	0.85	0.84	0.74	0.74

Note: t-statistics are in parentheses

Table 3.3 – Impact of Short-term External Debts on economic growth in higher and lower Human Capital countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

OLS regression

Higher Human Capital Countries Lower Human Capital Countries

Dependent Variable: Log GDP (PPP) Growth Rate

Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	4.78 (4.29)	4.40 (1.60)	2.19 (2.52)	-4.55 (-2.17)
Log short-term External Debts over GDP (PPP)	0.018 (0.14)	0.02 (0.17)	-0.36 (-1.06)	-0.69 (-2.32)
Log Second School Graduate over population	1.97 (2.30)	1.96 (2.27)	-0.033 (-0.34)	-0.039 (-0.459)
Log Gross Private Capital Flow over GDP (PPP)	0.43 (2.25)	0.41 (1.91)	-0.06 (0.32)	0.038 (0.223)
Log M2 over GDP (PPP)	-0.61 (-1.51)	-0.64 (-1.40)	0.83 (1.11)	0.39 (0.60)
Log Gross Domestic Investment over GDP (PPP)	–	0.10 (0.15)	–	1.41 (3.40)
Number of Observations	40	40	32	32
Adjusted R squared	0.83	0.83	0.69	0.85

Note: t-statistics are in parentheses

Table 4.1 – Impact of Foreign Direct Investment on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries (selected Asian Countries), using Pooled Cross Section 1980-1998 data

OLS regression

Higher FL & FD Countries | Lower FL & FD Countries

Dependent Variable : Log GDP (PPP) Growth Rate

Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	1.14 (1.49)	0.68 (0.39)	2.23 (1.38)	0.89 (0.23)
Log Gross Foreign Direct Investment over GDP (PPP)	0.39 (4.18)	0.38 (4.04)	0.16 (1.46)	0.14 (1.17)
Log Second School Graduate over population	0.25 (3.59)	0.25 (3.56)	0.50 (1.38)	0.46 (1.20)
Log Gross Private Capital Flow over GDP (PPP)	-0.001 (-0.009)	-0.02 (-0.11)	-0.001 (-0.008)	0.03 (0.12)
Log M2 over GDP (PPP)	-0.467 (-1.53)	-0.51 (-1.48)	-0.65 (-1.42)	-0.77 (-1.40)
Log Gross Domestic Investment over GDP (PPP)	–	0.11 (0.29)	–	0.28 (0.40)
Number of Observations	45	45	32	32
Adjusted R squared	0.91	0.90	0.82	0.81

Note: t-statistics are in parentheses
Higher Financial Liberalization and Financial Development Countries: Malaysia, Thailand, The Philippines
Lower Financial Liberalization and Financial Development Countries: Indonesia, Korea

Table 4.2 – Impact of Foreign Portfolio Investment on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

	OLS regression			
	Higher FL & FD Countries		Lower FL & FD Countries	
Dependent Variable : Log GDP (PPP) Growth Rate				
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	0.84 (0.71)	-1.83 (-0.48)	3.98 (1.26)	-2.87 (-0.37)
Log Foreign Portfolio Investment over GDP (PPP)	0.003 (0.069)	-0.015 (-0.289)	-0.015 (-0.206)	-0.034 (-0.41)
Log Second School Graduate over population	0.228 (2.29)	0.26 (2.37)	0.63 (1.03)	0.28 (0.39)
Log Gross Private Capital Flow over GDP (PPP)	0.33 (1.48)	0.28 (1.19)	-0.21 (-0.44)	0.02 (0.047)
Log M2 over GDP (PPP)	-0.29 (-0.66)	-0.64 (-0.99)	0.20 (0.26)	-0.54 (-0.48)
Log Gross Domestic Investment over GDP (PPP)	–	0.57 (0.75)	–	1.257 (1.03)
Number of Observations	35	35	20	20
Adjusted R squared	0.82	0.81	0.79	0.75

Table 4.3 – Impact of Short-term External Debts on economic growth in higher and lower financial liberalization (FL) and financial development (FD) countries (selected Asian countries), using Pooled Cross Section 1980-1998 data

	OLS regression			
	Higher FL & FD Countries		Lower FL & FD Countries	
Dependent Variable:	**Log GDP (PPP) Growth Rate**			
Independent Variable	Regression Number (1)	(2)	(3)	(4)
Constant	-0.047 (-0.055)	-2.4 (-1.27)	2.66 (1.20)	0.28 (0.073)
Log Short-Term External Debts over GDP (PPP)	-0.33 (-2.58)	-0.37 (-2.88)	0.03 (0.15)	0.12 (0.53)
Log Second School Graduate over population	0.22 (2.89)	0.22 (2.96)	0.51 (1.20)	0.43 (0.98)
Log Gross Private Capital Flow over GDP	0.46 (3.0)	0.31 (1.74)	0.011 (0.041)	0.03 (0.11)
Log M2 over GDP (PPP)	-0.053 (-0.14)	-0.22 (-0.55)	-0.39 (-0.67)	-0.54 (-0.87)
Log Gross Domestic Investment over GDP (PPP)	–	0.60 (1.38)	–	0.63 (0.77)
Number of Observations	44	44	28	28
Adjusted R squared	0.87	0.87	0.81	0.80

Note: t-statistics are in parentheses

Table 5.1 – Impact of Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data OLS regression

Dependent Variable : Log GDP (PPP) Growth Rate

Independent Variable / Regression Number	(1)	(2)	(3)	(4)	(5)	(6)
Constant	2.02 (37.64)	2.79 (8.58)	2.08 (36.24)	2.17 (13.99)	3.04 (8.55)	2.11 (1.48)
Log Gross Foreign Direct Investment over GDP (PPP)	0.14 (2.92)	-0.20 (-1.32)	0.16 (3.19)	0.21 (2.78)	0.22 (3.04)	0.20 (2.52)
Log Second School over Population x Gross FDI/GDP (PPP)	–	0.29 (2.31)	–	–	–	–
Log Second School Graduate over population	–	–	0.04 (1.81)	0.04 (1.97)	0.02 (0.79)	0.02 (0.88)
Log Gross Private Capital Flow over GDP (PPP)	–	–	–	-0.06 (-0.65)	-0.15 (-1.57)	-0.15 (-1.53)
Log M2 over GDP (PPP)	–	–	–	–	0.40 (2.77)	0.31 (1.62)
Log Gross Domestic Investment over GDP (PPP)	–	–	–	–	–	0.21 (0.66)
Number of Observations	83	76	77	77	77	77
Adjusted R squared	0.72	0.79	0.82	0.82	0.78	0.785

Note: t-statistics are in parentheses

Table 5.1.1 – Impact of Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data OLS regression

Dependent Variable : Log GDP (PPP) Growth Rate

Independent Variable / Regression Number	(7)	(8)	(9)	(10)	(11)	(12)
Constant	2.42 (16.22)	3.13 (9.89)	2.56 (17.64)	4.10 (8.93)	4.27 (8.08)	4.52 (2.86)
Log Gross Foreign Direct Investment over GDP (PPP)	–	-0.38 (-2.45)	–	-0.45 (-2.84)	-0.35 (-1.86)	-0.36 (-1.85)
Log Second School over Population x Gross FDI/GDP (PPP)	0.142 (3.25)	0.47 (3.68)	0.17 (4.17)	0.63 (4.46)	0.56 (3.20)	0.57 (3.08)
Log Second School Graduate over population	–	0.07 (2.98)	0.05 (2.18)	0.08 (3.45)	0.07 (2.48)	0.07 (2.46)
Log Gross Private Capital Flow over GDP (PPP)	–	–	–	-0.22 (-2.46)	-0.26 (-2.63)	-0.26 (-2.61)
Log M2 over GDP (PPP)	–	–	–	–	0.16 (1.09)	0.18 (1.0)
Log Gross Domestic Investment over GDP (PPP)	–	–	–	–	–	-0.05 (-0.16)
Number of Observations	76	76	76	76	76	77
Adjusted R squared	0.78	0.88	0.86	0.90	0.84	0.83

Note: t-statistics are in parentheses

Table 5.2 – Impact of Foreign Direct Investment on economic growth in selected Asian countries, using Pooled Cross Section 1980-1998 data OLS regression

Dependent Variable : GDP (PPP) Growth Rate

Independent Variable / Regression Number	(1)	(2)	(3)	(4)	(5)	(6)
Constant	6.14 (14.12)	6.40 (14.14)	5.45 (10.55)	5.80 (10.03)	2.79 (2.87)	0.43 (0.28)
Gross Foreign Direct Investment over GDP (PPP)	0.56 (2.09)	-0.96 (-0.43)	0.72 (2.38)	1.16 (2.14)	2.05 (3.72)	1.57 (2.74)
Second School over Population x Gross FDI/GDP (PPP)	–	18.67 (0.67)	–	–	–	–
Second School Graduate over population	–	–	0.63 (3.44)	0.67 (3.601)	0.28 (1.26)	0.23 (1.007)
Gross Private Capital Flow over GDP (PPP)	–	–	–	-0.20 (-1.19)	-0.58 (-3.0)	-0.52 (-2.75)
M2 over GDP (PPP)	–	–	–	–	29.33 (3.76)	17.97 (1.85)
Gross Domestic Investment over GDP (PPP)	–	–	–	–	–	0.13 (1.91)
Number of Observations	89	81	82	82	82	82
Adjusted R squared	0.38	0.34	0.51	0.52	0.45	0.47

Note: t-statistics are in parentheses

Chapter 11

Conclusion

This chapter is to conclude the results of this study and policy implication. This dissertation attempts to make contributions to economic knowledge as follows:

- To develop the time series data and across country regression framework which related to the impact of the composition of capital flows over GDP and economic growth.
- To explain how different types of capital flow effects economic growth in selected Asian countries.
- To explain the correlation among capital flows, level of financial liberalization, financial development, human capital and economic growth.

It is concluded from my empirical results that gross foreign direct investment has a key role in economic development process and immediate effects of gross foreign direct investment over GDP (gross FDI/GDP) on growth rate are quite strong. Besides, gross foreign direct investment over GDP has higher positive impact on growth than net foreign direct investment over GDP and these prove in both OLS regression and 2SLS regression results. Net foreign direct investment refers to inflows net of outflows and gross FDI refers only to inflows. Gross FDI facilitate the transfer of technology of managerial and technological know-how; in addition, we would not expect the outflow of foreign direct investment to involve a similar negative growth effects for the source country (loss of knowledge). While net foreign direct investment can augment private saving and help these countries reach higher rates of capital accumulation and growth.

Foreign direct investment has higher positive impact on growth than other types of capital flows. Economic policies should be more favorable to attract foreign direct investment (long-term commitment capital inflows) than to attract short-term capital flows or short-term debts. Our results also suggest that gross FDI is an important vehicle for the transfer of technology. Thus, gross FDI contributes more to economic growth when a sufficient absorptive capability (human capital) of the advanced technologies available in the host economy. The magnitude of the positive effects of gross FDI/GDP depends on other factors and the stock of human capital available in the host countries. The interaction between gross FDI/GDP and human capital has the strongest effects on economic growth. Overall, the results from these studies (table 5.1 and table 5.1.1) show strong complementary effects between gross FDI/GDP and human capital on the growth rate. This result is consistent with the idea that the flow of advanced technology brought along by FDI can increase higher growth rate of the recipient countries when interacting with that country's absorptive capability. The group of country results when the countries are divided into higher human capital countries and lower human capital countries is not relevant to our expectation. However, the regression results may be misleading since the samples are too small and the level of human capital are slightly different among selected countries in this study. Thus, it is difficult to clearly separate between higher and lower human capital countries in this study.

The results clearly support the first hypothesis (H1) that a positive relation exists between growth rate of GDP and the gross foreign direct investment over GDP. We can say that foreign direct investment leads to increase Asian growth. FDI brought additional resources such as technology, marketing and managerial know how and access to export market that were really needed in Asian countries. Many of them still have the need of these resources.

Both theory and empirical suggest that one has to keep an alert eye on debt composition and on the ratio of short-term external debt. Recent several studies show that the ratio of short-term debt to reserves is a robust predictor of financial crisis. Countries with short-term external debts to foreign banks that exceed reserves are three times more likely to experience a sudden and massive reversal in capital flows. Furthermore, greater short-term exposure is associated with more severe crises when capital flows reverse. Substantial evidence suggests that controls (of very different kinds) applied by countries such as Chile and Malaysia altered the maturity composition of loans from abroad without reducing the overall volume of flows. Lengthening of average maturity, as both many previous theoretical and empirical results shown, can reduce vulnerability to crises. Yet restraining short-term borrowing involves no free lunch, since in some circumstances both governments and private borrowers may have perfectly sound reasons for wanting to take on some short-term liabilities.

There is growing agreement that an excessive buildup of short-term debt was a proximate cause of the recent crises, particularly in East Asia. This study did not study the role of short-term debt in financial crisis however the regression results in this study showed that a negative relation exists between the growth rate of GDP and the short-term external debts over GDP but the results are insignificant. Almost all of the countries affected by the financial crisis and experienced negative growth during the last few years had one thing in common: large ratio of short-term foreign debt, whether public or private, to international reserves.

Recent evidence and most of previous studies tends to support the view that countries with more developed financial markets grow faster. The regression results in pooled cross section confirm the results. The regression results indicated that financial development is positively related with growth rate.

The findings related with the effects of financial liberalization on growth are uncelar. Do countries with more financial liberalization have higher growth? This is continued to be a long debate among economists. From the regression results of pooled cross section, we reject seventh hypothesis (H7). The regression results in OLS estimation show negative relation exists between the growth rate of gross domestic products and financial liberalization. Jose De Gregorio presented results of regressing per-capita GDP growth on financial integration indicators, and other regressors, but excluding the effect of financial depth on economic growth. Thus the financial integration indicator would capture the effects of financial development on growth. Three sets of regressions were run for each indicator. The dependent variable is the annual rate of growth of per capita GDP for the period 1976-1993. The results show that in general there is no correlation between financial integration and economic growth. Levine and Zervos (1995) find similar conclusion.

When the countries are divided into higher and lower income countries. The composition of FDI over GDP has stronger positive effects in lower income countries. The effects of both FPI over GDP and short-term external debts over GDP are insignificant and they are in line with pooled cross section results. When the countries are divided into higher and lower financial liberalization and financial development countries. The results from many previous studies show that financial development is closely associated with long-term growth. The results from many previous studies also indicated that there is no clear independence relationship between financial liberalization and economic growth. In general there is very low or no correlation between financial liberalization and growth. In this study, the composition of foreign direct investment over GDP in higher financial liberalization and financial development contributed more to economic growth than lower financial liberalization and financial development countries. All results related to the impact of FPI/GDP and short-term external debt over GDP are

insignificant when divided countries into two groups of lower and higher financial development and financial liberalization countries.

For maintaining and increasing economic growth rate and productive capital inflows, Asian countries need to stabilize the macroeconomic environment, improve human capital, facilitate financial development and gradually liberalize financial sector.

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Appendix A - List of Abbreviations

FD = Financial development

FL = Financial liberalization

FDI = Foreign direct investment

FPI = Foreign Portfolio investment

FDI/GDP = Foreign direct investment over gross domestic products

FPI/GDP = Foreign portfolio investment over gross domestic products.

GDP (PPP) = Gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the US dollar.

GDP = Gross domestic products

H = Human capital

I = Gross domestic investment (GDI)

IMF = International Monetary Fund

OLS = Ordinary Least-Square

2SLS = Two-Stage Least Squares

STED = Short-term external debt

STED/GDP = Short-term external debt over gross domestic products.

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The Impact of Capital Inflows on Asian Economic Growth

Dissertation directed by Professor Dominick Salvatore, Ph.D.

The dissertation attempts to explain the economic impact of capital inflow on Asian economic growth during 1980-1998 period. The study test the effects of foreign direct investment, foreign portfolio investment and short- term external debt in cross country regression framework, utilizing data on three different types of capital flows from foreign countries to selected Asian countries between 1980-1998. Foreign capital inflows play an important role in economic growth in Asian countries between 1980-1995.

There are several principle results emerge from my study. The results show a positive relation exists between economic growth and gross foreign direct investment over GDP and immediate effects of gross foreign direct investment over GDP on growth rate are quite strong. Foreign direct investment has higher positive impact on growth than other types of capital flows. Gross FDI is an important vehicle for the transfer of technology. Thus, gross FDI over GDP contributes more to economic growth when a sufficient absorptive capability or human capital of the advanced technologies available in the host economy.

Economic policies should be more favorable to attract foreign direct investment (long-term commitment capital inflows) than to attract short-term capital flows or short-term debts.

All regression results related to the impact of foreign portfolio investment and short-term external debt are insignificant in pooled data. However, the regression results confirmed that a negative relation exists between the growth rate of GDP and the short-term external debts over GDP in subgroup studies. Both theory and empirical suggest that one has to keep an eye on debt composition and on the ratio of short-term debt.

The results also confirm that financial development is positively related with growth rate. Recent evidence and most of previous studies tends to support the view that countries with more developed financial markets grow faster. The regression results in pool cross section confirm the results. While the findings related with the effects of financial liberalization on growth are unclear.

For maintaining and increasing economic growth rate and productive capital inflows, Asian countries need to stabilize the macroeconomic environment, improve human capital, facilitate financial development and gradually liberalize financial sector.

VITA

Anusorn Tamajai was born on March 2, 1966, in Phrae, the northern part of Thailand. He graduated from high school in 1985. In the fall of 1985, he entered the Faculty of Political Science, Chulalongkorn University in Bangkok, Thailand, where he received his Bachelor of Arts in Political Science (Public Administration) in 1989 with honors. He also served as president of Chulalongkorn Student Union and executive of the Federation of Thai students. He became a prominent student leader from various political campaigns that facilitate improvement of democratic process and quality of life in Thailand.

He worked as a journalist and worked in private sector before furthering his studies in the U.S.A. He joined the graduate program in M.B.A. at Southeastern University in the fall of 1991. He also served as coordinator of Thai Students Federation in U.S.A. and had a key role to fight against Thailand Dictatorship government in 1992. He got his MBA in 1992. He then joined the graduate program in Economics at Fordham University in the fall of 1993. He completed his MA courses in 1995 and also completed his Ph.D. course work in the spring 1996. While working towards his doctorate, he got a job as country economist and assistant vice president for Citibank in Thailand at the same time he also served as a special lecturer at leading university in Thailand and commentator for leading mass media.